DRAFT

ENVIRONMENTAL IMPACT REPORT

Volume II Appendices

FOR THE

RIVER WALK SPECIFIC PLAN

(SCH: 2021060098)

JANUARY 2024

Prepared for:

City of Riverbank, Development Services Department
6707 3rd Street
Riverbank, CA 95367
(209) 863-7128

Prepared by:

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De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm

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APPENDIX A

Notice of Preparation and NOP Comments

Notice of Preparation of an Environmental Impact Report and Scoping Meeting

Date:	June 4, 2021
Subject:	Notice of Preparation of an Environmental Impact Report and Scoping Meeting for the River Walk Specific Plan
To:	State Clearinghouse State Responsible Agencies State Trustee Agencies Other Public Agencies Organizations and Interested Persons
Lead Agency:	Donna Kenney, AICP MCRP, Planning and Building Manager City of Riverbank, Development Services Department 6707 3rd Street Riverbank, CA 95367 (209) 863-7124

Notice of Preparation: This is to notify public agencies and the general public that the City of Riverbank, as the Lead Agency, will prepare an EIR for the River Walk Specific Plan. The City of Riverbank is interested in the input and/or comments of public agencies and the public as to the scope and content of the environmental information that is germane to the agencies' statutory responsibilities in connection with the proposed Project, and public input. Responsible/trustee agencies will need to use the EIR prepared by the City of Riverbank when considering applicable permits, or other approvals for the proposed Project.

Comment Period: Consistent with the time limits mandated by State law, your input, comments or responses must be received in writing and sent at the earliest possible date, but not later than 5:00 PM, July 5, 2021.

Comments/Input: Please send your comments/input (including the name for a contact person in your agency) to: Attn: Donna Kenney at the City of Riverbank, 6707 3rd Street, Riverbank, CA 95367.

Scoping Meeting: Pursuant to Governor Newsom's Executive Order N-29-20, the City of Riverbank will hold a scoping meeting via video- and teleconference on June 17, 2021 to solicit input and comments from public agencies and the general public on the proposed Project and scope of the Environmental Impact Report (EIR). Members of the public are invited to participate in the Scoping Meeting via Zoom, which will be used to share information during the meeting. The City is requesting that you RSVP to Donna Kenney, Planning and Building Manager

dkenney@riverbank.org to obtain the link and/or telephone call-in instructions/information for the Zoom meeting.

The following provides a summary of the Project Location, Project Setting, Goals and Objectives, and Project Characteristics and Description. A more detailed discussion of the project, along with the figures, can be found at the City's website at http://www.riverbank.org/330/Applications-Forms. If you have any questions regarding the scoping meeting, contact Donna Kenney, Planning and Building Manager via email dkenney@riverbank.org.

Project Title: River Walk Specific Plan

1. **Project Location**

The proposed Project is located in the unincorporated area of Stanislaus County and adjacent to the City of Riverbank, north of Patterson Road/State Route (SR) 108, east of McHenry Avenue, and approximately two miles northwest of downtown Riverbank. Figures 1 shows **the Project's regional location and vicinity.**

The proposed Project includes a proposed Specific Plan, as well as a Sphere of Influence (SOI) Amendment. The entire Project Area includes approximately 1,522 acres within the unincorporated county adjacent to the City of Riverbank. The River Walk Plan Area includes a 993-acre area to be annexed and subsequently developed. The remaining land within the Project Area is part of the SOI Amendment, and would be held as Reserve land for possible long-range planning at some future time.

The overall Project Area includes several distinct planning boundaries defined below. The following terms are used throughout this DEIR to describe planning area boundaries within the Project Area:

- SOI Expansion Area – includes the proposed Sphere of Influence Amendment and encompasses the entire Project Area.
- Specific Plan Area - includes all lands identified and included within the River Walk Specific Plan. The Specific Plan Area is proposed to be annexed into the City of Riverbank as part of the proposed Project. The Specific Plan Area is a portion of the SOI Expansion Area.
- Berghill Boundary – includes areas within the Specific Plan Area that are controlled by the project applicant.
- Project area - includes the SOI expansion area, including the Specific Plan and Berghill Boundary. The Project Area is the same boundary as the SOI Expansion Area.

Project area boundaries are shown on Figure 2 and acreages associated with each area are shown in Table 1. As shown on Figure 2 and in Table 1, the proposed Project includes

approximately 1,522 acres encompassing: (1) the Specific Plan Area that includes a total of 993 acres, including the Berghill Boundary, and (2) the SOI Expansion Boundary, which makes up the entire Project Area.

TABLE 1: PLANNING AREA BOUNDARY ACREAGES

PLANNING AREA BOUNDARY	*ACRES (GIS)*
Specific Plan Area	993 acres
Overall Project Area	1,522 acres

2. Project Setting

The Project Area is made up of 59 assessor parcel numbers (APNs). Parcels within the Project Area are listed in Table 2 and displayed on Figure 3.

TABLE 2: PARCELS WITHIN THE PROJECT AREA

MAP ID	*APN*	*ACREAGE**	*MAP ID*	*APN*	*ACREAGE**
1	074-001-001	61.77	**31**	074-002-007	5.46
2	074-001-015	9.91	**32**	074-002-033	17.10
3	074-001-016	5.34	**33**	074-002-032	4.79
4	074-001-003	0.60	**34**	074-002-001	305.49
5	074-001-011	3.47	**35**	074-003-022	366.22
6	074-001-012	3.02	**36**	074-003-021	40.90
7	074-001-013	3.02	**37**	074-003-020	2.61
8	074-001-005	3.01	**38**	074-003-016	23.94
9	074-001-014	2.68	**39**	074-003-013	28.30
10	074-001-008	0.83	**40**	074-003-012	15.39
11	074-001-009	2.00	**41**	074-003-023	68.06
12	074-001-010	18.49	**42**	074-003-002	14.30
13	074-002-020	2.84	**43**	074-003-015	8.84
14	074-002-019	2.42	**44**	074-003-014	9.29
15	074-002-018	2.04	**45**	074-003-011	2.39
16	074-002-017	2.12	**46**	074-003-010	3.55
17	074-002-025	2.19	**47**	074-003-019	3.78
18	074-002-024	1.51	**48**	074-003-018	5.75
19	074-002-014	56.16	**49**	074-003-024	26.27
20	074-002-013	11.63	**50**	074-003-008	9.99
21	074-002-011	34.44	**51**	074-003-007	9.60
22	074-002-028	2.35	**52**	074-003-006	9.59
23	074-002-026	21.00	**53**	074-003-005	4.83
24	074-002-006	32.35	**54**	074-003-004	5.05
25	074-002-010	27.07	**55**	074-003-003	9.95
26	074-002-031	48.26	**56**	074-005-012	1.03
27	074-002-021	28.10	**57**	074-005-013	1.68
28	074-002-030	40.20	**58**	074-005-010	1.27
29	074-002-029	39.43	**59**	074-005-011	0.40
30	074-002-034	23.87			
Total 1,497.94					

NOTE ACREAGE INCLUDE LOTS ONLY AND DOES NOT INCLUDE ALL ROW AREA.

Site Topography: The Project Area topography ranges greatly in elevation from approximately 75 to 159 feet above sea level. The high area to the south and west is approximately 100 to 125 feet above mean sea level and acts as a ridge surrounding the lowland areas which are approximately 75 to 80 feet above mean sea level. There is a steep banked slope that separates the high and low areas. Other than the prominent steep sloping banked areas, the majority of the Project Area contains gentle slopes and is generally characterized as flat. Figure 4 shows the topography of the Project Area.

Existing Site Uses: The current uses in the Project Area are predominantly agricultural operations, including almond and walnut orchards in the eastern/southeastern portion of the Project Area and cherry orchards and fallow land in the western/central portion of the Project Area. The land in the north/northwestern portion of the Project Area contains fallow land and various trees including Eucalyptus and Willow trees. Twenty-five home sites and one-horse ranch exist within the Project Area and many of them have accessory structures on-site including storage buildings, shop buildings, and barn structures. The Project Area also includes a commercial nursery business and truck storage area. Additionally, an approximately 150-acre solar farm and the Modesto Rifle Club exist in the southwest portion of the Project Area directly northeast of the intersection of Patterson Road and McHenry Avenue, and the Morris Nursery exists in the southeastern corner of the Project Area directly northwest of the intersection of Patterson Road and Rock Creek Road. Figure 5 shows aerial imagery of the Project Area.

The Modesto Irrigation District (MID) provides the water supply for the existing agricultural uses and maintains two easements in the Project Area. A MID main canal with a crossing is located approximately 950 feet to the west and approximately 0.45 miles to the east of the intersection of Patterson Road and Coffee Road in the southern portion of the Project Area. The canal enters in the southwest portion of the Project Area and runs to the northeast eventually curving to exit the Project Area in the southeast. A series of private irrigation ditches and pipes distribute the MID water from the on-site canals throughout the Project Area for agricultural use.

Assessed uses as identified by the County Assessor include predominantly agricultural uses, with limited areas assessed by the County Assessor as single family residential, commercial, office and other miscellaneous uses. Figure 6 shows Assessed Land Uses within the Project Area as identified by the County Assessor.

Existing Surrounding Uses: Uses immediately adjacent to the southeast, south, southwest, and west of the Project Area include agricultural uses and limited residential uses, including ranchettes and large estate lots. Other nearby uses include residential subdivisions to the east within Riverbank and the unincorporated County, and to the west within the unincorporated County.

General Plan Land Use Designations and Zoning: The Project Area is currently located within Stanislaus County, and just outside the Riverbank city limits and SOI. The City of

Riverbank has identified much of the Specific Plan Area for urban development within their existing General Plan.

Existing City of Riverbank General Plan Land Use Designations: The City of Riverbank General Plan designates the Project Area as Lower Density Residential (0.0 to 8.0 du/ac), Medium Density Residential (8.0 to 16.0 du/ac), Higher Density Residential (16.0 or more du/ac), Mixed-Use, Civic, Park, Multi-Use Recreational/Resource, Buffer/Greenway/Open Space, Agricultural Resource Conservation Area, and Reserve. Table 3 shows the existing City land use designations and acreages for the Plan Area. Figure 7 depicts the existing City of Riverbank General Plan land use designations for the Project Area.

TABLE 3: EXISTING RIVERBANK LAND USE DESIGNATIONS WITHIN PROJECT AREA

LAND USE	*ACREAGE*
Agricultural Resource Conservation Area	517.17
Buffer/Greenway/Open Space	129.44
CANAL	20.68
Civic	15.79
Higher Density Residential (16+ units/Acre)	17.25
Lower Density Residential (0-8 units/Acre)	319.59
Medium Density Residential (8-16 units/Acre)	117.22
Mixed Use	51.45
Multi-Use Recreational/Resource	5.31
NO GP	2.26
Parks	14.79
Reserve	306.63
ROW	4.13
Total	**1,521.70**

The General Plan contains the following standards to guide development for these land uses:

Lower Density Residential (LDR): The LDR land use designation includes single-family homes, one to each lot, developed at a net density of up to eight dwelling units per acre. Lots would be at least 6,000 square feet in size. This category would primarily include detached units, but attached single-family units may be permitted, provided each unit has ground-floor living area and private outdoor open space.

Medium Density Residential (MDR): The MDR land use designation includes small-lot, single-family detached homes, attached single-family homes, and other residences developed at a net density of between eight and 16 dwelling units per acre. Lots would be at least 2,500 square feet in size.

Higher Density Residential (HDR): The HDR land use designation allows for all types of attached single-family and multi-family housing, including condominiums, apartment buildings, townhouses, and other similar residential structures developed at a net density of 16 or more dwelling units per acre.

Mixed-Use (MU): The MU land use designation would accommodate neighborhood-scale retail uses, offices, personal and commercial services, and similar land uses. This is the primary category for Riverbank to accommodate neighborhood-serving retail, services, offices, and similar needs during the buildout of this General Plan. As such, this land use classification is anticipated to be mainly non-residential. However, the MU designation also explicitly allows for higher-density residential development in a vertical or horizontal mixed-use setting. This could include residential development above (on upper stories of a building) or adjacent to commercial operations on the same property.

Civic (C): The C land use designation includes civic and cultural land uses of various types. Examples include schools, places of worship, public facilities and infrastructure, community halls, and similar cultural and civic land uses. Where such land uses occur within an existing or planned neighborhood, they shall be designed to be compatible with the surrounding neighborhood. They shall be designed to be pedestrian friendly, include publicly accessible areas (where appropriate), and shall unify rather than divide neighborhoods. Certain land uses included in this category, such as day care centers, public facilities and services, places of religious worship, and other appropriate land uses will be allowed in other land use designations, as well, according to standards established in Riverbank's zoning ordinance.

Park (P): The P land use designation includes active and passive parkland of all types. New and existing neighborhoods in Riverbank shall have close and convenient access to community parks, neighborhood parks, and smaller "pocket parks." This category can include public plazas, town squares, tot lots, parkways, linear parks, and other park space configurations.

Buffer/Greenway/Open Space (B/G/OS): This designation provides the opportunity to preserve important open spaces containing natural resources, such as sensitive biological habitat. This category also includes areas where buffering is necessary between different land uses. Bicycle and pedestrian pathways are also accommodated by this Land Use Designation.

Multi-Use Recreational/Resource (MUR/R): This designation would provide opportunities for stormwater management, renewable energy production, and community recreation amenities. This area would accommodate stormwater detention facilities, groundwater recharge areas, wind generators, solar collectors, wind breaks, as well as trails, benches, and other passive recreational uses.

Areas designated MUR/R could also act as a buffer between ongoing agriculture and new residential areas and provide an identifiable and permanent boundary to the outward expansion of the City. Areas designated MUR/R between new growth areas and ongoing agricultural operations will be identified and appropriate widths established through the Specific Plan. The width of MUR/R areas will vary depending on the intended uses taking place within a particular area. The width of the MUR/R for agricultural buffering purposes will be designed to minimize noise, dust, and any adverse impacts related to application of agricultural chemicals as experienced by encroaching residential uses.

Agricultural/Resource Conservation Area (AG): This designation provides for ongoing agricultural operations and land uses compatible with ongoing agricultural operations. Generally, this designation occurs in areas with large properties, where agricultural practices are more feasible. This designation also tends to occur in areas with high-quality soils (for cultivation purposes). Examples of land uses compatible with ongoing agricultural operations include equestrian uses, groundwater recharge areas, public infrastructure, farmer's market stands and other on-site sales of local produce, and farmworker housing.

Reserve (R): The Reserve category is intended for land that the City has not yet planned for a specific urban, agricultural, or resource land use.

Existing Stanislaus County General Plan Land Use Designations: The Stanislaus County General Plan designates the majority of the Project Area as Agriculture (AG), and a small portion (5 acres including APNs 074-005-012, 074-005-013, 074-005-010, 074-005-011) of the eastern portion of Project Area as Urban Transition (UT). The General Plan contains the following standards to guide development for these land uses:

Agriculture: The Agriculture land use designation recognizes the value and importance of agriculture by acting to preclude incompatible urban development within agricultural areas. The designation is intended for areas of land which are presently or potentially desirable for agricultural usage. These are typically areas which possess characteristics with respect to location, topography, parcel size, soil classification, water availability and adjacent usage which, in proper combination, provide a favorable agricultural environment. This designation establishes agriculture as the primary use in land so designated, but allows dwelling units, limited agriculturally related commercial services, agriculturally related light industrial uses, and other uses which by their unique nature are not compatible with urban uses, provided they do not conflict with the primary use.

Urban Transition: The purpose of the Urban Transition designation is to ensure that land remains in agricultural usage until urban development consistent with a city's (or unincorporated community's) general plan designation is approved. Generally, urban development will only occur upon annexation to a city, but such development may be appropriate prior to annexation provided the development is not inconsistent with the land use designation of the general plan of the affected city. If this is to occur, a change in the General Plan designation consistent with the adopted goals and policies to some other land use designation shall be required.

Existing Stanislaus County Zoning Designations: The Stanislaus County Zoning Ordinance currently designates the majority of the Project Area for General Agriculture 40 Acre (A-2-40) uses, and a limited portion (APNs 074-005-012, 074-005-013, 074-005-010, 074-005-011) as General Agriculture 10 Acre (A-2-10). The County Zoning Code contains the following standards to guide development for these designations:

General Agriculture 40 and 10 Acre (A-2): The A-2 zone supports and enhances agriculture as the predominant land use in the unincorporated areas of the County. These district

regulations are also intended to protect open-space lands pursuant to Government Code Section 65910.

Surrounding General Plan Designations: Lands surrounding the Project Area within the County generally consist of AG uses, with limited areas of Urban Transition (UT) and low density residential along the easternmost boundary.

Lands to the south (within the Riverbank city limits) are designated by the City for low density residential (LDR) uses. Areas along the easternmost boundary are designated by the City for LDR uses, with limited areas of Mixed-Use (MU) designated areas adjacent to the southeast corner of the Project Area.

3. Project Goals and Objectives

Consistent with CEQA Guidelines Section 15124(b), a clear statement of objectives and the underlying purpose of the proposed Project shall be discussed.

Overall Project Objectives: The principal objective of the proposed Project is the expansion of the City of Riverbank Sphere of Influence, and approval and subsequent implementation of the Specific Plan. The quantifiable objectives include expansion of the Riverbank Sphere of Influence by approximately 1,522 acres, annexation of approximately 993 acres into the Riverbank City limits, extension of infrastructure to the annexed area to serve development, and the subsequent development of the annexed area for: Low Density Residential, Medium Density Residential, High Density Residential, Mixed-Use, and Parks/Recreation, including all infrastructure and utilities necessary to service the development.

Specific Plan Objectives: The primary objectives of the Specific Plan are to establish the framework for a new mixed-use community, allowing residents to live in a community where they can enjoy a high quality of life with abundant opportunities for outdoor recreation and social activities. The following goals have been established as a framework to achieving the primary objectives for the Specific Plan:

- Goal 1: Develop a mix of residential housing products to accommodate a variety of desires in the market.
- Goal 2: Prioritize the age-restricted development as a vibrant community with diverse housing types and densities allowing residents to age-in-place.
- Goal 3: Develop a community core area that serves as a central community gathering place for social interaction, recreation, retail, services, and living space.
- Goal 4: Promote health and wellness through extensive pedestrian and bicycle trails, outdoor recreation areas, and opportunities for social interaction.
- Goal 5: Respect the natural resources (i.e., Stanislaus River), terrain, and character of land by designing a residential community that highlights the scenic views of the Plan Area.

- Goal 6: Achieve a safe and efficient circulation system for all users and modes of transportation.
- Goal 7: Highlight village identity while promoting community amenities.

The following quantifiable objectives for the Specific Plan are identified below:

- Development of up to 2,432 residential dwelling units within residential designations including:
    - 1,550 – Low Density Residential Units
    - 702 – Medium Density Residential Units
    - 180 – High Density residential Units
- Development of approximately 71 acres of Mixed-Use for the development in six specific areas offering neighborhood-scale retail uses, offices, personal and commercial services, with opportunities for higher-density residential development in a vertical or horizontal mixed-use setting.
    - MU-1 – Approximately 38 acres of general retail use, possibly shopping center with visitor serving uses, resulting in up to 420,000 square feet of space under a .25 FAR, or up to 350 residential units, assuming a development density of around 18 units to the acre.
    - MU-2 and MU-3 – Approximately 15 acres, of a retail use that can serve a passerby, as well as local residents (i.e., gas station, small restaurant, real estate sales, law firm, tax firm, medical/dental, etc.) resulting in up to 175,000 square feet of space under a .25 FAR.
    - MU-4 – Approximately 8 acres for an age-restricted active adult community clubhouse with a 20,000 square foot clubhouse building with fitness center, restaurant, lounge, event/meeting space, outdoor pool/spa, outdoor BBQ and seating area, tennis/pickle ball courts, bocce ball courts, community garden area, and other amenities.
    - MU-5 – Approximately 5 acres for an age-restricted active adult multi-story building with neighborhood retail uses on the first story and high-density housing or office on the second story. The first story uses would include small restaurants (i.e., coffee shop, deli, small office services). The first story is anticipated to have up to 110,000 square feet of building space. The second story is anticipated to have up to 110,000 square feet of building space, which could be up to 100 high density units, or commercial/retail serving uses, or a combination of both.
    - MU-6 – Approximately 4 acres of a retail use that can serve a passerby, as well as local residents (i.e., gas station, small restaurant, real estate sales, law firm, tax firm, medical/dental, etc.) resulting in up to 44,000 square feet of space under a .25 FAR.
- Development of approximately 244.9 acres of Park, Greenway, and Open Space.

4. Project Description

Project Entitlement Requests: The proposed project is the expansion of the City of Riverbank Sphere of Influence, and approval and subsequent implementation of the Specific Plan. The Sphere of Influence expansion covers approximately 1,522 acres. The Specific Plan covers approximately 993 acres of the Sphere of Influence expansion area, and includes an annexation into the Riverbank City limits, extension of infrastructure to the annexed area to serve development, and the subsequent development of the annexed area for: Low Density Residential, Medium Density Residential, High Density Residential, Mixed-Use, and Parks/Recreation, including all infrastructure and utilities necessary to service the development.

The proposed Project would require a City of Riverbank General Plan Amendment to change land uses in the Project Area. Table 4 shows the proposed land uses within the Project Area.

TABLE 4: PROPOSED GENERAL PLAN LAND USE DESIGNATIONS

PROPOSED LAND USE	*GIS ACRES*
BGOS - Bluff	66.8
BGOS - Canal	23.1
BGOS - River Park	69.8
Dual Use Park/Ponding Basin	41.0
HDR	10.0
LDR	365.5
MDR	54.4
Mixed Use	76.8
Park	44.2
Reserve	583.5
ROW	186.6
Total	**1,521.70**

Figure 7 illustrates the current Riverbank General Plan land uses within the Plan Area. Proposed General Plan land uses are shown on Figure 8. The proposed amendment to the City's Circulation Element would include relocation of certain planned roads identified in the General Plan.

This EIR analyzes the SOI Expansion area, and it is intended to be used by Stanislaus County Local Agency Formation Commission (LAFCo) for their consideration of the SOI amendment and annexation of the Specific Plan Area. LAFCo will require the Specific Plan Area to be pre-zoned by the City of Riverbank in conjunction with the proposed annexation request. The City's pre-zoning for the annexation area will include the Specific Plan (SP) zoning designation for the entire Specific Plan Area, and a small portion of Mixed-Use (CX-1) in the southeast potion of the Project Area and adjacent to the Specific Plan area. The remainder of the Project Area to the west would remain unassigned. The pre-zoning would go into effect upon a LAFCo annexation approval. The proposed pre-zoning for the Project Area is shown on Figure 9.

The Specific Plan requires adoption by resolution or ordinance, following public hearings before both the Planning Commission and the City Council. Additional entitlement applications that are necessary for the implementation of the Specific Plan may be made concurrently with the Specific Plan application, while others may follow. It is noted that the Environmental Impact Report is intended to be a project-level analysis of the Specific Plan area.

Specific Plan Characteristics: The Specific Plan is a Mixed-Use development project that provides for a range of residential housing densities, neighborhood-scale retail, commercial and health/medical services, private clubhouse, public recreation, a pedestrian/bicycle trail system, and extensive open space and landscaping. The Specific Plan provides an opportunity for an active adult community on a portion of the Specific Plan Area, with the remaining portion designed for all ages.

Residential: The Specific Plan provides for up to 2,432 dwelling units in 18 residential villages. A portion of the Specific Plan is designed as an age restricted active adult community, while a portion of the Plan is not age-restricted. The Specific Plan would result in the development of up to 1,550 Low Density Residential (LDR) units, up to 702 Medium Density Residential (MDR) units, and up to 180 High Density Residential (HDR) units within these 18 residential villages. Housing products would range from single family detached, accessory dwelling units (ADUs), duplexes, cluster homes, courtyard homes, alley loaded homes, motor courts, townhomes, condominiums, apartments, senior apartments, assisted living, or memory care. Densities would range from 0-8 units per acre under the Low Density Residential designation, 8-16 units to the acre under the Medium Density Residential designation, and 16+ units to the acre under the High Density Residential designation. Zoning for these villages would fall under the R-1, R-2, and R-3 designations. Table 5 provides a breakdown of each village.

Age-restricted Active Adult: The residential portion of the Specific Plan could include up to 13 villages that provide a location for age-restricted active adult development, each designed with varying anticipated housing product types and densities to offer flexibility and variation within an active adult community.

Any ADU in an age restricted portion of the Plan will exempt caretakers living in the unit from the age-restrictions.

Not Age-restricted: The residential portion of the Specific Plan provides for 5 villages planned for more traditional single-family development, each designed with varying anticipated housing product types and densities to offer flexibility and variation within the community.

Flexible Design Provision: The Specific Plan includes a flexible design provision to enable each residential village to be designed with a variety of housing products varying in lot and product sizes. Under this flexible design provision, the final design of villages may include up

to 25% of the lots designed at a density consistent with greater density products, as long as the average density does not exceed density allowed for the land use.

TABLE 5: RIVER WALK SPECIFIC PLAN RESIDENTIAL VILLAGE SUMMARY

VILLAGE	LAND USE	AGE RESTRICTED	LOT COUNTY
A	Low Density Residential	No	101
B	Low Density Residential	No	42
C	Low Density Residential	Yes	254
D	Low Density Residential	Yes	207
E	Low Density Residential	Yes	148
F	Low Density Residential	Yes	173
G	Low Density Residential	Yes	97
H	Medium Density Residential	Yes	157
I	High Density Residential	Yes	180
J	Medium Density Residential	Yes	227
K	Medium Density Residential	Yes	318
L	Low Density Residential	Yes	176
M	Low Density Residential	Yes	73
N	Low Density Residential	Yes	42
O	Low Density Residential	Yes	106
P	Low Density Residential	No	31
Q	Low Density Residential	No	51
R	Low Density Residential	No	49
Total	--	--	2,432

NOTES: DU/AC = DWELLING UNITS PER ACRE;

The proposed residential land uses are further described below:

Low Density Residential (LDR): The LDR designation is intended to provide primarily detached, single-family dwellings on a variety of lot sizes and neighborhood configurations. Lot sizes will vary, and are expected to range in size from 4,500 square feet and larger. The density within this category, however, ranges from 0-8 dwelling units per acre which allows for a variety of lot sizes.

Medium Density Residential (MDR): The MDR designation is intended to provide areas with smaller lot sizes for both attached and detached housing including but not limited to cluster homes, courtyard homes, motor courts and townhomes. Lot sizes will vary, and are expected to range in size from 2,500 square feet and larger. The density within this category, however, ranges from 8 to 16 dwelling units per acre which allows for a variety of lot sizes.

High Density Residential (HDR): The purpose of the HDR land use designation is to provide attached, single-family and multi-family housing, including condominiums, apartment buildings, townhouses, and other similar residential structures developed as a higher density residential option to residents of the Specific Plan area. The **"minimum" net density** allowed within the HDR designation is 16 dwelling units or more per acre. The average density in the Specific Plan is 18 units per acre within the HDR category.

Mixed-Use: The Mixed-Use portion of the Specific Plan would accommodate neighborhood-scale retail uses, offices, personal and commercial services, and similar land uses. This land use classification is anticipated to be mainly non-residential; however, the Mixed-Use designation also explicitly allows for higher-density residential development in a vertical or horizontal mixed-use setting. This could include residential development above (on upper stories of a building) or adjacent to commercial operations on the same property. Mixed-Use designated areas will be designed to be accessible, safe, and convenient for bicyclists, pedestrians, transit users, and drivers.

There are six different Mixed-Use areas, each with an anticipated type of end user. The total square footage is anticipated to be up to 880,000 square feet, or a variation of not less than 385,000 square feet with up to 450 High Density Residential units. For purposes of the environmental analysis, the modeling assumptions will be based on 644,000 square feet of retail/commercial and 275 residential units in this Mixed-Use category. Each Mixed-Use area is described below:

- **MU-1** – Given the larger size of this Mixed-Use area, combined with the accessibility/exposure to a higher traffic volume along Patterson Road, this is anticipated to be a general retail use, possibly shopping center with visitor serving uses. This land use does not have a specific FAR restriction, but it is anticipated that this site could develop up to 420,000 square feet of space under a .25 FAR if it were developed for strictly for commercial/retail. This Mixed-Use area could also provide high density residential uses for up to half of the area, about 300 to 350 units, assuming a development density of around 18 units to the acre. If high density residential development occurs, it will have a commensurate reduction in the square footage of retail uses provided. For purpose of this analysis, it is assumed that 75% of the development potential will be commercial/retail and 25% will be high density residential. This assumption equates to approximately 315,000 square feet of retail and approximately 175 residential units. It is noted that the existing uses are allowed to continue under the Existing Non-conforming standard noted at the end of this chapter.

- **MU-2 and MU-3** – Given the smaller size of these parcels (approximately 8 and 7 acres respectively), combined with the accessibility/exposure to a higher traffic volume along Patterson Road, these parcels are anticipated to be a retail use that can serve a passerby, as well as local residents. Example uses would include a gas station, small restaurant, or other visitor serving use. This area could also function as an office use for service providers. Examples of services provides could include real estate sales, law firm, tax firm, medical/dental, etc. Under a .25 FAR, these parcels could develop up to 175,000 square feet of space. This Mixed-Use area would not be anticipated to provide high density residential uses.

- **MU-4** – This is site is specifically located to serve as a clubhouse for the active adult community. The clubhouse is anticipated to include an approximately 20,000 square foot clubhouse building with fitness center, restaurant, lounge, event/meeting space, plus a variety of outdoor amenities including a pool/spa, outdoor BBQ and seating area,

tennis/pickle ball courts, bocce ball courts, community garden area, and other amenities. This clubhouse will serve as a focal point for the active adult community core. The roadway fronting this site will involve a modification to the major collector to slow traffic and create a community core feel with on-street diagonal parking, two travel lanes, landscape area, and a large pedestrian storefront walkway. This Mixed-Use area would not provide high density residential uses.

- **MU-5** – This approximately 5-acre site is specifically located to serve age-restricted active adult uses and, to complement other attractions planned in this focal area of the Specific Plan including the clubhouse, community park, and high density residential/assisted living housing. The buildings are anticipated to be multi-story with neighborhood retail uses on the first story and high-density housing or office on the second story. The first story uses would include small restaurants (i.e., coffee shop, deli, small office services). The first story is anticipated to have up to 110,000 square feet of building space, not including outdoor seating areas. The second story is anticipated to have up to 110,000 square feet of building space, which could be up to 100 age restricted high density units, or commercial/retail serving uses, or a combination of both. The roadway fronting this site will involve a modification to the major collector to slow traffic and create a community core feel with on-street diagonal parking, two travel lanes, landscape area, and a large pedestrian storefront walkway.

- **MU-6** – Given the smaller size of these parcels (approximately 4 acres), combined with the accessibility/exposure to a higher traffic volume along McHenry Avenue, these parcels are anticipated to be a retail use that can serve a passerby, as well as local residents. Example uses would include a gas station, small restaurant, or other visitor serving use. This area could also function as an office use for service providers. Examples of services provides could include real estate sales, law firm, tax firm, medical/dental, etc. Under a .25 FAR, these parcels could develop up to 44,000 square feet of space. This Mixed-Use area would not be anticipated to provide high density residential uses.

Parks and Open Space: The Specific Plan provides for the development park, greenway, and open space areas with a variety of passive and active recreational opportunities. The park and open space will fall into two different land use designations: Parks (P), and Buffer/Greenway/Open Space (B/G/OS). Each of these uses are described below:

Parks (P): This category includes active and passive parkland of all types. Neighborhoods shall have close and convenient access to community parks, neighborhood parks, and smaller "pocket parks." This category can include public plazas, town squares, tot lots, parkways, linear parks, and other park space configurations. The Park land use provides visual interest to the residents and visitors; provides connectivity amongst residences and land uses; creates gathering places for active and passive recreation; promotes walk-able, pedestrian-friendly neighborhoods; and preserves areas with existing natural resources (i.e., Stanislaus River) and natural topographic challenges. The Specific Plan includes an extensive network of Parks to serve the community. It is also noted that several stormwater basins

have been incorporated into the Specific Plan for storm drainage function, but are also intended to provide a dual use park opportunity.

Buffer/Greenway/Open Space (B/G/OS): This designation provides the opportunity to preserve important open spaces containing natural resources, such as sensitive biological habitat. This category also includes areas where buffering is necessary between different land uses. Bicycle and pedestrian pathways can be accommodated by this Land Use Designation. Within the B/G/OS category several subcategories are included including B/G/OS–Bluff, B/G/OS–Canal, and B/G/OS–River Park.

Reserve

Reserve: The Reserve category is intended for land that the City has not yet planned for a specific urban or resource land use. This area offers an opportunity to plan for future land uses by identifying specific criteria before development takes place in these areas. The Reserve designation does not denote any specific land use, but rather is an overlay designation that specifies additional requirements related to timing of development, analysis required by the City, infrastructure and service standards, and related topics. Before making Reserve areas eligible for consideration for urban development, the area would need to have a land plan developed and processed through the standard application process, including a detailed environmental analysis. Within the Specific Plan area, the Reserve designation is an area with an existing cherry orchard and is intended to remain under orchard use for the foreseeable future. As an alternative, the existing orchard area may be utilized as shallow flood storage to contain and infiltrate stormwater runoff from the project.

Specific Plan Entitlement Request: To enable the development of the land uses and zoning described above, the proposed Project includes a request for a General Plan Amendment, Specific Plan adoption, pre-zoning, and annexation of the entire Specific Plan Area as well as APNs 074-005-012, 074-005-013, 074-005-010, and 074-005-011. All other lands that are included within the SOI expansion area, but outside the Specific Plan area are not proposed for development at this time and thus are not included in the Specific Plan adoption, pre-zoning, or annexation request.

The Specific Plan estimates between 2,432 – 2,682 residential units, and 375,000 and 875,000 square feet of Mixed-Use for commercial, office, service, or retail use, as well as some transitional care facilities. A large portion of the Specific Plan is intended to be an age-restricted active adult community, while a portion will not be age restricted. Table 6 provides a land use summary of the Specific Plan. Figures 8 and 9 illustrates the land use and zoning designations. Figure 10 illustrates the layout of the villages.

TABLE 6: RIVER WALK SPECIFIC PLAN LAND USE SUMMARY

MAP SYMBOL	*ACREAGE*	*DENSITY RANGE*	*UNIT OR SF RANGE*
LDR – Low Density Residential	365.5	0 – 8 du/ac	1,550
MDR – Medium Density Residential	54.4	8 – 16 du/ac	702
HDR – High Density Residential	10.0	16 + du/ac	180
MU – Mixed-Use (outside of community core)	58.64	16 + du/ac 0.25 FAR	0 – 350 du 275,000-635,000 sf
MU – Mixed-Use (inside of community core)	5.06	16 + du/ac 0.50 FAR	0 – 100 du 110,000-220,000 sf
MU – Mixed-Use (Clubhouse)	8.0	0.50 FAR	20,000 sf
Park	44.2	N/A	N/A
B/G/OS - Bluff	66.8	N/A	N/A
B/G/OS - Canal	23.1	N/A	N/A
B/G/OS - River Park	69.8	N/A	N/A
Park - Ponding Basin	41.0	N/A	N/A
Reserve	60.2	N/A	N/A
ROW	186.6	N/A	N/A
TOTAL	**993.4**	--	**2,432 – 2,682 du 375,000 – 875,000 sf**

NOTES: SF = SQUARE FEET; DU/AC = DWELLING UNITS PER ACRE; FAR = FLOOR-AREA-RATIO; N/A = NOT APPLICABLE.
ASSUMPTION FOR ANALYSIS: MODELING ASSUMPTIONS WILL BE BASED ON 644,000 SQUARE FEET OF RETAIL/COMMERCIAL AND 275 RESIDENTIAL UNITS IN THE MIXED-USE LAND USES.

Other: Additional information regarding the proposed circulation, infrastructure, public services, and utilities is provided in the detailed Project Description that can be obtained on the City's website.

5. Uses of the EIR and Required Agency Approvals

City of Riverbank: The City of Riverbank will be the Lead Agency for the proposed Project, pursuant to the State Guidelines for Implementation of CEQA, Section 15050. Actions that would be required from the City include, but are not limited to, the following:

- Certification of the EIR;
- Adoption of the Mitigation Monitoring and Reporting Program;
- Approval of the City of Riverbank General Plan Amendments;
- Approval of the City of Riverbank Pre-zoning;
- Approval of SOI Amendment;
- Approval of a Municipal Services Review Update/Amendment;
- Approval of Annexation of the Specific Plan Area and APNs 074-005-012, 074-005-013, 074-005-010, and 074-005-011 into the City of Riverbank;
- Approval of Specific Plan;
- Approval of the Neighborhood Electric Vehicle Plan;
- Approval of Development Agreement;
- Approval of Vesting Tentative Maps;
- Annexation into city-wide Community Facilities District 2016-01 for impacts to roads, stormwater facilities, waste water facilities, etc.;

- Approval of future Final Maps;
- Approval of future Improvement Plans;
- Approval of future Grading Plans;
- Approval of future Site Plan and Design Review;
- City review, approval, and construction and utility plans;
- Approval of future Building Permits;
- Approval of future Conditional Use Permits.

Other Governmental Agency Approvals: The following agencies may be required to issue permits or approve certain aspects of the proposed Project. Other governmental agencies that may require approvals in connection with the Project include, but are not limited to, the following:

- Native American Tribal Consultation;
- Modesto Irrigation District (MID): Approval of roadway and utility pipeline crossings in at least two locations along the MID Main canal within the Specific Plan Area. Approval of a widening of Patterson Road at two existing crossings of the MID Main Canal. Approval of a roadway and utility pipeline crossing at the Spenker Drain. Approval of a stormwater discharge agreement to authorize discharge of stormwater into MID facilities.
- California Department of Fish and Wildlife (CDFW);
- California Department of Transportation (Caltrans);
- Central Valley Regional Water Quality Control Board (CVRWQCB) - Storm Water Pollution Prevention Plan (SWPPP) approval prior to construction activities pursuant to the Clean Water Act;
- Stanislaus LAFCO – Sphere of Influence Amendment, Municipal Services Review Update/Amendment, Annexation;
- San Joaquin Valley Air Pollution Control District (SJVAPCD) - Approval of construction-related air quality permits;
- State Water Resources Control Board (SWRCB);
- U.S. Fish and Wildlife Service (USFWS);
- U.S. Army Corps of Engineers (USACE).

6. Project Alternatives

The exact alternatives that will be evaluated in the Draft EIR will be determined through the Notice of Preparation and Scoping Process. Through preliminary discussions, there are four alternatives to the proposed Project that are being contemplated for evaluation in the Draft EIR. These include the following:

- **No Project (No Build) Alternative**: Under this alternative, development in the Plan Area would not occur, and the Plan Area would remain in its current existing condition.
- **Alternative Location:** This alternative would address potential impacts associated with development of the Project, as currently proposed by the applicant, at a location other than the currently proposed Plan Area.

- **Increased Density Alternative:** Under this alternative, the proposed Project would be developed with the same amenities as described in the Project Description, but the density of the residential uses would be increased.
- **No Age Restriction Alternative:** Under this alternative, the proposed Project would be developed with the same uses and overall footprint, but the areas designated for age-restriction would allow for all ages.

Areas of Potential Impacts: All environmental topics identified in Appendix G of the State CEQA Guidelines require analysis within an EIR. The Draft EIR will examine the following: Aesthetics, Agricultural and Forest Resources, Air Quality, Biological Resources, Cultural Resources, Energy, Geology/Soils, Environmental Justice, Greenhouse Gases/Climate Change, Hazards and Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Circulation, Tribal Cultural Resources, Utilities, Wildlife, and Cumulative Impacts, and Growth Inducing Impacts.

Initial Study: An Initial Study has not been prepared for this Project. All environmental topics identified in Appendix G of the State CEQA Guidelines will be analyzed in the EIR.

Date: June 4, 2021

Signature: Donna M. Kenney

Name/Title: Donna M. Kenney, Planning and Building Manager

Phone/Email: (209) 863-7124

dkenney@riverbank.org

STATE OF CALIFORNIA Gavin Newsom, Governor

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June 9, 2021

Donna Keeney, AICP
City of Riverbank
6707 3rd Street
Riverbank, CA 95367

Re: 2021060098, River Walk Specific Plan Project, Stanislaus County

Dear Ms. Keeney:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

CITY OF RIVERBANK
JUN 15 2021
DEVELOPMENT SERVICES

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

CITY OF RIVERBANK

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DEVELOPMENT SERVICES

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,



Sarah Fonseca
Cultural Resources Analyst

cc: State Clearinghouse

CITY OF RIVERBANK
JUN 15 2021
DEVELOPMENT SERVICES

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STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **GAVIN NEWSOM,** GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Ste. 170
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682

June 14, 2021

Ms. Donna Kenney
City of Riverbank
6707 3rd Street
Riverbank, CA 95367

Subject: Comments on the River Walk Specific Plan, Notice of Preparation of an Environmental Impact Report (SCH No. 2021060098)

Dear Ms. Kenney,

The Central Valley Flood Protection Board (Board) appreciates the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed River Walk Specific Plan. The NOP was prepared to disclose and address potential environmental impacts associated with the proposed project. The proposed project is located in Stanislaus County and involves construction of a bike trail and park within the Stanislaus River.

Responsibility of the Central Valley Flood Protection Board

The Board is the State's regulatory agency responsible for ensuring appropriate standards are met for the construction, maintenance, and operation of the flood control system that protects life, property, and habitat in California's Central Valley. The Board serves as the State coordinator between local flood management agencies and the federal government, with the goal of providing the highest level of flood protection possible to California's Central Valley.

The Board operates under authorities as described in California Water Code (Water Code), which requires the Board to oversee future modifications or additions to facilities of the State Plan of Flood Control (SPFC). In addition, pursuant to assurances provided to the United States Army Corps of Engineers (USACE) by the Board on behalf of the State, the USACE Operation and Maintenance Manuals, Code of Federal Regulations, Title 33, § 208.10, and United States Code, Title 33, § 408, the Board is responsible for the operation and maintenance of the SPFC facilities. The USACE requires the Board to serve as the lead non-Federal sponsor for projects to improve or alter facilities of the SPFC pursuant to Code of Federal Regulations, Title 33, § 408. The State's objectives include fulfilling the USACE's expectations pursuant to the assurances provided to the USACE.

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Encroachment Permit

Per California Code of Regulations, Title 23, Waters, Division 1 (Title 23), Section 6, approval by the Board is required for all proposed work or uses, including the alteration of levees within any area for which there is an Adopted Plan of Flood Control within the Board's jurisdiction. In addition, Board approval is required for all proposed encroachments within a floodway, on adjacent levees, and within any Regulated Stream identified in Title 23, Table 8.1. Specifically, Board jurisdiction includes the levee section, the waterward area between project levees, a minimum 10-foot-wide strip adjacent to the landward levee toe, the area within 30 feet from the top of bank(s) of Regulated Streams, and inside Board's Designated Floodways. Activities outside of these limits which could adversely affect Federal-State flood control facilities, as determined by Board staff, are also under the Board's jurisdiction. Permits may also be required for existing unpermitted encroachments or where it is necessary to establish the conditions normally imposed by permitting, including where responsibility for the encroachment has not been clearly established or ownership or uses have been changed. This proposed project is located within the Board's permitting authority, thereby requiring an encroachment permit.

Federal permits, including USACE Section 404 and Section 10 regulatory permits and Section 408 Permission, in conjunction with a Board permit, may be required for the proposed project. In addition to federal permits, state and local agency permits, certification, or approvals may also be required. State approvals may include, but are not limited to, California Department of Fish and Wildlife's Lake and Streamed Alteration Agreement and Regional Water Quality Control Board's Section 401 Water Quality Certification. The Applicant must obtain all authorizations that the proposed project may require.

Flood Impacts Analysis

Pursuant to Section 15 of Title 23, the Board may deny an encroachment permit if the proposed project could:

- Jeopardize directly or indirectly the physical integrity of levees or other works;
- Obstruct, divert, redirect, or raise the surface level of design floods or flows, or the lesser flows for which protection is provided;
- Cause significant adverse changes in water velocity or flow regimen;
- Impair the inspection of floodways or project works;
- Interfere with the maintenance of floodways or project works;
- Interfere with the ability to engage in flood fighting, patrolling, or other flood emergency activities;
- Increase the damaging effects of flood flows;
- Be injurious to, or interfere with, the successful execution, functioning, or operation of any adopted plan of flood control; or
- Adversely affect the State Plan of Flood Control, as defined in the California Water Code.

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As a responsible agency under the California Environmental Quality Act (CEQA), the Board will need to have adequate information in order to evaluate whether to issue a permit at a future date. Accordingly, please be prepared to provide specific analyses to determine if the proposed project could result in any potential impacts listed above. This includes direct impacts to facilities under construction, as well as indirect impacts from the project to surrounding facilities. This encompasses any proposed work that contemplates modifications to a SPFC Facility, Lower San Joaquin Levee District Facility, or operation of any adopted plan of flood control or the hydrology of the water ways including increases or decreases in water surface elevation due to construction activities and encroachments; any work including dewatering and vibrations from both pile driving and heavy machinery that may destabilize the SPFC levees; and potential levee damage resulting from heavy machinery construction activities and associated haul routes. It is therefore recommended that the environmental document include a specific flood facility impacts analysis section.

Document Specific Comments

According to p. 31 “Other Governmental Agency Approvals” the Central Valley Flood Protection Board’s encroachment permit was not shown as an approval that may be required.

- Title 23 provides standards that govern the design and construction of projects that affect the flood control works and floodways. Board staff recommends that you review Title 23 Standards, including Sections 115 (Dredged, Spoil, and Waste Material), 120 (Levees), 130 (Patrol Roads and Access Ramps), and 132 Bicycle Trails. Any deviation (or variation) from these standards will require approval from the Board.

Closing

The potential risks to public safety, including increased flood risks, need to be considered when developing proposed projects that seek to modify flood control works or the hydrology of the water ways. Board staff is available to discuss any questions you have regarding the above comments. Please contact James Herota at (916) 574-0651, or via email at James.Herota@CVFlood.ca.gov if you have any questions.

Sincerely,

Andrea Buckley

Andrea Buckley
Environmental Services and Land Management Branch Chief

ec: Office of Planning and Research

DocuSign Envelope ID: F992D828-2CAD-4811-B3AD-4323A51FE37C

State.Clearinghouse@opr.ca.gov

James Herota
James.Herota@cvflood.ca.gov

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

June 15, 2021

Ms. Donna Kenney, AICP
City of Riverbank
6707 3rd Street
Riverbank, CA 95367
DKenney@riverbank.org

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR RIVER WALK SPECIFIC PLAN – DATED JUNE 2021 (STATE CLEARINGHOUSE NUMBER: 2021060098)

Dear Ms. Kenney:

The Department of Toxic Substances Control (DTSC) received a Notice of Preparation of an Environmental Impact Report (EIR) for River Walk Specific Plan (Project). The Lead Agency is receiving this notice from DTSC because the Project includes one or more of the following: groundbreaking activities, work in close proximity to a roadway, work in close proximity to mining or suspected mining or former mining activities, presence of site buildings that may require demolition or modifications, importation of backfill soil, and/or work on or in close proximity to an agricultural or former agricultural site.

DTSC recommends that the following issues be evaluated in the EIR Hazards and Hazardous Materials section:

1. The EIR should acknowledge the potential for historic or future activities on or near the project site to result in the release of hazardous wastes/substances on the project site. In instances in which releases have occurred or may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s) to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.

2. Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance. This practice did not officially end until 1992 when lead was banned as a fuel additive in California. Tailpipe emissions from automobiles using leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the state. ADL-contaminated soils still exist along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities. Due to the potential for ADL-contaminated soil DTSC, recommends collecting soil samples for lead analysis prior to performing any intrusive activities for the project described in the EIR.

3. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the EIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook.

4. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers*.

5. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to *DTSC's 2001 Information Advisory Clean Imported Fill Material*.

6. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)*.

DTSC appreciates the opportunity to comment on the EIR. Should you need any assistance with an environmental investigation, please submit a request for Lead Agency Oversight Application. Additional information regarding voluntary agreements with DTSC can be found at DTSC's Brownfield website.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,



Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Questions for the Scoping Meeting June 17, 2021 via Zoom at 5.30 pm to 6.30 pm

1. Since the NOP's purpose is to notify public agencies and the general public that the City of Riverbank will prepare an EIR for the River Walk Specific Plan, how was this accomplished? Other than the Reviewing Agencies mentioned on the River Walk Specific Plan, how was the public noticed of this meeting. Was a notice was posted @1711 Patterson Road, Riverbank, CA. Did residences abutting the site location get a notice? Newspaper notices? City Hall?

2. What is/are the APN/'s for the Berghill Boundary?

3. Considering the 1552 acres of AG unicorporated area included in this application and the July 5th deadline for the comments, is it possible to contact Riverbank's Consultants directly to expedite clarification of some items in this Specific Plan and expansion of the SOI.

Thank you,

Annabel Gammon

209 595 0208

JUNE 21, 2021

VIA EMAIL: DKENNEY@RIVERBANK.ORG
Donna Kenney, Planning and Building Manager
City of Riverbank
Development Services Department
6707 3rd Street
Riverbank, CA 95367W

Dear Ms. Kenney:

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE RIVER WALK SPECIFIC PLAN, SCH#2021060098

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation of an Environmental Impact Report for the River Walk Specific Plan (Project). The Division monitors farmland conversion on a statewide basis, provides technical assistance regarding the Williamson Act, and administers various agricultural land conservation programs. We offer the following comments and recommendations with respect to the project's potential impacts on agricultural land and resources.

Project Description

The proposed project includes a proposed Specific Plan, as well as a Sphere of Influence (SOI) Amendment. The entire project area includes approximately 1,522 acres within the unincorporated county adjacent to the City of Riverbank. The River Walk Plan Area includes a 993-acre area to be annexed and subsequently developed. The remaining land within the project area is part of the SOI amendment, and would be held as reserve land for possible long-range planning at some future time.

The project is located in the unincorporated area of Stanislaus County and adjacent to the City of Riverbank, north of Patterson Road/State Route108, east of McHenry Avenue, and approximately two miles northwest of downtown Riverbank. The project site currently contains: Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as designated by the Department of Conservation's Farmland Mapping and Monitoring Program.[1] The site also contains lands under Williamson Act contract.

[1] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, https://maps.conservation.ca.gov/DLRP/CIFF/

Department Comments

Although conversion of agricultural land is often an unavoidable impact under CEQA analysis, feasible alternatives and/or feasible mitigation measures must be considered. In some cases, the argument is made that mitigation cannot reduce impacts to below the level of significance because agricultural land will still be converted by the project, and therefore, mitigation is not required. However, reduction to a level below significance is not a criterion for mitigation under CEQA. Rather, the criterion is feasible mitigation that lessens a project's impacts. As stated in CEQA statue, mitigation may also include, "Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements."[2]

The conversion of agricultural land represents a permanent reduction in the State's agricultural land resources. As such, the Department advises the use of permanent agricultural conservation easements on land of at least equal quality and size as partial compensation for the loss of agricultural land. Conservation easements are an available mitigation tool and considered a standard practice in many areas of the State. The Department highlights conservation easements because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation.

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model policies and a model local ordinance. The guidebook can be found at:

http://www.calandtrusts.org/resources/conserving-californias-harvest/

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered.

[2] Public Resources Code Section 15370, Association of Environmental Professionals, 2020 CEQA, California Environmental Quality Act, Statute & Guidelines, page 284, https://www.califaep.org/docs/2020_ceqa_book.pdf

Conclusion

The Department recommends further discussion of the following issues:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measures for all impacted agricultural lands within the proposed project area.
- Projects compatibility with lands within agricultural preserves and/or enrolled in a Williamson Act contract.

Thank you for giving us the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the River Walk Specific Plan Project. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner via email at Farl.Grundy@conservation.ca.gov.

Sincerely,

Monique Wilber

Monique Wilber

Conservation Program Support Supervisor

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Monday, June 21, 2021 3:38 PM
To: smcmurtry@denovoplanning.com
Subject: FW: 2021 Modesto-Stanislaus Infrastructure #11

Here you go…

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Scott Murray <scottm95350@comcast.net>
Sent: Monday, June 21, 2021 3:35 PM
To: mayor <mayor@modestogov.com>; COUNCIL <council@modestogov.com>; chiesa, vito <vito.chiesa@stancounty.com>; withrowt <withrowt@stancounty.com>; grewalm@stancounty.com; conditb@stancounty.com; conditc@stancounty.com; assemblymember flora <assemblymember.flora@assembly.ca.gov>; Representative Josh Harder <CA10JHima@mail.house.gov>; hayesj@stancounty.com; Donna M. Kenney <dkenney@riverbank.org>; Jackman, Denny <dennyjackman@gmail.com>; tritchey@modbee.com; bclark@modbee.com; Garth Stapley <gstapley@modbee.com>; etracy@modbee.com; jalopez@modbee.com; jfarrow@modbee.com; jholland@modbee.com; Josh Bridegroom <josh@domopartnership.org>; jsilva@modbee.com; kcarlson@modbee.com; kkarisch@modbee.com; klam@modbee.com; kvaline@modbee.com; ldickerson@galloarts.org; mfigueroa@modbee.com; mrowland@modbee.com; pclark@modbee.com; rahumada@modbee.com; pguerra@modbee.com
Subject: 2021 Modesto-Stanislaus Infrastructure #11

To all addressees:

This is the 11th in a series of suggestions for our local Modesto area transportation and growth infrastructure needs. While I still have additional topics to address in later emails, today's email is a good as any to address what I read in the Sunday Bee front page regarding Riverbank's land grab to the north of Modesto - and I'll also take this opportunity to address Modesto's sphere of influence and growth in general. I'm adding Donna Kenney, the City of Riverbank Building Manager mentioned in the news article and Denny Jackman, leader of the Farmland Working Group also mentioned in the article - to the addressee list for this specific email.

RE: "Riverbank proposes to add 2,400 homes out to McHenry Avenue", by John Holland, Modesto Bee, Sunday 06/20/21, Page 1A.

My first comment about this would be to those who are proposing this: *Are you out of your collective minds?*

My next comments are to the Modesto city council. I don't think our mayor is capable of addressing this issue so I'm hoping that one or two or more of you council members will grow a pair and stand up to this land grab proposal by the City of Riverbank. First of all, McHenry Ave is Modesto. No matter how far north to the San Joaquin County line, repeat, McHenry Ave is Modesto. Period. You need to send a message to Riverbank to KEEP OUT. Riverbank should not be allowed to encroach any further west than Coffee Rd. If the land up McHenry to the north as far as the Stanislaus River is ever developed, it should be by Modesto - not Riverbank. However, I support the effort to keep it agriculture into perpetuity. Development by Modesto should extend no further north than a quarter mile north of the proposed NCC in order to take advantage of retail, commercial and industrial development on both sides of the NCC - since jobs have been the justification for CA-219 build-out by the NCC proponents from the beginning. All lands a quarter mile north of the NCC and to the Stanislaus River should be protected from growth by either city.

And this brings up the next parasitic entity infringing on Modesto's borders, Salida. In order for Salida to incorporate as a city and have a big enough tax base to support the necessary services, they would need to extend their borders deep into Wood Colony (they've been lying to those in Wood Colony that they support preservation of Wood Colony farm land), and they would need to extend eastward well past Dale Rd. In fact, they too would probably like to extend as far east as they can and meet Riverbank at McHenry Ave while gobbling up the Del Rio neighborhood on their march of urbanization.

So the ongoing Salida problem in general needs to be addressed also. I've mostly supported the City of Modesto annexing Salida and wiping it off the map - especially after the despicable foul mouthed behavior and disrespectful attitudes expressed by the Salida MAC and Salida residents toward the City of Modesto officials a few years back when this idea was brought up for the umpteenth time. Salida was never supposed to grow into what it has become today and the plans for annexation by Modesto have been stalled by former Stanislaus BOD members who saw the greed in turning Salida into a bedroom community for Modesto - and the Bay Area. Modesto should annex Salida and everything to the west of Sisk Rd to the Stanislaus River. Salida can still retain some identity with it's zip code - similar to what LA communities like Hollywood, Woodland Hills and Van Nuys, etc etc. have. So they can still have their mail sent to their "Salida" addresses if that's what makes them happy.

Modesto should hire better planners than what they have today and turn the vacant land at the Hammett Rd interchange into something that makes a real statement and positive impact on this gateway to Stanislaus County - not some rinky dink truck stop and strip mall as currently proposed by visionary challenged planners for the county. An attractive mid-rise office and/or hotel towers of 10 floors or more would draw the attention to the region it deserves. The Stanislaus river canyons from the existing Caswell State Park to Riverbank and beyond needs to be protected - probably as a Regional or State Park - with bike and hiking access similar to the American River Parkway in Sacramento County. And it should be for the tax paying public this time - not the lawless filth that homeless camps bring - where the hell are the "environmentalists" when we actually need them? Oh, right. They too have been silenced by the cancel culture and the Democratic Party bullies as well. After all, it's now considered racist to have a clean environment and safe parks for the remaining "white nationalist" middle class in California that has not yet fled the state.

The land on both sides of the CA-219/NCC corridor needs to be developed in an attractive manner - or not developed at all. Please please I beg all of you - do not attract or approve development of

these massive warehouse and distribution centers that have and are tragically raping our landscape along the Highway 120-Manteca and Highway 205-Tracy corridors. It's a shame what has happened - and so fast - to those corridors in just the past 18 months. I guess the conclusion here would be that massive warehouse and distribution centers that gobble up massive amounts of land in an inefficient manner - that are limited on jobs and heavy on robotics - is not racist. While on the subject of which I know nothing about, why can't these warehouses - using all these robotics - stack their inventory higher and use less square footage so that land use can be more efficient? Oops. Asking that question probably makes me racist.

Modesto-East. Most of Modesto's future growth should be focused to the east - where it is said - that soils are less fertile. So as I've already proposed in past emails, Modesto should plan it's growth south of Claribel to the east to Albers Rd, and south to Dry Creek or even to Highway 132/Yosemite Blvd. However, this growth should depend on whether or not Briggsmore Ave is improved and the Faith Home/Claus Rd. corridors are upgraded as I outlined several emails ago. Wood Colony to the west should remain off limits.

Modesto-South. A lot of clean-up to be done here. A lot of county pockets that need to be brought up to city standards and then annexed to Modesto. Ceres has been allowed to encroach all the way to Crows Landing Rd. That should never have been allowed to happen. They should have been contained to the area east of the Union Pacific RR Tracks. Modesto needs to take back the area west of Herndon Rd. up South 9th St. into it's sphere of influence. Modesto needs to control what goes along the south bank of the Tuolumne River across from it's downtown on the north side. As I've stated before to the Council: *Get Ceres out of Modesto's ass.* Ceres will never clean up the south bank of the river or South 9th St if they were to annex that area. It's always going to be a dump unless Modesto takes responsibility and brings forth a redevelopment plan. We need to get rid of the drug whoretels, junkyards and homeless camps that ruin the potential for this area.

I will address the river and Modesto's downtown in a future email. But I want to bring up the old tallow plant parcel on Zeff/Crows Landing Rd. once again. Again, this is another gateway opportunity into Modesto that we need to make a signature statement to travelers along Highway 99 (future I-9) as they pass in and out of the city. Again, a 10 story or more hotel-office complex along the river that would put a positive spin about the city and make an impression that "they are in Modesto" in a good way. At one point, a small credit union for the Hispanic community was proposed. Seriously? That's the best we can do? Even in Tijuana or Mexico City, they would do a lot better than that for a prime parcel of land like that. How about a credit union on the first floor of a 10 or more story building?

We can do better. We don't always have to settle for less.

BACK THE BADGE. DEFUND BLM. A PRESIDENT WITHOUT DEMENTIA FOR 2024 AS LONG AS IT'S NOT SOMEONE NAMED KAMALA HARRIS OR HAVE A "D" AFTER THEIR NAME.

//Scott Murray
Modesto city resident, District 1
Stanislaus County District 3

"Come to Modesto. We Settle For Less. And So Can You."

"Visit California. Or Not. Progressive Dystopia. Liberal Caliphate. Land of the Politically Insane. Home to multi-millionaire Botox and Namenda dependent Democratic career politicians - Nancy Pelosi and Maxine Waters, the Clown Caucus of Adam Schiff and Eric Swallwell, and soon to be recalled White House wannabe Gov. Gavin Newsom. We're the pride of the 9th Circuit and the

birthplace of Silicon Valley Sharia. The proud capitol of Cancel Culture. Drive our crumbling Interstates - especially I-10 and I-40, and see first hand our middle class tax base fleeing eastward to Texas and Florida in their hard to get U-Hauls. Welcome to Woketopia. Welcome to California Values."

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, June 29, 2021 7:44 AM
To: Denny Jackman
Cc: Ana Ringsted; Chance Carrico; E. Timothy Parker; Elizabeth Mullen; Erica Stewart; Jeani Ferrari; Lori and Dwight Wolf; Matt Beekman; Annie Gammon; Cal Campbell; Darlene Barber-Martinez; Luis Uribe; Richard O'Brien; Rachel Hernandez; smcmurtry@denovoplanning.com
Subject: RE: Riverbank River Walk Project -NOP response

D. Jackman

Received and forwarded to the consultant. Thank you.

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Denny Jackman <dennyjackman@gmail.com>
Sent: Monday, June 28, 2021 6:12 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Cc: Ana Ringsted <aringsted01@hotmail.com>; Chance Carrico <chance.carrico@gmail.com>; E. Timothy Parker <planz2@aol.com>; Elizabeth Mullen <elizabeth.mullen@gmail.com>; Erica Stewart <ericastewart1996@gmail.com>; Jeani Ferrari <jferraridesign@gmail.com>; Lori and Dwight Wolf <lori_wolf52@yahoo.com>; Matt Beekman <mattbeekman@gmail.com>; Annie Gammon <annabel.gammon@gmail.com>; Cal Campbell <ccampbell@riverbank.org>; Darlene Barber-Martinez <dbmartinez@riverbank.org>; Luis Uribe <luribe@riverbank.org>; Richard O'Brien <robrien@riverbank.org>; Rachel Hernandez <rhernandez@riverbank.org>
Subject: Riverbank River Walk Project -NOP response

D. Kenney,

Please include this response/questions/opposition to the proposal.

1. Specifically identify the source of the water for urban uses and who is expected to pay for those costs. I am opposed to a proposal that is designed to take water away from existing, approved users that have been included in approved plans. Without a new water source, existing ratepayers will carry a new cost and ration existing allocations.

2. Specifically identify the productive farmland values to be eliminated for the entire project, and the mitigation proposed. The proposed area for urbanization took 3.5 million years to flood and recede, flood and recede, to form the quality of soils existing.

3. Specifically identify the need for the project size as it relates to the City of Riverbank and if it is compatible with the SOI that currently exists based on the review made during the SOI request/approval in July 2016. There are over 1783 acres outside the city, within the primary SOI and many undeveloped acres within the City limits, according to Stanislaus LAFCO reports, June 2020.

4. Specifically identify the impacts of this project concerning the removal of vegetation from the farms and the elevated sources of greenhouse gas emissions expected by its urban replacements. Are there offsets proposed?

Thank you.

Dennis V. Jackman
504 Laurel Avenue
Modesto, CA 95351

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, June 29, 2021 4:26 PM
To: Wona Rosier-Arauz
Cc: Osha Meserve; smcmurtry@denovoplanning.com
Subject: RE: River Walk Notice of Preparation 6/4/21

Received and shared with the CEQA consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Wona Rosier-Arauz <Wona@semlawyers.com>
Sent: Tuesday, June 29, 2021 4:08 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Cc: Osha Meserve <Osha@semlawyers.com>
Subject: River Walk Notice of Preparation 6/4/21

Good afternoon,

We are writing to let you know that we will be preparing comments to the River Walk Notice of Preparation dated June 4, 2021, by 5 pm on July 6, 2021, since July 5, 2021, is the State of California's observance of Independence Day (CCP 12a).

Sincerely,

Wona Rosier-Arauz
Legal Assistant
Soluri Meserve, A Law Corporation
510 8th Street
Sacramento, CA 95814
☎ *tel:* 916.455.7300 ▪ 🖷 *fax*: 916.244.7300 ▪ ✉ *email*: wona@semlawyers.com
This email and any attachments thereto may contain private, confidential, and privileged material for the sole use of the intended recipient.

Stanislaus
LAFCO
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June 29, 2021

Donna Kenney, Planning and Building Manager
City of Riverbank
6707 3rd Street
Riverbank, CA 95367

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE RIVER WALK SPECIFIC PLAN

Dear Ms. Kenney:

Thank you for the opportunity to review the Notice of Preparation of an Environmental Impact Report (EIR) for the River Walk Specific Plan. As Lead Agency, the City of Riverbank is responsible for considering the effects, both individual and collective, of all activities involved in the project (Public Resources Code §21000 et seq). LAFCO, as a Responsible Agency, will utilize the CEQA documents prepared by the City in reviewing the proposed sphere of influence expansion and annexation.

The project proposes to expand the City's Sphere of Influence by 1,535 acres and annex approximately 1,000 acres. The following comments are provided for the City's consideration:

Sphere of Influence Policies

Stanislaus LAFCO's policies describe a Sphere of Influence as "the area around a local agency within which territory is eligible for annexation and the extension of urban services within a twenty-year period." Stanislaus LAFCO also adopts a Primary Area within the Sphere of Influence, representing the City's short-term growth area. Lands within the Primary Area are eligible for annexation and extension of urban services within a zero to ten-year period. Territory between an adopted Primary Area and Sphere of Influence is considered a transition area, anticipated to need services within ten to twenty years.

Consistency with these timeframes are a concern, as LAFCO recently approved an expansion of the City of Riverbank's Sphere of Influence in 2016, adding approximately 1,479 acres intended to accommodate the City's growth over the next 20 years. The City subsequently annexed approximately 400 acres of this area in 2019 for residential and commercial uses (known as Crossroads West).

In addition to the timeframes above, State law and locally-adopted LAFCO policies contain numerous provisions that are intended to prevent sprawl and encourage logical growth when considering Sphere expansions. The EIR should include a discussion regarding these policies, including those highlighted below:

- Amendment proposals involving Sphere expansion which contain prime agricultural land will not be approved by LAFCO if there is sufficient alternative land available for annexation within the existing Sphere of Influence. The City's analysis should identify

undeveloped areas already within the City limits and Sphere of Influence that could be developed with similar uses.

- Territory not in need of urban services, including open space, agriculture, non-protested, or protested and not upheld Williamson Act contracted lands, shall not be assigned to an agency's sphere of influence, unless the area's exclusion would impede the planned orderly and efficient development of this area.

- Sphere of influence boundaries shall, to the extent possible, maintain a separation between existing communities to protect open space and agricultural lands and the identity of an individual community.

As proposed, the City's Sphere of Influence would extend along the Stanislaus River to McHenry Avenue, adjacent to development in the unincorporated Del Rio community area. The EIR should also discuss how the proposal relates to overall regional planning for the area. If both the City and County's plans were developed to their extents, no separation of communities or agricultural land would remain north of Patterson and Ladd Rd in this area of Stanislaus County.

City-County Meeting Requirement

An expansion of a sphere of influence triggers a requirement for City of Riverbank representatives to meet with the County to discuss the proposed sphere and explore methods to reach agreement on its boundaries, development standards, and zoning requirements within the sphere (Government Code Section 56425b). This must occur prior to application to LAFCO for a sphere of influence modification. If an agreement is reached, LAFCO is required to give great weight to that agreement in the consideration of any proposed sphere of influence. If no agreement is reached, an application may be submitted and the Commission shall consider a sphere of influence for the City consistent with the policies adopted by the Commission.

Agricultural Resources

One of LAFCO's main charges, as put forth by the Legislature, is to protect and promote agriculture. LAFCO's policies state that development should be guided away from agricultural lands, including prime agricultural land. It appears that the majority of the 1,535-acre sphere of influence expansion area is also considered prime farmland. The EIR's analysis of impacts to agricultural lands should describe not only those lands categorized on the Department of Conservation's Important Farmland Map, but also those lands that fall within the LAFCO definition of prime agricultural land (Government Code Section 56064). The EIR should also identify a range of alternatives to the proposal, including alternatives that focus on lands already within the sphere of influence and non-prime lands.

Agricultural Preservation Policy

LAFCO's adopted Agricultural Preservation Policy will require the City to prepare a Plan for Agricultural Preservation ("Plan"). The Plan must include information regarding the proposal's direct and indirect impacts to agricultural resources, the availability of lands in the City's existing boundaries, and relevant General Plan policies related to agricultural preservation. The Plan also must specify the method or strategy proposed to minimize the loss of agricultural lands. The information provided in the Plan should be consistent with the EIR prepared by the City.

The City adopted a Sustainable Agricultural Strategy in 2016 that it used as its Plan for Agricultural Preservation for the City's current Sphere of Influence. The Plan identified many of the City's current General Plan policies, including Agricultural Resource Conservation Areas covering 1,300 acres west of the City, use of agricultural buffers, and overall policies related to infill development prior to consideration of additional annexation areas. The current proposal would remove the Agricultural Resource Conservation designation in the project area and represents a significant shift in General Plan policies, the impacts of which will need to be fully discussed and considered.

Logical Boundaries

As proposed, annexation of the River Walk Specific Plan area will leave the unincorporated Park Ridge / River Heights neighborhood surrounded by the City Limits on three sides and the County boundary on the fourth, creating an unincorporated island. LAFCO's policies and State law discourage the creation of islands or other distortion of a city's boundaries. This area currently relies on a private water system, would benefit from connection to City services, and should be included in any annexation proposal that would otherwise surround it.

Public Services

The proposal must show that the City has the necessary public services available to serve the development upon annexation, pursuant to LAFCO policies. This analysis must include detailed evidence of current service levels, sufficient sewer capacity, sufficient quantities and quality of water, financing mechanisms, as well as the means to provide adequate levels of fire and police protection. This information can also be used to prepare a "Plan for Services", as required by LAFCO Policy and State law (Government Code Section 56653). The Plan for Services shall include information on the present and future level of services and evidence that the annexing agency can at least maintain the current level of public services already provided within its boundaries.

Municipal Service Review Requirement

In accordance with Government Code Sections 56425 and 56430, when updating a Sphere of Influence, a Municipal Service Review (MSR) must also be prepared. The City's last MSR was completed in conjunction with the City's 2016 Sphere of Influence expansion and relied on water and sewer master plans from 2007. These plans should be updated to include the additional territory of the River Walk proposal.

Impacts on Special Districts

The proposed Specific Plan Area is currently within the boundaries of the Stanislaus Consolidated Fire Protection District, the Modesto Irrigation District, the Oakdale Irrigation District, and the Wendt Ranch Reclamation District. LAFCO will also consider impacts to these agencies. The Commission will deny proposals, pursuant to LAFCO policy, that would result in significant immitigable adverse effects upon other service recipients or other agencies servicing the affected area unless the approval is conditioned to avoid such impacts. The environmental analysis should identify any future annexation that will include new tax sharing agreements or assessments and include a discussion of any resulting impacts. The City is encouraged to consult with each of these districts to resolve any concerns identified prior to application to LAFCO.

Please include LAFCO on the mailing list for any future environmental referrals involving this project, as we did not receive mailed notice of the NOP. If you have any questions, please contact our office at (209) 525-7660.

Sincerely,

Sara Lytle-Pinhey

Sara Lytle-Pinhey
Executive Officer

cc: LAFCO Commissioners
Robert J. Taro, LAFCO Counsel

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

June 30, 2021

Donna Kenney
City of Riverbank
Development Services Department
6707 3rd Street
Riverbank, CA 95367

Project: Notice of Preparation of a Draft Environmental Impact Report for the River Walk Specific Plan

District CEQA Reference No: 20210607

Dear Ms. Kenney:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the City of Riverbank's (City) Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the River Walk Specific Plan (RWSP) in Riverbank, CA (Project). Per the NOP, the proposed Project would designate land uses, establish a planning framework, and development standards to facilitate and guide future development within the approximately 1,522-acre planning area. The Project is located north of Patterson Road 108, east of McHenry Avenue, and approximately two miles northwest of downtown Riverbank. The DEIR will evaluate potential impacts associated with development of a preferred proposed specific plan. The Project will consist of the construction of 2,432 residential dwelling units and approximately 71 acres of mixed-use development (e.g. restaurants, gas station, community clubhouse, and a retail shopping center). Future development would be required to comply with the proposed specific plan land use designations, development standards, and policy framework.

The District offers the following comments regarding the Project:

1) Land Use Planning

Nearly all development projects within the San Joaquin Valley Air Basin, from general plans to individual projects have the potential to generate air pollutants, making it more difficult to attain state and federal ambient air quality standards. Land use decisions are critical to improving air quality within the San Joaquin Valley

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Air Basin because land use patterns greatly influence transportation needs, and motor vehicle emissions are the largest source of air pollution in the Valley. Land use decisions and project design elements such as preventing urban sprawl, encouraging mix-use development, and project design elements that reduce vehicle miles traveled (VMT) have proven to be beneficial for air quality. The District recommends that the DEIR incorporate strategies that reduce VMTs and require the cleanest available heavy duty trucks and vehicles, including zero and near-zero technologies. VMTs can be reduced through encouragement of mix-use development, walkable communities, etc. Additional design element options can be found at: http://www.valleyair.org/transportation/Mitigation-Measures.pdf

In addition, the District recommends that the DEIR incorporate strategies that will advance implementation of the best practices listed in Tables 5 and 6 of the California Air Resources Board (CARB) Freight Handbook Concept Paper, to the extent feasible. This document compiles best practices designed to address air pollution impacts as "practices" which may apply to the siting, design, construction, and operation of freight facilities to minimize health impacts on nearby communities. The concept paper is available at: https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf

2) Project Siting

The RWSP is the blueprint for future growth and provides guidance for the community's development. Without appropriate mitigation and associated policy, future development projects within the City may contribute to negative impacts on air quality due to increased traffic and ongoing operational emissions. Appropriate project siting helps ensure there is adequate distance between differing land uses, which can prevent or reduce localized and cumulative air pollution impacts from business operations that are in close proximity to receptors (e.g. residences, schools, health care facilities, etc.). RWSP siting-related goals, policies, and objectives should include measures and concepts outlined in the following resources:

- CARB's Air Quality and Land Use Handbook: A Community Health Perspective. The document includes tables with recommended buffer distances associated with various types of common sources (e.g. distribution centers, chrome platers, gasoline dispensing facilities, etc.), and can be found at: https://ww3.arb.ca.gov/ch/handbook.pdf

- CARB's Freight Handbook Concept Paper: This document compiles best practices designed to address air pollution impacts, which may apply to the

siting, design, construction, and operation of freight facilities to minimize health impacts on nearby communities, and can be found at: https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf

3) Criteria Pollutant Emissions

At the federal level under the National Ambient Air Quality Standards (NAAQS), the District is designated as extreme nonattainment for the 8-hour ozone standards and serious nonattainment for the particulate matter less than 2.5 microns in size (PM2.5) standards. At the state level under California Ambient Air Quality Standards (CAAQS), the District is designated as nonattainment for the 8-hour ozone, PM10, PM2.5 standards.

As such, the District recommends that the DEIR stipulate that future development projects within the RWSP identify and characterize project construction and operational air emissions. The District recommends the air emissions be compared to the following California Environmental Quality Act (CEQA) significance thresholds for annual emissions of criteria pollutants: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter with an aerodynamic diameter less than or equal to a nominal 10 or 2.5 microns (PM10 or PM2.5). The District recommends that future proposed projects be mitigated to the extent feasible, and that future proposed projects with air emissions above the aforementioned thresholds be mitigated to below these thresholds.

The DEIR should include a discussion of policies, which when implemented, will require assessment and characterization of project-level emissions, and subsequently require mitigation of air quality impacts to the extent feasible at the individual project-specific level. Environmental reviews of potential impacts on air quality should incorporate the following items:

3a) Construction Emissions

Construction air emissions are short-term emissions generated from construction activities such as mobile heavy-duty diesel off-road equipment, and should be evaluated separately from operational emissions. If air emissions from ongoing operational activities occur within the same year as construction emissions, those emissions should be combined.

Recommended Measure: To reduce impacts from construction-related diesel exhaust emissions, the project should utilize the cleanest available off-road construction fleets, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations.

3b) Operational Emissions

Operational (ongoing) air emissions from mobile sources and stationary sources should be analyzed separately. For reference, the District's annual criteria thresholds of significance are listed above.

Recommended Mitigation Measure: At a minimum, project related impacts on air quality should be reduced to levels of significance through incorporation of design elements such as the use of cleaner heavy-duty trucks and vehicles, measures that reduce VMTs, and measures that increase energy efficiency. More information on transportation mitigation measures can be found at: http://www.valleyair.org/transportation/Mitigation-Measures.pdf.

3c) Recommended Model for Quantifying Air Emissions

Project related criteria pollutant emissions from construction and operational sources should be identified and quantified. Emissions analysis should be performed using CalEEMod (**Cal**ifornia **E**mission **E**stimator **Mod**el), which uses the most recent approved version of relevant CARB emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

4) Health Risk Screening/Assessment

To determine potential health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) a Prioritization and/or a health risk assessment (HRA) should be performed for future projects within the RWSP. These health risk determinations should quantify and characterize potential Toxic Air Contaminant (TAC) air pollutants identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) that pose a present or potential hazard to human health.

Health risk analyses should include all potential air emissions from the Project, which include emissions from construction of the Project, including multi-year construction, as well as ongoing operational activities of the Project. Note, two common sources of TACs can be attributed to diesel exhaust emitted from heavy-duty off-road earth moving equipment during construction, and from ongoing

operation of heavy-duty on-road trucks. A list of TACs identified by OEHHA/CARB can be found at: https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants

Prioritization (Screening Health Risk Assessment):
A "Prioritization" is the recommended method for a conservative screening-level health risk assessment. The Prioritization should be performed using the California Air Pollution Control Officers Association's (CAPCOA) methodology. The District recommends that a more refined analysis, in the form of an HRA, be performed for any project resulting in a Prioritization score of 10 or greater. This is because the prioritization results are a conservative health risk representation, while the detailed HRA provides a more accurate health risk evaluation.

To assist land use agencies and project proponents with Prioritization analyses, the District has created a prioritization calculator based on the aforementioned CAPCOA guidelines, which can be found here:
http:www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Utilities/PRIORITIZATION%20RMR%202016.XLS

Health Risk Assessment:
Prior to performing an HRA, it is strongly recommended that land use agencies/development project proponents contact the District to review the proposed health risk modeling protocol. A development project would be considered to have a potentially significant health risk if the HRA demonstrates that the project-related health impacts would exceed the Districts significance threshold of 20 in a million for carcinogenic risk, or 1.0 for either the Acute or Chronic Hazard Indices. A project with a significant health risk would trigger all feasible mitigation measures. The District strongly recommends that development projects that result in a significant health risk not be approved by the land use agency.

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

- HRA AERMOD model files
- HARP2 files
- Summary of emissions source locations, emissions rates, and emission factor calculations and methodology.

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

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

- Visiting the Districts modeling guidance website at: http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

Recommended Measure: Development projects resulting in toxic air contaminant emissions should be located an adequate distance from residential areas and other sensitive receptors in accordance to CARB's Air Quality and Land Use Handbook: A Community Health Perspective.

Recommended Measure: A health risk screening and/or assessment should be performed to assess potential risks to sensitive receptors for all of the following projects:

- Projects whose proposed locations are within the established buffer distances identified in CARB's handbook located at https://ww3.arb.ca.gov/ch/handbook.pdf

- Projects whose land uses are not specifically identified in CARB's handbook (such as shopping centers), but there is sufficient information to reasonably conclude that sensitive receptors would be exposed to significant sources of toxic air contaminants; and

- Projects that would otherwise appear to be exempt from CEQA requirements, but there is sufficient information to reasonably conclude that sensitive receptors would be exposed to significant sources of toxic air contaminants, such as industrial use projects allowed by right.

5) Ambient Air Quality Analysis

An Ambient Air Quality Analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of State or National Ambient Air Quality Standards. The District recommends that the DEIR requires an AAQA to be performed for any future development project with emissions that exceed 100 pounds per day of any pollutant.

An acceptable analysis would include emissions from both project-specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis.

Specific information for assessing significance, including screening tools and modeling guidance, is available online at the District's website: www.valleyair.org/ceqa.

6) Voluntary Emission Reduction Agreement

The Project could have a significant impact on air quality. The District recommends the DEIR include a feasibility discussion on implementing a Voluntary Emission Reduction Agreement (VERA) as a mitigation measure for future development projects that are determined to exceed the District's CEQA significance thresholds.

A VERA is a mitigation measure by which the project proponent provides pound-for-pound mitigation of emissions increases through a process that develops, funds, and implements emission reduction projects, with the District serving a role of administrator of the emissions reduction projects and verifier of the successful mitigation effort. To implement a VERA, the project proponent and the District enter into a contractual agreement in which the project proponent agrees to mitigate Project specific emissions by providing funds for the District's incentives programs. The funds are disbursed by the District in the form of grants for projects that achieve emission reductions. Thus, project-related impacts on air quality can be fully mitigated. Types of emission reduction projects that have been funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors.

In implementing a VERA, the District verifies the actual emission reductions that have been achieved as a result of completed grant contracts, monitors the emission reduction projects, and ensures the enforceability of achieved reductions. After the project is mitigated, the District certifies to the Lead Agency that the mitigation is completed, providing the Lead Agency with an enforceable mitigation measure demonstrating that project-related emissions have been mitigated to less than significant. To assist the Lead Agency and project proponent in ensuring that the environmental document is compliant with CEQA, the District recommends the DEIR includes an assessment of the feasibility of implementing a VERA.

7) Under-fired Charbroilers

Future development projects for restaurants with under-fired charbroilers may pose the potential for immediate health risk, particularly when located in densely populated areas or near sensitive receptors. Since the cooking of meat can release carcinogenic PM2.5 species like polycyclic aromatic hydrocarbons, controlling emissions from new under-fired charbroilers will have a substantial positive impact on public health. The air quality impacts on neighborhoods near restaurants with under-fired charbroilers can be significant on days when meteorological conditions are stable, when dispersion is limited and emissions are trapped near the surface

within the surrounding neighborhoods. This potential for neighborhood-level concentration of emissions during evening or multi-day stagnation events raises air quality concerns.

Furthermore, reducing commercial charbroiling emissions is essential to achieving attainment of multiple federal PM2.5 standards and their associated health benefits in the RWSP. Therefore, the District recommends that the DEIR include a measure requiring the assessment and potential installation, as technologically feasible, of particulate matter emission control systems for new large restaurants operating under-fired charbroilers. The District is available to assist the City and project proponents with this assessment. Additionally, the District is currently offering substantial incentive funding that covers the full cost of purchasing, installing, and maintaining the system during a demonstration period covering two years of operation. Please contact the District at (559) 230-5800 or technology@valleyair.org for more information, or visit: http://valleyair.org/grants/rctp.htm

8) Vegetative Barriers and Urban Greening

For future development projects within the RWSP, and at strategic locations throughout the RWSP in general, the District suggests the City consider incorporating vegetative barriers and urban greening as a measure to further reduce air pollution exposure on sensitive receptors (e.g. residences, schools, healthcare facilities).

While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, vegetative barriers have been shown to be an additional measure to potentially reduce a population's exposure to air pollution through the interception of airborne particles and the update of gaseous pollutants. Examples of vegetative barriers include, but are not limited to the following: trees, bushes, shrubs, or a mix of these. Generally, a higher and thicker vegetative barrier with full coverage will result in greater reductions in downwind pollutant concentrations. In the same manner, urban greening is also a way to help improve air quality and public health in addition to enhancing the overall beautification of a community with drought tolerant, low-maintenance greenery.

9) Solar Deployment in the Community

It is the policy of the State of California that renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers by December 31, 2045. While various emission control techniques and programs exist to reduce air quality emissions from mobile and stationary sources, the production of solar energy is contributing to improving air quality and public

health. The District suggests that the City consider incorporating solar power systems as an emission reduction strategy for future development projects within the RWSP.

10) Electric Vehicle Charger

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

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

11) Nuisance Odors

While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public and often resulting in citizen complaints.

The City should consider all available pertinent information to determine if future development projects could have a significant impact related to nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration the proposed business or industry type and its potential to create odors, as well as proximity to off-site receptors that potentially would be exposed to objectionable odors. The intensity of an odor source's operations and its proximity to receptors influences the potential significance of malodorous emissions. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact.

According to the District Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI), a significant odor impact is defined as more than one confirmed complaint per year averaged over a three-year period, or three unconfirmed complaints per year averaged over a three-year period. An unconfirmed complaint means that either the odor or air contaminant release could not be detected, or the source of the odor could not be determined.

As the future development projects that will fall within the RWSP do not yet exist and cannot be evaluated against the above complaint-driven odor significance criteria,

the City should determine which business or industry types have historically triggered the significance criteria, and stipulate odor mitigation measures in the DEIR as conditions of approval for those business and industry types. The District recommends that any project proponent whose project is determined to have a potentially significant odor impact should be required to draft and maintain an Odor Management Plan (OMP) as a mitigation measure in the DEIR.

12) District Rules and Regulations

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

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

12a) District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources

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

Future development project(s) may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and may require District permits. Prior to construction, the Project proponent should submit to the District an application for an ATC.

Recommended Mitigation Measure: For projects subject to permitting by the San Joaquin Valley Air Pollution Control District, demonstration of compliance with District Rule 2201 shall be provided to the City before issuance of the first building permit.

For further information or assistance, the project proponent may contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

12b) <u>District Rule 9510 (Indirect Source Review)</u>

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM10 emissions associated with development and transportation projects from mobile and area sources; specifically, the emissions associated with construction and subsequent operation of development projects. The Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their projects. Should the proposed development project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive projects to achieve off-site emissions reductions.

Accordingly, the future development project within the RWSP is subject to District Rule 9510, because the Project will equal or exceed one or more of the following applicability thresholds upon full buildout, depending on the type of development and public agency approval mechanism:

Table 1: ISR Applicability Thresholds

Development Type	Discretionary Approval Threshold	Ministerial Approval / Allowed Use / By Right Thresholds
Residential	50 dwelling units	250 dwelling units
Commercial	2,000 square feet	10,000 square feet
Light Industrial	25,000 square feet	125,000 square feet
Heavy Industrial	100,000 square feet	500,000 square feet
Medical Office	20,000 square feet	100,000 square feet
General Office	39,000 square feet	195,000 square feet
Educational Office	9,000 square feet	45,000 square feet
Government	10,00 square feet	50,000 square feet
Recreational	20,000 square feet	100,000 square feet
Other	9,000 square feet	45,000 square feet

Additionally, District Rule 9510 also applies to any transportation or transit development projects where construction exhaust emissions equal or exceed two tons of NOx or two tons of PM.

In this case the individual development project is subject to District Rule 9510, an Air Impact Assessment (AIA) application is required, and the District recommends that demonstration of compliance with the rule prior to issuance of the first building permit, be made a condition of Project approval.

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

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

District staff is available to provide assistance with determining if future development projects will be subject to Rule 9510, and can be reached by phone at (559) 230-5900 or by email at ISR@valleyair.org.

12c) District Rule 9410 (Employer Based Trip Reduction)

Future development projects may be subject to District Rule 9410 (Employer Based Trip Reduction) if the Project would result in employment of 100 or more “eligible” employees. District Rule 9410 requires employers with 100 or more “eligible” employees at a worksite to establish an Employer Trip Reduction Implementation Plan (eTRIP) that encourages employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. Under an eTRIP plan, employers have the flexibility to select the options that work best for their worksites and employees.

Information about how District Rule 9410 can be found online at: www.valleyair.org/tripreduction.htm.

For additional information, you can contact the District by phone at 559-230-6000 or by e-mail at etrip@valleyair.org

12d) District Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)

The purpose of this rule is to limit emissions of carbon monoxide and particulate matter from wood burning fireplaces, wood burning heaters, and

outdoor wood burning devices. This rule establishes limitations on the installation of new wood burning fireplaces and wood burning heaters. Specifically, at elevations below 3,000 feet in areas with natural gas service, no person shall install a wood burning fireplace, low mass fireplace, masonry heater, or wood burning heater.

Information about District Rule 4901 can be found online at:
http://valleyair.org/rule4901/

12e) District Regulation VIII (Fugitive PM10 Prohibitions)

The project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation VIII, specifically Rule 8021 – *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.*

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

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm

12f) Other District Rules and Regulations

Future development projects may also be subject to the following District rules: Rule 4601 (Architectural Coatings) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

13) Additional Air Quality Evaluation and Discussion to Include in the DEIR

13a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the Project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the DEIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.

13b) A discussion of the components and phases of the Project and the associated air emissions projections, including ongoing emissions from each previous phase.

13c) In addition to the discussions on the topics identified above, the District recommends the DEIR also include a discussion of whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at: http://valleyair.org/aqinfo/attainment.htm.

13d) As required by the recent decision in Sierra Club v. County of Fresno (2018) 6 Cal.4th 502, a reasonable effort to discuss relevant specifics regarding the connection between potential adverse air quality impacts from the Project with the likely nature and magnitude of potential health impacts. If the potential health impacts from the Project cannot be specifically correlated, explain what is known and why, given scientific constraints, potential health impacts cannot be translated.

Therefore, the District recommends that the DEIR include a discussion of how the Project, or Plan, particularly future projects developed under the Plan will conform to the Court's holding.

14) Future Projects / Land Use Agency Referral Documents

Future development projects may require an environmental review and air emissions mitigation. Referral documents and environmental review documents for these projects should include a project summary, the land use designation, project size, air emissions quantifications and impacts, and proximity to sensitive receptors and existing emission sources, and air emissions mitigation measures. For reference and guidance, more information can be found in the District's Guidance for Assessing and Mitigating Air Quality Impacts at:
https://www.valleyair.org/transportation/GAMAQI.pdf

15) District Comment Letter

The District recommends that a copy of the District's comments be provided to the Project proponent.

If you have any questions or require further information, please contact Diana Walker by e-mail at Diana.Walker@valleyair.org or by phone at (559) 230-5820.

Sincerely,

Brian Clements
Director of Permit Services



John Stagnaro
Program Manager

SOLURI MESERVE
a law corporation

tel: 916.455.7300 · fax: 916.244.7300
510 8th Street · Sacramento, CA 95814

July 6, 2021

SENT VIA EMAIL (dkenney@riverbank.org)

Donna Kenney
City of Riverbank
Development Services Dept.
6707 3rd St.
Riverbank, CA 95367

RE: Comments on Notice of Preparation for River Walk Specific Plan Draft EIR

Dear Ms. Kenney:

These comments on the Notice of Preparation ("NOP") for the River Walk Specific Plan ("project") Draft Environmental Impact Report ("EIR") are submitted on behalf of Annabel and Allen Gammon. The Gammons' primary concern with respect to the project is farmland preservation.

The Gammons have been advocates for farmland preservation in Riverbank and the San Joaquin Valley for many years. Dr. Gammon served as chair of the Farmland Working Group from 2011-2014. A native of the island of Luzon in the Philippines, Ms. Gammon's family operated rice farmland and livestock, where she gained an appreciation of farming. In addition to providing wildlife habitat, the Gammons believe that protection of local farmland is critical to providing sustenance for the people of our state and beyond.

The Gammons' home is currently within unincorporated Stanislaus County. In 2009, the Gammons grew concerned about the urbanization of this same area, where Fritz Grupe proposed to build "villages", and now this irreplaceable farmland is again slated for development.

In addition to working to preserve the quality of life and protect farmlands for purposes of feeding our growing state, the Gammons also want to protect the Stanislaus River, which runs through the proposed project. The Stanislaus River was named by a Yokut Indian, Estanislao. The Yokut tribe lived by the river and Native American cultural sites and artifacts likely exist in this area. All of the resources of this area should

be protected and preserved, as required by the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq. ["CEQA"]) and other applicable laws.

Overview of Concerns

The project would convert nearly 1,500 acres of farmland to urban uses. The Specific Plan contemplates between 2,432 – 2,682 residential units, and 375,000 and 875,000 square feet of Mixed-Use for commercial, office, service, or retail use, as well as some transitional care facilities. Key concerns include:

1. Prime farmland in the project area should be preserved for agriculture.
2. The project is proposed to be sited in a floodplain, which creates unacceptable risks for new residents and increases risks for existing residents.
3. Riverbank currently lacks the basic infrastructure to support River Walk including:
    a. Inadequate water or sewer connections to support this large development.
    b. Insufficient roads to provide proper circulation.
    c. Inadequate school, police and fire services for new residents.
4. The River Walk project would accelerate climate change and global warming because:
    a. Thousands of trees will be clear cut and further increase atmospheric carbon.
    b. The proposed project would create a waste of energy resources.
    c. The proposed project would replace a large solar farm.
5. The proposed homes in River Walk will not be affordable for most Riverbank citizens but will attract more affluent commuters who work in the bay area and therefore will increase commuters, cars, traffic and air pollution.

CEQA Background

The overriding and primary goal of CEQA is the protection of the environment. (Pub. Resources Code, §§ 21000–21189.3; see §§ 21000–21002.) It is the policy of the state to "[t]ake all action necessary" to provide citizens with "clean air and water," "freedom from excessive noise," "[p]revent the elimination of fish or wildlife species due to [anthropogenic] activities" and "[e]nsure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions." (Id., § 21001, subd. (b)-(d).) The purpose of an environmental impact report ("EIR") is to provide the public with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project. (Pub. Resources Code, §§ 21061, 21002.1, subd. (a).) The City of Riverbank's ("City") EIR

for the project must disclose and fully analyze all of the project's potentially significant impacts.

Specific Concerns with NOP

Project Description

The project description in the NOP fails to provide information necessary to understand the full extent of the project, or its impacts on the environment. (CEQA Guidelines, § 15082, subd. (a)(1).) Even review of the separate 75-page so-called "Project Description" fails to provide a clear view of what is being proposed. In addition, the NOP fails to disclose the probable environmental effects of the project. In order to conduct adequate environmental review, detailed project descriptions must first be developed.

Agricultural Resources

The EIR must analyze all potential impacts on existing agriculture. In addition to analyzing impacts from conversion of agricultural land to nonagricultural uses, the EIR must also analyze indirect impacts associated with such conversion. The full range of mitigation for conversion of agricultural lands and interference with agricultural practices should be included in the EIR. Such mitigation includes securing replacement acreages through the use of conservation easements and buffers between different land uses, among other mitigation approaches. A two-to-one mitigation ratio should be considered due to the high value of the farmland proposed to be converted under the project. The County General Plan also includes policies applicable to conversion of agricultural land and interference with ongoing agricultural uses.

Biological Resources

The 1,500-acre site bordered by the Stanislaus River is rich with biological resources. Numerous special status species likely rely on the project site and surrounding resources, and conversion to urban uses would destroy their habitat. In addition, the site may contain fully protected species under state law, for which take authority cannot be granted. The EIR must describe these existing uses as well as formulate mitigation to either avoid or reduce these impacts to biological resources to less than significant levels.

Groundwater

The Project Description indicates that a 2 million gallon water tank and two wells would be needed to serve buildout of the plan area. The NOP fails to identify specific

sources of water for project, or the potential impacts on the environment. The project area is within the Modesto Subbasin for purposes of groundwater planning under the Sustainable Groundwater Management Act (Wat. Code, §§ 10720 -12924 ["SGMA"]). The Groundwater Sustainability Plan for the Modesto Subbasin has not yet been completed. The Draft EIR for the project must describe how the project is proposed to be served for water supply, and consider the project's effects on the ability of the Subbasin to reach sustainability as defined by SGMA.

Energy

The addition of between 2,432-2,682 residential units, and 375,000 and 875,000 square feet of Mixed-Use for commercial, office, service, or retail use, as well as some transitional care facilities, would require significant energy to construct and operate. Neither the NOP nor the Project Description include any information regarding plans for energy efficiency. The EIR must fully disclose the energy use of the project, as well as means to reduce energy use to address climate change and other environmental concerns.

Land Use

The EIR should carefully examine land use impacts from implementation of the project. Most of the land is designated for agricultural use by the County, with a small part designated for urban transition. Annexation and urbanization of these lands would be a significant change from these land use designations, and undermine County and state policies to protect farmland and open space.

Public Services

The public services required for the project must be completely described. While phasing is mentioned in the Project Description, there is no proposed phasing plan provided in the NOP. In addition, the NOP fails to describe how necessary services would be provided to the project site. As a result, it is unclear how public services are proposed to be provided to the project.

Alternatives

Alternatives that reduce the significant impacts of the project, along with a no-project alternative, must be considered in the EIR.

* * *

The NOP fails to meet the basic requirements of CEQA and should be revised and recirculated prior to proceeding with environmental review of this project. The additional detail found in the "Project Description" document is also inadequate and cannot substitute for a complete NOP in any case.

Thank you for considering these comments, and please feel free to contact my office with any questions.

Very truly yours,

SOLURI MESERVE
A Law Corporation



By: Osha R. Meserve

cc: smcmurtry@denovoplanning.com

CITY OF MODESTO CALIFORNIA

Community & Economic Development Department
PO Box 642
Modesto CA 95354
209.571.5566
www.modestogov.com

July 2, 2021

City of Riverbank
Development Services Department
6707 3rd Street
Riverbank CA 95367
Attn: Donna Kenney, AICP, MCRP
Planning and Building Manager

RE: Notice of Preparation of an Environmental Impact Report for the proposed River Walk Specific Plan

Dear Ms. Kenney,

Thank you for the opportunity to review the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed River Walk Specific Plan. The following comments are provided for inclusion in a future EIR and during project consideration.

Traffic

The EIR should analyze all adjacent transportation facilities and intersecting street network to determine the level of impact to these facilities and the surrounding communities. The location-specific impacts should be quantified, and necessary improvements (mitigation) should be described in detail, along with a determination of the Project's fair share participation and/or financial contribution to mitigate resulting impacts. McHenry Avenue, Coffee Road and Oakdale Road, and the intersections at Claratina Avenue and Sylvan Avenue, are likely to be impacted by future increased traffic volumes resulting from the proposed project.

Groundwater Resources

Modesto City staff understands that the City of Riverbank sources municipal water supply from groundwater resources. The City of Modesto draws a portion of its potable water supply and a City well that provides water to the Del Rio community within Stanislaus County's jurisdiction, from the same aquifer that the proposed Project would utilize. The EIR should analyze the anticipated impacts to the local groundwater aquifer(s) as well as impacts to groundwater recharge areas that will be reduced by development associated with the proposed Project.

Growth-inducing Impacts

The proposed 993-acre development, and 1,522-acre project area, is a significant expansion of the City of Riverbank's Sphere of Influence and urban boundaries. This proposal comes five years after a prior Sphere of Influence boundary adjustment which added 1,479 acres, most of which remains undeveloped. The current proposal will undoubtedly result in additional future growth beyond the project area with additional impacts to adjacent communities. The proposed development is located in an area between three communities where regional discussions have not occurred. Further analysis and discussions would be required to determine how to handle the development-related impacts and the provision of services.

In addition to the above issues that impact Modesto, the EIR should also include a thorough analysis of the following issue areas that the City of Modesto believes are of particular importance for this major expansion:

- Air Quality impacts and GHG emissions, especially given the relatively low density of the proposed development.
- Agricultural Resources impacts, due to the high-quality farmland the project will be displacing.
- Biological Resources impacts, given its proximity to the Stanislaus River, which is known to harbor endangered and threatened species.
- Hydrological/wetlands impacts, due to its proximity to the Stanislaus River.
- Public Service Impacts. This project, combined with the previous Crossroads West project, represents a doubling of the size of Riverbank, potentially leading to the straining of public safety and other municipal services.
- Tribal Cultural Resources impacts, due to its proximity to the Stanislaus River.
- Cumulative Impacts, due to the significant increase in the City's Sphere of Influence, added to the significant increase approved in 2016.

The City of Modesto appreciates the opportunity to review the NOP and provide comments for consideration in the Draft EIR.

Sincerely,

Jaylen French
Director of Community and Economic Development

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:34 AM
To: Jeani Ferrari
Cc: Steve McMurtry
Subject: RE: NOP — River Walk Project

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Jeani Ferrari <jferraridesign@gmail.com>
Sent: Sunday, July 4, 2021 12:32 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Cc: Jeani Ferrari <jferraridesign@gmail.com>
Subject: NOP — River Walk Project

Dear Donna —

My name is Jeani Ferrari, I am a Founding Director of Farmland Working Group. Please include my written comments in response to the NOP (Notice of Preparation) of the River Walk Specific Plan. These are my comments and input as to the scope and content of the proposed project as the Lead Agency, the City of Riverbank, prepares the Environmental Impact Report.

The overall proposed area is 1,552 acres in the unincorporated are of Stanislaus County. The Specific Plan Area is 993 acres. This area includes Prime Farmland and zoned AG-A40 and AG-A10. What is the logic of pouring concrete on the best soils and water recharge areas when there

is available land for residential development on land that doesn't have the best soils?

There are 1783 acres outside the City of Riverbank, within the primary SOI. There are available acres within the city limits. This land should be developed before sprawling and adding more roads and municipal services to the City of Riverbank. Who will, ultimately, carry the financial burden of new sprawling development?

When farmland is paved over, the capacity to help the environment is also removed. When more roads and cars are introduced, further from the city center, the environment is further assaulted. It has a double impact of contributing to poor air quality while no longer storing carbon in the soil and vegetation.

How does the City of Riverbank, the lead agency, plan to do its duty to consider and impose mitigation measures to lessen all significant impacts, even when those impacts are ultimately determined to be significant and unavoidable. What is the real value of farmland and what agency will enforce “real” farmland mitigation?

If the City of Riverbank recognizes its part in protecting Stanislaus County’s important farmland and vital Ag economy, infill must be considered an important planning tool. At what point is there recognition that farmland and important soils are irreplaceable? At what point is there a commitment to stopping sprawl and protecting farmland? Riverbank has ample acres to develop without paving over farmland and water recharge areas.

With ample acres within the city of Riverbank and its primary sphere of influence, planners should be looking at projects that provide affordable and livable housing — that’s where the shortage is most obvious. Building

elite communities meets the needs of commuters coming from the Bay Area looking for homes they can easily afford. Stanislaus County needs housing for its workers. There should be a commitment to meeting the needs of our workers not commuters. We should not be building homes for the workers/retirees from the Bay Area. Each of the cities in Stanislaus County should be committed to protecting our Ag economy and farmland not becoming a “commuter community.”

What is the long term plan for water in the River Walk Project? How is the long term drought impacting water availability? Ultimately, who pays for more houses using more water?

Thank you,
Jeani Ferrari
Founding Director
Farmland Working Group

Thank you,

Jeani Ferrari

Sent from my iPhone

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:33 AM
To: jim gerber
Cc: Steve McMurtry
Subject: RE: Riverwalk

Thank you for your comments. They have been forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager City of Riverbank, California
(209) 863-7124
www.riverbank.org

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-----Original Message-----
From: jim gerber <jimgerber@yahoo.com>
Sent: Sunday, July 4, 2021 11:42 AM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: Riverwalk

Bad idea! It is a floodplain. I have seen it flooded twice in my lifetime. I could not, in good conscience, sell homes in that area. I would not be a buyer nor the insurer nor would I take on liability for having developed there.

James Gerber

Sent from my iPhone

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:32 AM
To: mmsi@onlinenw.com
Cc: Steve McMurtry
Subject: RE: River Walk Expansion

Thank you for your email. It has been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

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From: mmsi@onlinenw.com <mmsi@onlinenw.com>
Sent: Sunday, July 4, 2021 9:03 AM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: River Walk Expansion

I am an owner of farm land in Stanislaus county within Riverbanks sphere of influence, was raised near the proposed expansion and know the area very well. Please include the comments below for the record:

1.. The soil in the area considered is the best of the best regarding fertility and should remain as farm land and not lost to development. There are many other areas Riverbank can allow development where soils are not nearly as good as where this proposal is. Once these areas are developed the soils will be lost forever. Please take this into consideration very carefully.
2. Infrastructure in the proposal area is not suitable for the increased traffic that will result from this expansion. Neither River road, Patterson road (hwy 108), Mchenry north to Escalon is capable of handling the increased traffic.
3. The North County Corridor expansion of Kiernan and Claribel roads clearly is the proper area for expansion capable of handling the traffic increase. In addition the soils on the flood plain where the North County Corridor are not nearly as good as the river bottom flood plain soils.
4. We have seen development in the past that was done not by common sense but because who stood to profit from the expansion and who had the influence to accomplish such an expansion.
5. I am not against Riverbank or Modesto expansion. I am against expansion in areas like this done in the manner that this appears to.

Thank you for your consideration,
Richard Meissner

Dear Donna,

Please consider this letter as our strong opposition to the development of the proposed RiverWalk project. As nearby property owners, we feel this expansion plan is not beneficial to our community, our environment and ourselves.

Being avid farmers with strong roots in the agricultural community, the proposed acreage outlining this project's territory will absorb 900+ acres of our region's more desirable farmland. Currently, the property suggested provides promise and growth for our world's food and resources and if RiverWalk is developed, this will be taken away from consumers around the world. With such prime circumstances at our agricultural fingertips, it would be detrimental to transform country into city.

Not only does the land provide great soil for our crops, but it is home to much wildlife we are able to observe right from our backyard. For this reason, we would recommend a full observation of species, with an emphasis on any potentially endangered, and how this project would affect their survival.

With 2,400 new homes plus added parks and businesses, the steady hustle and bustle of increased population means a constant struggle of all the undesirable effects that come with it. Such as: increased crime, homeless wandering and encampments, vehicle emissions, noise pollution, and traffic congestion just to name a few. Being located off of the already congested McHenry Avenue, RiverWalk expansion will further exacerbate all of these ongoing problems and more.

The location of the RiverWalk project is also positioned primarily in a floodplain. We believe this would pose as an additional concern for developmental purposes.

In conclusion, agricultural land and good soil of this caliber are few and far between. Once turned into concrete, it can never be undone. This is something that our area needs to embrace and protect.

If you could please communicate with us regarding RiverWalk Project updates moving forward, that would be greatly appreciated.

Best Regards,

Blake and Alicia Fisher
aliciaefisher@gmail.com
7700 McHenry Avenue
Modesto, California 95356

July 5, 2021

To: Donna Kenney, City of Riverbank

Subject: Comments on Riverbank Proposal: River Walk

1. We live and have owned property immediately adjacent to the Riverbank proposal for nearly 40 years. Please explain why we did not receive notification of the Notice of Preparation (NOP); because our property lies within the area Riverbank wants to "reserve" for future development. The lack thereof prevented us from participating in the Scoping Session that was recently held. Was the City of Riverbank intentionally trying to prevent citizens from participating in the public planning process? Please also identify the statutory and/or regulatory sections of State Law that allowed you to circumvent notifying immediately adjacent property owners whether on McHenry Avenue, Hogue Road or in the River Heights development.
2. Please identify the State's current Agricultural Designation for this proposed project site(s). If the area is designated as a critically important agricultural area, please identify how the permanent loss of this prime farmland will be mitigated, where it will be mitigated in Stanislaus County, at what ratio (1:1, 2:1, 3:1, etc), and how this will be paid for. Please also clarify whether the mitigation area which is provided will be placed into a Conservation Easement to prevent it's future development into something other than agriculture.
3. We believe the proposed project site is a significant groundwater recharge area. Please identify how this loss of groundwater recharge area will be mitigated and provide assurances (via extensive engineering studies) to those adjacent property owners who are on private water wells to provide assurance that negative impacts will not occur as the result of this project.
4. We believe the proposed project site may be within a flood plain area. Please identify the flood zone designation for this area and how, if the project site moves forward, development in this area will not leave the area subject to possible flooding.
5. The proposed project site is essentially land-locked currently. Please identify all points of ingress/egress and if new roads are to be "cut in" to provide access to the project site, how the impact of these new roads will be mitigated to existing property owners, particularly with respect to traffic and possible road easements which would otherwise not be necessary (such as on Hogue Road).
6. The proposed project site will essentially create an "island" of the existing River Heights neighborhood/development which would likely require this are to be annexed into the City of Riverbank. Please fully address this impact.
7. Much of the area surrounding the proposed project site would continue to be actively farmed as it is today. Please identify how noise, dust, etc., will not impact the residents of the proposed project given that these property owners would continue to have the "Right to Farm" as per the County's Ordinance until such time as the area were annexed into the City of Riverbank, should that ever occur.
8. Please address the significant elevation change between properties along North McHenry Avenue and Hogue Road and the proposed project site and how site security will be maintained and erosion control of this "bluff" area will not be negatively impacted.
9. Please address the impacts that the proposed project will have on Fire and School Districts for this area, including the possible tax increase impacts to existing residents/property owners.

10. Five years ago, in 2016, the City of Riverbank was granted an extensive increase to its existing Sphere of Influence (SOI); the scope of which is intended to cover the probable growth area for at least the next 10 year planning horizon and often longer (such as up to 20 years). Five years later (2021), the City of Riverbank has only begun to grow into this newly approved expansion area (which extends Westward to Coffee Road). Please identify what the critical need is for Riverbank to pursue such an extensive additional increase to its SOI just five years after the most recent increase that was approved.
11. Even with the planned bridge/lane expansions on McHenry Avenue which have been partially completed, traffic is often extreme making it difficult to get in or out of one's existing driveway. Directly across the street (to the West) there are also previously approved expansions within the Del Rio community which have not yet been built that will only bring additional traffic onto an already congested street. Please identify how the proposed project will not create additional negative traffic impacts to McHenry Avenue.

WE LOOK FORWARD TO THE ABOVE ITEMS BEING ADDRESSED IN THE ENVIRONMENTAL IMPACT REPORT.

Bernard & Jami Aggers 7730 McHenry Av Modesto Ca 95356-8836

Monday, July 5, 2021

Danilo Martinez, MD

Physical Address:

7706 McHenry Avenue

Modesto, Ca, 95356

Postal Address: PO Box#825

Riverbank,CA, 9

Subject:Residential Development

Donna Kenney

Development Services

Planning and Building Manager

City of Riverbank

6707 Third Street

Riverbank, CA, 95367

Dear Mrs Kenney:

My wife MariaElena and I built our home off McHenry Avenue 36 years ago facing "The Bluff" 35 years ago with the understanding this land , back then under contract with an Insurance Company , planted with Walnuts, would be preserved as protection of the Fauna and Farming since it had been declared in the flood plan of the Stanislaus River.

We were "shock" when we learned your office was considering developing a Residential Area and deciding this matter in the immediate future.We and our neighbors emphatically opposed this determination. We will be contacting Susan Eggman, representative to the California State Legislature, Heath Flora representative to 12 Assembly District and Josh Harder US Congress. We know will have the support of the Governor of California, Mr Gavin Newson.

We hope you will review your decision in favor of the Environmental Preservation.

Thank you very much for your attention to these issues.

Danilo Martinez

MariaElena Martinez

July 5, 2021

Donna Kenney
City of Riverbank

Comments re: River Walk

1. Pg. 1 of the NOP refers the NOP as the DEIR. Is this document the-DEIR for the proposed project? Does this document cover the Specific Plan area or the entire Project Area.

2. The number of dwelling units differ. Per pg. 9 the "Specific Plan provides for up to 2,432 dwrllings. Pg 13 "the specific plan estimates 2432-2682 residential units". The application for this project states 2,800 dwelling units. Pleaes clarify the correct number.

3. pg. 12 McHenry and Patterson Roads have already have high traffic volumes. The traffic volume crossing the McHenry Bridge has resulted in increased traffic backing up on the First St. Bridge and on First St. And also on Atchison and Callendar St. and Patterson Road. First St. is residential. The rest are mixed use. The EIR must look at this impact.

There will also be increased traffic on Coffee Road, Oakdale Road, Claribel and Roselle with vehicles trying to avoid the trafic on the other streets. You must look at the affects of the increased traffic from this project.

4. Pg. 12 Is this a gated community? Will the park, trails and river access be restricted to the River Walk residents or will it be open to the public- residents of the city, etc.?

5. Water, Sewer, Storm Drain and Solid Waste What are the costs of putting a line under the river for sewer and the potential damagty to river and the land? How will the strom water be cleaned before dumping it into the river? What will the cost be to the developer and the applicant and what are the costs to the City for these services to be provided. Will these costs raise are rates?

6. The City does not have enough deputies, this project will impact this service. How will the developer and applicant pay for the added costs from this project.

7. The City does not have enough firefighters-there is one station. A second station is proposed for Crossroads and Crossroads West, but there are questions as to paying for staffing and equipment. Bruinsville is also growing. pg. 28 refers to city budgeting-the city does not budget for this as Stanislaus Consolidated Fire District is a separate entity paid for by

assessments of the property owners in the district. How will the developer and applicant pay for the costs for thid service.

8. Schools What district wiil provide. This is not in the Riverbank School District.

The huge affect on the air quality and noise will the whole city as the traffic will invade other ares to escape the back-up of vehicles.

This project will take more of are agricultural land which we need. It will adversely affect the wildlife, the fish, the flora, etc. It wil affect the historical value of the native american sites nad the history of Riverbank- the old ferry sites and the early exploration trails. All this should not be disturbed. Once gone, we can't get them beck.

Please respond to these questions and comments.

Thank you

Evelyn Halbert

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:45 AM
To: Art Mitchell
Cc: Steve McMurtry
Subject: RE: Riverbank annex of bottomland

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager City of Riverbank, California
(209) 863-7124
www.riverbank.org

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-----Original Message-----
From: Art Mitchell <hogdlr@aol.com>
Sent: Monday, July 5, 2021 9:21 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: Riverbank annex of bottomland

This is not a viable idea flood plain , lack of water ,strain on power grid , loss of population california is in a neutral point right now riverbank schools turned this down at its last attempt in 09 or so what's changed???

Sent from my iPhone

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:41 AM
To: Betsy Walton
Cc: Steve McMurtry
Subject: RE: Riverwalk EIR Scoping Meeting - questions and concerns

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Betsy Walton <Betsy@betsywaltonestates.com>
Sent: Monday, July 5, 2021 5:00 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: Riverwalk EIR Scoping Meeting - questions and concerns

Hi Donna,

Questions and concerns with regards to the Scoping Meeting:

- We have lived and owned the property adjacent to the Riverwalk proposal for more than 50 years and didn't get a notice of the Notice of Preparation (NOP). We would have like to participate in the Scoping Session that was recently held. Was there a reason for not notifying us as our property lies with in the area "Reserved for Future Development".
- This is some of the most valuable farmland in the world – with the best soils and access to water. We feed Californians and the rest of the world. The last thing we should be doing is annexing farmland. Wouldn't it make more sense to find areas that are not as productive. For example, Riverbank City should have enough area for infill building.
- Job loss from loss of ag land will create an adverse effect on not just the immediate farm jobs but will trickle down all the way to the end user.
- The traffic currently on McHenry and Patterson is fast and furious and dangerous. Access to and from McHenry is a nightmare and this would add exponentially to an already massive problem. How would this be mitigated?
- Riparian Corridor – wildlife habitat and plant life will be destroyed. Coyotes, beetles and all indigenous wildlife will be displaced or will die.
- Eight homes an acre is not a solution. To annex farmland is a bad idea but to add to the density problem creates bigger problems. We do not need to add to an already bad situation: air pollution, noise pollution and light pollution. If there is to be any development at all – limit the number of homes per acre – no more than one home per acre or every two acres. This will help lessen the pollution and traffic issues.

- If it is to be developed need more green space – these Park areas are miniscule.
- Are these parks and walkways open to the public? If so what will the security be. Who pays for it?
- Who takes care of the parks and how is it paid for.
- We are already lacking in adequate infrastructure for Police, fire department and all other public services. When and how would this be built and who is paying for it.
- We have an epidemic in the valley with drug/alcohol addiction, mental illness and homeless. The parks and walkways will encourage more of it. How will it be policed? Who will pay for it?
- Will there be a mello roos tax to pay for all the necessary improvements?
- Who will monitor, tow and ticket illegal parking?
- Fires – we are in a drought and do not need to add to climate change.
- What part is adult community?
- Can any of the land in 'Area Reserved for Future Development' be taken by eminent domain for development.

Thanks for your time. We look forward to your response.

Concerned neighbors,
Betsy Walton

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

July 6, 2021

Donna Kenney, AICP, Planning and Building Manager
City of Riverbank, Development Services Department
6707 3rd Street
Riverbank, California 95367
dkenney@riverbank.org

Subject: River Walk Specific Plan (Project)
Notice of Preparation (NOP)
SCH No.: 2021060098

Dear Ms. Kenney:

The California Department of Fish and Wildlife (CDFW) received a NOP from the City of Riverbank, Development Services Department, for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statue for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id*., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

Nesting Birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

In this role, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on Project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

PROJECT DESCRIPTION SUMMARY

Proponent: City of Riverbank

Objective: The proposed Project is the expansion of the City of Riverbank's Sphere of Influence, and approval and subsequent implementation of the Specific Plan. The quantifiable objectives include expansion of the Riverbank Sphere of Influence by approximately 1,522 acres, annexation of approximately 993 acres into the Riverbank City limits, extension of infrastructure to the annexed area to serve development, and the subsequent development of the annexed area for: Low Density Residential, Medium Density Residential, High Density Residential, Mixed-Use, and Parks/Recreation, including all infrastructure and utilities necessary to service the development.

Location: The Project is located in the unincorporated area of Stanislaus County and adjacent to the City of Riverbank, north of Patterson Road/State Route 108, east of McHenry Avenue, and approximately two miles northwest of downtown Riverbank.

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Timeframe: n/a

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the City of Riverbank, Development Services Department, in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document.

The EIR that will be prepared will determine the likely environmental impacts associated with the Project. CDFW is concerned regarding potential impacts to special-status species from the ground disturbance development activities, including but not limited to, the State threatened Swainson's hawk (*Buteo swainsoni*) and the State species of special concern burrowing owl (*Athene cunicularia*).

I. Environmental Setting and Related Impact

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the United States Fish and Wildlife Service (USFWS)?

COMMENT 1: Swainson's Hawk (SWHA)

Issue: SWHA have the potential to nest within the Project site. The California Natural Diversity Database (CNDDB) show a SWHA occurrence approximately 0.5 mile south from the Project site (CDFW 2021). The proposed Project will involve activities in agriculture farmland that, depending on the crop type, may provide potential foraging habitat. The Project site is also near large trees that may serve as potential nest sites.

Specific impacts: Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

Evidence impact is potentially significant: SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat in the San Joaquin Valley limits their local distribution and abundance (CDFW 2016). The Project as proposed will involve noise, groundwork, and movement of workers that could affect nests and has

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the potential to result in nest abandonment, significantly impacting local nesting SWHA.

Recommended Potentially Feasible Mitigation Measure(s)
To evaluate potential impacts to SWHA, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 1: SWHA Surveys

To evaluate potential impacts, CDFW recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the survey methods developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to project implementation. The survey protocol includes early season surveys to assist the project proponent in implementing necessary avoidance and minimization measures, and in identifying active nest sites prior to initiating ground-disturbing activities.

Recommended Mitigation Measure 2: SWHA No-disturbance Buffer

If ground-disturbing Project activities are to take place during the normal bird breeding season (March 1 through September 15), CDFW recommends that additional pre-activity surveys for active nests be conducted by a qualified biologist no more than 10 days prior to the start of Project implementation. CDFW recommends a minimum no-disturbance buffer of 0.5 mile be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Recommended Mitigation Measure 3: SWHA Take Authorization

CDFW recommends that in the event an active SWHA nest is detected during surveys, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the acquisition of an Incidental Take Permit (ITP), pursuant to Fish and Game Code section 2081 subdivision (b) is necessary to comply with CESA.

Recommended Mitigation Measure 4: Loss of SWHA Foraging Habitat

CDFW recommends compensation for the loss of SWHA foraging habitat to reduce impacts to SWHA foraging habitat to less than significant based on CDFW's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (CDFG, 1994), which recommends that mitigation for habitat loss occur within a minimum distance of 10 miles from known nest sites and the amount of habitat compensation is dependent

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on nest proximity. In addition to fee title acquisition or conservation easement recorded on property with suitable grassland habitat features, mitigation may occur by the purchase of conservation or suitable agricultural easements. Suitable agricultural easements would include areas limited to production of crops such as alfalfa, dry land and irrigated pasture, and cereal grain crops. Vineyards, orchards, cotton fields, and other dense vegetation do not provide adequate foraging habitat.

CDFW has the following recommendations based on the Staff Report:

- For projects within 1 mile of an active nest tree, a minimum of 1 acre of habitat management (HM) land for each acre of development is advised.
- For projects within 5 miles of an active nest but greater than 1 mile, a minimum of ¾ acre of HM land for each acre of development is advised.
- For projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree, a minimum of ½ acre of HM land for each acre of development is advised.

Recommended Mitigation Measure 5: SWHA Nest Trees

CDFW recommends that the removal of known raptor nest trees, even outside of the nesting season, be replaced with an appropriate native tree species planting at a ratio of 3:1 at or near the Project site or in another area that will be protected in perpetuity to reduce impacts resulting from the loss of nesting habitat.

COMMENT 2: Burrowing Owl (BUOW)

Issue: BUOW may occur within and/or adjacent to the Project site. BUOW inhabit open grassland or adjacent canal banks, ROWs, vacant lots, etc. containing small mammal burrows, a requisite habitat feature used by BUOW for nesting and cover. Based on aerial photography, potential habitat occurs both within and bordering the Project site.

Specific impact: Potentially significant direct impacts associated with subsequent activities and development include burrow collapse, inadvertent entrapment, nest abandonment, reduced reproductive success, reduction in health and vigor of eggs and/or young, and direct mortality of individuals.

Evidence impact is potentially significant: BUOW rely on burrow habitat year-round for their survival and reproduction. Habitat loss and degradation are considered the greatest threats to BUOW in California's Central Valley (Gervais et al. 2008). Therefore, subsequent ground-disturbing activities associated with Project approval have the potential to significantly impact local BUOW populations. In addition, and as described in CDFW's "Staff Report on Burrowing Owl Mitigation"

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(CDFG 2012), excluding and/or evicting BUOW from their burrows is considered a potentially significant impact under CEQA.

Recommended Potentially Feasible Mitigation Measure(s) (Regarding Environmental Setting and Related Impact)
To evaluate potential impacts to BUOW, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 6: BUOW Surveys

CDFW recommends a qualified biologist determine if burrows that are suitable for BUOW are present on the Project site. If suitable burrows are present, CDFW recommends assessing presence/absence of BUOW by having a qualified biologist conduct surveys following the California Burrowing Owl Consortium's "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012). Specifically, the California Burrowing Owl Consortium (CBOC) and CDFW's Staff Report suggest three or more surveillance surveys conducted during daylight with each visit occurring at least three weeks apart during the peak breeding season (April 15 to July 15), when BUOW are most detectable.

Recommended Mitigation Measure 7: BUOW Avoidance

CDFW recommends no-disturbance buffers, as outlined in the "Staff Report on Burrowing Owl Mitigation" (CDFG 2012), be implemented prior to and during any ground-disturbing activities. Specifically, CDFW's Staff Report recommends that impacts to occupied burrows be avoided in accordance with the following table unless a qualified biologist approved by CDFW verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting sites	April 1-Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16-Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16-Mar 31	50 m	100 m	500 m

* meters (m)

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Recommended Mitigation Measure 8: BUOW Passive Relocation and Mitigation

If BUOW are found within these recommended buffers and avoidance is not possible, it is important to note that according to the Staff Report (CDFG 2012), exclusion is not a take avoidance, minimization, or mitigation method and is considered a potentially significant impact under CEQA. However, if necessary, CDFW recommends that burrow exclusion be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. CDFW recommends replacement of occupied burrows with artificial burrows at a ratio of 1 burrow collapsed to 1 artificial burrow constructed (1:1) as mitigation for the potentially significant impact of evicting BUOW. BUOW may attempt to colonize or re-colonize an area that will be impacted; thus, CDFW recommends ongoing surveillance, at a rate that is sufficient to detect BUOW if they return.

II. Editorial Comments and/or Suggestions

Nesting birds: CDFW encourages that Project implementation occur during the bird non-nesting season; however, if ground-disturbing or vegetation-disturbing activities must occur during the breeding season (February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground or vegetation disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around the Project sites to identify nests and determine their status. A sufficient area means any area potentially affected by the Project. In addition to direct impacts (i.e., nest destruction), noise, vibration, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends that a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends having a qualified biologist continuously monitor nests to detect behavioral changes resulting from the Project. If behavioral changes occur, CDFW recommends halting the work causing that change and consulting with CDFW for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding

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season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or on-site parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction areas would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

Lake and Streambed Alteration: The Project involves work adjacent to the Stanislaus River and various canals, and is subject to CDFW's regulatory authority pursuant Fish and Game Code section 1600 et seq. Fish and Game Code section 1600 et seq. requires an entity to notify CDFW prior to commencing any activity that may (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake (including the removal of riparian vegetation); or (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. "Any river, stream, or lake" includes those that are ephemeral or intermittent as well as those that are perennial. CDFW is required to comply with CEQA in the issuance of a Lake or Streambed Alteration Agreement. For additional information on notification requirements, please contact our staff in the LSA Program at (559) 243-4593.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the CNDDB. The CNDDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

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CDFW appreciates the opportunity to comment on the Project to assist the City of Riverbank, Development Services Department, in identifying and mitigating the Project's impacts on biological resources.

More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (https://www.wildlife.ca.gov/Conservation/Survey-Protocols). If you have any questions, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014 extension 254, or by electronic mail at Jim.Vang@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Julie Vance
FA83F09FE08945A...

Julie A. Vance
Regional Manager

ec: California Department of Fish and Wildlife:
Veronica Salazar, LSA Program

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CDFW. 2016. Five Year Status Review for Swainson's Hawk (*Buteo swainsoni*). California Department of Fish and Wildlife. April 11, 2016.

CDFW. 2021. Biogeographic Information and Observation System (BIOS). https://www.wildlife.ca.gov/Data/BIOS.

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Gervais, J.A., D.D. Rosenberg, and L.A. Comrack. Burrowing Owl (*Athene cunicularia*) *in* Shuford, W.D. and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento, California, USA.

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Attachment 1

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

PROJECT: River Walk Specific Plan (Project)
SCH No.: 2021060098

RECOMMENDED MITIGATION MEASURE	STATUS/DATE/INITIALS
Before Disturbing Soil or Vegetation	
Mitigation Measure 1: SWHA Surveys	
Mitigation Measure 3: SWHA Take Authorization	
Mitigation Measure 4: Loss of SWHA Foraging Habitat	
Mitigation Measure 5: SWHA Nest Trees	
Mitigation Measure 6: BUOW Surveys	
Mitigation Measure 8: BUOW Passive Relocation and Mitigation	
During Construction	
Mitigation Measure 2: SWHA No-disturbance Buffer	
Mitigation Measure 7: BUOW Avoidance	

Central Valley Concerned Citizens
Comments on Notice of Preparation of an Environmental Impact Report
For the River Walk Specific Plan – SCH# 2021060098

7/6-2021

Donna Kenney
Development Services
Planning and Building Manager
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6707 Third Street
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209. 863-7124
dkenney@riverbank.org

CITY OF RIVERBANK
JUL 06 2021
DEVELOPMENT SERVICES

Regarding: Comments on Notice of Preparation of an Environmental Impact Report
For the River Walk Specific Plan – SCH# 2021060098

Dear Donna Kenney,

After seeing an article in the Modesto Bee, dated 6/20/2021, that indicated Riverbank is planning to develop housing, etc. on fertile farmland located on a floodplain from Riverbank's current northwest corner to McHenry Avenue on the west, near Patterson road along the south edge, and to the Stanislaus River to the North, we are writing to you. This Project, named "River Walk" deviates from the established plans for this area and will have far-reaching ramifications with catastrophic changes in the character of our community. Acres of fertile farmland becoming suburbs will have an irreversible impact upon all concerned; once destroyed, this valuable, prime agricultural land will never be able to be returned to the superior productive farmland it is.

We are disappointed that as landowners, we were not notified of this impending proposal. We have not received any documents. As landowners, we are requesting an extension of time (a delay in any further progression of these schemes/intentions) to allow us and other involved persons to have time to peruse these documents and respond to the designs and objectives you have encouraged and are considering.

Many of the people we have spoken with feel hopeless for a multitude of reasons, that this project is already guaranteed to occur since they weren't given notice, that no opposing editorials have been written, that commercial real estate {brokers} were given notice about six weeks ago, etc.

Riverbank should do no further planning until Modesto has updated its General Plan and reviewed Riverbank's proposed growth and issued a position, addressing the potential impact, feasibility, legality, etc.

On June 17, 2021 a Zoom meeting was held regarding this property; however, we were not notified and Riverbank did not post the zoom meeting until approximately July 1st. We would also like to note the short amount of time we were given to respond to the River Plan. Between the time you held the meeting and the time you posted the meeting almost two weeks had passed. Additionally, the timeline we were given included the date of a major

holiday, when the post office was closed for three days as well as the Riverbank office, with the final date responses could be received were on a holiday. We did not receive a copy or notification of the Environmental Impact report, Environmental checklist, the NOP.

The City of Riverbank stated in the Zoom meeting and on the NOP that the close for comments is July 5.The State Clearinghouse has identified the last day for comments on the NOP, July 6. So we are submitting our comments today. This is another reason that this NOP is flawed and needs to be recirculated.

We would like a list of the persons/entities you have notified. As well as a list of where the information for these meetings involving the River Walk project was posted. Whom did you sent the Notice of Preparation to? And where did you post the information publicly (besides at the planning department). We traveled throughout Riverbank and the surrounding area without finding any public notices posted for the proposed River Walk that the public could see. Per the zoom meeting June 17th, the consultant stated the developer would ensure compliance with CEQA on public noticing.

Water is an ongoing precious resource. This prime agricultural land has easy access to quality water at a reasonable price, which keeps food prices down for all.
How will the surrounding farmers be compensated when their wells go dry? How will you prevent lowering the water table from the massive amounts of water that will be needed? How will you ensure that the aquifers are not drained and destroyed? How will you ensure the aquifers are filled and maintained? How will ground water be replenished? How will you ensure the water retains a high quality? How will you build adequate septic or sewer systems? How will you address potential E.coli and other virus and bacteria problems? How will you prevent pollution of the Stanislaus River? Another recent article in the Modesto Bee printed June 23, 2021, discussed the sewage treatment plans for Riverbank; however, the River Walk area did not appear to be included.
Share with us the analysis of the effects on water quality and sewage treatment before continuing this River Walk Project.

This fertile riverbottom land is also a floodplain that has flooded several times in memory. We remember an old timer telling us about the dairy cows being hung up on the fences during the flood. We have a neighbor that had pictures of the flood. More recently, when floodwaters threatened their homes, the residents of the homes that were built on the floodplain in Riverbank complained bitterly about being allowed to build their homes on a floodplain. It seems insurance would be expensive and liability a potential threat to developers and the City of Riverbank. Who in good conscience could sell land and/or develop land that has the potential to destroy homes and even more importantly, lives? There has been flooding even with the "cushion" provided by New Melones Dam. Another concern is the possibility of bringing in outside soil to reinforce the bluffs that border the river. What guarantee will there be that serpentine soil or any asbestos soil rock should not be used? More importantly how can we be assured that only truly "clean" soil is used? It appears that there has been no Federal involvement. Federal Agencies should be involved to comment; the Army Corp of Engineers; as well as the State and Federal Water Resource Board.

This proposed site destroying already limited fecund agricultural land, seems even more tragic considering the less productive soil in surrounding Riverbank areas that can be more appropriately developed. Riverbank appears to have enough area for infill building/development as noted in a plan Riverbank approved in 2015. To paraphrase LAFCo Policy 22: Encourages development away from agricultural lands and encourages efficient development of existing vacant lands and infill properties before conversion of additional agricultural lands. We believe there may be a conflict of interest issue with Mr. Berryhill being on the board of LAFCo as the public alternate and now advocating for the urban development of superb agricultural land. We believe there may be a conflict of interest issue since Mr. Berryhill was appointed in 2017 to represent the public on the LAFCo panel and is now advocating for the urban development of superb agricultural land. At the time, Mr. Berryhill said, *"With a lifetime commitment to agriculture in Stanislaus County, this is something I would be well-suited for."*

McHenry Avenue is already impacted with traffic, to a time-consuming and dangerous degree. How will the safety of pedestrians, bicyclists and motorists be ensured as they enter and exit this proposed new development? What specifically are the proposed areas of ingress and egress for the River Walk project? How will that impact the already congested Riverbank streets and the communities and roads that surround this area, such as Coffee Road, Oakdale Road, Patterson Road, McHenry Avenue, Ladd Road, River Road, Claribel Road, Carver Road, Kiernan Avenue, Highway 99, The North Corridor, Modesto, Salida, Ripon, Escalon, etc? Smaller traffic areas need to be included as well, examples include Skittone Road, St. Johns Road, Steward Road, Claratina Avenue, etc. The River Heights residential area would become sandwiched in between Riverbank City and the proposed river bottom housing development. {Would those citizens be forced into annexation by Riverbank? We thought "leapfrogging" development was not allowed anymore. Additionally, River Heights has its own water and sewer. If they were annexed into Riverbank City, there is the potential for additional water and sewage complications. We would like a transportation analysis before further planning or action is taken. The bridge between Modesto and Escalon over the Stanislaus River was recently rebuilt. Traffic is still congested and dangerous, with several accidents already occurring. Additionally, the River Walk Project, does not appear to consider the impact of the approved Crossroads West Plan on traffic (or sewer, pollution, etc.). We would like to receive the analysis of the cumulative impact of all of these proposed and ongoing projects

There are also the issues of air, water, light, fire and noise pollution. The impact of 2400 homes and 2-3 times that number or more, of vehicles including cars, trucks, RVs, off road vehicles, quads, motorcycles, boats, lawn mowers, leaf blowers, fire pits, street lights, music, backyard activities, trash, pits, street lights, music, backyard activities, trash, watering lawns and landscape plants, etc. cannot be underestimated. Per home water use is significantly higher than agricultural water use per acre foot; an especially important fact during a drought year, or any time in California. Sound will travel up the bluff toward already existing homes, as any scientist can tell you. What sound barriers, light barriers, safety barriers is River Walk Specified Plan considering? The Environmental impact of the River Walk proposal needs to be evaluated carefully.

Wildlife is an added benefit when living in the country. What efforts have been made to ensure wildlife and riparian habitat/corridors will be maintained? How will domestic animals be contained? There is a seasonal "creek" that runs through the properties and continues to the river. How will that be protected? When housing occurs, all wildlife will be pushed out of this area, including foxes, coyotes, raccoons, opossums, porcupines, frogs, insects, birds (quail, hawks!), bats (well known to be important for pollination), etc. We have not observed anyone attempting to document wildlife in our area; we believe it is too late to document nesting sites for this year.

We are concerned with an increase in crime and property damage and trespassing. We are also concerned with an increase of homeless encampments and homeless people wandering around, as well as tourists and locals coming into this area. How will these concerns be addressed?

We are concerned citizens who have legitimate interest in the effect these proceedings will have on the ecological consequences, social consequences and long term impact on our quality of life, farming practices as well as quality, quantity and availability of water and surrounding wildlife and habitat.

Please provide all the information I have requested including all notices, hearings, staff reports, briefings, meetings, and other events related to the proposed River Walk Project. Please also notify us of the release of the draft EIR for the proposed Project.

Sincerely,

Central Valley Concerned Citizens
PO Box 181
Escalon, CA 95320

6 July 2021

Donna Kenney
City of Riverbank
6707 3rd Street
Riverbank, CA 95367

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, RIVER WALK SPECIFIC PLAN PROJECT, SCH#2021060098, STANISLAUS COUNTY

Pursuant to the State Clearinghouse's 4 June 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the River Walk Specific Plan Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after

they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Pesticide Discharge Permits

If the proposed project involves the application of pesticides at, near, or over waters of the United States that could result in the discharge of pollutants, the proposed project will require coverage under one or more of the State Water Resources Control Board (State Water Board) National Pollutant Discharge Elimination System (NPDES) Pesticide Permits. For more information regarding the Pesticides Permits, visit the State Water Board website at:
https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program.

There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/regulatory_information/for_growers/coalition_groups/ or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov. To find information on Agricultural and Irrigated land Fees, visit the State Water Resources Control Board website at https://www.waterboards.ca.gov/resources/fees/water_quality/#agwaiver and click the California Code of Regulations (Fee Schedule) linked text.

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4856 or Nicholas.White@waterboards.ca.gov.



Nicholas White
Water Resource Control Engineer

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 8:34 AM
To: Jayne Waters
Cc: Steve McMurtry
Subject: RE: Riverbank Development Proposal

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

-----Original Message-----
From: Jayne Waters <g3jayne@aol.com>
Sent: Tuesday, July 6, 2021 8:33 AM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: Riverbank Development Proposal

Dear Donna,

As a longtime resident in the area I am very concerned about the Riverwalk Development Proposal. Just a few of my concerns are as follows: The traffic issues that already exist on Mc Henry Avenue are terrible. Adding 2400 homes and at least twice the number of cars will create unimaginable traffic jams, pollution and noise. In addition, the last thing we need to do is annex some of the most productive and valuable farm land with accessible water when we need to feed all of California and the rest of the world. Wouldn't a better solution be to use Riverbank city infill?

Sincerely,
Jayne Waters
1416 Thunderbird Drive
Modesto, Ca 95356

Sent from my iPad

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:47 AM
To: Matt Veneman
Cc: Steve McMurtry
Subject: RE: River Walk

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager
City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

From: Matt Veneman <veneman78@gmail.com>
Sent: Monday, July 5, 2021 2:50 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject:

To whom it may concern,

As a property owner adjacent to the planned to the planned Riverbank expansion, I have some concerns that I would like have addressed.
1. Why were existing home owners not given any advanced notice of the planning of this project?

2. How are you planning to route traffic to and from this area? How will this negativity affect existing rural land owners?

3. Why are you planning to build in a known flood plain?

4. What are you defining as "fallow ground" in your report? (All of this area is actively producing agricultural ground?)

5. How do you intend to mitigate the negative impacts of this project to the existing Rural residents?

6. What effect will this project have on the value of adjacent farm land?

Thank you,
Matt Veneman
125 Hogue Rd, Modesto, CA 95356

Susan Wedegaertner
1348 Kiernan Avenue
Modesto, CA 95356
(209) 545-4732

July 6, 2021

Ms. Donna Kenney
Development Services
Planning and Building Manager
City of Riverbank
6707 Third Street
Riverbank, CA 95367

Dear Ms. Kenney

I would like to say I am opposed to the annex of the river bottom. This is prime farmland and should not be taken over by houses, parks, etc. One of my main concern is what the impact would be to the animals that live in the area. Has an environmental and wildlife impact been started and/or completed?

The traffic in the area still has congestion during various times of the day even after the road had been expanded. Has a study been done on the impact of more cars living and visiting this area? We are losing more green space that cannot be recovered and for why?

Who is providing the police, fire and other public services? Most of those services are already bursting at their limits and you want to add more and for why?

Where are the roads going to be placed to get into this annex? Are you going to have to purchase land for road access? How will the dust and noise level going to increase due to more cars in the area?

I am sure there is another area that would be a better solution than this particular area that is rich farm land and not disturbing people already living in the surrounding area.

It is a shame we need to continuously fight something like this to preserve our farmlands.

Sincerely

Susan Wedegaertner

Susan Wedegaertner

smcmurtry@denovoplanning.com

From: Donna M. Kenney <dkenney@riverbank.org>
Sent: Tuesday, July 6, 2021 7:40 AM
To: Wendy Summers
Cc: Steve McMurtry
Subject: RE: Riverwalk

Thank you for your comments. They have been received and forwarded to the consultant. Donna

Donna M. Kenney, AICP MCRP
Planning and Building Manager City of Riverbank, California
(209) 863-7124
www.riverbank.org

City Hall is open to the public Monday-Thursday, 7:30AM-5:30PM.
Development Appointments/Meetings are Monday-Thursday 9:00AM-3:00PM.

-----Original Message-----
From: Wendy Summers <wyngnit@hotmail.com>
Sent: Monday, July 5, 2021 4:04 PM
To: Donna M. Kenney <dkenney@riverbank.org>
Subject: Riverwalk

I am against annexing prime farm land on flood plain for more housing along the riverbank

Sent from my iPhone

Appendices

Air Quality, GHG, and Energy

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APPENDIX B1

CalEEMod Output

City of Riverbank - River Walk Specific Plan Detailed Report

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5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	City of Riverbank - River Walk Specific Plan
Construction Start Date	6/1/2025
Operational Year	2040
Lead Agency	—
Land Use Scale	Plan/community
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	25.4
Location	37.74204375733885, -120.98296284492157
County	Stanislaus
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2232
EDFZ	15
Electric Utility	Modesto Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.19

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Government Office Building	154	1000sqft	3.54	154,000	0.00	0.00	—	—
Health Club	20.0	1000sqft	0.46	20,000	0.00	0.00	—	—
Apartments Low Rise	175	Dwelling Unit	10.9	185,500	0.00	0.00	555	—
Retirement Community	2,149	Dwelling Unit	430	2,277,940	0.00	0.00	6,812	—
Single Family Housing	267	Dwelling Unit	86.7	520,650	3,127,333	0.00	846	—
Regional Shopping Center	425	1000sqft	9.76	425,000	0.00	0.00	—	—
Strip Mall	175	1000sqft	4.02	175,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Transportation	T-18	Provide Pedestrian Network Improvement
Transportation	T-35*	Provide Tra c Calming Measures
Energy	E-2	Require Energy Efficient Appliances
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.7	18.1	31.7	123	0.10	1.37	21.0	21.7	1.26	10.1	11.4	—	30,781	30,781	0.73	2.06	69.0	31,481
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.4	17.8	34.5	107	0.10	1.37	21.0	21.7	1.26	10.1	11.4	—	29,368	29,368	0.89	2.11	2.00	30,022
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.82	12.4	23.2	74.3	0.07	0.84	14.8	15.2	0.77	4.70	5.48	—	20,943	20,943	0.56	1.47	21.3	21,416
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.43	2.26	4.23	13.6	0.01	0.15	2.70	2.78	0.14	0.86	1.00	—	3,467	3,467	0.09	0.24	3.52	3,546

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.03	3.39	31.7	31.1	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,439	5,439	0.22	0.13	2.09	5,459
2026	3.82	3.22	29.2	29.7	0.06	1.24	19.8	21.0	1.14	10.1	11.3	—	6,759	6,759	0.27	0.06	0.60	6,784
2027	3.59	3.03	25.6	28.2	0.06	1.04	9.36	10.4	0.96	3.69	4.65	—	6,755	6,755	0.27	0.06	0.54	6,780
2028	3.50	2.96	24.4	28.0	0.06	0.99	9.36	10.3	0.91	3.69	4.60	—	6,752	6,752	0.27	0.06	0.49	6,777
2029	11.7	18.1	31.4	123	0.10	0.66	21.0	21.7	0.61	5.03	5.64	—	30,781	30,781	0.73	2.06	69.0	31,481
2030	11.3	17.6	29.9	117	0.10	0.62	21.0	21.6	0.58	5.03	5.61	—	30,170	30,170	0.68	1.41	61.3	30,667
2031	9.87	16.4	22.3	101	0.09	0.38	20.9	21.3	0.30	5.00	5.30	—	28,014	28,014	0.55	1.33	53.7	28,477
2032	8.83	16.0	21.7	96.4	0.09	0.36	20.9	21.3	0.28	5.00	5.28	—	27,528	27,528	0.49	1.33	46.9	27,983

2033	8.37	15.6	21.2	92.1	0.09	0.27	20.9	21.2	0.26	5.00	5.26	—	27,040	27,040	0.49	1.26	40.8	27,469
2034	7.93	15.1	20.1	88.4	0.09	0.26	20.9	21.2	0.25	5.00	5.25	—	26,587	26,587	0.49	1.26	35.2	27,011
2035	7.80	15.0	19.6	84.7	0.09	0.25	20.9	21.1	0.23	5.00	5.23	—	26,171	26,171	0.49	1.26	30.2	26,590
2036	7.51	14.7	19.1	81.1	0.09	0.24	20.9	21.1	0.22	5.00	5.22	—	25,795	25,795	0.43	1.20	25.6	26,189
2037	7.28	14.5	18.8	78.7	0.09	0.23	20.9	21.1	0.21	5.00	5.21	—	25,461	25,461	0.43	1.20	21.6	25,852
2038	6.95	14.2	17.9	77.0	0.09	0.22	20.9	21.1	0.21	5.00	5.21	—	25,155	25,155	0.43	1.14	18.1	25,523
2039	0.97	8.48	1.10	10.7	< 0.005	< 0.005	3.08	3.08	< 0.005	0.72	0.73	—	2,812	2,812	0.04	0.03	2.10	2,823
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.38	31.7	30.9	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,423	5,423	0.22	0.05	0.01	5,443
2026	3.82	3.21	29.2	29.5	0.06	1.24	19.8	21.0	1.14	10.1	11.3	—	6,742	6,742	0.27	0.06	0.02	6,766
2027	3.58	3.02	25.6	28.0	0.06	1.04	9.36	10.4	0.96	3.69	4.65	—	6,738	6,738	0.27	0.06	0.01	6,763
2028	11.4	17.8	34.5	107	0.10	0.99	21.0	21.7	0.91	5.03	5.68	—	29,368	29,368	0.89	2.11	2.00	30,022
2029	10.9	17.2	32.9	101	0.10	0.66	21.0	21.7	0.61	5.03	5.64	—	28,826	28,826	0.84	2.11	1.78	29,478
2030	10.4	16.7	31.4	96.1	0.10	0.62	21.0	21.6	0.58	5.03	5.61	—	28,258	28,258	0.77	2.05	1.59	28,889
2031	8.52	15.6	24.4	81.3	0.09	0.38	20.9	21.3	0.30	5.00	5.30	—	26,147	26,147	0.65	1.91	1.40	26,735
2032	8.16	15.2	23.1	78.1	0.09	0.36	20.9	21.3	0.28	5.00	5.28	—	25,690	25,690	0.59	1.90	1.22	26,274
2033	7.81	14.9	22.5	74.6	0.09	0.27	20.9	21.2	0.26	5.00	5.26	—	25,230	25,230	0.59	1.26	1.06	25,623
2034	7.52	14.7	21.5	71.6	0.09	0.26	20.9	21.2	0.25	5.00	5.25	—	24,804	24,804	0.59	1.26	0.91	25,196
2035	7.40	14.6	21.0	68.7	0.09	0.25	20.9	21.1	0.23	5.00	5.23	—	24,410	24,410	0.54	1.26	0.78	24,801
2036	7.16	14.4	20.5	65.9	0.09	0.24	20.9	21.1	0.22	5.00	5.22	—	24,055	24,055	0.54	1.20	0.66	24,427
2037	6.87	14.0	19.6	63.8	0.09	0.23	20.9	21.1	0.21	5.00	5.21	—	23,740	23,740	0.49	1.20	0.56	24,110
2038	6.71	13.4	19.3	61.9	0.09	0.22	20.9	21.1	0.21	5.00	5.21	—	23,451	23,451	0.49	1.14	0.47	23,802
2039	6.32	13.0	19.0	60.6	0.09	0.21	20.9	21.1	0.20	5.00	5.20	—	23,204	23,204	0.49	1.14	0.39	23,555
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.60	1.34	12.6	12.1	0.02	0.54	6.75	7.29	0.49	3.43	3.92	—	2,172	2,172	0.09	0.03	0.16	2,182
2026	2.68	2.26	20.1	20.6	0.04	0.84	10.0	10.9	0.77	4.70	5.48	—	4,395	4,395	0.18	0.04	0.17	4,412

2027	2.56	2.16	18.3	20.0	0.04	0.75	6.68	7.43	0.69	2.63	3.32	—	4,816	4,816	0.19	0.04	0.17	4,834
2028	3.51	3.97	18.6	30.2	0.05	0.67	8.12	8.79	0.62	2.80	3.42	—	7,725	7,725	0.26	0.29	4.30	7,823
2029	7.82	12.4	23.2	74.3	0.07	0.47	14.8	15.2	0.44	3.53	3.97	—	20,943	20,943	0.56	1.47	21.3	21,416
2030	7.17	11.8	20.0	67.2	0.07	0.37	14.7	15.1	0.34	3.52	3.87	—	19,967	19,967	0.50	1.42	18.9	20,422
2031	6.17	11.2	16.7	59.9	0.06	0.27	14.7	15.0	0.21	3.51	3.72	—	19,013	19,013	0.42	1.36	16.6	19,446
2032	5.90	11.0	16.3	57.6	0.06	0.26	14.7	15.0	0.20	3.52	3.72	—	18,733	18,733	0.39	0.95	14.5	19,041
2033	5.63	10.7	15.4	55.0	0.06	0.20	14.7	14.9	0.18	3.51	3.70	—	18,349	18,349	0.39	0.90	12.6	18,640
2034	5.35	10.5	15.1	52.6	0.06	0.19	14.7	14.9	0.18	3.51	3.69	—	18,039	18,039	0.39	0.90	10.9	18,329
2035	5.30	10.4	14.4	50.3	0.06	0.18	14.7	14.9	0.17	3.51	3.68	—	17,754	17,754	0.35	0.90	9.34	18,041
2036	5.14	10.3	14.0	48.6	0.06	0.17	14.7	14.9	0.16	3.52	3.68	—	17,544	17,544	0.35	0.86	7.91	17,817
2037	4.92	10.1	13.7	47.0	0.06	0.16	14.7	14.9	0.15	3.51	3.66	—	17,268	17,268	0.35	0.86	6.67	17,539
2038	4.73	9.47	13.5	45.8	0.06	0.16	14.7	14.8	0.15	3.51	3.66	—	17,058	17,058	0.35	0.81	5.59	17,315
2039	1.61	6.82	3.86	15.4	0.02	0.04	5.18	5.22	0.04	1.23	1.27	—	5,479	5,479	0.10	0.21	1.61	5,546
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.29	0.24	2.29	2.21	< 0.005	0.10	1.23	1.33	0.09	0.63	0.72	—	360	360	0.01	< 0.005	0.03	361
2026	0.49	0.41	3.67	3.76	0.01	0.15	1.83	1.98	0.14	0.86	1.00	—	728	728	0.03	0.01	0.03	730
2027	0.47	0.39	3.34	3.65	0.01	0.14	1.22	1.36	0.13	0.48	0.61	—	797	797	0.03	0.01	0.03	800
2028	0.64	0.73	3.40	5.51	0.01	0.12	1.48	1.60	0.11	0.51	0.62	—	1,279	1,279	0.04	0.05	0.71	1,295
2029	1.43	2.26	4.23	13.6	0.01	0.09	2.70	2.78	0.08	0.64	0.72	—	3,467	3,467	0.09	0.24	3.52	3,546
2030	1.31	2.15	3.64	12.3	0.01	0.07	2.69	2.76	0.06	0.64	0.71	—	3,306	3,306	0.08	0.23	3.12	3,381
2031	1.13	2.05	3.05	10.9	0.01	0.05	2.68	2.73	0.04	0.64	0.68	—	3,148	3,148	0.07	0.23	2.74	3,220
2032	1.08	2.00	2.98	10.5	0.01	0.05	2.69	2.74	0.04	0.64	0.68	—	3,101	3,101	0.06	0.16	2.40	3,152
2033	1.03	1.96	2.82	10.0	0.01	0.04	2.68	2.72	0.03	0.64	0.67	—	3,038	3,038	0.06	0.15	2.08	3,086
2034	0.98	1.92	2.75	9.60	0.01	0.03	2.68	2.72	0.03	0.64	0.67	—	2,987	2,987	0.06	0.15	1.80	3,035
2035	0.97	1.91	2.62	9.18	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,939	2,939	0.06	0.15	1.55	2,987
2036	0.94	1.88	2.56	8.86	0.01	0.03	2.69	2.72	0.03	0.64	0.67	—	2,905	2,905	0.06	0.14	1.31	2,950
2037	0.90	1.84	2.50	8.58	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,859	2,859	0.06	0.14	1.10	2,904

2038	0.86	1.73	2.46	8.35	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,824	2,824	0.06	0.13	0.93	2,867
2039	0.29	1.24	0.70	2.81	< 0.005	0.01	0.95	0.95	0.01	0.22	0.23	—	907	907	0.02	0.03	0.27	918

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.03	3.39	31.7	31.1	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,439	5,439	0.22	0.13	2.09	5,459
2026	3.82	3.22	29.2	29.7	0.06	1.24	19.8	21.0	1.14	10.1	11.3	—	6,759	6,759	0.27	0.06	0.60	6,784
2027	3.59	3.03	25.6	28.2	0.06	1.04	9.36	10.4	0.96	3.69	4.65	—	6,755	6,755	0.27	0.06	0.54	6,780
2028	3.50	2.96	24.4	28.0	0.06	0.99	9.36	10.3	0.91	3.69	4.60	—	6,752	6,752	0.27	0.06	0.49	6,777
2029	11.7	18.1	31.4	123	0.10	0.66	21.0	21.7	0.61	5.03	5.64	—	30,781	30,781	0.73	2.06	69.0	31,481
2030	11.3	17.6	29.9	117	0.10	0.62	21.0	21.6	0.58	5.03	5.61	—	30,170	30,170	0.68	1.41	61.3	30,667
2031	9.87	16.4	22.3	101	0.09	0.38	20.9	21.3	0.30	5.00	5.30	—	28,014	28,014	0.55	1.33	53.7	28,477
2032	8.83	16.0	21.7	96.4	0.09	0.36	20.9	21.3	0.28	5.00	5.28	—	27,528	27,528	0.49	1.33	46.9	27,983
2033	8.37	15.6	21.2	92.1	0.09	0.27	20.9	21.2	0.26	5.00	5.26	—	27,040	27,040	0.49	1.26	40.8	27,469
2034	7.93	15.1	20.1	88.4	0.09	0.26	20.9	21.2	0.25	5.00	5.25	—	26,587	26,587	0.49	1.26	35.2	27,011
2035	7.80	15.0	19.6	84.7	0.09	0.25	20.9	21.1	0.23	5.00	5.23	—	26,171	26,171	0.49	1.26	30.2	26,590
2036	7.51	14.7	19.1	81.1	0.09	0.24	20.9	21.1	0.22	5.00	5.22	—	25,795	25,795	0.43	1.20	25.6	26,189
2037	7.28	14.5	18.8	78.7	0.09	0.23	20.9	21.1	0.21	5.00	5.21	—	25,461	25,461	0.43	1.20	21.6	25,852
2038	6.95	14.2	17.9	77.0	0.09	0.22	20.9	21.1	0.21	5.00	5.21	—	25,155	25,155	0.43	1.14	18.1	25,523
2039	0.97	8.48	1.10	10.7	< 0.005	< 0.005	3.08	3.08	< 0.005	0.72	0.73	—	2,812	2,812	0.04	0.03	2.10	2,823
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.02	3.38	31.7	30.9	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,423	5,423	0.22	0.05	0.01	5,443
2026	3.82	3.21	29.2	29.5	0.06	1.24	19.8	21.0	1.14	10.1	11.3	—	6,742	6,742	0.27	0.06	0.02	6,766

2027	3.58	3.02	25.6	28.0	0.06	1.04	9.36	10.4	0.96	3.69	4.65	—	6,738	6,738	0.27	0.06	0.01	6,763
2028	11.4	17.8	34.5	107	0.10	0.99	21.0	21.7	0.91	5.03	5.68	—	29,368	29,368	0.89	2.11	2.00	30,022
2029	10.9	17.2	32.9	101	0.10	0.66	21.0	21.7	0.61	5.03	5.64	—	28,826	28,826	0.84	2.11	1.78	29,478
2030	10.4	16.7	31.4	96.1	0.10	0.62	21.0	21.6	0.58	5.03	5.61	—	28,258	28,258	0.77	2.05	1.59	28,889
2031	8.52	15.6	24.4	81.3	0.09	0.38	20.9	21.3	0.30	5.00	5.30	—	26,147	26,147	0.65	1.91	1.40	26,735
2032	8.16	15.2	23.1	78.1	0.09	0.36	20.9	21.3	0.28	5.00	5.28	—	25,690	25,690	0.59	1.90	1.22	26,274
2033	7.81	14.9	22.5	74.6	0.09	0.27	20.9	21.2	0.26	5.00	5.26	—	25,230	25,230	0.59	1.26	1.06	25,623
2034	7.52	14.7	21.5	71.6	0.09	0.26	20.9	21.2	0.25	5.00	5.25	—	24,804	24,804	0.59	1.26	0.91	25,196
2035	7.40	14.6	21.0	68.7	0.09	0.25	20.9	21.1	0.23	5.00	5.23	—	24,410	24,410	0.54	1.26	0.78	24,801
2036	7.16	14.4	20.5	65.9	0.09	0.24	20.9	21.1	0.22	5.00	5.22	—	24,055	24,055	0.54	1.20	0.66	24,427
2037	6.87	14.0	19.6	63.8	0.09	0.23	20.9	21.1	0.21	5.00	5.21	—	23,740	23,740	0.49	1.20	0.56	24,110
2038	6.71	13.4	19.3	61.9	0.09	0.22	20.9	21.1	0.21	5.00	5.21	—	23,451	23,451	0.49	1.14	0.47	23,802
2039	6.32	13.0	19.0	60.6	0.09	0.21	20.9	21.1	0.20	5.00	5.20	—	23,204	23,204	0.49	1.14	0.39	23,555
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.60	1.34	12.6	12.1	0.02	0.54	6.75	7.29	0.49	3.43	3.92	—	2,172	2,172	0.09	0.03	0.16	2,182
2026	2.68	2.26	20.1	20.6	0.04	0.84	10.0	10.9	0.77	4.70	5.48	—	4,395	4,395	0.18	0.04	0.17	4,412
2027	2.56	2.16	18.3	20.0	0.04	0.75	6.68	7.43	0.69	2.63	3.32	—	4,816	4,816	0.19	0.04	0.17	4,834
2028	3.51	3.97	18.6	30.2	0.05	0.67	8.12	8.79	0.62	2.80	3.42	—	7,725	7,725	0.26	0.29	4.30	7,823
2029	7.82	12.4	23.2	74.3	0.07	0.47	14.8	15.2	0.44	3.53	3.97	—	20,943	20,943	0.56	1.47	21.3	21,416
2030	7.17	11.8	20.0	67.2	0.07	0.37	14.7	15.1	0.34	3.52	3.87	—	19,967	19,967	0.50	1.42	18.9	20,422
2031	6.17	11.2	16.7	59.9	0.06	0.27	14.7	15.0	0.21	3.51	3.72	—	19,013	19,013	0.42	1.36	16.6	19,446
2032	5.90	11.0	16.3	57.6	0.06	0.26	14.7	15.0	0.20	3.52	3.72	—	18,733	18,733	0.39	0.95	14.5	19,041
2033	5.63	10.7	15.4	55.0	0.06	0.20	14.7	14.9	0.18	3.51	3.70	—	18,349	18,349	0.39	0.90	12.6	18,640
2034	5.35	10.5	15.1	52.6	0.06	0.19	14.7	14.9	0.18	3.51	3.69	—	18,039	18,039	0.39	0.90	10.9	18,329
2035	5.30	10.4	14.4	50.3	0.06	0.18	14.7	14.9	0.17	3.51	3.68	—	17,754	17,754	0.35	0.90	9.34	18,041
2036	5.14	10.3	14.0	48.6	0.06	0.17	14.7	14.9	0.16	3.52	3.68	—	17,544	17,544	0.35	0.86	7.91	17,817
2037	4.92	10.1	13.7	47.0	0.06	0.16	14.7	14.9	0.15	3.51	3.66	—	17,268	17,268	0.35	0.86	6.67	17,539

2038	4.73	9.47	13.5	45.8	0.06	0.16	14.7	14.8	0.15	3.51	3.66	—	17,058	17,058	0.35	0.81	5.59	17,315
2039	1.61	6.82	3.86	15.4	0.02	0.04	5.18	5.22	0.04	1.23	1.27	—	5,479	5,479	0.10	0.21	1.61	5,546
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.29	0.24	2.29	2.21	< 0.005	0.10	1.23	1.33	0.09	0.63	0.72	—	360	360	0.01	< 0.005	0.03	361
2026	0.49	0.41	3.67	3.76	0.01	0.15	1.83	1.98	0.14	0.86	1.00	—	728	728	0.03	0.01	0.03	730
2027	0.47	0.39	3.34	3.65	0.01	0.14	1.22	1.36	0.13	0.48	0.61	—	797	797	0.03	0.01	0.03	800
2028	0.64	0.73	3.40	5.51	0.01	0.12	1.48	1.60	0.11	0.51	0.62	—	1,279	1,279	0.04	0.05	0.71	1,295
2029	1.43	2.26	4.23	13.6	0.01	0.09	2.70	2.78	0.08	0.64	0.72	—	3,467	3,467	0.09	0.24	3.52	3,546
2030	1.31	2.15	3.64	12.3	0.01	0.07	2.69	2.76	0.06	0.64	0.71	—	3,306	3,306	0.08	0.23	3.12	3,381
2031	1.13	2.05	3.05	10.9	0.01	0.05	2.68	2.73	0.04	0.64	0.68	—	3,148	3,148	0.07	0.23	2.74	3,220
2032	1.08	2.00	2.98	10.5	0.01	0.05	2.69	2.74	0.04	0.64	0.68	—	3,101	3,101	0.06	0.16	2.40	3,152
2033	1.03	1.96	2.82	10.0	0.01	0.04	2.68	2.72	0.03	0.64	0.67	—	3,038	3,038	0.06	0.15	2.08	3,086
2034	0.98	1.92	2.75	9.60	0.01	0.03	2.68	2.72	0.03	0.64	0.67	—	2,987	2,987	0.06	0.15	1.80	3,035
2035	0.97	1.91	2.62	9.18	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,939	2,939	0.06	0.15	1.55	2,987
2036	0.94	1.88	2.56	8.86	0.01	0.03	2.69	2.72	0.03	0.64	0.67	—	2,905	2,905	0.06	0.14	1.31	2,950
2037	0.90	1.84	2.50	8.58	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,859	2,859	0.06	0.14	1.10	2,904
2038	0.86	1.73	2.46	8.35	0.01	0.03	2.68	2.71	0.03	0.64	0.67	—	2,824	2,824	0.06	0.13	0.93	2,867
2039	0.29	1.24	0.70	2.81	< 0.005	0.01	0.95	0.95	0.01	0.22	0.23	—	907	907	0.02	0.03	0.27	918

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	42.5	123	51.4	705	1.67	1.95	174	176	1.88	44.3	46.2	4,369	200,454	204,823	444	6.65	142	218,046
Mit.	41.1	122	49.1	672	1.57	1.91	163	165	1.83	41.5	43.3	4,338	189,410	193,748	440	6.21	135	206,746

% Reduced	3%	1%	5%	5%	6%	3%	6%	6%	2%	6%	6%	1%	6%	5%	1%	7%	5%	5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	22.1	104	55.3	380	1.52	1.83	174	176	1.79	44.3	46.1	4,369	186,189	190,558	444	7.02	40.3	203,786
Mit.	20.8	103	52.6	356	1.43	1.78	163	165	1.74	41.5	43.2	4,338	176,023	180,361	440	6.56	40.1	193,365
% Reduced	6%	1%	5%	6%	6%	3%	6%	6%	3%	6%	6%	1%	5%	5%	1%	7%	< 0.5%	5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	31.9	113	53.8	501	1.56	1.89	171	173	1.83	43.6	45.4	4,369	189,969	194,338	444	6.86	82.7	207,561
Mit.	30.5	112	51.3	475	1.47	1.84	160	162	1.79	40.8	42.6	4,338	179,578	183,916	440	6.41	79.8	196,915
% Reduced	4%	1%	5%	5%	6%	3%	6%	6%	3%	6%	6%	1%	5%	5%	1%	7%	3%	5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.82	20.7	9.82	91.4	0.29	0.35	31.3	31.6	0.33	7.95	8.29	723	31,451	32,175	73.5	1.14	13.7	34,364
Mit.	5.57	20.5	9.36	86.7	0.27	0.34	29.3	29.6	0.33	7.44	7.77	718	29,731	30,449	72.9	1.06	13.2	32,602
% Reduced	4%	1%	5%	5%	6%	3%	6%	6%	3%	6%	6%	1%	5%	5%	1%	7%	3%	5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	21.5	17.8	36.5	517	1.58	0.77	174	175	0.73	44.3	45.0	—	160,692	160,692	2.83	5.53	104	162,516
Area	19.5	105	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	0.00	531	531	0.02	< 0.005	—	533

Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	38,543	38,543	3.42	0.27	—	38,708
Water	—	—	—	—	—	—	—	—	—	—	—	344	688	1,032	35.4	0.85	—	2,168
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	42.5	123	51.4	705	1.67	1.95	174	176	1.88	44.3	46.2	4,369	200,454	204,823	444	6.65	142	218,046
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	20.6	17.0	42.0	373	1.44	0.77	174	175	0.73	44.3	45.0	—	146,958	146,958	2.79	5.90	2.71	148,790
Area	0.00	86.5	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	38,543	38,543	3.42	0.27	—	38,708
Water	—	—	—	—	—	—	—	—	—	—	—	344	688	1,032	35.4	0.85	—	2,168
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	22.1	104	55.3	380	1.52	1.83	174	176	1.79	44.3	46.1	4,369	186,189	190,558	444	7.02	40.3	203,786
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	20.7	17.2	39.8	405	1.47	0.77	171	172	0.73	43.6	44.3	—	150,476	150,476	2.80	5.74	45.1	152,302
Area	9.60	95.5	0.81	89.5	< 0.005	0.06	—	0.06	0.05	—	0.05	0.00	262	262	0.01	< 0.005	—	263
Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	38,543	38,543	3.42	0.27	—	38,708
Water	—	—	—	—	—	—	—	—	—	—	—	344	688	1,032	35.4	0.85	—	2,168
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	31.9	113	53.8	501	1.56	1.89	171	173	1.83	43.6	45.4	4,369	189,969	194,338	444	6.86	82.7	207,561
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.79	3.13	7.26	73.9	0.27	0.14	31.3	31.4	0.13	7.95	8.09	—	24,913	24,913	0.46	0.95	7.46	25,215
Area	1.75	17.4	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	43.4	43.4	< 0.005	< 0.005	—	43.5
Energy	0.28	0.14	2.41	1.24	0.02	0.19	—	0.19	0.19	—	0.19	—	6,381	6,381	0.57	0.04	—	6,409
Water	—	—	—	—	—	—	—	—	—	—	—	57.0	114	171	5.85	0.14	—	359

Waste	—	—	—	—	—	—	—	—	—	—	—	666	0.00	666	66.6	0.00	—	2,331
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.22	6.22
Total	5.82	20.7	9.82	91.4	0.29	0.35	31.3	31.6	0.33	7.95	8.29	723	31,451	32,175	73.5	1.14	13.7	34,364

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	20.1	16.7	34.2	484	1.48	0.72	163	164	0.68	41.5	42.1	—	150,408	150,408	2.65	5.18	97.7	152,115
Area	19.5	105	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	0.00	531	531	0.02	< 0.005	—	533
Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	37,880	37,880	3.36	0.26	—	38,042
Water	—	—	—	—	—	—	—	—	—	—	—	313	591	904	32.1	0.77	—	1,936
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	41.1	122	49.1	672	1.57	1.91	163	165	1.83	41.5	43.3	4,338	189,410	193,748	440	6.21	135	206,746
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	19.2	15.9	39.3	349	1.35	0.72	163	164	0.68	41.5	42.1	—	137,553	137,553	2.61	5.53	2.53	139,267
Area	0.00	86.5	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	37,880	37,880	3.36	0.26	—	38,042
Water	—	—	—	—	—	—	—	—	—	—	—	313	591	904	32.1	0.77	—	1,936
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	20.8	103	52.6	356	1.43	1.78	163	165	1.74	41.5	43.2	4,338	176,023	180,361	440	6.56	40.1	193,365
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	19.4	16.1	37.2	379	1.38	0.72	160	161	0.68	40.8	41.5	—	140,845	140,845	2.62	5.37	42.2	142,554
Area	9.60	95.5	0.81	89.5	< 0.005	0.06	—	0.06	0.05	—	0.05	0.00	262	262	0.01	< 0.005	—	263
Energy	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	37,880	37,880	3.36	0.26	—	38,042
Water	—	—	—	—	—	—	—	—	—	—	—	313	591	904	32.1	0.77	—	1,936
Waste	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Total	30.5	112	51.3	475	1.47	1.84	160	162	1.79	40.8	42.6	4,338	179,578	183,916	440	6.41	79.8	196,915
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.54	2.93	6.80	69.1	0.25	0.13	29.3	29.4	0.12	7.44	7.57	—	23,319	23,319	0.43	0.89	6.99	23,602
Area	1.75	17.4	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	43.4	43.4	< 0.005	< 0.005	—	43.5
Energy	0.28	0.14	2.41	1.24	0.02	0.19	—	0.19	0.19	—	0.19	—	6,271	6,271	0.56	0.04	—	6,298
Water	—	—	—	—	—	—	—	—	—	—	—	51.8	97.8	150	5.32	0.13	—	321
Waste	—	—	—	—	—	—	—	—	—	—	—	666	0.00	666	66.6	0.00	—	2,331
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.22	6.22
Total	5.57	20.5	9.36	86.7	0.27	0.34	29.3	29.6	0.33	7.44	7.77	718	29,731	30,449	72.9	1.06	13.2	32,602

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.83	0.83	—	0.13	0.13	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.82	1.64	< 0.005	0.08	—	0.08	0.07	—	0.07	—	282	282	0.01	< 0.005	—	282
Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	46.6	46.6	< 0.005	< 0.005	—	46.8
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.81	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	123	123	0.01	< 0.005	0.49	125
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.81	0.19	< 0.005	0.01	0.17	0.19	0.01	0.05	0.06	—	658	658	0.01	0.10	1.59	690
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.28	9.28	< 0.005	< 0.005	0.02	9.42

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.1	54.1	< 0.005	0.01	0.06	56.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.95	8.95	< 0.005	< 0.005	0.01	9.38

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.86	2.40	22.2	19.9	0.03	0.92	—	0.92	0.84	—	0.84	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	0.83	0.83	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.82	1.64	< 0.005	0.08	—	0.08	0.07	—	0.07	—	282	282	0.01	< 0.005	—	282
Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	46.6	46.6	< 0.005	< 0.005	—	46.8
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.04	0.81	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	123	123	0.01	< 0.005	0.49	125
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.02	0.81	0.19	< 0.005	0.01	0.17	0.19	0.01	0.05	0.06	—	658	658	0.01	0.10	1.59	690
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.28	9.28	< 0.005	< 0.005	0.02	9.42
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	54.1	54.1	< 0.005	0.01	0.06	56.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.54	1.54	< 0.005	< 0.005	< 0.005	1.56
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.95	8.95	< 0.005	< 0.005	0.01	9.38

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.11	10.7	10.2	0.02	0.46	—	0.46	0.42	—	0.42	—	1,782	1,782	0.07	0.01	—	1,789
Dust From Material Movement	—	—	—	—	—	—	6.62	6.62	—	3.40	3.40	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.24	0.20	1.94	1.85	< 0.005	0.08	—	0.08	0.08	—	0.08	—	295	295	0.01	< 0.005	—	296
Dust From Material Movement	—	—	—	—	—	—	1.21	1.21	—	0.62	0.62	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.94	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	143	143	0.01	0.01	0.57	146
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.01	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.25	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	44.3	44.3	< 0.005	< 0.005	0.08	45.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.34	7.34	< 0.005	< 0.005	0.01	7.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.11	10.7	10.2	0.02	0.46	—	0.46	0.42	—	0.42	—	1,782	1,782	0.07	0.01	—	1,789
Dust From Material Movement	—	—	—	—	—	—	6.62	6.62	—	3.40	3.40	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.94	1.85	< 0.005	0.08	—	0.08	0.08	—	0.08	—	295	295	0.01	< 0.005	—	296
Dust From Material Movement	—	—	—	—	—	—	1.21	1.21	—	0.62	0.62	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.94	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	143	143	0.01	0.01	0.57	146
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.01	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.25	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	44.3	44.3	< 0.005	< 0.005	0.08	45.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.34	7.34	< 0.005	< 0.005	0.01	7.46
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	1.01	9.36	9.25	0.02	0.40	—	0.40	0.37	—	0.37	—	1,700	1,700	0.07	0.01	—	1,706

Dust From Material Movement	—	—	—	—	—	—	6.31	6.31	—	3.24	3.24	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.71	1.69	< 0.005	0.07	—	0.07	0.07	—	0.07	—	282	282	0.01	< 0.005	—	282
Dust From Material Movement	—	—	—	—	—	—	1.15	1.15	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.87	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	140	140	< 0.005	0.01	0.52	143
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	125	125	< 0.005	0.01	0.01	127
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.4	41.4	< 0.005	< 0.005	0.07	42.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.86	6.86	< 0.005	< 0.005	0.01	6.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24	—	1.24	1.14	—	1.14	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	1.01	9.36	9.25	0.02	0.40	—	0.40	0.37	—	0.37	—	1,700	1,700	0.07	0.01	—	1,706
Dust From Material Movement	—	—	—	—	—	—	6.31	6.31	—	3.24	3.24	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.18	1.71	1.69	< 0.005	0.07	—	0.07	0.07	—	0.07	—	282	282	0.01	< 0.005	—	282
Dust From Material Movement	—	—	—	—	—	—	1.15	1.15	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.05	0.87	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	140	140	< 0.005	0.01	0.52	143
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	125	125	< 0.005	0.01	0.01	127
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.4	41.4	< 0.005	< 0.005	0.07	42.1

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.86	6.86	< 0.005	< 0.005	0.01	6.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.20	10.7	10.8	0.02	0.44	—	0.44	0.41	—	0.41	—	2,596	2,596	0.11	0.02	—	2,604
Dust From Material Movement	—	—	—	—	—	—	3.62	3.62	—	1.44	1.44	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.95	1.98	< 0.005	0.08	—	0.08	0.07	—	0.07	—	430	430	0.02	< 0.005	—	431
Dust From Material Movement	—	—	—	—	—	—	0.66	0.66	—	0.26	0.26	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	1.00	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	160	160	< 0.005	0.01	0.60	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.06	0.76	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	143	143	< 0.005	0.01	0.02	145
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.10	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.60	9.60	< 0.005	< 0.005	0.02	9.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Grading (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.62	3.04	27.2	27.6	0.06	1.12	—	1.12	1.03	—	1.03	—	6,599	6,599	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.20	10.7	10.8	0.02	0.44	—	0.44	0.41	—	0.41	—	2,596	2,596	0.11	0.02	—	2,604
Dust From Material Movement	—	—	—	—	—	—	3.62	3.62	—	1.44	1.44	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.22	1.95	1.98	< 0.005	0.08	—	0.08	0.07	—	0.07	—	430	430	0.02	< 0.005	—	431
Dust From Material Movement	—	—	—	—	—	—	0.66	0.66	—	0.26	0.26	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.05	1.00	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	160	160	< 0.005	0.01	0.60	163
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.08	0.08	0.06	0.76	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	143	143	< 0.005	0.01	0.02	145
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.0	58.0	< 0.005	< 0.005	0.10	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.60	9.60	< 0.005	< 0.005	0.02	9.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Grading (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.50	2.10	18.3	19.5	0.04	0.75	—	0.75	0.69	—	0.69	—	4,713	4,713	0.19	0.04	—	4,729
Dust From Material Movement	—	—	—	—	—	—	6.57	6.57	—	2.61	2.61	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.33	3.56	0.01	0.14	—	0.14	0.13	—	0.13	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	1.20	1.20	—	0.48	0.48	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.90	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.54	159
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.69	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	140	140	< 0.005	0.01	0.01	142
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.51	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	< 0.005	0.17	105
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.03	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Grading (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.51	2.95	25.6	27.3	0.06	1.04	—	1.04	0.96	—	0.96	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.50	2.10	18.3	19.5	0.04	0.75	—	0.75	0.69	—	0.69	—	4,713	4,713	0.19	0.04	—	4,729
Dust From Material Movement	—	—	—	—	—	—	6.57	6.57	—	2.61	2.61	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.46	0.38	3.33	3.56	0.01	0.14	—	0.14	0.13	—	0.13	—	780	780	0.03	0.01	—	783
Dust From Material Movement	—	—	—	—	—	—	1.20	1.20	—	0.48	0.48	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.05	0.90	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	157	157	< 0.005	0.01	0.54	159

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.06	0.69	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	140	140	< 0.005	0.01	0.01	142
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.51	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	< 0.005	0.17	105
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.03	17.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Grading (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621

Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.02	1.70	14.4	16.1	0.04	0.58	—	0.58	0.54	—	0.54	—	3,900	3,900	0.16	0.03	—	3,913
Dust From Material Movement	—	—	—	—	—	—	5.44	5.44	—	2.16	2.16	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.62	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	646	646	0.03	0.01	—	648
Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.39	0.39	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.84	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	154	154	< 0.005	0.01	0.49	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.65	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	137	137	< 0.005	0.01	0.01	139
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.40	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	83.7	83.7	< 0.005	< 0.005	0.13	84.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.02	14.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Grading (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.43	2.88	24.3	27.2	0.06	0.99	—	0.99	0.91	—	0.91	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.02	1.70	14.4	16.1	0.04	0.58	—	0.58	0.54	—	0.54	—	3,900	3,900	0.16	0.03	—	3,913
Dust From Material Movement	—	—	—	—	—	—	5.44	5.44	—	2.16	2.16	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	0.31	2.62	2.93	0.01	0.11	—	0.11	0.10	—	0.10	—	646	646	0.03	0.01	—	648
Dust From Material Movement	—	—	—	—	—	—	0.99	0.99	—	0.39	0.39	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.04	0.84	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	154	154	< 0.005	0.01	0.49	156
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.05	0.65	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	137	137	< 0.005	0.01	0.01	139
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.40	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	83.7	83.7	< 0.005	< 0.005	0.13	84.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.02	14.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.12	1.62	< 0.005	0.04	—	0.04	0.03	—	0.03	—	300	300	0.01	< 0.005	—	301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.7	49.7	< 0.005	< 0.005	—	49.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.33	6.67	5.40	65.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,871	13,871	0.45	0.66	1.28	14,080
Vendor	0.45	0.31	11.7	4.11	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,578	8,578	0.19	1.28	0.45	8,966
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.92	0.84	0.60	8.46	0.00	0.00	1.90	1.90	0.00	0.44	0.44	—	1,790	1,790	0.04	0.08	2.68	1,817
Vendor	0.06	0.04	1.43	0.50	0.01	0.02	0.30	0.32	0.02	0.08	0.10	—	1,074	1,074	0.02	0.16	0.94	1,123
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.11	1.54	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	296	296	0.01	0.01	0.44	301
Vendor	0.01	0.01	0.26	0.09	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	178	178	< 0.005	0.03	0.16	186
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Building Construction (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.30	—	0.30	0.28	—	0.28	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.12	1.62	< 0.005	0.04	—	0.04	0.03	—	0.03	—	300	300	0.01	< 0.005	—	301
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.20	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	49.7	49.7	< 0.005	< 0.005	—	49.9

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.33	6.67	5.40	65.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,871	13,871	0.45	0.66	1.28	14,080
Vendor	0.45	0.31	11.7	4.11	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,578	8,578	0.19	1.28	0.45	8,966
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.84	0.60	8.46	0.00	0.00	1.90	1.90	0.00	0.44	0.44	—	1,790	1,790	0.04	0.08	2.68	1,817
Vendor	0.06	0.04	1.43	0.50	0.01	0.02	0.30	0.32	0.02	0.08	0.10	—	1,074	1,074	0.02	0.16	0.94	1,123
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.11	1.54	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	296	296	0.01	0.01	0.44	301
Vendor	0.01	0.01	0.26	0.09	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	178	178	< 0.005	0.03	0.16	186
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Building Construction (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.13	9.22	0.02	0.20	—	0.20	0.18	—	0.18	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.12	1.68	< 0.005	0.04	—	0.04	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.59	6.98	4.13	79.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	15,240	15,240	0.31	0.61	44.4	15,476
Vendor	0.46	0.26	10.5	3.87	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,338	8,338	0.19	1.28	15.4	8,741
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.93	6.27	4.83	60.8	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,614	13,614	0.40	0.66	1.15	13,821

Vendor	0.44	0.23	11.2	4.02	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,348	8,348	0.19	1.28	0.40	8,736
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.98	4.54	3.36	45.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	10,019	10,019	0.25	0.44	13.7	10,170
Vendor	0.32	0.18	7.83	2.81	0.05	0.09	1.71	1.80	0.09	0.47	0.56	—	5,959	5,959	0.14	0.92	4.75	6,240
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.91	0.83	0.61	8.21	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,659	1,659	0.04	0.07	2.27	1,684
Vendor	0.06	0.03	1.43	0.51	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	987	987	0.02	0.15	0.79	1,033
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Building Construction (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28	—	0.28	0.25	—	0.25	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.13	9.22	0.02	0.20	—	0.20	0.18	—	0.18	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.12	1.68	< 0.005	0.04	—	0.04	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.59	6.98	4.13	79.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	15,240	15,240	0.31	0.61	44.4	15,476
Vendor	0.46	0.26	10.5	3.87	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,338	8,338	0.19	1.28	15.4	8,741
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.93	6.27	4.83	60.8	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,614	13,614	0.40	0.66	1.15	13,821
Vendor	0.44	0.23	11.2	4.02	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,348	8,348	0.19	1.28	0.40	8,736
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.98	4.54	3.36	45.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	10,019	10,019	0.25	0.44	13.7	10,170
Vendor	0.32	0.18	7.83	2.81	0.05	0.09	1.71	1.80	0.09	0.47	0.56	—	5,959	5,959	0.14	0.92	4.75	6,240
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.91	0.83	0.61	8.21	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,659	1,659	0.04	0.07	2.27	1,684

Vendor	0.06	0.03	1.43	0.51	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	987	987	0.02	0.15	0.79	1,033
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.99	9.20	0.02	0.19	—	0.19	0.17	—	0.17	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.09	1.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.28	6.67	3.56	74.0	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,937	14,937	0.27	0.13	39.6	15,023
Vendor	0.45	0.25	10.2	3.80	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,093	8,093	0.19	1.21	13.5	8,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.61	5.96	4.26	56.6	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,345	13,345	0.36	0.66	1.02	13,551
Vendor	0.42	0.22	10.8	3.87	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,104	8,104	0.18	1.22	0.35	8,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.72	4.29	2.95	42.2	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,821	9,821	0.22	0.44	12.2	9,970
Vendor	0.31	0.17	7.56	2.76	0.05	0.09	1.71	1.80	0.09	0.47	0.56	—	5,784	5,784	0.14	0.87	4.15	6,051
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.86	0.78	0.54	7.70	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,626	1,626	0.04	0.07	2.02	1,651
Vendor	0.06	0.03	1.38	0.50	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	958	958	0.02	0.14	0.69	1,002
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Building Construction (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.12	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12	0.94	8.39	12.9	0.02	0.26	—	0.26	0.24	—	0.24	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	5.99	9.20	0.02	0.19	—	0.19	0.17	—	0.17	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	1.09	1.68	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	7.28	6.67	3.56	74.0	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,937	14,937	0.27	0.13	39.6	15,023
Vendor	0.45	0.25	10.2	3.80	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,093	8,093	0.19	1.21	13.5	8,473
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.61	5.96	4.26	56.6	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,345	13,345	0.36	0.66	1.02	13,551

Vendor	0.42	0.22	10.8	3.87	0.06	0.13	2.43	2.56	0.13	0.67	0.80	—	8,104	8,104	0.18	1.22	0.35	8,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.72	4.29	2.95	42.2	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,821	9,821	0.22	0.44	12.2	9,970
Vendor	0.31	0.17	7.56	2.76	0.05	0.09	1.71	1.80	0.09	0.47	0.56	—	5,784	5,784	0.14	0.87	4.15	6,051
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.86	0.78	0.54	7.70	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,626	1,626	0.04	0.07	2.02	1,651
Vendor	0.06	0.03	1.38	0.50	0.01	0.02	0.31	0.33	0.02	0.09	0.10	—	958	958	0.02	0.14	0.69	1,002
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.66	5.80	9.18	0.02	0.17	—	0.17	0.16	—	0.16	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.06	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.84	6.27	3.03	69.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,701	14,701	0.27	0.13	35.1	14,783
Vendor	0.45	0.25	9.78	3.66	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,842	7,842	0.13	1.15	11.6	8,199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.73	5.60	4.22	53.0	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,137	13,137	0.36	0.61	0.91	13,330
Vendor	0.42	0.22	10.5	3.79	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,852	7,852	0.12	1.16	0.30	8,200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.16	4.06	2.57	39.4	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,668	9,668	0.22	0.44	10.8	9,815
Vendor	0.31	0.17	7.28	2.65	0.05	0.09	1.71	1.80	0.05	0.47	0.52	—	5,604	5,604	0.08	0.82	3.57	5,854
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.76	0.74	0.47	7.19	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,601	1,601	0.04	0.07	1.80	1,625

Vendor	0.06	0.03	1.33	0.48	0.01	0.02	0.31	0.33	0.01	0.09	0.09	—	928	928	0.01	0.14	0.59	969
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Building Construction (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	8.12	12.8	0.02	0.24	—	0.24	0.22	—	0.22	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.66	5.80	9.18	0.02	0.17	—	0.17	0.16	—	0.16	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.06	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.84	6.27	3.03	69.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,701	14,701	0.27	0.13	35.1	14,783
Vendor	0.45	0.25	9.78	3.66	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,842	7,842	0.13	1.15	11.6	8,199
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.73	5.60	4.22	53.0	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,137	13,137	0.36	0.61	0.91	13,330
Vendor	0.42	0.22	10.5	3.79	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,852	7,852	0.12	1.16	0.30	8,200
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.16	4.06	2.57	39.4	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,668	9,668	0.22	0.44	10.8	9,815
Vendor	0.31	0.17	7.28	2.65	0.05	0.09	1.71	1.80	0.05	0.47	0.52	—	5,604	5,604	0.08	0.82	3.57	5,854
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.76	0.74	0.47	7.19	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,601	1,601	0.04	0.07	1.80	1,625
Vendor	0.06	0.03	1.33	0.48	0.01	0.02	0.31	0.33	0.01	0.09	0.09	—	928	928	0.01	0.14	0.59	969
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Building Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	5.64	9.16	0.02	0.16	—	0.16	0.15	—	0.15	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.03	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.00	5.91	2.99	65.7	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,502	14,502	0.22	0.13	30.9	14,578
Vendor	0.45	0.25	9.46	3.65	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,596	7,596	0.12	1.15	9.77	7,951
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.47	5.33	3.65	50.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,961	12,961	0.31	0.61	0.80	13,153

Vendor	0.42	0.22	10.1	3.71	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,606	7,606	0.12	1.15	0.25	7,952
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.95	3.85	2.55	37.5	0.00	0.00	10.8	10.8	0.00	2.54	2.54	—	9,564	9,564	0.19	0.10	9.54	9,607
Vendor	0.32	0.17	7.08	2.66	0.05	0.09	1.72	1.81	0.05	0.47	0.52	—	5,444	5,444	0.08	0.82	3.03	5,694
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.72	0.70	0.47	6.84	0.00	0.00	1.98	1.98	0.00	0.46	0.46	—	1,583	1,583	0.03	0.02	1.58	1,591
Vendor	0.06	0.03	1.29	0.48	0.01	0.02	0.31	0.33	0.01	0.09	0.09	—	901	901	0.01	0.14	0.50	943
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Building Construction (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	0.90	7.87	12.8	0.02	0.22	—	0.22	0.21	—	0.21	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	5.64	9.16	0.02	0.16	—	0.16	0.15	—	0.15	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.03	1.67	< 0.005	0.03	—	0.03	0.03	—	0.03	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	6.00	5.91	2.99	65.7	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,502	14,502	0.22	0.13	30.9	14,578
Vendor	0.45	0.25	9.46	3.65	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,596	7,596	0.12	1.15	9.77	7,951
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.47	5.33	3.65	50.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,961	12,961	0.31	0.61	0.80	13,153
Vendor	0.42	0.22	10.1	3.71	0.06	0.13	2.43	2.56	0.06	0.67	0.73	—	7,606	7,606	0.12	1.15	0.25	7,952
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.95	3.85	2.55	37.5	0.00	0.00	10.8	10.8	0.00	2.54	2.54	—	9,564	9,564	0.19	0.10	9.54	9,607
Vendor	0.32	0.17	7.08	2.66	0.05	0.09	1.72	1.81	0.05	0.47	0.52	—	5,444	5,444	0.08	0.82	3.03	5,694
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.72	0.70	0.47	6.84	0.00	0.00	1.98	1.98	0.00	0.46	0.46	—	1,583	1,583	0.03	0.02	1.58	1,591

Vendor	0.06	0.03	1.29	0.48	0.01	0.02	0.31	0.33	0.01	0.09	0.09	—	901	901	0.01	0.14	0.50	943
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Building Construction (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	5.48	9.13	0.02	0.15	—	0.15	0.13	—	0.13	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	1.00	1.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.69	5.60	2.94	62.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,290	14,290	0.22	0.13	27.1	14,363
Vendor	0.39	0.25	9.23	3.58	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,361	7,361	0.12	1.08	8.33	7,695
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.24	5.07	3.60	47.5	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,774	12,774	0.31	0.13	0.70	12,822
Vendor	0.36	0.22	9.79	3.71	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,372	7,372	0.12	1.08	0.22	7,698
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.78	3.68	2.14	35.4	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,400	9,400	0.19	0.10	8.34	9,442
Vendor	0.27	0.17	6.84	2.60	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	5,261	5,261	0.08	0.77	2.57	5,496
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.67	0.39	6.46	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,556	1,556	0.03	0.02	1.38	1,563
Vendor	0.05	0.03	1.25	0.47	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	871	871	0.01	0.13	0.43	910
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Building Construction (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.05	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.05	0.88	7.67	12.8	0.02	0.20	—	0.20	0.19	—	0.19	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	0.63	5.48	9.13	0.02	0.15	—	0.15	0.13	—	0.13	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	1.00	1.67	< 0.005	0.03	—	0.03	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.69	5.60	2.94	62.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,290	14,290	0.22	0.13	27.1	14,363
Vendor	0.39	0.25	9.23	3.58	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,361	7,361	0.12	1.08	8.33	7,695
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.24	5.07	3.60	47.5	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,774	12,774	0.31	0.13	0.70	12,822

Vendor	0.36	0.22	9.79	3.71	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,372	7,372	0.12	1.08	0.22	7,698
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.78	3.68	2.14	35.4	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,400	9,400	0.19	0.10	8.34	9,442
Vendor	0.27	0.17	6.84	2.60	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	5,261	5,261	0.08	0.77	2.57	5,496
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.67	0.39	6.46	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,556	1,556	0.03	0.02	1.38	1,563
Vendor	0.05	0.03	1.25	0.47	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	871	871	0.01	0.13	0.43	910
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Building Construction (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	7.52	12.8	0.02	0.19	—	0.19	0.18	—	0.18	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	7.52	12.8	0.02	0.19	—	0.19	0.18	—	0.18	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	5.37	9.12	0.02	0.14	—	0.14	0.13	—	0.13	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.98	1.66	< 0.005	0.03	—	0.03	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.33	5.24	2.42	59.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,098	14,098	0.22	0.13	23.5	14,167
Vendor	0.39	0.25	8.92	3.52	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,139	7,139	0.12	1.08	7.01	7,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.02	4.89	3.08	45.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,603	12,603	0.31	0.13	0.61	12,651
Vendor	0.36	0.22	9.54	3.64	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,150	7,150	0.12	1.08	0.18	7,476
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.55	3.49	2.10	33.5	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,274	9,274	0.19	0.10	7.26	9,314
Vendor	0.27	0.17	6.63	2.55	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	5,103	5,103	0.08	0.77	2.16	5,338
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	0.38	6.11	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,535	1,535	0.03	0.02	1.20	1,542

Vendor	0.05	0.03	1.21	0.47	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	845	845	0.01	0.13	0.36	884
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Building Construction (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	7.52	12.8	0.02	0.19	—	0.19	0.18	—	0.18	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.03	0.86	7.52	12.8	0.02	0.19	—	0.19	0.18	—	0.18	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	5.37	9.12	0.02	0.14	—	0.14	0.13	—	0.13	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.98	1.66	< 0.005	0.03	—	0.03	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.33	5.24	2.42	59.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	14,098	14,098	0.22	0.13	23.5	14,167
Vendor	0.39	0.25	8.92	3.52	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,139	7,139	0.12	1.08	7.01	7,472
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.02	4.89	3.08	45.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,603	12,603	0.31	0.13	0.61	12,651
Vendor	0.36	0.22	9.54	3.64	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	7,150	7,150	0.12	1.08	0.18	7,476
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.55	3.49	2.10	33.5	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,274	9,274	0.19	0.10	7.26	9,314
Vendor	0.27	0.17	6.63	2.55	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	5,103	5,103	0.08	0.77	2.16	5,338
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	0.38	6.11	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,535	1,535	0.03	0.02	1.20	1,542
Vendor	0.05	0.03	1.21	0.47	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	845	845	0.01	0.13	0.36	884
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.27. Building Construction (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.01	0.85	7.34	12.7	0.02	0.18	—	0.18	0.17	—	0.17	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.34	12.7	0.02	0.18	—	0.18	0.17	—	0.17	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.24	9.06	0.02	0.13	—	0.13	0.12	—	0.12	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.96	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.24	5.15	2.38	56.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,924	13,924	0.22	0.13	20.3	13,990
Vendor	0.39	0.25	8.68	3.44	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,931	6,931	0.12	1.08	5.84	7,263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.93	4.80	3.03	42.8	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,448	12,448	0.27	0.13	0.53	12,495

Vendor	0.36	0.22	9.25	3.57	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,942	6,942	0.12	1.08	0.15	7,268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.52	3.46	1.76	31.6	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,160	9,160	0.16	0.10	6.28	9,199
Vendor	0.27	0.17	6.46	2.50	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,954	4,954	0.08	0.77	1.80	5,189
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.63	0.32	5.77	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,517	1,517	0.03	0.02	1.04	1,523
Vendor	0.05	0.03	1.18	0.46	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	820	820	0.01	0.13	0.30	859
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.28. Building Construction (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.34	12.7	0.02	0.18	—	0.18	0.17	—	0.17	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.01	0.85	7.34	12.7	0.02	0.18	—	0.18	0.17	—	0.17	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	0.61	5.24	9.06	0.02	0.13	—	0.13	0.12	—	0.12	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.96	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.24	5.15	2.38	56.2	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,924	13,924	0.22	0.13	20.3	13,990
Vendor	0.39	0.25	8.68	3.44	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,931	6,931	0.12	1.08	5.84	7,263
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.93	4.80	3.03	42.8	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,448	12,448	0.27	0.13	0.53	12,495
Vendor	0.36	0.22	9.25	3.57	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,942	6,942	0.12	1.08	0.15	7,268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.52	3.46	1.76	31.6	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	9,160	9,160	0.16	0.10	6.28	9,199
Vendor	0.27	0.17	6.46	2.50	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,954	4,954	0.08	0.77	1.80	5,189
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.64	0.63	0.32	5.77	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,517	1,517	0.03	0.02	1.04	1,523

Vendor	0.05	0.03	1.18	0.46	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	820	820	0.01	0.13	0.30	859
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.29. Building Construction (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	7.12	12.6	0.02	0.17	—	0.17	0.16	—	0.16	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	7.12	12.6	0.02	0.17	—	0.17	0.16	—	0.16	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	0.60	5.10	9.03	0.02	0.12	—	0.12	0.11	—	0.11	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.93	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.02	4.93	2.33	53.3	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,767	13,767	0.18	0.13	17.4	13,829
Vendor	0.39	0.25	8.46	3.45	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,744	6,744	0.12	1.02	4.78	7,055
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.75	4.66	2.99	40.5	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,308	12,308	0.27	0.13	0.45	12,355
Vendor	0.35	0.22	9.02	3.56	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,754	6,754	0.12	1.02	0.12	7,061
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.40	3.34	1.73	30.2	0.00	0.00	10.8	10.8	0.00	2.54	2.54	—	9,082	9,082	0.16	0.10	5.36	9,120
Vendor	0.27	0.17	6.32	2.51	0.05	0.05	1.72	1.76	0.05	0.47	0.52	—	4,833	4,833	0.08	0.73	1.48	5,055
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.61	0.32	5.51	0.00	0.00	1.98	1.98	0.00	0.46	0.46	—	1,504	1,504	0.03	0.02	0.89	1,510
Vendor	0.05	0.03	1.15	0.46	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	800	800	0.01	0.12	0.24	837
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.30. Building Construction (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.99	0.83	7.12	12.6	0.02	0.17	—	0.17	0.16	—	0.16	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.83	7.12	12.6	0.02	0.17	—	0.17	0.16	—	0.16	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.71	0.60	5.10	9.03	0.02	0.12	—	0.12	0.11	—	0.11	—	1,717	1,717	0.07	0.01	—	1,723
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.93	1.65	< 0.005	0.02	—	0.02	0.02	—	0.02	—	284	284	0.01	< 0.005	—	285
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	5.02	4.93	2.33	53.3	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,767	13,767	0.18	0.13	17.4	13,829
Vendor	0.39	0.25	8.46	3.45	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,744	6,744	0.12	1.02	4.78	7,055
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.75	4.66	2.99	40.5	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,308	12,308	0.27	0.13	0.45	12,355

Vendor	0.35	0.22	9.02	3.56	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,754	6,754	0.12	1.02	0.12	7,061
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.40	3.34	1.73	30.2	0.00	0.00	10.8	10.8	0.00	2.54	2.54	—	9,082	9,082	0.16	0.10	5.36	9,120
Vendor	0.27	0.17	6.32	2.51	0.05	0.05	1.72	1.76	0.05	0.47	0.52	—	4,833	4,833	0.08	0.73	1.48	5,055
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.61	0.32	5.51	0.00	0.00	1.98	1.98	0.00	0.46	0.46	—	1,504	1,504	0.03	0.02	0.89	1,510
Vendor	0.05	0.03	1.15	0.46	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	800	800	0.01	0.12	0.24	837
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.31. Building Construction (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	6.99	12.5	0.02	0.16	—	0.16	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	6.99	12.5	0.02	0.16	—	0.16	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.58	4.99	8.93	0.02	0.11	—	0.11	0.10	—	0.10	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.91	1.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.84	4.75	2.33	51.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,629	13,629	0.18	0.13	14.8	13,688
Vendor	0.39	0.25	8.28	3.39	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,576	6,576	0.12	1.02	3.88	6,887
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.53	4.40	2.46	38.9	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,185	12,185	0.22	0.13	0.38	12,231
Vendor	0.35	0.22	8.86	3.51	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,587	6,587	0.12	1.02	0.10	6,894
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.24	3.17	1.70	29.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	8,967	8,967	0.16	0.10	4.56	9,004
Vendor	0.26	0.17	6.12	2.46	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,700	4,700	0.08	0.73	1.20	4,921
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.59	0.58	0.31	5.30	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,485	1,485	0.03	0.02	0.75	1,491

Vendor	0.05	0.03	1.12	0.45	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	778	778	0.01	0.12	0.20	815
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.32. Building Construction (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	6.99	12.5	0.02	0.16	—	0.16	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.98	0.82	6.99	12.5	0.02	0.16	—	0.16	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.58	4.99	8.93	0.02	0.11	—	0.11	0.10	—	0.10	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.91	1.63	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.84	4.75	2.33	51.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,629	13,629	0.18	0.13	14.8	13,688
Vendor	0.39	0.25	8.28	3.39	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,576	6,576	0.12	1.02	3.88	6,887
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.53	4.40	2.46	38.9	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,185	12,185	0.22	0.13	0.38	12,231
Vendor	0.35	0.22	8.86	3.51	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,587	6,587	0.12	1.02	0.10	6,894
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.24	3.17	1.70	29.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	8,967	8,967	0.16	0.10	4.56	9,004
Vendor	0.26	0.17	6.12	2.46	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,700	4,700	0.08	0.73	1.20	4,921
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.59	0.58	0.31	5.30	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,485	1,485	0.03	0.02	0.75	1,491
Vendor	0.05	0.03	1.12	0.45	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	778	778	0.01	0.12	0.20	815
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.33. Building Construction (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.97	0.81	6.89	12.5	0.02	0.15	—	0.15	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	6.89	12.5	0.02	0.15	—	0.15	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	0.58	4.92	8.90	0.02	0.11	—	0.11	0.10	—	0.10	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.90	1.62	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.58	4.49	1.81	50.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,499	13,499	0.18	0.13	12.5	13,556
Vendor	0.39	0.25	8.12	3.39	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,426	6,426	0.12	0.96	3.10	6,717
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.40	3.83	2.46	37.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,070	12,070	0.22	0.13	0.32	12,115

Vendor	0.35	0.22	8.70	3.51	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,437	6,437	0.12	0.96	0.08	6,725
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.08	2.67	1.67	28.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	8,881	8,881	0.16	0.10	3.86	8,918
Vendor	0.26	0.17	6.01	2.46	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,593	4,593	0.08	0.68	0.96	4,800
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.49	0.30	5.11	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,470	1,470	0.03	0.02	0.64	1,476
Vendor	0.05	0.03	1.10	0.45	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	760	760	0.01	0.11	0.16	795
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.34. Building Construction (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	6.89	12.5	0.02	0.15	—	0.15	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	6.89	12.5	0.02	0.15	—	0.15	0.14	—	0.14	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69	0.58	4.92	8.90	0.02	0.11	—	0.11	0.10	—	0.10	—	1,712	1,712	0.07	0.01	—	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.90	1.62	< 0.005	0.02	—	0.02	0.02	—	0.02	—	283	283	0.01	< 0.005	—	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.58	4.49	1.81	50.1	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	13,499	13,499	0.18	0.13	12.5	13,556
Vendor	0.39	0.25	8.12	3.39	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,426	6,426	0.12	0.96	3.10	6,717
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.40	3.83	2.46	37.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	12,070	12,070	0.22	0.13	0.32	12,115
Vendor	0.35	0.22	8.70	3.51	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,437	6,437	0.12	0.96	0.08	6,725
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.08	2.67	1.67	28.0	0.00	0.00	10.8	10.8	0.00	2.53	2.53	—	8,881	8,881	0.16	0.10	3.86	8,918
Vendor	0.26	0.17	6.01	2.46	0.05	0.05	1.71	1.76	0.05	0.47	0.52	—	4,593	4,593	0.08	0.68	0.96	4,800
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.49	0.30	5.11	0.00	0.00	1.97	1.97	0.00	0.46	0.46	—	1,470	1,470	0.03	0.02	0.64	1,476

Vendor	0.05	0.03	1.10	0.45	0.01	0.01	0.31	0.32	0.01	0.09	0.09	—	760	760	0.01	0.11	0.16	795
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.35. Building Construction (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.78	12.4	0.02	0.15	—	0.15	0.13	—	0.13	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.17	2.14	< 0.005	0.03	—	0.03	0.02	—	0.02	—	413	413	0.02	< 0.005	—	414
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.21	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.09	3.52	2.42	36.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	11,974	11,974	0.22	0.13	0.27	12,020
Vendor	0.35	0.22	8.53	3.44	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,304	6,304	0.12	0.96	0.06	6,592
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.61	0.40	6.51	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,124	2,124	0.03	0.02	0.78	2,133
Vendor	0.06	0.04	1.42	0.58	0.01	0.01	0.41	0.42	0.01	0.11	0.13	—	1,084	1,084	0.02	0.16	0.18	1,134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.07	1.19	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	352	352	0.01	< 0.005	0.13	353
Vendor	0.01	0.01	0.26	0.11	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	180	180	< 0.005	0.03	0.03	188
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.36. Building Construction (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.96	0.80	6.78	12.4	0.02	0.15	—	0.15	0.13	—	0.13	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.17	2.14	< 0.005	0.03	—	0.03	0.02	—	0.02	—	413	413	0.02	< 0.005	—	414
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.21	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	4.09	3.52	2.42	36.4	0.00	0.00	15.4	15.4	0.00	3.61	3.61	—	11,974	11,974	0.22	0.13	0.27	12,020
Vendor	0.35	0.22	8.53	3.44	0.06	0.06	2.43	2.49	0.06	0.67	0.73	—	6,304	6,304	0.12	0.96	0.06	6,592
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.61	0.40	6.51	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,124	2,124	0.03	0.02	0.78	2,133
Vendor	0.06	0.04	1.42	0.58	0.01	0.01	0.41	0.42	0.01	0.11	0.13	—	1,084	1,084	0.02	0.16	0.18	1,134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.07	1.19	0.00	0.00	0.48	0.48	0.00	0.11	0.11	—	352	352	0.01	< 0.005	0.13	353
Vendor	0.01	0.01	0.26	0.11	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	180	180	< 0.005	0.03	0.03	188
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.37. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.24	< 0.005	0.03	—	0.03	0.03	—	0.03	—	189	189	0.01	< 0.005	—	190
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.3	31.3	< 0.005	< 0.005	—	31.4
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.48	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	< 0.005	0.01	105
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.23
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.38. Paving (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.82	0.69	6.63	9.91	0.01	0.26	—	0.26	0.24	—	0.24	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.83	1.24	< 0.005	0.03	—	0.03	0.03	—	0.03	—	189	189	0.01	< 0.005	—	190
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.3	31.3	< 0.005	< 0.005	—	31.4
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.48	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	103	103	< 0.005	< 0.005	0.01	105
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.20	2.20	< 0.005	< 0.005	< 0.005	2.23

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.39. Paving (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.61	7.08	0.01	0.17	—	0.17	0.16	—	0.16	—	1,079	1,079	0.04	0.01	—	1,083
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.10	0.09	0.84	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.59	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	113	113	< 0.005	< 0.005	0.33	115
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	101	101	< 0.005	< 0.005	0.01	103
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.10	75.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.40. Paving (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.67	6.46	9.92	0.01	0.24	—	0.24	0.22	—	0.22	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.57	0.48	4.61	7.08	0.01	0.17	—	0.17	0.16	—	0.16	—	1,079	1,079	0.04	0.01	—	1,083
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	0.84	1.29	< 0.005	0.03	—	0.03	0.03	—	0.03	—	179	179	0.01	< 0.005	—	179
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.03	0.59	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	113	113	< 0.005	< 0.005	0.33	115
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.45	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	101	101	< 0.005	< 0.005	0.01	103
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.02	0.33	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.10	75.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.41. Paving (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.30	3.62	0.01	0.08	—	0.08	0.07	—	0.07	—	553	553	0.02	< 0.005	—	555
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.42	0.66	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.5	91.5	< 0.005	< 0.005	—	91.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	111	111	< 0.005	< 0.005	0.29	112
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	99.1	99.1	< 0.005	< 0.005	0.01	101
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.4	37.4	< 0.005	< 0.005	0.05	37.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.19	6.19	< 0.005	< 0.005	0.01	6.28
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Paving (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.64	6.28	9.90	0.01	0.22	—	0.22	0.20	—	0.20	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.24	2.30	3.62	0.01	0.08	—	0.08	0.07	—	0.07	—	553	553	0.02	< 0.005	—	555
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.42	0.66	< 0.005	0.01	—	0.01	0.01	—	0.01	—	91.5	91.5	< 0.005	< 0.005	—	91.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.03	0.55	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	111	111	< 0.005	< 0.005	0.29	112
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.03	0.42	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	99.1	99.1	< 0.005	< 0.005	0.01	101

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.4	37.4	< 0.005	< 0.005	0.05	37.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.19	6.19	< 0.005	< 0.005	0.01	6.28
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.43. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.7	16.7	< 0.005	< 0.005	—	16.8
Architectural Coatings	—	0.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.77	2.77	< 0.005	< 0.005	—	2.78
Architectural Coatings	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.47	1.33	1.08	13.0	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,774	2,774	0.09	0.13	0.26	2,816
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.12	1.69	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	358	358	0.01	0.02	0.54	363
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	59.3	59.3	< 0.005	< 0.005	0.09	60.2

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.44. Architectural Coating (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	0.81	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.7	16.7	< 0.005	< 0.005	—	16.8
Architectural Coatings	—	0.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.77	2.77	< 0.005	< 0.005	—	2.78

Architect Coatings	—	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.47	1.33	1.08	13.0	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,774	2,774	0.09	0.13	0.26	2,816
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.12	1.69	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	358	358	0.01	0.02	0.54	363
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	59.3	59.3	< 0.005	< 0.005	0.09	60.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.45. Architectural Coating (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.57	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.52	1.40	0.83	15.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	3,048	3,048	0.06	0.12	8.87	3,095
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.39	1.25	0.97	12.2	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,723	2,723	0.08	0.13	0.23	2,764
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.91	0.67	9.00	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	2,004	2,004	0.05	0.09	2.74	2,034
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.12	1.64	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	332	332	0.01	0.01	0.45	337
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.46. Architectural Coating (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.79	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.57	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.52	1.40	0.83	15.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	3,048	3,048	0.06	0.12	8.87	3,095
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.39	1.25	0.97	12.2	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,723	2,723	0.08	0.13	0.23	2,764
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.91	0.67	9.00	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	2,004	2,004	0.05	0.09	2.74	2,034
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.12	1.64	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	332	332	0.01	0.01	0.45	337
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.47. Architectural Coating (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.56	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.46	1.33	0.71	14.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,987	2,987	0.05	0.03	7.91	3,005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.32	1.19	0.85	11.3	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,669	2,669	0.07	0.13	0.20	2,710
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.94	0.86	0.59	8.44	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,964	1,964	0.04	0.09	2.44	1,994
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.11	1.54	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	325	325	0.01	0.01	0.40	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.48. Architectural Coating (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.56	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.46	1.33	0.71	14.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,987	2,987	0.05	0.03	7.91	3,005
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.32	1.19	0.85	11.3	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,669	2,669	0.07	0.13	0.20	2,710
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.94	0.86	0.59	8.44	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,964	1,964	0.04	0.09	2.44	1,994
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.16	0.11	1.54	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	325	325	0.01	0.01	0.40	330
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.49. Architectural Coating (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.37	1.25	0.61	13.9	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,940	2,940	0.05	0.03	7.02	2,957
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.15	1.12	0.84	10.6	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,627	2,627	0.07	0.12	0.18	2,666
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.81	0.51	7.88	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,934	1,934	0.04	0.09	2.17	1,963
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.09	1.44	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	320	320	0.01	0.01	0.36	325
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.50. Architectural Coating (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.37	1.25	0.61	13.9	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,940	2,940	0.05	0.03	7.02	2,957
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.15	1.12	0.84	10.6	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,627	2,627	0.07	0.12	0.18	2,666
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.81	0.51	7.88	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,934	1,934	0.04	0.09	2.17	1,963
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.15	0.09	1.44	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	320	320	0.01	0.01	0.36	325
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.51. Architectural Coating (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.6	95.6	< 0.005	< 0.005	—	95.9
Architectural Coatings	—	5.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.20	1.18	0.60	13.1	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,900	2,900	0.04	0.03	6.18	2,916
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09	1.07	0.73	10.1	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,592	2,592	0.06	0.12	0.16	2,631
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.79	0.77	0.51	7.49	0.00	0.00	2.17	2.17	0.00	0.51	0.51	—	1,913	1,913	0.04	0.02	1.91	1,921
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	0.09	1.37	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	317	317	0.01	< 0.005	0.32	318
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.52. Architectural Coating (2032) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	0.01	—	0.01	—	95.6	95.6	< 0.005	< 0.005	—	95.9
Architectural Coatings	—	5.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.20	1.18	0.60	13.1	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,900	2,900	0.04	0.03	6.18	2,916
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09	1.07	0.73	10.1	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,592	2,592	0.06	0.12	0.16	2,631
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.79	0.77	0.51	7.49	0.00	0.00	2.17	2.17	0.00	0.51	0.51	—	1,913	1,913	0.04	0.02	1.91	1,921
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	0.09	1.37	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	317	317	0.01	< 0.005	0.32	318
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.53. Architectural Coating (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.14	1.12	0.59	12.4	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,858	2,858	0.04	0.03	5.41	2,873
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.05	1.01	0.72	9.50	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,555	2,555	0.06	0.03	0.14	2,564
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.76	0.74	0.43	7.08	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,880	1,880	0.04	0.02	1.67	1,888
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.29	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	311	311	0.01	< 0.005	0.28	313
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.54. Architectural Coating (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.79	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.14	1.12	0.59	12.4	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,858	2,858	0.04	0.03	5.41	2,873
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.05	1.01	0.72	9.50	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,555	2,555	0.06	0.03	0.14	2,564
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.76	0.74	0.43	7.08	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,880	1,880	0.04	0.02	1.67	1,888
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.08	1.29	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	311	311	0.01	< 0.005	0.28	313
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.55. Architectural Coating (2034) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.07	1.05	0.48	11.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,820	2,820	0.04	0.03	4.70	2,833
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.98	0.62	9.01	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,521	2,521	0.06	0.03	0.12	2,530
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.70	0.42	6.69	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,855	1,855	0.04	0.02	1.45	1,863
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.08	1.22	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	307	307	0.01	< 0.005	0.24	308
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.56. Architectural Coating (2034) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.07	1.05	0.48	11.8	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,820	2,820	0.04	0.03	4.70	2,833
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.98	0.62	9.01	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,521	2,521	0.06	0.03	0.12	2,530
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.70	0.42	6.69	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,855	1,855	0.04	0.02	1.45	1,863
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.08	1.22	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	307	307	0.01	< 0.005	0.24	308
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.57. Architectural Coating (2035) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.05	1.03	0.48	11.2	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,785	2,785	0.04	0.03	4.05	2,798
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.99	0.96	0.61	8.56	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,490	2,490	0.05	0.03	0.11	2,499
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.69	0.35	6.32	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,832	1,832	0.03	0.02	1.26	1,840
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.06	1.15	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	303	303	0.01	< 0.005	0.21	305
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.58. Architectural Coating (2035) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.76	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.05	1.03	0.48	11.2	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,785	2,785	0.04	0.03	4.05	2,798
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.99	0.96	0.61	8.56	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,490	2,490	0.05	0.03	0.11	2,499
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.69	0.35	6.32	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,832	1,832	0.03	0.02	1.26	1,840
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.13	0.06	1.15	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	303	303	0.01	< 0.005	0.21	305
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.59. Architectural Coating (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	—	5.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.99	0.47	10.7	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,753	2,753	0.04	0.03	3.48	2,766
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.95	0.93	0.60	8.11	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,462	2,462	0.05	0.03	0.09	2,471
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.68	0.67	0.35	6.04	0.00	0.00	2.17	2.17	0.00	0.51	0.51	—	1,816	1,816	0.03	0.02	1.07	1,824
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.06	1.10	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	301	301	0.01	< 0.005	0.18	302
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.60. Architectural Coating (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.10	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.54	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.6	95.6	< 0.005	< 0.005	—	96.0
Architectural Coatings	—	5.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.9
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.00	0.99	0.47	10.7	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,753	2,753	0.04	0.03	3.48	2,766
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.95	0.93	0.60	8.11	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,462	2,462	0.05	0.03	0.09	2,471
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.68	0.67	0.35	6.04	0.00	0.00	2.17	2.17	0.00	0.51	0.51	—	1,816	1,816	0.03	0.02	1.07	1,824
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.06	1.10	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	301	301	0.01	< 0.005	0.18	302
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.61. Architectural Coating (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.95	0.47	10.3	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,726	2,726	0.04	0.03	2.95	2,738
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.91	0.88	0.49	7.78	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,437	2,437	0.04	0.03	0.08	2,446
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.63	0.34	5.81	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,793	1,793	0.03	0.02	0.91	1,801
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.06	1.06	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	297	297	0.01	< 0.005	0.15	298
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.62. Architectural Coating (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.97	0.95	0.47	10.3	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,726	2,726	0.04	0.03	2.95	2,738
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.91	0.88	0.49	7.78	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,437	2,437	0.04	0.03	0.08	2,446
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.63	0.34	5.81	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,793	1,793	0.03	0.02	0.91	1,801
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	0.06	1.06	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	297	297	0.01	< 0.005	0.15	298
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.63. Architectural Coating (2038) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.90	0.36	10.0	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,700	2,700	0.04	0.03	2.50	2,711
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.88	0.77	0.49	7.48	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,414	2,414	0.04	0.03	0.06	2,423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.53	0.33	5.60	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,776	1,776	0.03	0.02	0.77	1,784
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.06	1.02	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	294	294	0.01	< 0.005	0.13	295
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.64. Architectural Coating (2038) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.75	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.92	0.90	0.36	10.0	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,700	2,700	0.04	0.03	2.50	2,711
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.88	0.77	0.49	7.48	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,414	2,414	0.04	0.03	0.06	2,423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.53	0.33	5.60	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,776	1,776	0.03	0.02	0.77	1,784
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.06	1.02	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	294	294	0.01	< 0.005	0.13	295
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.65. Architectural Coating (2039) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.86	0.75	0.35	9.65	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,678	2,678	0.04	0.03	2.10	2,689
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.70	0.48	7.27	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,395	2,395	0.04	0.03	0.05	2,404
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.59	0.51	0.33	5.40	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,762	1,762	0.03	0.02	0.65	1,769
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.06	0.99	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	292	292	< 0.005	< 0.005	0.11	293
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.66. Architectural Coating (2039) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.74	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	7.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.53	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	95.4	95.4	< 0.005	< 0.005	—	95.7
Architectural Coatings	—	5.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.8	15.8	< 0.005	< 0.005	—	15.8
Architectural Coatings	—	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.86	0.75	0.35	9.65	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,678	2,678	0.04	0.03	2.10	2,689
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.70	0.48	7.27	0.00	0.00	3.08	3.08	0.00	0.72	0.72	—	2,395	2,395	0.04	0.03	0.05	2,404
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.59	0.51	0.33	5.40	0.00	0.00	2.16	2.16	0.00	0.51	0.51	—	1,762	1,762	0.03	0.02	0.65	1,769
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.06	0.99	0.00	0.00	0.39	0.39	0.00	0.09	0.09	—	292	292	< 0.005	< 0.005	0.11	293
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	3,187	3,187	0.28	0.03	—	3,205
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	201	201	0.02	< 0.005	—	202
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	809	809	0.07	0.01	—	814
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	9,938	9,938	0.89	0.11	—	9,992
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,378	2,378	0.21	0.03	—	2,391
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	3,861	3,861	0.34	0.04	—	3,882
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	1,590	1,590	0.14	0.02	—	1,599
Total	—	—	—	—	—	—	—	—	—	—	—	—	21,965	21,965	1.96	0.24	—	22,084

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	3,187	3,187	0.28	0.03	—	3,205
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	201	201	0.02	< 0.005	—	202
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	809	809	0.07	0.01	—	814
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	9,938	9,938	0.89	0.11	—	9,992
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,378	2,378	0.21	0.03	—	2,391
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	3,861	3,861	0.34	0.04	—	3,882
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	1,590	1,590	0.14	0.02	—	1,599
Total	—	—	—	—	—	—	—	—	—	—	—	—	21,965	21,965	1.96	0.24	—	22,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	528	528	0.05	0.01	—	531
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	33.2	33.2	< 0.005	< 0.005	—	33.4
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.01	< 0.005	—	135

Retirement Commun	—	—	—	—	—	—	—	—	—	—	—	—	1,645	1,645	0.15	0.02	—	1,654
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	394	394	0.04	< 0.005	—	396
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	639	639	0.06	0.01	—	643
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	263	263	0.02	< 0.005	—	265
Total	—	—	—	—	—	—	—	—	—	—	—	—	3,637	3,637	0.32	0.04	—	3,656

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	3,186	3,186	0.28	0.03	—	3,203
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	199	199	0.02	< 0.005	—	200
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	769	769	0.07	0.01	—	773
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	9,437	9,437	0.84	0.10	—	9,489
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,305	2,305	0.21	0.02	—	2,318

Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	3,829	3,829	0.34	0.04	—	3,850
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	1,577	1,577	0.14	0.02	—	1,585
Total	—	—	—	—	—	—	—	—	—	—	—	—	21,302	21,302	1.90	0.23	—	21,418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	3,186	3,186	0.28	0.03	—	3,203
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	199	199	0.02	< 0.005	—	200
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	769	769	0.07	0.01	—	773
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	9,437	9,437	0.84	0.10	—	9,489
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	2,305	2,305	0.21	0.02	—	2,318
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	3,829	3,829	0.34	0.04	—	3,850
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	1,577	1,577	0.14	0.02	—	1,585
Total	—	—	—	—	—	—	—	—	—	—	—	—	21,302	21,302	1.90	0.23	—	21,418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	527	527	0.05	0.01	—	530

Health Club	—	—	—	—	—	—	—	—	—	—	—	—	32.9	32.9	< 0.005	< 0.005	—	33.1
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	127	127	0.01	< 0.005	—	128
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	1,562	1,562	0.14	0.02	—	1,571
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	382	382	0.03	< 0.005	—	384
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	634	634	0.06	0.01	—	637
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	261	261	0.02	< 0.005	—	262
Total	—	—	—	—	—	—	—	—	—	—	—	—	3,527	3,527	0.31	0.04	—	3,546

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.14	0.07	1.31	1.10	0.01	0.10	—	0.10	0.10	—	0.10	—	1,564	1,564	0.14	< 0.005	—	1,568
Health Club	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	237
Apartments Low Rise	0.08	0.04	0.70	0.30	< 0.005	0.06	—	0.06	0.06	—	0.06	—	883	883	0.08	< 0.005	—	885

Retirement Community	1.00	0.50	8.54	3.63	0.05	0.69	—	0.69	0.69	—	0.69	—	10,838	10,838	0.96	0.02	—	10,868
Single Family Housing	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,446	1,446	0.13	< 0.005	—	1,450
Regional Shopping Center	0.11	0.05	0.96	0.80	0.01	0.07	—	0.07	0.07	—	0.07	—	1,142	1,142	0.10	< 0.005	—	1,145
Strip Mall	0.04	0.02	0.39	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	470	470	0.04	< 0.005	—	471
Total	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	16,578	16,578	1.47	0.03	—	16,624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.14	0.07	1.31	1.10	0.01	0.10	—	0.10	0.10	—	0.10	—	1,564	1,564	0.14	< 0.005	—	1,568
Health Club	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	237
Apartments Low Rise	0.08	0.04	0.70	0.30	< 0.005	0.06	—	0.06	0.06	—	0.06	—	883	883	0.08	< 0.005	—	885
Retirement Community	1.00	0.50	8.54	3.63	0.05	0.69	—	0.69	0.69	—	0.69	—	10,838	10,838	0.96	0.02	—	10,868
Single Family Housing	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,446	1,446	0.13	< 0.005	—	1,450
Regional Shopping Center	0.11	0.05	0.96	0.80	0.01	0.07	—	0.07	0.07	—	0.07	—	1,142	1,142	0.10	< 0.005	—	1,145
Strip Mall	0.04	0.02	0.39	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	470	470	0.04	< 0.005	—	471
Total	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	16,578	16,578	1.47	0.03	—	16,624
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Governm Office Building	0.03	0.01	0.24	0.20	< 0.005	0.02	—	0.02	0.02	—	0.02	—	259	259	0.02	< 0.005	—	260
Health Club	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	39.2	39.2	< 0.005	< 0.005	—	39.3
Apartments Low Rise	0.01	0.01	0.13	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	147
Retirement Community	0.18	0.09	1.56	0.66	0.01	0.13	—	0.13	0.13	—	0.13	—	1,794	1,794	0.16	< 0.005	—	1,799
Single Family Housing	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	239	239	0.02	< 0.005	—	240
Regional Shopping Center	0.02	0.01	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.02	< 0.005	—	190
Strip Mall	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.8	77.8	0.01	< 0.005	—	78.0
Total	0.28	0.14	2.41	1.24	0.02	0.19	—	0.19	0.19	—	0.19	—	2,745	2,745	0.24	0.01	—	2,752

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.14	0.07	1.31	1.10	0.01	0.10	—	0.10	0.10	—	0.10	—	1,564	1,564	0.14	< 0.005	—	1,568
Health Club	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	237

Apartme Low Rise	0.08	0.04	0.70	0.30	< 0.005	0.06	—	0.06	0.06	—	0.06	—	883	883	0.08	< 0.005	—	885
Retireme nt Commun ity	1.00	0.50	8.54	3.63	0.05	0.69	—	0.69	0.69	—	0.69	—	10,838	10,838	0.96	0.02	—	10,868
Single Family Housing	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,446	1,446	0.13	< 0.005	—	1,450
Regional Shopping Center	0.11	0.05	0.96	0.80	0.01	0.07	—	0.07	0.07	—	0.07	—	1,142	1,142	0.10	< 0.005	—	1,145
Strip Mall	0.04	0.02	0.39	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	470	470	0.04	< 0.005	—	471
Total	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	16,578	16,578	1.47	0.03	—	16,624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Governm ent Office Building	0.14	0.07	1.31	1.10	0.01	0.10	—	0.10	0.10	—	0.10	—	1,564	1,564	0.14	< 0.005	—	1,568
Health Club	0.02	0.01	0.20	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	237	237	0.02	< 0.005	—	237
Apartme nts Low Rise	0.08	0.04	0.70	0.30	< 0.005	0.06	—	0.06	0.06	—	0.06	—	883	883	0.08	< 0.005	—	885
Retireme nt Commun ity	1.00	0.50	8.54	3.63	0.05	0.69	—	0.69	0.69	—	0.69	—	10,838	10,838	0.96	0.02	—	10,868
Single Family Housing	0.13	0.07	1.14	0.48	0.01	0.09	—	0.09	0.09	—	0.09	—	1,446	1,446	0.13	< 0.005	—	1,450
Regional Shopping Center	0.11	0.05	0.96	0.80	0.01	0.07	—	0.07	0.07	—	0.07	—	1,142	1,142	0.10	< 0.005	—	1,145

Strip Mall	0.04	0.02	0.39	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	470	470	0.04	< 0.005	—	471
Total	1.53	0.76	13.2	6.82	0.08	1.06	—	1.06	1.06	—	1.06	—	16,578	16,578	1.47	0.03	—	16,624
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	0.03	0.01	0.24	0.20	< 0.005	0.02	—	0.02	0.02	—	0.02	—	259	259	0.02	< 0.005	—	260
Health Club	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	39.2	39.2	< 0.005	< 0.005	—	39.3
Apartments Low Rise	0.01	0.01	0.13	0.05	< 0.005	0.01	—	0.01	0.01	—	0.01	—	146	146	0.01	< 0.005	—	147
Retirement Community	0.18	0.09	1.56	0.66	0.01	0.13	—	0.13	0.13	—	0.13	—	1,794	1,794	0.16	< 0.005	—	1,799
Single Family Housing	0.02	0.01	0.21	0.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	239	239	0.02	< 0.005	—	240
Regional Shopping Center	0.02	0.01	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	189	189	0.02	< 0.005	—	190
Strip Mall	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	77.8	77.8	0.01	< 0.005	—	78.0
Total	0.28	0.14	2.41	1.24	0.02	0.19	—	0.19	0.19	—	0.19	—	2,745	2,745	0.24	0.01	—	2,752

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	80.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	6.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	19.5	18.3	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	—	531	531	0.02	< 0.005	—	533
Total	19.5	105	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	0.00	531	531	0.02	< 0.005	—	533
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	80.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	6.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	86.5	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	14.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.75	1.65	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	—	43.4	43.4	< 0.005	< 0.005	—	43.5

Total	1.75	17.4	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	43.4	43.4	< 0.005	< 0.005	—	43.5

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	80.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	6.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	19.5	18.3	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	—	531	531	0.02	< 0.005	—	533
Total	19.5	105	1.64	181	0.01	0.13	—	0.13	0.09	—	0.09	0.00	531	531	0.02	< 0.005	—	533
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Consumer Products	—	80.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	6.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	86.5	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00

Consum Products	—	14.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.75	1.65	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	—	43.4	43.4	< 0.005	< 0.005	—	43.5
Total	1.75	17.4	0.15	16.3	< 0.005	0.01	—	0.01	0.01	—	0.01	0.00	43.4	43.4	< 0.005	< 0.005	—	43.5

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	58.6	101	160	6.02	0.14	—	353
Health Club	—	—	—	—	—	—	—	—	—	—	—	2.27	3.91	6.18	0.23	0.01	—	13.7
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	13.4	23.1	36.5	1.37	0.03	—	80.7
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	164	284	448	16.9	0.40	—	991

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.4	129	149	2.11	0.05	—	217
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	60.3	104	165	6.19	0.15	—	364
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	24.8	42.9	67.7	2.55	0.06	—	150
Total	—	—	—	—	—	—	—	—	—	—	—	344	688	1,032	35.4	0.85	—	2,168
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	58.6	101	160	6.02	0.14	—	353
Health Club	—	—	—	—	—	—	—	—	—	—	—	2.27	3.91	6.18	0.23	0.01	—	13.7
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	13.4	23.1	36.5	1.37	0.03	—	80.7
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	164	284	448	16.9	0.40	—	991
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.4	129	149	2.11	0.05	—	217
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	60.3	104	165	6.19	0.15	—	364
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	24.8	42.9	67.7	2.55	0.06	—	150
Total	—	—	—	—	—	—	—	—	—	—	—	344	688	1,032	35.4	0.85	—	2,168
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Government Office Building	—	—	—	—	—	—	—	—	—	—	—	9.71	16.8	26.5	1.00	0.02	—	58.5
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.38	0.65	1.02	0.04	< 0.005	—	2.26
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	2.22	3.83	6.04	0.23	0.01	—	13.4
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	27.2	47.0	74.2	2.79	0.07	—	164
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.38	21.3	24.7	0.35	0.01	—	35.9
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	9.99	17.2	27.2	1.03	0.02	—	60.2
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	4.11	7.10	11.2	0.42	0.01	—	24.8
Total	—	—	—	—	—	—	—	—	—	—	—	57.0	114	171	5.85	0.14	—	359

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	52.9	91.3	144	5.43	0.13	—	318
Health Club	—	—	—	—	—	—	—	—	—	—	—	2.05	3.54	5.58	0.21	0.01	—	12.3

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	13.4	23.1	36.5	1.37	0.03	—	80.7
Retireme nt Commun ity	—	—	—	—	—	—	—	—	—	—	—	149	258	407	15.3	0.37	—	899
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	18.5	82.4	101	1.91	0.05	—	162
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	54.5	94.1	149	5.59	0.13	—	328
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	22.4	38.7	61.2	2.30	0.06	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	313	591	904	32.1	0.77	—	1,936
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Governm ent Office Building	—	—	—	—	—	—	—	—	—	—	—	52.9	91.3	144	5.43	0.13	—	318
Health Club	—	—	—	—	—	—	—	—	—	—	—	2.05	3.54	5.58	0.21	0.01	—	12.3
Apartme nts Low Rise	—	—	—	—	—	—	—	—	—	—	—	13.4	23.1	36.5	1.37	0.03	—	80.7
Retireme nt Commun ity	—	—	—	—	—	—	—	—	—	—	—	149	258	407	15.3	0.37	—	899
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	18.5	82.4	101	1.91	0.05	—	162
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	54.5	94.1	149	5.59	0.13	—	328

Strip Mall	—	—	—	—	—	—	—	—	—	—	—	22.4	38.7	61.2	2.30	0.06	—	135
Total	—	—	—	—	—	—	—	—	—	—	—	313	591	904	32.1	0.77	—	1,936
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	8.75	15.1	23.9	0.90	0.02	—	52.7
Health Club	—	—	—	—	—	—	—	—	—	—	—	0.34	0.59	0.92	0.03	< 0.005	—	2.04
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	2.22	3.83	6.04	0.23	0.01	—	13.4
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	24.7	42.6	67.3	2.54	0.06	—	149
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	3.07	13.7	16.7	0.32	0.01	—	26.9
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	9.02	15.6	24.6	0.93	0.02	—	54.3
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	3.71	6.41	10.1	0.38	0.01	—	22.4
Total	—	—	—	—	—	—	—	—	—	—	—	51.8	97.8	150	5.32	0.13	—	321

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	77.2	0.00	77.2	7.71	0.00	—	270
Health Club	—	—	—	—	—	—	—	—	—	—	—	61.4	0.00	61.4	6.14	0.00	—	215
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	69.8	0.00	69.8	6.97	0.00	—	244
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	3,352	0.00	3,352	335	0.00	—	11,729
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	125	0.00	125	12.5	0.00	—	437
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	241	0.00	241	24.0	0.00	—	841
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	99.0	0.00	99.0	9.90	0.00	—	346
Total	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	77.2	0.00	77.2	7.71	0.00	—	270
Health Club	—	—	—	—	—	—	—	—	—	—	—	61.4	0.00	61.4	6.14	0.00	—	215
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	69.8	0.00	69.8	6.97	0.00	—	244

Retirement Community	—	—	—	—	—	—	—	—	—	—	—	3,352	0.00	3,352	335	0.00	—	11,729
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	125	0.00	125	12.5	0.00	—	437
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	241	0.00	241	24.0	0.00	—	841
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	99.0	0.00	99.0	9.90	0.00	—	346
Total	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Health Club	—	—	—	—	—	—	—	—	—	—	—	10.2	0.00	10.2	1.02	0.00	—	35.6
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	11.6	0.00	11.6	1.15	0.00	—	40.4
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	555	0.00	555	55.5	0.00	—	1,942
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	0.00	20.7	2.06	0.00	—	72.3
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	39.8	0.00	39.8	3.98	0.00	—	139
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	16.4	0.00	16.4	1.64	0.00	—	57.4
Total	—	—	—	—	—	—	—	—	—	—	—	666	0.00	666	66.6	0.00	—	2,331

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	77.2	0.00	77.2	7.71	0.00	—	270
Health Club	—	—	—	—	—	—	—	—	—	—	—	61.4	0.00	61.4	6.14	0.00	—	215
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	69.8	0.00	69.8	6.97	0.00	—	244
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	3,352	0.00	3,352	335	0.00	—	11,729
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	125	0.00	125	12.5	0.00	—	437
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	241	0.00	241	24.0	0.00	—	841
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	99.0	0.00	99.0	9.90	0.00	—	346
Total	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	77.2	0.00	77.2	7.71	0.00	—	270
Health Club	—	—	—	—	—	—	—	—	—	—	—	61.4	0.00	61.4	6.14	0.00	—	215

Apartme Low Rise	—	—	—	—	—	—	—	—	—	—	—	69.8	0.00	69.8	6.97	0.00	—	244
Retireme nt Commun ity	—	—	—	—	—	—	—	—	—	—	—	3,352	0.00	3,352	335	0.00	—	11,729
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	125	0.00	125	12.5	0.00	—	437
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	241	0.00	241	24.0	0.00	—	841
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	99.0	0.00	99.0	9.90	0.00	—	346
Total	—	—	—	—	—	—	—	—	—	—	—	4,025	0.00	4,025	402	0.00	—	14,082
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Governm ent Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	0.00	12.8	1.28	0.00	—	44.7
Health Club	—	—	—	—	—	—	—	—	—	—	—	10.2	0.00	10.2	1.02	0.00	—	35.6
Apartme nts Low Rise	—	—	—	—	—	—	—	—	—	—	—	11.6	0.00	11.6	1.15	0.00	—	40.4
Retireme nt Commun ity	—	—	—	—	—	—	—	—	—	—	—	555	0.00	555	55.5	0.00	—	1,942
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	20.7	0.00	20.7	2.06	0.00	—	72.3
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	39.8	0.00	39.8	3.98	0.00	—	139
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	16.4	0.00	16.4	1.64	0.00	—	57.4

Total	—	—	—	—	—	—	—	—	—	—	—	666	0.00	666	66.6	0.00	—	2,331

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.37	0.37
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	0.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	28.9
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.73	3.73
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.04	2.04
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.09	1.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.37	0.37
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	0.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	28.9
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.73	3.73
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.04	2.04
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.09	1.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22

Retirement Commun	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.79	4.79
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.18	0.18
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.22	6.22

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.37	0.37
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	0.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	28.9
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.73	3.73

Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.04	2.04
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.09	1.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.37	0.37
Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	0.10
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28.9	28.9
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.73	3.73
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.04	2.04
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.09	1.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37.6	37.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Government Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06

Health Club	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.02	0.02
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Retirement Community	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.79	4.79
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Regional Shopping Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.34	0.34
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.18	0.18
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.22	6.22

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	6/1/2025	7/12/2025	5.00	30.0	—
Site Preparation	Site Preparation	7/13/2025	6/13/2026	5.00	240	—
Grading	Grading	6/14/2026	10/28/2028	5.00	620	—
Building Construction	Building Construction	10/29/2028	3/29/2039	5.00	2,717	—
Paving	Paving	10/29/2028	7/6/2030	5.00	440	—
Architectural Coating	Architectural Coating	10/29/2028	12/31/2039	5.00	2,915	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.8	LDA,LDT1,LDT2
Demolition	Vendor	—	7.17	HHDT,MHDT

Demolition	Hauling	9.40	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	2,019	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	404	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	404	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	10.8	LDA,LDT1,LDT2
Demolition	Vendor	—	7.17	HHDT,MHDT
Demolition	Hauling	9.40	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	2,019	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	404	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	404	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	6,042,782	2,014,261	1,161,000	387,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Ton of Debris)	Material Exported (Ton of Debris)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	24,500	—
Site Preparation	0.00	0.00	540	0.00	—
Grading	0.00	0.00	2,790	0.00	—
Paving	0.00	0.00	0.00	0.00	2.94

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Government Office Building	0.00	0%
Health Club	0.00	0%
Apartments Low Rise	—	0%
Retirement Community	—	0%
Single Family Housing	2.94	0%
Regional Shopping Center	0.00	0%
Strip Mall	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	488	0.03	< 0.005
2026	0.00	392	0.03	< 0.005
2027	0.00	406	0.03	< 0.005
2028	0.00	383	0.03	< 0.005
2029	0.00	366	0.03	< 0.005
2030	0.00	371	0.03	< 0.005
2031	0.00	371	0.03	< 0.005
2032	0.00	371	0.03	< 0.005
2033	0.00	371	0.03	< 0.005
2034	0.00	371	0.03	< 0.005
2035	0.00	371	0.03	< 0.005
2036	0.00	371	0.03	< 0.005
2037	0.00	371	0.03	< 0.005

2038	0.00	371	0.03	< 0.005
2039	0.00	371	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	3,304	3,304	3,304	1,205,960	245,108	245,108	245,108	89,464,420

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	3,093	3,093	3,093	1,128,779	229,421	229,421	229,421	83,738,697

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	175
Conventional Wood Stoves	0
Catalytic Wood Stoves	0

Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Retirement Community	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	2149
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	267
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0

Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	175
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Retirement Community	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	2149
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	267
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0

Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
6042782.25	2,014,261	1,161,000	387,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Government Office Building	3,139,442	371	0.0330	0.0040	4,878,925
Health Club	197,753	371	0.0330	0.0040	738,021
Apartments Low Rise	797,183	371	0.0330	0.0040	2,753,746
Retirement Community	9,789,409	371	0.0330	0.0040	33,816,002
Single Family Housing	2,342,763	371	0.0330	0.0040	4,512,570

Regional Shopping Center	3,803,333	371	0.0330	0.0040	3,562,062
Strip Mall	1,566,078	371	0.0330	0.0040	1,466,732

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Government Office Building	3,138,286	371	0.0330	0.0040	4,878,925
Health Club	195,903	371	0.0330	0.0040	738,021
Apartments Low Rise	757,011	371	0.0330	0.0040	2,753,746
Retirement Community	9,296,096	371	0.0330	0.0040	33,816,002
Single Family Housing	2,270,651	371	0.0330	0.0040	4,512,570
Regional Shopping Center	3,771,857	371	0.0330	0.0040	3,562,062
Strip Mall	1,553,118	371	0.0330	0.0040	1,466,732

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	30,593,592	0.00
Health Club	1,182,863	0.00
Apartments Low Rise	6,985,689	0.00
Retirement Community	85,784,266	0.00
Single Family Housing	10,658,166	52,791,268
Regional Shopping Center	31,480,822	0.00
Strip Mall	12,962,691	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Government Office Building	27,580,123	0.00
Health Club	1,068,125	0.00
Apartments Low Rise	6,985,689	0.00
Retirement Community	77,832,064	0.00
Single Family Housing	9,670,154	28,544,233
Regional Shopping Center	28,427,182	0.00
Strip Mall	11,705,310	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	143	—
Health Club	114	—
Apartments Low Rise	129	—
Retirement Community	6,220	—
Single Family Housing	232	—
Regional Shopping Center	446	—
Strip Mall	184	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Government Office Building	143	—
Health Club	114	—
Apartments Low Rise	129	—
Retirement Community	6,220	—

Single Family Housing	232	—
Regional Shopping Center	446	—
Strip Mall	184	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Retirement Community	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Retirement Community	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Government Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Government Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Health Club	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Retirement Community	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Retirement Community	Household refrigerators and/or freezers	R-134a	1,430	0.22	0.60	0.00	1.00

Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Regional Shopping Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Regional Shopping Center	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	21.5	annual days of extreme heat
Extreme Precipitation	1.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	68.1
AQ-PM	53.5
AQ-DPM	33.5
Drinking Water	99.6
Lead Risk Housing	14.1
Pesticides	93.9
Toxic Releases	61.8
Traffic	16.1
Effect Indicators	—
CleanUp Sites	71.6
Groundwater	95.3
Haz Waste Facilities/Generators	91.0
Impaired Water Bodies	66.7
Solid Waste	84.0
Sensitive Population	—
Asthma	53.3
Cardio-vascular	57.6
Low Birth Weights	61.0
Socioeconomic Factor Indicators	—

Education	58.9
Housing	10.2
Linguistic	50.0
Poverty	36.1
Unemployment	9.72

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	78.08289491
Employed	51.27678686
Median HI	69.16463493
Education	—
Bachelor's or higher	43.46208136
High school enrollment	100
Preschool enrollment	29.86013089
Transportation	—
Auto Access	69.12613884
Active commuting	1.039394328
Social	—
2-parent households	89.74720903
Voting	64.85307327
Neighborhood	—
Alcohol availability	83.26703452
Park access	22.41755422
Retail density	14.26921596

Supermarket access	32.78583344
Tree canopy	51.08430643
Housing	—
Homeownership	84.46041319
Housing habitability	91.67201335
Low-inc homeowner severe housing cost burden	81.5603747
Low-inc renter severe housing cost burden	81.72719107
Uncrowded housing	83.16437829
Health Outcomes	—
Insured adults	70.06287694
Arthritis	6.9
Asthma ER Admissions	56.4
High Blood Pressure	17.7
Cancer (excluding skin)	9.7
Asthma	43.1
Coronary Heart Disease	8.3
Chronic Obstructive Pulmonary Disease	19.2
Diagnosed Diabetes	44.3
Life Expectancy at Birth	25.5
Cognitively Disabled	87.2
Physically Disabled	86.7
Heart Attack ER Admissions	38.4
Mental Health Not Good	53.9
Chronic Kidney Disease	27.1
Obesity	39.2
Pedestrian Injuries	50.1
Physical Health Not Good	48.3

Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	22.7
Current Smoker	46.7
No Leisure Time for Physical Activity	61.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	20.9
Elderly	61.3
English Speaking	42.3
Foreign-born	44.0
Outdoor Workers	64.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	64.8
Traffic Density	27.1
Traffic Access	0.0
Other Indices	—
Hardship	42.2
Other Decision Support	—
2016 Voting	67.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	70.0
Healthy Places Index Score for Project Location (b)	61.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction schedule as provided by applicant (adjusted for a start year of 2025).
Construction: Dust From Material Movement	Cut and fill assumed to balance on-site. Assumes demolition of 11 buildings, totaling approximately 24,500 sf of building square footage.
Operations: Hearths	No hearths per Air District Rule 4901.

APPENDIX B2

Energy Calculations

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Stanislaus
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	Trips	Fuel Consumption	MPG	
Stanislaus	2023	All Other Buses	Aggregate	Aggregate	Diesel	109.1416796	5930.591435	971.3609483	0.684766065	**8.660755**	
Stanislaus	2023	LDA	Aggregate	Aggregate	Gasoline	185599.532	7279323.636	855533.9269	244.2187107	**29.80658**	
Stanislaus	2023	LDA	Aggregate	Aggregate	Diesel	528.015576	16506.47608	2244.98676	0.363680141	**45.38735**	
Stanislaus	2023	LDT1	Aggregate	Aggregate	Gasoline	18633.71555	583285.7518	79709.27373	23.68581785	**24.62595**	
Stanislaus	2023	LDT1	Aggregate	Aggregate	Diesel	12.86704141	145.8746957	37.52482813	0.0055883	**26.10359**	
Stanislaus	2023	LDT2	Aggregate	Aggregate	Gasoline	78865.47463	2994370.55	363618.6521	126.0239197	**23.76033**	
Stanislaus	2023	LDT2	Aggregate	Aggregate	Diesel	219.1935299	9155.20852	1041.598541	0.26969287	**33.94679**	
Stanislaus	2023	LHD1	Aggregate	Aggregate	Gasoline	9208.264848	327704.735	137189.4259	35.52846238	**9.223724**	
Stanislaus	2023	LHD1	Aggregate	Aggregate	Diesel	9381.022484	332927.6478	118001.4615	21.06434291	**15.80527**	
Stanislaus	2023	LHD2	Aggregate	Aggregate	Gasoline	1562.237281	58782.89759	23275.00775	6.901757663	**8.517091**	
Stanislaus	2023	LHD2	Aggregate	Aggregate	Diesel	3254.815739	122335.0516	40941.48744	9.431887969	**12.97037**	
Stanislaus	2023	MCY	Aggregate	Aggregate	Gasoline	10546.30132	57009.52529	21092.60264	1.367319081	**41.69438**	
Stanislaus	2023	MDV	Aggregate	Aggregate	Gasoline	80902.41319	2772635.008	363742.0249	143.6617777	**19.29974**	
Stanislaus	2023	MDV	Aggregate	Aggregate	Diesel	1219.237613	46758.69961	5669.359996	1.85547366	**25.20041**	
Stanislaus	2023	MH	Aggregate	Aggregate	Gasoline	1337.965651	11497.62112	133.8500837	2.607969891	**4.408648**	
Stanislaus	2023	MH	Aggregate	Aggregate	Diesel	564.3825557	4975.231058	56.43825557	0.528587377	**9.412315**	
Stanislaus	2023	Motor Coach	Aggregate	Aggregate	Diesel	24.15827492	3441.987779	555.1571577	0.628570505	**5.475898**	
Stanislaus	2023	OBUS	Aggregate	Aggregate	Gasoline	148.7815027	6373.555589	2976.820306	1.353004287	**4.710669**	
Stanislaus	2023	PTO	Aggregate	Aggregate	Diesel	0	10711.09224	0	2.225981595	**4.811851**	
Stanislaus	2023	SBUS	Aggregate	Aggregate	Gasoline	202.7119074	10228.7158	810.8476294	1.05198408	**9.723261**	
Stanislaus	2023	SBUS	Aggregate	Aggregate	Diesel	485.4705933	11205.15303	7029.614191	1.379581067	**8.122142**	
Stanislaus	2023	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	7.5804058	505.2111853	174.1977253	0.057124814	**8.843988**	
Stanislaus	2023	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	10.17710996	693.1309604	233.8699869	0.078265846	**8.85611**	
Stanislaus	2023	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	32.02504843	1810.042171	735.9356129	0.201543012	**8.980922**	
Stanislaus	2023	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	55.32102848	11360.95781	1271.277235	1.187611398	**9.566225**	**MHD**
Stanislaus	2023	T6 Instate Delivery Class 4	Aggregate	Aggregate	Diesel	130.7661701	4395.789006	1866.033248	0.538855573	**8.157639**	**8.448255**
Stanislaus	2023	T6 Instate Delivery Class 5	Aggregate	Aggregate	Diesel	137.7361733	4710.470832	1965.495193	0.576101309	**8.176463**	
Stanislaus	2023	T6 Instate Delivery Class 6	Aggregate	Aggregate	Diesel	422.7409417	14596.59738	6032.513238	1.780152495	**8.199633**	
Stanislaus	2023	T6 Instate Delivery Class 7	Aggregate	Aggregate	Diesel	144.3636987	7981.280374	2060.069981	0.946302088	**8.434178**	
Stanislaus	2023	T6 Instate Other Class 4	Aggregate	Aggregate	Diesel	502.1169387	20770.71411	5804.471811	2.431256755	**8.543201**	
Stanislaus	2023	T6 Instate Other Class 5	Aggregate	Aggregate	Diesel	1004.575085	44418.54004	11612.88798	5.22355726	**8.503504**	
Stanislaus	2023	T6 Instate Other Class 6	Aggregate	Aggregate	Diesel	662.0084955	28105.24019	7652.818208	3.285437884	**8.554488**	
Stanislaus	2023	T6 Instate Other Class 7	Aggregate	Aggregate	Diesel	482.2258641	21895.45562	5574.530989	2.506243768	**8.736363**	
Stanislaus	2023	T6 Instate Tractor Class 6	Aggregate	Aggregate	Diesel	13.81024508	697.3257206	159.6464331	0.076672636	**9.094845**	
Stanislaus	2023	T6 Instate Tractor Class 7	Aggregate	Aggregate	Diesel	535.938182	33463.28352	6195.445384	3.679396643	**9.094775**	
Stanislaus	2023	T6 OOS Class 4	Aggregate	Aggregate	Diesel	4.370983563	288.7073773	100.4452023	0.03262216	**8.850039**	
Stanislaus	2023	T6 OOS Class 5	Aggregate	Aggregate	Diesel	5.843162999	396.0546052	134.2758857	0.044706836	**8.858927**	
Stanislaus	2023	T6 OOS Class 6	Aggregate	Aggregate	Diesel	18.44809079	1034.902015	423.9371264	0.115125841	**8.989311**	
Stanislaus	2023	T6 OOS Class 7	Aggregate	Aggregate	Diesel	30.00994499	7525.024536	689.6285358	0.782405648	**9.617804**	
Stanislaus	2023	T6 Public Class 4	Aggregate	Aggregate	Diesel	41.77415013	1359.619297	214.3013902	0.180995889	**7.511879**	
Stanislaus	2023	T6 Public Class 5	Aggregate	Aggregate	Diesel	112.0579675	4013.152441	574.8573732	0.524986117	**7.644302**	
Stanislaus	2023	T6 Public Class 6	Aggregate	Aggregate	Diesel	106.2378595	3609.211866	545.0002191	0.479482003	**7.527315**	
Stanislaus	2023	T6 Public Class 7	Aggregate	Aggregate	Diesel	163.7628074	7051.230221	840.103202	0.908188085	**7.764064**	
Stanislaus	2023	T6 Utility Class 5	Aggregate	Aggregate	Diesel	23.29888328	948.7152867	298.225706	0.107612592	**8.816025**	
Stanislaus	2023	T6 Utility Class 6	Aggregate	Aggregate	Diesel	4.424455953	178.9225446	56.6330362	0.020234238	**8.842564**	
Stanislaus	2023	T6 Utility Class 7	Aggregate	Aggregate	Diesel	5.047970593	249.1845322	64.61402359	0.028048659	**8.884009**	
Stanislaus	2023	T6TS	Aggregate	Aggregate	Gasoline	570.0968733	26942.83315	11406.49824	5.84942993	**4.606061**	**HHD**
Stanislaus	2023	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1055.190885	215416.6124	24248.28654	35.68586421	**6.036469**	**5.422671**
Stanislaus	2023	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	943.9257985	254974.5344	21691.41485	41.85781628	**6.091444**	
Stanislaus	2023	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	395.3808984	92627.71924	9085.853046	15.37521736	**6.024482**	
Stanislaus	2023	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	20.40024034	3828.241282	333.747932	0.645806379	**5.927847**	
Stanislaus	2023	T7 POAK Class 8	Aggregate	Aggregate	Diesel	93.27358471	9381.291931	1525.955846	1.611000219	**5.823272**	
Stanislaus	2023	T7 POLA Class 8	Aggregate	Aggregate	Diesel	97.71164183	12847.16267	1598.56246	2.208412749	**5.817374**	
Stanislaus	2023	T7 Public Class 8	Aggregate	Aggregate	Diesel	363.7301119	15308.41548	1865.935474	2.969982156	**5.15438**	
Stanislaus	2023	T7 Single Concrete/Transit Mix	Aggregate	Aggregate	Diesel	104.0659271	7271.734709	980.3010337	1.238815049	**5.869912**	
Stanislaus	2023	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	176.9544704	10318.67017	1666.911111	1.786025662	**5.777448**	
Stanislaus	2023	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	608.5539949	34567.55515	5732.578632	5.895604606	**5.863276**	
Stanislaus	2023	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	110.6064773	7169.698737	508.7897956	2.804317665	**2.556664**	
Stanislaus	2023	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	1782.068645	142088.0189	25893.45741	23.4260713	**6.06538**	
Stanislaus	2023	T7 Utility Class 8	Aggregate	Aggregate	Diesel	16.23049844	751.1584997	207.75038	0.129810816	**5.786563**	
Stanislaus	2023	T7IS	Aggregate	Aggregate	Gasoline	4.036315857	85.9260747	80.75860766	0.027514948	**3.122887**	
Stanislaus	2023	UBUS	Aggregate	Aggregate	Gasoline	18.71002833	1043.905782	74.84011332	0.209540287	**4.981886**	
Stanislaus	2023	UBUS	Aggregate	Aggregate	Diesel	71.36802862	7758.148358	285.4721145	0.916268503	**8.467112**	

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Stanislaus
Calendar Year: 2040
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	Trips	Fuel Consumption	MPG		
Stanislaus	2040	All Other Buses	Aggregate	Aggregate	Diesel	141.4512966	6442.859173	1258.917	0.677872812	**9.504525128**		
Stanislaus	2040	LDA	Aggregate	Aggregate	Gasoline	197798.5368	8098253.813	912195.2	223.7545175	**36.19258241**		
Stanislaus	2040	LDA	Aggregate	Aggregate	Diesel	144.4422581	5062.98121	632.2615	0.090796809	**55.76166467**		
Stanislaus	2040	LDT1	Aggregate	Aggregate	Gasoline	12971.84869	462095.8638	57256.66	15.02174174	**30.76180324**		
Stanislaus	2040	LDT1	Aggregate	Aggregate	Diesel	0.120594377	4.926542631	0.564925	0.000162109	**30.39028225**		
Stanislaus	2040	LDT2	Aggregate	Aggregate	Gasoline	100265.239	3891154.46	459240.1	132.6613355	**29.33148866**		
Stanislaus	2040	LDT2	Aggregate	Aggregate	Diesel	371.3374663	14724.37777	1718.984	0.36970304	**39.82758099**		
Stanislaus	2040	LHD1	Aggregate	Aggregate	Gasoline	5179.091782	182004.3637	77160.75	16.64126224	**10.93693261**		
Stanislaus	2040	LHD1	Aggregate	Aggregate	Diesel	4150.91342	132182.079	52213.27	8.103566319	**16.31159342**		
Stanislaus	2040	LHD2	Aggregate	Aggregate	Gasoline	738.4480595	23947.59794	11001.78	2.50219499	**9.570636196**		
Stanislaus	2040	LHD2	Aggregate	Aggregate	Diesel	1914.206209	60410.61424	24078.31	4.354270205	**13.87387815**		
Stanislaus	2040	MCY	Aggregate	Aggregate	Gasoline	8955.349587	48338.21182	17910.7	1.094373865	**44.16974251**		
Stanislaus	2040	MDV	Aggregate	Aggregate	Gasoline	63829.08422	2293858.221	285252.7	95.44658613	**24.0328996**		
Stanislaus	2040	MDV	Aggregate	Aggregate	Diesel	775.1413159	26505.47043	3424.812	0.883094445	**30.01430999**		
Stanislaus	2040	MH	Aggregate	Aggregate	Gasoline	549.0747436	5796.745061	54.92944	1.312423183	**4.416826169**		
Stanislaus	2040	MH	Aggregate	Aggregate	Diesel	386.667115	3500.492638	38.66671	0.374518728	**9.346642444**		
Stanislaus	2040	Motor Coach	Aggregate	Aggregate	Diesel	30.02302207	3769.864684	689.929	0.603021268	**6.251628072**		
Stanislaus	2040	OBUS	Aggregate	Aggregate	Gasoline	77.04548334	2385.299166	1541.526	0.448279845	**5.321004708**		
Stanislaus	2040	PTO	Aggregate	Aggregate	Diesel	0	8937.970623	0	1.593526987	**5.608923286**		
Stanislaus	2040	SBUS	Aggregate	Aggregate	Gasoline	166.7430344	8689.54675	666.9721	0.870411761	**9.983259811**		
Stanislaus	2040	SBUS	Aggregate	Aggregate	Diesel	368.4028525	7380.614213	5334.473	0.857402942	**8.608104608**	**MHD**	
Stanislaus	2040	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	5.154530165	356.4106459	118.4511	0.036307131	**9.816546803**		**9.59227**
Stanislaus	2040	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	6.379074436	491.2618976	146.5911	0.050058471	**9.81376158**		
Stanislaus	2040	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	28.3520101	1265.964269	651.5292	0.129111796	**9.805179027**		
Stanislaus	2040	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	64.17256223	12954.64128	1474.685	1.156046086	**11.20599035**		
Stanislaus	2040	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	114.0175171	3704.594968	1627.03	0.409994914	**9.035709567**		
Stanislaus	2040	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	122.0827623	3967.404627	1742.121	0.440127237	**9.014222001**		
Stanislaus	2040	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	379.5457896	12325.87103	5416.118	1.367908101	**9.010744967**		
Stanislaus	2040	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	167.2188091	8336.200569	2386.212	0.935791907	**8.908177672**		
Stanislaus	2040	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	445.4444073	17148.86645	5149.337	1.828206017	**9.380160819**		
Stanislaus	2040	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	953.1169201	36603.90544	11018.03	3.906619814	**9.36971274**		
Stanislaus	2040	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	603.7872468	23216.0164	6979.781	2.473979347	**9.384078498**		
Stanislaus	2040	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	544.1258611	20688.94293	6290.095	2.231196777	**9.272576561**		
Stanislaus	2040	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	12.76706894	555.1347107	147.5873	0.05835844	**9.512500902**		
Stanislaus	2040	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	734.8503768	41087.06616	8494.87	4.040378745	**10.16911254**		
Stanislaus	2040	T6 OOS Class 4	Aggregate	Aggregate	Diesel	5.802933369	423.3005619	133.3514	0.040230723	**10.52182341**		
Stanislaus	2040	T6 OOS Class 5	Aggregate	Aggregate	Diesel	7.157111127	580.6922514	164.4704	0.055219936	**10.51598926**		
Stanislaus	2040	T6 OOS Class 6	Aggregate	Aggregate	Diesel	32.06734558	1517.365467	736.9076	0.144208929	**10.52199388**		
Stanislaus	2040	T6 OOS Class 7	Aggregate	Aggregate	Diesel	39.78563143	11033.13377	914.2738	0.941620985	**11.71717065**		
Stanislaus	2040	T6 Public Class 4	Aggregate	Aggregate	Diesel	26.65200966	919.5168691	136.7248	0.108219778	**8.496754341**		
Stanislaus	2040	T6 Public Class 5	Aggregate	Aggregate	Diesel	82.39829208	2826.820564	422.7032	0.3351961	**8.433333681**		
Stanislaus	2040	T6 Public Class 6	Aggregate	Aggregate	Diesel	72.44437816	2486.61904	371.6397	0.29367819	**8.467155984**		
Stanislaus	2040	T6 Public Class 7	Aggregate	Aggregate	Diesel	122.9531688	5096.298543	630.7498	0.584048106	**8.725819829**		
Stanislaus	2040	T6 Utility Class 5	Aggregate	Aggregate	Diesel	13.11711429	515.3064825	167.8991	0.053974469	**9.54722659**		
Stanislaus	2040	T6 Utility Class 6	Aggregate	Aggregate	Diesel	2.479228928	97.40640218	31.73413	0.01019929	**9.55031194**		
Stanislaus	2040	T6 Utility Class 7	Aggregate	Aggregate	Diesel	2.743319077	130.7126679	35.11448	0.013600732	**9.610708399**		
Stanislaus	2040	T6TS	Aggregate	Aggregate	Gasoline	283.1323619	13007.73305	5664.912	2.439087632	**5.333032272**	**HHD**	
Stanislaus	2040	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1228.611814	255364.0001	28233.5	34.73586968	**7.35159368**		**6.442894**
Stanislaus	2040	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1334.345082	383249.5032	30663.25	49.58315429	**7.729429657**		
Stanislaus	2040	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	576.1154073	139227.7369	13239.13	18.21498619	**7.643581799**		
Stanislaus	2040	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	19.35484861	4854.659965	316.6453	0.670003115	**7.245727456**		
Stanislaus	2040	T7 POAK Class 8	Aggregate	Aggregate	Diesel	94.44894129	10945.57543	1545.185	1.53997766	**7.107619619**		
Stanislaus	2040	T7 POLA Class 8	Aggregate	Aggregate	Diesel	93.25498064	17976.02911	1525.651	2.594100991	**6.929579525**		
Stanislaus	2040	T7 Public Class 8	Aggregate	Aggregate	Diesel	283.2235985	11328.34654	1452.937	1.932636386	**5.861602639**		
Stanislaus	2040	T7 Single Concrete/T	Aggregate	Aggregate	Diesel	60.41732038	3852.492861	569.1312	0.577764456	**6.667929847**		
Stanislaus	2040	T7 Single Dump Clas	Aggregate	Aggregate	Diesel	147.1332445	7141.722101	1385.995	1.131746828	**6.310353096**		
Stanislaus	2040	T7 Single Other Clas	Aggregate	Aggregate	Diesel	615.1496985	32461.81342	5794.71	5.090392666	**6.37707453**		
Stanislaus	2040	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	52.93184152	3434.54303	243.4865	1.202043581	**2.857253334**		
Stanislaus	2040	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2892.487793	184629.5996	42027.85	25.82003304	**7.150633745**		
Stanislaus	2040	T7 Utility Class 8	Aggregate	Aggregate	Diesel	13.44324281	549.4431291	172.0735	0.087152736	**6.30437041**		
Stanislaus	2040	T7IS	Aggregate	Aggregate	Gasoline	0.330772556	41.85585733	6.618097	0.008974676	**4.663773554**		
Stanislaus	2040	UBUS	Aggregate	Aggregate	Gasoline	3.529748231	135.8539285	14.11899	0.013336375	**10.18672075**		
Stanislaus	2040	UBUS	Aggregate	Aggregate	Diesel	2.863154704	341.5524901	11.45262	0.040413463	**8.451453177**		

On-road Mobile (Operational) Energy Usage

Unmitigated:

Step 1:

Therefore:

Average Daily VMT:

245,108	Source: KD Anderson, Inc.

Step 2: Given:

Fleet Mix (CalEEMod Output)

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
50.03%	2.90%	22.91%	14.92%	2.62%	0.72%	1.59%	1.92%	0.06%	0.04%	1.93%	0.18%	0.20%

And:

Gasoline MPG Factors for each Vehicle Class - Year 2040 (EMFAC2021 Output)

LDA	LDT1	LDT2	MDV	MCY	MH
36.193	30.762	29.331	24.033	44.170	4.417

Diesel MPG Factors for each Vehicle Class - Year 2040 (EMFAC2021 Output)

LHD1	LHD2	MHD	HHD	OBUS	UBUS	SBUS
16.312	13.874	9.592	6.443	5.321	8.451	8.608

Therefore:

Weighted Average MPG Factors

Gasoline:	**32.5**	Diesel:	**11.5**

Step 3: **Therefore:**

7,011	**daily gallons of gasoline**	**1,517**	**daily gallons of diesel**

or

2,559,055	**annual gallons of gasoline**	**553,615**	**annual gallons of diesel**

Off-road Mobile (Construction) Energy Usage

Note: For the sake of simplicity, and as a conservative estimation, it was assumed that all off-road vehicles use diesel fuel as an energy source. Demolition (if applicable), Site preparation and grading off-road mobile vehicle on-site gallons of fuel are calculated below.

Given Factor:	**2,486.8**	**metric tons**	**CO2**	**(provided in CalEEMod Output File)**
Conversion Factor:	2204.6262	pounds	per metric ton	
Intermediate Result:	**5,482,464**	**pounds**	**CO2**	
Conversion Factor:	22.38	pounds	CO2 per 1 gallon of diesel fuel	Source: U.S. EIA, 2016
Final Result:	**244,972**	**gallons**	**diesel fuel**	http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=11

Mitigated Onsite Scenario	Total CO2 (MT/yr) (provided in CalEEMod Output File)
Demolition - 2025	46.80
Site Preparation - 2025	296.00
Site Preparation - 2026	282.00
Grading - 2026	431.00
Grading - 2027	783

On-road Mobile (Construction) Energy Usage - Demolition

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1:

Total Daily Worker Trips (CalEEMod output)

15

Worker Trip Length (miles) (CalEEMod output)

10.8

Therefore:

Average Worker Daily VMT:

162

Total Hauler Trips (CalEEMod Output)

9

Note: Hauler trips are total values (not daily).

Hauler Trip Length (miles) (CalEEMod Output)

20

Average Hauler Daily VMT:

180

Step 2:

Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

Fleet Mix for Workers (CalEEMod Output)

MHD	HHD
0%	100%

And:

Gasoline MPG Factors for each Vehicle Class - Year 2023 (EMFAC2021 output)

LDA	LDT1	LDT2
29.81	24.63	23.76

Diesel MPG Factors for each Vehicle Class - Year 2023 (EMFAC2021 output)

MHD	HHD
8.45	5.42

Therefore:

Weighted Average Worker MPG Factor

27.00

Therefore:

Weighted Average Hauler (Diesel) MPG Factor

5.42

Step 3:

Therefore:

6 Worker daily gallons of gasoline (all workers)

Therefore:

33 Worker daily gallons of gasoline (all workers)

Step 4:

30 **# of Days (CalEEMod ouput)**

Therefore:

Result: **180 Total gallons of gasoline (all workers)**

Therefore:

Result: **33 Hauler gallons of diesel**

On-road Mobile (Construction) Energy Usage - Site Preparation

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

18

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

194

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15

LDA	**LDT1**	**LDT2**
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (EMFAC2021 Output) - Year 2022

LDA	**LDT1**	**LDT2**
29.81	24.63	23.76

Therefore:

Weighted Average Worker MPG Factor

27.0

Step 3: **Therefore:**

7.2 **Worker daily gallons of gasoline**

Step 4: 240 **# of Days (CalEEMod Output)**

Therefore:

Result: **1,728** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Grading

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

20

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

216

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (EMFAC2021 Output) - Year 2022

LDA	LDT1	LDT2
29.81	24.63	23.76

Therefore:

Weighted Average Worker MPG Factor

27.0

Step 3: **Therefore:**

8.0 **Worker daily gallons of gasoline**

Step 4: 620 **# of Days (CalEEMod Output)**

Therefore:

Result: **4,960** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Building Construction

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1:

Total Daily Worker Trips (CalEEMod Output)

2,019 5%

101

Total Daily Vendor Trips (CalEEMod Output)

404 5%

20

Note: Assumes 5% of workers and vendors are in Plan Area at any one time.

Worker Trip Length (miles) (CalEEMod Output)

10.8

Vendor Trip Length (miles) (CalEEMod Output)

7.2

Therefore:

Average Worker Daily VMT:

1,090

Average Vendor Daily VMT:

145

Step 2:

Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

Fleet Mix for Workers (CalEEMod Output)

MHD	HHD
0%	100%

Assumed Fleet Mix for Vendors

And:

MPG Factors for each Vehicle Class (from EMFAC2021) - Year 2022

Gasoline:

LDA	LDT1	LDT2
29.81	24.63	23.76

Diesel:

MHD	HHD
8.45	5.42

Therefore:

Weighted Average Worker (Gasoline) MPG Factor

27.0

Weighted Average Vendor (Diesel) MPG Factor

5.4

Step 3:

Therefore:

40 **Worker daily gallons of gasoline**

Therefore:

27 **Vendor daily gallons of diesel**

Step 4:

2717 **# of Days (CalEEMod Output)**

Therefore:

109,713 **Total gallons of gasoline**

Therefore:

72,872 **Total gallons of diesel**

On-road Mobile (Construction) Energy Usage - Paving

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

15

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

162

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (EMFAC2021 Output) - Year 2022

LDA	LDT1	LDT2
29.81	24.63	23.76

Therefore:

Weighted Average Worker MPG Factor

27.0

Step 3: **Therefore:**

6.0 **Worker daily gallons of gasoline**

Step 4: 440 **# of Days (CalEEMod Output)**

Therefore:

Result: **2,640** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Architectural Coating

Note: Year 2021 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

404	5%
20	

Note: Assumes 5% of workers and vendors are in Plan Area at any one time.

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

218

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (EMFAC2021 Output) - Year 2022

LDA	LDT1	LDT2
29.81	24.63	23.76

Therefore:

Weighted Average Worker MPG Factor

27.0

Step 3: **Therefore:**

8.1 **Worker daily gallons of gasoline**

Step 4: 2,915 **# of Days (CalEEMod Output)**

Therefore:

Result: **23,553** **Total gallons of gasoline**

APPENDIX C

Cultural Resource Assessment (Confidential)

APPENDIX D

Preliminary Geotechnical Engineering Report

Preliminary Geotechnical Engineering Report

RIVERBANK DEVELOPMENT

WKA No. 12676.01

March 31, 2020

Prepared for:

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Preliminary Geotechnical Engineering Report

RIVERBANK DEVELOPMENT

Riverbank, California

WKA No. 12676.01

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Preliminary Geotechnical Engineering Report
RIVERBANK DEVELOPMENT
Riverbank, California
WKA No. 12676.01
March 31, 2020

INTRODUCTION

As authorized, we have completed a preliminary evaluation of the subsurface soil and groundwater conditions at the approximately 770-acre property located northeasterly of the intersection of McHenry Avenue and Patterson Road in Riverbank, California (Figure 1).

Purpose and Scope of Services

The purpose of this report has been to describe the nature and general engineering characteristics of the soil and groundwater conditions at the site, and to provide findings, conclusions and preliminary geotechnical recommendations regarding the feasibility of developing the site with low- to high-density residential and commercial development.

This report is preliminary in nature and describes the impacts of the soil and groundwater conditions on earthwork, buildings and roadway construction. This report is not intended for final design and does not include specific recommendations for site grading or building foundation/slab-on-grade construction. However, it does contain preliminary pavement design sections.

Our scope of services included the following tasks:

1. perform a site reconnaissance;
2. review of United States Geological Survey (USGS) geologic map, historical aerial photographs, and available groundwater information;
3. perform subsurface exploration, including the excavation and sampling of 17 test pits to a depths of up to about 10 feet below existing site grades and completion of five Cone Penetration Tests (CPTs) to depths of about 36 feet below the existing ground surface;
4. perform percolation testing, including the completion of four tests to 10 feet below the existing ground surface;
5. collect representative bulk samples of near-surface soils;
6. perform laboratory testing of selected soil samples;
7. perform engineering analyses; and,
8. preparation of this report.

Figures and Attachments

This report contains a Vicinity Map as Figure 1, a Site Plan showing the locations of the test pits and CPTs performed at the site as Figure 2, and Logs of Test Pits as Figures 3 through 19. An explanation of the symbols and classification system used on the logs is contained in Figure 20. Appendix A contains general information regarding project concepts, exploratory methods used during the field exploration phase of this study, an explanation of laboratory testing accomplished, and laboratory test results not presented on the test pit logs. Appendix B contains the CPT logs.

Proposed Development

We understand the property may be developed with low- to high-density residential and commercial development. We assume the construction would be one- to three-story wood-frame construction with an interior slab-on-grade lower floors. Structural loads for the structures are anticipated to be relatively light based on this type of construction. Associated development would include construction of a community center, lake, parks, underground utilities, parking and drive areas, exterior flatwork, and typical residential and commercial landscaping.

FINDINGS

Site Description

The Riverbank Development consists of about 770 acres located northeasterly of the intersection of McHenry Avenue and Patterson Road in Riverbank, California (Figure 1). The site consists of 10 parcels identified as Stanislaus County Assessor Parcel Numbers 074-002-001-000, 074-003-013-000, -014-000, -015-000, -016-000, -020-000, -021-000, -022-000, -023-000, and -024-000. The site is bounded to the north by orchards, levees, and the San Joaquin River; to the east by orchards and a residential subdivision; to the south by rural residential housing, some commercial farming facilities and Paterson Road; and, to the west by orchards, rural residential housing, beyond which is McHenry Avenue. There is also a solar farm and the Modesto Rifle Club southwest of the site.

The southern portion of the site is essentially flat with some rolling hills and average surface elevation of about +150 feet relative to mean sea level. The northern portion of the site is also relatively flat with an average surface elevation of about +90 feet relative to mean sea level. Elevations are based on the United States Geological Survey (*USGS) Topographic Map(s) of the Escalon Quadrangle, California,* and *Riverbank Quadrangle, California* both dated 2018.

The difference in elevation is from what appears to be a former riverbank that divides the two portions of the site with earthen ramps for access between the northern and the southern areas. At the time of our field reconnaissance on February 23, 2020, the site was an active farm with both orchards and row crops. There are also barns and other machine facilities in the southern-central portion of the site.

Historical Aerial Photograph Review

We reviewed historical aerial photographs from 1967 through 2018. Review of an aerial photograph from 1967 shows the site to be in similar condition as our site visit, an active farm with both orchards and row crops. Historical aerial photographs reviewed up through 2018 indicate the site has remained essentially unchanged since at least 1967 except for the possible addition or replacement of some structures in the middle of the property, near the equipment storage area. Overall the site has remained in similar condition since at least 1967.

Site Geology

The site is located in the northern portion of the Great Valley geomorphic province of California in the northern portion of the San Joaquin Valley. The Great Valley of California is generally considered to be an elongated sedimentary trough, approximately 450 miles long and 50 miles wide. Rock units within the Great Valley geomorphic province consist of Mesozoic to Cenozoic marine and non-marine sedimentary rocks. These sediments have been folded into an asymmetric syncline, the axis of which lies immediately east of the interior Coast Ranges. The sedimentary units on the east side of the Great Valley are minimally deformed and are deposited on basement rocks of the Sierra Nevada geomorphic province. The sedimentary rocks on the west side of the Great Valley are deformed at dip at moderate angles to the east according to Norris and Webb's book Geology of California, 2nd edition.

According to the Geologic map of the San Francisco-San Jose quadrangle, California, 1:250,000: California Division of Mines and Geology, Regional Geologic Map 5A, Holocene-aged Alluvium (Q) underlies the site with exception to the very eastern portion of the site which is underlain by the Middle Pleistocene-aged fluvial sediments of the Riverbank Formation (Qr). These sediments each consist primarily of gravels, sands, silts and interbedded clays.

Soil Conditions

The surface and near-surface soils encountered at the test pit locations performed on February 26 and 27, 2020 generally consisted of native light to dark brown silty sand and/or sandy silt in the upper 10 feet of existing site grades.

Following the completion of our field explorations, the test pits were backfilled with excavated soils placed in thin lifts and compacted with a sheepsfoot wheel attached to the backhoe.

Descriptions of the soils encountered by the test pits are presented on Figures 3 through 19. An explanation of the Unified Soil Classification System symbols used in the descriptions is presented on Figure 20.

Five CPT soundings were advanced on February 28, 2020 at the approximate locations indicated on the attached Site Plan (Figure 2). The soil conditions at the CPT locations generally consists of interbedded layers of silty sand, sandy silt, and lean clay underlain by silty sands and sands to the explored depths of 36 feet below the existing ground surface before practical refusal was encountered.

The soil conditions encountered in the test pit and CPT soundings are consistent with the mapped geology.

For more detail regarding the soil conditions at a CPT location, please refer to the interpretation logs presented in Appendix B.

Groundwater

Groundwater was not encountered within the explored six to 10 foot depths of the test pits performed on February 26 and 27, 2020. The CPT's performed on-site revealed groundwater present between about 18 and 11 feet below site grades at CPT-02 and CPT-03, respectively.

Review of available groundwater information provided by the California Department of Water Resources indicates that regional groundwater beneath the site is generally present at a depth of 60 to 80 feet below the existing ground surface https://gis.water.ca.gov/app/gicima/).

CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

Building Support

In our opinion, the undisturbed native soils are capable of supporting the anticipated improvements within the development provided the soils are prepared, placed, and compacted in accordance with typical geotechnical recommendations for similar projects. Engineered fill that is properly placed and compacted during earthwork also would be suitable to support the proposed structures and pavements.

The upper six to 12 inches of surface soil across the site is loose due to recent discing activities and orchard removal processes that are planned and is not considered suitable for support of structures, unless these materials are properly processed, moisture conditioned, and uniformly compacted. Adequate clearing of existing vegetation and backfilling of the resulting depressions, if any, will be essential for uniform support of new structures.

2019 California Building Code Seismic Design Parameters

The 2019 *CBC* references the *ASCE Standard 7-16* for seismic design. To assist with the structural design of this project, we have provided the following seismic design parameters, which have been determined based on the site location and the Seismic Design Maps public domain computer program developed by the Structural Engineers Association of California (SEAOC) and the California Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org). Since S_1 is greater than 0.2 g, the 2019 *CBC* coefficient values F_v, S_{M1}, and S_{D1} presented below in Table 3 are valid for seismic design of this project, provided the requirements in Exception Note No. 2 in Section 11.4.8 of *ASCE 7-16* apply, specifically if T (fundamental period of the building) ≤ $1.5T_S$ (S_{D1}/ S_{DS}). In our experience, relatively short residential and commercial structures (i.e., less than about five stories) will meet requirements in Exception Note No. 2 in Section 11.4.8 of *ASCE 7-16* apply and the seismic design parameters provided in Table 3 are valid. Structures that do not meet the exception will require a site-specific ground motion analysis and should be performed on a case-by-case basis.

The following seismic design parameters summarized below may be used for seismic design of the planned improvements at the site.

Table 1: 2019 CBC SEISMIC DESIGN PARAMETERS

Latitude: 37.7457° N Longitude: 120.9796° W	ASCE 7-16 Table/Figure	2019 CBC Figure/Section/Table	Factor/ Coefficient	2019 CBC Values
0.2-second Period MCE	Figure 22-1	Figure: 1613.2.1(1)	S_S	0.621 g
1.0 second Period MCE_R	Figure 22-2	Figure: 1113.2.1(2)	S_1	0.254 g
Soil Class	Table 20.3-1	Section: 1613.2.2	Site Class	D
Site Coefficient	Table 11.4-1	Table: 1613.2.3 (1)	F_a	1.303
Site Coefficient	Table 11.4-2	Table: 1613.2.3(2)	F_v	2.092*
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation: 16-36	S_{MS}	0.809 g
	Equation 11.4-2	Equation: 16-37	S_{M1}	0.531 g*
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation: 16-38	S_{DS}	0.539 g
	Equation 11.4-4	Equation: 16-39	S_{D1}	0.354 g*

Latitude: 37.7457° N Longitude: 120.9796° W	ASCE 7-16 Table/Figure	2019 CBC Figure/Section/Table	Factor/ Coefficient	2019 CBC Values
Seismic Design Category	Table 11.6-1	Table: 1613.2.5(1)	Risk Category I to IV	D
	Table 11.6-2	Table: 1613.2.5(2)	Risk Category I to IV	D

Notes: MCE_R = Risk-Targeted Maximum Considered Earthquake; g = gravity
* = The value is valid provided the requirements in Exception Note No. 2 in Section 11.4.8 of ASCE 7-16 are met.

Liquefaction Potential

Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated cohesionless soils as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include bearing capacity failure, lateral spreading, and differential settlement of soils below foundations, which can contribute to structural damage or collapse.

Based upon the results of our subsurface exploration, the known site geologic, seismologic, groundwater and soil conditions, it is our opinion that the potential for liquefaction occurring at this site is relatively low. Specifically, the relatively deep depth (greater than 50 feet below the ground surface) of the groundwater below the site indicates the potential for liquefaction is very low.

Excavation Conditions

The soils at the site are anticipated to be excavatable with conventional earthwork and trenching equipment. Standard size backhoes and excavators should be suitable to excavate foundation and shallow utility trenches at this site. Previous site improvements (i.e., foundations, slabs, etc.) may be encountered during construction and larger equipment may be required to remove existing below-grade structures at the site from existing developments.

Foundation excavations and the upper five feet of utility trenches should stand at near vertical inclinations, unless saturated soil conditions are encountered. In addition, clean, cohesionless soils may be susceptible to sloughing and caving if they are left to dry. Utility trench excavations deeper than five feet should be sloped or braced to conform to current Occupational Safety and Health Administration (OSHA) requirements.

Excavated materials should not be stockpiled directly adjacent to an open excavation to prevent surcharge loading of the excavation sidewalls. Excessive truck and equipment traffic should be avoided near excavations. If material is stored or heavy equipment is stationed and/or operated near an excavation, a shoring system must be designed to resist the additional pressure due to the superimposed loads.

Soil Expansion Potential

Laboratory testing of a bulk samples consisting of representative near-surface soils collected from across the site revealed these soils are of low to moderate plasticity when tested in accordance with the American Society of Testing and Materials (ASTM) D4318 (see Figure A1). Additional laboratory test results on the near-surface soils indicate these materials possess a very low to medium expansion potential when tested in accordance with ASTM D4829 test method (Figures A2 through A6). Additional testing should be performed during design level geotechnical exploration and testing to further evaluate the impact of potentially expansive soils that may be encountered at the site. Based on the results of the laboratory testing and our experience in the area, we conclude the near-surface soils may be capable of exerting moderate expansion pressures on building foundations, interior floor slabs, and exterior flatwork.

Percolation Tests

On February 24, 2020, four percolation tests (P1 through P4) were drilled at the approximate locations indicated in Figure 1. The soil borings in which the tests took place were advanced with a CME 55 truck-mounted drill rig. The borings extended to a depth of about 10 feet below existing grades utilizing six-inch-diameter solid flight helical augers. The borings were set up for percolation testing using two-inch-diameter perforated plastic pipe and the surrounding annular space around the casing was filled with pea gravel. The percolation test holes were pre-soaked by filling the holes with potable water up to the existing ground surface and allowing the test holes to soak overnight.

On February 25, 2020, after a roughly 24 hour period after drilling activities, the holes were re-filled with water and the percolation tests were performed by taking water level readings at various intervals. The readings were measured as a distance from the top of the percolation pipe to water surface. The drop in water was measured every one to ten minutes for up to four hours. Percolation rates were calculated for each time interval. The overall rates for the four holes ranged from about 11½ to 36 inches per hour (1.67 to 5.21 minutes per inch).

The results of testing are provided in the tables below. These field test results are not intended to be design rates. They represent the results of our tests, at the depths and locations indicated. The design rate should be determined by the drainage design engineer who should apply an appropriate factor of safety.

TABLE 2 - IN-SITU PERCOLATION TESTING RESULTS

Percolation Test Identification	Soil Type Encountered at the Bottom of the Boring	Depth of Boring (inches)	Approximate Percolation Rate (inches per minute)
P1	Silty Sand/Sand	120	0.24
P2	Silty Sand/Sand	120	0.19
P3	Silty Sand/Sand	120	0.19
P4	Silty Sand/Sand	120	0.60

At the completion of drilling activities, the percolation test locations were backfilled with neat cement in accordance with Stanislaus County Environmental Health Department regulations.

Infiltration Characteristics of the Subgrade Soils and Conclusions

The percolation rate is related, but not equal to, the infiltration rate. The percolation rate measures the vertical and lateral progression of water through soil whereas the infiltration rate measures only downward progression of water through soil. Infiltration rates were correlated using the Porchet Method and ranged from 0.0028 to 0.1056 inches per minute at the soils most saturated in-situ test (i.e., the final interval of the percolation test).

TABLE 3 – CORRELATED INFILTRATION RATES USING THE PORCHET METHOD

Percolation Test Identification	Soil Type Encountered at the Bottom of the Boring	Approximate Correlated Infiltration Rate (inches per minute)
P1	Silty Sand/Sand	0.0055
P2	Silty Sand/Sand	0.096
P3	Silty Sand/Sand	0.0028
P4	Silty Sand/Sand	0.1056

Pavement Subgrade Quality

Laboratory testing of the anticipated near-surface pavement subgrade soils indicate moderate to good quality materials for support of asphalt concrete pavements. Resistance ("R") values ranging from 12 to 70 were obtained on a near-surface soil samples tested in accordance with

California Test 301. Therefore, for preliminary design purposes, we have used R-values of 10 and 40 for the calculation of alternative pavement sections. Due to the large size of the site, different phases will require different recommendations. The Resistance-value test results are presented in Figures A7 through A10.

Preliminary Soil Corrosion Potential

Five soil samples were tested to determine resistivity, pH, chloride, and sulfate concentrations to help evaluate the potential for corrosive attack upon reinforced concrete and buried metal. The results of the corrosivity test are summarized below in Table 4. Copies of the corrosion potential test results performed by Sunland Analytical are presented in Figures A12 through A21.

TABLE 4
SOIL CORROSIVITY TESTING

Analyte	Test Method	TP1 (0'-2')	TP4 (0'-5')	TP8 (0'-3')	TP13 (0'-3')	TP17 (0'-3')
pH	CA DOT 643 Modified*	7.05	7.25	7.18	7.80	6.42
Minimum Resistivity	CA DOT 643 Modified*	320 Ω-cm	2090 Ω-cm	1820 Ω-cm	1230 Ω-cm	10,180 Ω-cm
Chloride	CA DOT 422m	723.2 ppm	29.2 ppm	15.1 ppm	24.3 ppm	1.6 ppm
Sulfate	CA DOT 417	297.9 ppm	51.2 ppm	20.7 ppm	261.8 ppm	9.2 ppm
Sulfate – SO4	ASTM D-516m	261.4 mg/kg	53.7 mg/kg	19.8 mg/kg	285.8 mg/kg	9.8 mg/kg

Notes: * = Small cell method
Ω-cm = Ohm-centimeters
ppm = Parts per million
mg/kg = Milligrams per kilogram

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, 2012 Corrosion Guidelines (Version 2.0), considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less. Based on the chloride concentration criterion, the surface and near-surface soils tested at TP1 can lead to corrosion of steel reinforcement in concrete and steel structures by breaking down the protective layer of oxides normally present on the steel surface. Corrosion mitigation measures

for reinforced concrete due to high chloride concentration in soil include, but are not limited to: using a dense concrete mix that is less permeable to slow the diffusion of chlorides through concrete and using epoxy-coated reinforcing steel. In addition, the relatively low resistivity for the sample tested at TP1 also indicates the surface and near-surface soils at the site may be moderately to highly corrosive to unprotected metal.

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-19, Section 19.3 – Concrete Design and Durability Requirements, as referenced in Section 1904.1 of the 2019 CBC, indicates the severity of sulfate exposure for the samples is Exposure Class S0 or S1. Exposure Class S0 is assigned for conditions where the water-soluble sulfate concentration in contact with concrete is low and injurious sulfate attack is not a concern. Exposure Class S1 is assigned for conditions where the structural concrete members are in direct contact with soluble sulfates in soil or water. The project structural engineer should evaluate the requirements of ACI 318-19 and determine their applicability to the site. Ordinary Type I-II Portland cement is considered suitable for use on this project, assuming a minimum concrete cover is maintained over the reinforcement.

Wallace-Kuhl & Associates are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site, a corrosion engineer should be consulted.

Material Suitability for Engineered Fill Construction

The native soils are considered suitable for use as engineered fill, provided they do not contain significant vegetation, debris or rubble, and are at appropriate moisture contents to allow for proper compaction.

Groundwater and Seasonal Moisture

Our review of available groundwater information from within the vicinity of the site, indicates that the static groundwater table should not adversely affect design or construction of the proposed charter school. Although the static groundwater table should not impact future development, perched water above relatively impermeable soil layers should be anticipated. The chances of encountering perched water are greater during and shortly after the rainy season. Seepage in utility excavations (if encountered) could probably be removed from utility excavations by pumps without major dewatering efforts.

Infiltrating surface run-off water from seasonal moisture during the winter and spring months may create saturated surface soil conditions due to the impervious nature of the underlying cemented soils. It is probable that grading operations attempted following the onset of winter

rains and prior to prolonged drying periods will be hampered by high soil moisture contents. Such soils, intended for use as engineered fill, will require a prolonged period of dry weather and/or considerable aeration to reach a moisture content suitable to achieve proper compaction.

Earthwork Considerations

Future geotechnical engineering investigations should be performed to develop site-specific grading recommendations.
Areas designated to receive fill and at-grade areas are typically scarified to depths of about six to 12 inches, thoroughly moisture conditioned to above optimum moisture contents, and uniformly compacted. This method will help mitigate for expansive soils, if any. Standard fill construction and compaction procedures, including uniform moisture conditioning, placement of fill in thin lifts and uniformly compacted to at least 90 percent of the maximum dry density, would likely be suitable for support of structures and pavements.

Building Foundations

Relatively shallow conventional continuous and isolated footings are anticipated to be suitable for one- and three-story, structures with loads typical of structures of this type. Foundation depths are typically 12 to 18 inches for one- and three-story structures, depending on design. We anticipate bearing capacities on the order of 2000 to 3000 pounds per square foot (psf) for dead plus live loads will be applicable to structures supported on undisturbed native materials and/or properly placed and compacted engineered fill.

Interior Floor Slab Support

Interior slab-on-grade concrete floors would be suitable for this project provided the slabs are properly designed and constructed with regard to moisture penetration resistance and the slabs are adequately reinforced. Typical slab reinforcement for slabs constructed on non-expansive soils would consist of chaired reinforcing steel bars placed near mid-depth of the slab. A typical capillary break (at least four inches of free-draining crushed rock) and a moisture vapor retarder membrane (at least 10-mils thick meeting the minimum specifications for water vapor retarders as defined by ASTM E1745 standards) with an optional sand/pea gravel layer should underlie interior slabs-on-grade.

Preliminary Pavement Design

The following preliminary pavement sections have been calculated based on the assumed traffic indices and the results of the R-value testing. Based on the variability of the R-value results

across the site, we have prepared pavement design alternatives for two different R-values, an R-value of 10 and an R-value of 40. The final pavement design sections will depend on the anticipated traffic conditions and further exploration and analysis across the site. The procedures used for design are in general conformance with Chapters 600 to 670 of the *California Highway Design Manual, 6th Edition*. The project civil engineer should select the appropriate pavement sections based upon local government requirements.

TABLE 5
PAVEMENT DESIGN ALTERNATIVES

Traffic Index (TI)	Pavement Subgrade R-value = 10		Pavement Subgrades and/or Lime-treated Subgrades R-value = 40	
	Type B AC (inches)	Class II AB (inches)	Type B AC (inches)	Class II AB (inches)
4.5	2½*	9	2½*	4
	3*	8	---	---
5.0	2½	10	2½	5
	3*	9	3*	4
5.5	2½	12	2½	7
	3*	11	3*	6
6.0	2½	14	2½	8
	3½*	12	3½*	6
6.5	3	15	3	8
	4*	13	4*	6
7.0	3	17	3	10
	4*	15	4*	7

Note: * = Asphalt concrete thickness includes the Caltrans Safety Factor

We emphasize that the performance of a pavement is critically dependent upon uniform compaction of the subgrade soils, as well as all engineered fill and utility trench backfill within the limits of the pavements. Materials used for pavement construction should conform to the appropriate sections of the most recent editions of the Caltrans Standard Specifications and local government design standards, latest editions.

Efficient drainage of all surface water to avoid infiltration and saturation of the supporting aggregate base and subgrade soils is important to the performance of pavements. Where drop

inlets or other surface drainage features are to be constructed, we strongly recommend that weep holes be provided at the base/subgrade level to allow free drainage of collected water.

Site Drainage

Performance of the building foundations, slab-on-grade floor and exterior flatwork is dependent upon proper control of surface water at the site. Site drainage should be accomplished to provide positive drainage of surface water away from buildings and prevent ponding of water adjacent to foundations. The grades adjacent to structures should be sloped away from foundations at a minimum two percent. We suggest consideration be given to connecting all roof downspouts to solid drainage pipes that convey water away from buildings to available drainage features or discharging downspouts onto concrete or asphalt surfaces that slope away from structures.

Future Geotechnical Engineering Studies

Prior to final design and the commencement of site grading, a detailed geotechnical investigation of this property must be conducted that includes additional subsurface exploration with soil sampling, laboratory testing and additional engineering evaluation. The final report should present geotechnical engineering conclusions and specific recommendations regarding site preparation, foundation alternates, floor support, site drainage and pavement design. When the project reaches this stage of development, we would be pleased to provide a separate cost estimate for these services.

LIMITATIONS

The proceeding sections of this report should be considered a general overview of the geotechnical engineering aspects of site development. Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our engineering judgment based upon the information provided and the data generated from our investigation. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

We appreciate this opportunity to be of service. Please contact our office if you have any questions regarding this report or the geotechnical aspects of site development.

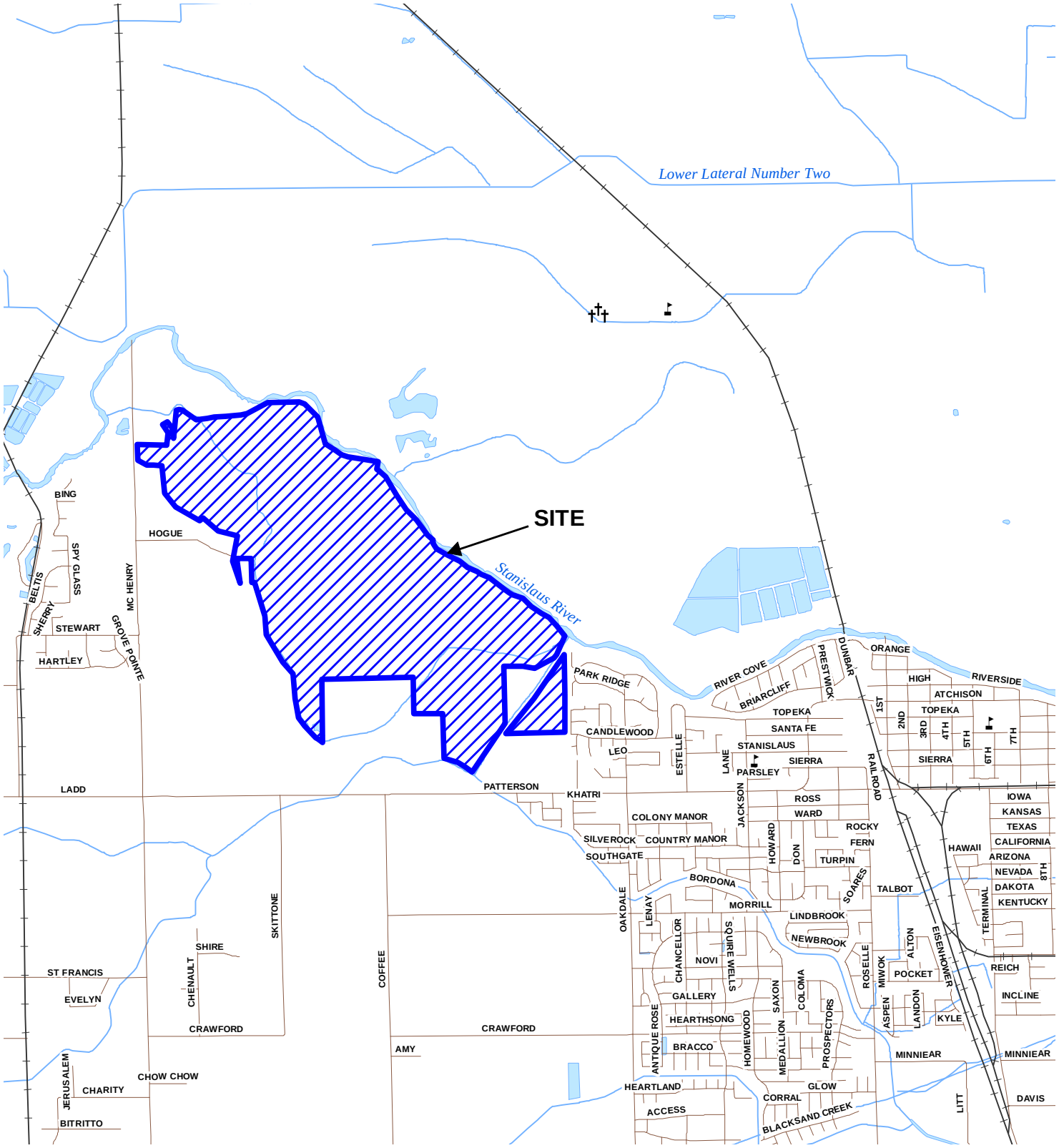
Wallace – Kuhl & Associates



Joseph R. Ybarra
Staff Geologist

Matthew S. Moyneur
Senior Engineer

JRY:MSM:/jry



Aerial imagery provided by Esri
Projection: NAD 83, California State Plane, Zone III.

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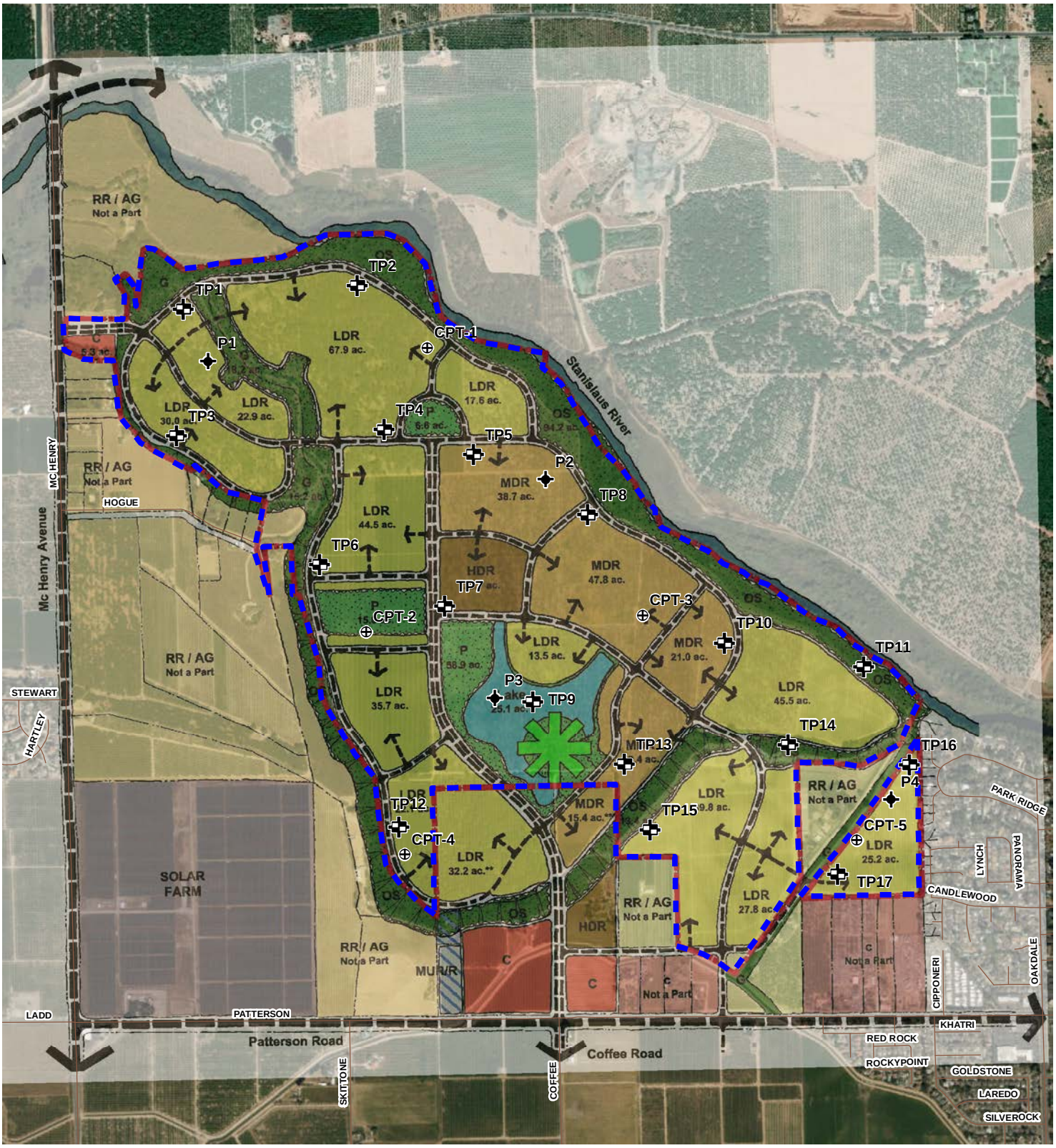
VICINITY MAP

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO. 12676.01	



⊕ Approximate CPT Location

✥ Approximate Test Pit Location

✦ Approximate Percolation Test Location

Approximate Site Boundary

N

0 750 1,500

Feet

Aerial imagery provided by Esri
Site Plan adapted from a drawing provided by Randall Planning & Design, Inc. dated 08/14/17.
Projection: NAD 83, California State Plane, Zone III.

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SITE PLAN

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO. 12676.01	

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP1

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, silty fine SAND (SM)		TP1 @ 0'-2'				EI
			Dark brown, moist, fine sandy SILT (ML)		TP1 @ 2'				PI 83.0% passed #200
			Light brown, moist, fine sandy SILT (ML)		TP1 @ 4'				PI 70.0% passed #200 GR EI
	5				TP1 @ 4'-5'		34.1	75	
					TP1 @ 5'-6'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 3

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP2

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, silty fine to medium SAND (SM)		TP2 @ 0'-5'				
					TP2 @ 3'		9.9	88	
	5		increase in moisture content						
					TP2 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 4

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP3

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, silty fine SAND (SM)						
					TP3 @ 3'-5'				
					TP3 @ 3'		5.7	107	
	5								
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 5

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP4

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, silty fine to medium SAND (SM)		TP4 @ 0'-3'				
					TP4 @ 2'				
					TP4 @ 4' TP4 @ 4'-5'		19.8	82	
	5								
			Light gray, moist, fine to medium SAND (SP)		TP4 @ 7'-8'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 6

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP5

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine SAND (SM)						
					TP5 @ 1'		7.9	103	
					TP5 @ 0'-5'				
					TP5 @ 3'		8.7	105	
	5		increase silt content, increase moisture content						
					TP5 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 7

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP6

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, fine sandy SILT (ML)						EI
					TP7 @ 0'-5'				
					TP7 @ 3'				PI 70.3% passed #200
	5		increase sand content, increase moisture content						
					TP7 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 8

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP7

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, fine sandy SILT (ML)						
					TP7 @ 2'				PI 71.3% passed #200
			Brown, moist, silty fine SAND (SM)		TP7 @ 4'				PI 58.7% passed #200
	5								
					TP7 @ 7'-8'				
	10								
			Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 9

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP8

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine to medium SAND (SM)						
					TP8 @ 0'-5'				
					TP8 @ 2'		7.2	102	
					TP8 @ 4'		10.4	103	
	5								
					TP8 @ 6.5'-7.5'				
			Light gray, moist, fine to medium SAND (SP)						
					TP8 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 10

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP9

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, fine sandy SILT (ML)						
					TP9 @ 0'-5'				EI
					TP9 @ 2'		14.1	93	
					TP9 @ 4'				
	5		increase moisture content						
					TP9 @ 9'-10'				PI 88.9% passed #200
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 11

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP10

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine SAND (SM)		TP10 @ 0'-5'				
					TP10 @ 2'		18.1	88	
	5		increase moisture content						
					TP10 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 12

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP11

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine SAND (SM)		TP11 @ 0'-3'				
					TP11 @ 1'		10.6	97	
	5								
			Light gray, moist, fine to medium SAND (SP)		TP11 @ 8'-9'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 13

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP12

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Light brown, moist, fine sandy SILT (ML)						
					TP12 @ 0'-3'				
					TP12 @ 1.5'				
					TP12 @ 3'		22.0	72	
	5								
					TP12 @ 6'-7'				
			increase moisture content						
					TP12 @ 8'-9'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 14

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP13

Sheet 1 of 1

Date(s) Drilled	**2/27/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine SAND (SM)						
					TP13 @ 0'-3'				EI
					TP13 @ 2'		13.2	90	
	5				TP13 @ 5'-6'				
			increase moisture content						
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 15

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP14

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**10.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Dark brown, moist, silty fine to medium SAND (SM)		TP14 @ 0'-3'				
					TP14 @ 2'		6.5	100	
			increase moisture content		TP14 @ 4'		9.2	85	
	5				TP14 @ 4'-5'				
			increase silt content						
					TP14 @ 9'-10'				
	10		Test pit was terminated at approximately 10 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 16

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP15

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**6.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, fine to medium SAND (SP)		TP18 @ 0'-3'				
	5				TP18 @ 5'-6'				
			Test pit was terminated at approximately 6 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 17

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP16

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**9.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks				Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, fine to medium SAND (SP)		TP16 @ 0'-2'				
					TP16 @ 3'		6.2	112	
					TP16 @ 3'-4'				
	5		increase moisture content						
			Test pit was terminated at approximately 9 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 18

Project: Riverbank Development
Project Location: Riverbank, California
WKA Number: 12676.01

LOG OF TEST PIT TP17

Sheet 1 of 1

Date(s) Drilled	**2/26/20**	Logged By	**KT**	Checked By	**JY**
Drilling Method	**Backhoe**	Drilling Contractor	**Tilford Backhoe**	Total Depth of Drill Hole	**8.0 feet**
Drill Rig Type	**Case 580M Backhoe**	Diameter(s) of Hole, inches	**24-inch Bucket**	Approx. Surface Elevation, ft MSL	
Groundwater Depth [Elevation], feet	**Not Encountered**	Sampling Method(s)	**Open drive sampler with 6-inch sleeve**	Drill Hole Backfill	**Soil Spoils**
Remarks	**RV**			Driving Method and Drop	**10-lb. hand sampler, 18-inch drop**

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: SAMPLE NUMBER	SAMPLE DATA: NUMBER OF BLOWS	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			Brown, moist, silty fine to medium SAND (SM)		TP17 @ 0'-3'				
					TP17 @ 1'		5.2	109	
	5				TP17 @ 6'-7'				
			Test pit was terminated at approximately 8 feet below existing ground surface. Groundwater was not encountered.						

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FIGURE 19

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487)

MAJOR DIVISIONS		USCS[4]	CODE	CHARACTERISTICS
COARSE GRAINED SOILS (More than 50% of soil > no. 200 sieve size)	GRAVELS[1] (More than 50% of coarse fraction > no. 4 sieve size)	GW		Well-graded gravels or gravel - sand mixtures, trace or no fines
		GP		Poorly graded gravels or gravel - sand mixtures, trace or no fines
		GM		Silty gravels, gravel - sand - silt mixtures, containing little to some fines[2]
		GC		Clayey gravels, gravel - sand - clay mixtures, containing little to some fines[2]
	SANDS[1] (50% or more of coarse fraction < no. 4 sieve size)	SW		Well-graded sands or sand - gravel mixtures, trace or no fines
		SP		Poorly graded sands or sand - gravel mixtures, trace or no fines
		SM		Silty sands, sand - gravel - silt mixtures, containing little to some fines[2]
		SC		Clayey sands, sand - gravel - clay mixtures, containing little to some fines[2]
FINE GRAINED SOILS (50% or more of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML		Inorganic silts, gravely silts, and sandy silts that are non-plastic or with low plasticity
		CL		Inorganic lean clays, gravelly lean clays, sandy lean clays of low to medium plasticity[3]
		OL		Organic silts, organic lean clays, and organic silty clays
	SILTS & CLAYS LL ≥ 50	MH		Inorganic elastic silts, gravelly elastic silts, and sandy elastic silts
		CH		Inorganic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
		OH		Organic fat clays, gravelly fat clays, sandy fat clays of medium to high plasticity
HIGHLY ORGANIC SOILS		PT		Peat
ROCK		RX		Rocks, weathered to fresh
FILL		FILL		Artificially placed fill material

OTHER SYMBOLS

= Drive Sample: 2-1/2" O.D. Modified California sampler

= Drive Sampler: no recovery

= SPT Sampler

= Initial Water Level

= Final Water Level

— — — = Estimated or gradational material change line

——— = Observed material change line

Laboratory Tests

CR = Corrosion
PI = Plasticity Index
EI = Expansion Index
UCC = Unconfined Compression Test (TSF)
TR = Triaxial Compression Test
GR = Gradational Analysis (Sieve/Hydro)
FC = Wash (Fines Content)
PP = Pocket Penetrometer Test (TSF)
PID = Photo Ionization Detector Test (PPM)
RV = Resistance ("R") Value

REF = Refusal (>50 blows in 6 inches)

GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS (b)	Above 12"	Above 300
COBBLES (c)	12" to 3"	300 to 75
GRAVEL (g) coarse fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	75 to 4.75 75 to 19 19 to 4.75
SAND coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.075 4.75 to 2.00 2.00 to 0.425 0.425 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

Trace - Less than 5 percent
Few - 5 to 10 percent
Little - 15 to 25 percent
Some - 35 to 45 percent
Mostly - 50 to 100 percent

* Percents as given in ASTM D2488

NOTES:

1. Coarse grained soils containing 5% to 12% fines, use dual classification symbol (ex. SP-SM).
2. If fines classify as CL-ML (4<PI<7), use dual symbol (ex. SC-SM).
3. Silty Clays, use dual symbol (CL-ML).
4. Borderline soils with uncertain classification list both classifications (ex. CL/ML).

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UNIFIED SOIL CLASSIFICATION SYSTEM

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	20
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

APPENDICES

APPENDIX A
General Project Information, Laboratory Testing and Results

APPENDIX A

A. GENERAL INFORMATION

The performance of a preliminary geotechnical engineering report for the proposed residential development to be constructed at the approximately 770-acre property located northeasterly of the intersection of McHenry Avenue and Patterson Road in Riverbank, California was authorized by Mr. Steve McMurtry on December 10, 2019. Authorization was for an investigation as described in our proposal letter dated November 15, 2019, sent to our client De Novo Planning Group, whose mailing address is 1020 Suncast Lane, Suite 106 in El Dorado Hills, California 95762; telephone (916) 580-9818.

In performing this investigation, we made reference to a *Land Use Diagram* (Sheet No. L1), prepared by Randall Planning & Design, Inc., dated August 14, 2017.

B. FIELD EXPLORATION

On February 24, 2020, four percolation test holes (P1 through P4) were advanced with a CME 55 truck-mounted drill rig. The borings extended to a depth of about 10 feet below existing grades utilizing six-inch-diameter solid flight helical augers. The borings were set up for percolation testing using two-inch-diameter perforated plastic pipe and the surrounding annular space around the casing was filled with pea gravel. The percolation test holes were pre-soaked by filling the holes with potable water up to the existing ground surface and allowing the test holes to soak overnight.

On February 25, 2020, after a roughly 24-hour period after drilling activities, the percolation holes were re-filled with water and the percolation tests were performed by taking water level readings at various intervals. The readings were measured as a distance from the top of the percolation pipe to water surface and are included in the preliminary geotechnical engineering report.

On February 26, 2020 and February 27, 2020, 17 exploratory test pits (TP1 through TP17) were excavated at the site by utilizing a Case 580M rubber-tire backhoe equipped with an 18-inch-wide bucket provided by Ron Tilford Backhoe of Orangevale, California. The test pits were excavated to depths of approximately 10 feet below existing site grades at the approximate locations indicated in Figure 2. At the test pit locations, tube samples and bulk samples of the near-surface soils were collected at various depths from the test pits and taken to our laboratory for additional soil classification and selection of samples for testing. The test pits were backfilled with excavated soils placed in thin lifts and compacted with a compaction wheel.

Descriptions of the soils encountered in the test pits are presented on Figures 3 through 19. An explanation of the Unified Soil Classification System symbols used in the descriptions is presented on Figure 20.

In addition to the test pits, we also completed cone penetrometer tests (CPTs) on February 28, 2020. Five CPTs were advanced at a rate of about two centimeters per second using a 10-square-centimeter cone penetrometer at the locations shown in Figure 2 by using a 25-ton, truck-mounted CPT rig provided by Middle Earth Geo Testing, Inc. of Hayward, California. The CPT soundings were advanced to a maximum penetration depth of about 36 feet below existing grades before hitting practical refusal. Data was collected from CPT's at approximate depth intervals of 5 centimeters (or about 2 inches), with shear wave velocity measurements obtained at approximately five-foot intervals. Pore pressure dissipation testing was also performed to measure existing groundwater levels at the CPT locations.

Copies of the CPT logs are presented in Appendix B.

C. LABORATORY TESTING

Selected undisturbed soil samples were tested to determine dry unit weight (ASTM D2937) and natural moisture content (ASTM D2216). The results of these tests are included on the test pit logs at the depth each tested sample was obtained.

Six representative samples of near-surface soil were subjected to Atterberg Limits tests (ASTM D4318). The results of these tests are presented in Figure A1.

Five representative samples of the near-surface soil was subjected to Expansion Index tests (ASTM D4829). The results of these tests are presented in Figures A2 through A6.

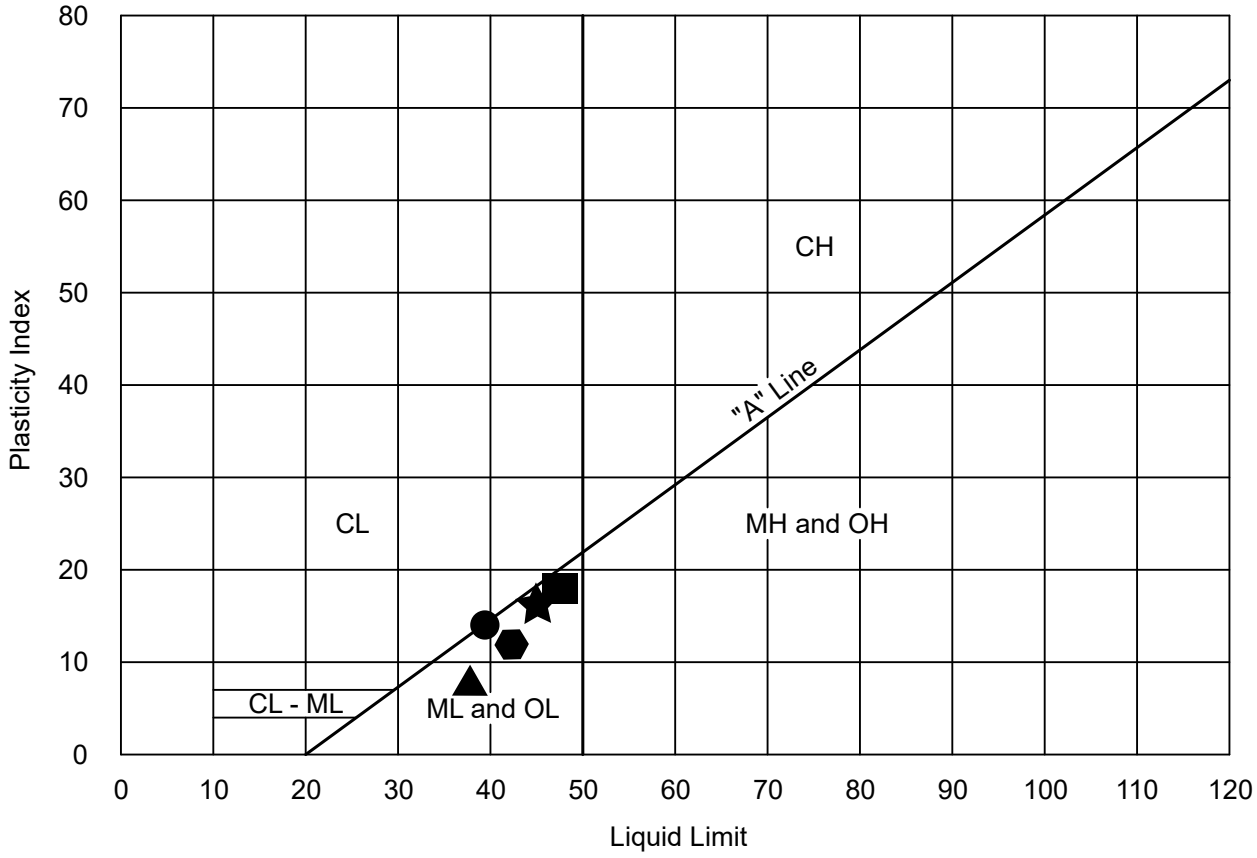
Eight bulk samples of near-surface soil were subjected to Resistance-value ("R") testing in accordance with California Test 301. The result of the R-value tests, which was used in the pavement design, are presented in Figures A7 through A10.

Three representative samples of the near-surface soils were tested for particle-size distribution (ASTM C136/D422). The results of these tests are presented in Figure A11.

Five samples of representative near-surface soil were submitted to Sunland Analytical to determine the soil pH and minimum resistivity (California Test 643), Sulfate concentration (California Test 417 and ASTM D516) and Chloride concentration (California Test 422). The test results are presented in Figures A12 through A21.

ATTERBERG LIMITS

ASTM D4318



KEY SYMBOL	LOCATION	SAMPLE DEPTH	NATURAL WATER CONTENT (%)	ATTERBERG LIMITS		PASSING No. 200 SIEVE (%)	UNIFIED SOIL CLASSIFI-CATION SYMBOL
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)		
●	TP1	2.0’	---	39	14	---	ML
■	TP1	4.0’-5.0’	---	47	18	---	ML
★	TP6	3.0’	---	46	17	---	ML
▲	TP7	2.0’	---	37	7	---	ML
	TP7	4.0’	---	NP	NP	---	SM
⬢	TP9	10.0’	---	42	12	---	ML

NP = Non Plastic

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ATTERBERG LIMITS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A1
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO. 12676.01	

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Light brown, silty fine sand

LOCATION: TP1

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0’ - 2’	11.0	21.6	104	**0**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	**Very Low**
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A2
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020

WKA NO. 12676.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP1

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
4' - 5'	17.5	34.9	88	**59**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	**Medium**
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A3
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020

WKA NO. 12676.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP6

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 5'	21.5	44.2	80	**67**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	Low
51 - 90	**Medium**
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A4
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020

WKA NO. 12676.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP9

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0’ - 5’	17.5	33.3	89	**43**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	Very Low
21 - 50	**Low**
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A5
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020

WKA NO. 12676.01

EXPANSION INDEX TEST RESULTS

ASTM D4829

MATERIAL DESCRIPTION: Brown, silty fine sand

LOCATION: TP13

Sample Depth	Pre-Test Moisture (%)	Post-Test Moisture (%)	Dry Density (pcf)	Expansion Index
0' - 3'	13.0	23.4	100	**8**

CLASSIFICATION OF EXPANSIVE SOIL *

EXPANSION INDEX	POTENTIAL EXPANSION
0 - 20	**Very Low**
21 - 50	Low
51 - 90	Medium
91 - 130	High
Above 130	Very High

* From ASTM D4829, Table 1

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EXPANSION INDEX

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A6
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020

WKA NO. 12676.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Light brown, silty fine sand

LOCATION: TP1 (0' - 2')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	119	12.2	551	80	346	59
2	117	13.3	380	28	121	37
3	114	14.3	228	13	56	23

R-Value at 300 psi exudation pressure = **29**

MATERIAL DESCRIPTION: Ligh brown, silty sand

LOCATION: TP4 (0' - 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	115	14.2	342	46	199	37
2	111	15.1	258	12	52	19
3	114	13.9	549	52	225	62

R-Value at 300 psi exudation pressure = **29**

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RESISTANCE VALUE TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A7
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP6 (0' - 5')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	90	28.4	251	41	178	8
2	92	27.6	366	70	303	17
3	93	26.8	412	78	338	25

R-Value at 300 psi exudation pressure = **12**

MATERIAL DESCRIPTION: Brown, silty fine to medim sand

LOCATION: TP8 (0' - 5')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	118	10.9	676	24	104	76
2	118	11.6	437	15	65	69
3	117	12.5	183	10	43	58

R-Value at 300 psi exudation pressure = **63**

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A8
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP9 (0' - 5')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	101	17.9	671	101	437	34
2	103	19.2	341	51	221	20
3	100	20.1	171	8	35	7

R-Value at 300 psi exudation pressure = **17**

MATERIAL DESCRIPTION: Light brown, fine sandy silt

LOCATION: TP12 (0' - 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	100	20.1	165	12	52	7
2	103	19.3	357	51	221	22
3	105	18.4	523	90	390	41

R-Value at 300 psi exudation pressure = **17**

WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A9
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

RESISTANCE VALUE TEST RESULTS

(California Test 301)

MATERIAL DESCRIPTION: Brown, silty fine sand

LOCATION: TP13 (0' - 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	111	14.5	545	54	234	64
2	112	15.5	353	29	126	49
3	109	16.3	201	21	91	33

R-Value at 300 psi exudation pressure = **44**

MATERIAL DESCRIPTION: Dark brown, silty fine to medium sand

LOCATION: TP14 (0' - 3')

Specimen No.	Dry Unit Weight (pcf)	Moisture @ Compaction (%)	Exudation Pressure (psi)	Expansion (dial, inches x 1000)	Expansion (psf)	R Value
1	122	10.3	147	19	82	74
2	121	9.3	632	8	35	58
3	120	9.8	466	10	43	65

R-Value at 300 psi exudation pressure = **61**

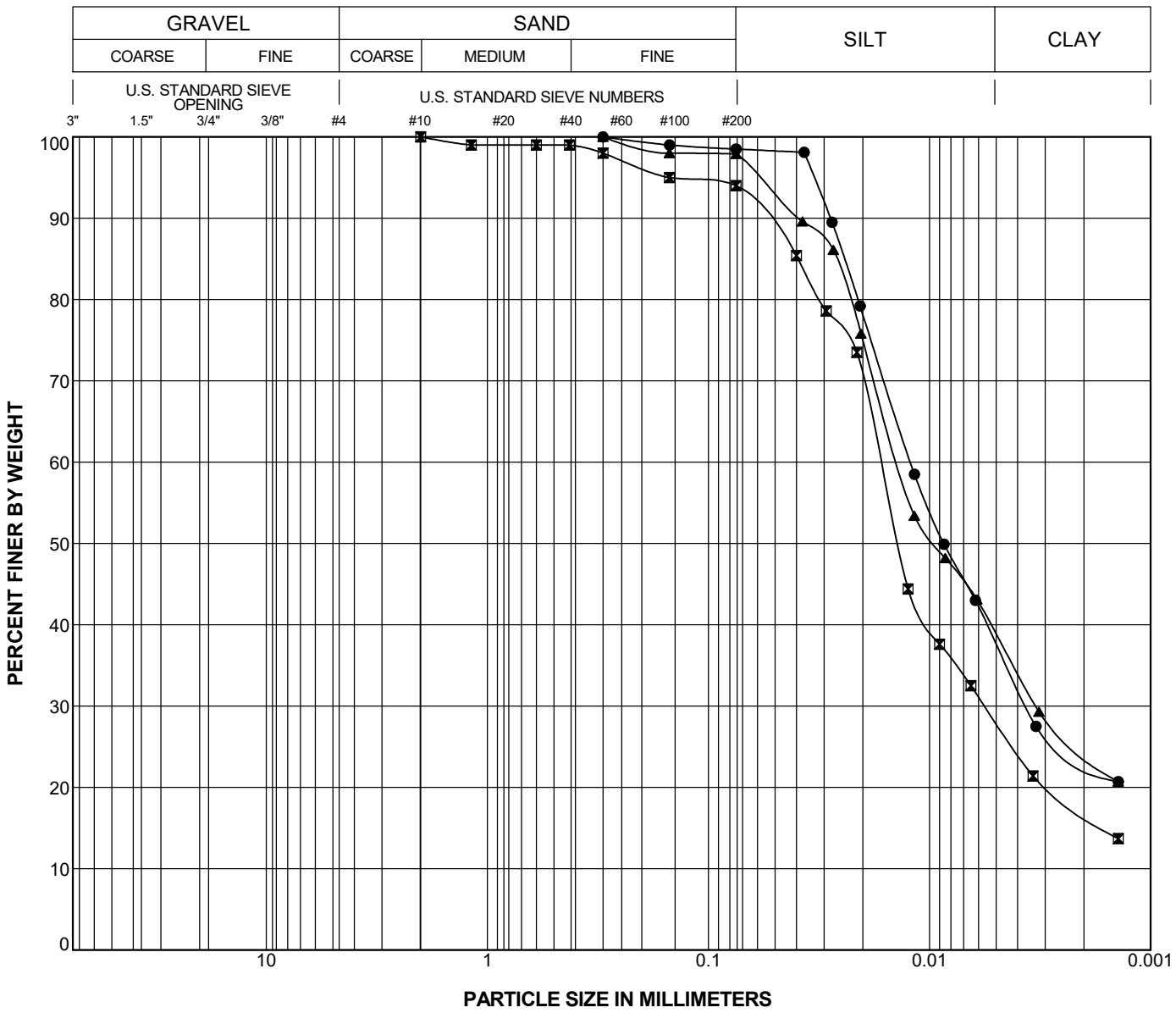
WallaceKuhl & ASSOCIATES

RESISTANCE VALUE TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A10
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01



Boring Number	Sample Number	USCS	Depth (feet)	Symbol	LL	PI	Classification
TP1	TP1 @ 5'	ML	5.0-5.5	●			Light brown, fine sandy SILT
TP9	TP9 @ 4'	ML	4.0-4.5	⊠			Light brown, fine sandy SILT
TP9	TP9 @ 10'	ML	10.0-10.5	▲			Light brown, fine sandy SILT

PARTICLE SIZE DISTRIBUTION

Project: Riverbank Development
WKA No. 12676.01

FIGURE A11

Wallace Kuhl & ASSOCIATES

GRAIN SIZE 12676.01 - RIVERBANK DEVELOPMENT.GPJ WKA.GDT 3/25/20 3:14 PM

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : TP1@0-2FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170422.

EVALUATION FOR SOIL CORROSION

Soil pH	7.05		
Minimum Resistivity	0.32	ohm-cm (x1000)	
Chloride	723.2 ppm	00.07232	%
Sulfate	297.9 ppm	00.02979	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A12
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : TP1@0-2FT.
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170423.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	261.4	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES	**CORROSION TEST RESULTS** RIVERBANK DEVELOPMENT Riverbank, California	FIGURE A13 DRAWN BY RWO CHECKED BY JRY PROJECT MGR MSM DATE 03/2020 WKA NO. 12676.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : TP4@0-5 ft
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170424.

EVALUATION FOR SOIL CORROSION

Soil pH	7.25	
Minimum Resistivity	2.09 ohm-cm (x1000)	
Chloride	29.2 ppm	00.00292 %
Sulfate	51.2 ppm	00.00512 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A14
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP4@0-5 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170425.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	53.7	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A15
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP8@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170426.

EVALUATION FOR SOIL CORROSION

Soil pH	7.18	
Minimum Resistivity	1.82 ohm-cm (x1000)	
Chloride	15.1 ppm	00.00151 %
Sulfate	20.7 ppm	00.00207 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A16
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP8@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170427.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	19.8	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A17
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical

11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP13@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170428.

EVALUATION FOR SOIL CORROSION

Soil pH	7.80	
Minimum Resistivity	1.23 ohm-cm (x1000)	
Chloride	24.3 ppm	00.00243 %
Sulfate	261.8 ppm	00.02618 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES	**CORROSION TEST RESULTS** RIVERBANK DEVELOPMENT Riverbank, California	FIGURE A18 DRAWN BY RWO CHECKED BY JRY PROJECT MGR MSM DATE 03/2020 WKA NO. 12676.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP13@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170429.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	285.8	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A19
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP17@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170430.

EVALUATION FOR SOIL CORROSION

Soil pH	6.42	
Minimum Resistivity	10.18 ohm-cm (x1000)	
Chloride	1.6 ppm	00.00016 %
Sulfate	9.2 ppm	00.00092 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A20
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 03/11/2020
Date Submitted 03/04/2020

To: Joey Ybarra
Wallace-Kuhl & Assoc.
3050 Industrial Blvd
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 12676.01 Site ID : **TP17@0-3 ft**
Thank you for your business.

* For future reference to this analysis please use SUN # 81620-170431.

Extractable Sulfate in Water

Type of TEST	Result	Units
Sulfate-SO4	9.8	mg/kg

METHODS
ASTM D-516m from sat.paste extract-reported based on dry wt.

WallaceKuhl & ASSOCIATES

CORROSION TEST RESULTS

RIVERBANK DEVELOPMENT

Riverbank, California

FIGURE	A21
DRAWN BY	RWO
CHECKED BY	JRY
PROJECT MGR	MSM
DATE	03/2020
WKA NO.	12676.01

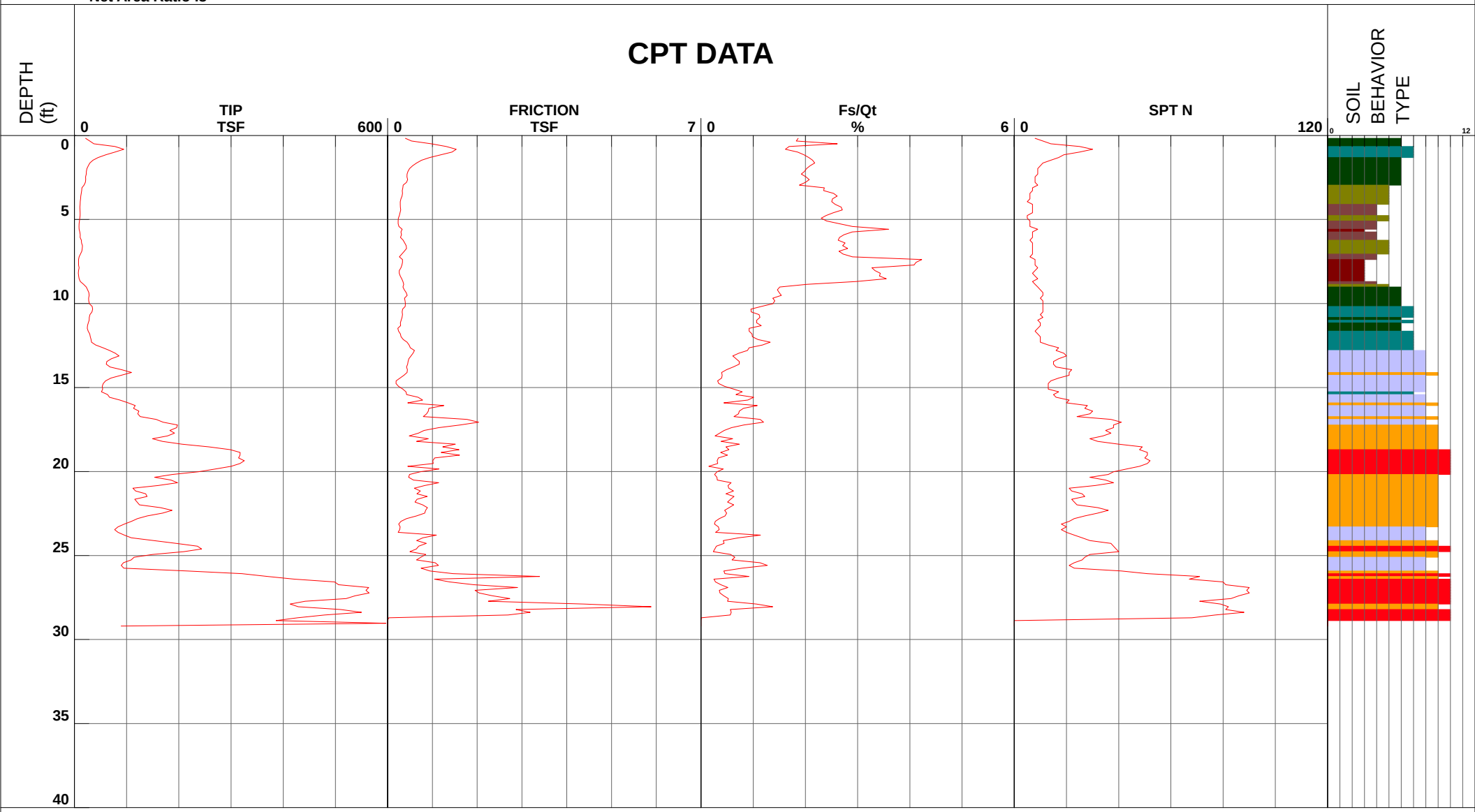
APPENDIX B
CPT Results

Wallace Kuhl & Associates

Project	Riverbank Development	Operator	BH-BB	Filename	SDF(414).cpt
Job Number	12676.01	Cone Number	DDG1496	GPS	
Hole Number	CPT-01	Date and Time	2/28/2020 8:04:25 AM	Maximum Depth	29.20 ft
EST GW Depth During Test		12.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

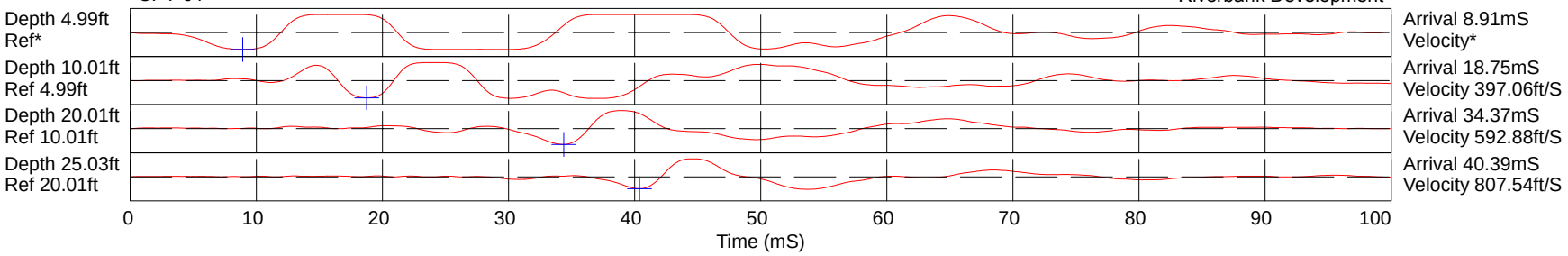
Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

CPT-01

Wallace Kuhl & Associates

Riverbank Development



Hammer to Rod String Distance (ft): 5.83
* = Not Determined

COMMENT:

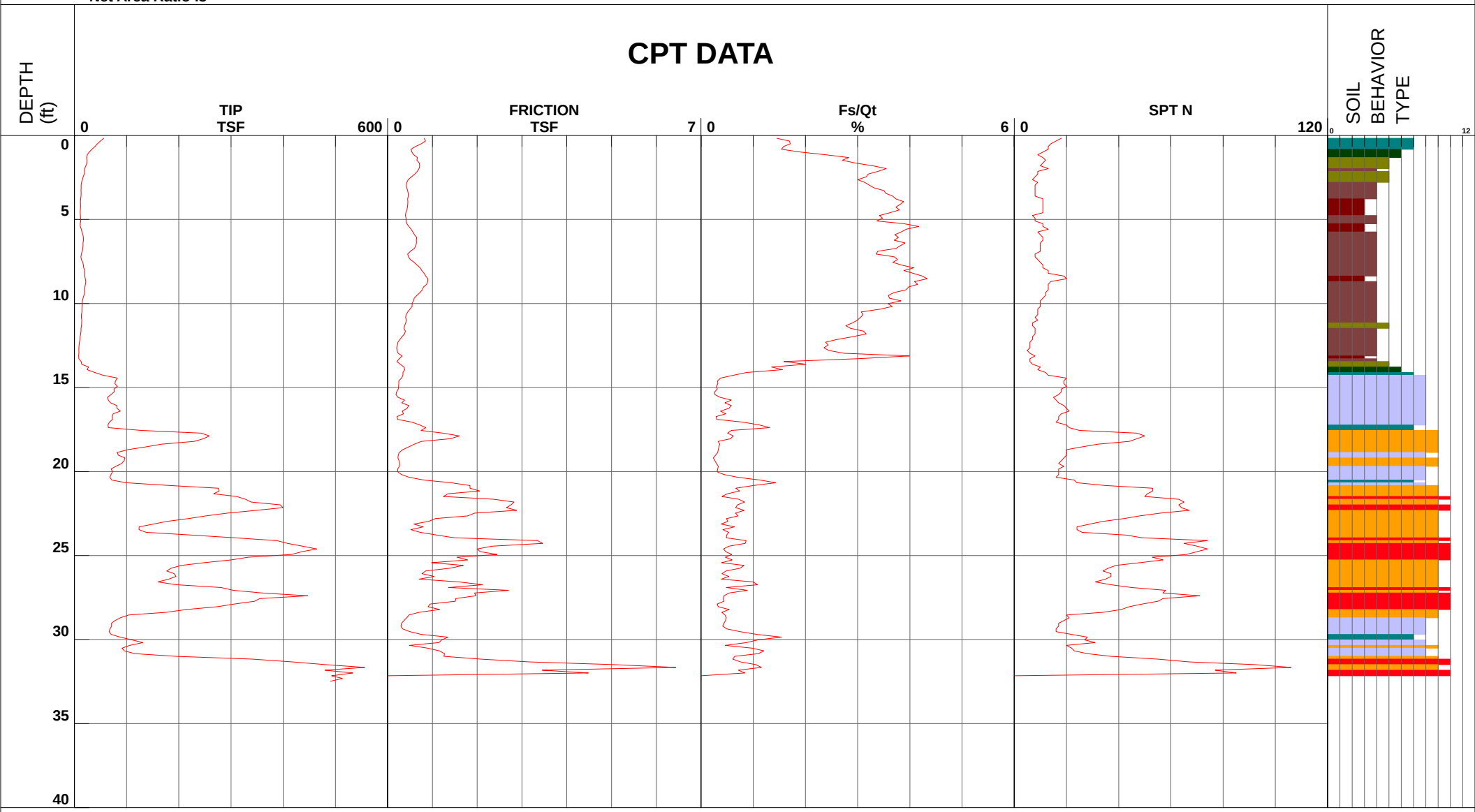
Middle Earth
GEO TESTING INC.

Wallace Kuhl & Associates

Project	Riverbank Development	Operator	BH-BB	Filename	SDF(415).cpt
Job Number	12676.01	Cone Number	DDG1496	GPS	
Hole Number	CPT-02	Date and Time	2/28/2020 9:23:58 AM	Maximum Depth	32.48 ft
EST GW Depth During Test		15.00 ft			

Net Area Ratio .8

CPT DATA



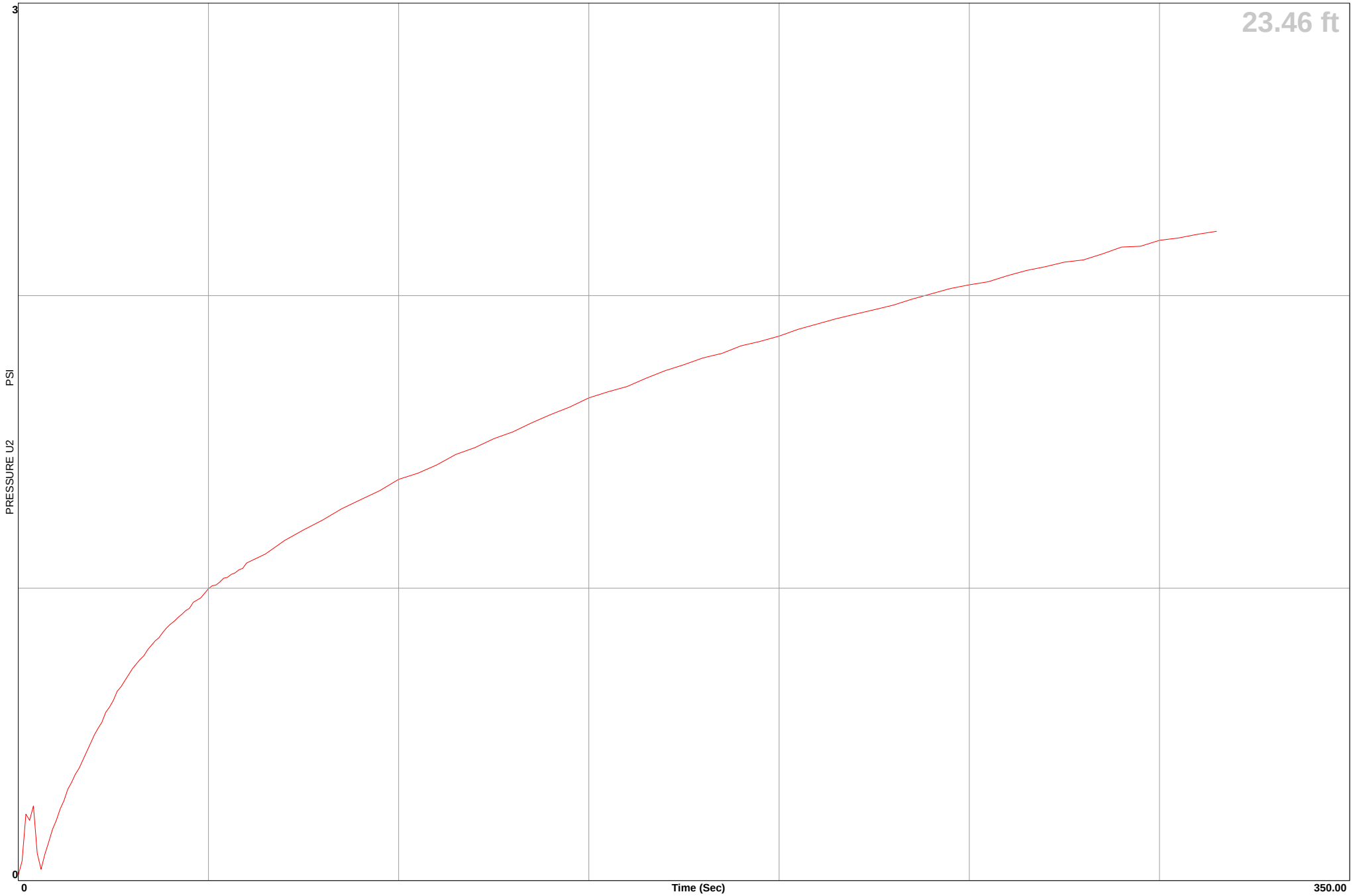
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Wallace Kuhl & Associates

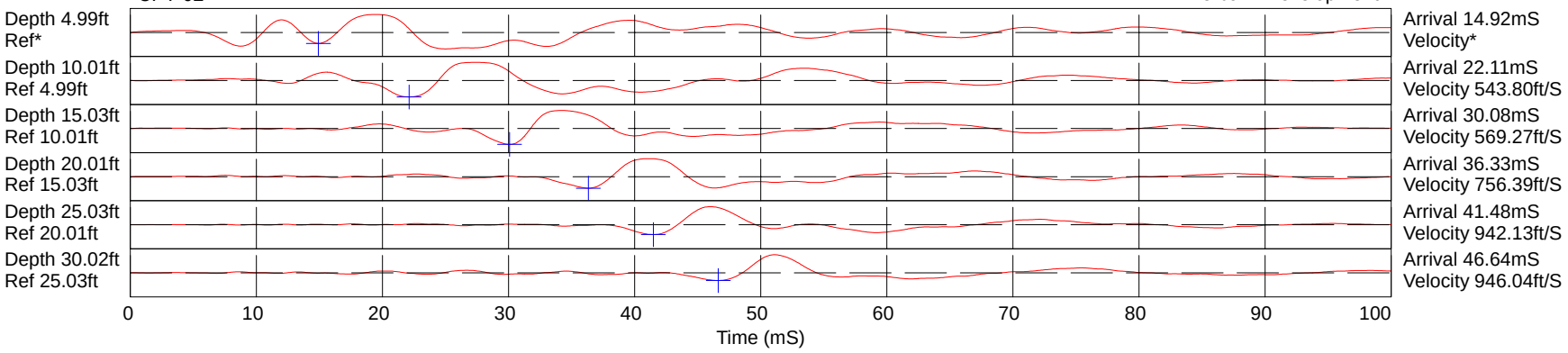
Location	Riverbank Development	Operator	BH-BB	GPS
Job Number	12676.01	Cone Number	DDG1496	
Hole Number	CPT-02	Date and Time	2/28/2020 9:23:58 AM	
Equilized Pressure	2.2	EST GW Depth During Test	18.3	



CPT-02

Wallace Kuhl & Associates

Riverbank Development



Hammer to Rod String Distance (ft): 5.83

* = Not Determined

COMMENT:

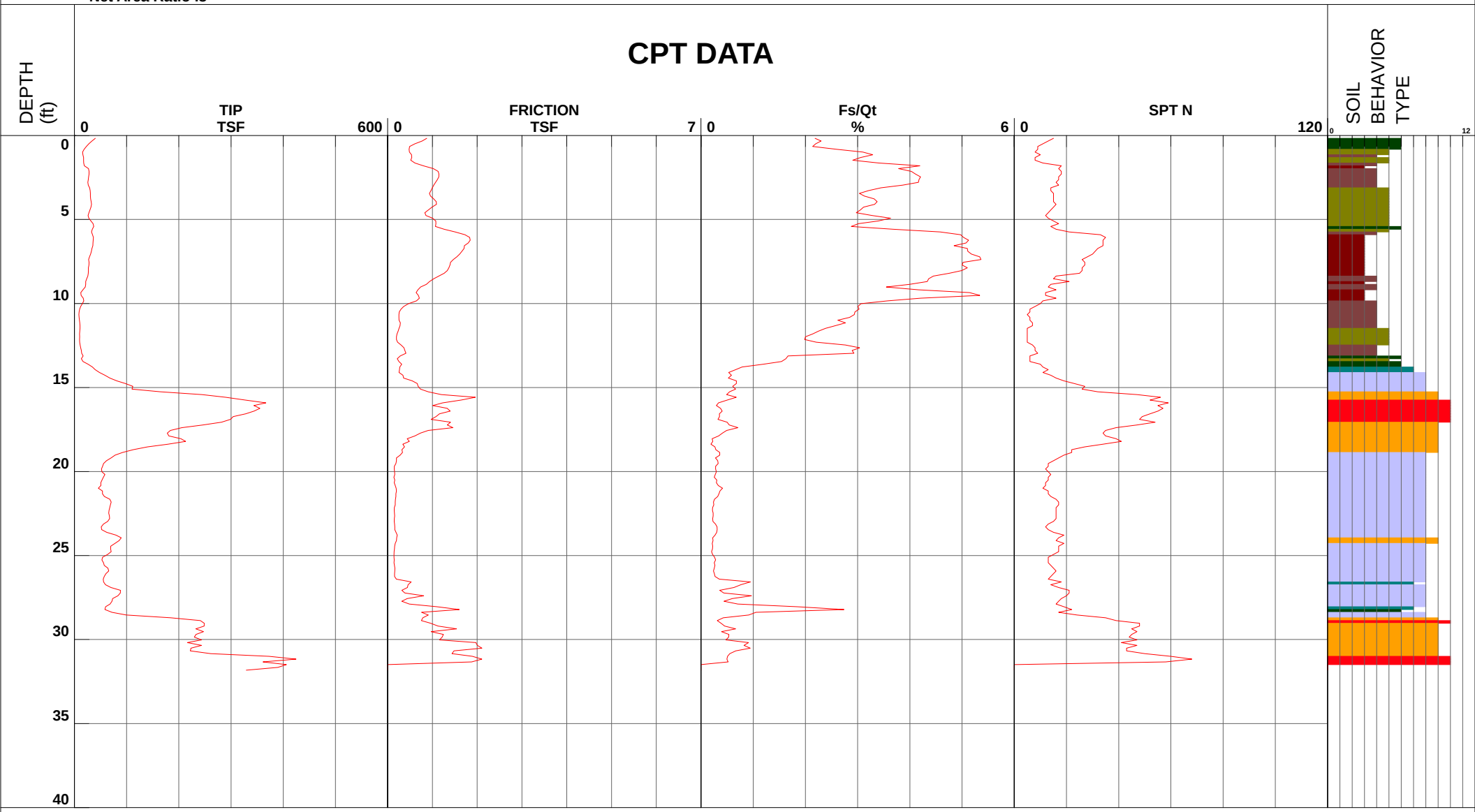
Middle Earth
Geo Testing Inc.

Wallace Kuhl & Associates

Project	Riverbank Development	Operator	BH-BB	Filename	SDF(416).cpt
Job Number	12676.01	Cone Number	DDG1496	GPS	
Hole Number	CPT-03	Date and Time	2/28/2020 10:28:34 AM	Maximum Depth	31.82 ft
EST GW Depth During Test		12.00 ft			

Net Area Ratio .8

CPT DATA



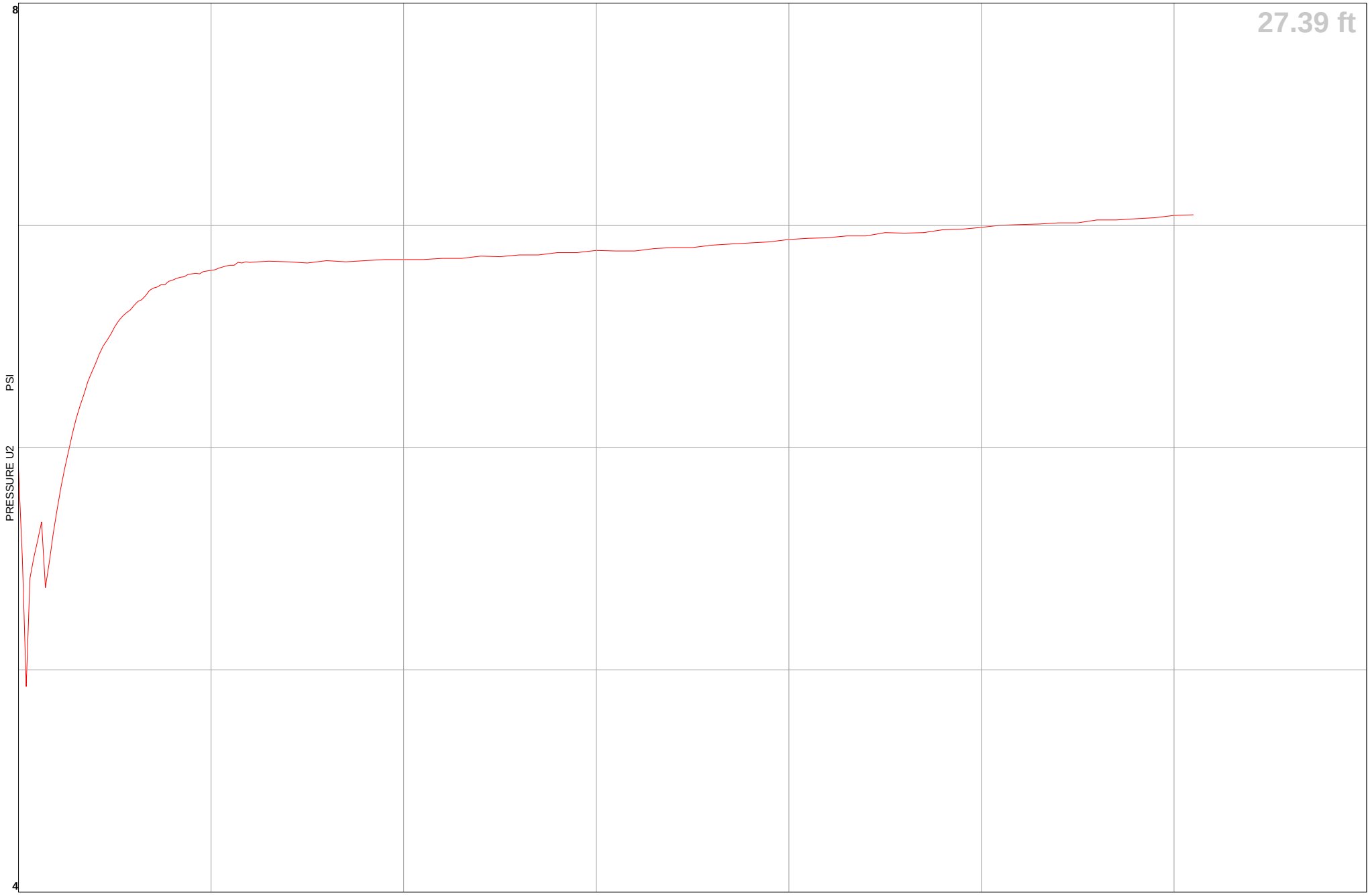
1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Wallace Kuhl & Associates

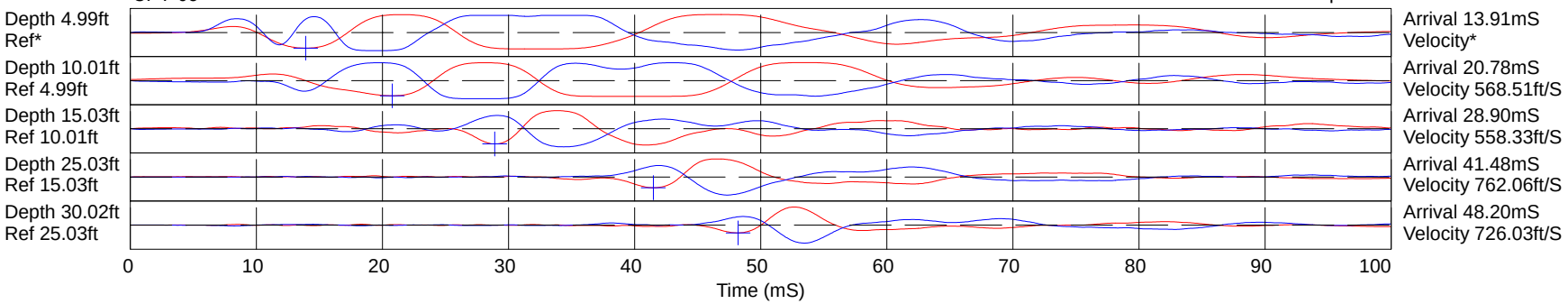
Location	Riverbank Development	Operator	BH-BB	GPS
Job Number	12676.01	Cone Number	DDG1496	
Hole Number	CPT-03	Date and Time	2/28/2020 10:28:34 AM	
Equilized Pressure	7.0	EST GW Depth During Test	11.1	



CPT-03

Wallace Kuhl & Associates

Riverbank Development



Hammer to Rod String Distance (ft): 5.83

* = Not Determined

COMMENT:

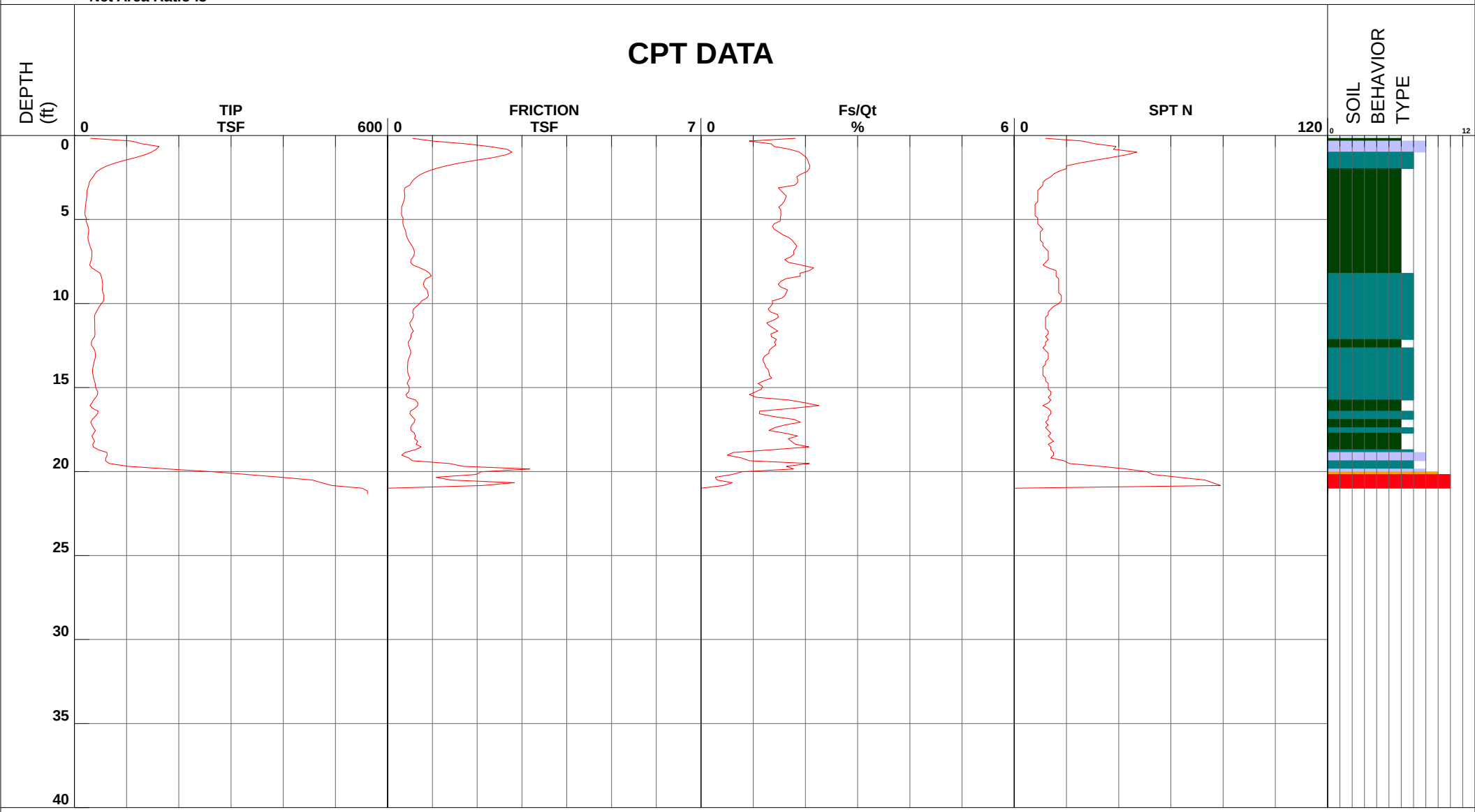
Middle Earth
GEO TESTING INC.

Wallace Kuhl & Associates

Project	Riverbank Development	Operator	BH-BB	Filename	SDF(417).cpt
Job Number	12676.01	Cone Number	DDG1496	GPS	
Hole Number	CPT-04	Date and Time	2/28/2020 11:36:56 AM	Maximum Depth	21.33 ft
EST GW Depth During Test		21.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

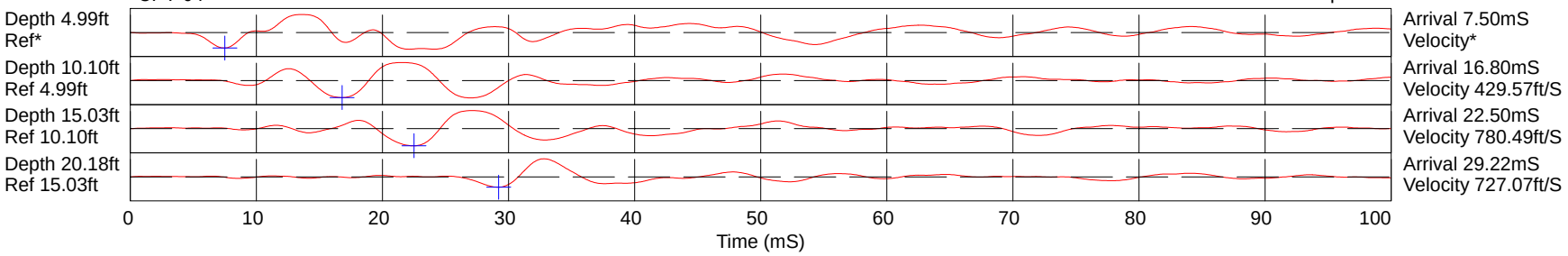
Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

CPT-04

Wallace Kuhl & Associates

Riverbank Development



Hammer to Rod String Distance (ft): 5.83
* = Not Determined

COMMENT:

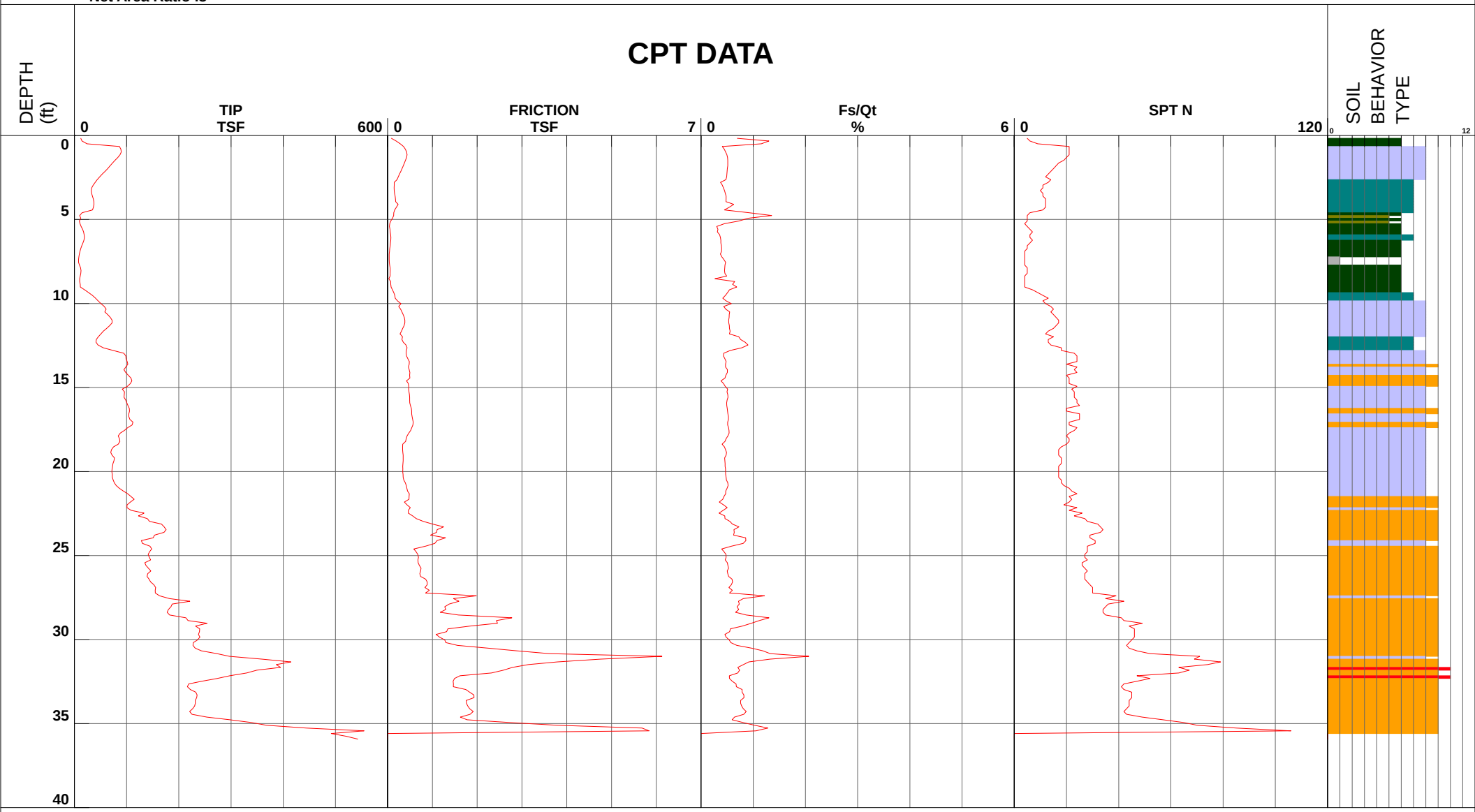
Middle Earth
GEO TESTING INC.

Wallace Kuhl & Associates

Project	Riverbank Development	Operator	BH-BB	Filename	SDF(418).cpt
Job Number	12676.01	Cone Number	DDG1496	GPS	
Hole Number	CPT-05	Date and Time	2/28/2020 12:23:28 PM	Maximum Depth	35.92 ft
EST GW Depth During Test		35.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

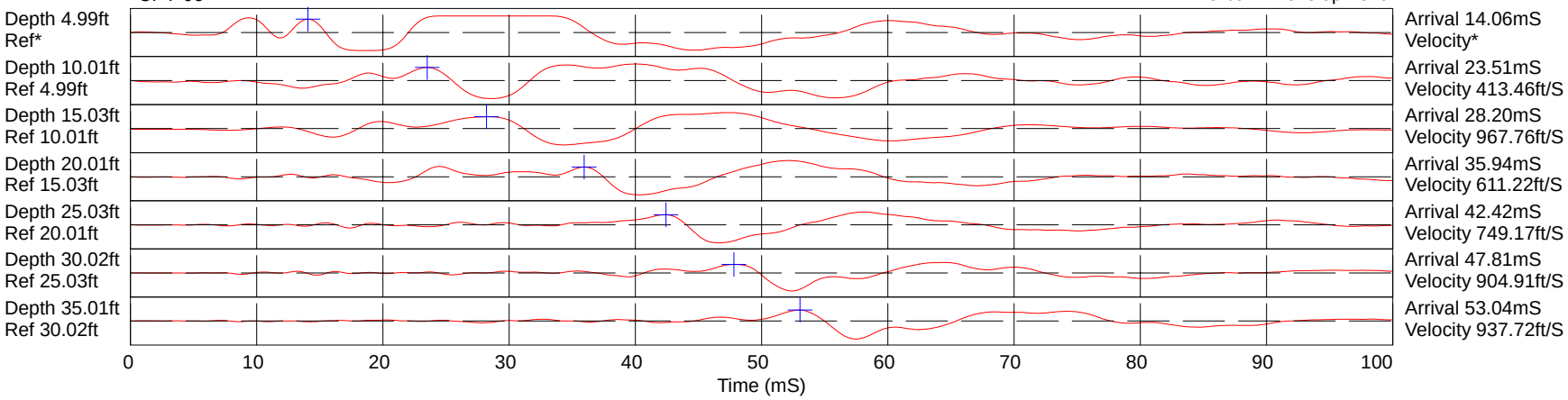
Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

CPT-05

Wallace Kuhl & Associates

Riverbank Development



Hammer to Rod String Distance (ft): 5.83

* = Not Determined

COMMENT:

Middle Earth
GEO TESTING INC.

APPENDIX E

Phase I Environmental Site Assessment

PARTNER
Engineering and Science, Inc.®



PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

1711 Patterson Road
Riverbank, California 95367

Report Date: April 10, 2017
Partner Project No. 17-183258.1



Prepared for:

Farmers & Merchants Bank
121 West Pine Street
Lodi, California 95240

PARTNER
Engineering and Science, Inc.

April 10, 2017

Mr. Joe Gazsi
Farmers & Merchants Bank
121 West Pine Street
Lodi, California 95240

Subject: Phase I Environmental Site Assessment
1711 Patterson Road
Riverbank, California 95367
Partner Project No. 17-183258.1

Dear Mr. Gazsi:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in general conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at 415-992-3755.

Sincerely,

Jay Grenfell
National Client Manager

EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by Farmers & Merchants Bank for the property addressed 1711 Patterson Road in an unincorporated area of Riverbank, Stanislaus County, California (the "subject property"). The Phase I Environmental Site Assessment is designed to provide Farmers & Merchants Bank with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the subject property.

Property Description

The subject property is located on the north side of Patterson Road and the east side of McHenry Road within a mixed agricultural/residential area of Stanislaus County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Address:	1711 Patterson Road, Riverbank, California
Property Use:	Agricultural with a residence
Land Acreage (Ac):	770 Ac
Number of Buildings:	Two
Number of Floors:	One
Gross Building Area (SF):	1,868 SF (Residence) and approximately 6,000 SF (Barn)
Net Rentable Area (SF):	1,868 SF (Residence) and approximately 6,000 SF (Barn)
Date of Construction:	1951 (Residence)
Assessor's Parcel Number (APN):	074-001-003; 074-001-016; 074-002-001; 074-003-022; 074-003-023; and 074-003-024
Type of Construction:	Wood-Framed
Current Tenants:	Wendt Farm
Site Assessment Performed By:	Marc Hachey of Partner
Site Assessment Conducted On:	April 4, 2017

The irregularly-shaped subject property is currently developed as agricultural land with a single-family residence. Onsite operations consist of the cultivation of orchards. In addition to the residence and an associated work barn located at the eastern portion of the site, the subject property consists of agricultural land with unpaved access roads.

According to available historical sources, the subject property was undeveloped land with a residence until the mid-1900s, and it appears to have been agricultural land (orchards) with a residence since the mid-1900s.

The immediately surrounding properties consist of agricultural land with residences to the northwest, southwest, and southeast; and agricultural land to the northeast across the Stanislaus River.

According to Regional Water Quality Control Board's online Geotracker database, the depth and direction of groundwater in the vicinity of the subject property is inferred to be approximately 30 feet below ground surface (bgs) and flows toward the northeast.

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- The subject property, identified as Del Rio Orchards Ruth Wendt/Quality Nut at 1711 Patterson Road, reported a release of gasoline which reportedly impacted soil only. The release occurred as a result of an unauthorized release from a former onsite UST, and the release was reported to the lead agency (Stanislaus County) in 1991. The records pertaining to the UST removal show various capacities, including 400 to 500 gallons, 2,000 gallons, and a 2,500 gallons. However, the evidence appears to indicate that there was one 2,000-gallon UST located to the northwest of the current barn, and this tank was removed in 1991. The tank appears to have been installed in the late 1980s. When the tank was removed, slight hydrocarbon odor was detected at approximately 15-feet below ground surface (bgs). Soil samples were collected from the tank pit excavation bottom, and analyzed for the standard suite of hydrocarbons including motor oil, diesel, BTEX, TEPH, and kerosene, with all results coming back non-detectable except for one location where diesel was found at a concentration of 81.5 ppm. A week later, on April 9, 1991, this area was resampled and retested, and the results were found to non-detectable. The responsible party is identified as Quality Nut, and regulatory closure was obtained in 1991. Based on the removal of the UST and the regulatory closure, the former UST and associated leak are considered a historical recognized environmental condition and no further action is considered necessary.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner observed one active aboveground storage tank (AST) and two or three inactive ASTs on the subject property, typical of a large-scale farming operation. The active and inactive ASTs are located around the subject property barn. The active AST stores diesel fuel, is approximately 300-gallon size, and is equipped with a secondary containment enclosure. No staining, leaks or spills were noted in the vicinity of the ASTs. Based on the nature of the use, the ASTs are not expected to represent a significant environmental concern.
- The subject property is currently and has historically been used for agricultural purposes (orchards). As such, agricultural related chemicals such as pesticides, herbicides, and fertilizers have been used and stored onsite. If redevelopment of the subject property is not anticipated, Partner concludes that the possible former and current use of agricultural chemicals is not expected to represent a significant environmental concern at this time.
- Due to the age of the subject property buildings, there is a potential that asbestos-containing material (ACM) and/or lead-based paint (LBP) are present. Should these materials be replaced, the identified suspect materials would need to be sampled to confirm the presence or absence of asbestos and/or lead prior to any renovation or demolition activities to prevent potential exposure to workers and/or building occupants.

Conclusions, Opinions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of 1711 Patterson Road in an unincorporated area of Riverbank, Stanislaus County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed evidence of a historical recognized environmental condition and environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends the following:

- An Operations and Maintenance (O&M) Program should be implemented in order to safely manage the suspect ACMs and LBP located at the subject property.

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1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property addressed 1711 Patterson Road in an unincorporated area of Riverbank, Stanislaus County, California (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the *User* to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "*landowner liability protections*," or "*LLPs*"). ASTM Standard E1527-13 constitutes "*all appropriate inquiry* into the previous ownership and uses of the *property* consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

1.2 Scope of Work

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included: 1) a property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments in order to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched information on the presence of activity and use limitations (AULs) at these agencies. As defined by ASTM E1527-13, AULs are the legal or physical restrictions or limitations on the use of, or access to, a site or facility: 1) to reduce or eliminate potential

exposure to hazardous substances or petroleum products in the soil or groundwater on the subject property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

1.4 User Reliance

Farmers & Merchants Bank engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of Farmers & Merchants Bank, and

Berghill, LLC. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at http://www.partneresi.com/terms-and-conditions.php.

1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Partner submitted a Freedom of Information Act (FOIA) request to the Stanislaus Consolidated Fire Protection District (SCFPD) for information pertaining to hazardous substances, underground storage tanks, releases, inspection records, etc. for the subject property and/or adjacent properties. As of this writing, this agency has not responded to Partner's request. Based on information obtained from other regulatory and historical sources, this limitation is not expected to alter the overall conclusions of this assessment.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The subject property at 1711 Patterson Road in an unincorporated area of Riverbank, California is located on the north side of Patterson Road and the east side of McHenry Road. According to the Stanislaus County Assessor, the subject property is legally described as Assessor Parcel Numbers (APNs) 074-001-003; 074-001-016; 074-002-001; 074-003-022; 074-003-023; and 074-003-024, and ownership is currently vested in Berghill LLC since 2013.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

2.2 Current Property Use

The irregularly-shaped subject property is currently developed as agricultural land with a single-family residence. Onsite operations consist of the cultivation of orchards. In addition to the residence and an associated work barn located at the eastern portion of the site, the subject property consists of agricultural land with unpaved access roads. The work barn is surrounded by farming machinery storage, a farming equipment structure, above-ground water and fuel tanks, and other misc. farming equipment storage.

The subject property is designated for General Agricultural development by Stanislaus County.

The subject property was identified as a LUST, SWEEPS UST, CA FID UST, HIST CORTESE, and HIST UST site in the regulatory database report, as further discussed in Section 4.2.

2.3 Current Use of Adjacent Properties

The subject property is located within a mixed agricultural/residential area of Stanislaus County. During the vicinity reconnaissance, Partner observed the following land use on properties in the immediate vicinity of the subject property:

Immediately Surrounding Properties

Northwest: Agricultural land with residences
Southwest: Agricultural land with residences
Northeast: Stanislaus River beyond which is agricultural land
Southeast: Agricultural land with residences

Adjacent properties to the west and south were identified as former UST sites in the regulatory database report of Section 4.2.

2.4 Physical Setting Sources

2.4.1 Topography

The United States Geological Survey (USGS) *Riverbank, California* Quadrangle 7.5-minute series topographic map was reviewed for this ESA. According to the contour lines on the topographic map, the subject property is located at approximately 80 to 150 feet above mean sea level (MSL). The contour lines

in the area of the subject property indicate the area is sloping gently in a variable direction. The subject property is depicted on the 1916 map as mainly undeveloped, marshy land with two structures in the general area of the current residence and barn.

A copy of the most recent topographic map is included as Figure 3 of this report.

2.4.2 Hydrology

According to topographic map interpretation, the direction of groundwater in the vicinity of the subject property is inferred to flow toward the northeast. The nearest surface water in the vicinity of the subject property is the Stanislaus River located adjacent to the northeastern property boundary. No settling ponds, lagoons, surface impoundments, or natural catch basins were observed at the subject property during this assessment, aside from some natural, internal irrigation canals and concrete-line irrigation canals along the southern/southeastern perimeter.

The subject property operates one domestic water well and four irrigation water wells.

According to a previous subsurface investigation conducted on a nearby property (23569 Santa Fe Road and LUST Case #T0607700477), the depth of groundwater in the vicinity of the subject property is inferred to be approximately 30 feet below ground surface (bgs).

2.4.3 Geology/Soils

The subject property is located in the Great Valley geomorphic provinces of Northern California. The Great Valley province is a large, relatively flat basin that separates the Coast Ranges province from the Sierra Nevada. The valley is underlain by a think sedimentary sequence derived from erosion of the mountains and hills to the east and west. Locally, the region is underlain by Holocene-aged Great Valley Formation stream channel deposits.

Based on information obtained from the USDA Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Grangeville and Hanford sand deposits. This series consists of poorly to well-drained, permeable, medium to coarse-grained, sandy soils on 0 to 3 percent slopes.

2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Number 06099C0330E, dated September 26, 2008, the subject property appears to be located in multiple flood zones, included Zone X, Shaded Zone X, and Zone AE. Zone AE is a special flood hazard area subject to inundation by the 100-year flood. Shaded Zone X at the subject property is an area protected from the 100-year flood by a levee, dike, or other structure, and overtopping or failure of the structure is possible. Floodplain regulations may apply to any development planned in these areas.

A copy of the reviewed flood map is not included in Appendix B of this report.

3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

Historical Use Information		
Period/Date	**Source**	**Description/Use**
Early 1900s – mid 1900s	Aerial Photographs, Topographic Maps	Undeveloped/native land with residence
Mid 1900s-Present	Aerial Photographs, Topographic Maps	Agricultural land with residence

The subject property is currently and has historically been used for agricultural purposes (orchards). As such, agricultural related chemicals such as pesticides, herbicides, and fertilizers have been used and stored onsite. If redevelopment of the subject property is not anticipated, Partner concludes that the possible former and current use of agricultural chemicals is not expected to represent a significant environmental concern at this time.

No potential environmental concerns were identified in association with the current or former use of the subject property.

3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Data Resources (EDR) on March 25, 2017. The following observations were noted to be visible on the subject property and adjacent properties during the aerial photograph review:

Date: 1950	*Scale: 1"=500'*
Subject Property:	Mainly agricultural land with a small cluster of structures, including the current barn, located in the general area of the two existing structures.
North:	Agricultural land
South:	Agricultural land with some residences
East:	Agricultural land with some residences
West:	Agricultural land with some residences

Date: 1957	*Scale: 1"=500'*
Subject Property:	No significant changes visible aside from the presence of the current residence. Overall, there appears to be less onsite structures.
North:	No significant changes visible
South:	No significant changes visible
East:	No significant changes visible
West:	No significant changes visible

Date: 1967	*Scale: 1"=500'*
Subject Property:	No significant changes visible
North:	No significant changes visible
South:	No significant changes visible
East:	Portions of the current residential development to the southeast are visible

Date: 1967		***Scale: 1”=500’***
West:	No significant changes visible	

Date: 1976		***Scale: 1”=500’***
Subject Property:	Appears generally developed similarly to today	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Date: 1987		***Scale: 1”=500’***
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	The majority of the residential development to the southeast is visible	
West:	No significant changes visible	

Date: 1998		***Scale: 1”=500’***
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Date: 2005		***Scale: 1”=500’***
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Date: 2010		***Scale: 1”=500’***
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Date: 2012		***Scale: 1”=500’***
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Date: 2014		***Scale: 1”=500’***

Date: 2014		*Scale: 1"=500'*
Subject Property:	No significant changes visible	
North:	No significant changes visible	
South:	No significant changes visible	
East:	No significant changes visible	
West:	No significant changes visible	

Copies of select aerial photographs are included in Appendix B of this report.

3.2 Fire Insurance Maps

Partner reviewed the collection of Sanborn Fire insurance maps from Environmental Data Resources (EDR) on March 20, 2017. Sanborn map coverage was not available for the subject property.

3.3 City Directories

Partner reviewed historical city directories obtained from Environmental Data Resources (EDR) on March 21, 2017 for past names and businesses that were listed for the subject property and adjacent properties. The findings are presented in the following table:

City Directory Search for 1711 Patterson Road (Subject Property)	
Year(s)	**Occupant Listed**
1995	Cal Nut Marketing (1711 Patterson Road)
2008-2013	Mike Berg (1711 Patterson Road)

Based on the city directory review, no environmentally sensitive listings were identified for the subject property address.

Copies of reviewed city directories are included in Appendix B of this report.

3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from Environmental Data Resources (EDR) on March 21, 2017. The following observations were noted to be depicted on the subject property and adjacent properties during the topographic map review:

Date: 1916	
Subject Property:	Generally undeveloped, marsh land with two structures located in the general area of the current structures (eastern portion of the site)
North:	Undeveloped beyond the Stanislaus River
South:	Generally undeveloped with a few scattered structures
East:	Generally undeveloped with a few scattered structures
West:	Generally undeveloped with a few scattered structures

Date: 1939	
Subject Property:	No significant changes depicted
North:	No significant changes depicted
South:	No significant changes depicted

Date: 1939	
East:	No significant changes depicted
West:	No significant changes depicted

Date: 1953	
Subject Property:	No significant changes depicted
North:	No significant changes depicted
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted

Date: 1968	
Subject Property:	No significant changes depicted, except it appears the site has been graded and leveled for farming
North:	No significant changes depicted
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted

Date: 1976	
Subject Property:	No significant changes depicted
North:	No significant changes depicted
South:	No significant changes depicted
East:	No significant changes depicted
West:	No significant changes depicted

Copies of reviewed topographic maps are included in Appendix B of this report.

4.0 REGULATORY RECORDS REVIEW

4.1 Regulatory Agencies

4.1.1 State Department

Regulatory Agency Data	
Name of Agency:	California Office of Environmental Health Hazard Assessment (OEHHA)
Point of Contact:	Ms. Monet Vela
Agency Address:	1001 I Street, Sacramento, California
Agency Phone Number:	916-323-2610
Date of Contact:	March 19, 2017
Method of Communication:	Email
Summary of Communication:	No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the OEHHA.

4.1.2 Health Department

Regulatory Agency Data	
Name of Agency:	Stanislaus County Department of Environmental Resources (SCDER)
Point of Contact:	Ms. Dianne Parkinson
Agency Address:	3800 Cornucopia Way C, Modesto, California
Agency Phone Number:	(209) 525-6751
Date of Contact:	March 19, 2017
Method of Communication:	Email
Summary of Communication:	According to records reviewed, the subject property formerly operated at least one underground storage tank. The records pertaining to the tank removal are unclear on the capacity. There is reference to a 400 to 500 gallon UST, a 2,000 gallon UST, and a 2,500 gallon UST. However, the overwhelming evidence is that there was one 2,000 gallon UST located to the northwest of the current barn which was removed in 1991. The tank appears to have been installed in the late 1980s, thus was in use for a very short time. When the tank was removed, slight hydrocarbon odor was detected at approximately 15-feet deep. Soil samples were collected from the tank pit excavation bottoms, and analyzed for the standard suite of hydrocarbons including motor oil, diesel, BTEX, TEPH, and kerosene, with all results coming back non-detectable except for one location where diesel was found at a concentration of 81.5 ppm. A week later, on April 9, 1991, this area was resampled and retested, and the results were found to non-detectable. A No Further Action letter was prepared for the site dated August 21, 1996.

4.1.3 Fire Department

Regulatory Agency Data	
Name of Agency:	Stanislaus Consolidated Fire Protection District (SCFPD)

Regulatory Agency Data	
Point of Contact:	Not applicable
Agency Address:	3324 Topeka Street, Riverbank, California
Agency Phone Number:	(209) 869-7470
Date of Contact:	March 19, 2017
Method of Communication:	Online
Summary of Communication:	As of the date of this report, Partner has not received a response from the SCFPD for inclusion in this report.

4.1.4 Air Pollution Control Agency

Regulatory Agency Data	
Name of Agency:	San Joaquin Valley Air Quality Management District (SJVAQMD)
Point of Contact:	Ms. Noemi Calderon
Agency Address:	1990 E Gettysburg Ave, Fresno, California
Agency Phone Number:	(559) 230-6000
Date of Contact:	March 19, 2017
Method of Communication:	Email
Summary of Communication:	No Permits to Operate (PTO), Notices of Violation (NOV), or Notices to Comply (NTC) or the presence of AULs, dry cleaning machines, or USTs were on file for the subject property with the SJVAQMD.

4.1.5 Regional Water Quality Agency

Regulatory Agency Data	
Name of Agency:	Central Valley Regional Water Quality Control Board (CVRWQCB)
Point of Contact:	Stephanie Torres
Agency Address:	364 Knollcrest Drive, Redding, California
Agency Phone Number:	(530) 224-4845
Date of Contact:	March 19, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property is listed in the RWQCB's online Geotracker database as a closed LUST site. No documents were available for review in the online database, and the case was closed in 1991. The leaking tanks contents appears to have impacted the subsurface soil only and Stanislaus County is listed as the lead agency.

4.1.6 Department of Toxic Substances Control

Regulatory Agency Data	
Name of Agency:	Sacramento Regional Office of the Department of Toxic Substances Control (DTSC)
Point of Contact:	Not applicable
Agency Address:	8800 Cal Center Drive, Sacramento, California
Agency Phone Number:	(916) 255-3545

Regulatory Agency Data	
Date of Contact:	March 19, 2017
Method of Communication:	Online
Summary of Communication:	The subject property is listed within the online ENVIROSTOR database managed by the DTSC.

4.1.7 Building Department

Regulatory Agency Data	
Name of Agency:	Riverbank Building Division (RBD)
Point of Contact:	Not applicable
Agency Address:	6617 3rd St, Riverbank, California
Agency Phone Number:	(209) 863-7120
Date of Contact:	March 19, 2017
Method of Communication:	Email/online
Summary of Communication:	As of the date of this report, Partner has not received a response from the RBD for inclusion in this report.

4.1.8 Building and Planning Department

Regulatory Agency Data	
Name of Agency:	Stanislaus County Planning and Community Development Department (SCPCDD)
Point of Contact:	Not applicable
Agency Address:	1010 10th Street, Suite 3400, Modesto, California
Agency Phone Number:	(209) 525-6557
Date of Contact:	March 19, 2017
Method of Communication:	Online/Email
Summary of Communication:	As of the date of this report, Partner has not received a response from the SCPCDD for inclusion in this report. According to records reviewed, the subject property is zoned for General Agriculture development by Stanislaus County.

4.1.9 Oil & Gas Exploration

Regulatory Agency Data	
Name of Agency:	California Division of Oil, Gas and Geothermal Resources (DOGGR)
Point of Contact:	Not applicable
Agency Address:	Sacramento, California
Agency Phone Number:	Not applicable
Date of Contact:	March 19, 2017
Method of Communication:	Online
Summary of Communication:	According to DOGGR, no oil or gas wells are located on or adjacent to the subject property.

4.1.10 Assessor's Office

Regulatory Agency Data

Regulatory Agency Data	
Name of Agency:	Stanislaus County Assessor (SCA)
Point of Contact:	Not applicable
Agency Address:	1010 10th St #2400, Modesto, California
Agency Phone Number:	(209) 525-6461
Date of Contact:	March 19, 2017
Method of Communication:	Online
Summary of Communication:	According to records reviewed, the subject property is identified by Assessor Parcel Numbers (APNs) 074-001-003; 074-001-016; 074-002-001; 074-003-022; 074-003-023; and 074-003-024 and is currently owned by Berghill LLC since 2013. The current residential building was constructed in 1951 and totals approximately 1,868 square feet on an irregularly-shaped, 770 acre lot.

4.2 Mapped Database Records Search

Information from standard federal, state, county, and city environmental record sources was provided by Environmental Data Resources, Inc. (EDR). Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. The information contained in this report was compiled from publicly available sources and the locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/-300 feet.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

4.2.1 Regulatory Database Summary

Radius Report Data

Database	Search Radius (mile)	Subject Property	Adjacent Properties	Sites of Concern
Federal NPL or Delisted NPL Site	1.00	N	N	N
Federal CERCLIS Site	0.50	N	N	N
Federal CERCLIS-NFRAP Site	0.50	N	N	N
Federal RCRA CORRACTS Facility	1.00	N	N	N
Federal RCRA TSDF Facility	0.50	N	N	N
Federal RCRA Generators Site (LQG, SQG, CESQG)	0.25	N	N	N
Federal IC/EC Registries	0.50	N	N	N
Federal ERNS Site	Subject Property	N	N	N
State/Tribal Equivalent NPL	1.00	N	N	N
State/Tribal Equivalent CERCLIS	1.00	N	N	N
State/Tribal Landfill/Solid Waste Disposal Site	0.50	N	N	N
State/Tribal Leaking Storage Tank Site	0.50	**Y**	N	N
State/Tribal Registered Storage Tank Sites	0.25	N	N	N

Radius Report Data				
Database	**Search Radius (mile)**	**Subject Property**	**Adjacent Properties**	**Sites of Concern**
(UST/AST)				
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	N	N	N
State/Tribal Spills	0.50	N	N	N
Federal Brownfield Sites	0.50	N	N	N
State Brownfield Sites	0.50	N	N	N
EDR MGP	Varies	N	N	N
EDR US Hist Auto Station	Varies	N	N	N
EDR US Hist Cleaners	Varies	N	N	N

4.2.2 Subject Property Listings

The subject property is identified as a LUST, SWEEPS UST, CA FID UST, HIST CORTESE, and HIST UST site in the regulatory database report, as discussed below:

- The subject property, identified as Del Rio Orchards Ruth Wendt/Quality Nut at 1711 Patterson Road, reported a release of gasoline which reportedly impacted soil only. The release occurred as a result of an unauthorized release from a former onsite UST, and the release was reported to the lead agency (Stanislaus County) in 1991. The case was granted regulatory closure in 1991. The responsible party is identified as Quality Nut. Based on the regulatory status, this listing is not expected to represent a significant environmental concern.

4.2.3 Adjacent Property Listings

Adjacent or nearby properties to the west and south were identified as former and/or current UST sites in the regulatory database report. The addressed for these sites are:

- 423 Hogue Road
- 125 Hogue Road
- 7050 McHenry Avenue
- 1329 Patterson Road
- 121 Steward Road
- 1817 Patterson Road

Based on the absence of reported releases, distance from the property line, and/or the inferred groundwater flow direction, these UST listings do not appear to represent a significant environmental concern at this time. Based on the findings, vapor migration is not expected to represent a significant environmental concern at this time.

4.2.4 Sites of Concern Listings

No other sites of concern are identified in the regulatory database report.

4.2.5 Orphan Listings

No orphan listings of concern are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.

5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or *Reasonably Ascertainable* information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13, Partner requested the following site information from Farmers & Merchants Bank (User of this report).

User Responsibilities				
Item	**Provided By User**	**Not Provided By User**	**Discussed Below**	**Does Not Apply**
Environmental Pre-Survey Questionnaire			**X**	
Title Records, Environmental Liens, and AULs			**X**	
Specialized Knowledge			**X**	
Actual Knowledge			**X**	
Valuation Reduction for Environmental Issues			**X**	
Identification of Key Site Manager	**Section 5.1.3**			
Reason for Performing Phase I ESA	**Section 1.1**			
Prior Environmental Reports		**X**		
Other		**X**		

5.1 Interviews

5.1.1 Interview with Owner

Mr. Mike Berg, subject property owner, was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

Mr. Berg, who has owned the property since 2013, indicated there are four onsite agricultural water wells and one domestic well for the onsite residence. The residence is equipped with an onsite septic system. According to Mr. Berg, there are no USTs, clarifiers, oil/water separators, or groundwater monitoring wells on the subject property to the best of his knowledge.

5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User. The information requested was not received prior to the issuance of this report. Because the Report User (Client) is a lender, it is understood that the Report User would not have knowledge of the property that would significantly impact our ability to satisfy the objectives of this assessment. The lack of this information is not considered to represent a significant data gap.

5.1.3 Interview with Key Site Manager

See Section 5.1.1.

5.1.4 Interviews with Past Owners, Operators and Occupants

Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap.

5.1.5 Interview with Others

As the subject property is not an abandoned property as defined in ASTM 1527-13, interview with others were not performed.

5.2 User Provided Information

5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or *reasonably ascertainable* within the local community about the subject property at the time of the assessment.

5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was sunny and clear. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

Site Assessment Data	
Site Assessment Performed By:	Marc Hachey
Site Assessment Conducted On:	April 4, 2017

The table below provides the subject property personnel interviewed during the field reconnaissance:

Site Visit Personnel for 1711 Patterson Road (Subject Property)			
Name	**Title/Role**	**Contact Number**	**Site Walk* Yes/No**
Mr. Mike Berg	Key Site Manager	(209) 483-5770	No

* Accompanied Partner during the field reconnaissance activities and provided information pertaining to the current operations and maintenance of the subject property

Environmental concerns were identified during the onsite reconnaissance related to onsite fuel ASTs and the storage and usage of pesticides and insecticides for the agricultural land as further discussed in Sections 6.1 and 6.2.

6.1 General Site Characteristics

6.1.1 Solid Waste Disposal

Solid waste generated at the subject property is disposed of in commercial dumpsters located near the onsite barn of the subject property. An independent solid waste disposal contractor removes solid waste from the subject property. According to property personnel, only household trash is collected in the on-site solid waste dumpsters.

6.1.2 Sewage Discharge and Disposal

Sanitary discharges from the subject property are directed to an onsite septic system, as further discussed in Section 6.1.7.

6.1.3 Surface Water Drainage

Storm water throughout the large site is removed via direct infiltration to unpaved land and/or sheet flow into the site irrigation canals.

The subject property does not appear to be a designated wetland area aside from a small, isolated area at the southeast site corner and areas adjacent to the Stanislaus River, based on information obtained from the United States Department of Agriculture and/or United States Fish & Wildlife Service; however, a comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. If development is planned in the vicinity of the mapped wetland, all applicable wetland regulations should be followed. No surface impoundments, wetlands, natural catch basins, settling ponds, or lagoons are located on the subject property. No drywells were identified on the subject property.

6.1.4 Source of Heating and Cooling

Heating and cooling systems as well as domestic hot water equipment are fueled by electricity/natural gas provided by Pacific Gas & Electric.

6.1.5 Wells and Cisterns

Mr. Berg indicated there are four onsite agricultural water wells and one domestic well for the onsite residence.

6.1.6 Wastewater

Domestic wastewater generated at the subject property is disposed by means of the septic system. No industrial process is currently performed at the subject property.

6.1.7 Septic Systems

Domestic wastewater generated at the subject property is disposed by means of the septic system. No industrial process is currently performed at the subject property.

6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

6.2 Potential Environmental Hazards

6.2.1 Hazardous Substances and Petroleum Products Used or Stored at the Site

Partner identified hazardous substances used, stored, and/or generated on the subject property as noted in the following table:

Hazardous Substances and/or Petroleum Products Noted Onsite				
Substance	**Container Size**	**Location**	**Nature of Use**	**Disposal Method**
Diesel	Approximately 300 gallon	West of barn	Farming machinery fuel	N/A
Pesticides, herbicides and insecticides	~100 consumer-sized containers	Eastern half of barn interior	Farming	N/A

The materials were found to be properly labeled and stored at the time of the assessment with no signs of leaks, stains, or spills. Secondary containment is provided where applicable. Based on the typical nature of use of these materials for large-scale farming operations, and the absence of evidence of releases, these materials are not expected to represent a significant environmental concern.

6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

No evidence of current or former USTs was observed during the site reconnaissance. A LUST case associated with a former onsite UST is discussed in Section 4.1.2.

Partner observed one active aboveground storage tank (AST) and two or three inactive ASTs on the subject property, typical of a large-scale farming operation. The active and inactive ASTs are located

around the subject property barn. The active AST stores diesel fuel, is approximately 300 gallons in capacity, and is equipped with a secondary containment enclosure. No staining, leaks or spills were noted in the vicinity of the ASTs, and no releases have been reported to Stanislaus County.

6.2.3 Evidence of Releases

No spills, stains or other indications that a surficial release has occurred at the subject property were observed.

6.2.4 Polychlorinated Biphenyls (PCBs)

No potential PCB-containing equipment (transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc.) was observed on the subject property during Partner's reconnaissance.

6.2.5 Strong, Pungent or Noxious Odors

No strong, pungent or noxious odors were evident during the site reconnaissance.

6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

6.2.7 Drains, Sumps and Clarifiers

No drains, sumps, or clarifiers, other than those associated with storm water removal, were observed on the subject property during the site reconnaissance.

6.2.8 Pits, Ponds and Lagoons

No pits, ponds or lagoons were observed on the subject property.

6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

6.3 Non-ASTM Services

6.3.1 Asbestos-Containing Materials (ACMs)

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.1101 requires certain construction materials to be *presumed* to contain asbestos, for purposes of this regulation. All thermal system insulation (TSI), surfacing material, and asphalt/vinyl flooring that are present in a building constructed prior to 1981 and have not been appropriately tested are "presumed asbestos-containing material" (PACM).

The subject property buildings were constructed in the 1950s or prior, and ACMs may be present in the residence; however, access was not provided to the interior of the residence. No ACM was observed in the wood-framed barn interior or exterior.

The limited visual survey consisted of noting observable materials (materials which were readily accessible and visible during the course of the site reconnaissance) that are commonly known to potentially contain asbestos. This activity was not designed to discover all sources of suspect ACM, PACM, or asbestos at the site; or to comply with any regulations and/or laws relative to planned disturbance of building materials such as renovation or demolition, or any other regulatory purpose. Rather, it is intended to give the User an indication if significant (significant due to quantity, accessibility, or condition) potential sources of ACM or PACM are present at the subject property. Additional sampling, assessment, and evaluation will be warranted for any other use.

Partner was not provided building plans or specifications for review, which may have been useful in determining areas likely to have used ACM.

According to the US EPA, ACM and PACM that is intact and in good condition can, in general, be managed safely in-place under an Operations and Maintenance (O&M) Program until removal is dictated by renovation, demolition, or deteriorating material condition. Prior to any disturbance of the construction materials within this facility, a comprehensive ACM survey is recommended.

6.3.2 Lead-Based Paint (LBP)

Lead is a highly toxic metal that affects virtually every system of the body. LBP is defined as any paint, varnish, stain, or other applied coating that has 1 mg/cm^2 (or 5,000 ug/g or 0.5% by weight) or more of lead. Congress passed the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as "Title X", to protect families from exposure to lead from paint, dust, and soil. Under Section 1017 of Title X, intact LBP on most walls and ceilings is not considered a "hazard," although the condition of the paint should be monitored and maintained to ensure that it does not become deteriorated. Further, Section 1018 of this law directed the Housing and Urban Development (HUD) and the US EPA to require the disclosure of known information on LBP and LBP hazards before the sale or lease of most housing built before 1978.

Based on the age of the subject property buildings (pre-1978), there is a potential that LBP is present. Interior and exterior painted surfaces were observed in good condition and therefore not expected to represent a "hazard," although the condition of the paint should be monitored and maintained to ensure that it does not become deteriorated.

Actual material samples would need to be collected in order to determine if LBP is present.

6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones		
EPA Zones	**Average Predicted Radon Levels**	**Potential**
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 3. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

6.3.4 Lead in Drinking Water

The subject property operates one domestic water well and four irrigation water wells. Water sampling was not conducted to verify water quality.

6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g.in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

Partner observed accessible, interior areas for the subject property buildings for significant evidence of mold growth with the exceptions detailed in Section 1.5 of this report; however, this ESA should not be used as a mold survey or inspection. Additionally, this limited assessment was not designed to assess all areas of potential mold growth that may be affected by mold growth on the subject property. Rather, it is intended to give the client an indication as to whether or not conspicuous (based on observed areas) mold growth is present at the subject property. This evaluation did not include a review of pipe chases, mechanical systems, or areas behind enclosed walls and ceilings.

No obvious indications of water damage or mold growth were observed during Partner's visual assessment.

7.0 FINDINGS AND CONCLUSIONS

Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- Partner did not identify any recognized environmental conditions during the course of this assessment.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- The subject property, identified as Del Rio Orchards Ruth Wendt/Quality Nut at 1711 Patterson Road, reported a release of gasoline which reportedly impacted soil only. The release occurred as a result of an unauthorized release from a former onsite UST, and the release was reported to the lead agency (Stanislaus County) in 1991. The records pertaining to the UST removal show various capacities, including 400 to 500 gallons, 2,000 gallons, and a 2,500 gallons. However, the evidence appears to indicate that there was one 2,000-gallon UST located to the northwest of the current barn, and this tank was removed in 1991. The tank appears to have been installed in the late 1980s. When the tank was removed, slight hydrocarbon odor was detected at approximately 15-feet below ground surface (bgs). Soil samples were collected from the tank pit excavation bottom, and analyzed for the standard suite of hydrocarbons including motor oil, diesel, BTEX, TEPH, and kerosene, with all results coming back non-detectable except for one location where diesel was found at a concentration of 81.5 ppm. A week later, on April 9, 1991, this area was resampled and retested, and the results were found to non-detectable. The responsible party is identified as Quality Nut, and regulatory closure was obtained in 1991. Based on the removal of the UST and the regulatory closure, the former UST and associated leak are considered a historical recognized environmental condition and no further action is considered necessary.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner observed one active aboveground storage tank (AST) and two or three inactive ASTs on the subject property, typical of a large-scale farming operation. The active and inactive ASTs are located around the subject property barn. The active AST stores diesel fuel, is approximately 300-gallon size, and is equipped with a secondary containment enclosure. No staining, leaks or spills were noted in the vicinity of the ASTs. Based on the nature of the use, the ASTs are not expected to represent a significant environmental concern.
- The subject property is currently and has historically been used for agricultural purposes (orchards). As such, agricultural related chemicals such as pesticides, herbicides, and fertilizers have been used and stored onsite. If redevelopment of the subject property is not anticipated, Partner concludes that the possible former and current use of agricultural chemicals is not expected to represent a significant environmental concern at this time.
- Due to the age of the subject property buildings, there is a potential that asbestos-containing material (ACM) and/or lead-based paint (LBP) are present. Should these materials be replaced, the identified suspect materials would need to be sampled to confirm the presence or absence of asbestos and/or lead prior to any renovation or demolition activities to prevent potential exposure to workers and/or building occupants.

Conclusions, Opinions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of 1711 Patterson Road in an unincorporated area of Riverbank, Stanislaus County, California (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed evidence of a historical recognized environmental condition and environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends the following:

- An Operations and Maintenance (O&M) Program should be implemented in order to safely manage the suspect ACMs and LBP located at the subject property.

8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property addressed 1711 Patterson Road in an unincorporated area of Riverbank, Stanislaus County, California in general conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:



Marc Hachey
Environmental Professional

Reviewed By:



Sarah Vosovic
Senior Author

9.0 REFERENCES

Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13.

Environmental Data Resources (EDR), Radius Report, March 2017

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Flood Insurance Map, accessed via internet, September 26, 2008

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071)

United States Geological Survey, accessed via the Internet

United States Geological Survey Topographic Map, 2012, 7.5 minute series

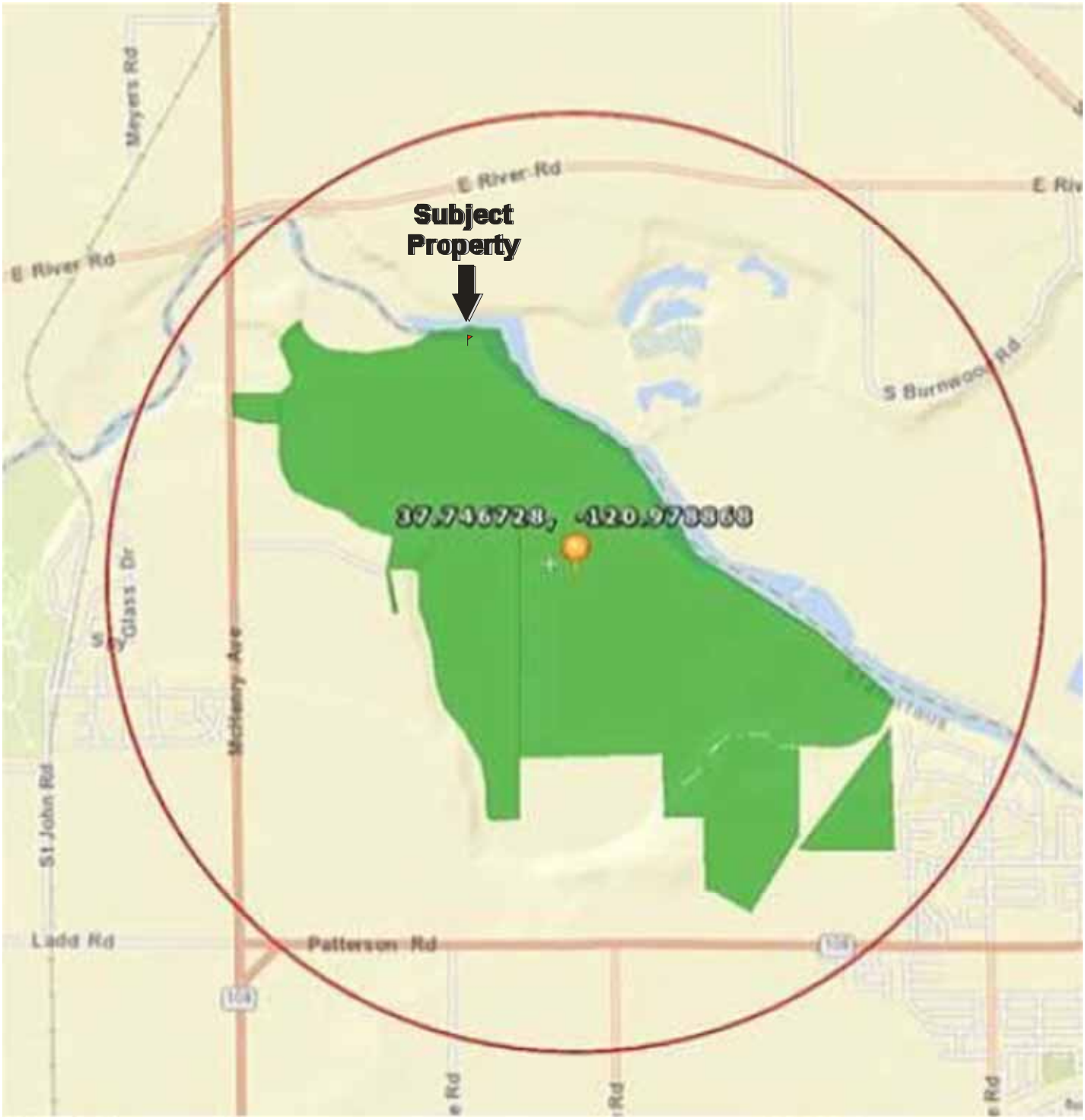
FIGURES

1 SITE LOCATION MAP

2 SITE PLAN

3 TOPOGRAPHIC MAP

PARTNER



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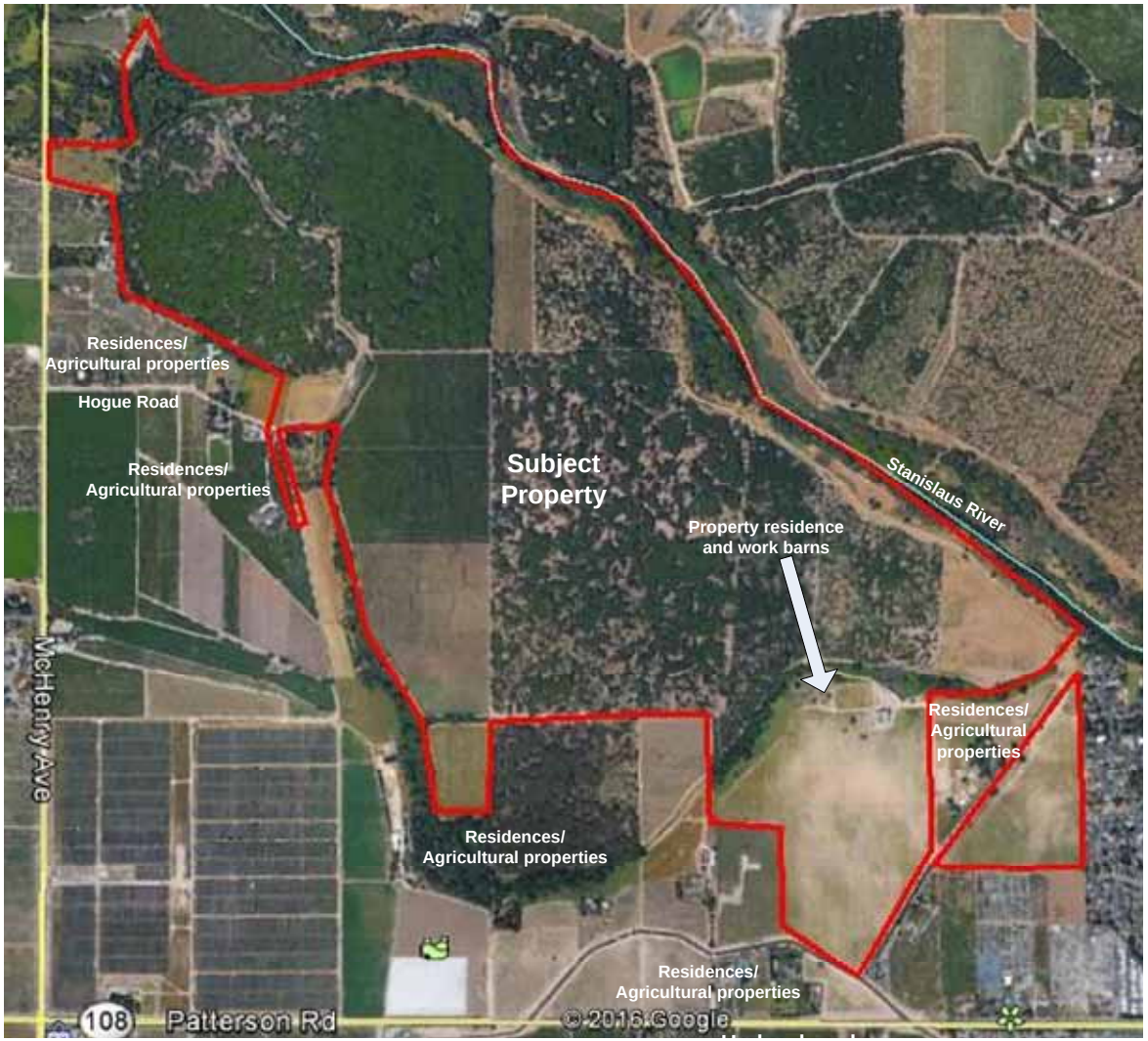
Drawing Not To Scale

KEY:
Subject Property

FIGURE 1: SITE LOCATION MAP
Project No. 17-183258.1

PARTNER



N

GROUNDWATER
FLOW

KEY:
Subject Property

FIGURE 2: SITE PLAN
Project No. 17-183258.1

PARTNER



N

USGS 7.5 Minute *Riverbank, California* Quadrangle
Created: 2012

KEY:
Subject Property

FIGURE 3: TOPOGRAPHIC MAP
Project No. 17-183258.1

PARTNER

APPENDIX A: SITE PHOTOGRAPHS

PARTNER



1. View of the subject property from west off Hogue Road



2. View of Hogue Road from the east end looking west



3. View of the northwest corner of the subject property area



4. View of the northwest corner of the subject property area



5.View of some western adjacent land



6. View toward the subject property from the west/southwest



7. View of the subject property from the southern/southeast tip



8. View of the southern irrigation canal which forms a portion of the southern/southeast boundary



9. View of the southeastern access road leading to the subject buildings



10. View of the detached, triangular-shaped subject parcel to the southeast of the subject buildings



11. View of the southeast adjacent, triangular-shaped parcel



12. View to the north from the eastern corner of the subject property



13. View of the subject property from the east corner looking northwest



14. View of the residential development to the east of the southeast property corner



15. View of the subject barn



16. View of the farm equipment structure



17. View of the subject barn



18. View of the barn interior



19. View of the chemical storage area inside the barn



20. View of a diesel fuel AST located adjacent to the west side of the barn



21. View of a pump house located between the barn and residence



22. View towards the residence from the barn



23. View of an onsite water AST located near the farm equipment structure



24. View of machinery storage

APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION

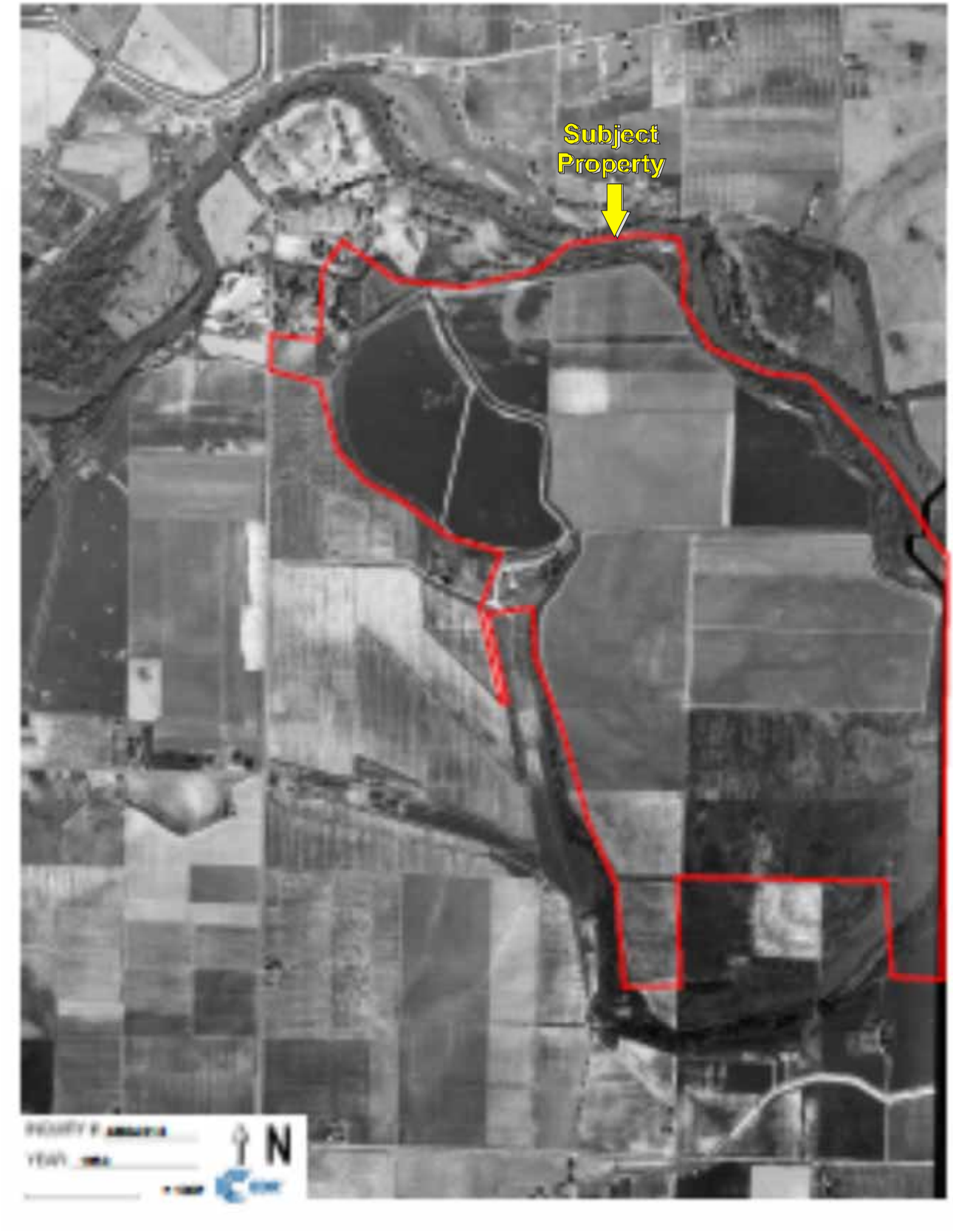
PARTNER



N

Date of Photograph: 1950

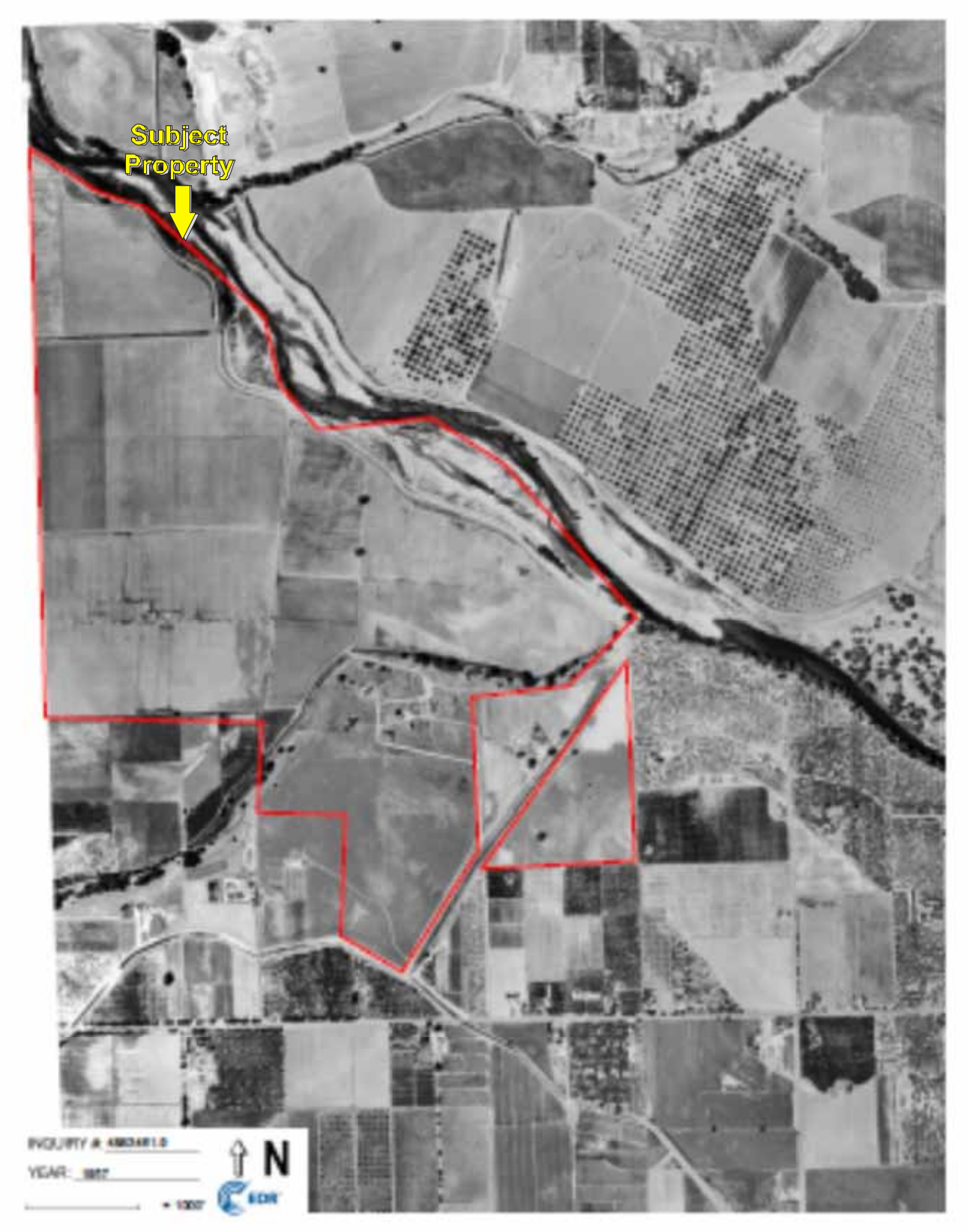
KEY:
Subject Property



Date of Photograph: 1950

KEY:
Subject Property

N



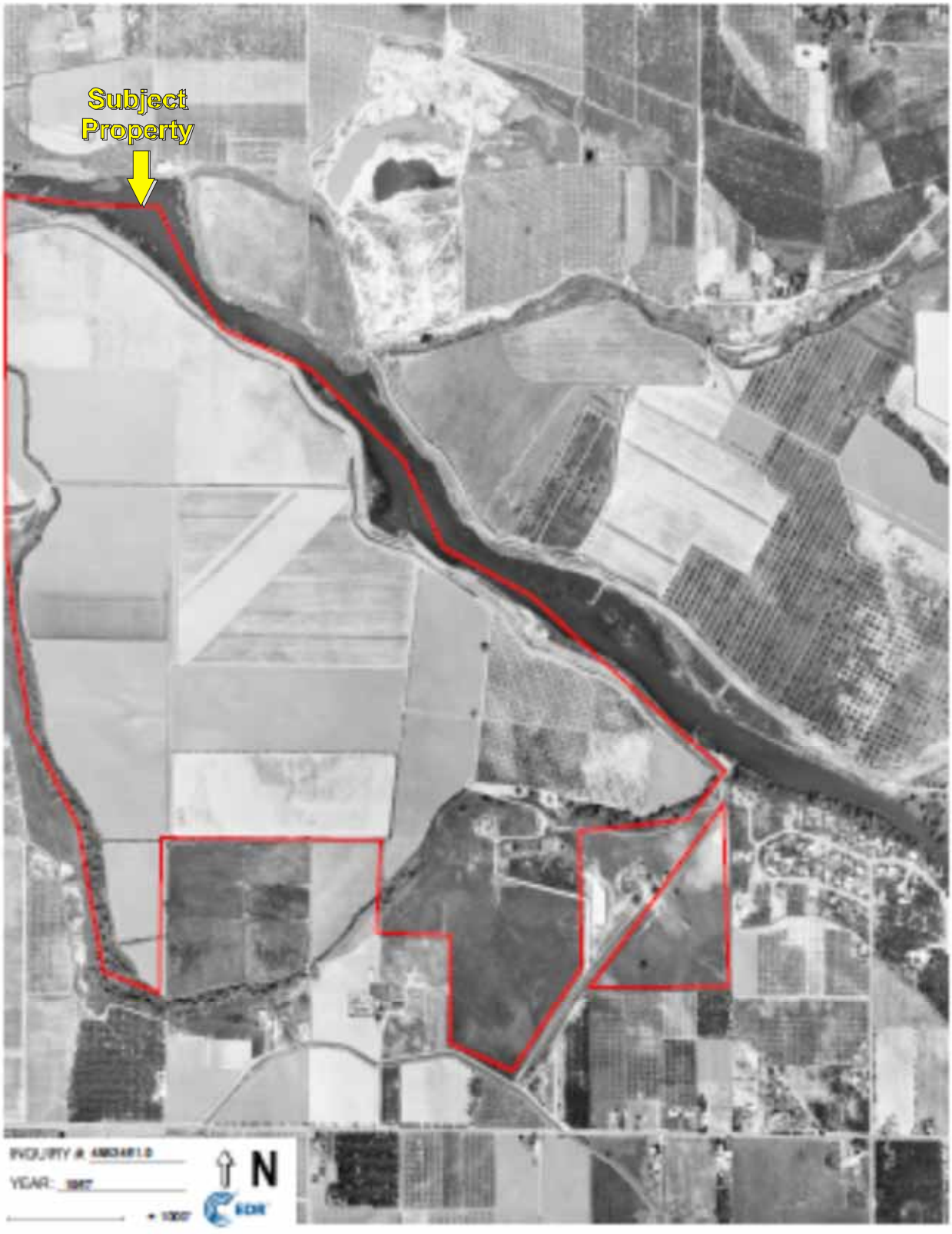
Date of Photograph: 1957

KEY:
Subject Property



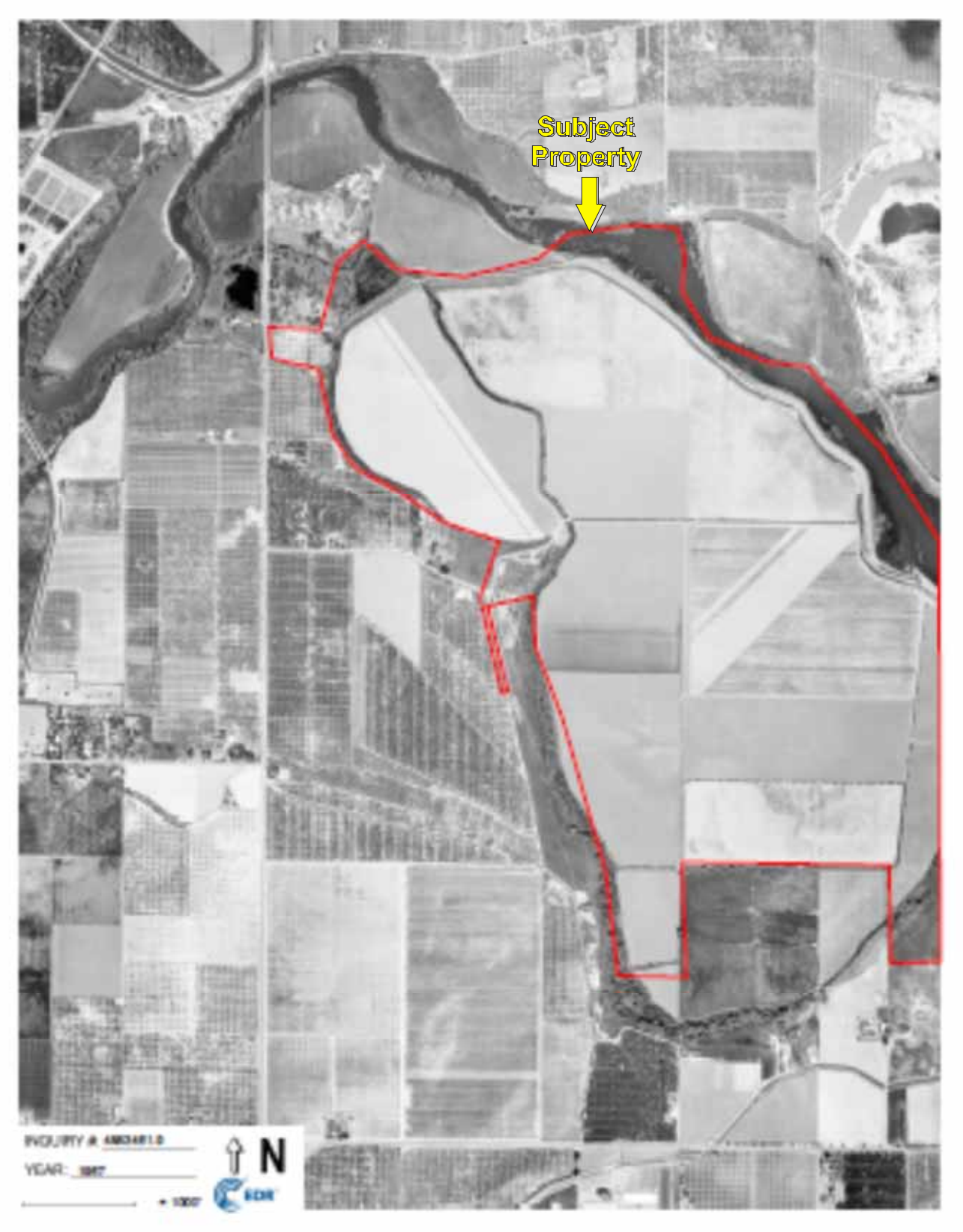
Date of Photograph: 1957

KEY:
Subject Property



Date of Photograph: 1967

KEY:
Subject Property

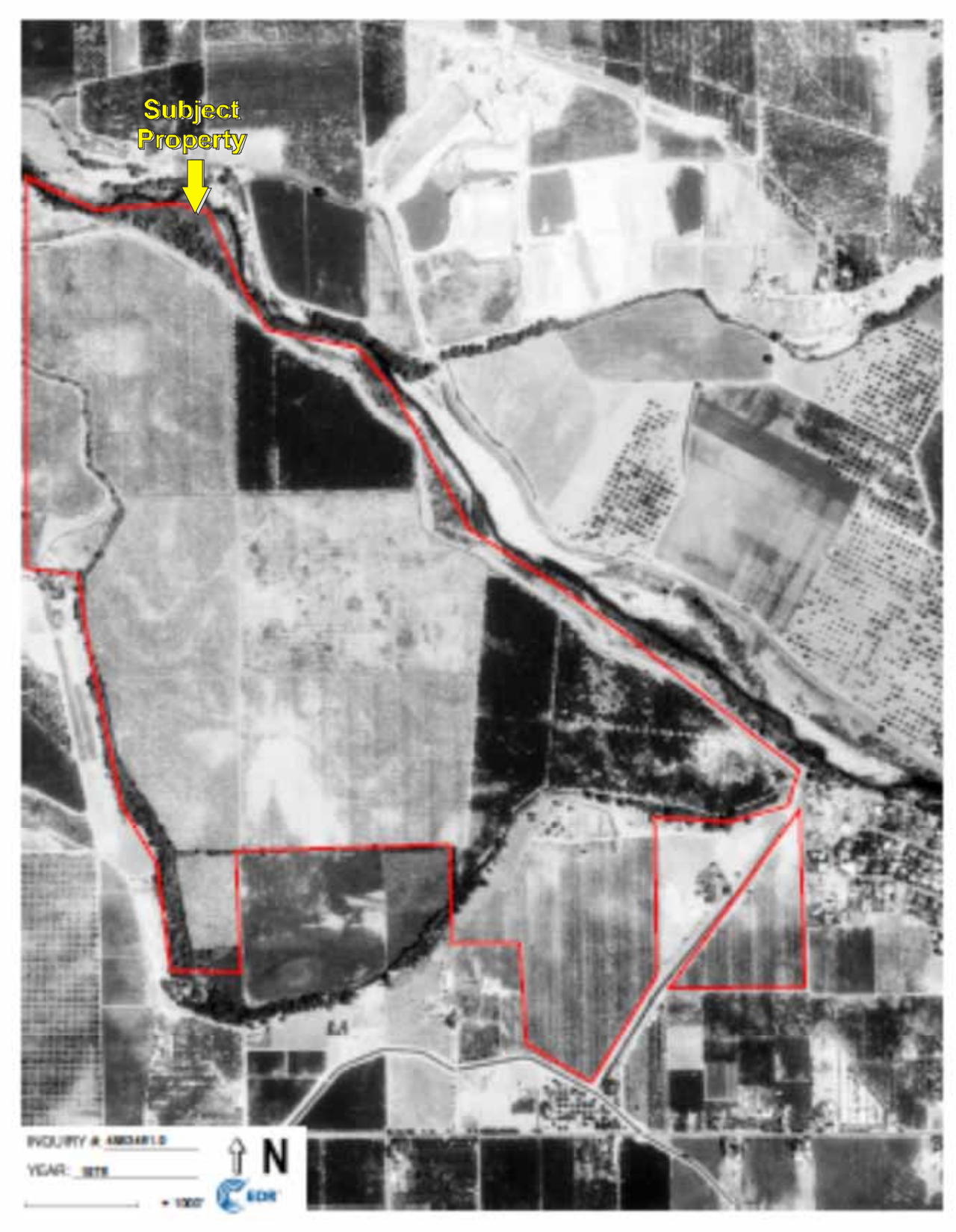


Date of Photograph: 1967

KEY:
Subject Property

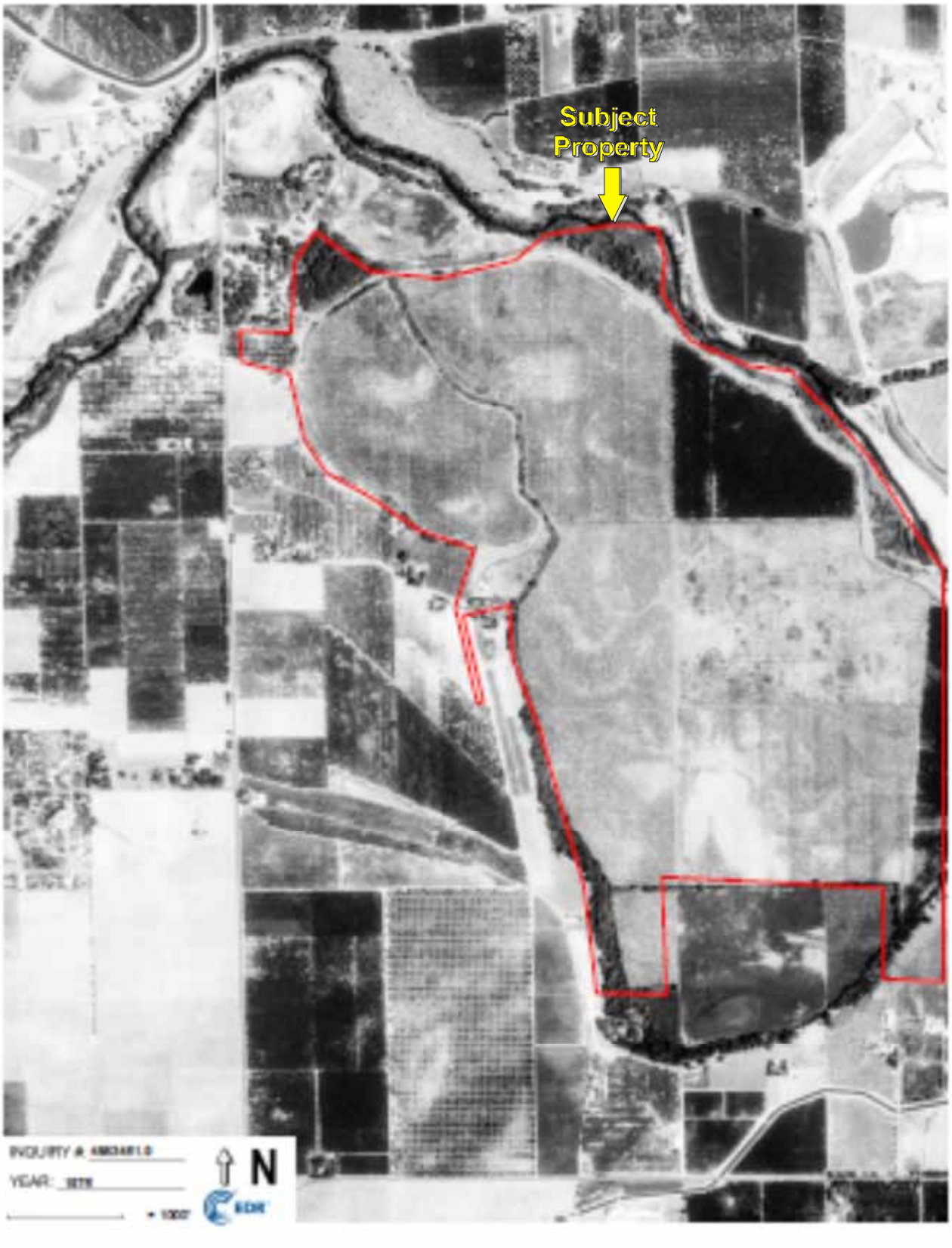
APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-183258.1

PARTNER



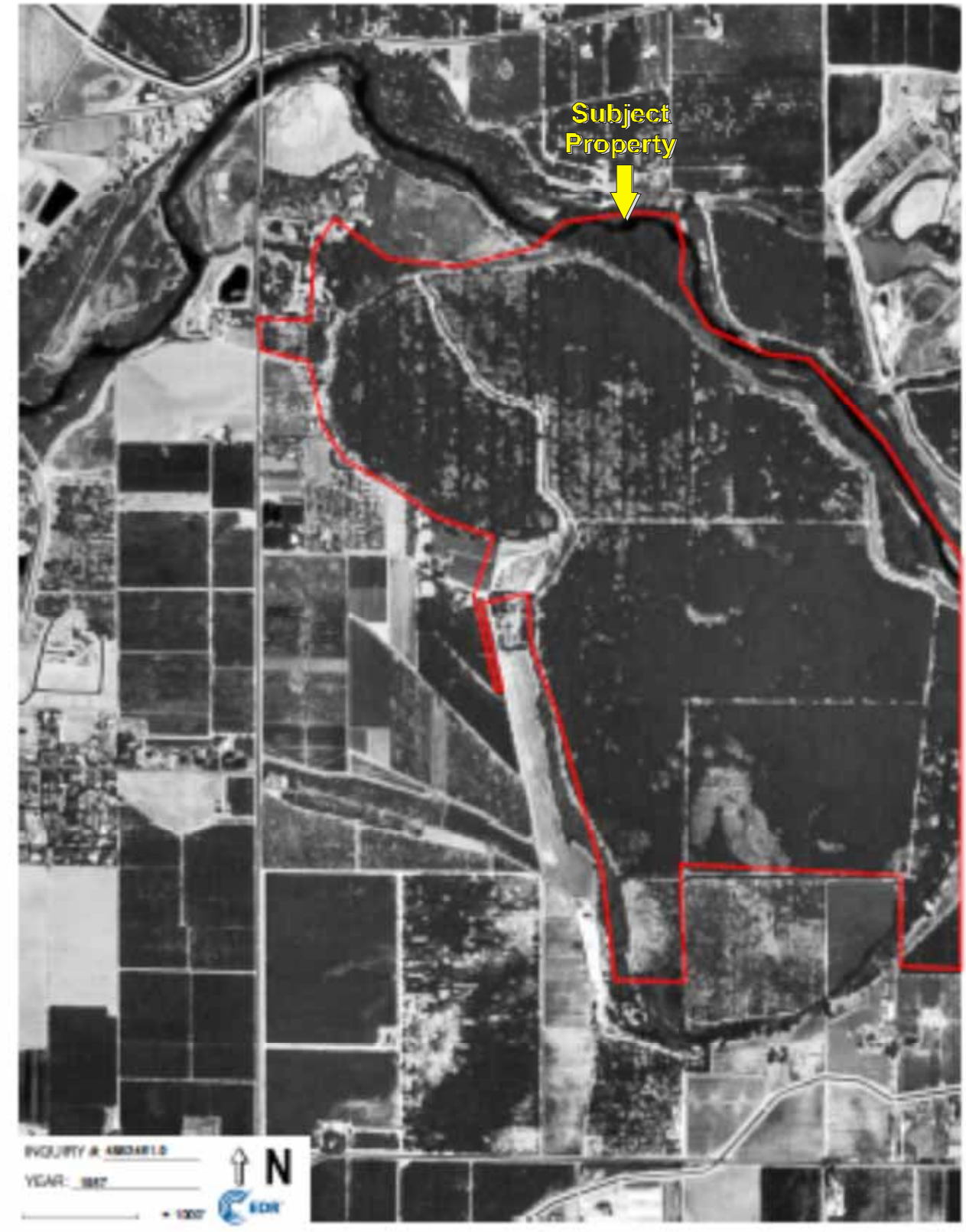
Date of Photograph: 1976

KEY:
Subject Property



Date of Photograph: 1976

KEY:
Subject Property



Date of Photograph: 1987

KEY:
Subject Property

N

APPENDIX B: AERIAL PHOTOGRAPHS
Project No. 17-183258.1

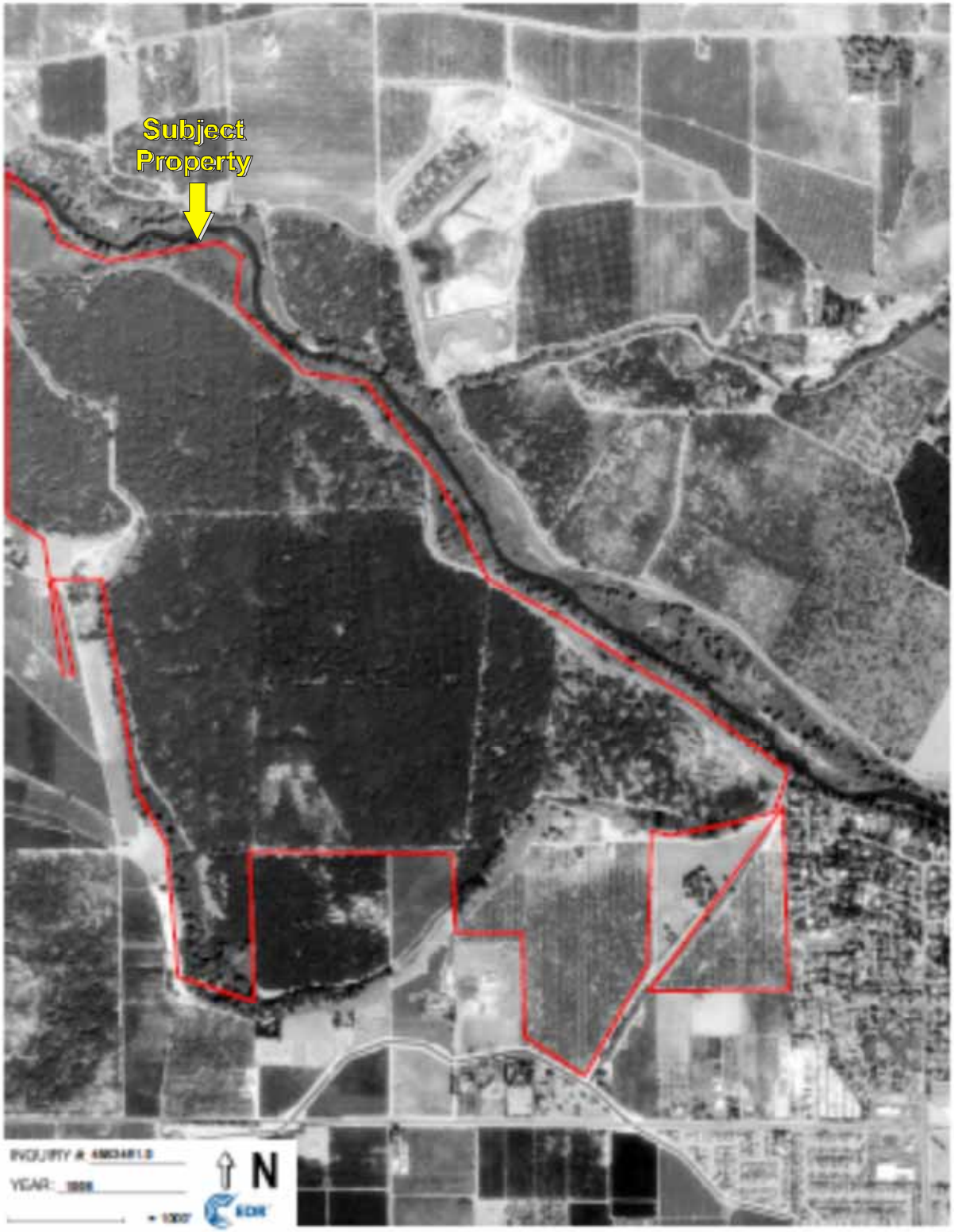
PARTNER



Date of Photograph: 1987

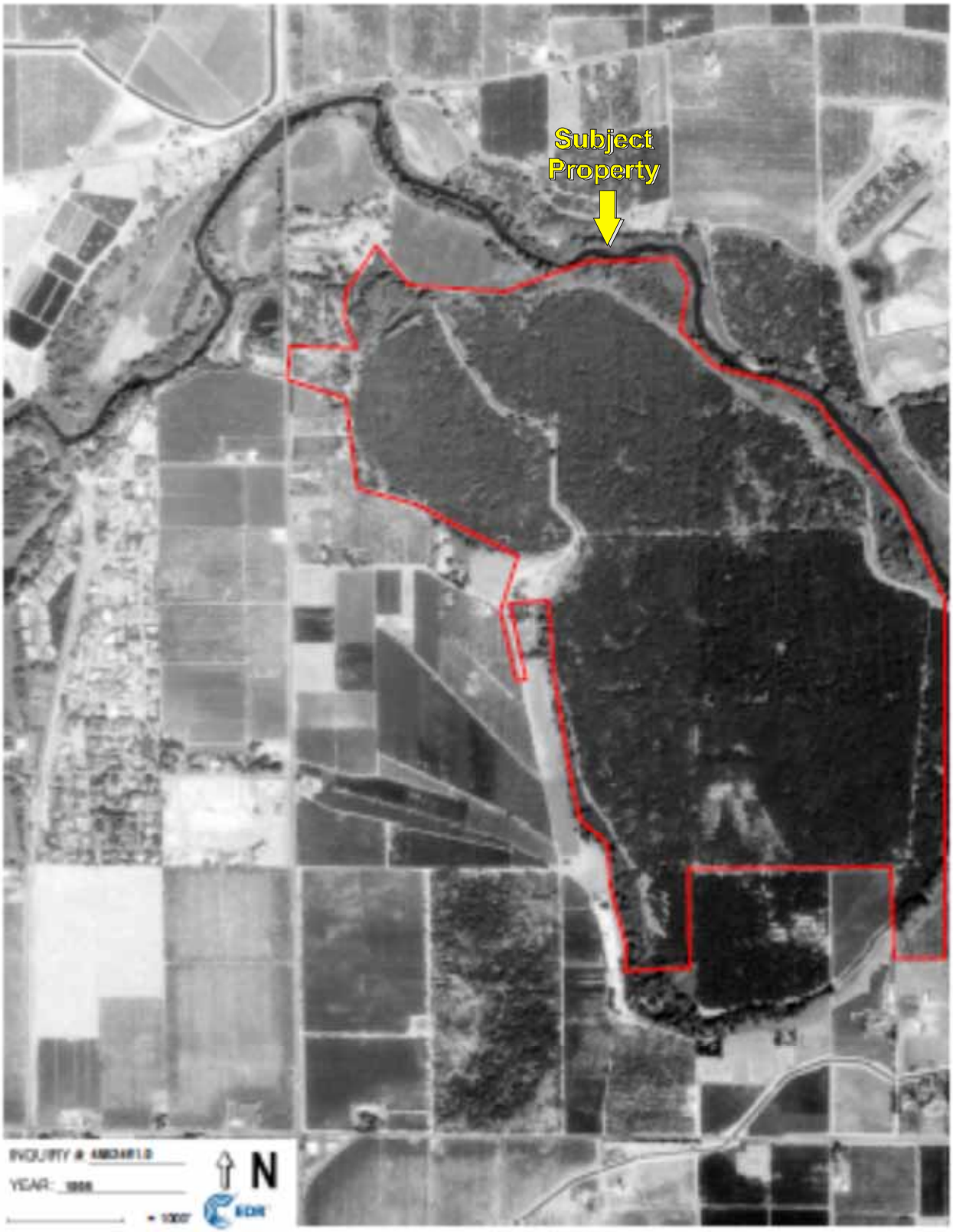
KEY:
Subject Property

N



Date of Photograph: 1998

KEY:
Subject Property



Date of Photograph: 1998

KEY:
Subject Property



Date of Photograph: 2005

KEY:
Subject Property



Date of Photograph: 2005

KEY:
Subject Property



Date of Photograph: 2010

KEY:
Subject Property



Date of Photograph: 2010

KEY:
Subject Property

N



Date of Photograph: 2012

KEY:
Subject Property



Date of Photograph: 2012

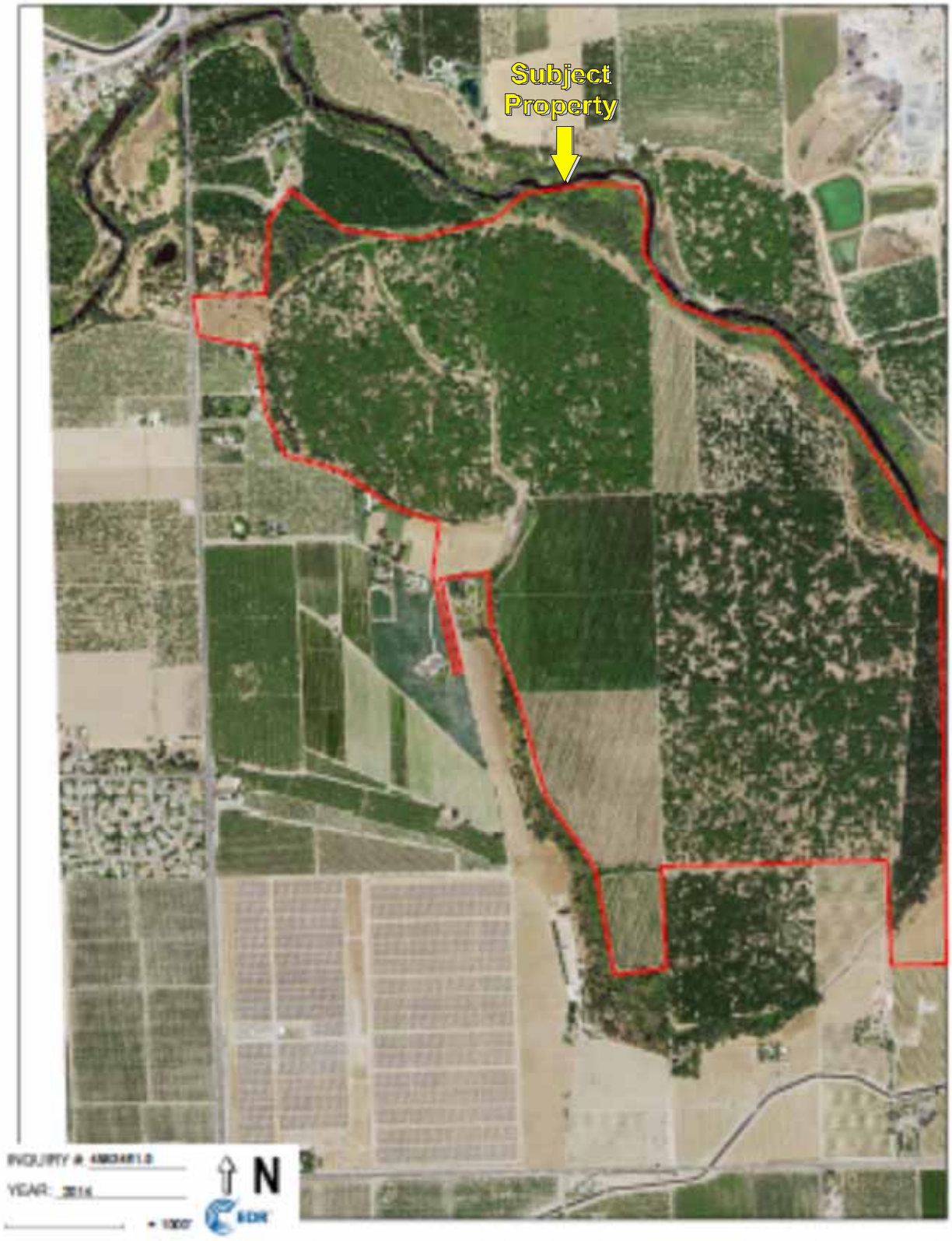
KEY:
Subject Property



Date of Photograph: 2014

KEY:
Subject Property

N



Date of Photograph: 2014

KEY:
Subject Property

1711 Patterson

1711 Patterson Road

Riverbank, CA 95367

Inquiry Number: 4883461.3

March 20, 2017

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/20/17

Site Name:

1711 Patterson
1711 Patterson Road
Riverbank, CA 95367
EDR Inquiry # 4883461.3

Client Name:

Partner Engineering and Science, Inc.
2154 Torrance Blvd, Suite 200
Torrance, CA 90501-0000
Contact: Brett Nielsen

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # B49F-42D5-A62A

PO # NA

Project 17-183258.1

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: B49F-42D5-A62A

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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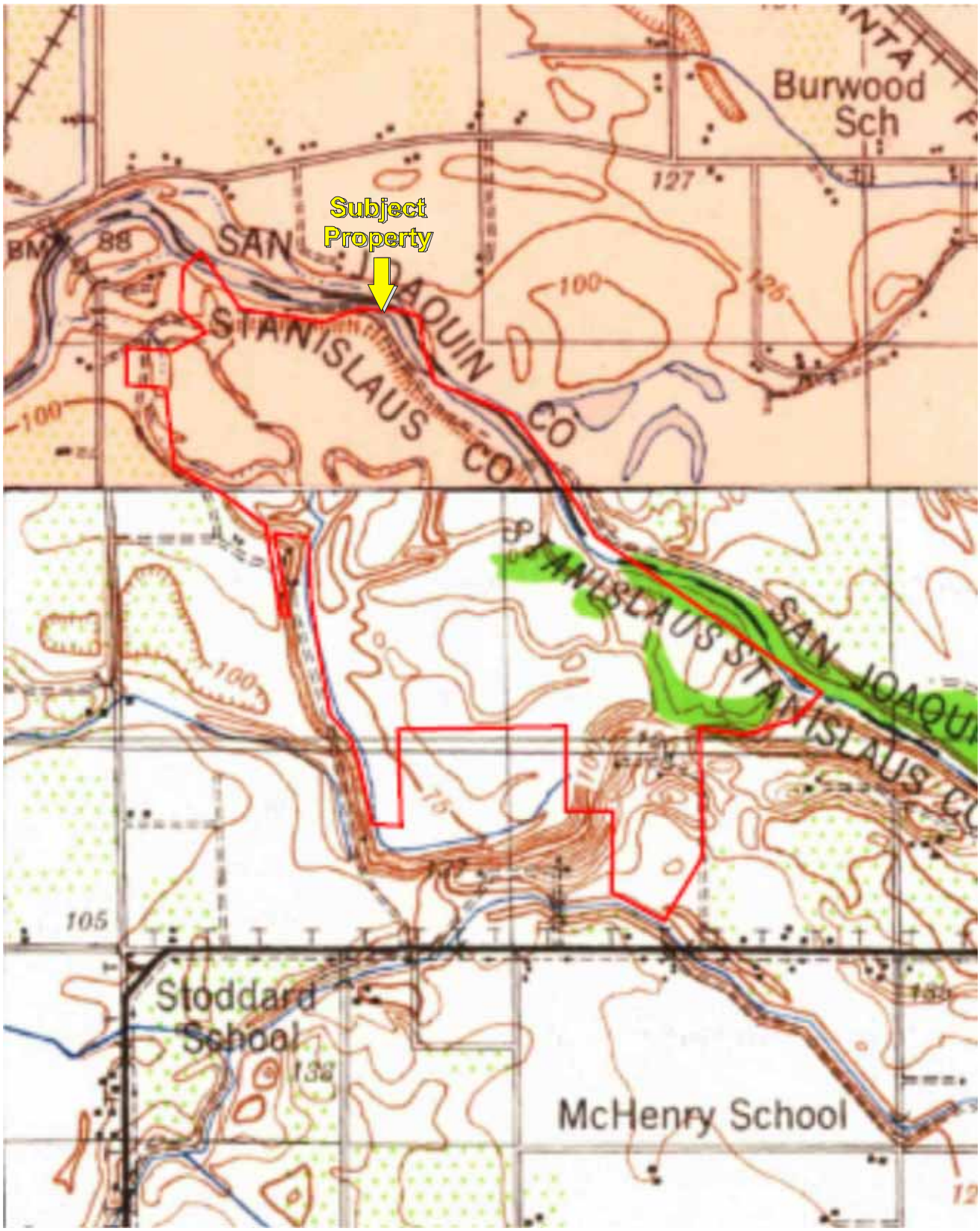
N

USGS 7.5 Minute *Riverbank, CA* Quadrangle
Created: 1916

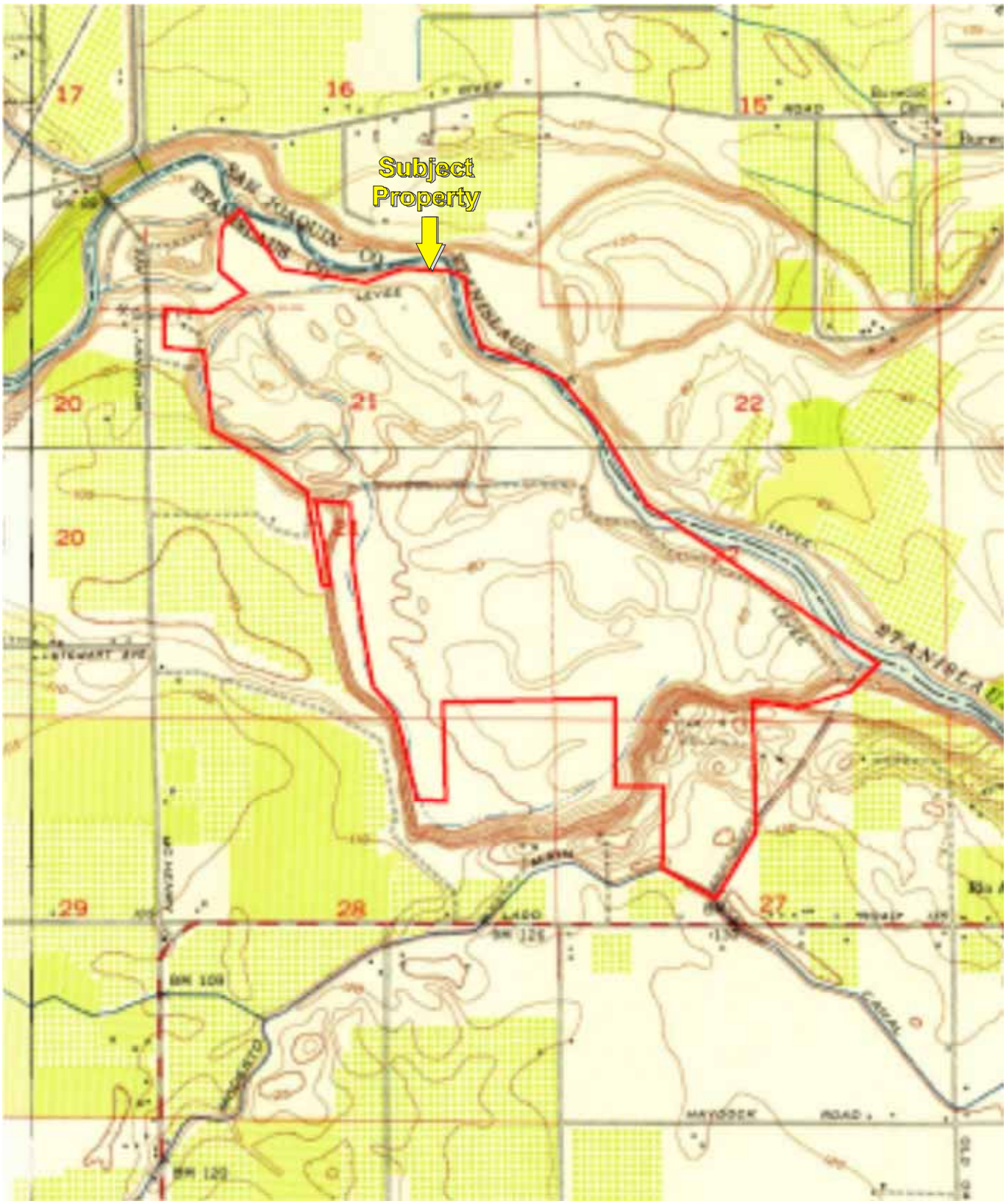
KEY:
Subject Property



USGS 7.5 Minute *Modesto, CA* Quadrangle
Created: 1939

KEY:
Subject Property

N



USGS 7.5 Minute *Riverbank, CA* Quadrangle
Created: 1952

KEY:
Subject Property

N



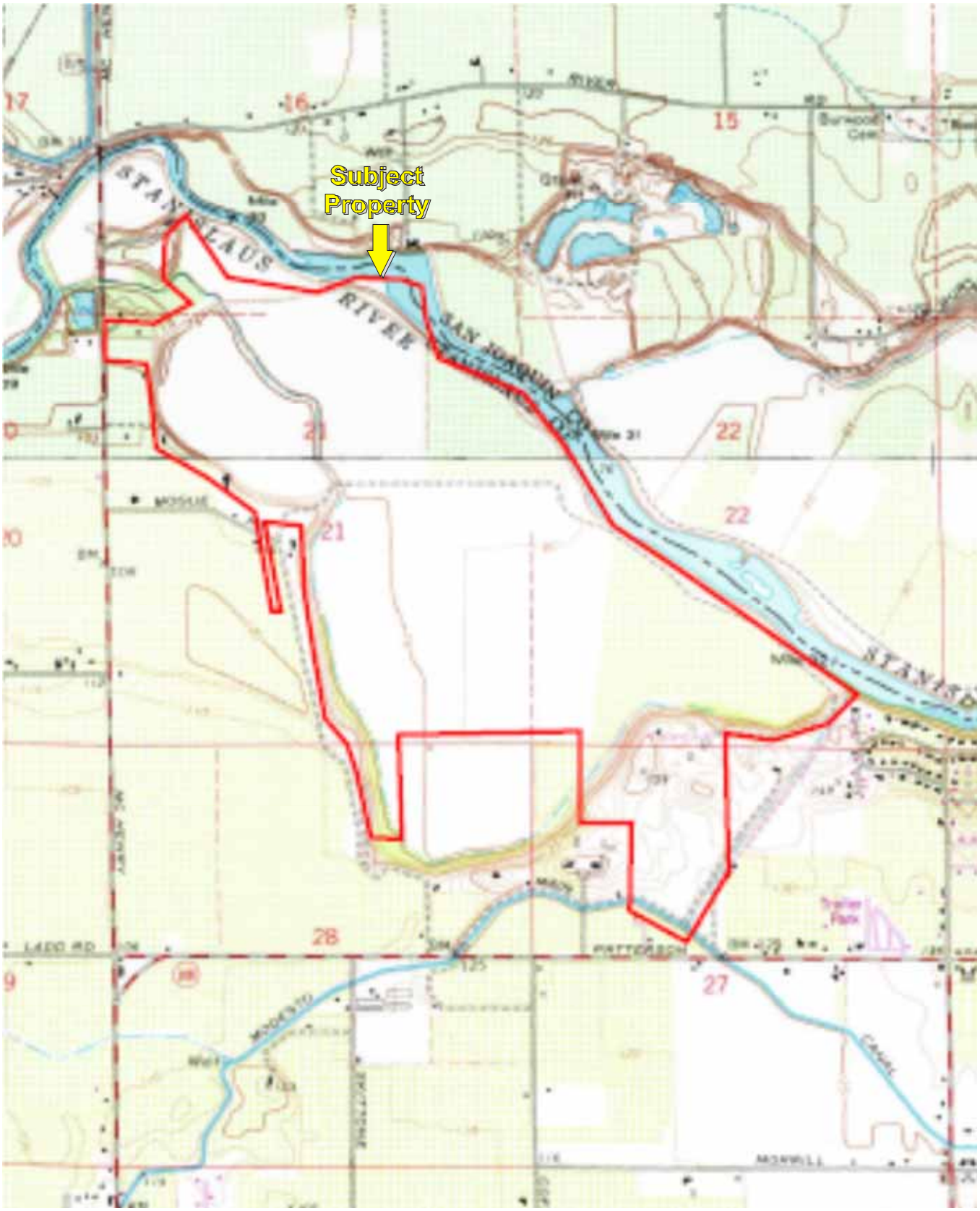
USGS 7.5 Minute *Riverbank, CA* Quadrangle
Created: 1969

KEY:
Subject Property

N

APPENDIX B: HISTORIC TOPOGRAPHIC MAPS
Project No. 17-183258.1

PARTNER



N

USGS 7.5 Minute *Riverbank, CA* Quadrangle
Created: 1976

KEY:
Subject Property

1711 Patterson
1711 Patterson Road
Riverbank, CA 95367

Inquiry Number: 4883461.5
March 21, 2017

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2013	☑	☐	Cole Information Services
2008	☑	☐	Cole Information Services
2003	☑	☐	Cole Information Services
1999	☑	☐	Cole Information Services
1995	☑	☐	Cole Information Services
1992	☑	☐	Cole Information Services
1987	☑	☐	Polk's City Directory
1982	☑	☐	Polk's City Directory
1976	☑	☐	Polk's City Directory
1971	☑	☐	Polk's City Directory
1965	☑	☐	Polk's City Directory

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FINDINGS

TARGET PROPERTY STREET

1711 Patterson Road
Riverbank, CA 95367

Year	*CD Image*	*Source*

PATTERSON RD

2013	pg A1	Cole Information Services
2008	pg A2	Cole Information Services
2003	pg A4	Cole Information Services
1999	pg A5	Cole Information Services
1995	pg A6	Cole Information Services
1992	pg A7	Cole Information Services
1987	pg A8	Polk's City Directory
1982	pg A9	Polk's City Directory
1976	pg A10	Polk's City Directory
1971	pg A11	Polk's City Directory
1965	pg A12	Polk's City Directory

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 2013

1	RIVERBANK FLORIST & GIFTS
1711	MIKE BERG
1719	JORDAN GRIFFIN
1721	BRUCE GORDO
1725	JASON GORDO
1729	MICHAEL GRACE
	VALLEY CARPET CLEANING INC
1731	ROBERT DEMONT
1817	ROGER HIGBY
1837	MERVAL MORRIS
	MORRIS WHOLESALE NURSERY
1909	OCCUPANT UNKNOWN
1917	JOSE OJEDA
1933	CORY SMITH
1944	JOSE VERA
2001	MICHAEL VALLO
2015	CIPPONERI TOM TRUCKING
2017	OCCUPANT UNKNOWN
	RIVERBANK TOWING
2107	ANITA GONZALEZ
	BEVERLY WILSON
	D OSTRAND
	DOMINGO ALANIS
	DOROTHY BATES
	DUDLEY YOUNG
	ERIC CANTWELL
	EVELYN LOVELL
	JAMES STAFFORD
	JIM MAPES
	JOAN CORBIN
	JOSEPH FERRARO
	JOY COOK
	KATHY WALTERS
	MARTHA WILKINS
	NICK BRAUTOVIC
	PARK SIERRA MOBILE HOME PARK
	PATRICIA SMITH
	PHIL LAGUE
	RAMON ALANIZ
	REBECCA RIVERA
	SHIRLEY MUELLER
	VIRGIL ADAMS
	VIRGINIA HESS
2113	VERNA ADAMS

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 2008

1711	MIKE BERG
1713	OCCUPANT UNKNOWN
1715	OCCUPANT UNKNOWN
1719	OCCUPANT UNKNOWN
1721	JOHN GORDON
1725	BRUCE GORDO
1729	VALLEY CARPET CLEANING INC
1731	ROBERT DEMONT
1817	ROGER HIGBY
1837	MERVAL MORRIS
	MORRIS WHOLESALE NURSERY
1909	VERNON WILLIAMS
1917	JOSE OJEDA
1933	REBECCA TABER-SMITH
1944	JOSE VERA
2001	OCCUPANT UNKNOWN
2015	T & R TRUCK SALES
2017	CIPPONERI TOM
	THOMAS CIPPONERI
2107	ALBERT STUDT
	ANITA GONZALES
	BEVERLY WILSON
	CHRISTINE FLOYD
	DAVID BOLT
	DIANE FOX
	DONALD VANOSTRAND
	DOROTHY BATES
	DOROTHY NYDAHL
	EDWARD JONES
	EVERETT MCCLELLAN
	GERALD CHAPMAN
	HOWARD CORBIN
	JAMES STAFFORD
	JOY COOK
	L ACOSTA
	LAWRENCE GEIB
	LOVEILA PHILLIPS
	MARTHA WILKINS
	MARY PARSONS
	MICHAEL THORINGTON
	PARK SIERRA MOBILE HOME PARK
	PATRICIA SMITH
	PHIL LAGUE
	RAMON ALANIZ
	REBECCA RIVERA
	RICHARD CERVANTES
	ROSA LIMA
	ROSE BYOUS
	SHIRLEY MUELLER
	SYLVA NAFZIGER

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 2008 (Cont'd)

2107 VIRGINIA HESS
2113 VERNA ADAMS

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 2003

1711	OCCUPANT UNKNOWN
1713	OCCUPANT UNKNOWN
1715	OCCUPANT UNKNOWN
1719	JERRY POLLARD
1721	MARGARET SIMMS
1725	FRANK LAMONT
1729	OCCUPANT UNKNOWN
	VALLEY CARPET CLEANING
1731	ROBERT DEMONT
1817	ROGER HIGBY
1837	MERVAL MORRIS
	MORRIS NURSERY
1909	OCCUPANT UNKNOWN
1917	JOSE OJEDA
1933	ANITA AGUINIGA
1944	JUAN VERA
2001	DANIEL HICKS
2015	IRETA CIPPONERI
2017	THOMAS CIPPONERI
2107	ALFRED FLOYD
	ANITA GONZALES
	EDWARD JONES
	EVERETT MCCLELLAN
	GERALD CHAPMAN
	JAMES STAFFORD
	JOHN GAROUTTE
	JOHN SETARO
	KATHLEEN SALEEN
	L ARMSTRONG
	LOVEILA PHILLIPS
	MICHEAL THORINGTON
	RANDALL PETTIT
	ROSA LIMA
	SYLVA NAFZIGER
2113	PARK SIERRA MOBILE HOME PARK
	VERNA ADAMS

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 1999

1719	TRINA MITCHELL
1721	OCCUPANT UNKNOWN
1731	ROBERT DEMONT
1817	OCCUPANT UNKNOWN
1837	MORRIS NURSERY
	MORRIS WHOLESALE NURSERY
1909	OCCUPANT UNKNOWN
	VERNON WILLIAMS
1944	JOSE VERA
2017	THOMAS CIPPONERI
2107	ALBERT STUDT
	BEVERLY WILSON
	CHRISTINE FLOYD
	DIANE FOX
	DOROTHY NYDAHL
	DOYLE SHURTZ
	EDWARD JONES
	EVERETT MCCLELLAN
	JAMES STAFFORD
	JOSEPH FERRARO
	L ACOSTA
	LAWRENCE GEIB
	MARTHA WILKINS
	MARY PARSONS
	PARK SIERRA MOBILE HOME PARK
	PATRICIA SMITH
	PHIL LAGUE
	RAMON ALANIZ
	RANDALL PETTIT
	REBECCA RIVERA
	RICHARD CERVANTES
	SHIRLEY MUELLER
	SYLVA NAFZIGER
	VIRGIL ADAMS
2113	VERNA ADAMS

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 1995

1711	CAL NUT MARKETING
1715	OCCUPANT UNKNOWNN
1719	POLLARD, JERRY
1729	HARPER, LARRY
1731	MAINO, V J
1825	OCCUPANT UNKNOWNN
1837	MORRIS NURSERY
	MORRIS, MERVAL B
1944	BENDIX, CHARLIE
2001	HICKS, YVONNE E
2015	CIPPONERI, J W
	TOM CIPPONERI TRUCKING
2017	OCCUPANT UNKNOWNN
2107	BEAUCHAMP, J
	CLARKSON, L
	CORBIN, PATRICK
	COURNOYER, ROBERT
	COX, VERLIE M
	GROSSI, LOUIE
	HAMPTON, ARTHUR B
	MCCLELLAN, EVERETT D
	MCCOY, SUE
	MORRIS, HENRY C
	NELSON, P
	PADGETT, OPAL G
	PARK SIERRA MOBILE HOME PARK
	PERRY, H
	RANEY, M
	REED, VERNON D
	ROBERTS, HAROLD
	ROWLEY, M A
	STONE, ROY
	STOVER, LOREN
	WILKINS, MARTHA
2113	LUNDBERG, VERNA J

Target Street	Cross Street	Source
✓	-	Cole Information Services

PATTERSON RD 1992

1825	MARAMONTE, EMMA J
1837	MORRIS, MERVAL B
1944	BENDIX, CHARLIE
	SINAI, HENNY
2015	CIPPONERI, J W
2107	ARMSTRONG, VICTOR K
	BEAUCHAMP, J
	BROWN, MELVIN R
	CLARKSON, L
	CORBIN, HOWARD
	HAMPTON, ARTHUR B
	JAMES, D
	MCCLELLAN, EVERETT D
	MCCOY, SUE
	MORRIS, HENRY C
	PERRY, H
	REED, VERNON D
	ROBERTS, HAROLD
	STONE, ROY
	VENAAS, H B

Target Street	Cross Street	Source
✓	-	Polk's City Directory

PATTERSON RD 1987



AND TRUCKS
2100 Sisk Rd., Modesto (95352)
Ford

PASO ROBLES DR–Contd
2821 Romiti Ernest J ◉ 529-0128
2824 Hutchler Wm
2826★Batey Kevin 522-8203
RUMBLE RD INTERSECTS

30
PATRICIA LA –FROM 815 ILA WAY EAST

ZIP CODE 95354
201 No Return
204 Harris Thos W ◉ 524-9511
204½★Dunn Maria
209 Brashear Jim 577-0546
212 Arnopole Sonia Mrs ◉ 522-0592
215 No Return
218 Quaccia Louis ◉ 529-9641
221 Neafus Victor L ◉ 522-6000
224 West James S ◉ 523-2561
225 Stewart Walter M ◉ 523-0871
230 Britton Geo W ◉ 523-9470
KIMBLE ST INTERSECTS
302 Stewart M L Mrs ◉ 522-3631
306 No Return
312 Curtin Wm J ◉
HINTZ AV INTERSECTS
316 Wendling Joyce R Mrs ◉ 523-3535
320 Hagopian Robt ◉ 577-5915
323 Benoit James R ◉ 524-2236
324 Howell David R ◉ 523-1557
918 Vacant
920 Vacant
923 Koos Eliz M ◉ 575-2312
924 Polack Stuart D 576-2561
931 Vacant
935 Watson Barbara Mrs ◉
E FAIRMONT AV INTERSECTS

105
PATRICK LA –FROM 3200 DARRYL LA WEST

ZIP CODE 95350
409★Mc Cown W Ray 522-6671
412 Gardner Larry L ◉
413 Stearns Steph H ◉ 526-8688
MARK ALLEN DR INTERSECTS

187
PATRIOTS LA –FROM E ORANGEBURG AV NORTH

ZIP CODE 95355
TROJANS WAY INTERSECTS
RAIDERS WAY INTERSECTS
SPARTANS LA INTERSECTS

506
PATTERSON RD (RIVERBANK) FROM 6400 OAKDALE RD EAST

ZIP CODE 95367
2200 No Return
2201★Mars Steven 869-4933
2255★Betancourt Saul 869-3021
2300 No Return
2318 Erickson Gary O 869-3093
2324 Soper John 869-4192
2367 Don's Liquors 869-3294
2369 Riveroak Veterinary Hospital 869-3693
2372 Holden's New & Used Furniture 869-1682
Burkett Effie Mrs ◉ 869-2797
ESTELLE AV INTERSECTS
2406 Jenness Robt ◉ 869-3752
2512 Vacant
2536 Cook Jay Transport Corp 869-1887
2554 Riverbank Discount Grocery 869-3626
2560a P D O Incorporated bldg contrs 869-4525
2566★Graham Gordon 869-4983
2572★Frankovich Steven 869-3087
JACKSON ST INTERSECTS
2600 B & H Trading Post stge 869-1136
2605 Kiser Roger
2613 Vacant
Rear Kuykendall Belva L Mrs 869-2475
2618 B & H Trading Post used furn 869-1136
2622 Super Buy Market 869-1095
2639 Action Auto Sales (Car Lot)
2641 Action Auto Sales & Service gas sta 869-4597
Hair By M'Lady 869-2290
2641½ Hurley Jas ◉
2660 M & M Brake auto repr
2661 Ray's Lanscapes contr 526-9849
2666 Ambrose J T
2667 Lopez Tony ◉ 869-1267
HOWARD AV INTERSECTS
2673 Vacant
2701 Matson Motors dlrs-used 869-1849
2707 Rai's Sporting Goods 869-3473
2724 Burtschi Transport Inc 869-1826
2730 Luckey House 869-6154
2772 Hub Services tires 869-2551
2772½ Hub Services (Whse)
CALLANDER ST INTERSECTS
2808 Vacant
2809 Pro-Line auto pntrs 869-1991
2809a Taboada Auto Painting 869-2160
2809b-1 Glenn Plastics 869-3052
2809b-2 Upholstery Works The 869-6109
2809c Rear-End Shop The differential repr 869-1234
2809d Brazil's Components custom welding 869-1984
2809-e Standard Transmission Unlimited sls & repr 869-6671
2809f Nannini Gary & Co trucking busn 869-1039
2825 Womack Kenneth A ◉ 869-1579
2836 Alsman's hobby shop 869-3571
Pin Striping By Jon auto pntg 869-3022
2841 Del Rio Guest Home 869-2420
2842 Thurman Jerry 869-1905
2843 Vacant
2845 Riverbank City Tow towing 869-1897
2848 Bartlett J L 869-3973
2849 Bordona Julian V
2854 Boulter James T ◉ 869-1206
2863 No Return
2868 Bordona Mike I ◉ 869-1560
2869 Harrison Fay ◉ 869-3769
PALMER AV INTERSECTS
2906 Riverbank Auto Parts 869-4521
2907 Daniel's Market gro 869-2178
2912 Vacant
2921 Sweatt Charles Rev 869-2009
2924 No Return
2930 Castillo Ascension Mrs ◉ 869-3904
2936 Banuellos F ◉ 869-4773
2942 Bargas Luiz 869-1316
2943 Church Of God Of Prophecy 869-2009
2951 Riverbank Custom Upholstery auto & furn
2954 Macado Maria Mrs
2957 Side-Wok Restaurant 869-3535
2975 No Return
ROSELLE AV ENDS
RAILROAD AV BEGINS

Huning Sales, Inc.
STATE CONTRACTORS NO. C61-358765
1820 East Whitmore
Ceres, California
P.O. Box
Tel. (209) 5

For All Your Needs In:
Glass and Screens, Sales and Service
Tel. (209) 523-5674
Tel. (209) 823-7678
Cummins Dr., Suite C, Modesto, CA.
Main, Manteca

D & L CONCRETE PUMPING INC.
BOOM PUMPS - TRAILER PUMPS - SHOTCRETE - GROUT PUM

Target Street	Cross Street	Source
✓	-	Polk's City Directory

PATTERSON RD 1982



PATRICK LA —FROM 3200 DARRYL LA WEST

ZIP CODE 95350
409 Wesson B J ◎ 524-0154
412 Gardner Larry L ◎
413 Stern Steve ◎ 526-8688
MARK ALLEN DR INTERSECTS

506

PATTERSON RD (RIVERBANK)
FROM 6400 OAKDALE RD EAST

ZIP CODE 95367
2200 Cardozo Russell 869-2663
2201★Thornton Edward 869-3822
2207 Smith Margie 869-1042
2255 Zarvala Jess 869-2709
2300★Newton Bob 869-6271
2318 Erickson Gary O 869-3093
2324 Soper John 869-3277
2367 Don's Liquors 869-3294
2369 Riveroak Veterinary Hospital 869-3693
2372 Holden's Used Furniture 869-1682
Burkett Effie Mrs ◎ 869-2797
ESTELLE AV INTERSECTS
2406 Jenness Robt 869-3752
2512★Mominee Branco 869-1940
2536 Riverbank Feeds 869-2442
2560 Agri Chipping Industries 869-1894
2566 Teixeria Steve 869-6160
2572★Hough Bill 869-3259
JACKSON ST INTERSECTS
2600 B & H Trading Post (Stge) 869-1136
2605 No Return
2613 Noakes Benj ◎ 869-2116
Rear Kuykendall Belva L Mrs 869-2475
2618 B & H Trading Post used furn 869-1136
2622 Courtesy Market 869-1095
2632 M & M Brake 869-1651
2639 No Return
2641 Action Auto Service gas sta 869-4597
2661 Hoffman Ray 526-9849
2666 No Return

Target Street	Cross Street	Source
✓	-	Polk's City Directory

PATTERSON RD 1976

PATRICK LA —FROM 3200 DARRYL LA WEST

ZIP CODE 95350
409 Wesson B J ◎ 524-0154
412 Gardner Larry L ◎ 526-8491
413 Stern Steve ◎ 526-8688
MARK ALLEN DR INTERSECTS

506

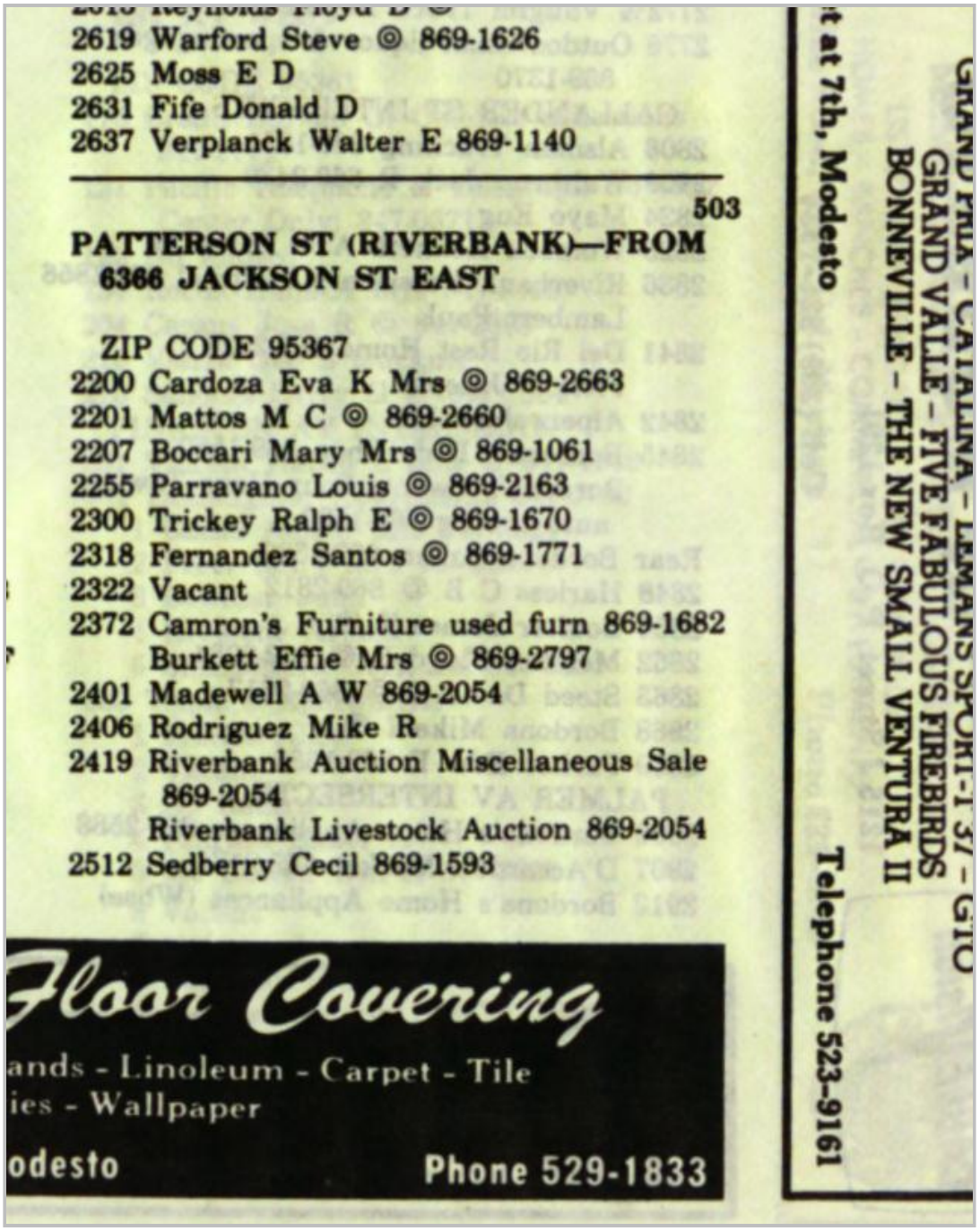
PATTERSON RD (RIVERBANK)—FROM 6400 OAKDALE RD EAST

ZIP CODE 95367
2200 Vacant
2201 Vacant
2207 Kellogg Patsy ◎
2255 Parravano Louis ◎ 869-2163
2300 Trickey Loretta L Mrs ◎ 869-1670
2318 Fernandez Santos ◎ 869-1771
2324 Vacant
2367 Vacant
2369 Riverbank Veterinary Hospital 869-1856
2372 Holden's Used Furniture 869-1682
Burkett Effie Mrs ◎ 869-2797
ESTELLE AV INTERSECTS
2401 Thorington Steph I ◎ 869-3263
2406 Jeneso Peggy Mrs 869-3752
2419 Riverbank Auction Miscellaneous Sale 869-3263
Riverbank Flea Market 869-3263
Neta's Restaurant 869-3263
2512 Holloway Roxie 869-3156
2540 Riverbank Oil Co 869-2056
2560 Meyer Farm Service farm & garden supplies 869-2442
Meyers Nursery Annex plants 869-2442
2566★Hertlein James
2572★Vierra Joe M
JACKSON ST INTERSECTS
2600 B & H Trading Post (Stge)

Rudy Bo
Land Fill,
PH
2650 W. Hatch Road

Target Street	Cross Street	Source
✓	-	Polk's City Directory

PATTERSON RD 1971



2619 Warford Steve ◎ 869-1626
2625 Moss E D
2631 Fife Donald D
2637 Verplanck Walter E 869-1140

503

PATTERSON ST (RIVERBANK)—FROM 6366 JACKSON ST EAST

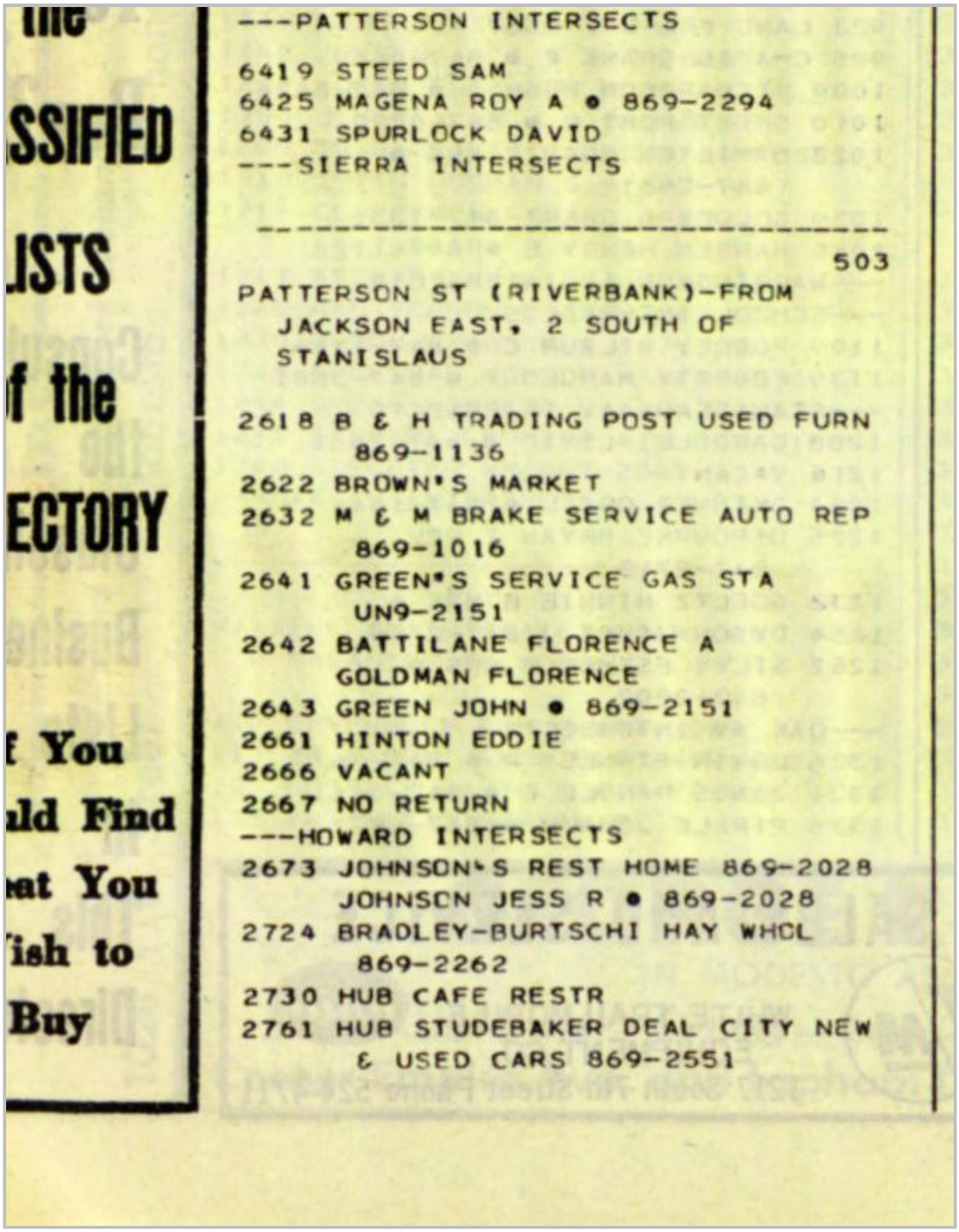
ZIP CODE 95367
2200 Cardoza Eva K Mrs ◎ 869-2663
2201 Mattos M C ◎ 869-2660
2207 Boccari Mary Mrs ◎ 869-1061
2255 Parravano Louis ◎ 869-2163
2300 Trickey Ralph E ◎ 869-1670
2318 Fernandez Santos ◎ 869-1771
2322 Vacant
2372 Camron's Furniture used furn 869-1682
Burkett Effie Mrs ◎ 869-2797
2401 Madewell A W 869-2054
2406 Rodriguez Mike R
2419 Riverbank Auction Miscellaneous Sale 869-2054
Riverbank Livestock Auction 869-2054
2512 Sedberry Cecil 869-1593

Floor Covering
ands - Linoleum - Carpet - Tile
ies - Wallpaper
odesto Phone 529-1833

t at 7th, Modesto Telephone 523-9161
GRAND PRIX - CATALINA - LEMANS SPORT - GTO
GRAND VALLE - FIVE FABULOUS FIREBIRDS
BONNEVILLE - THE NEW SMALL VENTURA II

Target Street	Cross Street	Source
✓	-	Polk's City Directory

PATTERSON RD 1965



---PATTERSON INTERSECTS

6419 STEED SAM
6425 MAGENA ROY A • 869-2294
6431 SPURLOCK DAVID
---SIERRA INTERSECTS

503

PATTERSON ST (RIVERBANK)-FROM
JACKSON EAST, 2 SOUTH OF
STANISLAUS

2618 B & H TRADING POST USED FURN
869-1136
2622 BROWN'S MARKET
2632 M & M BRAKE SERVICE AUTO REP
869-1016
2641 GREEN'S SERVICE GAS STA
UN9-2151
2642 BATTILANE FLORENCE A
GOLDMAN FLORENCE
2643 GREEN JOHN • 869-2151
2661 HINTON EDDIE
2666 VACANT
2667 NO RETURN
---HOWARD INTERSECTS
2673 JOHNSON'S REST HOME 869-2028
JOHNSON JESS R • 869-2028
2724 BRADLEY-BURTSCHI HAY WHOL
869-2262
2730 HUB CAFE RESTR
2761 HUB STUDEBAKER DEAL CITY NEW
& USED CARS 869-2551

UNDERGROUND STORAGE TANK CLOSURE REPORT

☒ Removal
☐ Closure in place
☐ Temporaty Closure

Permit Number 91-015
Effective Date 3/29/91

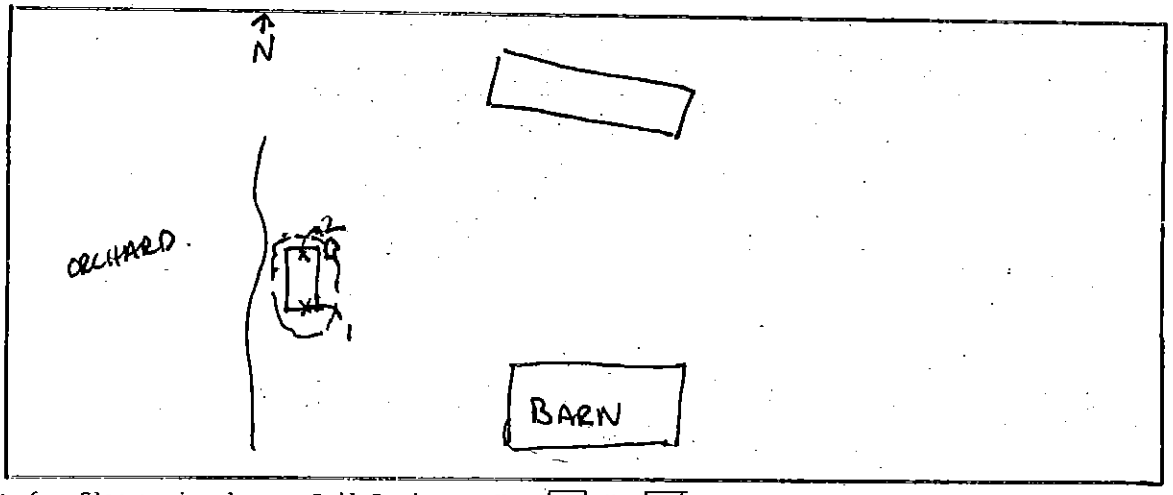
Site Location 1711 Patterson D.B.A. Quality Nut
Owner of Facility John Quality Nut. Phone

FIELD INSPECTION

1. Tank Rinsed: Yes ☐ No ☒ Method ____ Amount of rinsate ____
   Disposition of rinsate ____
   Comments ____
2. Tank Vapors Purged: Yes ☐ No ☒ Amounts of dry ice ____ (lbs.)
   Comments ____
3. Condition of Tank/Piping: Observable problems - Yes ☐ No ☒
   If yes, describe: ____
4. Soil Samples: Number Requested 2 Depth Taken ~~15~~ Sampling Method GRAB
   Laboratory GeoAnal Type of Analysis TEPH TPH GAS-DIESEL BTX&E
   Samplers Name CHUCK Lab. I.D. ____
   Sample transported in ice: Yes ☒ No ☐

#1 No odor @ 12': med grain sand

5. Plot Plan:



#2 14' No odor

6. Closure in place: Soil Borings - Yes ☐ No ☐ Other ____
   Number of Soil Borings ____, Samples ____, Laboratory ____
   Type of analysis ____ Material used to fill tank ____
7. Temporary Closure: Tank Rinsed - Yes ☐ No ☐ Date ____
   Tank filled with noncorrosive liquid - Yes ☐ No ☐ Type ____
   Fill and access locations and piping sealed - Yes ☐ No ☐
   Power service disconnected from pumps - Yes ☐ No ☐
   Comments ____

some spillage around the grade level appears to be a small area.

8. Other Site-Specific Information
   -Observable water wells located within 100 feet of tank site - Yes ☐ No ☒
   Location ____
   -Soil profile beneath excavated tank med grain SAND.
   -Was high groundwater encountered - Yes ☐ No ☒ Depth ____ feet
   -Comments: ____

TYPE OF INSPECTION
___Routine
___Recheck
___Complaint
___Leak

UNDERGROUND STORAGE TANK
INSPECTION REPORT
(CALIFORNIA ADMINISTRATIVE CODE)

artment of
Environmental Resources
Hazardous Materials Division
1716 Morgan Road
Modesto, CA 95351
(209) 525-4150

FACILITY Quality Nut | FACILITY ADDRESS 1711 Patterson

TANK OPERATOR Quality Nut | TANK OWNER Quality Nut

INSPECTOR: Sonya Havighild

INSPECTION DATE 3/29/91 | UPDATE X YES ___NO

SWEEPS# | #OF TANKS 1 | DIST#

STATUS; P NF U E (C) (circle one only) | PERMIT# C91-015

MONITORING PROGRAM (2641)
ALT.#____ _____
ALT.#____ _____
ALT.#____ _____
ALT.#____ _____

OWNER/OPERATOR CONTRACT (2610)

With Present Owner	YES	NO
Updated	YES	NO

INVENTORY RECONCILIATION (2641,2644)

Product and Water Layer Measured	YES	NO
Daily Stick and Meter Readings	YES	NO
Approved Meters	YES	NO
Designated Person	YES	NO
Properly Trained	YES	NO
Tank Sticking Correct	YES	NO
Appropriate Stick and Chart	YES	NO
Recordkeeping Adequate	YES	NO
Quarterly Reports and Variation	YES	NO
Release Procedure	YES	NO
Approved Frequency	YES	NO

TANK GUAGING (2641)

Measurement Accuracy	YES	NO
Tank Secured	YES	NO
Monitoring Period.	YES	NO
Designated Person	YES	NO
Recordkeeping/Reporting	YES	NO
Accurate Stick and Chart	YES	NO

TANK TESTING (2641,2643)

Annual	YES	NO
Results Provided	YES	NO
Approved Method	YES	NO
Pipeline Isolated and Tested	YES	NO

PIPELINE LEAK DETECTOR (2641)

Operational	YES	NO
Annual Test	YES	NO

SUCTION LINES (2641)

Daily Monitoring	YES	NO

DOUBLE CONTAINMENT (2632)

Daily Visual Monitoring	YES	NO
Continuous Monitoring	YES	NO
Daily Manual Monitoring	YES	NO
Written Monitoring Procedure	YES	NO
Pipeline Leak Detector	YES	NO

PERMITTED (P)
Permit Date:
Tank Type: (Sw/Dw)
System Type: (S/P)
Annl Insp. Due:
Annl Test Due:
Annl Test Received:
Qrtly Rpt. Received:

NEW FACILITY (NF)
Plan Ck Date:
Initial Insp. Date:
Pipe Insp. Date:
Final Insp. Date:

UNPERMITTED FACILITY (U)
Discovery Date:
Last Contact Date:
Enforcement (EL,OH,DA):
Enforcement Date:

EXEMPT TANK(E)
Exemption Type (F,PA,A):
Exemption Date:
Inspection Date:

CLOSED TANK (C)
Closure Type (R)FA,T): R
Closure Date: 3/29/91
Temp. Closure Expires:
Mitigation (Y)N):
Mitigation Sign Off: 5/7/91

COMMENTS:

THE BOXES MARKED "NO" REPRESENT VIOLATIONS AND MUST BE CORRECTED AS FOLLOWS:

RECEIVED BY:

SIGNATURE | PRINT NAME | TITLE

4019-68

UNDERGROUND ST... TANK CLOSURE REPORT

☐ Removal

☐ Closure in place

☐ Temporaty Closure

☒ RESAMPLE

Permit Number 91-015

Effective Date 4/9/91

Site Location 1711 PATTERSON D.B.A. QUALITY NUT

Owner of Facility QUALITY NUT (JOHN HANCOCK) Phone

FIELD INSPECTION

1. Tank Rinsed: Yes ☐ No ☐ Method _____ Amount of rinsate _____

Disposition of rinsate _____

Comments _____

2. Tank Vapors Purged: Yes ☐ No ☐ Amounts of dry ice _____ (lbs.)

Comments _____

3. Condition of Tank/Piping: Observable problems - Yes ☐ No ☐

If yes, describe: _____

4. Soil Samples: Number Requested 1 Depth Taken 16' Sampling Method GRAB

Laboratory GeoAnalytical Type of Analysis TEPH - DIESEL

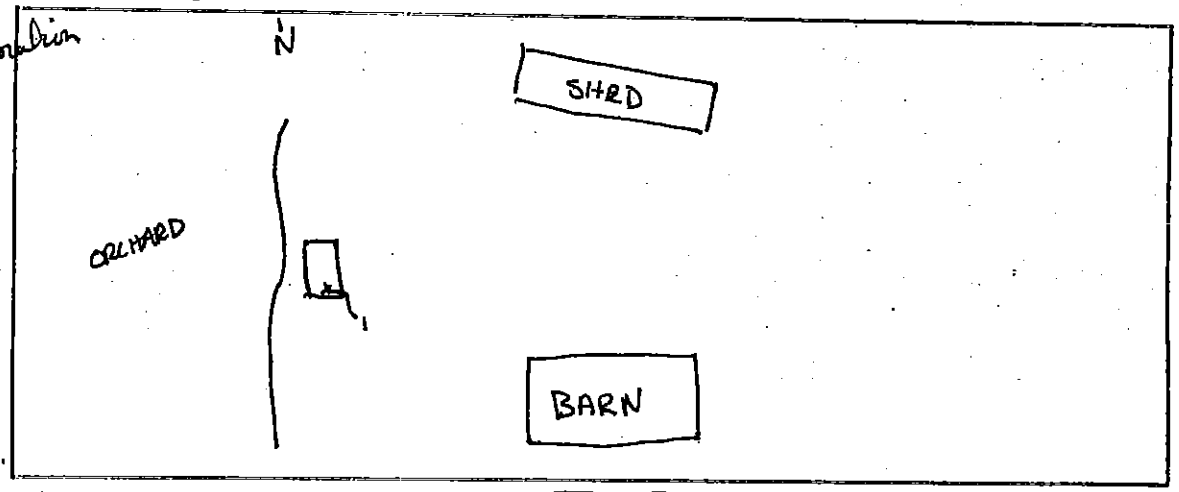
Samplers Name CHUCK RASMUSSEN Lab. I.D. _____

Sample transported in ice: Yes ☐ No ☐

@ 14' slight odor med grain sand no discoloration

@ ≈ 16' No odor med grain sand white in color

5. Plot Plan:



6. Closure in place: Soil Borings - Yes ☐ No ☐ Other _____

Number of Soil Borings _____, Samples _____, Laboratory _____

Type of analysis _____ Material used to fill tank _____

7. Temporary Closure: Tank Rinsed - Yes ☐ No ☐ Date _____

Tank filled with noncorrosive liquid - Yes ☐ No ☐ Type _____

Fill and access locations and piping sealed - Yes ☐ No ☐

Power service disconnected from pumps - Yes ☐ No ☐

Comments _____

8. Other Site-Specific Information

-Observable water wells located within 100 feet of tank site - Yes ☐ No ☐

Location _____

-Soil profile beneath excavated tank _____

-Was high groundwater encountered - Yes ☐ No ☐ Depth _____ feet

-Comments: _____

Cal Tx

STATE OF CALIFORNIA - Environmental Prot[illegible] Agency — PETE WILSON, *Governor*

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
PHONE: (916) 255-3000
FAX: (916) 255-3015



8/21/96

21 August 1996

Mr. James M. Simpson
Stanislaus County Department of Environmental Resources
1716 Morgan Road
Modesto, CA 95358

NO FURTHER ACTION REQUIRED CONCURRENCE, UNDERGROUND STORAGE TANKS, STANISLAUS COUNTY

This letter confirms the completion of site investigation and remedial action for the following underground tank sites in Stanislaus County.

Facility	Street Address	City
Quality Nut	1711 Patterson	Modesto
The Yard Lumber and Fence Supply	112 S. Riverside Drive	Modesto
W. C. Owen, Inc.	10249 Sierra Road	Oakdale
Vintage Faire UNOCAL #7624	3037 Sisk Road	Modesto
Rosemary Winfield	701 Sutter Street	Modesto
Joe's Mini Mart	706 Sutter Street	Modesto
ATB Packing	501 S. Tegner Road	Turlock
Turlock Fruit Ranch	2707 E. Tuolumne	Turlock
J. M. Keckler Medical Company	2084 Yosemite Blvd.	Modesto
Julian Auto Center	12405 Yosemite Blvd.	Waterford
Bait Barn-Boyett Petroleum	12505 Yosemite Blvd.	Waterford
Highway Garage	12800 Yosemite Blvd.	Waterford

Based upon the available information, including the current land use, and with the provision that the information provided to this agency is accurate and representative of site conditions, no further action related to the underground storage tank release is required for the above facilities.

This notice is issued pursuant to Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

If you have any questions, please call James Brathovde at (916) 255-3137.

for Thomas R Pinkos
WILLIAM H. CROOKS
Executive Officer

cc: Listed Facilities



FARMLAND MANAGEMENT SERVICES

Facsimile Cover Sheet

NOTE: This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure. If the reader of this message is not the intended recipient or an employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us by mail. Thank you.

TO: Joe Angulo

COMPANY: Stanislaus County

PHONE:

FAX: 525-4166

FROM: Fran Humphrey

COMPANY: **Farmland Management Services**
138 Regis Street, Suite A
Turlock, CA 95382-1108

PHONE: **(209) 669-0742**

FAX: **(209) 669-0811**

DATE: 3-26-98

OF PAGES: 14 (Including cover page)

COMMENTS:

LAMBERT
CONSTRUCTION
ENVIRONMENTAL

MAR 2 3 1998

SOIL INVESTIGATION AND SAMPLING REPORT

QUALITY NUT
4808 Yosemite Blvd. (site location)
P O Box 739
Empire CA 95319

Prepared by:
Don Lambert & Sons, Inc.
May 31, 1991

INTRODUCTION

On March 27, 1991 Don Lambert & Sons, Inc. obtained a county permit, and under the supervision of Mike Snyder, excavated soil at the above location in Modesto, CA. A representative from Stanislaus County Environmental Health representative from Stanislaus County Environmental Health Department and GeoAnalytical Laboratory were on site to collect soil samples. The soil sampling investigation was undertaken at the request of the Quality Nut owner.

Included in this report are descriptions of the field procedures, laboratory results and soil investigation.

1.0 FIELD PROCEDURES

A former 500 gallon storage tank containing either diesel or gasoline was located on this site. There was only a trace of stain soil when excavated out. Excavation was performed at both ends of the existing tank. The south end was excavated down to twelve (12) feet. The north end was excavated down to fourteen (14) feet.

2.0 SOIL INVESTIGATION

GeoAnalytical Laboratories pulled a sample from each end of this excavation. Tests for BTEX and TEPH on the soil were conducted on March 29, 1991. We received the results on April 2, 1991. The south end of the excavation came back Non-Detected on gasoline and a trace on diesel. The north end of the excavation came back Non-Detected on gasoline and diesel. On this date I spoke to Sonya Herringfeld who requested a second sampling. On April 9th, 1991 we took a sample on the south end, excavating down to seventeen (17) feet. This came back Non-Detected.

121 "F" STREET
WATERFORD, CA 95386
209-874-2168
FAX-874-2341

SA # 91-163

STANISLAUS COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1716 MORGAN ROAD, MODESTO, CA 95351
(209) 525-4150

PERMIT NO. 91-015
PERMIT EXPIRES 6-91
FEE PAID 375.00

APPLICATION AND PERMIT TO CLOSE UNDERGROUND TANK

1. FACILITY INFORMATION (INSTRUCTIONS ON BACK)

NAME OF FACILITY		TYPE OF BUSINESS	
Quality Nut		Farming/Processing	
STREET ADDRESS	CITY	ZIP CODE	TELEPHONE (209)
1711 Patterson	Modesto		521-9303
OWNERS NAME (CORPORATION AGENCY OR INDIVIDUAL)			
Quality Nut			
STREET ADDRESS (IF DIFFERENT THAN ABOVE)	CITY	ZIP CODE	TELEPHONE (209)
4808 Yosemite Blvd,	Modesto		526-3550

2. TANK CLOSURE PLAN

REASON FOR CLOSURE		TANK CLOSURE METHOD
Not In Use		☒ REMOVAL ☐ FILL IN PLACE
CLOSURE TIME SCHEDULE	CONTRACTOR REMOVING TANKS	LICENSE# 604190
	Don Lambert & Sons, INC.	A, B, HAZ
SOIL BORING CONTRACTOR	LAB COLLECTING AND ANALYZING SOIL/WATER SAMPLES	
CONTRACTOR REMOVING TANK CONTENTS	CONTENTS AND RINSE DISPOSAL/REUSE LOCATION	
RECIPIENT OF TANK FOR DISPOSAL OR REUSE: NAME: Quality Nut	PHONE: 209-526-3550	
ADDRESS: 1711 Patterson Modesto,	SIGNATURE: Kathleen Lambert	

3. TANK IDENTIFICATION

STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
	gas - diesel	500	?
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE

4. APPLICANT INFORMATION

I hereby certify that I have prepared this application and that the work will be done in accordance with the provisions of the Laws of the State of California, the Ordinances of the County of Stanislaus and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

NAME OF APPLICANT/POSITION	SIGNATURE OF APPLICANT	DATE
Blake Lambert/Owner	Blake Lambert	03-27-91

FOR DEPARTMENT USE ONLY: SIGNATURES REQUIRED PRIOR TO PERMIT

PERMIT ISSUED BY	DATE 7/27/91	FIRE DEPARTMENT	DATE
INSPECTED BY	DATE	BUILDING DEPARTMENT	DATE
CLOSURE APPROVED BY	DATE	OTHER	DATE
PERMIT DENIED BY	DATE	(SEE SEPARATE REPORT)	

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C099-03

Date: 4/13/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 4/9/91
Date Started: 4/11/91
Date Completed: 4/13/91

1711 91-163

Project # Project Name: Patterson Road - Riverbank

Sample ID: South End @ 17'
Lab ID: C20803

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	ND
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-24-91

GeoAnalytical Laboratories, Inc.

1031 Kansas Ave.
Modesto, California 95351

Phone (209) 572-0900
Fax #(209) 572-0916

LAB Report # C099-03

2047

CHAIN OF CUSTODY

Client LAMBERT

Address

Zip

Phone

CC to:

PROJECT ID: PATTERSON ROAD RIVER BANK

SAMPLED BY: (signature)

Date	Time	sample type Grab	sample type Comp.	Sample ID	No. of containers	ANALYSIS: TEPH							REMARKS
4.9.91	9:30	X		SOUTH END @ 15	1	X							HOLD C20802
	9:45	X		SOUTH END @ 17'	1	X							C20803

Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
	4/9/91	10:30	Mike Allsig	4/9/91	10:30
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time

Site Time:
Start: 9:00 Finish: 10:00 Total Hours: 1.0

Driving Time:
Start: 8:30 Finish: 10:30 Total Hours: 2.0

Mileage

Approved By

GeoAnalytical Laboratories, Inc.

1031 Kansas Ave., Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax #(209) 572-0916

CHAIN OF CUSTODY 1741

Client Lamperti

Address _____ Phone _____

_____ Zip _____ CC to: _____

C088-02

PROJECT ID: 1711 Peterson Road

SAMPLED BY: (signature)

Date	Time	Sample type Grab	Sample type Comp.	Sample Location	No. of containers	ANALYSIS: GRAS	ANALYSIS: BTXE	ANALYSIS: TEPH	REMARKS
3/19/91	9:16	X		South End 12'	1	X	X	X	C20733
	9:30	X		North End 12'	1				~~C20734~~ wrong
	9:55	X		North End 14'	1	X	X	X	C20734

Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
	3/20/91	10:45		3/21/91	10:45
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time
Relinquished by (signature):	Date	Time	Received by (signature):	Date	Time

Site Time: Start: _____ Finish: _____ Total Hours: unless 2.0

Driving Time: Start: 8:45 Finish: 10:45 Total Hours: 2.0

received 4-5-91

Mike A.

3.0 LABORATORY RESULTS

Laboratory report sheets indicating analytical methods used, detection limits and results of analysis are attached to this document.

4.0 CONCLUSTION

The results of all GeoAnalytical Laboratories analysis soil samples taken at Quality Nut at this time indicate Non-Detected.

5.0 This report was prepared to the standards and practices of the industry.

Respectfully submitted,

Blake L. Lambert
Environmental Coordinator

BLL:jhw

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/29/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Road

Sample ID: South End 12'
Lab ID: C20733

Method: 8020

Detection Limit ug/kg	Analyte	Amount Found ug/kg
5.0	Benzene	ND
5.0	Toluene	ND
5.0	Ethyl Benzene	ND
5.0	Total Xylene	ND

Method: 5030 / Mod. 8015

Detection Limit mg/kg	Analyte	Amount Found mg/kg
2.5	Gasoline	ND

Richard Sereno
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

GeoAnalytical Laboratories
1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/21/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Road

Sample ID: North End 14'
Lab ID: C20734

Method: 8020

Detection Limit ug/kg	Analyte	Amount Found ug/kg
5.0	Benzene	ND
5.0	Toluene	ND
5.0	Ethyl Benzene	ND
5.0	Total Xylene	ND

Method: 5030 / Mod. 8015

Detection Limit mg/kg	Analyte	Amount Found mg/kg
2.5	Gasoline	ND

Richard Sereno
Richard Sereno
Organic Chemist

Donna Allsup
Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

GeoAnalytical Laboratories
1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/29/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Rd.

Sample ID: North End 14'
Lab ID: C20734

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	ND
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

GeoAnalytical Laboratories
1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/29/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Rd.

Sample ID: South End 12'
Lab ID: C20733

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	81.5
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

COPY

STANISLAUS COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1716 MORGAN ROAD, MODESTO, CA 95351
(209) 526-4150

91-163

PERMIT NO. 91-015

PERMIT EXPIRES 6-91

FEE PAID 375.00

APPLICATION AND PERMIT TO CLOSE UNDERGROUND TANK

(INSTRUCTIONS ON BACK)

received 10-9-91

1. FACILITY INFORMATION

NAME OF FACILITY		TYPE OF BUSINESS	
Quality Nut		Farming/Processing	
STREET ADDRESS	CITY	ZIP CODE	TELEPHONE (209)
1711 Patterson	Modesto		521-9308
OWNERS NAME (CORPORATION AGENCY OR INDIVIDUAL)			
Quality Nut			
STREET ADDRESS (IF DIFFERENT THAN ABOVE)	CITY	ZIP CODE	TELEPHONE (209)
4608 Yosemite Blvd.	Modesto		526-3550

2. TANK CLOSURE PLAN

REASON FOR CLOSURE		TANK CLOSURE METHOD
Not In Use		☒ REMOVAL ☐ FILL IN PLACE
CLOSURE TIME SCHEDULE	CONTRACTOR REMOVING TANKS	LICENSE # 604190
	Don Lambert & Sons, INc.	A, B, HAZ
SOIL BORING CONTRACTOR	LAB COLLECTING AND ANALYZING SOIL/WATER SAMPLES	
CONTRACTOR REMOVING TANK CONTENTS	CONTENTS AND RINSE DISPOSAL/REUSE LOCATION	
RECIPIENT OF TANK FOR DISPOSAL OR REUSE: NAME: Quality Nut	PHONE: 209-526-3550	
ADDRESS: 1711 Patterson Modesto,	SIGNATURE: Kirk W. Jensen	

3. TANK IDENTIFICATION

STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
	gas - diesel	2500	?
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE

4. APPLICANT INFORMATION

I hereby certify that I have prepared this application and that the work will be done in accordance with the provisions of the Laws of the State of California, the Ordinances of the County of Stanislaus and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

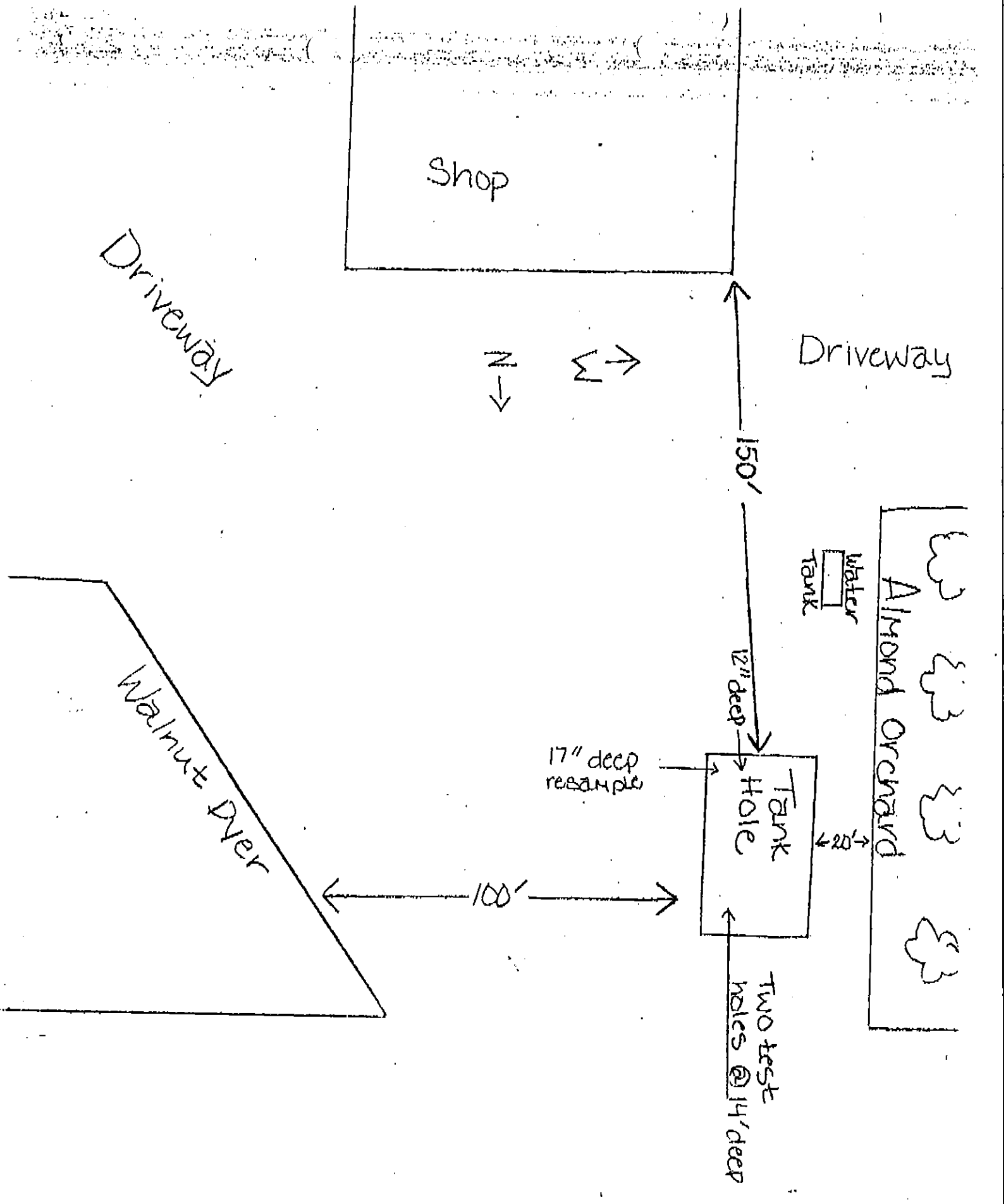
NAME OF APPLICANT/POSITION	SIGNATURE OF APPLICANT	DATE
Blake Lambert/Owner	Blake Lambert	03-27-91

FOR DEPARTMENT USE ONLY:

SIGNATURES REQUIRED PRIOR TO PERMIT

PERMIT ISSUED BY	DATE 3/27/91	FIRE DEPARTMENT	DATE
INSPECTED BY	DATE 3/29/91	BUILDING DEPARTMENT	DATE
[redacted]		OTHER	DATE
PERMIT DENIED BY	DATE	(SEE SEPARATE REPORT)	

4019-24 ORIGINAL: File Copy CANARY: Owner's Copy PINK: Applicant's Copy



Job # 91-163 1711 Patterson Rd.

STANISLAUS COUNTY

DEPARTMENT OF ENVIRONMENTAL RESOURCES

Hazardous Materials Division

1716 Morgan Road
Modesto, CA 95351

Phone: (209) 525-4150

Business Name: DON LAMBERT & SONS, INC.

Owner's Name Blake, Brad & Don Lambert

Business Location: 121 "F" Street Waterford, CA zip 95386

Mailing Address (if different): P. O. Box 659 Waterford, CA zip 95386

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class A, B, HAZ License No. 604190

Date 10-22-90 Contractor Blake & Brad Lambert

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason(Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's Law(Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred ($500.00) dollars.

(XX) I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

( ) I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor licensed pursuant to the Contractor's License Law.

( ) I am exempt under Sec. _____ B & PC for this reason: _____

Date 03-27-91 Owner Blake & Brad & Don Lambert

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C).

Policy No. WCP30023-C Company Saf Superior National

( ) Certified copy is hereby furnished.

(XX) Certified copy is filed with the county building inspection department of Stanislaus County.

Date: _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred ($100.00) dollars or less.

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date: _____ Applicant: _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C)

Lender's Name _____

Lender's Address _____

I CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE INFORMATION IS CORRECT. I AGREE TO COMPLY WITH ALL CITY AND COUNTY ORDINANCES AND STATE LAWS RELATING TO BUILDING CONSTRUCTION, AND HEREBY AUTHORIZE REPRESENTATIVES OF THIS COUNTY TO ENTER UPON THE WITHIN MENTIONED PROPERTY FOR INSPECTION PURPOSES.

DATE: 3-26-91 SIGNATURE OF APPLICANT OR AGENT Blake Lambert

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

COPY

EMERGENCY ☐ YES ☒ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? ☐ YES ☒ NO

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
SIGNED _____ DATE 5-9-91

REPORT DATE: 0M 4M 1D 8D 9Y 1Y

CASE #:

REPORTED BY

NAME OF INDIVIDUAL FILING REPORT: SONYA KAE HARRLOFFELD
PHONE: (209) 525-4150
SIGNATURE: Sonya K Harrloffeld

REPRESENTING ☐ OWNER/OPERATOR ☐ REGIONAL BOARD ☒ LOCAL AGENCY ☐ OTHER _____

COMPANY OR AGENCY NAME: DEPARTMENT OF ENVIRONMENTAL RESOURCES STANISLAUS COUNTY

ADDRESS: 1716 MORGAN STREET MODESTO CITY CA STATE 95351 ZIP

RESPONSIBLE PARTY

NAME: JOHN HANCOCK Life INSURANCE ☐ UNKNOWN
CONTACT PERSON:
PHONE: ( )

ADDRESS: 1711 Patterson rd. STREET Modesto CITY CA STATE 95355 ZIP

SITE LOCATION

FACILITY NAME (IF APPLICABLE): Quality NUT
OPERATOR: KURT JENSEN
PHONE: (209) 521-9308

ADDRESS: 1711 Patterson STREET Modesto CITY STANISLAUS COUNTY 95355 ZIP

CROSS STREET: OAKDALE RD.

IMPLEMENTING AGENCIES

LOCAL AGENCY / AGENCY NAME: STANISLAUS COUNTY DER
CONTACT PERSON: TED GARCIA
PHONE: (209) 525-4150

REGIONAL BOARD: RWQCB
CONTACT PERSON: ELIZABETH THAYER
PHONE: (916) 361-

SUBSTANCES INVOLVED

(1) NAME: DIESEL
QUANTITY LOST (GALLONS): _____ ☒ UNKNOWN

(2) NAME:
QUANTITY LOST (GALLONS): _____ ☐ UNKNOWN

DISCOVERY/ABATEMENT

DATE DISCOVERED: 0M 3M 2D 9D 9Y 1Y
HOW DISCOVERED: ☐ INVENTORY CONTROL ☐ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK TEST ☒ TANK REMOVAL ☐ OTHER _____

DATE DISCHARGE BEGAN: M M D D Y Y ☒ UNKNOWN

HAS DISCHARGE BEEN STOPPED? ☒ YES ☐ NO IF YES, DATE 0M 3M 2D 9D 9Y 1Y

METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY)
☐ REMOVE CONTENTS ☒ CLOSE TANK & REMOVE ☐ REPAIR PIPING
☐ REPAIR TANK ☐ CLOSE TANK & FILL IN PLACE ☐ CHANGE PROCEDURE
☐ REPLACE TANK ☐ OTHER _____

SOURCE/CAUSE

SOURCE OF DISCHARGE: ☐ TANK LEAK ☒ UNKNOWN ☐ PIPING LEAK ☐ OTHER

CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ SPILL ☐ CORROSION ☒ UNKNOWN ☐ OTHER _____

CASE TYPE

CHECK ONE ONLY
☒ UNDETERMINED ☒ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CURRENT STATUS

CHECK ONE ONLY
☐ NO ACTION TAKEN ☐ PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED ☐ POLLUTION CHARACTERIZATION
☐ LEAK BEING CONFIRMED ☐ PRELIMINARY SITE ASSESSMENT UNDERWAY ☐ POST CLEANUP MONITORING IN PROGRESS
☐ REMEDIATION PLAN ☒ CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) ☐ CLEANUP UNDERWAY

REMEDIAL ACTION

CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (CD) ☐ EXCAVATE & DISPOSE (ED) ☐ REMOVE FREE PRODUCT (FP) ☐ ENHANCED BIO DEGRADATION (IT)
☒ EXCAVATE & TREAT (ET) ☐ PUMP & TREAT GROUNDWATER (GT) ☐ REPLACE SUPPLY (RS)
☐ CONTAINMENT BARRIER (CB) ☐ NO ACTION REQUIRED (NA) ☐ TREATMENT AT HOOKUP (HU) ☐ VENT SOIL (VS)
☐ VACUUM EXTRACT (VE) ☐ OTHER (OT) _____

COMMENTS

HSC 05 (8/90)

NOTES

DATE	GEOTRACKER RECONCILLIATION COPIES

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY ☐ YES ☒ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? ☐ YES ☒ NO

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
SIGNED [signature] DATE 5-9-91

REPORT DATE 04/18/91 | CASE # LIA8090

REPORTED BY
NAME OF INDIVIDUAL FILING REPORT: SONYA KAE HARRELSFELD | PHONE: (209) 525-4150 | SIGNATURE: [signature]
REPRESENTING ☐ OWNER/OPERATOR ☐ REGIONAL BOARD ☒ LOCAL AGENCY ☐ OTHER _____
COMPANY OR AGENCY NAME: DEPARTMENT OF ENVIRONMENTAL RESOURCES STANISLAUS COUNTY
ADDRESS: 1716 MORGAN STREET | MODESTO CITY | CA STATE | 95351 ZIP

RESPONSIBLE PARTY
NAME: JOHN HANCOCK Life INSURANCE ☐ UNKNOWN | CONTACT PERSON | PHONE ( )
ADDRESS: 1711 Patterson rd. STREET | Modesto CITY | CA STATE | 95355 ZIP

SITE LOCATION
FACILITY NAME (IF APPLICABLE): QUALITY NUTAKA (John Hancock Home) LIA8090 | OPERATOR: KURT JENSEN | PHONE: (209)521-9308
ADDRESS: 1711 Patterson STREET | Modesto CITY | STANISLAUS COUNTY | 95355 ZIP
CROSS STREET: OAKDALE RD.

IMPLEMENTING AGENCIES
LOCAL AGENCY: STANISLAUS COUNTY DER | AGENCY NAME | CONTACT PERSON: TED GARCIA | PHONE: (209) 525-4150
REGIONAL BOARD: RWQCB | CONTACT PERSON: ELIZABETH THAYER | PHONE: (916) 361-

SUBSTANCES INVOLVED
(1) NAME: DIESEL | QUANTITY LOST (GALLONS) _____ ☒ UNKNOWN
(2) NAME: _____ | QUANTITY LOST (GALLONS) _____ ☐ UNKNOWN

DISCOVERY/ABATEMENT
DATE DISCOVERED: 03/29/91 | HOW DISCOVERED: ☐ INVENTORY CONTROL ☐ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK TEST ☒ TANK REMOVAL ☐ OTHER _____
DATE DISCHARGE BEGAN: __/__/__ ☒ UNKNOWN
HAS DISCHARGE BEEN STOPPED? ☒ YES ☐ NO IF YES, DATE 03/29/91
METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY): ☐ REMOVE CONTENTS ☒ CLOSE TANK & REMOVE ☐ REPAIR PIPING ☐ REPAIR TANK ☐ CLOSE TANK & FILL IN PLACE ☐ CHANGE PROCEDURE ☐ REPLACE TANK ☐ OTHER _____

SOURCE/CAUSE
SOURCE OF DISCHARGE: ☐ TANK LEAK ☒ UNKNOWN ☐ PIPING LEAK ☐ OTHER
CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ SPILL ☐ CORROSION ☒ UNKNOWN ☐ OTHER _____

CASE TYPE
CHECK ONE ONLY: ☒ UNDETERMINED ☒ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CURRENT STATUS
CHECK ONE ONLY:
☐ NO ACTION TAKEN ☐ PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED ☐ POLLUTION CHARACTERIZATION
☐ LEAK BEING CONFIRMED ☐ PRELIMINARY SITE ASSESSMENT UNDERWAY ☐ POST CLEANUP MONITORING IN PROGRESS
☐ REMEDIATION PLAN ☒ CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) ☐ CLEANUP UNDERWAY

REMEDIAL ACTION
CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (CD) ☐ CONTAINMENT BARRIER (CB) ☐ VACUUM EXTRACT (VE)
☐ EXCAVATE & DISPOSE (ED) ☒ EXCAVATE & TREAT (ET) ☐ NO ACTION REQUIRED (NA) ☐ OTHER (OT) _____
☐ REMOVE FREE PRODUCT (FP) ☐ PUMP & TREAT GROUNDWATER (GT) ☐ TREATMENT AT HOOKUP (HU)
☐ ENHANCED BIO DEGRADATION (IT) ☐ REPLACE SUPPLY (RS) ☐ VENT SOIL (VS)

COMMENTS

HSC 05 (8/90)

492487

STANISLAUS COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1716 MORGAN ROAD, MODESTO, CA 95351
(209) 525-4150

PERMIT NO. 91-015
PERMIT EXPIRES 6-91
FEE PAID $375.00

APPLICATION AND PERMIT TO CLOSE UNDERGROUND TANK

(INSTRUCTIONS ON BACK)

1. FACILITY INFORMATION

NAME OF FACILITY		TYPE OF BUSINESS	
Quality Nut		Farming/Processing	
STREET ADDRESS	CITY	ZIP CODE	TELEPHONE (209)
1711 Patterson	Modesto		521-9308
OWNERS NAME (CORPORATION AGENCY OR INDIVIDUAL)			
Quality Nut			
STREET ADDRESS (IF DIFFERENT THAN ABOVE)	CITY	ZIP CODE	TELEPHONE (209)
4808 Yosemite Blvd.	Modesto		526-3550

2. TANK CLOSURE PLAN

REASON FOR CLOSURE		TANK CLOSURE METHOD
Not In Use		☒ REMOVAL ☐ FILL IN PLACE
CLOSURE TIME SCHEDULE	CONTRACTOR REMOVING TANKS Don Lambert & Sons, INc.	LICENSE# 604190 A, B, HAZ
SOIL BORING CONTRACTOR	LAB COLLECTING AND ANALYZING SOIL/WATER SAMPLES	
CONTRACTOR REMOVING TANK CONTENTS	CONTENTS AND RINSE DISPOSAL/REUSE LOCATION	
RECIPIENT OF TANK FOR DISPOSAL OR REUSE: NAME: Quality Nut	PHONE: 209-526-3550	
ADDRESS: 1711 Patterson Modesto,	SIGNATURE: Kirk W. Jensen	

3. TANK IDENTIFICATION

STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
	gas - diesel	2500	?
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE

4. APPLICANT INFORMATION

I hereby certify that I have prepared this application and that the work will be done in accordance with the provisions of the Laws of the State of California, the Ordinances of the County of Stanislaus and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

NAME OF APPLICANT/POSITION	SIGNATURE OF APPLICANT	DATE
Blake Lambert/Owner	Blake Lambert	03-27-91

FOR DEPARTMENT USE ONLY:

SIGNATURES REQUIRED PRIOR TO PERMIT

PERMIT ISSUED BY	DATE 3/27/91	FIRE DEPARTMENT	DATE
INSPECTED BY	DATE 3/29/91	BUILDING DEPARTMENT	DATE
[redacted]		OTHER	DATE
PERMIT DENIED BY	DATE	(SEE SEPARATE REPORT)	

ORIGINAL: File Copy CANARY: Owner's Copy PINK: Applicant's Copy

DATE NOTES

car phone: 1-479-5744

3/14/90 Spoke w/ Kirk Jensen, 665 Gear Ct. Modesto 54 who had just rec'd billing for UST. According to Jensen both tanks (1 farm exempt, 1 active) had been removed prior to his coming to work for Del Rio Orchards/ Quality Nut. I ~~sent~~ will send him the closure packet. There are fees owing of $914.00 ~~in~~ (current fee included) I told Jensen, he needed to find out 1) who took tank out; 2) when it is. Also that closure app would need to be submitted, along w/ fees and a soil sampling would be required.

12-26-90 Went to Del Rio Orchards and saw that the UST had been removed. The excavation is still present, and the UST is directly north of ~~the~~ it. Nobody was present at the site. DRP

2-27-90 Left a message c̄ ~~Kirk J~~ Quality Nut for Kirk Jensen to call me. DRP

HMD-2

DATE	NOTES
6/30/88	Long private road back to "T" went left found diesel tank + pump 3" fill. Tank measured 74½ inches. Found residence at east end of property. Ruth Windt sold most of the property to Quality Nut. Checked Assesor's Records. Orchard is owned by John Hancock Ins., 1900 Point West Way, Suite
7/21/88	Went back by no one at site, all of them in orchard. Researched at Assesor's office. Owned by John Hancock Life Ins., 1900 Point West Way, Suite 188, Sacramento CA 95815. Will send paperwork to.
7/25/88	Called Rodney Beard at Quality Nut. He will call back
8/11/88	Pacific Coast Farms called. They are management company for John Hancock Insurance. Address Box 1000, Hughson, 95326
8/15/88	Mike Nelson called representing Quality Nut. P.O. Box 739 Empire 95319. Gave tell 9/15/88 ON paperwork
11-18-88	BCF Construction, TT 11-29-88 posted by md
11-26-91	faxed lab results + map to Joe Silveira 883-4779 per his request md

TYPE OF INSPECTION
___Routine
___Recheck
___Complaint
___Leak

UNDERGROUND STORAGE TANK

INSPECTION REPORT

(CALIFORNIA ADMINISTRATIVE CODE)

partment of
Environmental Resources
Hazardous Materials Division
1716 Morgan Road
Modesto, CA 95351
(209) 525-4150

FACILITY Quality Nut | FACILITY ADDRESS 1711 Patterson

TANK OPERATOR Quality Nut | TANK OWNER Quality Nut

INSPECTOR: Sonya Havrigtld

INSPECTION DATE 3/29/91 | UPDATE X YES ___NO

SWEEPS# | #OF TANKS 1 | DIST#

STATUS; P NF U E (C) (circle one only) | PERMIT# C91-015

MONITORING PROGRAM (2641)
ALT.#____ _____
ALT.#____ _____
ALT.#____ _____
ALT.#____ _____

OWNER/OPERATOR CONTRACT (2610)

With Present Owner	YES	NO
Updated	YES	NO

INVENTORY RECONCILIATION (2641,2644)

Product and Water Layer Measured	YES	NO
Daily Stick and Meter Readings	YES	NO
Approved Meters	YES	NO
Designated Person	YES	NO
Properly Trained	YES	NO
Tank Sticking Correct	YES	NO
Appropriate Stick and Chart	YES	NO
Recordkeeping Adequate	YES	NO
Quarterly Reports and Variation	YES	NO
Release Procedure	YES	NO
Approved Frequency	YES	NO

TANK GUAGING (2641)

Measurement Accuracy	YES	NO
Tank Secured	YES	NO
Monitoring Period	YES	NO
Designated Person	YES	NO
Recordkeeping/Reporting	YES	NO
Accurate Stick and Chart	YES	NO

TANK TESTING (2641,2643)

Annual	YES	NO
Results Provided	YES	NO
Approved Method	YES	NO
Pipeline Isolated and Tested	YES	NO

PIPELINE LEAK DETECTOR (2641)

Operational	YES	NO
Annual Test	YES	NO

SUCTION LINES (2641)

Daily Monitoring	YES	NO

DOUBLE CONTAINMENT (2632)

Daily Visual Monitoring	YES	NO
Continuous Monitoring	YES	NO
Daily Manual Monitoring	YES	NO
Written Monitoring Procedure	YES	NO
Pipeline Leak Detector	YES	NO

PERMITTED (P)
Permit Date: _____
Tank Type: (Sw/Dw) _____
System Type: (S/P) _____
Annl Insp. Due: _____
Annl Test Due: _____
Annl Test Received: _____
Qrtly Rpt. Received: _____

NEW FACILITY (NF)
Plan Ck Date: _____
Initial Insp. Date: _____
Pipe Insp. Date: _____
Final Insp. Date: _____

UNPERMITTED FACILITY (U)
Discovery Date: _____
Last Contact Date: _____
Enforcement (EL,OH,DA): _____
Enforcement Date: _____

EXEMPT TANK(E)
Exemption Type (F,PA,A): _____
Exemption Date: _____
Inspection Date: _____

CLOSED TANK (C)
Closure Type (R)FA,T): R
Closure Date: 3/29/91
Temp. Closure Expires: _____
Mitigation (Y)N): _____
Mitigation Sign Off: 5/7/91

COMMENTS:

THE BOXES MARKED "NO" REPRESENT VIOLATIONS AND MUST BE CORRECTED AS FOLLOWS:

RECEIVED BY:

SIGNATURE | PRINT NAME | TITLE

4019-68

UNDERGROUND ST... TANK CLOSURE REPORT

☐ Removal
☐ Closure in place
☐ Temporaty Closure
☒ RESAMPLE

Permit Number 91-015
Effective Date 4/9/91

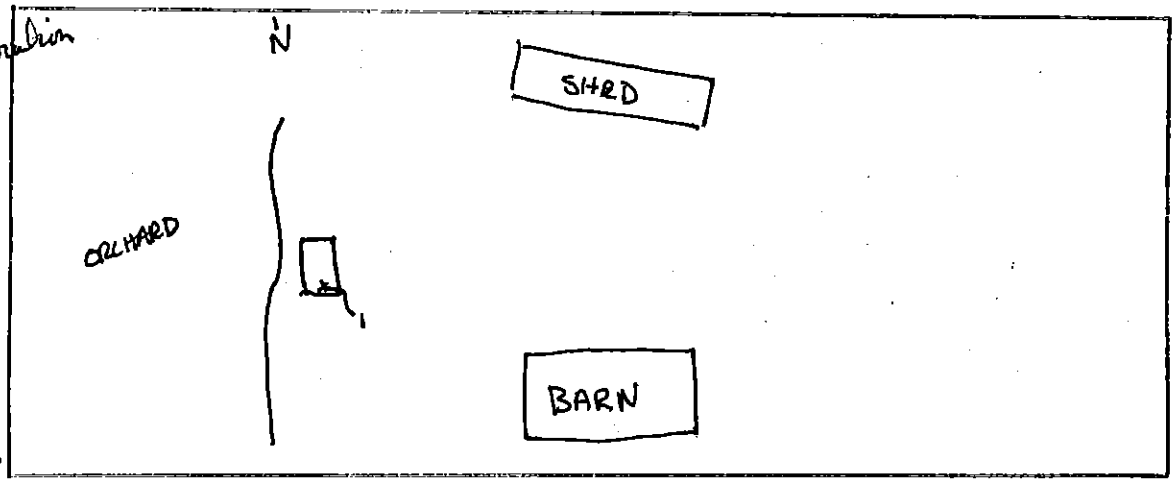
Site Location 1711 PATTERSON D.B.A. QUALITY NUT
Owner of Facility QUALITY NUT (JOAN HANCOCK) Phone

FIELD INSPECTION

1. Tank Rinsed: Yes ☐ No ☐ Method Amount of rinsate
   Disposition of rinsate
   Comments
2. Tank Vapors Purged: Yes ☐ No ☐ Amounts of dry ice (lbs.)
   Comments
3. Condition of Tank/Piping: Observable problems - Yes ☐ No ☐
   If yes, describe:
4. Soil Samples: Number Requested 1 Depth Taken 16' Sampling Method GRAB
   Laboratory GeoAnalytical Type of Analysis TEPH - DIESEL
   Samplers Name CHUCK BASHAM Lab. I.D.
   Sample transported in ice: Yes ☐ No ☐

@ 14' slight odor med grain sand no discoloration
1st @ ≈ 16' no odor med grain sand white in color

5. Plot Plan:



6. Closure in place: Soil Borings - Yes ☐ No ☐ Other
   Number of Soil Borings , Samples , Laboratory
   Type of analysis Material used to fill tank
7. Temporary Closure: Tank Rinsed - Yes ☐ No ☐ Date
   Tank filled with noncorrosive liquid - Yes ☐ No ☐ Type
   Fill and access locations and piping sealed - Yes ☐ No ☐
   Power service disconnected from pumps - Yes ☐ No ☐
   Comments
8. Other Site-Specific Information
   -Observable water wells located within 100 feet of tank site - Yes ☐ No ☐
   Location
   -Soil profile beneath excavated tank
   -Was high groundwater encountered - Yes ☐ No ☐ Depth feet
   -Comments:

UNDERGROUND STORAGE TANK CLOSURE REPORT

☒ Removal
☐ Closure in place
☐ Temporaty Closure

Permit Number 91-015
Effective Date 3/29/91

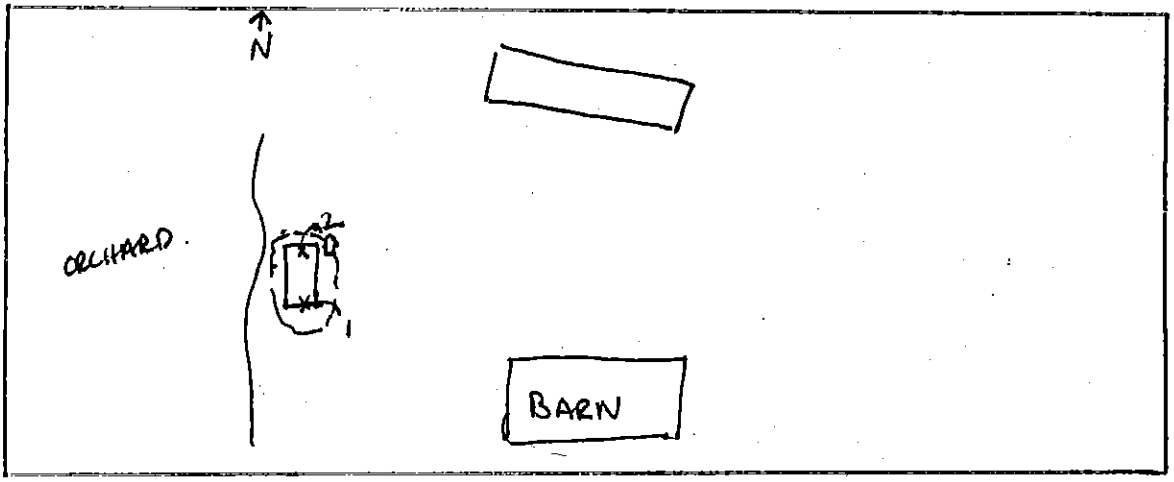
Site Location 1711 Patterson D.B.A. Quality Nut
Owner of Facility John Quality Nut. Phone

FIELD INSPECTION

1. Tank Rinsed: Yes ☐ No ☒ Method ____ Amount of rinsate ____
   Disposition of rinsate ____
   Comments ____
2. Tank Vapors Purged: Yes ☐ No ☒ Amounts of dry ice ____ (lbs.)
   Comments ____
3. Condition of Tank/Piping: Observable problems - Yes ☐ No ☒
   If yes, describe: ____
4. Soil Samples: Number Requested 2 Depth Taken 15' Sampling Method GRAB
   Laboratory GeoAnal Type of Analysis TEPH TPH GAS-DIESEL BTX&E
   Samplers Name CHUCK Lab. I.D. ____
   Sample transported in ice: Yes ☒ No ☐
5. Plot Plan:

#1 No odor @21ft: med grain sand

#2 14' No odor



6. Closure in place: Soil Borings - Yes ☐ No ☐ Other ____
   Number of Soil Borings ____, Samples ____, Laboratory ____
   Type of analysis ____ Material used to fill tank ____
7. Temporary Closure: Tank Rinsed - Yes ☐ No ☐ Date ____
   Tank filled with noncorrosive liquid - Yes ☐ No ☐ Type ____
   Fill and access locations and piping sealed - Yes ☐ No ☐
   Power service disconnected from pumps - Yes ☐ No ☐
   Comments ____

some spillage around the grade level appears to be a small area.

8. Other Site-Specific Information
   -Observable water wells located within 100 feet of tank site - Yes ☐ No ☒
   Location ____
   -Soil profile beneath excavated tank med grain SAND.
   -Was high groundwater encountered - Yes ☐ No ☒ Depth ____ feet
   -Comments: ____

TYPE OF INSPECTION
- ✓ Routine
- ___ Recheck
- ___ Complaint
- ___ Leak

UNDERGROUND STORAGE TANK

INSPECTION REPORT

(CALIFORNIA ADMINISTRATIVE CODE)

partment of
Environmental Resources
Hazardous Materials Division
1716 Morgan Road
Modesto, CA 95351
(209) 525-4150

FACILITY Del Rio Orchards | FACILITY ADDRESS 1711 Patterson, Riverbank

TANK OPERATOR Quality Nut | TANK OWNER Quality Nut

INSPECTOR Dennis R Paradis

INSPECTION DATE | UPDATE ✓ YES ___ NO

SWEEPS# | #OF TANKS | DIST#

STATUS; (P) NF U E C (circle one only) | PERMIT# 471

MONITORING PROGRAM (2641)

ALT.#____ _____

ALT.#____ _____

ALT.#____ _____

ALT.#____ _____

OWNER/OPERATOR CONTRACT (2610)

With Present Owner	___ YES	___ NO
Updated	___ YES	___ NO

INVENTORY RECONCILIATION (2641,2644)

Product and Water Layer Measured	___ YES	___ NO
Daily Stick and Meter Readings	___ YES	___ NO
Approved Meters	___ YES	___ NO
Designated Person	___ YES	___ NO
Properly Trained	___ YES	___ NO
Tank Sticking Correct	___ YES	___ NO
Appropriate Stick and Chart	___ YES	___ NO
Recordkeeping Adequate	___ YES	___ NO
Quarterly Reports and Variation	___ YES	X NO
Release Procedure	X YES	___ NO
Approved Frequency	___ YES	___ NO

TANK GUAGING (2641)

Measurement Accuracy	___ YES	___ NO
Tank Secured	___ YES	___ NO
Monitoring Period	___ YES	___ NO
Designated Person	___ YES	___ NO
Recordkeeping/Reporting	___ YES	___ NO
Accurate Stick and Chart	___ YES	___ NO

TANK TESTING (2641,2643)

Annual	___ YES	X NO
Results Provided	___ YES	X NO
Approved Method	___ YES	X NO
Pipeline Isolated and Tested	___ YES	___ NO

PIPELINE LEAK DETECTOR (2641)

Operational	___ YES	___ NO
Annual Test	___ YES	___ NO

SUCTION LINES (2641)

Daily Monitoring	___ YES	___ NO

DOUBLE CONTAINMENT (2632)

Daily Visual Monitoring	___ YES	___ NO
Continuous Monitoring	___ YES	___ NO
Daily Manual Monitoring	___ YES	___ NO
Written Monitoring Procedure	___ YES	___ NO
Pipeline Leak Detector	___ YES	___ NO

PERMITTED (P)

Permit Date: _____

Tank Type: (Sw/Dw) _____

System Type: (S/P) _____

Annl Insp. Due: 7

Annl Test Due: 11-29-89

Annl Test Received: _____

Qrtly Rpt. Received: — _____

NEW FACILITY (NF)

Plan Ck Date: _____

Initial Insp. Date: _____

Pipe Insp. Date: _____

Final Insp. Date: _____

UNPERMITTED FACILITY (U)

Discovery Date: _____

Last Contact Date: _____

Enforcement (EL,OH,DA): _____

Enforcement Date: _____

EXEMPT TANK(E)

Exemption Type (F,PA,A): _____

Exemption Date: _____

Inspection Date: _____

CLOSED TANK (C)

Closure Type (R,FA,T): _____

Closure Date: _____

Temp. Closure Expires: _____

Mitigation (Y/N): _____

Mitigation Sign Off: _____

COMMENTS:

THE BOXES MARKED "NO" REPRESENT VIOLATIONS AND MUST BE CORRECTED AS FOLLOWS:

_____

_____

_____

_____

_____

RECEIVED BY:

_____ _____ _____

SIGNATURE PRINT NAME TITLE

4019-68

Department of
Environmental Resources
Hazardous Materials Division
1716 Morgan Road
Modesto, CA 95351
(209) ~~571-5032~~ 525-4150

UNDERGROUND STORAGE TANK

INSPECTION REPORT

(CALIFORNIA ADMINISTRATIVE CODE)

FACILITY: Del Rio Orchards	PERMIT #	DATE: 7/21/88
ADDRESS: 1711 Patterson Rd.		TYPE OF INSPECTION: ☒ Routine ☐ Recheck ☐ Complaint ☐ Leak
TANK OPERATOR: Quality Nut, Empire	TANK OWNER: John Hancock Life Ins.	
INSPECTOR: DAVE JONES	TIME IN	TIME OUT

☒ **MONITORING PROGRAM (2641)**

Changes Made	☐ YES	☐ NO
Adequate	☐ YES	☒ NO
Permit Posted and Valid	☐ YES	☐ NO
Procedures Posted and Current	☐ YES	☐ NO
Ownership Change	☐ YES	☐ NO

☐ **OWNER/OPERATOR CONTRACT (2610)**

With Present Operator	☐ YES	☐ NO
Updated	☐ YES	☐ NO

☐ **VISUAL MONITORING (2642)**

Procedure Available	☐ YES	☐ NO
Inspection Schedule	☐ YES	☐ NO
Liquid Level Record	☐ YES	☐ NO
Response Plan	☐ YES	☐ NO

☐ **INVENTORY RECONCILIATION (2641,2644)**

Product and Water Layer Measured	☐ YES	☐ NO
Daily Stick and Meter Readings	☐ YES	☐ NO
Approved Meters	☐ YES	☐ NO
Designated Person	☐ YES	☐ NO
Properly Trained	☐ YES	☐ NO
Tank Sticking Correct	☐ YES	☐ NO
Appropriate Stick and Chart	☐ YES	☐ NO
Recordkeeping Adequate	☐ YES	☐ NO
Quarterly Reports and Variation	☐ YES	☐ NO
Release Procedure	☐ YES	☐ NO
Approved Frequency	☐ YES	☐ NO

☐ **TANK GUAGING (2641)**

Measurement Accuracy	☐ YES	☐ NO
Tank Secured	☐ YES	☐ NO
Monitoring Period	☐ YES	☐ NO
Designated Person	☐ YES	☐ NO
Recordkeeping/ Reporting	☐ YES	☐ NO
Accurate Stick and Chart	☐ YES	☐ NO

☒ **TANK TESTING (2641,2643)**

~~Annual~~ Every third year.	☐ YES	☒ NO
Results Provided	☐ YES	☒ NO
Approved Method	☐ YES	☒ NO
Pipeline Isolated and Tested	☐ YES	☒ NO

☐ **PIPELINE LEAK DETECTOR (2641)**

Operational	☐ YES	☐ NO

☐ **SUCTION LINES (2641)**

Daily Monitoring	☐ YES	☐ NO

☒ OTHER Tank reported as 2000 gallon. Measured at 74¼". This tank is larger than 1100 Gal. Diesel Tank is not Farm Exempt.

COMMENTS: (1) Will send monitoring alternative #7 (guaging). (2) Owner must have Tank precision tested, aquire ~~dist~~ stick and tank chart, submit monitoring plan, plot plan, release declaration by 8/19/88. (3) If tank is not monitored it must be closed. Application for closure to be submitted before closure.

RECEIVED BY: Not Available.

Signature | Name (PRINT) | TITLE

4019-68

Department of
Environmental Resources
Hazardous Materials Division
1716 Morgan Road
Modesto, CA 95351
(209) 571-5032

UNDERGROUND STORAGE TANK

INSPECTION REPORT

(CALIFORNIA ADMINISTRATIVE CODE)

FACILITY: Ruth Wendt	PERMIT #	DATE: 6/30/04
ADDRESS: 1711 Patterson Rd.		TYPE OF INSPECTION: ☒ Routine ☐ Recheck ☐ Complaint ☐ Leak
TANK OPERATOR: Ruth Wendt	TANK OWNER: Ruth Wendt	
INSPECTOR: Dave Jones	TIME IN	TIME OUT

☐ **MONITORING PROGRAM (2641)**

Changes Made	☐ YES	☐ NO
Adequate	☐ YES	☐ NO
Permit Posted and Valid	☐ YES	☐ NO
Procedures Posted and Current	☐ YES	☐ NO
Ownership Change	☐ YES	☐ NO

☐ **OWNER/OPERATOR CONTRACT (2610)**

With Present Operator	☐ YES	☐ NO
Updated	☐ YES	☐ NO

☐ **VISUAL MONITORING (2642)**

Procedure Available	☐ YES	☐ NO
Inspection Schedule	☐ YES	☐ NO
Liquid Level Record	☐ YES	☐ NO
Response Plan	☐ YES	☐ NO

☐ **INVENTORY RECONCILIATION (2641,2644)**

Product and Water Layer Measured	☐ YES	☐ NO
Daily Stick and Meter Readings	☐ YES	☐ NO
Approved Meters	☐ YES	☐ NO
Designated Person	☐ YES	☐ NO
Properly Trained	☐ YES	☐ NO
Tank Sticking Correct	☐ YES	☐ NO
Appropriate Stick and Chart	☐ YES	☐ NO
Recordkeeping Adequate	☐ YES	☐ NO
Quarterly Reports and Variation	☐ YES	☐ NO
Release Procedure	☐ YES	☐ NO
Approved Frequency	☐ YES	☐ NO

☐ **TANK GUAGING (2641)**

Measurement Accuracy	☐ YES	☐ NO
Tank Secured	☐ YES	☐ NO
Monitoring Period	☐ YES	☐ NO
Designated Person	☐ YES	☐ NO
Recordkeeping/ Reporting	☐ YES	☐ NO
Accurate Stick and Chart	☐ YES	☐ NO

☐ **TANK TESTING (2641,2643)**

Annual	☐ YES	☐ NO
Results Provided	☐ YES	☐ NO
Approved Method	☐ YES	☐ NO
Pipeline Isolated and Tested	☐ YES	☐ NO

☐ **PIPELINE LEAK DETECTOR (2641)**

Operational	☐ YES	☐ NO

☐ **SUCTION LINES (2641)**

Daily Monitoring	☐ YES	☐ NO

☒ OTHER 400 - 500 Gallon EXEMPT FARM Other tank Located 1713 Patterson Rd Qualified Unit

COMMENTS: EXEMPT - FARM

RECEIVED BY: Ruth Wendt 869-3149 RUTH WENDT

Signature — Name (PRINT) — TITLE

4019-68

92487

STANISLAUS COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1716 MORGAN ROAD, MODESTO, CA 95351
(209) 525-4150

PERMIT NO. 91-015
PERMIT EXPIRES 6-91
FEE PAID $375.00

APPLICATION AND PERMIT TO CLOSE UNDERGROUND TANK

(INSTRUCTIONS ON BACK)

1. FACILITY INFORMATION

NAME OF FACILITY		TYPE OF BUSINESS	
Quality Nut		Farming/Processing	
STREET ADDRESS	CITY	ZIP CODE	TELEPHONE (209)
1711 Patterson	Modesto		521-9308
OWNERS NAME (CORPORATION AGENCY OR INDIVIDUAL)			
Quality Nut			
STREET ADDRESS (IF DIFFERENT THAN ABOVE)	CITY	ZIP CODE	TELEPHONE (209)
4808 Yosemite Blvd.	Modesto		526-3550

2. TANK CLOSURE PLAN

REASON FOR CLOSURE		TANK CLOSURE METHOD
Not In Use		☒ REMOVAL ☐ FILL IN PLACE
CLOSURE TIME SCHEDULE	CONTRACTOR REMOVING TANKS Don Lambert & Sons, INc.	LICENSE # 604190 A, B, HAZ
SOIL BORING CONTRACTOR	LAB COLLECTING AND ANALYZING SOIL/WATER SAMPLES	
CONTRACTOR REMOVING TANK CONTENTS	CONTENTS AND RINSE DISPOSAL/REUSE LOCATION	
RECIPIENT OF TANK FOR DISPOSAL OR REUSE: NAME: Quality Nut	PHONE: 209-526-3550	
ADDRESS: 1711 Patterson Modesto,	SIGNATURE: Kirk W. Jensen	

3. TANK IDENTIFICATION

STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
	gas - diesel	2500	?
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE
STATE ID#	CONTENTS (INCLUDE ALL PAST USES)	CAPACITY	AGE

4. APPLICANT INFORMATION

I hereby certify that I have prepared this application and that the work will be done in accordance with the provisions of the Laws of the State of California, the Ordinances of the County of Stanislaus and the Rules and Regulations of the Stanislaus County Department of Environmental Resources.

NAME OF APPLICANT/POSITION	SIGNATURE OF APPLICANT	DATE
Blake Lambert/Owner	Blake Lambert	03-27-91

FOR DEPARTMENT USE ONLY:

SIGNATURES REQUIRED PRIOR TO PERMIT

PERMIT ISSUED BY	DATE 3/27/91	FIRE DEPARTMENT	DATE
INSPECTED BY	DATE 3/29/91	BUILDING DEPARTMENT	DATE
CLOSURE APPROVED BY	DATE	OTHER	DATE
PERMIT DENIED BY	DATE	(SEE SEPARATE REPORT)	

4019-24 ORIGINAL: File Copy CANARY: Owner's Copy PINK: Applicant's Copy

Ca Dept

STATE OF CALIFORNIA - Environmental Prot Agency — PETE WILSON, Govern

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
PHONE: (916) 255-3000
FAX: (916) 255-3015

AUG 1996
Received
Stanislaus Co.
Dept. of
Environmental
Resources

8/21/96

21 August 1996

Mr. James M. Simpson
Stanislaus County Department of Environmental Resources
1716 Morgan Road
Modesto, CA 95358

NO FURTHER ACTION REQUIRED CONCURRENCE, UNDERGROUND STORAGE TANKS, STANISLAUS COUNTY

This letter confirms the completion of site investigation and remedial action for the following underground tank sites in Stanislaus County (Refers To: John Hancock Prop. Hogue Rd NP#1047 OR NP#47)

Facility	Street Address	City
Quality Nut	[redacted] Patterson	Modesto
The Yard Lumber and Fence Supply	112 S. Riverside Drive	Modesto
W. C. Owen, Inc.	10249 Sierra Road	Oakdale
Vintage Faire UNOCAL #7624	3037 Sisk Road	Modesto
Rosemary Winfield	701 Sutter Street	Modesto
Joe's Mini Mart	706 Sutter Street	Modesto
ATB Packing	501 S. Tegner Road	Turlock
Turlock Fruit Ranch	2707 E. Tuolumne	Turlock
J. M. Keckler Medical Company	2084 Yosemite Blvd.	Modesto
Julian Auto Center	12405 Yosemite Blvd.	Waterford
Bait Barn-Boyett Petroleum	12505 Yosemite Blvd.	Waterford
Highway Garage	12800 Yosemite Blvd.	Waterford

Based upon the available information, including the current land use, and with the provision that the information provided to this agency is accurate and representative of site conditions, no further action related to the underground storage tank release is required for the above facilities.

This notice is issued pursuant to Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e).

If you have any questions, please call James Brathovde at (916) 255-3137.

for Thomas R Pinkos
WILLIAM H. CROOKS
Executive Officer

cc: Listed Facilities

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY ☐ YES ☒ NO

HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? ☐ YES ☒ NO

REPORT DATE: 04 / 18 / 91 (M / D / Y)

CASE #:

FOR LOCAL AGENCY USE ONLY
I HEREBY CERTIFY THAT I HAVE DISTRIBUTED THIS INFORMATION ACCORDING TO THE DISTRIBUTION SHOWN ON THE INSTRUCTION SHEET ON THE BACK PAGE OF THIS FORM.
SIGNED: _____ DATE: 5-9-91

REPORTED BY

NAME OF INDIVIDUAL FILING REPORT: SONYA KAE HARRLOFFELD
PHONE: (209) 525-4150
SIGNATURE: Sonya K Harrloffeld

REPRESENTING: ☐ OWNER/OPERATOR ☐ REGIONAL BOARD ☒ LOCAL AGENCY ☐ OTHER _____
COMPANY OR AGENCY NAME: DEPARTMENT OF ENVIRONMENTAL RESOURCES STANISLAUS COUNTY

ADDRESS: 1716 MORGAN STREET MODESTO CITY CA STATE 95351 ZIP

RESPONSIBLE PARTY

NAME: JOHN HANCOCK Life INSURANCE ☐ UNKNOWN
CONTACT PERSON:
PHONE: ( )

ADDRESS: 1711 Patterson rd. STREET Modesto CITY CA STATE 95355 ZIP

SITE LOCATION

FACILITY NAME (IF APPLICABLE): QUALITY NUT
OPERATOR: KURT JENSEN
PHONE: (209) 521-9308

ADDRESS: 1711 PATTERSON STREET Modesto CITY STANISLAUS COUNTY 95355 ZIP

CROSS STREET: OAKDALE RD.

IMPLEMENTING AGENCIES

LOCAL AGENCY / AGENCY NAME: STANISLAUS COUNTY D.E.R.
CONTACT PERSON: TED GARCIA
PHONE: (209) 525-4150

REGIONAL BOARD: RWQCB
CONTACT PERSON: ELIZABETH THAYER
PHONE: (916) 361-

SUBSTANCES INVOLVED

(1) NAME: DIESEL — QUANTITY LOST (GALLONS): _____ ☒ UNKNOWN

(2) _____ ☐ UNKNOWN

DISCOVERY/ABATEMENT

DATE DISCOVERED: 03 / 29 / 91 (M / D / Y)

HOW DISCOVERED: ☐ INVENTORY CONTROL ☐ SUBSURFACE MONITORING ☐ NUISANCE CONDITIONS ☐ TANK TEST ☒ TANK REMOVAL ☐ OTHER _____

DATE DISCHARGE BEGAN: ☒ UNKNOWN

HAS DISCHARGE BEEN STOPPED? ☒ YES ☐ NO IF YES, DATE 03 / 29 / 91

METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY)
☐ REMOVE CONTENTS ☒ CLOSE TANK & REMOVE ☐ REPAIR PIPING
☐ REPAIR TANK ☐ CLOSE TANK & FILL IN PLACE ☐ CHANGE PROCEDURE
☐ REPLACE TANK ☐ OTHER _____

SOURCE/CAUSE

SOURCE OF DISCHARGE: ☐ TANK LEAK ☒ UNKNOWN ☐ PIPING LEAK ☐ OTHER

CAUSE(S): ☐ OVERFILL ☐ RUPTURE/FAILURE ☐ SPILL ☐ CORROSION ☒ UNKNOWN ☐ OTHER _____

CASE TYPE

CHECK ONE ONLY
☒ UNDETERMINED ☒ SOIL ONLY ☐ GROUNDWATER ☐ DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)

CURRENT STATUS

CHECK ONE ONLY
☐ NO ACTION TAKEN ☐ PRELIMINARY SITE ASSESSMENT WORKPLAN SUBMITTED ☐ POLLUTION CHARACTERIZATION
☐ LEAK BEING CONFIRMED ☐ PRELIMINARY SITE ASSESSMENT UNDERWAY ☐ POST CLEANUP MONITORING IN PROGRESS
☐ REMEDIATION PLAN ☒ CASE CLOSED (CLEANUP COMPLETED OR UNNECESSARY) ☐ CLEANUP UNDERWAY

REMEDIAL ACTION

CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)
☐ CAP SITE (CD) ☐ EXCAVATE & DISPOSE (ED) ☐ REMOVE FREE PRODUCT (FP) ☐ ENHANCED BIO DEGRADATION (IT)
☒ EXCAVATE & TREAT (ET) ☐ CONTAINMENT BARRIER (CB) ☐ PUMP & TREAT GROUNDWATER (GT) ☐ REPLACE SUPPLY (RS)
☐ NO ACTION REQUIRED (NA) ☐ VACUUM EXTRACT (VE) ☐ TREATMENT AT HOOKUP (HU) ☐ VENT SOIL (VS)
☐ OTHER (OT) _____

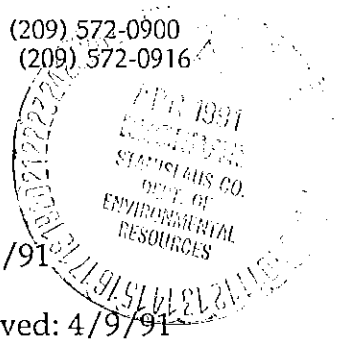
COMMENTS

HSC 05 (8/90)

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916



REPORT

Report# C099-03

Date: 4/13/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 4/9/91
Date Started: 4/11/91
Date Completed: 4/13/91

Project # Project Name: Patterson Road

Sample ID: South End @ 17'
Lab ID: C20803

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	ND
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/29/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Rd.

Sample ID: South End 12'
Lab ID: C20733

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	81.5
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/29/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Rd.

Sample ID: North End 14'
Lab ID: C20734

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	ND
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

GeoAnalytical Laboratories

1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

Lambert & Sons
P.O. Box 659
Waterford, CA 95386

Date Received: 3/2/91
Date Started: 4/2/91
Date Completed: 4/2/91

Project # Project Name: 1711 Patterson Road

Sample ID: South End 12'
Lab ID: C20733

Method: 8020

Detection Limit ug/kg	Analyte	Amount Found ug/kg
5.0	Benzene	ND
5.0	Toluene	ND
5.0	Ethyl Benzene	ND
5.0	Total Xylene	ND

Method: 5030 / Mod. 8015

Detection Limit mg/kg	Analyte	Amount Found mg/kg
2.5	Gasoline	ND

Richard Sereno
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

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Sample ID: South End 12'
Lab ID: C20733

Method: 3550 TEPH

Detection Limit mg/kg	Analyte	Amount Found mg/kg
5.0	Kerosene	ND
5.0	Diesel	81.5
50.0	Motor Oil	ND

Richard Meissner
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

GeoAnalytical Laboratories
1031 Kansas Ave. Suite C
Modesto, California 95351

Phone (209) 572-0900
Fax # (209) 572-0916

REPORT

Report# C088-02

Date: 4/2/91

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Method: 5030 / Mod. 8015

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2.5	Gasoline	ND

Richard Sereno
Organic Chemist

Donna Allsup
Laboratory Director

Certification #E757

received
4-5-91

STANISLAUS COUNTY

DEPARTMENT OF ENVIRONMENTAL RESOURCES

Hazardous Materials Division

1716 Morgan Road
Modesto, CA 95351

Phone: (209) 525-4150

Business Name: DON LAMBERT & SONS, INC.

Owner's Name Blake, Brad & Don Lambert

Business Location: 121 "F" Street Waterford, CA zip 95386

Mailing Address (if different): P. O. Box 659 Waterford, CA zip 95386

LICENSED CONTRACTORS DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class A, B, HAZ License No. 604190

Date: 10-22-90 Contractor Blake & Brad Lambert

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason(Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's Law(Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred ($500.00) dollars.

(XX) I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

( ) I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor licensed pursuant to the Contractor's License Law.

( ) I am exempt under Sec. _____ B & PC for this reason: _____

Date: 03-27-91 Owner: Blake & Brad & Don Lambert

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C).

Policy No. WCP30023-C Company Superior National

( )Certified copy is hereby furnished.

(XX)Certified copy is filed with the county building inspection department of Stanislaus County.

Date: _____

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred ($100.00) dollars or less.

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date: _____ Applicant: _____

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C)

Lender's Name _____

Lender's Address _____

I CERTIFY THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE INFORMATION IS CORRECT. I AGREE TO COMPLY WITH ALL CITY AND COUNTY ORDINANCES AND STATE LAWS RELATING TO BUILDING CONSTRUCTION, AND HEREBY AUTHORIZE REPRESENTATIVES OF THIS COUNTY TO ENTER UPON THE WITHIN MENTIONED PROPERTY FOR INSPECTION PURPOSES.

DATE: 3-26-91 SIGNATURE OF APPLICANT OR AGENT _____

4019-40

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351

OPERATING PERMIT FOR UNDERGROUND STORAGE TANK FACILITY	FACILITY TYPE: FARM	
	NUMBER OF TANKS: ONE	PERMIT NUMBER: 471
FACILITY NAME & ADDRESS: QUALITY NUT COMPANY/DEL RIO ORCHARDS 1711 PATTERSON ROAD EMPIRE, CA 95319	TANK OWNER: SAME P. O. BOX 739 EMPIRE, CA 95319	

CONDITIONS

1. This permit expires in five (5) years and is renewable thereafter. Inspection fee will be billed annually.
2. This permit is granted to the tank owner who accepts responsibility for operating and monitoring the tank system according to state underground storage tank laws and regulations and conditions set by the county.
3. Tank operators, if different than the owner, shall operate and monitor the tank system according to the written operating agreement required under Section 25293, Chapter 6.7, Division 20, California Health and Safety Code.
4. Tank owner shall notify the Department of Environmental Resources of any proposed change in operator or ownership of tank system.
5. Upon a significant change in design or operation of this facility, permit will be reviewed by the Department of Environmental Resources.
6. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other governmental agencies.
7. The permittee shall report to the local agency any unauthorized release occurrences as defined in Article 2, Subchapter 16, within the time frame specified in Subsections 2652 (b) and (c) of Article 5, Subchapter 16.
8. Written records of all monitoring performed shall be maintained on-site by the operator for a period of at least 3 years from the date the monitoring was performed.

ISSUED BY	ISSUANCE DATE
SIGNATURE	MAY 5, 1989
DAVID L. JONES, HAZARDOUS MATERIALS SPECIALIST NAME/TITLE	RENEWAL DATE JULY 21, 1991

4019-38

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351-5894
FAX# (209) 525-4163
(209)

525-4150

August 17, 1990

Kirk Jenson
Quality Nut Company
P.O. Box 739
Empire, CA 95319

RE: Del Rio Orchards, 1711 Patterson Road, Modesto, CA 95355

During a recent telephone conversation between Sue Dunaway and yourself, it was brought to the attention of this department that you have removed a permitted underground storage tank. This tank was permitted for operation and requires a permit for removal. In addition, it was also brought to my attention by accounting that your account is excessively past due.

Enclosed you will find all the necessary information to complete a legal closure. It will be necessary for Quality Nut Company to correct the past due account, a copy of the statement of account is enclosed, and pay the current closure fee of $350.

Please complete the following for a legal closure:

1. Fill out completely an application for a closure permit.

2. It will be necessary for Quality Nut Company to have a state certified laboratory obtain two soil samples from the old tank excavation. The soil sampling shall be done under the supervision of this department.

3. This department will need to know where and how this tank was disposed of.

Please complete and submit the requested information by August 29, 1990. If you have any questions, please call me at (209) 525-4150.

Sonya K. Harrigfeld

SONYA K. HARRIGFELD
HAZARDOUS MATERIALS SPECIALIST
Division of Hazardous Materials

md

(A)
RepoName: StmtAcct
Date: 08/14/90

STANISLAUS COUNTY
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Hazardous Material Division
1716 Morgan Road, Modesto, CA 95351-5894
209-525-4150

Statement of Account
(As Of 08/14/90)

Owner #: 4078
JOHN HANCOCK LIFE INSURANCE
1713 PATTERSON ROAD
MODESTO CA 95355

Business #: 24303
DEL RIO ORCHARDS - RODNEY BEARD
1713 PATTERSON ROAD
MODESTO CA 95355

S	Inv#	ServCd	Chk#	TranDate	FN	Debits	Credits	Bal Due
O	400818	103A		11/17/89	N	$200.00		$200.00
	Service	FARM-UNDERGRND TANKS ANNUAL UST FEE - COUNTY FOR 1/88-12/88						
O	400818	104G		11/17/89	N	$56.00		$256.00
	Service	FARM-UNDERGRND TANKS EA 5TH YEAR STATE FEE-PD TO ST 6/88-12/92						
O	400817	103A		11/21/89	N	$200.00		$456.00
	Service	FARM-UNDERGRND TANKS ANNUAL UST FEE - COUNTY FOR 1/89-12/89						
O	402976	103A		07/01/90	N	$230.00		$686.00
	SERVICE	FARM-UNDERGRND TANKS ANNUAL UST FEE - COUNTY FOR 01/01/90 TO 12/31/90 FOR PERMIT # UT						
O	400818	901		08/01/90	N	$100.00		$786.00
	PENALTY	PENALTY NON-PAYMENT FOR 103A						
O	400818	901		08/01/90	N	$28.00		$814.00
	PENALTY	PENALTY NON-PAYMENT FOR 104G						
O	400817	901		08/01/90	N	$100.00		$914.00
	PENALTY	PENALTY NON-PAYMENT FOR 103A						

QUALITY NUT/DEL RIO ORCHARD
P.O. BOX 739
EMPIRE CA 95319

Balance owing $914.00
Ø Closure

F1-Help F2-Edit F3-Form F4-Quick Entry
Address Number: 1711 Street: PATTERSON City: MODESTO Zip 953: 55

Facility Name: QUALITY NUT COMPANY/DEL RIO ORCHARDS Update: 12/29/89

Status: P # of Tanks: 1 Dist: 1 Permit #: 471 Sweeps #: 31024
Comments: SAME P.O.BOX 739 EMPIRE,CA 95319 FARM EXEMPT TANK ON PROPERTY

Permitted (P) Tank Type (Sw/Dw): SW System Type (s/p): P Permit Date: 5/05/89
Reports Due (date) Annl Insp: 7/21/89 Annl Tst: 11/29/89
Report Recieved (date) Qrtly Rpt: 00/00/00 Annl Tst: 11/29/88

New Facility (NF) Plan Ck Date: Initial Insp Date:
Pipe Insp Date: Final Insp Date:

Unpermitted (U) Discovery Date: Last Contact Date:
Enforcement Action Type (EL, OH, DA): Enforcement Action Date:

Exempt(E) Type(F, PA, A): Exemption Date: Inspection Date:

Closed (C) Type.(R, FP, T): Closure Date: Mitigation (Y/N):
Expiration Date Temp Cls: Mitigation Sign Off Date:
AAAE AAAA1 AAAAE AAAA2 AAAAE AAAA3 AAAAE AAAA4 AAAAE AAAA5 AAAAE AAAA6 AAAAE AAAA7 AAAAE AAAA8
IKE Type data for record 957 (7 records added). Page 1 of 1
Esc-Cancel F10-Continue

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351-5894
(209)
525-4150

March 2, 1989

Carl Evers
Pacific Coast Farms
P. O. Box 1000
Hughson, CA 95326

RE: Underground Storage Tanks at Del Rio Orchards, 1711 Patterson Road, Modesto

Enclosed you will find an application by Quality Nut Company to operate an underground diesel storage tank on property owned by John Hancock Insurance Company. All the requirements for permitting this tank have been met and if the property owner has no objections I will issue the permit to operate on March 15, 1989. As the agent of John Hancock please contact me prior to this date, if Mr. Hancock has any objections to the permitting of this tank.

DAVID L. JONES
HAZARDOUS MATERIALS SPECIALIST
Hazardous Materials Division

sd

Enclosures

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351-5894
(209)
525-4150

February 15, 1989

Carl Evens
Pacific Coast Farms
6944 Hughson Avenue
Hughson, CA 95326

RE: Underground Storage Tanks at Del Rio Orchards, 1711 Patterson Road, Modesto

Enclosed you will find an application by Quality Nut Company to operate an underground diesel storage tank on property owned by John Hancock Insurance Company. All the requirements for permitting this tank have been met and if the property owner has no objections I will issue the permit to operate on February 28, 1989. As the agent of John Hancock please contact me prior to this date, if Mr. Hancock has any objections to the permitting of this tank.

DAVID L. JONES
HAZARDOUS MATERIALS SPECIALIST
Hazardous Materials Division

sd

Enclosures

Quality Nut Company

PROCESSOR: ALMONDS - PECANS - WALNUTS

P. O. BOX 739
EMPIRE, CALIFORNIA 95319
TELEPHONE (209) 526-3550
TWX: 510 7614412 (BEARD NUT EMPR)
FAX (209) 526-8110

January 31, 1989

David Jones
Hazardous Material Div. - Stanislaus County
1716 Morgan Road
Modesto, CA 95351

Dear Mr. Jones,

RE: Underground tank @ 1711 Patterson Rd., Modesto, CA

In response to your letter dated 01/09/89, please find enclosed the following:

1. Sweeps Forms A & B
2. Copy of release reporting req's.
3. Quality Nut is the owner of the tank, so no agreement is needed.
4. Meter calibration - this pump doesn't have a working meter. Since we are using monitoring alternative #7 to guage the tank, do we need this?
5. Statement for stick & chart.

Not needed ΔJ.

Regards,

QUALITY NUT CO.

Michael G. Nelson

MGN/ds
cc: file
enclosures



STATE OF CALIFORNIA — WATER RESOURCES CONTROL BOARD

FORM 'A':
SITE

UNDERGROUND STORAGE TANK PROGRAM
FACILITY/SITE, INFORMATION and/or PERMIT APPLICATION

COMPLETE THIS FORM FOR EACH FACILITY/SITE

No. 3250

MARK ONLY ONE ITEM							
	[X] 1 NEW PERMIT	[ ] 2 INTERIM PERMIT	[ ] 3 RENEWAL PERMIT	[ ] 4 AMENDED PERMIT	[ ] 5 CHANGE OF INFORMATION	[ ] 6 TEMPORARY SITE CLOSURE	[ ] 7 PERMANENTLY CLOSED SITE

I. FACILITY/SITE INFORMATION & ADDRESS — (MUST BE COMPLETED)

FACILITY/SITE NAME: Del Rio Orchards / Quality Nut Co.	CARE OF ADDRESS INFORMATION: P.O. Box 739 Empire, CA 95319
ADDRESS: 1711 Patterson Rd,	NEAREST CROSS STREET: Oakdale Rd. — [✓] Box to indicate [ ] CORPORATION [X] INDIVIDUAL [ ] PARTNERSHIP [ ] LOCAL-AGENCY [ ] COUNTY-AGENCY [ ] STATE-AGENCY [ ] FEDERAL-AGENCY
CITY NAME: Empire	STATE: CA — ZIP CODE: 95356 — SITE PHONE #, WITH AREA CODE: 209-869-1094
TYPE OF BUSINESS: [ ] 1 GAS STATION [X] 3 FARM [ ] 2 DISTRIBUTOR [ ] 4 PROCESSOR [ ] 5 OTHER — [✓] Box if INDIAN RESERVATION or TRUST LANDS [ ]	EPA ID #: — — # of TANK's AT THIS SITE: 1
EMERGENCY CONTACT PERSON (PRIMARY)	**EMERGENCY CONTACT PERSON (SECONDARY)**
DAYS: NAME (LAST, FIRST): Wendt, David — PHONE # WITH AREA CODE: 209-869-1094	DAYS: NAME (LAST, FIRST): Beard, Rod — PHONE # WITH AREA CODE: (209) 526-3550
NIGHTS: NAME (LAST, FIRST): SAME — PHONE # WITH AREA CODE:	NIGHTS: NAME (LAST, FIRST): SAME — PHONE # WITH AREA CODE:

II. PROPERTY OWNER INFORMATION & ADDRESS — (MUST BE COMPLETED)

NAME: John Hancock Insurance Co.	CARE OF ADDRESS INFORMATION: Pacific Coast Farms
MAILING or STREET ADDRESS: P.O. Box 1000	[✓] Box to indicate [X] CORPORATION [ ] INDIVIDUAL [ ] PARTNERSHIP [ ] LOCAL-AGENCY [ ] COUNTY-AGENCY [ ] STATE-AGENCY [ ] FEDERAL-AGENCY
CITY NAME: Hughson	STATE: CA — ZIP CODE: 95326 — PHONE #, WITH AREA CODE: (209) 883-0456

III. TANK OWNER INFORMATION & ADDRESS — (MUST BE COMPLETED)

NAME: Quality Nut Co.	CARE OF ADDRESS INFORMATION:
MAILING or STREET ADDRESS: P.O. Box 739	[✓] Box to indicate [X] INDIVIDUAL [ ] CORPORATION [ ] PARTNERSHIP [ ] LOCAL-AGENCY [ ] COUNTY-AGENCY [ ] STATE-AGENCY [ ] FEDERAL-AGENCY
CITY NAME: Empire, CA	STATE: CA — ZIP CODE: 95319 — PHONE #, WITH AREA CODE: (209) 526-3550

IV. LEGAL NOTIFICATION AND BILLING ADDRESS

CHECK ONE (1) BOX INDICATING **WHICH ABOVE ADDRESS** SHOULD BE USED FOR **BOTH** LEGAL NOTIFICATION AND BILLING: I. [ ] II. [ ] III. [X]

THIS FORM HAS BEEN COMPLETED UNDER PENALTY OF PERJURY, AND TO THE BEST OF MY KNOWLEDGE, IS TRUE AND CORRECT.

APPLICANT'S NAME (PRINTED & SIGNATURE)	DATE
Quality Nut Co. by M.G. Nelson	1/31/89

LOCAL AGENCY USE ONLY

COUNTY #	JURISDICTION #	AGENCY #	FACILITY ID #	# of TANKS at SITE

CURRENT LOCAL AGENCY FACILITY ID #	APPROVED BY NAME	PHONE # WITH AREA CODE

PERMIT NUMBER	PERMIT APPROVAL DATE	PERMIT EXPIRATION DATE

LOCATION CODE	CENSUS TRACT #	SUPERVISOR-DISTRICT CODE	BUSINESS PLAN FILED YES [ ] NO [ ]	DATE FILED

CHECK #	PERMIT AMOUNT	SURCHARGE AMOUNT	FEE CODE	RECEIPT #	BY:

THIS FORM MUST BE ACCOMPANIED BY AT LEAST (1) OR MORE TANK PERMIT FORM 'B' APPLICATION(S), UNLESS THIS IS A CHANGE OF SITE INFORMATION ONLY.

FORM A (3-2-88)

DATA PROCESSING COPY

STATE OF CALIFORNIA — WATER RESOURCES CONTROL BOARD

FORM 'B': TANK

UNDERGROUND STORAGE TANK PROGRAM
TANK PERMIT APPLICATION INFORMATION

COMPLETE A SEPARATE FORM WITH THE FOLLOWING INFORMATION FOR EACH TANK.

MARK ONLY ONE ITEM

- [X] 1 NEW PERMIT
- [ ] 2 INTERIM PERMIT
- [ ] 3 RENEWAL PERMIT
- [ ] 4 AMENDED PERMIT
- [ ] 5 CHANGE OF INFORMATION
- [ ] 6 TEMPORARY TANK CLOSURE
- [ ] 7 PERMANENTLY CLOSED TANK
- [ ] 8 TANK REMOVED

FACILITY/SITE NAME WHERE TANK IS INSTALLED: Del Rio Orchards **FARM TANK - YES** [X] **NO** [ ]

No 4470

I. TANK DESCRIPTION — COMPLETE ALL ITEMS - IF UNKNOWN — SO SPECIFY

A. OWNERS TANK ID # N/A	B. MANUFACTURED BY: Bambacino Welding
C. YEAR INSTALLED UNK	D. TANK CAPACITY IN GALLONS: 2,000

II. TANK CONTENTS — IF (A.1), IS MARKED, COMPLETE ITEM C. IF (A.1), IS NOT MARKED, COMPLETE ITEM D.

A.
- [X] 1 MOTOR VEHICLE FUEL
- [ ] 2 PETROLEUM
- [ ] 3 CHEMICAL PRODUCT
- [ ] 4 OIL
- [ ] 5 HAZARDOUS
- [ ] 80 EMPTY
- [ ] 95 UNKNOWN

B.
- [X] 1 PRODUCT
- [ ] 2 WASTE

C.
- [ ] 1 UNLEADED
- [ ] 2 LEADED
- [X] 3 DIESEL
- [ ] 4 GASAHOL
- [ ] 5 JET FUEL
- [ ] 6 AVIATION GAS
- [ ] 7 METHANOL
- [ ] 99 OTHER (DESCRIBE IN ITEM D, BELOW)

D. IF NOT MOTOR VEHICLE FUEL, ENTER NAME OF HAZARDOUS SUBSTANCE STORED & C.A.S. # — C.A.S. #:

xIII. TANK CONSTRUCTION — MARK ONE ITEM ONLY IN BOX A, B, C, & D

A. TYPE OF SYSTEM
- [ ] 1 DOUBLE WALLED
- [X] 2 SINGLE WALLED
- [ ] 3 SINGLE WALLED WITH EXTERIOR LINER
- [ ] 4 SECONDARY CONTAINMENT
- [ ] 95 UNKNOWN
- [ ] 99 OTHER

B. TANK MATERIAL
- [X] 1 STEEL/IRON
- [ ] 2 STAINLESS STEEL
- [ ] 3 FIBERGLASS
- [ ] 4 STEEL CLAD W/FIBERGLASS REINFORCED PLASTIC
- [ ] 5 CONCRETE
- [ ] 6 POLYVINYL CHLORIDE
- [ ] 7 ALUMINUM
- [ ] 8 100% METHANOL COMPATIBLE FRP
- [ ] 9 BRONZE
- [ ] 10 GALVANIZED STEEL
- [ ] 95 UNKNOWN
- [ ] 99 OTHER

C. INTERIOR LINING
- [ ] 1 RUBBER LINED
- [ ] 2 ALKYD LINING
- [ ] 3 EPOXY LINING
- [ ] 4 PHENOLIC LINING
- [ ] 5 GLASS LINING
- [X] 6 UNLINED
- [ ] 95 UNKNOWN
- [ ] IS LINING MATERIAL COMPATIBLE WITH 100% METHANOL? [ ] YES [ ] NO
- [ ] 99 OTHER

D. CORROSION PROTECTION
- [ ] 1 POLYETHLENE WRAP
- [ ] 2 TAR OR ASPHALT
- [ ] 3 VINYL WRAP
- [ ] 4 FIBERGLASS REINFORCED PLASTIC
- [ ] 5 CATHODIC PROTECTION
- [X] 91 NONE
- [ ] 95 UNKNOWN
- [ ] 99 OTHER

IV. PIPING INFORMATION — CIRCLE **A** IF ABOVE GROUND, **U** IF UNDERGROUND, **BOTH IF APPLICABLE**

A. SYSTEM TYPE	A (U) 1 SUCTION	A U 2 PRESSURE	A U 3 GRAVITY	A U 99 OTHER			
B. CONSTRUCTION	A (U) 1 SINGLE WALLED	A U 2 DOUBLE WALLED	A U 3 LINED TRENCH	A U 95 UNKNOWN	A U 99 OTHER		
C. MATERIAL	(A) (U) 1 STEEL/IRON	A U 2 STAINLESS STEEL	A U 3 POLYVINYL CHLORIDE (PVC)	A U 4 FIBERGLASS PIPE			
	A U 5 ALUMINUM	A U 6 CONCRETE	A U 7 STEEL CLAD W/FRP	A U 8 100% METHANOL COMPATIBLE FRP			
	A U 9 GALVANIZED STEEL	A U 95 UNKNOWN	A U 99 OTHER				

V. LEAK DETECTION SYSTEM — CIRCLE **P** FOR PRIMARY, OR **S** FOR SECONDARY, **A PRIMARY LEAK DETECTION SYSTEM MUST BE CIRCLED.**

(P) S 1 VISUAL CHECK (P) S 2 INVENTORY RECONCILIATION P S 3 VADOSE WELLS P S 4 ELECTRONIC MONITOR P S 5 GROUND WATER MONITORING WELLS
P S 6 PRECISION TESTING P (S) 7 PRESSURE TESTING P S 91 NONE P S 95 UNKNOWN P S 99 OTHER

VI. INFORMATION ON TANK PERMANENTLY CLOSED IN PLACE

1. ESTIMATED DATE LAST USED (MO/YR)	2. ESTIMATED QUANTITY OF SUBSTANCE REMAINING IN GALLONS	3. WAS TANK FILLED WITH INERT MATERIAL?
—		[ ] YES [ ] NO

THIS FORM HAS BEEN COMPLETED UNDER PENALTY OF PERJURY, AND TO THE BEST OF MY KNOWLEDGE, IS TRUE AND CORRECT.

APPLICANT'S NAME (PRINTED & SIGNATURE)	DATE
Quality Nut Co. by MG Nelson	1/31/89

LOCAL AGENCY USE ONLY

COUNTY #	JURISDICTION #	AGENCY #	FACILITY ID #	TANK ID #

CURRENT LOCAL AGENCY FACILITY ID #	APPROVED BY NAME	PHONE # WITH AREA CODE

PERMIT NUMBER	PERMIT APPROVAL DATE	PERMIT EXPIRATION DATE

CHECK #	PERMIT AMOUNT	SURCHARGE AMT.	FEE CODE	RECEIPT #	BY:

FORM B (3-7-88) **THIS FORM MUST BE ACCOMPANIED BY A FACILITY/SITE APPLICATION, FORM 'A', UNLESS A CURRENT FORM 'A' HAS BEEN FILED**

DATA PROCESSING COPY

RELEASE REPORTING PROCEDURES

California Administrative Code, Title 23, Chapter 3,
Subchapter 16, Article 5, Section 2652

All leaks to existing underground storage tank systems utilizing one of the monitoring alternatives in Section 2641, shall be reported to the Stanislaus County Department of Environmental Resources (29) 571-5032 within 24-hours after the release has been detected, or should have been detected. Upon notification, this department will provide technical assistance to the Underground Storage Tank owner/operator.

TANK OWNER/OPERATOR DECLARATION:

I (Tank Owner or Operator) have read the Release Reporting Procedures outlined on this sheet and the Release Evaluation Procedure provided by the facility inspector and understand my responsibilities for investigating and reporting releases when they occur. I further understand that I am to refer to the appropriate sections in the regulations if there is a question regarding the procedures or reporting requirements.

Inspector _____ Date _____

Quality Nut M. G. Nelson Mgr.
Tank Owner/Operator (Signature) Title

M.G. Nelson
Tank Owner/Operator (Print)

1711 Patterson Rd. (Del Rio Orchards)
Facility

4019-81

Quality Nut Company

PROCESSOR: ALMONDS - PECANS - WALNUTS

P. O. BOX 739
EMPIRE, CALIFORNIA 95319
TELEPHONE (209) 526-3550
TWX: 510 7614412 (BEARD NUT EMPR)
FAX (209) 526-8110

January 31, 1989

I certify that an inch stick and tank chart has been obtained for the monitoring of an underground tank located at 1711 Patterson Road, Modesto, California.

Signed,
QUALITY NUT CO.

Michael G. Nelson

MGN/ds
cc: file

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351
(209)

525-4150

January 9, 1989

Mike Nelson
Quality Nut
P.O. Box 739
Empire, CA 95319

RE: Underground Storage Tank at 1711 Patterson Road, Modesto

We have received the current precision test report for the two thousand gallon diesel tank, the monitoring plan (alternative #7 modified), and the plot plan. Before the facility can receive a permit from this department to operate the underground storage tank, the following will need to be submitted by January 31, 1989:

1. An application for permit (SWEEPS Form A and B).

2. A signed copy of the release reporting requirements.

3. A copy of the agreement between the owner and operator (explanatory memo enclosed).

4. A copy of the current meter calibration receipt.

5. A signed statement that a inch stick and tank chart has been acquired and monitoring of the underground storage tank has started.

If you have any questions, please feel free to call me at 525-4150.

DAVID L. JONES
HAZARDOUS MATERIALS SPECIALIST
Hazardous Materials Division

sd

Enclosures

Jan. 14,1989

Stanislaus Co.
Dept. of Environmental Resources
1716 Morgan Rd.
Modesto, CA 95351

Attn: David Jones

RE: Update of monitoring plan for underground storage tank a 1711 Patterson Rd., Modesto, CA Tank # 00000031024002

Tank Operator: Quality Nut Co.

Tank Owner: Same

Inventory Reconciliation: Monitoring alternative #7

Preciscion Tank Testing: Completed 11/29/88 by B.CF Construction

Contact Person: Dave Wendt 1713 Patterson Rd., Modesto, CA
(209) 869-1094

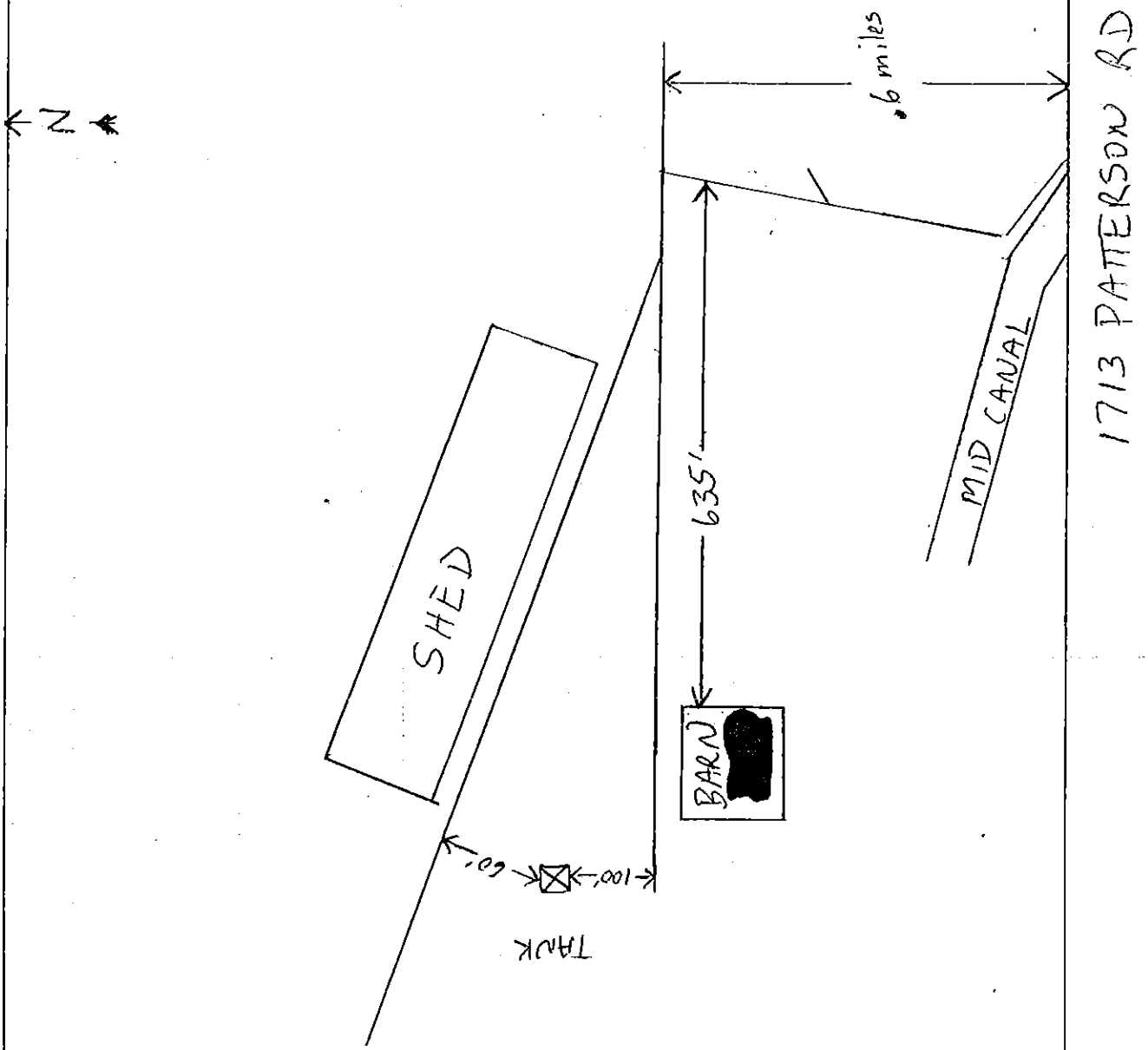
Plot Plan: Attached

Quality Nut Co.

M. G. Nelson



Beard's Quality Nut Co.
1713 Patterson Rd
2000 gal Underground Tank
Site Plan



BCF Construction, Inc.

720 B Street, Modesto, Ca 95354
(209) 522-7291

Test Data & Results

Owner / Operator Quality Nut Co.

Agent

Address P.O. Box 739

City, State Empire, CA 95319

Telephone

Tank Farm Location 1713 Patterson Rd.

Agent Mike Nelson

Address

City, State

Telephone

Contractors Testing Operator Martin Stokman

Date of Testing 11/29/88

Time: From 8:00 AM to 11:00 AM of Test

Tank #	Capacity	Diameter	Product	High Test Results	Low Test Results	Certified Tight
1	2000	75"	Diesel	+.01		yes

Remarks Tank and lines meet NFPA 329 criteria. Initial test Ambient temp 50° at 9:00 AM

ATTENTION: One inch of water in tank.

BCF CONSTRUCTION, INC.

REPORT OF AIRLAY TIT TANK TEST

Owner-Operator Quality Nut Co Tank Location 1713 Patterson Rd,
Address P.O. Box 739
City, State Empire CA
Telephone Product Type Diesel

Date 11-29-88 Tank # 1 High Test X
Low Test ___ Test # 1

60 Minute Temperature Check
Starting Time for Temperature Check 9:10 Completion Time 10:10

A	B	C	D	E	F
	Temperatures				
Probes	Start of Test	End of Test	Temp. Shift (B from C): + or -	Multiply Column D by E	Add up for Weighted Shift
Top	55.70	55.71	+.01	x .25	= +.0025
Middle	56.77	56.80	+.03	x .50	= +.015
Bottom	56.77	56.78	+.01	x .25	= +.0025
					= +.02

Line
1. Add the Three Results in Column F (Weighted Ave. Temp. Shift)..... = +.02
2. Tank Dia. 75 : Gallon Capacity..... = 2000
3. Exact Water Level in Tank Bottom at Start of Test..... = 1" at End = 1"

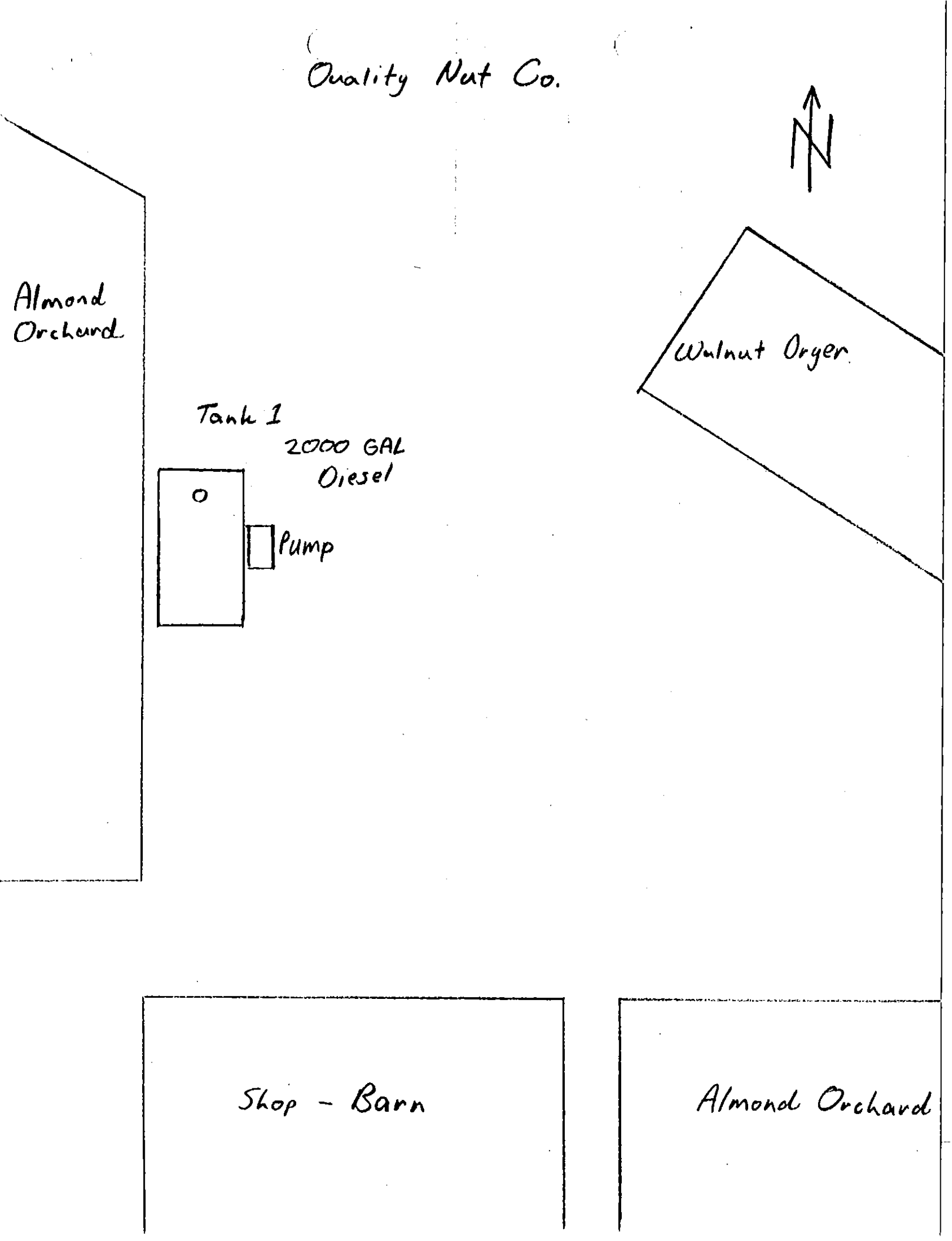
60 Minute Volume Check
Start time 9:10 Completion Time 10:10
4. Exact Amount of Liquid Lost & Replaced (-) or Gained & Removed (+) in fill pipe to restore original level..... = +.028
5. API Gravity of Tested Liquid in Graduate..... = 32.5
6. Temperature of Tested Liquid in Graduate..... = 48
7. Subtract Line 6 from 60°. (result is + or -)..... = +12
8. Multiply Line 7 x .1. (+ x - = -; + x + = +)..... = +1.2
9. Line 5 + or - Line 8 (API Gravity Adjusted for Temperature)..... = 33.7
10. With Line 9 enter Table C, Read Coefficient of Expansion..... = .0004575
11. Multiply Line 10 by Line 2 (Gallons), (Volume Change for Each Degree of Temperature Change).. = .915
12. Multiply Line 11 by Line 1 (Volume Change Due to Temperature)..... = +.0183 -.018
13. Change sign of Line 12 (see Sec. 9.4.) and add to Line 4 mathematically (Net change in gallons). (+ or -)..... = +.01
(Double check sign: Minus if product lost, Plus if gained)

NOTE: NFPA in Publication #329, 4-3.10.1 does not call for a precision test to show a loss of more than .05 gallons (1/20th) per hour.

Therefore, since tested tank had a loss/gain of (line 13) +.01 gallons per hour it (DOES) DOES NOT meet the NFPA criterion for tank tightness.

Additional Remarks
Tank dia 75
Riser 66
Total 141

Accuracy of test is dependent on operator following instructions and results are the sole responsibility of the operator.


Quality Nut Co.
N
Almond Orchard
Walnut Dryer
Tank 1
2000 GAL
Diesel
Pump
Shop - Barn
Almond Orchard

September 14, 1988



Stanislaus County
Dept. of Environmental Resources
1716 Morgan Rd.
Modesto, CA 95351

ATTN: DAVID L. JONES

RE: Monitoring Plan for Underground Storage Tank @ 1711 Patterson Rd., Modesto, CA

As I discussed with you on 8/16/88, here is our plan for the tank described. At that time, I told you that we are in our harvest time and the timing of this monitoring plan is very inconvenient. We proposed, however, to submit the paperwork required by September 15, 1988 and to get the tank test, etc. done at the conclusion of harvest, which at this time we anticipate to be November 30, 1988.

TANK OPERATOR: QUALITY NUT CO., EMPIRE, CA
TANK OWNER : JOHN HANCOCK LIFE INSURANCE

INVENTORY RECONCILIATION:

We propose to use the gauging method of inventory reconciliation as described in Monitoring alternative #7.

PRECISION TANK TESTING:

To be done at conclusion of harvest.

CONTACT PERSON:

Dave Wendt, 1713 Patterson Rd., Modesto, CA 209-869-1094

PLOT PLAN:

Due to time constraints we have been unable to get this done, but we will have it done by November 30, 1988.

Hopefully, this will satisfy the preliminary requirement for this application. If you have any questions or comments you can leave a message for me at 526-3550. and I'll get back to you.

Sincerely,
QUALITY NUT CO.

Michael G. Nelson

FARM TANKS
(between 1,100 - 5,000 gallons)

Monitoring plan

Facility Name Del Rio Orchards Facility Address 1711 Patterson Rd Modesto

Owner John Hancock Life Ins. Operator Quality Nut Co. Date 9/14/88

Tank I.D.# 00000031024002 Monitoring Alternative Selected 7 (modified)

1. Inventory Reconciliation
I propose to use inventory reconciliation on a weekly basis. This method will take into account a separate weekly tank quantity measurement for both the stored product and water layer and a weekly meter reading for tank inputs and withdrawals. The meters to be used for measuring inputs and withdrawals comply with meter standards listed in the California Administrative Code, Title 4, Chapter 9, Subchapter 1, and must be inspected and calibrated by a State Registered Device Repariman.

2. Tank Testing
I propose to test this tank using the See attached method of Precision
(Type of Precision Test)
Testing. This method meets the standards for precision testing as specified in the National Fire Protection Association's Bulletin #329 (NFPA#329). The tank will be tested on _____ by _____ company which is certified
Date Testing Company
to perform the testing method specified above. The test will be performed once every three (3) years and the test results will be sent by the testing company to the Department of Environmental Resources within thirty (30) days of test completion. If the tank fails to pass the precision test I will contact the Department of Environmental Resources within twenty-four (24) hours of test completion.

3. Tank Leakage Reporting
I propose to immediately investigate and report tank leakage revealed by the monitoring methods proposed in this plan for my underground storage tank(s). I propose to follow the reporting requirements under Article 5, Subchapter 16, Title 23, California Administrative Code; and Chapter 6.7 of Division 20 of the Health and Safety Code.

MG Nelson for Quality Nut Co. 9/14/88

Operator ~~Owner's~~ Signature Date

M.G. Nelson
Print Name

Name of person responsible for monitoring program: Dave Wendt

24-Hour Phone Number: (209) 869-1094

SEP 1988
RECD
STANISLAUS CO.
DEPT OF
ENVIRONMENTAL
RESOURCES

Stanislaus County

Department of Environmental Resources

1716 Morgan Road
Modesto, California 95351
(209)
525-4150

August 5, 1988

Rodney Beard
Quality Nut
4808 Yosemite Avenue
Modesto, CA 95351

Re: Underground Storage Tank at 1711 Patterson Road, Modesto

I understand that Quality Nut has a long term lease on property owned by John Hancock Life Insurance Company that was formerly called Del Rios Orchards. There is an underground storage tank on this property that contains diesel. The tank was originally reported as being a 2000 gallon tank and I measured the diameter of the tank as 74 1/2 inches which is consistent with one that size. Farm tanks over 1100 gallons in size are not exempt from regulation.

If you intend to continue operating your tank you must complete the enclosed permit application and submit it with appropriate state and local fees to Stanislaus County, Department of Environmental Resources, Hazardous Materials Division, 1716 Morgan Road, Modesto, CA 95351. A monitoring proposal and a detailed plot plan of your underground storage tank facility must be included. Enclosed are sample monitoring plans of the Alternatives most frequently used for your type of facility. If you decide to utilize the sample plan simply fill in all the blanks and mail the forms in along with your applications and fees.

If you decide not to keep your underground storage tank you must close them in accordance with California State Law. To close your tank it will be necessary to complete the enclosed closure application and return it to this department with the designated fee. Please note you must obtain a permit and monitor your tank or close them.

Instructions for completing the applications are enclosed. Please submit the requested information by September 1, 1988. Failure to provide the requested information and fees will result in further action by this department. If you have any questions or need further assistance please call me at (209) 525-4150.

DAVID L. JONES
HAZARDOUS MATERIALS SPECIALIST
Hazardous Materials Division

cc John Hancock Life Insurance Company

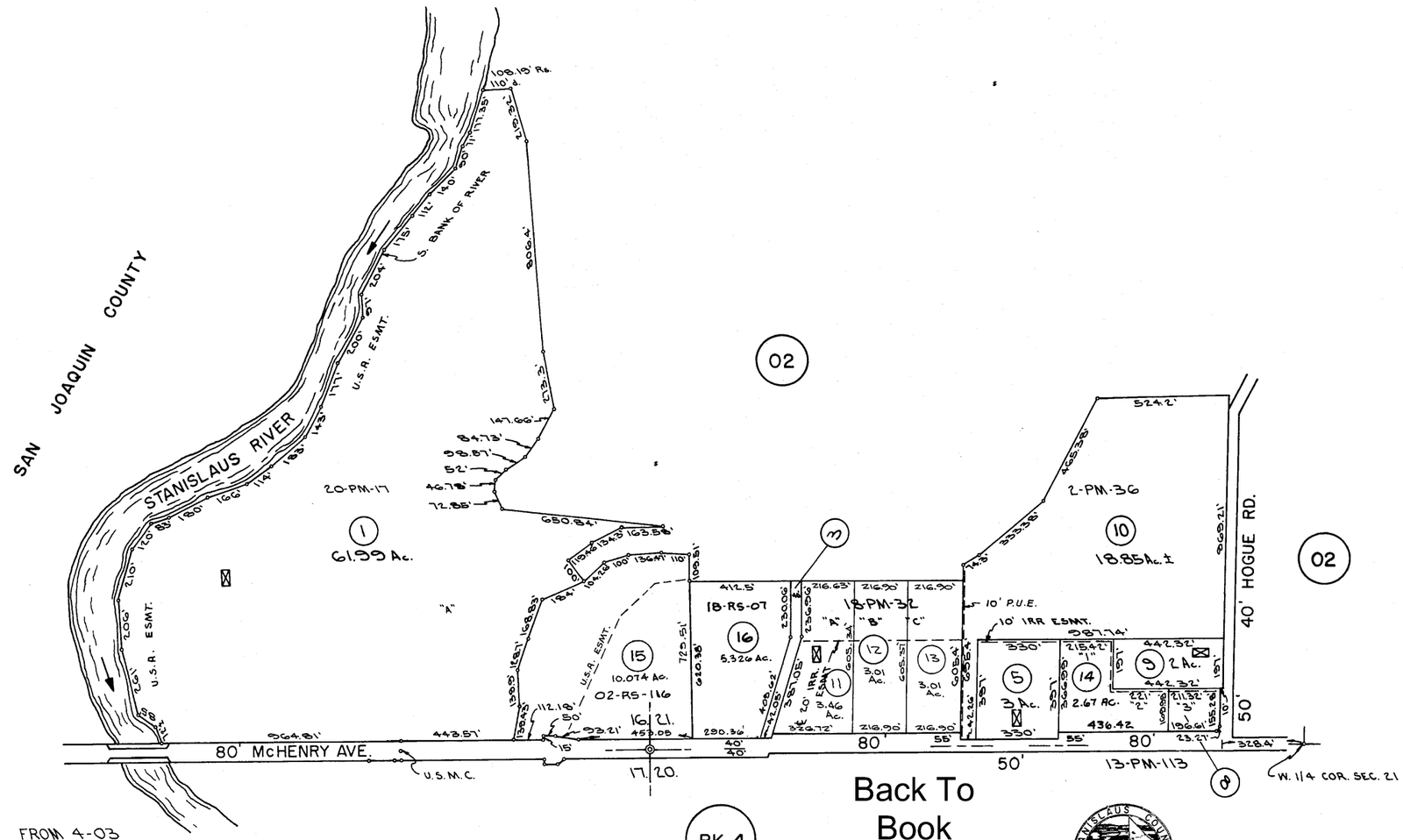
Enclosures

Certified

PORTION SW.1/4 SECTION 16 & POR. NW.1/4 SEC. 21 T.2 S. R.9 E. M.D.B.& M. 0098 003 74-01

THIS MAP FOR ASSESSMENT PURPOSES ONLY

1" = 400'



FROM 4-03
~~ABE 5DD 47~~
9-6-74
UPDATED: 11-22-05 MF

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Back To Book Index

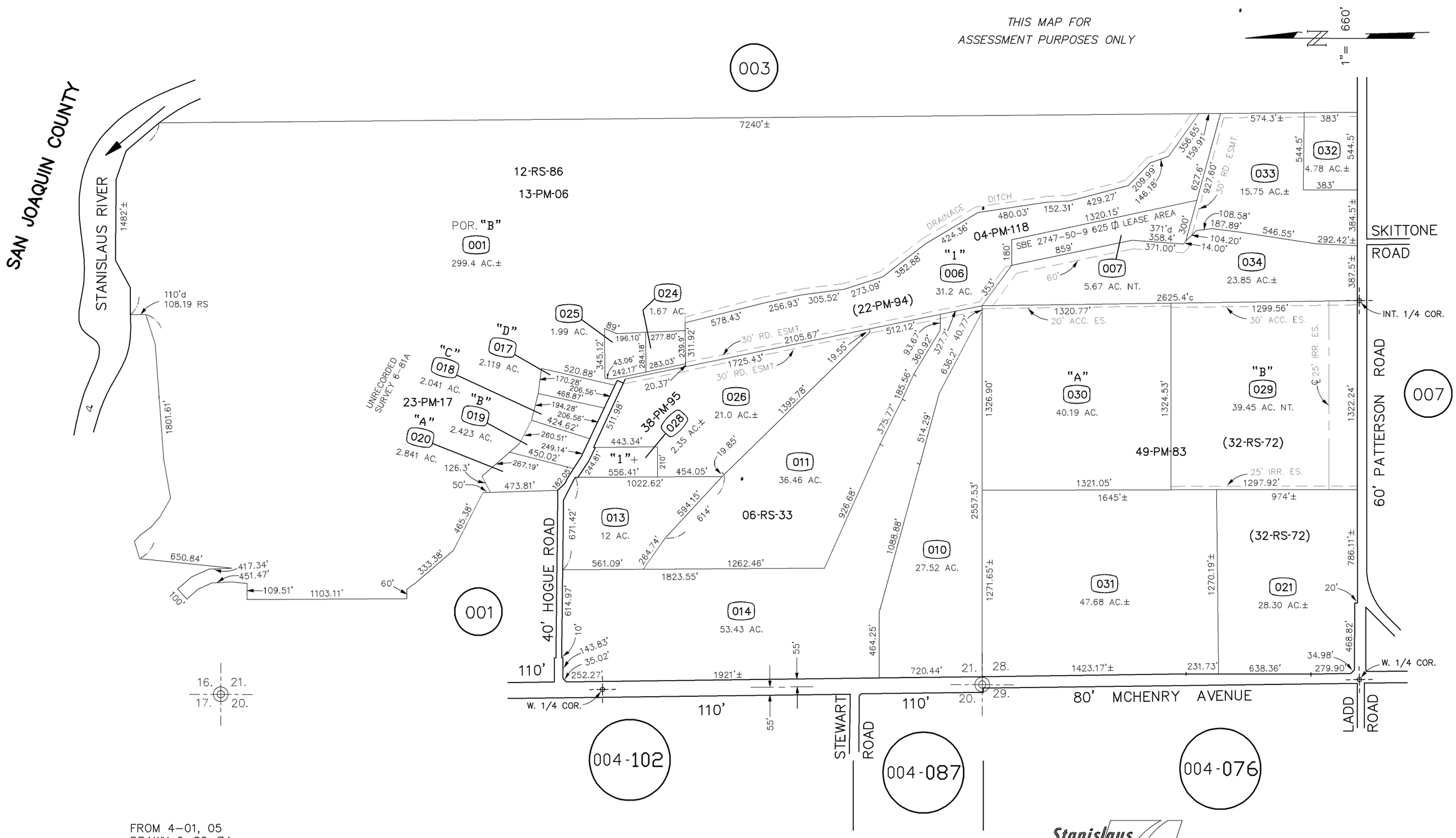
75,06

74-01

POR. SECS. 16, 21 & 28 T.2S. R.9E. M.D.B.& M.

098 003

074 – 002



FROM 4–01, 05
DRAWN 9–20–74
REVISED 2–14–92 CS, 3–17–98, 9–20–99, 9–27–01 MF, 4–2–03 DH, 4–24–04 (V)DH, 06–22–09 MB., 06–15–11 MB, 10–04–11 MB, 11–15–11 MB.

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Stanislaus County Assessor

75,92,00,02,04,05

074 – 002

PORTION SECTIONS 21,22,27,& 28 T.2 S. R.9 E. M.D.B.& M.

109 001
109 003

74-03

THIS MAP FOR
ASSESSMENT PURPOSES ONLY

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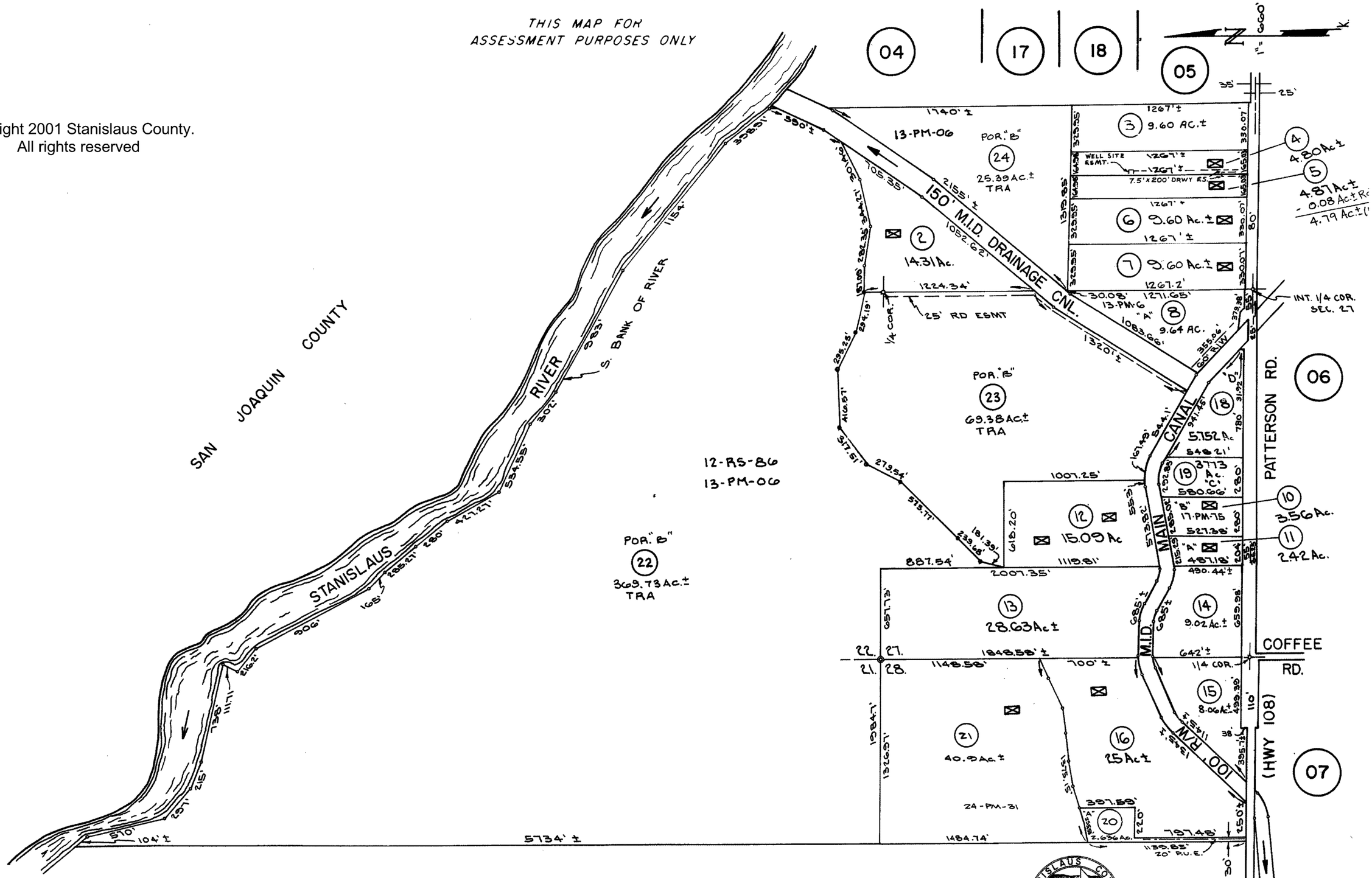

FROM 4-01,05,09
~~ABE 5DD-47~~
~~ABE 3DD-81~~
9-25-74
UPDATED 8-28-84 6-3-08 MF

75,09

74-03

DETAIL REPORT

Property Address: **MC HENRY AVE MODESTO CA 95356**

Ownership

Parcel# (APN):	**074-001-003-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**P O BOX 739 LINDEN CA 95236**
Legal Description:	

Assessment

Total Value:	**$8,618**	Use Code:	**890**	Use Type:	**MISCELLANEOUS**
Land Value:	**$8,618**	Tax Rate Area:	**098-003**	Zoning:	
Impr Value:		Year Assd:	**2016**	Census Tract:	**4.02/3**
Other Value:		Property Tax:		Price/SqFt:	
% Improved:	**0%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/22/2013**	**11/24/2003**		**03/22/2013**
Recording Doc:	**2013R0024528**	**2003R0200311**		**2013R0024528**
Doc type:	**DEED**			
Transfer Amount:				
Seller (Grantor):	**BERG MICHAEL R & IRENE**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:		Fireplace:		Units:	
Baths (Full):		A/C:		Stories:	
Baths (Half):		Heating:		Quality:	
Total Rooms:		Pool:		Building Class:	
Bldg/Liv Area:		Park Type:		Condition:	
Lot Acres:	**0.600**	Spaces:		Site influence:	
Lot SqFt:	**26,136**	Garage SqFt:		Timber Preserve:	
Year Built:		Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

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DETAIL REPORT

Property Address: **MC HENRY AVE MODESTO CA 95356**

Ownership

Parcel# (APN):	**074-001-016-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**2345 N ALPINE ROAD STOCKTON CA 95215**
Legal Description:	

Assessment

Total Value:	**$284,270**	Use Code:	**700**	Use Type:	**AGRICULTURAL**
Land Value:	**$284,270**	Tax Rate Area:	**098-003**	Zoning:	
Impr Value:		Year Assd:	**2016**	Census Tract:	**4.02/3**
Other Value:		Property Tax:		Price/SqFt:	
% Improved:	**0%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/12/2015**	**09/12/2007**	**10/26/2005**	**03/12/2015**
Recording Doc:	**2015R0017327**	**2007R0115607**	**2005R0196158**	**2015R0017327**
Doc type:	**GRANT DEED**	**DEED**	**DEED**	
Transfer Amount:	**$280,000**		**$625,000**	
Seller (Grantor):	**FOUNDATION MANAGEMENT IN**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:		Fireplace:		Units:	
Baths (Full):		A/C:		Stories:	
Baths (Half):		Heating:		Quality:	
Total Rooms:		Pool:		Building Class:	
Bldg/Liv Area:		Park Type:		Condition:	
Lot Acres:	**5.330**	Spaces:		Site influence:	
Lot SqFt:	**232,174**	Garage SqFt:		Timber Preserve:	
Year Built:		Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

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DETAIL REPORT

Property Address: **525 HOGUE RD MODESTO CA 95356-9624**

Ownership

Parcel# (APN):	**074-002-001-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**P O BOX 739 LINDEN CA 95236**
Legal Description:	

Assessment

Total Value:	**$4,364,803**	Use Code:	**802**	Use Type:	**AGRICULTURAL**
Land Value:	**$4,051,723**	Tax Rate Area:	**098-019**	Zoning:	**A240**
Impr Value:	**$41,607**	Year Assd:	**2016**	Census Tract:	**4.02/3**
Other Value:	**$271,473**	Property Tax:		Price/SqFt:	
% Improved:	**1%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/22/2013**	**11/24/2003**		**03/22/2013**
Recording Doc:	**2013R0024528**	**2003R0200311**		**2013R0024528**
Doc type:	**DEED**			
Transfer Amount:				
Seller (Grantor):	**BERG MICHAEL R & IRENE**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:	**3**	Fireplace:		Units:	
Baths (Full):	**2**	A/C:	**CENTRAL**	Stories:	
Baths (Half):		Heating:	**CENTRAL**	Quality:	
Total Rooms:		Pool:		Building Class:	
Bldg/Liv Area:	**1,620**	Park Type:		Condition:	
Lot Acres:	**299.400**	Spaces:		Site influence:	
Lot SqFt:	**13,041,863**	Garage SqFt:		Timber Preserve:	
Year Built:		Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

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DETAIL REPORT

Property Address: **PATTERSON RD OAKDALE CA 95361**

Ownership

Parcel# (APN):	**074-003-022-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**P O BOX 739 LINDEN CA 95236**
Legal Description:	

Assessment

Total Value:	**$5,158,793**	Use Code:	**865**	Use Type:	**AGRICULTURAL**
Land Value:	**$4,341,737**	Tax Rate Area:	**109-032**	Zoning:	
Impr Value:	**$114,424**	Year Assd:	**2016**	Census Tract:	**4.02/3**
Other Value:	**$702,632**	Property Tax:		Price/SqFt:	
% Improved:	**2%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/22/2013**			**03/22/2013**
Recording Doc:	**2013R0024528**			**2013R0024528**
Doc type:	**DEED**			
Transfer Amount:				
Seller (Grantor):	**BERG MICHAEL R & IRENE**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:		Fireplace:		Units:	
Baths (Full):		A/C:		Stories:	
Baths (Half):		Heating:		Quality:	
Total Rooms:		Pool:		Building Class:	
Bldg/Liv Area:		Park Type:		Condition:	
Lot Acres:	**369.730**	Spaces:		Site influence:	
Lot SqFt:	**16,105,438**	Garage SqFt:		Timber Preserve:	
Year Built:		Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

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DETAIL REPORT

Property Address: **1711 PATTERSON RD OAKDALE CA 95361**

Ownership

Parcel# (APN):	**074-003-023-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**P O BOX 739 LINDEN CA 95236**
Legal Description:	

Assessment

Total Value:	**$1,262,377**	Use Code:	**802**	Use Type:	**AGRICULTURAL**
Land Value:	**$988,796**	Tax Rate Area:	**109-001**	Zoning:	
Impr Value:	**$273,581**	Year Assd:	**2016**	Census Tract:	**2.03/**
Other Value:		Property Tax:		Price/SqFt:	
% Improved:	**21%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/22/2013**			**03/22/2013**
Recording Doc:	**2013R0024528**			**2013R0024528**
Doc type:	**DEED**			
Transfer Amount:				
Seller (Grantor):	**BERG MICHAEL R & IRENE**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:	**3**	Fireplace:		Units:	
Baths (Full):	**2**	A/C:	**CENTRAL**	Stories:	
Baths (Half):		Heating:	**CENTRAL**	Quality:	**6.0**
Total Rooms:		Pool:		Building Class:	**D**
Bldg/Liv Area:	**1,868**	Park Type:		Condition:	
Lot Acres:	**69.380**	Spaces:		Site influence:	
Lot SqFt:	**3,022,192**	Garage SqFt:		Timber Preserve:	
Year Built:	**1951**	Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

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DETAIL REPORT

Property Address: **PATTERSON RD OAKDALE CA 95361**

Ownership

Parcel# (APN):	**074-003-024-000**
Parcel Status:	**ACTIVE**
Owner Name:	**BERGHILL LLC**
Mailing Addr:	**P O BOX 739 LINDEN CA 95236**
Legal Description:	

Assessment

Total Value:	**$364,740**	Use Code:	**805**	Use Type:	**AGRICULTURAL**
Land Value:	**$364,740**	Tax Rate Area:	**109-001**	Zoning:	
Impr Value:		Year Assd:	**2016**	Census Tract:	**2.03/**
Other Value:		Property Tax:		Price/SqFt:	
% Improved:	**0%**	Delinquent Yr:			
Exempt Amt:		HO Exempt:	**N**		

Sale History

	Sale1	Sale2	Sale3	Transfer
Recording date:	**03/22/2013**			**03/22/2013**
Recording Doc:	**2013R0024528**			**2013R0024528**
Doc type:	**DEED**			
Transfer Amount:				
Seller (Grantor):	**BERG MICHAEL R & IRENE**			
1st Trust Dd Amt:				
2nd Trust Dd Amt:				

Property Characteristics

Bedrooms:		Fireplace:		Units:	
Baths (Full):		A/C:		Stories:	
Baths (Half):		Heating:		Quality:	
Total Rooms:		Pool:		Building Class:	
Bldg/Liv Area:		Park Type:		Condition:	
Lot Acres:	**25.390**	Spaces:		Site influence:	
Lot SqFt:	**1,105,988**	Garage SqFt:		Timber Preserve:	
Year Built:		Bsmt SqFt:	**N/A**	Ag Preserve:	
Effective Year:					

Call us 888-217-8999
Visit us: www.ParcelQuest.com
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APPENDIX C: REGULATORY DATABASE REPORT

PARTNER

1711 Patterson
1711 Patterson Road
Riverbank, CA 95367

Inquiry Number: 4883461.2s
March 20, 2017

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

1711 PATTERSON ROAD
RIVERBANK, CA 95367

COORDINATES

Latitude (North):	37.7467280 - 37° 44' 48.22''
Longitude (West):	120.9788680 - 120° 58' 43.92''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	678072.3
UTM Y (Meters):	4179432.8
Elevation:	82 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640258 RIVERBANK, CA
Version Date:	2012
Northeast Map:	5639980 ESCALON, CA
Version Date:	2012
Southwest Map:	5640412 SALIDA, CA
Version Date:	2012
Northwest Map:	5640046 AVENA, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140628
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
1711 PATTERSON ROAD
RIVERBANK, CA 95367

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	COMMONWEALTH LAND AN	423 HOGUE ROAD	HIST UST	Higher	3183, 0.603, West
A2	ROBERT IJAMS	125 HOGUE RD	SWEEPS UST, CA FID UST	Higher	4535, 0.859, West
A3	ROBERT IJAMS	125 HOGUE RD	HIST UST	Higher	4535, 0.859, West
B4	AMERINE ORCHARDS	7050 MCHENRY AVE	SWEEPS UST, CA FID UST	Higher	4775, 0.904, West
B5	AMERINE ORCHARDS	7050 MCHENRY AVE	HIST UST	Higher	4775, 0.904, West
6	TB ROBERSON RANCH	25549 BURWOOD RD	HIST UST	Higher	5013, 0.949, ENE
C7	BACCHUS VINEYARD INC	1329 PATTERSON RD	CA FID UST	Higher	5120, 0.970, South
C8	BACCHUS VINEYARD INC	1329 PATTERSON RD	HIST UST	Higher	5120, 0.970, South
9	MAIN RIVERBANK	PO BOX 4760	MINES	Higher	5144, 0.974, NNE
10	MUNN & PERKINS 11.4	PO BOX 4760	MINES	Higher	5187, 0.982, North
D11	ESTOLE OF S DARPINIA	121 STEWART RD	HIST UST	Higher	5298, 1.003, WSW
D12	ESTOLE OF S DARPINIA	121 STEWART RD	SWEEPS UST, CA FID UST	Higher	5298, 1.003, WSW
13	MARINN FARIA	2141 PARK RIDGE DR	HAZNET	Higher	5499, 1.041, ESE
14	WILLIAM GIBBS	2129 PARK RIDGE DR	HAZNET	Higher	5525, 1.046, ESE
E15	QUALITY NUT CO	22519 BURWOOD	HIST CORTESE	Higher	5625, 1.065, ENE
16	MUNN & PERKINS	26292 E RIVER RD	FINDS	Higher	5671, 1.074, NNW
E17	QUALITY NUT CO	22519 BURWOOD RD	RGA LUST	Higher	5672, 1.074, ENE
E18	QUALITY NUT CO.	22519 BURWOOD RD	RGA LUST	Higher	5672, 1.074, ENE
E19	QUALITY NUT COMPANY	22549 BURWOOD RD	UST	Higher	5677, 1.075, ENE
E20	QUALITY NUT COMPANY/	22549 BURWOOD ROAD	SWEEPS UST	Higher	5677, 1.075, ENE
F21	HENRY F PLOTT	26546 E RIVER RD	HIST UST	Higher	5710, 1.081, NNW
F22	ROY BLIXT	26444 E RIVER RD	HIST UST	Higher	5722, 1.084, NNW
G23	ADRIAN RANCH	26554 E RIVER RD	HIST UST, EMI	Higher	5760, 1.091, North
G24	PHIL ADRIAN	26554 E RIVER ROAD	EMI	Higher	5760, 1.091, North
G25	PHIL ADRIAN	26554 E RIVER RD	FINDS, ECHO	Higher	5760, 1.091, North
G26	PHIL ADRIAN	26554 E RIVER RD	US AIRS	Higher	5760, 1.091, North
27		7915 MCHENRY AVE	CHMIRS	Lower	5807, 1.100, WNW
H28	MUNN & PERKINS	26292 E RIVER RD	UST	Higher	5817, 1.102, NNW
H29	MUNN & PERKINS	26292 E RIVER	AST	Higher	5817, 1.102, NNW
H30	MUNN & PERKINS	26292 E RIVER RD	ICIS, US AIRS, US MINES, FINDS, ECHO	Higher	5817, 1.102, NNW
H31	MUNN & PERKINS	26292 E. RIVER RD.	EMI	Higher	5817, 1.102, NNW
H32	MUNN & PERKINS GRAVE	26292 RIVER RD	UST	Higher	5817, 1.102, NNW
H33	MUNN & PERKINS INC	26292 E RIVER RD	SWEEPS UST, HIST UST, EMI	Higher	5817, 1.102, NNW
H34	GEORGE REED INC.	26292 E. RIVER RD.	EMI	Higher	5817, 1.102, NNW
H35	GEORGE REED INC	26292 E RIVER RD	HAZNET	Higher	5817, 1.102, NNW
I36	W.M. KLINE	1620 PATTERSON RD	HIST UST	Higher	5819, 1.102, SSE
I37	W.M. KLINE	1620 PATTERSON RD	SWEEPS UST, HIST UST, CA FID UST	Higher	5819, 1.102, SSE
I38	QUALITY NUT	1711 PATTERSON RD	RGA LUST	Higher	5858, 1.109, SSE
I39	QUALITY NUT AKA JOHN	1711 PATTERSON	RGA LUST	Higher	5858, 1.109, SSE

MAPPED SITES SUMMARY

Target Property Address:
1711 PATTERSON ROAD
RIVERBANK, CA 95367

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
I40	QUALITY NUT	1711 PATTERSON	RGA LUST	Higher	5858, 1.109, SSE
I41	DEL RIO ORCHARDS RUT	1711 PATTERSON RD	HIST UST	Higher	5858, 1.109, SSE
I42	QUALITY NUT (CLOSED	1711 PATTERSON	RGA LUST	Higher	5858, 1.109, SSE
I43	DEL RIO ORCHARDS RUT	1711 PATTERSON RD	SWEEPS UST, CA FID UST	Higher	5858, 1.109, SSE
I44	QUALITY NUT	1711 PATTERSON	LUST, HIST CORTESE	Higher	5858, 1.109, SSE
I45	VILLA INFANTINO RANC	1817 PATTERSON ROAD	HIST UST	Higher	5863, 1.110, SSE
I46	CIPPONERI TRUCKING	2017 PATTERSON	HIST CORTESE	Higher	5863, 1.110, SSE
I47	CINDY HIGBY	1817 PATTERSON RD	HAZNET	Higher	5863, 1.110, SSE
48	RUMBLE FARMS	6116 COFFEE RD	HAZNET	Higher	5881, 1.114, South
I49		1729 PATTERSON RD	EDR Hist Cleaner	Higher	5908, 1.119, SSE
J50	ADRIAN RANCH	27107 E RIVER RD	AST	Higher	5998, 1.136, North
J51	ADRIAN RANCH	27107 E RIVER RD	FINDS	Higher	5998, 1.136, North
J52	PHILIP ADRIAN	27107 E RIVER RD	HIST UST	Higher	5998, 1.136, North
K53	JERRY MOYER	2001 CANDLEWOOD PL.	PEST LIC	Higher	6021, 1.140, SE
K54	ERICA MOYER	2001 CANDLEWOOD PL	PEST LIC	Higher	6021, 1.140, SE
K55	WILLIAM C GARY	2012 WOODHAVEN CIR	PEST LIC	Higher	6133, 1.162, SE
L56	VILLA INFANTINO RANC	1817 PATTERSON RD	SWEEPS UST, CA FID UST	Higher	6216, 1.177, SE
L57	THE WINTERS GROUP	1848 PATTERSON	HAZNET	Higher	6244, 1.183, SE
L58	MORRIS NURSERY INC	1837 PATTERSON RD	HAZNET	Higher	6247, 1.183, SE
M59	FRANK SBRAGIA	221 PATTERSON RD	SWEEPS UST, HIST UST, CA FID UST, NPDES	Higher	6270, 1.188, SW
M60	FRANK SBRAGIA	221 PATTERSON RD.	HIST UST	Higher	6270, 1.188, SW
61		7213 SPY GLASS DR	EDR Hist Auto	Lower	6351, 1.203, West
N62	LEO MORRIS	6525 OLD OAKDALE RT	HIST UST	Higher	6449, 1.221, SE
O63	CITY OF RIVERBANK	6590 CIPPONERI ST	EMI	Higher	6509, 1.233, SE
O64	CITY OF RIVERBANK	6590 CIPPONERI ST	FINDS	Higher	6509, 1.233, SE
65	EFFIE LATTA	27865 E RIVER RD	HIST UST	Higher	6546, 1.240, NNE
N66	CIPPONERI TRUCKING	2017 PATTERSON	LUST	Higher	6835, 1.295, SE
N67	CIPPONERI TRUCKING	2015 PATTERSON RD	RCRA-SQG, FINDS, ECHO	Higher	6847, 1.297, SE
P68	TOM CIPPONERI TRUCKI	2017 PATTERSON RD	SWEEPS UST, CA FID UST	Higher	6853, 1.298, SE
P69	TOM CIPPONERI TRUCKI	2017 PATTERSON ROAD	HIST UST	Higher	6853, 1.298, SE
Q70	JAMES URIELING	21413 S HAROLD AVE	HIST UST	Higher	7243, 1.372, NNE
Q71	JAMES URIELING	21413 S HARROLD AVE	HIST UST	Higher	7243, 1.372, NNE
R72	WILLIAM D. ANDERSON	6825 ZERILLO DR	HIST UST	Higher	7374, 1.397, ESE
73	BURNWOOD CEMETERY	28320 E RIVER RD	SWEEPS UST, HIST UST	Higher	7420, 1.405, NE
R74	WILLIAM D. ANDERSON	6825 ZARILLO DR	SWEEPS UST, HIST UST, CA FID UST	Higher	7603, 1.440, ESE
75	PACOAST INC	20001 MC HENRY AVE S	LUST, HIST CORTESE	Higher	7837, 1.484, NW
S76	SUNRISE ENTERPRISES	6345 OAKDALE RD	LUST, SWEEPS UST, EMI, HIST CORTESE	Higher	7864, 1.489, SE
S77	ARCO FACILITY NO 055	6345 OAKDALE RD	RCRA NonGen / NLR	Higher	7864, 1.489, SE
78	ESCALON CITY DUMP	25100 E. RIVER RD, T	SWF/LF	Lower	7909, 1.498, WNW

MAPPED SITES SUMMARY

Target Property Address:
1711 PATTERSON ROAD
RIVERBANK, CA 95367

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
79	RIVERBANK WWTP		Cortese, WDS	Higher	8831, 1.673, East
80	RIVERBANK CITY DUMP	1/2 MILE NORTH OF RI	SWF/LF	Higher	9004, 1.705, ESE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

EXECUTIVE SUMMARY

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ---------- EnviroStor Database

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs

Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HWP	EnviroStor Permitted Facilities Listing

HWT Registered Hazardous Waste Transporter Database
MWMP Medical Waste Management Program Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
FUELS PROGRAM EPA Fuels Program Registered Listing
ABANDONED MINES Abandoned Mines

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA-SQG site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CIPPONERI TRUCKING	***2015 PATTERSON RD***	***SE 1 - 2 (1.297 mi.)***	***N67***	***81***

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there are 2 SWF/LF sites within approximately 1.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERBANK CITY DUMP	1/2 MILE NORTH OF RI	ESE 1 - 2 (1.705 mi.)	80	99
Database: SWF/LF (SWIS), Date of Government Version: 11/14/2016 Facility ID: 39-CR-0029 Operational Status: Closed Regulation Status: Pre-regulations				

Lower Elevation	Address	Direction / Distance	Map ID	Page
ESCALON CITY DUMP	25100 E. RIVER RD, T	WNW 1 - 2 (1.498 mi.)	78	96
Database: SWF/LF (SWIS), Date of Government Version: 11/14/2016 Facility ID: 39-AA-0011 Operational Status: Closed Regulation Status: Pre-regulations				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 4 LUST sites within approximately 1.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUALITY NUT	***1711 PATTERSON***	***SSE 1 - 2 (1.109 mi.)***	***I44***	***63***
Database: LUST REG 5, Date of Government Version: 07/01/2008 Database: LUST, Date of Government Version: 12/12/2016 Status: Completed - Case Closed Status: Case Closed Global Id: T0609900179				
CIPPONERI TRUCKING	2017 PATTERSON	SE 1 - 2 (1.295 mi.)	N66	79
Database: LUST REG 5, Date of Government Version: 07/01/2008 Database: LUST, Date of Government Version: 12/12/2016 Status: Completed - Case Closed Status: Case Closed Global Id: T0609900188				
PACOAST INC	***20001 MC HENRY AVE S***	***NW 1 - 2 (1.484 mi.)***	***75***	***88***
Database: LUST REG 5, Date of Government Version: 07/01/2008 Database: LUST, Date of Government Version: 12/12/2016 Status: Completed - Case Closed				

Status: Case Closed
Global Id: T0607700050

SUNRISE ENTERPRISES ***6345 OAKDALE RD*** ***SE 1 - 2 (1.489 mi.)*** ***S76*** ***89***
Database: LUST REG 5, Date of Government Version: 07/01/2008
Database: LUST, Date of Government Version: 12/12/2016
Status: Completed - Case Closed
Status: Case Closed
Global Id: T0609900426

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 3 UST sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUALITY NUT COMPANY	22549 BURWOOD RD	ENE 1 - 2 (1.075 mi.)	E19	18
Database: UST, Date of Government Version: 09/12/2016 Database: UST SAN JOAQUIN, Date of Government Version: 12/21/2016 Facility Id: FA0005574 Facility Id: FA0005574 Tank Status: ACTIVE, EXEMPT				
MUNN & PERKINS	26292 E RIVER RD	NNW 1 - 2 (1.102 mi.)	H28	27
Database: UST SAN JOAQUIN, Date of Government Version: 12/21/2016 Facility Id: FA0009335 Tank Status: ACTIVE, EXEMPT				
MUNN & PERKINS GRAVE	26292 RIVER RD	NNW 1 - 2 (1.102 mi.)	H32	50
Database: UST, Date of Government Version: 09/12/2016 Facility Id: FA0005997				

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, and dated 07/06/2016 has revealed that there are 2 AST sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MUNN & PERKINS	26292 E RIVER	NNW 1 - 2 (1.102 mi.)	H29	27
ADRIAN RANCH	27107 E RIVER RD	N 1 - 2 (1.136 mi.)	J50	67

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

EXECUTIVE SUMMARY

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 13 SWEEPS UST sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT IJAMS Status: A Tank Status: A Comp Number: 27961	***125 HOGUE RD***	***W 1/2 - 1 (0.859 mi.)***	***A2***	***8***
AMERINE ORCHARDS Status: A Tank Status: A Comp Number: 24283	***7050 MCHENRY AVE***	***W 1/2 - 1 (0.904 mi.)***	***B4***	***9***
ESTOLE OF S DARPINIA Status: A Tank Status: A Comp Number: 34815	***121 STEWART RD***	***WSW 1 - 2 (1.003 mi.)***	***D12***	***15***
QUALITY NUT COMPANY/ Comp Number: 4036	22549 BURWOOD ROAD	ENE 1 - 2 (1.075 mi.)	E20	19
MUNN & PERKINS INC Comp Number: 2033	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H33***	***50***
W.M. KLINE Comp Number: 40559	***1620 PATTERSON RD***	***SSE 1 - 2 (1.102 mi.)***	***I37***	***58***
DEL RIO ORCHARDS RUT Status: A Tank Status: A Comp Number: 31024	***1711 PATTERSON RD***	***SSE 1 - 2 (1.109 mi.)***	***I43***	***62***
VILLA INFANTINO RANC Status: A Tank Status: A Comp Number: 15767	***1817 PATTERSON RD***	***SE 1 - 2 (1.177 mi.)***	***L56***	***70***
FRANK SBRAGIA Status: A Tank Status: A Comp Number: 15583	***221 PATTERSON RD***	***SW 1 - 2 (1.188 mi.)***	***M59***	***71***
TOM CIPPONERI TRUCKI Comp Number: 36300	***2017 PATTERSON RD***	***SE 1 - 2 (1.298 mi.)***	***P68***	***82***
BURNWOOD CEMETERY Comp Number: 2031	***28320 E RIVER RD***	***NE 1 - 2 (1.405 mi.)***	***73***	***86***
WILLIAM D. ANDERSON Comp Number: 1490	***6825 ZARILLO DR***	***ESE 1 - 2 (1.440 mi.)***	***R74***	***86***
SUNRISE ENTERPRISES Status: A Tank Status: A Comp Number: 71291	***6345 OAKDALE RD***	***SE 1 - 2 (1.489 mi.)***	***S76***	***89***

EXECUTIVE SUMMARY

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 25 HIST UST sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
COMMONWEALTH LAND AN Facility Id: 00000024557	423 HOGUE ROAD	W 1/2 - 1 (0.603 mi.)	1	8
ROBERT IJAMS Facility Id: 00000027961	125 HOGUE RD	W 1/2 - 1 (0.859 mi.)	A3	9
AMERINE ORCHARDS Facility Id: 00000024283	7050 MCHENRY AVE	W 1/2 - 1 (0.904 mi.)	B5	11
TB ROBERSON RANCH Facility Id: 00000036775	25549 BURWOOD RD	ENE 1/2 - 1 (0.949 mi.)	6	11
BACCHUS VINEYARD INC Facility Id: 00000015420	1329 PATTERSON RD	S 1/2 - 1 (0.970 mi.)	C8	13
ESTOLE OF S DARPINIA Facility Id: 00000034815	121 STEWART RD	WSW 1 - 2 (1.003 mi.)	D11	14
HENRY F PLOTT Facility Id: 00000022494	26546 E RIVER RD	NNW 1 - 2 (1.081 mi.)	F21	19
ROY BLIXT Facility Id: 00000021603	26444 E RIVER RD	NNW 1 - 2 (1.084 mi.)	F22	20
ADRIAN RANCH Facility Id: 00000019137	***26554 E RIVER RD***	***N 1 - 2 (1.091 mi.)***	***G23***	***21***
MUNN & PERKINS INC Facility Id: 00000014123	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H33***	***50***
W.M. KLINE Facility Id: 00000040559	1620 PATTERSON RD	SSE 1 - 2 (1.102 mi.)	I36	58
W.M. KLINE	***1620 PATTERSON RD***	***SSE 1 - 2 (1.102 mi.)***	***I37***	***58***
DEL RIO ORCHARDS RUT Facility Id: 00000031024	1711 PATTERSON RD	SSE 1 - 2 (1.109 mi.)	I41	61
VILLA INFANTINO RANC Facility Id: 00000015767	1817 PATTERSON ROAD	SSE 1 - 2 (1.110 mi.)	I45	64
PHILIP ADRIAN Facility Id: 00000019136	27107 E RIVER RD	N 1 - 2 (1.136 mi.)	J52	68
FRANK SBRAGIA	***221 PATTERSON RD***	***SW 1 - 2 (1.188 mi.)***	***M59***	***71***
FRANK SBRAGIA Facility Id: 00000015583	221 PATTERSON RD.	SW 1 - 2 (1.188 mi.)	M60	74
LEO MORRIS Facility Id: 00000031046	6525 OLD OAKDALE RT	SE 1 - 2 (1.221 mi.)	N62	75
EFFIE LATTA Facility Id: 00000034997	27865 E RIVER RD	NNE 1 - 2 (1.240 mi.)	65	79
TOM CIPPONERI TRUCKI Facility Id: 00000036300	2017 PATTERSON ROAD	SE 1 - 2 (1.298 mi.)	P69	83
JAMES URIELING	21413 S HAROLD AVE	NNE 1 - 2 (1.372 mi.)	Q70	84
JAMES URIELING Facility Id: 00000022947	21413 S HARROLD AVE	NNE 1 - 2 (1.372 mi.)	Q71	85
WILLIAM D. ANDERSON	6825 ZERILLO DR	ESE 1 - 2 (1.397 mi.)	R72	85

Facility Id: 00000001490				
BURNWOOD CEMETERY	***28320 E RIVER RD***	***NE 1 - 2 (1.405 mi.)***	***73***	***86***
Facility Id: 00000038816				
WILLIAM D. ANDERSON	***6825 ZARILLO DR***	***ESE 1 - 2 (1.440 mi.)***	***R74***	***86***

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 10 CA FID UST sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT IJAMS	***125 HOGUE RD***	***W 1/2 - 1 (0.859 mi.)***	***A2***	***8***
Facility Id: 50003242				
Status: A				
AMERINE ORCHARDS	***7050 MCHENRY AVE***	***W 1/2 - 1 (0.904 mi.)***	***B4***	***9***
Facility Id: 50003182				
Status: A				
BACCHUS VINEYARD INC	1329 PATTERSON RD	S 1/2 - 1 (0.970 mi.)	C7	12
Facility Id: 50002947				
Status: A				
ESTOLE OF S DARPINIA	***121 STEWART RD***	***WSW 1 - 2 (1.003 mi.)***	***D12***	***15***
Facility Id: 50003530				
Status: A				
W.M. KLINE	***1620 PATTERSON RD***	***SSE 1 - 2 (1.102 mi.)***	***I37***	***58***
Facility Id: 50003716				
Status: A				
DEL RIO ORCHARDS RUT	***1711 PATTERSON RD***	***SSE 1 - 2 (1.109 mi.)***	***I43***	***62***
Facility Id: 50002165				
Status: A				
VILLA INFANTINO RANC	***1817 PATTERSON RD***	***SE 1 - 2 (1.177 mi.)***	***L56***	***70***
Facility Id: 50002964				
Status: A				
FRANK SBRAGIA	***221 PATTERSON RD***	***SW 1 - 2 (1.188 mi.)***	***M59***	***71***
Facility Id: 50002958				
Status: A				
TOM CIPPONERI TRUCKI	***2017 PATTERSON RD***	***SE 1 - 2 (1.298 mi.)***	***P68***	***82***
Facility Id: 50000141				
Status: A				
WILLIAM D. ANDERSON	***6825 ZARILLO DR***	***ESE 1 - 2 (1.440 mi.)***	***R74***	***86***
Facility Id: 50002176				
Status: I				

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 09/26/2016 has revealed that there is 1 CHMIRS site within approximately 1.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	7915 MCHENRY AVE	WNW 1 - 2 (1.100 mi.)	27	25
OES Incident Number: 15-3464				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/12/2016 has revealed that there is 1 RCRA NonGen / NLR site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO FACILITY NO 055	6345 OAKDALE RD	SE 1 - 2 (1.489 mi.)	S77	95

ICIS: The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

A review of the ICIS list, as provided by EDR, and dated 11/18/2016 has revealed that there is 1 ICIS site within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MUNN & PERKINS	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H30***	***28***

US AIRS: The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

A review of the US AIRS list, as provided by EDR, has revealed that there are 2 US AIRS sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PHIL ADRIAN	26554 E RIVER RD	N 1 - 2 (1.091 mi.)	G26	24
Database: US AIRS (AFS), Date of Government Version: 10/12/2016				

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MUNN & PERKINS	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H30***	***28***

Database: US AIRS (AFS), Date of Government Version: 10/12/2016

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, has revealed that there is 1 US MINES site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MUNN & PERKINS	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H30***	***28***

Database: US MINES, Date of Government Version: 08/05/2016

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 07/15/2016 has revealed that there are 5 FINDS sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MUNN & PERKINS	26292 E RIVER RD	NNW 1 - 2 (1.074 mi.)	16	17
PHIL ADRIAN	***26554 E RIVER RD***	***N 1 - 2 (1.091 mi.)***	***G25***	***23***
MUNN & PERKINS	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H30***	***28***
ADRIAN RANCH	27107 E RIVER RD	N 1 - 2 (1.136 mi.)	J51	68
CITY OF RIVERBANK	6590 CIPPONERI ST	SE 1 - 2 (1.233 mi.)	O64	79

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 12/28/2016 has revealed that there is 1 Cortese site within approximately 1.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RIVERBANK WWTP		***E 1 - 2 (1.673 mi.)***	***79***	***97***

EMI: Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

A review of the EMI list, as provided by EDR, and dated 12/31/2014 has revealed that there are 6 EMI sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ADRIAN RANCH Facility Id: 9	***26554 E RIVER RD***	***N 1 - 2 (1.091 mi.)***	***G23***	***21***
PHIL ADRIAN Facility Id: 9	26554 E RIVER ROAD	N 1 - 2 (1.091 mi.)	G24	22
MUNN & PERKINS Facility Id: 566	26292 E. RIVER RD.	NNW 1 - 2 (1.102 mi.)	H31	49
MUNN & PERKINS INC Facility Id: 566	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H33***	***50***
GEORGE REED INC. Facility Id: 566 Facility Id: 210	26292 E. RIVER RD.	NNW 1 - 2 (1.102 mi.)	H34	55
CITY OF RIVERBANK Facility Id: 3960	6590 CIPPONERI ST	SE 1 - 2 (1.233 mi.)	O63	75

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the HAZNET list, as provided by EDR, and dated 12/31/2015 has revealed that there are 7 HAZNET sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARINN FARIA GEPAID: CAC002630548	2141 PARK RIDGE DR	ESE 1 - 2 (1.041 mi.)	13	16
WILLIAM GIBBS GEPAID: CAC002807280	2129 PARK RIDGE DR	ESE 1 - 2 (1.046 mi.)	14	17
GEORGE REED INC GEPAID: CAL000240413	26292 E RIVER RD	NNW 1 - 2 (1.102 mi.)	H35	56
CINDY HIGBY GEPAID: CAC002180937	1817 PATTERSON RD	SSE 1 - 2 (1.110 mi.)	I47	65
RUMBLE FARMS GEPAID: CAL000381683	6116 COFFEE RD	S 1 - 2 (1.114 mi.)	48	66
THE WINTERS GROUP GEPAID: CAC001048192	1848 PATTERSON	SE 1 - 2 (1.183 mi.)	L57	70
MORRIS NURSERY INC GEPAID: CAC002620422	1837 PATTERSON RD	SE 1 - 2 (1.183 mi.)	L58	71

EXECUTIVE SUMMARY

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 5 HIST CORTESE sites within approximately 1.75 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUALITY NUT CO Reg Id: 390585	22519 BURWOOD	ENE 1 - 2 (1.065 mi.)	E15	17
QUALITY NUT Reg Id: 500205	***1711 PATTERSON***	***SSE 1 - 2 (1.109 mi.)***	***I44***	***63***
CIPPONERI TRUCKING Reg Id: 500218	2017 PATTERSON	SSE 1 - 2 (1.110 mi.)	I46	65
PACOAST INC Reg Id: 390073	***20001 MC HENRY AVE S***	***NW 1 - 2 (1.484 mi.)***	***75***	***88***
SUNRISE ENTERPRISES Reg Id: 500491	***6345 OAKDALE RD***	***SE 1 - 2 (1.489 mi.)***	***S76***	***89***

MINES: A listing of mine site locations from the Office of Mine Reclamation.

A review of the MINES list, as provided by EDR, and dated 09/12/2016 has revealed that there are 2 MINES sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAIN RIVERBANK	PO BOX 4760	NNE 1/2 - 1 (0.974 mi.)	9	13
MUNN & PERKINS 11.4	PO BOX 4760	N 1/2 - 1 (0.982 mi.)	10	14

NPDES: A listing of NPDES permits, including stormwater.

A review of the NPDES list, as provided by EDR, and dated 11/14/2016 has revealed that there is 1 NPDES site within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FRANK SBRAGIA	***221 PATTERSON RD***	***SW 1 - 2 (1.188 mi.)***	***M59***	***71***

PEST LIC: A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

A review of the PEST LIC list, as provided by EDR, and dated 12/06/2016 has revealed that there are 3 PEST LIC sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JERRY MOYER	2001 CANDLEWOOD PL.	SE 1 - 2 (1.140 mi.)	K53	69
ERICA MOYER	2001 CANDLEWOOD PL	SE 1 - 2 (1.140 mi.)	K54	69
WILLIAM C GARY	2012 WOODHAVEN CIR	SE 1 - 2 (1.162 mi.)	K55	69

EXECUTIVE SUMMARY

ECHO: ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

A review of the ECHO list, as provided by EDR, and dated 12/11/2016 has revealed that there are 2 ECHO sites within approximately 1.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PHIL ADRIAN	***26554 E RIVER RD***	***N 1 - 2 (1.091 mi.)***	***G25***	***23***
MUNN & PERKINS	***26292 E RIVER RD***	***NNW 1 - 2 (1.102 mi.)***	***H30***	***28***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 1.375 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	7213 SPY GLASS DR	W 1 - 2 (1.203 mi.)	61	74

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there is 1 EDR Hist Cleaner site within approximately 1.375 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	1729 PATTERSON RD	SSE 1 - 2 (1.119 mi.)	I49	66

EXECUTIVE SUMMARY

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

A review of the RGA LUST list, as provided by EDR, has revealed that there are 6 RGA LUST sites within approximately 1.25 miles of the target property.

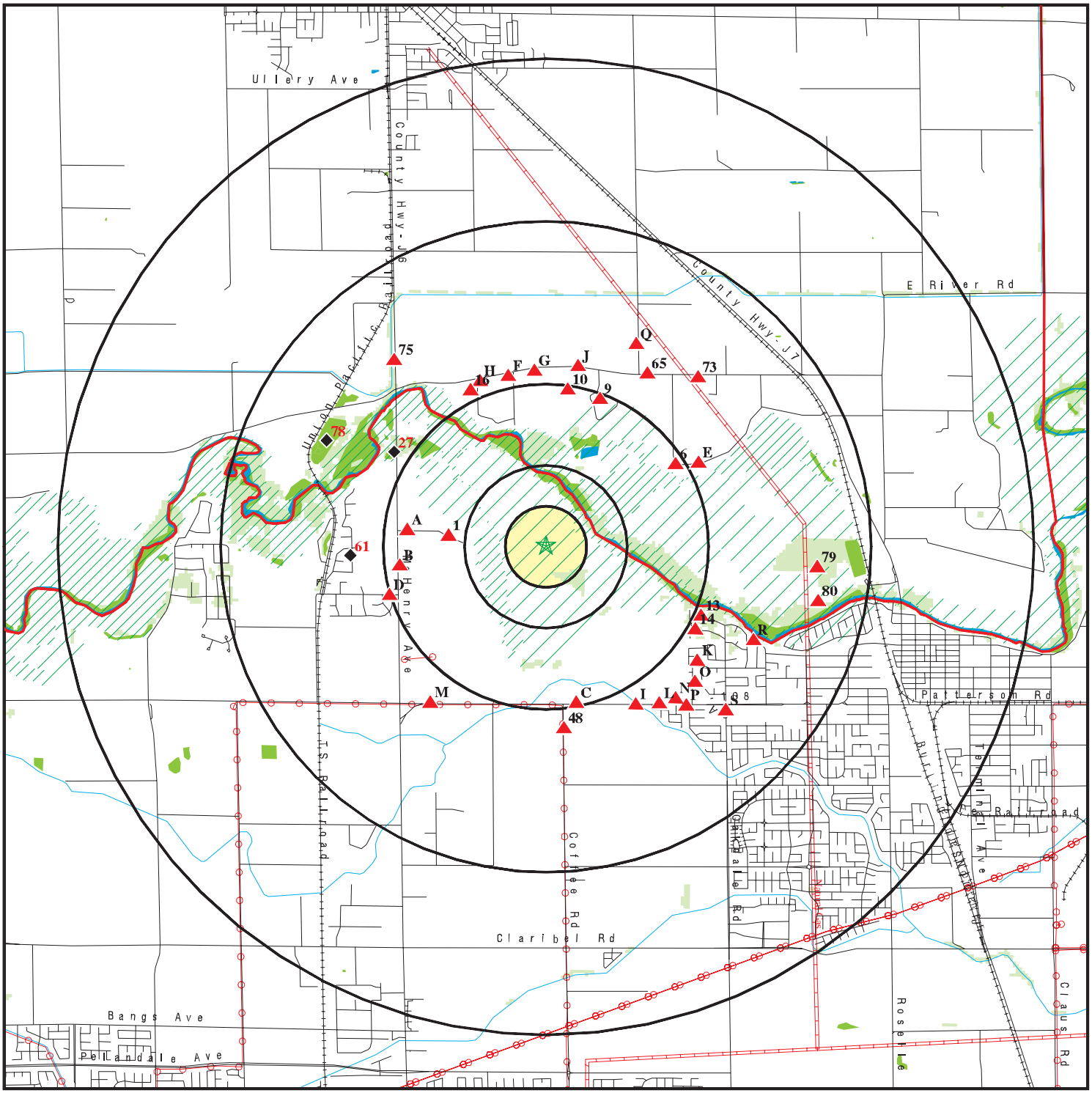
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUALITY NUT CO	22519 BURWOOD RD	ENE 1 - 2 (1.074 mi.)	E17	18
QUALITY NUT CO.	22519 BURWOOD RD	ENE 1 - 2 (1.074 mi.)	E18	18
QUALITY NUT	1711 PATTERSON RD	SSE 1 - 2 (1.109 mi.)	I38	60
QUALITY NUT AKA JOHN	1711 PATTERSON	SSE 1 - 2 (1.109 mi.)	I39	60
QUALITY NUT	1711 PATTERSON	SSE 1 - 2 (1.109 mi.)	I40	61
QUALITY NUT (CLOSED	1711 PATTERSON	SSE 1 - 2 (1.109 mi.)	I42	62

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 21 records.

Site Name	Database(s)
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
	CDL
MODESTO ROCK WELL CLOSURES**	SLIC
RUDY BONZI, INCORPORATED (ENTERPRI	SLIC

OVERVIEW MAP - 4883461.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 1711 Patterson	CLIENT: Partner Engineering and Science, Inc.
ADDRESS: 1711 Patterson Road Riverbank CA 95367	CONTACT: Brett Nielsen INQUIRY #: 4883461.2s
LAT/LONG: 37.746728 / 120.978868	DATE: March 20, 2017 1:17 pm

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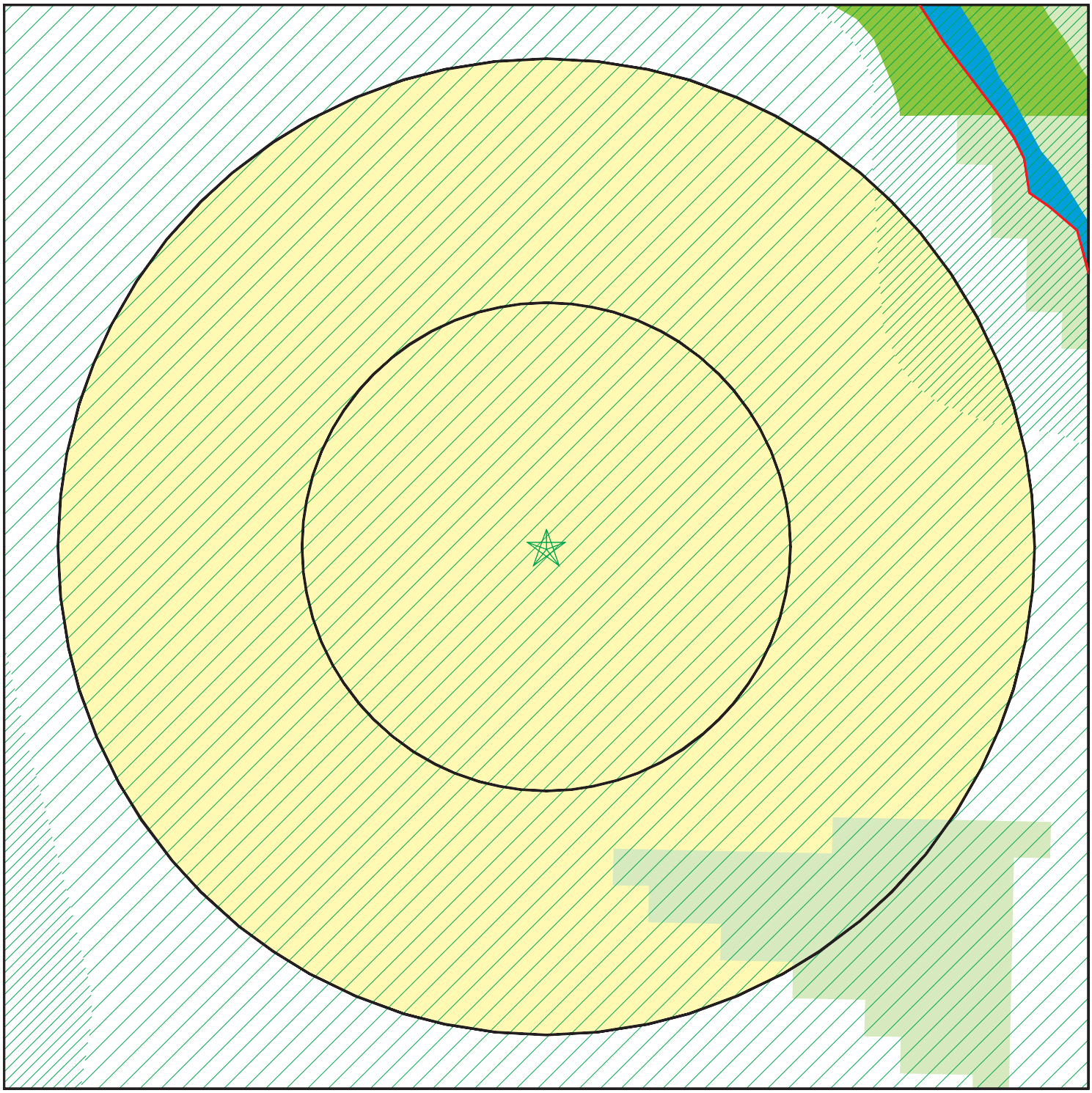
DETAIL MAP - 4883461.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- County Boundary
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	1711 Patterson	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	1711 Patterson Road Riverbank CA 95367	CONTACT:	Brett Nielsen
		INQUIRY #:	4883461.2s
LAT/LONG:	37.746728 / 120.978868	DATE:	March 20, 2017 1:20 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	2.250		0	0	0	0	0	0
Proposed NPL	2.250		0	0	0	0	0	0
NPL LIENS	1.250		0	0	0	0	0	0
Federal Delisted NPL site list								
Delisted NPL	2.250		0	0	0	0	0	0
Federal CERCLIS list								
FEDERAL FACILITY	1.750		0	0	0	0	0	0
SEMS	1.750		0	0	0	0	0	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	1.750		0	0	0	0	0	0
Federal RCRA CORRACTS facilities list								
CORRACTS	2.250		0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	1.750		0	0	0	0	0	0
Federal RCRA generators list								
RCRA-LQG	1.500		0	0	0	0	0	0
RCRA-SQG	1.500		0	0	0	0	1	1
RCRA-CESQG	1.500		0	0	0	0	0	0
Federal institutional controls / engineering controls registries								
LUCIS	1.750		0	0	0	0	0	0
US ENG CONTROLS	1.750		0	0	0	0	0	0
US INST CONTROL	1.750		0	0	0	0	0	0
Federal ERNS list								
ERNS	1.250		0	0	0	0	0	0
State- and tribal - equivalent NPL								
RESPONSE	2.250		0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	2.250		0	0	0	0	0	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	1.750		0	0	0	0	2	2
State and tribal leaking storage tank lists								
LUST	1.750		0	0	0	0	4	4

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	1.750		0	0	0	0	0	0
SLIC	1.750		0	0	0	0	0	0
State and tribal registered storage tank lists								
FEMA UST	1.500		0	0	0	0	0	0
UST	1.500		0	0	0	0	3	3
AST	1.500		0	0	0	0	2	2
INDIAN UST	1.500		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
INDIAN VCP	1.750		0	0	0	0	0	0
VCP	1.750		0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS	1.750		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	1.750		0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	1.750		0	0	0	0	0	0
SWRCY	1.750		0	0	0	0	0	0
HAULERS	1.250		0	0	0	0	0	0
INDIAN ODI	1.750		0	0	0	0	0	0
ODI	1.750		0	0	0	0	0	0
DEBRIS REGION 9	1.750		0	0	0	0	0	0
IHS OPEN DUMPS	1.750		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	1.250		0	0	0	0	0	0
HIST Cal-Sites	2.250		0	0	0	0	0	0
SCH	1.500		0	0	0	0	0	0
CDL	1.250		0	0	0	0	0	0
Toxic Pits	2.250		0	0	0	0	0	0
US CDL	1.250		0	0	0	0	0	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	1.500		0	0	0	2	11	13
HIST UST	1.500		0	0	0	5	20	25
CA FID UST	1.500		0	0	0	3	7	10
Local Land Records								
LIENS	1.250		0	0	0	0	0	0
LIENS 2	1.250		0	0	0	0	0	0
DEED	1.750		0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS	1.250		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	1.250		0	0	0	0	1	1
LDS	1.250		0	0	0	0	0	0
MCS	1.250		0	0	0	0	0	0
SPILLS 90	1.250		0	0	0	0	0	0
Other Ascertainable Records								
RCRA NonGen / NLR	1.500		0	0	0	0	1	1
FUDS	2.250		0	0	0	0	0	0
DOD	2.250		0	0	0	0	0	0
SCRD DRYCLEANERS	1.750		0	0	0	0	0	0
US FIN ASSUR	1.250		0	0	0	0	0	0
EPA WATCH LIST	1.250		0	0	0	0	0	0
2020 COR ACTION	1.500		0	0	0	0	0	0
TSCA	1.250		0	0	0	0	0	0
TRIS	1.250		0	0	0	0	0	0
SSTS	1.250		0	0	0	0	0	0
ROD	2.250		0	0	0	0	0	0
RMP	1.250		0	0	0	0	0	0
RAATS	1.250		0	0	0	0	0	0
PRP	1.250		0	0	0	0	0	0
PADS	1.250		0	0	0	0	0	0
ICIS	1.250		0	0	0	0	1	1
FTTS	1.250		0	0	0	0	0	0
MLTS	1.250		0	0	0	0	0	0
COAL ASH DOE	1.250		0	0	0	0	0	0
COAL ASH EPA	1.750		0	0	0	0	0	0
PCB TRANSFORMER	1.250		0	0	0	0	0	0
RADINFO	1.250		0	0	0	0	0	0
HIST FTTS	1.250		0	0	0	0	0	0
DOT OPS	1.250		0	0	0	0	0	0
CONSENT	2.250		0	0	0	0	0	0
INDIAN RESERV	2.250		0	0	0	0	0	0
FUSRAP	2.250		0	0	0	0	0	0
UMTRA	1.750		0	0	0	0	0	0
LEAD SMELTERS	1.250		0	0	0	0	0	0
US AIRS	1.250		0	0	0	0	2	2
US MINES	1.500		0	0	0	0	1	1
FINDS	1.250		0	0	0	0	5	5
DOCKET HWC	1.250		0	0	0	0	0	0
UXO	2.250		0	0	0	0	0	0
CA BOND EXP. PLAN	2.250		0	0	0	0	0	0
Cortese	1.750		0	0	0	0	1	1
CUPA Listings	1.500		0	0	0	0	0	0
DRYCLEANERS	1.500		0	0	0	0	0	0
EMI	1.250		0	0	0	0	6	6
ENF	1.250		0	0	0	0	0	0
Financial Assurance	1.250		0	0	0	0	0	0
HAZNET	1.250		0	0	0	0	7	7
ICE	1.250		0	0	0	0	0	0
HIST CORTESE	1.750		0	0	0	0	5	5
HWP	2.250		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	1.500		0	0	0	0	0	0
MINES	1.250		0	0	0	2	0	2
MWMP	1.500		0	0	0	0	0	0
NPDES	1.250		0	0	0	0	1	1
PEST LIC	1.250		0	0	0	0	3	3
PROC	1.750		0	0	0	0	0	0
Notify 65	2.250		0	0	0	0	0	0
UIC	1.250		0	0	0	0	0	0
WASTEWATER PITS	1.750		0	0	0	0	0	0
WDS	1.250		0	0	0	0	0	0
WIP	1.500		0	0	0	0	0	0
FUELS PROGRAM	1.500		0	0	0	0	0	0
ABANDONED MINES	1.750		0	0	0	0	0	0
ECHO	1.250		0	0	0	0	2	2
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	2.250		0	0	0	0	0	0
EDR Hist Auto	1.375		0	0	0	0	1	1
EDR Hist Cleaner	1.375		0	0	0	0	1	1
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	1.250		0	0	0	0	0	0
RGA LUST	1.250		0	0	0	0	6	6
- Totals --		0	0	0	0	12	94	106

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
West
1/2-1
0.603 mi.
3183 ft.

COMMONWEALTH LAND AND LIVESTOC
423 HOGUE ROAD
MODESTO, CA 95350

HIST UST **U001606715**
N/A

Relative:
Higher

Actual:
107 ft.

HIST UST:

File Number:	00022906
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00022906.pdf
Region:	STATE
Facility ID:	00000024557
Facility Type:	Other
Other Type:	LIVESTOCK RANCHING
Contact Name:	Not reported
Telephone:	2095249481
Owner Name:	ROBERT G. WALTON, M.D.
Owner Address:	417 HOGUE ROAD
Owner City,St,Zip:	MODESTO, CA 95350
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	None

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A2
West
1/2-1
0.859 mi.
4535 ft.

ROBERT IJAMS
125 HOGUE RD
MODESTO, CA 95356

Site 1 of 2 in cluster A

SWEEPS UST **S101626769**
CA FID UST **N/A**

Relative:
Higher

Actual:
107 ft.

SWEEPS UST:

Status:	Active
Comp Number:	27961
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	50-000-027961-000001
Tank Status:	A
Capacity:	550
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	1

CA FID UST:

Facility ID:	50003242
Regulated By:	UTNKA
Regulated ID:	00027961

ROBERT IJAMS (Continued) **S101626769**

Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2095226820
Mail To:	Not reported
Mailing Address:	125 HOGUE RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95356
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

A3 **ROBERT IJAMS** **HIST UST** **U001607575**
West **125 HOGUE RD** **N/A**
1/2-1 **MODESTO, CA 95356**
0.859 mi.
4535 ft. **Site 2 of 2 in cluster A**

Relative:
Higher

Actual:
107 ft.

HIST UST:

File Number:	0002290B
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002290B.pdf
Region:	STATE
Facility ID:	00000027961
Facility Type:	Other
Other Type:	FARM
Contact Name:	ROBERT IJAMS
Telephone:	2095226820
Owner Name:	ROBERT IJAMS
Owner Address:	125 HOGUE RD.
Owner City,St,Zip:	MODESTO, CA 95356
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1983
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual

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B4 **AMERINE ORCHARDS** **SWEEPS UST** **S101626654**
West **7050 MCHENRY AVE** **CA FID UST** **N/A**
1/2-1 **MODESTO, CA 95355**
0.904 mi.
4775 ft. **Site 1 of 2 in cluster B**

Relative:
Higher

Actual:
106 ft.

SWEEPS UST:

Status:	Active
Comp Number:	24283
Number:	9

AMERINE ORCHARDS (Continued) **S101626654**

Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 02-29-88
Owner Tank Id: 1
SWRCB Tank Id: 50-000-024283-000001
Tank Status: A
Capacity: 550
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 2

Status: Active
Comp Number: 24283
Number: 9
Board Of Equalization: Not reported
Referral Date: 07-01-85
Action Date: Not reported
Created Date: 02-29-88
Owner Tank Id: 2
SWRCB Tank Id: 50-000-024283-000002
Tank Status: A
Capacity: 550
Active Date: 07-01-85
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 50003182
Regulated By: UTNKA
Regulated ID: 00024283
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 2095272074
Mail To: Not reported
Mailing Address: 1535 OKLAHOMA AVE
Mailing Address 2: Not reported
Mailing City,St,Zip: MODESTO 95355
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

B5 **AMERINE ORCHARDS** **HIST UST** **U001607438**
West **7050 MCHENRY AVE** **N/A**
1/2-1 **MODESTO, CA 95355**
0.904 mi.
4775 ft. **Site 2 of 2 in cluster B**

Relative:
Higher

Actual:
106 ft.

HIST UST:

File Number:	00021A2E
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021A2E.pdf
Region:	STATE
Facility ID:	00000024283
Facility Type:	Other
Other Type:	FARMING
Contact Name:	Not reported
Telephone:	2095272074
Owner Name:	AMERINE ORCHARDS
Owner Address:	1535 OKLAHOMA AVE.
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0002
Tank Num:	001
Container Num:	01
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	12
Leak Detection:	Visual
Tank Num:	002
Container Num:	02
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Stock Inventor

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6 **TB ROBERSON RANCH** **HIST UST** **U001605481**
ENE **25549 BURWOOD RD** **N/A**
1/2-1 **ESCALON, CA 95320**
0.949 mi.
5013 ft.

Relative:
Higher

Actual:
115 ft.

HIST UST:

File Number:	0002B427
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002B427.pdf
Region:	STATE
Facility ID:	00000036775
Facility Type:	Other
Other Type:	FARM
Contact Name:	Not reported
Telephone:	2098691236
Owner Name:	T. B. ROBERSON RANCH
Owner Address:	25549 BURWOOD RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0003

TB ROBERSON RANCH (Continued) **U001605481**

Tank Num:	001
Container Num:	#1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Visual

Tank Num:	002
Container Num:	#2
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	12
Leak Detection:	Visual

Tank Num:	003
Container Num:	#3
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual

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C7 **BACCHUS VINEYARD INC** **CA FID UST** **S101626703**
South **1329 PATTERSON RD** **N/A**
1/2-1 **MODESTO, CA 95355**
0.970 mi.
5120 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
123 ft.

CA FID UST:

Facility ID:	50002947
Regulated By:	UTNKA
Regulated ID:	00015420
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2095784225
Mail To:	Not reported
Mailing Address:	1329 PATTERSON RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95355
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

C8 **BACCHUS VINEYARD INC** **HIST UST** **U001607500**
South **1329 PATTERSON RD** **N/A**
1/2-1 **MODESTO, CA 95355**
0.970 mi.
5120 ft. **Site 2 of 2 in cluster C**

Relative:
Higher

Actual:
123 ft.

HIST UST:

File Number:	00021ABB
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021ABB.pdf
Region:	STATE
Facility ID:	00000015420
Facility Type:	Other
Other Type:	FARM
Contact Name:	SAM PAREGIAN
Telephone:	2095784225
Owner Name:	BACCHUS VINEYARDS INC
Owner Address:	1329 PATTERSON RD
Owner City,St,Zip:	MODESTO, CA 95355
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000350
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000350
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual

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9 **MAIN RIVERBANK** **MINES** **S117662000**
NNE **PO BOX 4760** **N/A**
1/2-1 **, CA**
0.974 mi.
5144 ft.

Relative:
Higher

Actual:
105 ft.

MINES:

Latitude:	37.76
Longitude:	-120.972778
Lead Agency identification code:	39
Lead Agency name:	County of San Joaquin
Year of the operator supplied annual report:	2015
Type of report submitted by operator:	2
Number of acres disturbed by the mine:	66
Status of mining operation:	ACTIVE
Status of mine reclamation:	RECLAMATION IN PROGRESS
Mine operator:	GEORGE REED, INC.
Operator Address:	PO BOX 4760
Operator City, State, Zip:	MODESTO, CA 95352
Operator County:	Not reported

MAIN RIVERBANK (Continued) **S117662000**

Mine owner:	GEORGE REED, INC.
Owner Address:	PO BOX 4760
Owner City, State, Zip:	MODESTO, CA 95352
Owner County:	Not reported
Reclamation plan identification number:	Not reported
Primary product produced by the mine:	SAND AND GRAVEL
Other products produced by the mine:	Not reported
Type of mining utilized by mine:	OPEN PIT
Conditional use permit identification number:	QX-89-2
Number of acres permitted for mining disturbance:	16
Total amount of funds posted by the mine for reclamation:	$170,000.00
Financial Assurance Cost Estimate for reclamation:	$153,452.00

---

10 **MUNN & PERKINS 11.4 ACRE PIT** **MINES** **S117662167**
North **PO BOX 4760** **N/A**
1/2-1 **, CA**
0.982 mi.
5187 ft.

Relative:
Higher

Actual:
125 ft.

MINES:

Latitude:	37.760833
Longitude:	-120.976389
Lead Agency identification code:	39
Lead Agency name:	County of San Joaquin
Year of the operator supplied annual report:	2009
Type of report submitted by operator:	2
Number of acres disturbed by the mine:	26
Status of mining operation:	ACTIVE
Status of mine reclamation:	RECLAMATION NOT STARTED
Mine operator:	GEORGE REED, INC.
Operator Address:	PO BOX 4760
Operator City, State, Zip:	MODESTO, CA 95352
Operator County:	Not reported
Mine owner:	GEORGE REED, INC.
Owner Address:	PO BOX 4760
Owner City, State, Zip:	MODESTO, CA 95352
Owner County:	Not reported
Reclamation plan identification number:	Not reported
Primary product produced by the mine:	SAND AND GRAVEL
Other products produced by the mine:	Not reported
Type of mining utilized by mine:	OPEN PIT
Conditional use permit identification number:	PA-05-403
Number of acres permitted for mining disturbance:	11
Total amount of funds posted by the mine for reclamation:	$72,500.00
Financial Assurance Cost Estimate for reclamation:	$0.00

D11 **ESTOLE OF S DARPINIAN** **HIST UST** **U001607525**
WSW **121 STEWART RD** **N/A**
> 1 **MODESTO, CA 95356**
1.003 mi.
5298 ft. **Site 1 of 2 in cluster D**

Relative:
Higher

Actual:
115 ft.

HIST UST:

File Number:	00021F4F
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021F4F.pdf
Region:	STATE

ESTOLE OF S DARPINIAN (Continued) **U001607525**

Facility ID:	00000034815
Facility Type:	Other
Other Type:	AGRIC
Contact Name:	RON DARPINIAN
Telephone:	2095244442
Owner Name:	ESTATE OF S. DARPINIAN
Owner Address:	5913 COFFEE RD.
Owner City,St,Zip:	MODESTO, CA 95356
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	Not reported
Leak Detection:	Visual

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D12 **ESTOLE OF S DARPINIAN** **SWEEPS UST** **S101626725**
WSW **121 STEWART RD** **CA FID UST** **N/A**
> 1 **MODESTO, CA 95356**
1.003 mi.
5298 ft. **Site 2 of 2 in cluster D**

Relative:
Higher

Actual:
115 ft.

SWEEPS UST:

Status:	Active
Comp Number:	34815
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	50-000-034815-000001
Tank Status:	A
Capacity:	1000
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	2
Status:	Active
Comp Number:	34815
Number:	9
Board Of Equalization:	Not reported

ESTOLE OF S DARPINIAN (Continued) **S101626725**

Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	2
SWRCB Tank Id:	50-000-034815-000002
Tank Status:	A
Capacity:	500
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	50003530
Regulated By:	UTNKA
Regulated ID:	00034815
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2095244442
Mail To:	Not reported
Mailing Address:	5913 COFFEE RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95356
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

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13 **MARINN FARIA** **HAZNET** **S112970334**
ESE **2141 PARK RIDGE DR** **N/A**
> 1 **RIVERBANK, CA 95367**
1.041 mi.
5499 ft.

Relative:
Higher

Actual:
122 ft.

HAZNET:

envid:	S112970334
Year:	2008
GEPAID:	CAC002630548
Contact:	MARINN FARIA
Telephone:	2096811500
Mailing Name:	Not reported
Mailing Address:	2141 PARK RIDGE DR
Mailing City,St,Zip:	RIVERBANK, CA 953679657
Gen County:	Not reported
TSD EPA ID:	CAL000190080
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.4
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

14
ESE
> 1
1.046 mi.
5525 ft.

WILLIAM GIBBS
2129 PARK RIDGE DR
RIVERBANK, CA 95367

HAZNET **S118913818**
N/A

Relative:
Higher

Actual:
142 ft.

HAZNET:

envid:	S118913818
Year:	2015
GEPAID:	CAC002807280
Contact:	JOBERT VERCELES
Telephone:	9252439819
Mailing Name:	Not reported
Mailing Address:	4435 1ST ST # 364
Mailing City,St,Zip:	LIVERMORE, CA 945514915
Gen County:	Stanislaus
TSD EPA ID:	CAD981382732
TSD County:	Alameda
Waste Category:	Asbestos containing waste
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.23
Cat Decode:	Asbestos containing waste
Method Decode:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Facility County:	Stanislaus

E15
ENE
> 1
1.065 mi.
5625 ft.

QUALITY NUT CO
22519 BURWOOD
ESCALON, CA 95320

Site 1 of 5 in cluster E

HIST CORTESE **S100272400**
N/A

Relative:
Higher

Actual:
126 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	39
Reg By:	LTNKA
Reg Id:	390585

16
NNW
> 1
1.074 mi.
5671 ft.

MUNN & PERKINS
26292 E RIVER RD
MODESTO, CA 95352

FINDS **1017811030**
N/A

Relative:
Higher

Actual:
121 ft.

FINDS:

Registry ID: 110064343795

Environmental Interest/Information System
AIR EMISSIONS CLASSIFICATION UNKNOWN

E17
ENE
> 1
1.074 mi.
5672 ft.

QUALITY NUT CO
22519 BURWOOD RD
ESCALON, CA

RGA LUST **S114673050**
N/A

Site 2 of 5 in cluster E

Relative:
Higher

Actual:
125 ft.

RGA LUST:

2002	QUALITY NUT CO	22519 BURWOOD RD
2001	QUALITY NUT CO	22519 BURWOOD RD
2000	QUALITY NUT CO	22519 BURWOOD RD
1998	QUALITY NUT CO	22519 BURWOOD RD
1997	QUALITY NUT CO	22519 BURWOOD RD
1996	QUALITY NUT CO	22519 BURWOOD RD
1995	QUALITY NUT CO	22519 BURWOOD RD
1994	QUALITY NUT CO	22519 BURWOOD RD

E18
ENE
> 1
1.074 mi.
5672 ft.

QUALITY NUT CO.
22519 BURWOOD RD
ESCALON, CA

RGA LUST **S114673049**
N/A

Site 3 of 5 in cluster E

Relative:
Higher

Actual:
125 ft.

RGA LUST:

1993	QUALITY NUT CO.	22519 BURWOOD RD

E19
ENE
> 1
1.075 mi.
5677 ft.

QUALITY NUT COMPANY
22549 BURWOOD RD
ESCALON, CA 95320

UST **U003786582**
N/A

Site 4 of 5 in cluster E

Relative:
Higher

Actual:
125 ft.

UST:

Facility ID:	FA0005574
Permitting Agency:	Not reported
Latitude:	37.756134
Longitude:	-120.960257

UST SAN JOAQUIN:

Region:	SJ
Facility Id:	FA0005574
Mail Address:	22549 BURWOOD RD
Mail Care of:	QUALITY NUT COMPANY
Mail City,St,Zip:	ESCALON, CA 95320
Tank Rec ID:	TA0502788
Tank Number:	1
Tank Status:	ACTIVE, EXEMPT
Tank Capacity:	1000
Product Code/Type:	09/OTHER PETROLEUM
Program Element:	2322
Decode for Program Element:	exempt tank
Count:	1
Tank Rec ID:	TA0502789
Tank Number:	2
Tank Status:	ACTIVE, EXEMPT
Tank Capacity:	300

QUALITY NUT COMPANY (Continued) **U003786582**

Product Code/Type: 1a/REGULAR UNLEADED
Program Element: 2322
Decode for Program Element: exempt tank
Count: 1

E20 **QUALITY NUT COMPANY/(ROBERSON RANCH)** **SWEEPS UST** **S106930977**
ENE **22549 BURWOOD ROAD** **N/A**
> 1 **ESCALON, CA 95320**
1.075 mi.
5677 ft. **Site 5 of 5 in cluster E**

Relative:
Higher

Actual:
125 ft.

SWEEPS UST:
Status: Not reported
Comp Number: 4036
Number: Not reported
Board Of Equalization: 44-025056
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 39-000-004036-000001
Tank Status: Not reported
Capacity: 1000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: 2

Status: Not reported
Comp Number: 4036
Number: Not reported
Board Of Equalization: 44-025056
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 39-000-004036-000002
Tank Status: Not reported
Capacity: 300
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: LEADED
Number Of Tanks: Not reported

F21 **HENRY F PLOTT** **HIST UST** **U001605347**
NNW **26546 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.081 mi.
5710 ft. **Site 1 of 2 in cluster F**

Relative:
Higher

Actual:
125 ft.

HIST UST:
File Number: 0002FD11
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002FD11.pdf
Region: STATE

HENRY F PLOTT (Continued) **U001605347**

Facility ID:	00000022494
Facility Type:	Other
Other Type:	FARM
Contact Name:	SELF
Telephone:	2098382339
Owner Name:	HENRY F. PLOTT
Owner Address:	26546 E. RIVER RD.
Owner City,St,Zip:	ESSCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1970
Tank Capacity:	00000350
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

F22 **ROY BLIXT** **HIST UST** **U001605467**
NNW **26444 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.084 mi.
5722 ft. **Site 2 of 2 in cluster F**

Relative:
Higher

Actual:
125 ft.

HIST UST:

File Number:	0002B297
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002B297.pdf
Region:	STATE
Facility ID:	00000021603
Facility Type:	Other
Other Type:	AGRIC
Contact Name:	Not reported
Telephone:	2098387935
Owner Name:	ROY BLIXT
Owner Address:	26444 E. RIVER RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000340
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

G23 **ADRIAN RANCH** **HIST UST** **U001605435**
North **26554 E RIVER RD** **EMI** **N/A**
> 1 **ESCALON, CA 95320**
1.091 mi.
5760 ft. **Site 1 of 4 in cluster G**

Relative:
Higher

Actual:
127 ft.

HIST UST:

File Number:	0002B139
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002B139.pdf
Region:	STATE
Facility ID:	00000019137
Facility Type:	Other
Other Type:	FARM
Contact Name:	SELF
Telephone:	2098382337
Owner Name:	PHILIP ADRIAN
Owner Address:	26554 E RIVER RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1964
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

EMI:

Year:	2012
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	1.2757857143
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.89305
Year:	2013
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0

ADRIAN RANCH (Continued) **U001605435**

Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	1.3558628571
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.949104

Year:	2014
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	1.2757228571
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.893006

G24 **PHIL ADRIAN** **EMI** **S113752400**
North **26554 E RIVER ROAD** **N/A**
> 1 **ESCALON, CA 95320**
1.091 mi.
5760 ft. **Site 2 of 4 in cluster G**

Relative:
Higher

Actual:
127 ft.

EMI:

Year:	2009
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.76794857142857098
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.53756400000000004

Year:	2010
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0

PHIL ADRIAN (Continued) **S113752400**

Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0.75977142857142799
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.53183999999999998

Year:	2011
County Code:	39
Air Basin:	SJV
Facility ID:	9
Air District Name:	SJU
SIC Code:	723
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	1.22106
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.854742

G25 **PHIL ADRIAN** **FINDS** **1016068553**
North **26554 E RIVER RD** **ECHO** **N/A**
> 1 **ESCALON, CA 95320**
1.091 mi.
5760 ft. **Site 3 of 4 in cluster G**

Relative:
Higher

Actual:
127 ft.

FINDS:

Registry ID: 110001200281

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

AIR EMISSIONS CLASSIFICATION UNKNOWN

AIR SYNTHETIC MINOR

ECHO:

Envid:	1016068553
Registry ID:	110001200281
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110001200281

G26 **PHIL ADRIAN** **US AIRS** **1004441876**
North **26554 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.091 mi.
5760 ft. **Site 4 of 4 in cluster G**

Relative:
Higher

Actual:
127 ft.

US AIRS (AFS):

Envid:	1004441876
Region Code:	09
County Code:	CA077
Programmatic ID:	AIR CASJV00006077N0009
Facility Registry ID:	110001200281
D and B Number:	Not reported
Facility Site Name:	PHIL ADRIAN
Primary SIC Code:	0723
NAICS Code:	115114
Default Air Classification Code:	SMI
Facility Type of Ownership Code:	POF
Air CMS Category Code:	SMI
HPV Status:	Not reported

US AIRS (AFS):

Region Code:	09
Programmatic ID:	AIR CASJV00006077N0009
Facility Registry ID:	110001200281
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1998-09-10 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	09
Programmatic ID:	AIR CASJV00006077N0009
Facility Registry ID:	110001200281
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1999-09-08 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	09
Programmatic ID:	AIR CASJV00006077N0009
Facility Registry ID:	110001200281
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	2000-09-06 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported

Region Code:	09
Programmatic ID:	AIR CASJV00006077N0009

PHIL ADRIAN (Continued) **1004441876**

Facility Registry ID: 110001200281
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2002-09-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0009
Facility Registry ID: 110001200281
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2003-09-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0009
Facility Registry ID: 110001200281
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2004-09-14 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0009
Facility Registry ID: 110001200281
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-09-07 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

27
WNW
> 1
1.100 mi.
5807 ft.

7915 MCHENRY AVE
MODESTO, CA

CHMIRS **S118188887**
N/A

Relative:
Lower

Actual:
80 ft.

CHMIRS:
OES Incident Number: 15-3464
OES notification: 06/19/2015
OES Date: Not reported
OES Time: Not reported

(Continued) **S118188887**

Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Residence
Cleanup By:	Unrecoverable
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Type:	VAPOR
Measure:	Lbs.
Other:	Not reported
Date/Time:	1750
Year:	2015
Agency:	PG&E
Incident Date:	06/18/2015
Admin Agency:	Stanislaus County Environmental Resources
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	Natural Gas
Quantity Released:	Unknown
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Unknown
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	No
#2 Pipeline:	No
#3 Pipeline:	No

(Continued) **S118188887**

#1 Vessel >= 300 Tons:	No
#2 Vessel >= 300 Tons:	No
#3 Vessel >= 300 Tons:	No
Evacs:	Yes
Injuries:	No
Fatals:	No
Comments:	Not reported
Description:	Per the caller PG&E was notfied of a multiple structure fire from a grass fire causing the release. Gas was shut off at 1906 hours.

H28 **MUNN & PERKINS** **UST** **U004024426**
NNW **26292 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.102 mi.
5817 ft. **Site 1 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

UST SAN JOAQUIN:

Region:	SJ
Facility Id:	FA0009335
Mail Address:	PO BOX 4760
Mail Care of:	George Reed, Inc.
Mail City,St,Zip:	MODESTO, CA 95352-4760
Tank Rec ID:	TA0503862
Tank Number:	1
Tank Status:	ACTIVE, EXEMPT
Tank Capacity:	11310
Product Code/Type:	09/OTHER PETROLEUM
Program Element:	2322
Decode for Program Element:	exempt tank
Count:	1
Tank Rec ID:	TA0503864
Tank Number:	3
Tank Status:	ACTIVE, EXEMPT
Tank Capacity:	24794
Product Code/Type:	09/OTHER PETROLEUM
Program Element:	2322
Decode for Program Element:	exempt tank
Count:	1

H29 **MUNN & PERKINS** **AST** **A100338091**
NNW **26292 E RIVER** **N/A**
> 1 **ESCALON, CA**
1.102 mi.
5817 ft. **Site 2 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

AST:

Certified Unified Program Agencies:	San Joaquin
Owner:	GEORGE REED INC
Total Gallons:	30,160
CERSID:	Not reported
Facility ID:	Not reported
Business Name:	Not reported

MUNN & PERKINS (Continued) **A100338091**

Phone:	Not reported
Fax:	Not reported
Mailing Address:	Not reported
Mailing Address City:	Not reported
Mailing Address State:	Not reported
Mailing Address Zip Code:	Not reported
Operator Name:	Not reported
Operator Phone:	Not reported
Owner Phone:	Not reported
Owner Mail Address:	Not reported
Owner State:	Not reported
Owner Zip Code:	Not reported
Owner Country:	Not reported
Property Owner Name:	Not reported
Property Owner Phone:	Not reported
Property Owner Mailing Address:	Not reported
Property Owner City:	Not reported
Property Owner Stat :	Not reported
Property Owner Zip Code:	Not reported
Property Owner Country:	Not reported
EPAID:	Not reported

H30 **MUNN & PERKINS** **ICIS** **1004442230**
NNW **26292 E RIVER RD** **US AIRS** **N/A**
> 1 **ESCALON, CA 95320** **US MINES**
1.102 mi. **FINDS**
5817 ft. **Site 3 of 8 in cluster H** **ECHO**

Relative: Higher

Actual: 122 ft.

ICIS:

Enforcement Action ID:	CASJVA000006077N056600064
FRS ID:	110001187732
Action Name:	MUNN & PERKINS 06077N056600064
Facility Name:	MUNN & PERKINS
Facility Address:	26292 E RIVER RD ESCALON, CA 95320
Enforcement Action Type:	Administrative Order
Facility County:	SAN JOAQUIN
Program System Acronym:	AIR
Enforcement Action Forum Desc:	Administrative - Formal
EA Type Code:	SCAAAO
Facility SIC Code:	2951
Federal Facility ID:	Not reported
Latitude in Decimal Degrees:	37.761539
Longitude in Decimal Degrees:	-120.987545
Permit Type Desc:	Not reported
Program System Acronym:	CASJV00006077N0566
Facility NAICS Code:	324121
Tribal Land Code:	Not reported

Enforcement Action ID:	CASJVA000006077N056600062
FRS ID:	110001187732
Action Name:	MUNN & PERKINS 06077N056600062
Facility Name:	MUNN & PERKINS
Facility Address:	26292 E RIVER RD ESCALON, CA 95320
Enforcement Action Type:	Notice of Violation
Facility County:	SAN JOAQUIN
Program System Acronym:	AIR

MUNN & PERKINS (Continued) **1004442230**

Enforcement Action Forum Desc: Administrative - Informal
EA Type Code: NOV
Facility SIC Code: 2951
Federal Facility ID: Not reported
Latitude in Decimal Degrees: 37.761539
Longitude in Decimal Degrees: -120.987545
Permit Type Desc: Not reported
Program System Acronym: CASJV00006077N0566
Facility NAICS Code: 324121
Tribal Land Code: Not reported

US AIRS (AFS):
Envid: 1004442230
Region Code: 09
County Code: CA077
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
D and B Number: Not reported
Facility Site Name: MUNN & PERKINS
Primary SIC Code: 2951
NAICS Code: 324121
Default Air Classification Code: SMI
Facility Type of Ownership Code: POF
Air CMS Category Code: OTH
HPV Status: Not reported

US AIRS (AFS):
Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: Not reported
Activity Status Date: 2005-06-06 00:00:00
Activity Group: Case File
Activity Type: Case File
Activity Status: Resolved

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-03-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI

MUNN & PERKINS (Continued) **1004442230**

Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-05-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-06-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1978-12-13 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-03-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-06-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566

MUNN & PERKINS (Continued) **1004442230**

Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-09-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1979-11-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-03-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-05-23 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-08-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

MUNN & PERKINS (Continued) **1004442230**

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1980-12-19 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-02-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-04-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-07-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1981-10-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

MUNN & PERKINS (Continued) **1004442230**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-03-26 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-06-29 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-09-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1982-12-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

MUNN & PERKINS (Continued) **1004442230**

Activity Date:	1983-03-08 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1983-06-02 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1983-09-07 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1983-12-15 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1984-03-09 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732

MUNN & PERKINS (Continued) **1004442230**

Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1984-06-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1984-09-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1984-10-09 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-02-04 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-06-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

MUNN & PERKINS (Continued) **1004442230**

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-09-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1985-12-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1986-03-03 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1986-05-07 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1986-08-05 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

MUNN & PERKINS (Continued) **1004442230**

Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1986-11-06 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1987-03-10 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1987-05-12 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date:	1987-08-12 00:00:00
Activity Status Date:	Not reported
Activity Group:	Compliance Monitoring
Activity Type:	Inspection/Evaluation
Activity Status:	Not reported
Region Code:	09
Programmatic ID:	AIR CASJV00006077N0566
Facility Registry ID:	110001187732
Air Operating Status Code:	OPR
Default Air Classification Code:	SMI
Air Program:	State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

MUNN & PERKINS (Continued) **1004442230**

Activity Date: 1988-06-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-08-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1988-11-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-08-25 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1989-11-15 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732

MUNN & PERKINS (Continued) **1004442230**

Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1990-06-01 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1991-07-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-04-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-07-30 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1992-12-08 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

MUNN & PERKINS (Continued) **1004442230**

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1993-04-21 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1994-07-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1995-03-31 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1996-09-13 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1997-07-17 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring

MUNN & PERKINS (Continued) **1004442230**

Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1998-03-20 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 1999-08-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2000-05-11 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2001-06-28 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards

MUNN & PERKINS (Continued) **1004442230**

Activity Date: 2002-03-18 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2004-07-16 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2006-10-06 00:00:00
Activity Status Date: Not reported
Activity Group: Compliance Monitoring
Activity Type: Inspection/Evaluation
Activity Status: Not reported

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2005-05-10 00:00:00
Activity Status Date: 2005-05-10 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Formal
Activity Status: Final Order Issued

Region Code: 09
Programmatic ID: AIR CASJV00006077N0566
Facility Registry ID: 110001187732
Air Operating Status Code: OPR
Default Air Classification Code: SMI
Air Program: State Implementation Plan for National Primary and Secondary Ambient Air Quality Standards
Activity Date: 2002-11-21 00:00:00
Activity Status Date: 2002-11-21 00:00:00
Activity Group: Enforcement Action
Activity Type: Administrative - Informal
Activity Status: Achieved

US MINES:
Mine ID: 0402696

MUNN & PERKINS (Continued) **1004442230**

SIC code(s): 144200 000000 000000 000000 000000 000000
Entity name: MUNN & PERKINS PIT & MILL
Company: MUNN & PERKINS
Status: 1
Status date: 19940803
Operation Class: non-Coal Mining
Number of shops: 0
Number of plants: 0
Latitude: 37 45 38
Longitude: 120 58 23

Violations Details:

Violation Number: 6489280
Date Issued: 11/19/2009
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(a)
Date Abated: 11/19/2009
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2009

Violation Number: 6489281
Date Issued: 11/19/2009
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(a)
Date Abated: 11/19/2009
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 150.00
Paid Penalty: 150.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 150.00
Year: 2009

Violation Number: 8793353
Date Issued: 10/29/2015
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(a)
Date Abated: 10/29/2015
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2015

MUNN & PERKINS (Continued) **1004442230**

Violation Number:	6350833
Date Issued:	09/15/2003
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	09/16/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	60
Year:	2003

Violation Number:	6350832
Date Issued:	09/15/2003
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	09/16/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	60
Year:	2003

Violation Number:	6350834
Date Issued:	09/15/2003
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	09/16/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	60
Year:	2003

Violation Number:	6350831
Date Issued:	09/15/2003
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	09/16/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed

MUNN & PERKINS (Continued) **1004442230**

Assessment Amount:	60
Year:	2003
Violation Number:	6350830
Date Issued:	09/15/2003
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	09/16/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	60
Year:	2003
Violation Number:	6379414
Date Issued:	08/16/2005
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	107(a)
Date Abated:	08/16/2005
Citation/Order:	Order
Sig and Sub Designation:	Not reported
Proposed Penalty:	Not reported
Paid Penalty:	Not reported
Assessment Status code:	Not reported
Assess. Case Status code:	Not reported
Assessment Amount:	Not reported
Year:	2005
Violation Number:	6379415
Date Issued:	08/16/2005
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/16/2005
Citation/Order:	Citation
Sig and Sub Designation:	Y
Proposed Penalty:	Not reported
Paid Penalty:	Not reported
Assessment Status code:	Not reported
Assess. Case Status code:	Not reported
Assessment Amount:	Not reported
Year:	2005
Violation Number:	8699188
Date Issued:	08/12/2013
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/12/2013
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100

MUNN & PERKINS (Continued) **1004442230**

Paid Penalty: 100
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100
Year: 2013

Violation Number: 6379413
Date Issued: 08/11/2005
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(a)
Date Abated: 08/11/2005
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 60.00
Paid Penalty: 60.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 60.00
Year: 2005

Violation Number: 6379412
Date Issued: 08/11/2005
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(a)
Date Abated: 08/11/2005
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 60.00
Paid Penalty: 60.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 60.00
Year: 2005

Violation Number: 6379410
Date Issued: 08/11/2005
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(g)(1)
Date Abated: 08/11/2005
Citation/Order: Order
Sig and Sub Designation: N
Proposed Penalty: 80.00
Paid Penalty: 80.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 80.00
Year: 2005

Violation Number: 6379411
Date Issued: 08/11/2005
Mine Status: Active
Status Date: 08/03/1994
Action Type: 104(g)(1)
Date Abated: 08/16/2005

MUNN & PERKINS (Continued) **1004442230**

Citation/Order:	Order
Sig and Sub Designation:	N
Proposed Penalty:	80.00
Paid Penalty:	0.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	80.00
Year:	2005

Violation Number:	8613404
Date Issued:	08/08/2012
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/08/2012
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100
Paid Penalty:	100
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100
Year:	2012

Violation Number:	8613399
Date Issued:	08/07/2012
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/07/2012
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100
Paid Penalty:	100
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100
Year:	2012

Violation Number:	8613403
Date Issued:	08/07/2012
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/08/2012
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100
Paid Penalty:	100
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100
Year:	2012

Violation Number:	8613400
Date Issued:	08/07/2012
Mine Status:	Active

MUNN & PERKINS (Continued) **1004442230**

Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/07/2012
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100
Paid Penalty:	0
Assessment Status code:	Closed
Assess. Case Status code:	Vacated
Assessment Amount:	0
Year:	2012

Violation Number:	8613402
Date Issued:	08/07/2012
Mine Status:	Active
Status Date:	08/03/1994
Action Type:	104(a)
Date Abated:	08/07/2012
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100
Paid Penalty:	100
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100
Year:	2012

MUNN & PERKINS (Continued) **1004442230**

Click this hyperlink while viewing on your computer to access
52 additional US_MINES: record(s) in the EDR Site Report.

FINDS:

Registry ID: 110001187732

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

AIR SYNTHETIC MINOR

STATE MASTER

ECHO:

Envid:	1004442230
Registry ID:	110001187732
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110001187732

H31 **MUNN & PERKINS** **EMI** **S106836049**
NNW **26292 E. RIVER RD.** **N/A**
> 1 **ESCALON, CA 95352**
1.102 mi.
5817 ft. **Site 4 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

EMI:

Year:	1995
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	1442
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	3
SOX - Oxides of Sulphur Tons/Yr:	0

MUNN & PERKINS (Continued) **S106836049**

Particulate Matter Tons/Yr: 14
Part. Matter 10 Micrometers and Smllr Tons/Yr:7

H32 **MUNN & PERKINS GRAVEL PLANT** **UST** **U003940832**
NNW **26292 RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.102 mi.
5817 ft. **Site 5 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

UST:
Facility ID: FA0005997
Permitting Agency: Not reported
Latitude: 37.7623879
Longitude: -120.972072

H33 **MUNN & PERKINS INC** **SWEEPS UST** **U001605416**
NNW **26292 E RIVER RD** **HIST UST** **N/A**
> 1 **ESCALON, CA 95330** **EMI**
1.102 mi.
5817 ft. **Site 6 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

SWEEPS UST:
Status: Not reported
Comp Number: 2033
Number: Not reported
Board Of Equalization: 44-024968
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 39-000-002033-000001
Tank Status: Not reported
Capacity: 11310
Active Date: Not reported
Tank Use: UNKNOWN
STG: PRODUCT
Content: DIESEL
Number Of Tanks: 3

Status: Not reported
Comp Number: 2033
Number: Not reported
Board Of Equalization: 44-024968
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 39-000-002033-000002
Tank Status: Not reported
Capacity: 1000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: Not reported

MUNN & PERKINS INC (Continued) **U001605416**

Status:	Not reported
Comp Number:	2033
Number:	Not reported
Board Of Equalization:	44-024968
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	39-000-002033-000003
Tank Status:	Not reported
Capacity:	24794
Active Date:	Not reported
Tank Use:	UNKNOWN
STG:	PRODUCT
Content:	Not reported
Number Of Tanks:	Not reported

HIST UST:

File Number:	0002FF66
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002FF66.pdf
Region:	STATE
Facility ID:	00000014123
Facility Type:	Other
Other Type:	GRAVEL PLANT
Contact Name:	ROBERT E PERKINS PRES
Telephone:	2095243197
Owner Name:	MUNN AND PERKINS INC
Owner Address:	26292 EAST RIVER ROAD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0003
Tank Num:	001
Container Num:	G-1
Year Installed:	1960
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	002
Container Num:	ASPHALT-WE
Year Installed:	1971
Tank Capacity:	00011310
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor
Tank Num:	003
Container Num:	ASPHALT-EA
Year Installed:	1971
Tank Capacity:	00024794
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Visual, Stock Inventor

MUNN & PERKINS INC (Continued) **U001605416**

Click here for Geo Tracker PDF:

EMI:

Year:	1996
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	1442
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	4
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	23
Part. Matter 10 Micrometers and Smllr Tons/Yr:	11

Year:	1997
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	1442
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	4
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	23
Part. Matter 10 Micrometers and Smllr Tons/Yr:	11

Year:	1998
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	5
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	34
Part. Matter 10 Micrometers and Smllr Tons/Yr:	20

Year:	1999
County Code:	39
Air Basin:	SJV

MUNN & PERKINS INC (Continued) **U001605416**

Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	2
NOX - Oxides of Nitrogen Tons/Yr:	8
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	36
Part. Matter 10 Micrometers and Smllr Tons/Yr:	24

Year:	2000
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	2
NOX - Oxides of Nitrogen Tons/Yr:	8
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	76
Part. Matter 10 Micrometers and Smllr Tons/Yr:	44

Year:	2001
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	2
NOX - Oxides of Nitrogen Tons/Yr:	6
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	24
Part. Matter 10 Micrometers and Smllr Tons/Yr:	18

Year:	2002
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported

MUNN & PERKINS INC (Continued) **U001605416**

Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	6
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	19
Part. Matter 10 Micrometers and Smllr Tons/Yr:	16

Year:	2003
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	15
NOX - Oxides of Nitrogen Tons/Yr:	4
SOX - Oxides of Sulphur Tons/Yr:	1
Particulate Matter Tons/Yr:	14
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7

Year:	2004
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.041041644
Reactive Organic Gases Tons/Yr:	2.033129
Carbon Monoxide Emissions Tons/Yr:	15.933105
NOX - Oxides of Nitrogen Tons/Yr:	3.436615003
SOX - Oxides of Sulphur Tons/Yr:	0.59258
Particulate Matter Tons/Yr:	14.00377735
Part. Matter 10 Micrometers and Smllr Tons/Yr:	7.162901474

Year:	2005
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.3647255
Reactive Organic Gases Tons/Yr:	2.3647255
Carbon Monoxide Emissions Tons/Yr:	18.7787025
NOX - Oxides of Nitrogen Tons/Yr:	3.4775375
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	32.35428854971190830

MUNN & PERKINS INC (Continued) **U001605416**

Part. Matter 10 Micrometers and Smllr Tons/Yr:15.09372219815552

Year:	2006
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.0547577265625
Reactive Organic Gases Tons/Yr:	2.0547577265625
Carbon Monoxide Emissions Tons/Yr:	16.3171937109375
NOX - Oxides of Nitrogen Tons/Yr:	3.0217025390625
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	28.94116310895877863
Part. Matter 10 Micrometers and Smllr Tons/Yr:	13.52917470706622

Year:	2007
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	2951
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	37.92868968138802587
Part. Matter 10 Micrometers and Smllr Tons/Yr:	17.80908649680834

H34 **GEORGE REED INC.** **EMI** **S106831700**
NNW **26292 E. RIVER RD.** **N/A**
> 1 **ESCALON, CA 95352**
1.102 mi.
5817 ft. **Site 7 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

EMI:

Year:	1990
County Code:	39
Air Basin:	SJV
Facility ID:	210
Air District Name:	SJU
SIC Code:	1442
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	5
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	28

GEORGE REED INC. (Continued) **S106831700**

Part. Matter 10 Micrometers and Smllr Tons/Yr:5

Year:	1993
County Code:	39
Air Basin:	SJV
Facility ID:	566
Air District Name:	SJU
SIC Code:	1442
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	1
NOX - Oxides of Nitrogen Tons/Yr:	4
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	27
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5

H35 **GEORGE REED INC** **HAZNET** **S113117175**
NNW **26292 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.102 mi.
5817 ft. **Site 8 of 8 in cluster H**

Relative:
Higher

Actual:
122 ft.

HAZNET:

envid:	S113117175
Year:	2012
GEPAID:	CAL000240413
Contact:	RANDY TILFORD
Telephone:	2095219771
Mailing Name:	Not reported
Mailing Address:	PO BOX 3191
Mailing City,St,Zip:	MODESTO, CA 953680000
Gen County:	San Joaquin
TSD EPA ID:	CAL000282598
TSD County:	Kern
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.2
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	San Joaquin

envid:	S113117175
Year:	2011
GEPAID:	CAL000240413
Contact:	RANDY TILFORD/COMPL SPECIALIST
Telephone:	2095314619
Mailing Name:	Not reported
Mailing Address:	PO BOX 3191
Mailing City,St,Zip:	MODESTO, CA 953530000
Gen County:	Not reported
TSD EPA ID:	WIR000029751
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Not reported

GEORGE REED INC (Continued) **S113117175**

Tons: 0.55
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Joaquin

envid: S113117175
Year: 2010
GEPAID: CAL000240413
Contact: RANDY TILFORD
Telephone: 2095219771
Mailing Name: Not reported
Mailing Address: PO BOX 3191
Mailing City,St,Zip: MODESTO, CA 953680000
Gen County: Not reported
TSD EPA ID: WIR000029751
TSD County: Not reported
Waste Category: Unspecified oil-containing waste
Disposal Method: Not reported
Tons: 0.325
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Joaquin

envid: S113117175
Year: 2005
GEPAID: CAL000240413
Contact: JEFF WELCH
Telephone: 2095243197
Mailing Name: Not reported
Mailing Address: PO BOX 3191
Mailing City,St,Zip: MODESTO, CA 953530000
Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Disposal, Land Fill
Tons: 0.6
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Joaquin

envid: S113117175
Year: 2005
GEPAID: CAL000240413
Contact: JEFF WELCH
Telephone: 2095243197
Mailing Name: Not reported
Mailing Address: PO BOX 3191
Mailing City,St,Zip: MODESTO, CA 953530000
Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Other empty containers 30 gallons or more
Disposal Method: Disposal, Land Fill
Tons: 0.01
Cat Decode: Not reported
Method Decode: Not reported

GEORGE REED INC (Continued) **S113117175**

Facility County: San Joaquin

Click this hyperlink while viewing on your computer to access
4 additional CA_HAZNET: record(s) in the EDR Site Report.

I36 **W.M. KLINE** **HIST UST** **U001607497**
SSE **1620 PATTERSON RD** **N/A**
> 1 **MODESTO, CA 95355**
1.102 mi.
5819 ft. **Site 1 of 13 in cluster I**

Relative:
Higher

Actual:
126 ft.

HIST UST:

File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000040559
Facility Type:	Other
Other Type:	FARM
Contact Name:	Not reported
Telephone:	2098693880
Owner Name:	WILLIAM M. KLINE
Owner Address:	1620 PATTERSON RD.
Owner City,St,Zip:	MODESTO, CA 95355
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	1974
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	1974
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	12
Leak Detection:	Stock Inventor

I37 **W.M. KLINE** **SWEEPS UST** **S101626701**
SSE **1620 PATTERSON RD** **HIST UST** **N/A**
> 1 **MODESTO, CA 95355** **CA FID UST**
1.102 mi.
5819 ft. **Site 2 of 13 in cluster I**

Relative:
Higher

Actual:
126 ft.

SWEEPS UST:

Status:	Not reported
Comp Number:	40559
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported

W.M. KLINE (Continued) **S101626701**

Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 50-000-040559-000001
Tank Status: Not reported
Capacity: 550
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: LEADED
Number Of Tanks: 3

Status: Not reported
Comp Number: 40559
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 50-000-040559-000002
Tank Status: Not reported
Capacity: 550
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

Status: Not reported
Comp Number: 40559
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 50-000-040559-000003
Tank Status: Not reported
Capacity: 500
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: LEADED
Number Of Tanks: Not reported

HIST UST:
File Number: 00022C7B
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00022C7B.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported

W.M. KLINE (Continued) **S101626701**

Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: Not reported

Click here for Geo Tracker PDF:

CA FID UST:
Facility ID: 50003716
Regulated By: UTNKA
Regulated ID: 00040559
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 2098693880
Mail To: Not reported
Mailing Address: 1620 PATTERSON RD
Mailing Address 2: Not reported
Mailing City,St,Zip: MODESTO 95355
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

I38 **QUALITY NUT** **RGA LUST** **S114673051**
SSE **1711 PATTERSON RD** **N/A**
> 1 **MODESTO, CA**
1.109 mi.
5858 ft. **Site 3 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

RGA LUST:

2003	QUALITY NUT	1711 PATTERSON RD
2002	QUALITY NUT	1711 PATTERSON RD
2001	QUALITY NUT	1711 PATTERSON RD
2000	QUALITY NUT	1711 PATTERSON RD

I39 **QUALITY NUT AKA JOHN HANCOCK HOUGUE** **RGA LUST** **S114673048**
SSE **1711 PATTERSON** **N/A**
> 1 **MODESTO, CA**
1.109 mi.
5858 ft. **Site 4 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

RGA LUST:

2012	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2011	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2010	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2009	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2008	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON

QUALITY NUT AKA JOHN HANCOCK HOUGUE (Continued) **S114673048**

2007	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2006	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON
2005	QUALITY NUT AKA JOHN HANCOCK HOUGUE	1711 PATTERSON

I40 **QUALITY NUT** **RGA LUST** **S114673052**
SSE **1711 PATTERSON** **N/A**
> 1 **MODESTO, CA**
1.109 mi.
5858 ft. **Site 5 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

RGA LUST:

1998	QUALITY NUT	1711 PATTERSON
1997	QUALITY NUT	1711 PATTERSON
1996	QUALITY NUT	1711 PATTERSON
1995	QUALITY NUT	1711 PATTERSON
1994	QUALITY NUT	1711 PATTERSON

I41 **DEL RIO ORCHARDS RUTH WENDT** **HIST UST** **U001607448**
SSE **1711 PATTERSON RD** **N/A**
> 1 **MODESTO, CA 95355**
1.109 mi.
5858 ft. **Site 6 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

HIST UST:

File Number:	00021DB0
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021DB0.pdf
Region:	STATE
Facility ID:	00000031024
Facility Type:	Other
Other Type:	FARM
Contact Name:	Not reported
Telephone:	2098693149
Owner Name:	DEL RIO ORCHARDS RUTH WENDT
Owner Address:	1711 PATTERSON RD.
Owner City,St,Zip:	MODESTO, CA 95355
Total Tanks:	0002
Tank Num:	001
Container Num:	001
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	002
Year Installed:	Not reported
Tank Capacity:	00002000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

DEL RIO ORCHARDS RUTH WENDT (Continued) **U001607448**

Click here for Geo Tracker PDF:

I42 **QUALITY NUT (CLOSED BY CO)** **RGA LUST** **S114673046**
SSE **1711 PATTERSON** **N/A**
> 1 **MODESTO, CA**
1.109 mi.
5858 ft. **Site 7 of 13 in cluster I**

Relative:
Higher

RGA LUST:
1993 QUALITY NUT (CLOSED BY CO) 1711 PATTERSON

Actual:
128 ft.

I43 **DEL RIO ORCHARDS RUTH WENDT** **SWEEPS UST** **S101626664**
SSE **1711 PATTERSON RD** **CA FID UST** **N/A**
> 1 **MODESTO, CA 95355**
1.109 mi.
5858 ft. **Site 8 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

SWEEPS UST:

Status:	Active
Comp Number:	31024
Number:	9
Board Of Equalization:	Not reported
Referral Date:	08-31-93
Action Date:	08-31-93
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	50-000-031024-000001
Tank Status:	A
Capacity:	500
Active Date:	08-31-93
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

Status:	Not reported
Comp Number:	31024
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	50-000-031024-000002
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	DIESEL
Number Of Tanks:	1

CA FID UST:

Facility ID:	50002165
Regulated By:	UTNKA
Regulated ID:	00031024

DEL RIO ORCHARDS RUTH WENDT (Continued) **S101626664**

Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2098693149
Mail To:	Not reported
Mailing Address:	1711 PATTERSON RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95355
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

I44 **QUALITY NUT** **LUST S102435541**
SSE **1711 PATTERSON** **HIST CORTESE N/A**
> 1 **MODESTO, CA 95355**
1.109 mi.
5858 ft. **Site 9 of 13 in cluster I**

Relative:
Higher

Actual:
128 ft.

LUST:

Region:	STATE
Global Id:	T0609900179
Latitude:	37.741064
Longitude:	-120.972575
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	04/18/1991
Lead Agency:	STANISLAUS COUNTY
Case Worker:	ND
Local Agency:	STANISLAUS COUNTY
RB Case Number:	500205
LOC Case Number:	8090
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0609900179
Contact Type:	Regional Board Caseworker
Contact Name:	MICHAEL SMITH
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	msmith@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0609900179
Contact Type:	Local Agency Caseworker
Contact Name:	NICOLE DAMIN
Organization Name:	STANISLAUS COUNTY
Address:	3800 CORNUCOPIA WAY STE# C
City:	MODESTO
Email:	ndamin@envres.org

QUALITY NUT (Continued) **S102435541**

Phone Number: Not reported

Status History:
Global Id: T0609900179
Status: Completed - Case Closed
Status Date: 04/18/1991

Global Id: T0609900179
Status: Open - Case Begin Date
Status Date: 04/18/1991

Regulatory Activities:
Global Id: T0609900179
Action Type: Other
Date: 04/18/1991
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 500205
Case Type: Soil only
Substance: GASOLINE
Staff Initials: MTS
Lead Agency: Local
Program: LUST
MTBE Code: N/A

HIST CORTESE:
Region: CORTESE
Facility County Code: 50
Reg By: LTNKA
Reg Id: 500205

I45 **VILLA INFANTINO RANCH** **HIST UST** **U001607494**
SSE **1817 PATTERSON ROAD** **N/A**
> 1 **MODESTO, CA 95355**
1.110 mi.
5863 ft. **Site 10 of 13 in cluster I**

Relative:
Higher

Actual:
129 ft.

HIST UST:
File Number: 0002292E
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002292E.pdf
Region: STATE
Facility ID: 00000015767
Facility Type: Other
Other Type: RANCH
Contact Name: Not reported
Telephone: 2095225880
Owner Name: ROGER D. & D. CINDY HIGBY
Owner Address: 1817 PATTERSON ROAD
Owner City,St,Zip: MODESTO, CA 95355
Total Tanks: 0001

Tank Num: 001

VILLA INFANTINO RANCH (Continued) **U001607494**

Container Num:	1
Year Installed:	1978
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	1/2
Leak Detection:	Stock Inventor

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I46 **CIPPONERI TRUCKING** **HIST CORTESE** **S101305145**
SSE **2017 PATTERSON** **N/A**
> 1 **MODESTO, CA 95355**
1.110 mi.
5863 ft. **Site 11 of 13 in cluster I**

Relative:
Higher

Actual:
129 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	50
Reg By:	LTNKA
Reg Id:	500218

I47 **CINDY HIGBY** **HAZNET** **S112901404**
SSE **1817 PATTERSON RD** **N/A**
> 1 **MODESTO, CA 95355**
1.110 mi.
5863 ft. **Site 12 of 13 in cluster I**

Relative:
Higher

Actual:
129 ft.

HAZNET:

envid:	S112901404
Year:	1999
GEPAID:	CAC002180937
Contact:	CINDY HIGBY
Telephone:	2095225880
Mailing Name:	Not reported
Mailing Address:	1817 PATTERSON RD
Mailing City,St,Zip:	MODESTO, CA 953550000
Gen County:	Not reported
TSD EPA ID:	CAD099452708
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	.1459
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

48
South
> 1
1.114 mi.
5881 ft.

RUMBLE FARMS
6116 COFFEE RD
MODESTO, CA 95357

HAZNET **S113803130**
N/A

Relative:
Higher

Actual:
122 ft.

HAZNET:

envid:	S113803130
Year:	2012
GEPAID:	CAL000381683
Contact:	CHARLES RUMBLE
Telephone:	2095956360
Mailing Name:	Not reported
Mailing Address:	PO BOX 577724
Mailing City,St,Zip:	MODESTO, CA 953577724
Gen County:	Stanislaus
TSD EPA ID:	NMD002208627
TSD County:	99
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1815
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

envid:	S113803130
Year:	2012
GEPAID:	CAL000381683
Contact:	CHARLES RUMBLE
Telephone:	2095956360
Mailing Name:	Not reported
Mailing Address:	PO BOX 577724
Mailing City,St,Zip:	MODESTO, CA 953577724
Gen County:	Stanislaus
TSD EPA ID:	ARD069748192
TSD County:	99
Waste Category:	Not reported
Disposal Method:	Incineration--Thermal Destruction Other Than Use As A Fuel
Tons:	0.1335
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

I49
SSE
> 1
1.119 mi.
5908 ft.

1729 PATTERSON RD
RIVERBANK, CA 95367

Site 13 of 13 in cluster I

EDR Hist Cleaner **1015004589**
N/A

Relative:
Higher

Actual:
131 ft.

EDR Historical Cleaners:

Name:	VALLEY CARPET CLEANING
Year:	2002
Address:	1729 PATTERSON RD

Name:	VALLEY CARPET CLEANING
Year:	2003
Address:	1729 PATTERSON RD

Name:	VALLEY CARPET CLEANING

(Continued) **1015004589**

Year: 2004
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2005
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2006
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2007
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2008
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2009
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2010
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2011
Address: 1729 PATTERSON RD

Name: VALLEY CARPET CLEANING INC
Year: 2012
Address: 1729 PATTERSON RD

J50 **ADRIAN RANCH** **AST** **A100416908**
North **27107 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.136 mi.
5998 ft. **Site 1 of 3 in cluster J**

Relative:
Higher

Actual:
126 ft.

AST:
Certified Unified Program Agencies: Not reported
Owner: ADRIAN RANCH
Total Gallons: Not reported
CERSID: 10186221
Facility ID: FA0017290
Business Name: ADRIAN RANCH
Phone: (209) 838-2337 0
Fax: Not reported
Mailing Address: 26554 E RIVER RD
Mailing Address City: ESCALON
Mailing Address State: CA
Mailing Address Zip Code: 95320
Operator Name: Adrian Ranch
Operator Phone: 209-402-4972
Owner Phone: 209-402-4972
Owner Mail Address: 26554 E RIVER RD

ADRIAN RANCH (Continued) **A100416908**

Owner State:	CA
Owner Zip Code:	95320
Owner Country:	United States
Property Owner Name:	Adrian Family LP
Property Owner Phone:	209-402-4972
Property Owner Mailing Address:	26554 E. River Rd
Property Owner City:	Escalon
Property Owner Stat :	CA
Property Owner Zip Code:	95320
Property Owner Country:	United States
EPAID:	CAL000046693

J51 **ADRIAN RANCH** **FINDS** **1016783770**
North **27107 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.136 mi.
5998 ft. **Site 2 of 3 in cluster J**

Relative:
Higher

Actual:
126 ft.

FINDS:

Registry ID: 110058246492

Environmental Interest/Information System
STATE MASTER

J52 **PHILIP ADRIAN** **HIST UST** **U001605433**
North **27107 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.136 mi.
5998 ft. **Site 3 of 3 in cluster J**

Relative:
Higher

Actual:
126 ft.

HIST UST:

File Number:	0002B137
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002B137.pdf
Region:	STATE
Facility ID:	00000019136
Facility Type:	Other
Other Type:	FARM
Contact Name:	MARTIN ADRIAN
Telephone:	2098382337
Owner Name:	PHILIP ADRIAN
Owner Address:	26554 E RIVER RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	1962
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	10
Leak Detection:	Visual
Tank Num:	002

PHILIP ADRIAN (Continued) **U001605433**

Container Num:	2
Year Installed:	1958
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

K53 **JERRY MOYER** **PEST LIC** **S117644097**
SE **2001 CANDLEWOOD PL.** **N/A**
> 1 **RIVERBANK, CA 95367**
1.140 mi.
6021 ft. **Site 1 of 3 in cluster K**

Relative:
Higher

Actual:
132 ft.

PEST LIC:

Facility Type:	PCA
Categories:	ABCDEFG
License No:	71820
Issued or Renewed Date:	01/01/2016
Expiration Date:	12/31/2017

K54 **ERICA MOYER** **PEST LIC** **S117644663**
SE **2001 CANDLEWOOD PL** **N/A**
> 1 **RIVERBANK, CA 95367**
1.140 mi.
6021 ft. **Site 2 of 3 in cluster K**

Relative:
Higher

Actual:
132 ft.

PEST LIC:

Facility Type:	PCA
Categories:	ABCEG
License No:	73031
Issued or Renewed Date:	02/08/2016
Expiration Date:	12/31/2017

K55 **WILLIAM C GARY** **PEST LIC** **S117645462**
SE **2012 WOODHAVEN CIR** **N/A**
> 1 **RIVERBANK, CA 95367**
1.162 mi.
6133 ft. **Site 3 of 3 in cluster K**

Relative:
Higher

Actual:
132 ft.

PEST LIC:

Facility Type:	PCA
Categories:	ABCEFG
License No:	74635
Issued or Renewed Date:	01/01/2015
Expiration Date:	12/31/2016

L56 **VILLA INFANTINO RANCH** **SWEEPS UST** **S101626698**
SE **1817 PATTERSON RD** **CA FID UST** **N/A**
> 1 **MODESTO, CA 95355**
1.177 mi.
6216 ft. **Site 1 of 3 in cluster L**

Relative:
Higher

Actual:
128 ft.

SWEEPS UST:

Status:	Active
Comp Number:	15767
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	50-000-015767-000001
Tank Status:	A
Capacity:	550
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

CA FID UST:

Facility ID:	50002964
Regulated By:	UTNKA
Regulated ID:	00015767
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2095225880
Mail To:	Not reported
Mailing Address:	P O BOX
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95355
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

L57 **THE WINTERS GROUP** **HAZNET** **S112863082**
SE **1848 PATTERSON** **N/A**
> 1 **RIVERBANK, CA 95377**
1.183 mi.
6244 ft. **Site 2 of 3 in cluster L**

Relative:
Higher

Actual:
128 ft.

HAZNET:

envid:	S112863082
Year:	1995
GEPAID:	CAC001048192
Contact:	THE WINTERS GROUP
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	1112 EAST RIDGE DR.
Mailing City,St,Zip:	MODESTO, CA 953550000
Gen County:	Not reported

THE WINTERS GROUP (Continued) **S112863082**

TSD EPA ID:	CAD990794133
TSD County:	Not reported
Waste Category:	Asbestos containing waste
Disposal Method:	Disposal, Land Fill
Tons:	.8428
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

L58 **MORRIS NURSERY INC** **HAZNET** **S112963819**
SE **1837 PATTERSON RD** **N/A**
> 1 **RIVERBANK, CA 95367**
1.183 mi.
6247 ft. **Site 3 of 3 in cluster L**

Relative:
Higher

Actual:
129 ft.

HAZNET:

envid:	S112963819
Year:	2007
GEPAID:	CAC002620422
Contact:	RONALD HOFFMANN
Telephone:	2095275553
Mailing Name:	Not reported
Mailing Address:	PO BOX 577378
Mailing City,St,Zip:	MODESTO, CA 95357
Gen County:	Not reported
TSD EPA ID:	NVT330010000
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.7
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	Stanislaus

M59 **FRANK SBRAGIA** **SWEEPS UST** **S101626547**
SW **221 PATTERSON RD** **HIST UST** **N/A**
> 1 **MODESTO, CA 95352** **CA FID UST**
1.188 mi. **NPDES**
6270 ft. **Site 1 of 2 in cluster M**

Relative:
Higher

Actual:
110 ft.

SWEEPS UST:

Status:	Active
Comp Number:	15583
Number:	9
Board Of Equalization:	Not reported
Referral Date:	07-01-85
Action Date:	Not reported
Created Date:	02-29-88
Owner Tank Id:	1
SWRCB Tank Id:	50-000-015583-000001
Tank Status:	A
Capacity:	550
Active Date:	07-01-85
Tank Use:	M.V. FUEL
STG:	P

FRANK SBRAGIA (Continued) **S101626547**

Content: LEADED
Number Of Tanks: 1

HIST UST:
File Number: 00021FE4
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00021FE4.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: Not reported

Click here for Geo Tracker PDF:

CA FID UST:
Facility ID: 50002958
Regulated By: UTNKA
Regulated ID: 00015583
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 2095225775
Mail To: Not reported
Mailing Address: P O BOX
Mailing Address 2: Not reported
Mailing City,St,Zip: MODESTO 95352
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

NPDES:
Npdes Number: Not reported
Facility Status: Not reported
Agency Id: Not reported
Region: 5S
Regulatory Measure Id: 421854
Order No: Not reported
Regulatory Measure Type: Construction
Place Id: Not reported

FRANK SBRAGIA (Continued) **S101626547**

WDID:	5S50C362434
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	2/15/2013
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	11/11/2011
PROCESSED DATE:	11/16/2011
STATUS CODE NAME:	Terminated
STATUS DATE:	2/19/2013
PLACE SIZE:	154
PLACE SIZE UNIT:	Acres
FACILITY CONTACT NAME:	Lyle Thompson
FACILITY CONTACT TITLE:	Site Manager
FACILITY CONTACT PHONE:	510-837-8660
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	lyle.thompson@sunpowercorp.com
OPERATOR NAME:	Solar Star California VIII LLC
OPERATOR ADDRESS:	CO SunPower Corporation Systems
OPERATOR CITY:	Richmond
OPERATOR STATE:	California
OPERATOR ZIP:	94804
OPERATOR CONTACT NAME:	Geoff Baxter
OPERATOR CONTACT TITLE:	Managing Director, Systems Operations - UPP Americas
OPERATOR CONTACT PHONE:	510-439-4775
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	geoff.baxter@sunpowercorp.com
OPERATOR TYPE:	Private Business
DEVELOPER NAME:	Solar Star California VIII LLC
DEVELOPER ADDRESS:	CO SunPower Corporation Systems
DEVELOPER CITY:	Richmond
DEVELOPER STATE:	California
DEVELOPER ZIP:	94804
DEVELOPER CONTACT NAME:	Stephen Barnes
DEVELOPER CONTACT TITLE:	Sr. Project Manager
CONSTYPE LINEAR UTILITY IND:	N
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Y
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Solar

FRANK SBRAGIA (Continued) **S101626547**

CONSTYPE UTILITY IND:	Y
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Y
RECEIVING WATER NAME:	Lone Tree Creek
CERTIFIER NAME:	Geoff Baxter
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	11-NOV-11
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

M60 **FRANK SBRAGIA** **HIST UST** **U001607278**
SW **221 PATTERSON RD.** **N/A**
> 1 **MODESTO, CA 95352**
1.188 mi.
6270 ft. **Site 2 of 2 in cluster M**

Relative:
Higher

Actual:
110 ft.

HIST UST:

File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000015583
Facility Type:	Other
Other Type:	FARM
Contact Name:	Not reported
Telephone:	2095225775
Owner Name:	FRANK SBRAGIA
Owner Address:	221 PATTERSON RD.
Owner City,St,Zip:	MODESTO, CA 95352
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	None

---

61 **EDR Hist Auto** **1015615935**
West **7213 SPY GLASS DR** **N/A**
> 1 **MODESTO, CA 95356**
1.203 mi.
6351 ft.

Relative:
Lower

Actual:
0 ft.

EDR Historical Auto Stations:

Name:	JOES AUTOMOTIVE
Year:	2001
Address:	7213 SPY GLASS DR
Name:	JOES AUTOMOTIVE
Year:	2002
Address:	7213 SPY GLASS DR
Name:	JOES AUTOMOTIVE

(Continued) **1015615935**

Year: 2003
Address: 7213 SPY GLASS DR

N62 **LEO MORRIS** **HIST UST** **U001607472**
SE **6525 OLD OAKDALE RT** **N/A**
> 1 **MODESTO, CA 95355**
1.221 mi.
6449 ft. **Site 1 of 3 in cluster N**

Relative:
Higher

Actual:
131 ft.

HIST UST:

File Number:	000224B7
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/000224B7.pdf
Region:	STATE
Facility ID:	00000031046
Facility Type:	Other
Other Type:	FARM
Contact Name:	Not reported
Telephone:	2098691442
Owner Name:	LEO L. MORRIS
Owner Address:	6525 OLD OAKDALE RD
Owner City,St,Zip:	MODESTO, CA 95355
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1978
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

O63 **CITY OF RIVERBANK** **EMI** **S107620622**
SE **6590 CIPPONERI ST** **N/A**
> 1 **RIVERBANK, CA 95367**
1.233 mi.
6509 ft. **Site 1 of 2 in cluster O**

Relative:
Higher

Actual:
132 ft.

EMI:

Year:	2004
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.002527487
Reactive Organic Gases Tons/Yr:	0.002114748
Carbon Monoxide Emissions Tons/Yr:	0.00671976
NOX - Oxides of Nitrogen Tons/Yr:	0.03089772
SOX - Oxides of Sulphur Tons/Yr:	0.002055456
Particulate Matter Tons/Yr:	0.00220698

CITY OF RIVERBANK (Continued) **S107620622**

Part. Matter 10 Micrometers and Smllr Tons/Yr:0.002154012

Year:	2005
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.0025274865770049360
Reactive Organic Gases Tons/Yr:	.00211474801898003
Carbon Monoxide Emissions Tons/Yr:	.00671976006031036
NOX - Oxides of Nitrogen Tons/Yr:	.0308977202773094
SOX - Oxides of Sulphur Tons/Yr:	.00205545601844788
Particulate Matter Tons/Yr:	.00220698001980782
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.0021540124993324323

Year:	2006
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.0023019002712448308
Reactive Organic Gases Tons/Yr:	.00192599995695055
Carbon Monoxide Emissions Tons/Yr:	.00611999986320734
NOX - Oxides of Nitrogen Tons/Yr:	.028139999371022
SOX - Oxides of Sulphur Tons/Yr:	.0000127199997156858
Particulate Matter Tons/Yr:	.0020594261834764344
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.002009999955073

Year:	2007
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.0023019002712448308
Reactive Organic Gases Tons/Yr:	.00192599995695055
Carbon Monoxide Emissions Tons/Yr:	.00611999986320734
NOX - Oxides of Nitrogen Tons/Yr:	.028139999371022
SOX - Oxides of Sulphur Tons/Yr:	.0000127199997156858
Particulate Matter Tons/Yr:	.0020594261834764344
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.002009999955073

Year:	2008
County Code:	50
Air Basin:	SJV
Facility ID:	3960

CITY OF RIVERBANK (Continued) **S107620622**

Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.0003452850335406848
Reactive Organic Gases Tons/Yr:	.000288899987563491
Carbon Monoxide Emissions Tons/Yr:	.000917999960482121
NOX - Oxides of Nitrogen Tons/Yr:	.00422099981829524
SOX - Oxides of Sulphur Tons/Yr:	.0000019079999178648
Particulate Matter Tons/Yr:	.0003089139211281649
Part. Matter 10 Micrometers and Smllr Tons/Yr:	.000301499987021089

Year:	2009
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	9.2076013708208598E-4
Reactive Organic Gases Tons/Yr:	7.7040000669658195E-4
Carbon Monoxide Emissions Tons/Yr:	2.4480000212788598E-3
NOX - Oxides of Nitrogen Tons/Yr:	0.011256000097841
SOX - Oxides of Sulphur Tons/Yr:	5.0880000442266499E-6
Particulate Matter Tons/Yr:	8.2377049896377496E-4
Part. Matter 10 Micrometers and Smllr Tons/Yr:	8.0400000698864504E-4

Year:	2010
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	3.6691765268316002E-3
Reactive Organic Gases Tons/Yr:	3.0699999999999998E-3
Carbon Monoxide Emissions Tons/Yr:	8.3000000000000001E-3
NOX - Oxides of Nitrogen Tons/Yr:	2.7400000000000001E-2
SOX - Oxides of Sulphur Tons/Yr:	0.000014
Particulate Matter Tons/Yr:	7.0081967213114695E-4
Part. Matter 10 Micrometers and Smllr Tons/Yr:	6.8400000000000004E-4

Year:	2011
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0020037288488

CITY OF RIVERBANK (Continued) **S107620622**

Reactive Organic Gases Tons/Yr:	0.0016765199278
Carbon Monoxide Emissions Tons/Yr:	0.0045352798048
NOX - Oxides of Nitrogen Tons/Yr:	0.014967719356
SOX - Oxides of Sulphur Tons/Yr:	7.6319996715e-006
Particulate Matter Tons/Yr:	0.00038323768842
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.0003740399839

Year:	2012
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0020872177237
Reactive Organic Gases Tons/Yr:	0.0017463750694
Carbon Monoxide Emissions Tons/Yr:	0.0047242501877
NOX - Oxides of Nitrogen Tons/Yr:	0.01559137562
SOX - Oxides of Sulphur Tons/Yr:	7.9500003159e-006
Particulate Matter Tons/Yr:	0.00039920595849
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00038962501548

Year:	2013
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0019123505976
Reactive Organic Gases Tons/Yr:	0.00168
Carbon Monoxide Emissions Tons/Yr:	0.00454
NOX - Oxides of Nitrogen Tons/Yr:	0.015
SOX - Oxides of Sulphur Tons/Yr:	7.63e-006
Particulate Matter Tons/Yr:	0.00038319672131
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.000374

Year:	2014
County Code:	50
Air Basin:	SJV
Facility ID:	3960
Air District Name:	SJU
SIC Code:	9532
Air District Name:	SAN JOAQUIN VALLEY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.0022264541532
Reactive Organic Gases Tons/Yr:	0.0019559399736
Carbon Monoxide Emissions Tons/Yr:	0.0052911599287
NOX - Oxides of Nitrogen Tons/Yr:	0.017462339765
SOX - Oxides of Sulphur Tons/Yr:	8.90399988e-006
Particulate Matter Tons/Yr:	0.00044711064971
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0.00043637999412

O64 **CITY OF RIVERBANK** **FINDS** **1011984530**
SE **6590 CIPPONERI ST** **N/A**
> 1 **RIVERBANK, CA 95367**
1.233 mi.
6509 ft. **Site 2 of 2 in cluster O**

Relative:
Higher

Actual:
132 ft.

FINDS:

Registry ID: 110037976367

Environmental Interest/Information System
AIR EMISSIONS CLASSIFICATION UNKNOWN

---

65 **EFFIE LATTA** **HIST UST** **U001605303**
NNE **27865 E RIVER RD** **N/A**
> 1 **ESCALON, CA 95320**
1.240 mi.
6546 ft.

Relative:
Higher

Actual:
130 ft.

HIST UST:

File Number:	0002FBCA
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002FBCA.pdf
Region:	STATE
Facility ID:	00000034997
Facility Type:	Other
Other Type:	FARM
Contact Name:	EFFIE LATTA
Telephone:	2098382664
Owner Name:	EFFIE LATTA
Owner Address:	27865 E RIVER RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1974
Tank Capacity:	00000550
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

N66 **CIPPONERI TRUCKING** **LUST** **S105418611**
SE **2017 PATTERSON** **N/A**
> 1 **RIVERBANK, CA CA 9**
1.295 mi.
6835 ft. **Site 2 of 3 in cluster N**

Relative:
Higher

Actual:
132 ft.

LUST:

Region:	STATE
Global Id:	T0609900188
Latitude:	37.734906
Longitude:	-120.962836
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed

CIPPONERI TRUCKING (Continued) **S105418611**

Status Date:	04/11/2000
Lead Agency:	STANISLAUS COUNTY
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	500218
LOC Case Number:	159
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0609900188
Contact Type:	Regional Board Caseworker
Contact Name:	MICHAEL SMITH
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	msmith@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0609900188
Status:	Open - Case Begin Date
Status Date:	06/19/1991

Global Id:	T0609900188
Status:	Completed - Case Closed
Status Date:	04/11/2000

Regulatory Activities:

Global Id:	T0609900188
Action Type:	REMEDIATION
Date:	10/21/1992
Action:	Excavation

Global Id:	T0609900188
Action Type:	Other
Date:	06/19/1991
Action:	Leak Reported

Global Id:	T0609900188
Action Type:	ENFORCEMENT
Date:	08/30/1991
Action:	Notice of Responsibility

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	500218
Case Type:	Soil only
Substance:	DIESEL
Staff Initials:	MTS

CIPPONERI TRUCKING (Continued) **S105418611**

Lead Agency: Local
Program: LUST
MTBE Code: N/A

N67 **CIPPONERI TRUCKING** **RCRA-SQG** **1000348623**
SE **2015 PATTERSON RD** **FINDS** **CAD981663883**
> 1 **MODESTO, CA 95355** **ECHO**
1.297 mi.
6847 ft. **Site 3 of 3 in cluster N**

Relative:
Higher

Actual:
132 ft.

RCRA-SQG:
Date form received by agency: 10/23/1986
Facility name: CIPPONERI TRUCKING
Facility address: 2015 PATTERSON RD
MODESTO, CA 95355
EPA ID: CAD981663883
Mailing address: PATTERSON RD
MODESTO, CA 95355
Contact: ENVIRONMENTAL MANAGER
Contact address: 2015 PATTERSON RD
MODESTO, CA 95355
Contact country: US
Contact telephone: (209) 869-1000
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: CIPPONERI THOMAS
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No

CIPPONERI TRUCKING (Continued) **1000348623**

Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110002742033

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid:	1000348623
Registry ID:	110002742033
DFR URL:	http://echo.epa.gov/detailed_facility_report?fid=110002742033

P68 **TOM CIPPONERI TRUCKING** **SWEEPS UST** **S101626696**
SE **2017 PATTERSON RD** **CA FID UST** **N/A**
> 1 **MODESTO, CA 95355**
1.298 mi.
6853 ft. **Site 1 of 2 in cluster P**

Relative:
Higher

Actual:
132 ft.

SWEEPS UST:

Status:	Not reported
Comp Number:	36300
Number:	Not reported
Board Of Equalization:	44-028778
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	50-000-036300-000001
Tank Status:	Not reported
Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	DIESEL
Number Of Tanks:	2

Status: Not reported

TOM CIPPONERI TRUCKING (Continued) **S101626696**

Comp Number:	36300
Number:	Not reported
Board Of Equalization:	44-028778
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	50-000-036300-000002
Tank Status:	Not reported
Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	DIESEL
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	50000141
Regulated By:	UTNKA
Regulated ID:	00036300
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	2098691000
Mail To:	Not reported
Mailing Address:	2017 PATTERSON RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	MODESTO 95355
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

P69 **TOM CIPPONERI TRUCKING** **HIST UST** **U001607490**
SE **2017 PATTERSON ROAD** **N/A**
> 1 **MODESTO, CA 95355**
1.298 mi.
6853 ft. **Site 2 of 2 in cluster P**

Relative:
Higher

Actual:
132 ft.

HIST UST:

File Number:	00022AAE
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00022AAE.pdf
Region:	STATE
Facility ID:	00000036300
Facility Type:	Other
Other Type:	TRUCKING SERVICE
Contact Name:	TOM CIPPONERI
Telephone:	2098691000
Owner Name:	TOM CIPPONERI TRUCKING
Owner Address:	2017 PATTERSON ROAD
Owner City,St,Zip:	MODESTO, CA 95355
Total Tanks:	0002
Tank Num:	001
Container Num:	2

TOM CIPPONERI TRUCKING (Continued) **U001607490**

Year Installed:	1976
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	1/4
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	1
Year Installed:	1972
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	1/4
Leak Detection:	Stock Inventor

Click here for Geo Tracker PDF:

Q70 **JAMES URIELING** **HIST UST** **S118411552**
NNE **21413 S HAROLD AVE** **N/A**
> 1 **ESCALON, CA 95320**
1.372 mi.
7243 ft. **Site 1 of 2 in cluster Q**

Relative:
Higher

Actual:
129 ft.

HIST UST:

File Number:	0002FD90
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002FD90.pdf
Region:	Not reported
Facility ID:	Not reported
Facility Type:	Not reported
Other Type:	Not reported
Contact Name:	Not reported
Telephone:	Not reported
Owner Name:	Not reported
Owner Address:	Not reported
Owner City,St,Zip:	Not reported
Total Tanks:	Not reported
Tank Num:	Not reported
Container Num:	Not reported
Year Installed:	Not reported
Tank Capacity:	Not reported
Tank Used for:	Not reported
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Not reported

Click here for Geo Tracker PDF:

Q71
NNE
> 1
1.372 mi.
7243 ft.

JAMES URIELING — **HIST UST** — **U001605358**
21413 S HARROLD AVE — **N/A**
ESCALON, CA 95320

Site 2 of 2 in cluster Q

Relative:
Higher

Actual:
129 ft.

HIST UST:

File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000022947
Facility Type:	Other
Other Type:	FARM
Contact Name:	SELF
Telephone:	2098382860
Owner Name:	JAMES URIELING
Owner Address:	21413 S. HAROLD AVE.
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000520
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Visual

R72
ESE
> 1
1.397 mi.
7374 ft.

WILLIAM D. ANDERSON — **HIST UST** — **U001608202**
6825 ZERILLO DR — **N/A**
RIVERBANK, CA 95367

Site 1 of 2 in cluster R

Relative:
Higher

Actual:
146 ft.

HIST UST:

File Number:	Not reported
URL:	Not reported
Region:	STATE
Facility ID:	00000001490
Facility Type:	Other
Other Type:	RESIDENCE
Contact Name:	Not reported
Telephone:	2098696151
Owner Name:	WILLIAM D. ANDERSON
Owner Address:	6825 ZARILLO DRIVE
Owner City,St,Zip:	RIVERBANK, PA 95367
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1980
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	None

73
NE
> 1
1.405 mi.
7420 ft.

BURNWOOD CEMETERY
28320 E RIVER RD
ESCALON, CA 95320

SWEEPS UST
HIST UST

U001605256
N/A

Relative:
Higher

Actual:
135 ft.

SWEEPS UST:

Status:	Not reported
Comp Number:	2031
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	39-000-002031-000001
Tank Status:	Not reported
Capacity:	350
Active Date:	Not reported
Tank Use:	UNKNOWN
STG:	PRODUCT
Content:	Not reported
Number Of Tanks:	1

HIST UST:

File Number:	0002FBF2
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002FBF2.pdf
Region:	STATE
Facility ID:	00000038816
Facility Type:	Other
Other Type:	CEMETERY
Contact Name:	A.E. PHILLIPS
Telephone:	2098382924
Owner Name:	ESCALON CEMETERY DISTRICT
Owner Address:	28320 E. RIVER RD
Owner City,St,Zip:	ESCALON, CA 95320
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00000350
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	12
Leak Detection:	Visual

Click here for Geo Tracker PDF:

R74
ESE
> 1
1.440 mi.
7603 ft.

WILLIAM D. ANDERSON
6825 ZARILLO DR
RIVERBANK, CA 95367

Site 2 of 2 in cluster R

SWEEPS UST
HIST UST
CA FID UST

S101626806
N/A

Relative:
Higher

Actual:
145 ft.

SWEEPS UST:

Status:	Not reported
Comp Number:	1490
Number:	Not reported

WILLIAM D. ANDERSON (Continued) **S101626806**

Board Of Equalization: 44-028410
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 50-000-001490-000001
Tank Status: Not reported
Capacity: 1000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: 1

HIST UST:
File Number: 00022C63
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00022C63.pdf
Region: Not reported
Facility ID: Not reported
Facility Type: Not reported
Other Type: Not reported
Contact Name: Not reported
Telephone: Not reported
Owner Name: Not reported
Owner Address: Not reported
Owner City,St,Zip: Not reported
Total Tanks: Not reported

Tank Num: Not reported
Container Num: Not reported
Year Installed: Not reported
Tank Capacity: Not reported
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: Not reported
Leak Detection: Not reported

Click here for Geo Tracker PDF:

CA FID UST:
Facility ID: 50002176
Regulated By: UTNKI
Regulated ID: 00001490
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 2098696151
Mail To: Not reported
Mailing Address: 6825 ZARILLO DR
Mailing Address 2: Not reported
Mailing City,St,Zip: RIVERBANK 95367
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported

WILLIAM D. ANDERSON (Continued) **S101626806**

Status: Inactive

75
NW
> 1
1.484 mi.
7837 ft.

PACOAST INC **LUST** **1001609391**
20001 MC HENRY AVE S **HIST CORTESE** **N/A**
ESCALON, CA 95320

Relative:
Higher

Actual:
117 ft.

LUST:

Region:	STATE
Global Id:	T0607700050
Latitude:	37.778785
Longitude:	-120.998619
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/24/1996
Lead Agency:	SAN JOAQUIN COUNTY
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	390073
LOC Case Number:	0001427
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0607700050
Contact Type:	Regional Board Caseworker
Contact Name:	JAMES BARTON
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	jbarton@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0607700050
Status:	Open - Case Begin Date
Status Date:	12/07/1987
Global Id:	T0607700050
Status:	Open - Site Assessment
Status Date:	12/07/1987
Global Id:	T0607700050
Status:	Completed - Case Closed
Status Date:	07/24/1996

Regulatory Activities:

Global Id:	T0607700050
Action Type:	Other
Date:	12/07/1987
Action:	Leak Reported

PACOAST INC (Continued) **1001609391**

Global Id: T0607700050
Action Type: Other
Date: 04/28/1988
Action: Leak Discovery

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 390073
Case Type: Soil only
Substance: DIESEL
Staff Initials: JLB
Lead Agency: Local
Program: LUST
MTBE Code: N/A

HIST CORTESE:
Region: CORTESE
Facility County Code: 39
Reg By: LTNKA
Reg Id: 390073

S76 **SUNRISE ENTERPRISES INC** **LUST** **S103667676**
SE **6345 OAKDALE RD** **SWEEPS UST** **N/A**
> 1 **RIVERBANK, CA 95367** **EMI**
1.489 mi. **HIST CORTESE**
7864 ft. **Site 1 of 2 in cluster S**

Relative: Higher

Actual: 137 ft.

LUST:
Region: STATE
Global Id: T0609900426
Latitude: 37.732281
Longitude: -120.959172
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 11/16/1999
Lead Agency: STANISLAUS COUNTY
Case Worker: ND
Local Agency: STANISLAUS COUNTY
RB Case Number: 500491
LOC Case Number: 8028
File Location: Local Agency
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0609900426
Contact Type: Regional Board Caseworker
Contact Name: MICHAEL SMITH
Organization Name: CENTRAL VALLEY RWQCB (REGION 5S)
Address: 11020 SUN CENTER DRIVE #200
City: RANCHO CORDOVA
Email: msmith@waterboards.ca.gov

SUNRISE ENTERPRISES INC (Continued) **S103667676**

Phone Number: Not reported

Global Id: T0609900426
Contact Type: Local Agency Caseworker
Contact Name: NICOLE DAMIN
Organization Name: STANISLAUS COUNTY
Address: 3800 CORNUCOPIA WAY STE# C
City: MODESTO
Email: ndamin@envres.org
Phone Number: Not reported

Status History:
Global Id: T0609900426
Status: Completed - Case Closed
Status Date: 11/16/1999

Global Id: T0609900426
Status: Open - Case Begin Date
Status Date: 11/16/1999

Regulatory Activities:
Global Id: T0609900426
Action Type: Other
Date: 11/16/1999
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 500491
Case Type: Soil only
Substance: GASOLINE
Staff Initials: MTS
Lead Agency: Local
Program: LUST
MTBE Code: N/A

SWEEPS UST:
Status: Active
Comp Number: 71291
Number: 1
Board Of Equalization: 44-000506
Referral Date: 10-13-93
Action Date: 10-13-93
Created Date: 10-13-93
Owner Tank Id: 1-UNL-R
SWRCB Tank Id: 50-000-071291-000001
Tank Status: A
Capacity: 12000
Active Date: 10-13-93
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 3

SUNRISE ENTERPRISES INC (Continued) **S103667676**

Status: Active
Comp Number: 71291
Number: 1
Board Of Equalization: 44-000506
Referral Date: 10-13-93
Action Date: 10-13-93
Created Date: 10-13-93
Owner Tank Id: 2-UNL-R
SWRCB Tank Id: 50-000-071291-000002
Tank Status: A
Capacity: 12000
Active Date: 10-13-93
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 71291
Number: 1
Board Of Equalization: 44-000506
Referral Date: 10-13-93
Action Date: 10-13-93
Created Date: 10-13-93
Owner Tank Id: 3-UNL-P
SWRCB Tank Id: 50-000-071291-000003
Tank Status: A
Capacity: 12000
Active Date: 10-13-93
Tank Use: M.V. FUEL
STG: P
Content: PRM UNLEADED
Number Of Tanks: Not reported

EMI:
Year: 2002
County Code: 50
Air Basin: SJV
Facility ID: 1736
Air District Name: SJU
SIC Code: 5541
Air District Name: SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 2
Reactive Organic Gases Tons/Yr: 2
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers and Smllr Tons/Yr: 0

Year: 2003
County Code: 50
Air Basin: SJV
Facility ID: 1736
Air District Name: SJU

SUNRISE ENTERPRISES INC (Continued) **S103667676**

SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2004
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.050626263
Reactive Organic Gases Tons/Yr:	2.04041809
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2005
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.968514625282870987
Reactive Organic Gases Tons/Yr:	1.9587152099609375
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2006
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.199631358365142183
Reactive Organic Gases Tons/Yr:	2.1886814263916008

SUNRISE ENTERPRISES INC (Continued) **S103667676**

Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2007
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2.199631358365142183
Reactive Organic Gases Tons/Yr:	2.1886814263916008
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2008
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2009
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.9490664196468199
Reactive Organic Gases Tons/Yr:	1.93936381896972
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

SUNRISE ENTERPRISES INC (Continued) **S103667676**

Year:	2010
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.9490354902364799
Reactive Organic Gases Tons/Yr:	1.9393330040000001
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2011
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.9490664196
Reactive Organic Gases Tons/Yr:	1.939363819
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2012
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.9490664196
Reactive Organic Gases Tons/Yr:	1.939363819
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2013
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541

SUNRISE ENTERPRISES INC (Continued) **S103667676**

Air District Name:	SAN JOAQUIN VALLEY UNIFIED APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.533848275
Reactive Organic Gases Tons/Yr:	1.533848275
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

Year:	2014
County Code:	50
Air Basin:	SJV
Facility ID:	1736
Air District Name:	SJU
SIC Code:	5541
Air District Name:	SAN JOAQUIN VALLEY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.6444290999
Reactive Organic Gases Tons/Yr:	1.6444290999
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers and Smllr Tons/Yr:	0

HIST CORTESE:

Region:	CORTESE
Facility County Code:	50
Reg By:	LTNKA
Reg Id:	500491

S77 **ARCO FACILITY NO 05565** **RCRA NonGen / NLR** **1004678275**
SE **6345 OAKDALE RD** **CAR000106955**
> 1 **RIVERBANK, CA 95367**
1.489 mi.
7864 ft. **Site 2 of 2 in cluster S**

Relative:
Higher

Actual:
137 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/13/2006
Facility name:	ARCO FACILITY NO 05565
Facility address:	6345 OAKDALE RD RIVERBANK, CA 95367
EPA ID:	CAR000106955
Mailing address:	P O BOX 80249 RANCHO SANTA MARGARITA, CA 92688
Contact:	JACKIE DOUGHERTY
Contact address:	P O BOX 80249 RANCHO SANTA MARGARITA, CA 92688
Contact country:	US
Contact telephone:	949-460-5200
Contact email:	JACKIE@BELSHIRE.COM
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

ARCO FACILITY NO 05565 (Continued) **1004678275**

Owner/Operator Summary:
Owner/operator name: B P WEST COAST PRODUCTS LLC
Owner/operator address: P O BOX 6038
ARTESIA, CA 90702
Owner/operator country: Not reported
Owner/operator telephone: (714) 690-2425
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/03/2002
Site name: ARCO FACILITY NO 05565
Classification: Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Violation Status: No violations found

---

78 WNW > 1 1.498 mi. 7909 ft. **ESCALON CITY DUMP** **SWF/LF** **S102362274**
25100 E. RIVER RD, T2S,R9E,SEC17,20 MDM **N/A**
ESCALON, CA

Relative: Lower

Actual: 0 ft.

SWF/LF (SWIS):
Region: STATE
Facility ID: 39-AA-0011
Lat/Long: 37.75413 / -121.00437
Owner Name: Escalon Sanitary Dist. City Of Escalon
Owner Telephone: 2098383556
Owner Address: Not reported

ESCALON CITY DUMP (Continued) **S102362274**

Owner Address2:	P.O. Box 248
Owner City,St,Zip:	Escalon, CA 95320
Operational Status:	Closed
Operator:	Escalon Sanitary Dist. City Of Escalon
Operator Phone:	2098383556
Operator Address:	Not reported
Operator Address2:	P.O. Box 248
Operator City,St,Zip:	Escalon, CA 95320
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	$0.00
Activity:	Solid Waste Disposal Site
Regulation Status:	Pre-regulations
Landuse Name:	Not reported
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Not reported
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	$0.00
SWIS Num:	39-AA-0011
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	37.75413 / -121.00437

79
East
> 1
1.673 mi.
8831 ft.

RIVERBANK WWTP **Cortese** **S102007729**
WDS **N/A**

RIVERBANK, CA 0

Relative:
Higher

Actual:
91 ft.

CORTESE:

Region:	CORTESE
Envirostor Id:	Not reported
Site/Facility Type:	Not reported
Cleanup Status:	Not reported
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	CORTESE
Order No:	R5-1994-0100
Waste Discharge System No:	Not reported
Effective Date:	04/22/1994
Region 2:	5S
WID Id:	5C500106002
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported

RIVERBANK WWTP (Continued) **S102007729**

WDS:

Facility ID:	San Joaquin 500106002
Facility Type:	Municipal/Domestic - Facility that treats sewage or a mixture of predominantly sewage and other waste from districts, municipalities, communities, hospitals, schools, and publicly or privately owned systems (excluding individual subsurface leaching systems disposing of less than 1,000 gallons per day).
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	0
Facility Telephone:	2098697128
Facility Contact:	ROBERT MELEG
Agency Name:	RIVERBANK CITY OF
Agency Address:	6707 THIRD ST
Agency City,St,Zip:	RIVERBANK 95367
Agency Contact:	RANDAL DODD
Agency Telephone:	2098697128
Agency Type:	City
SIC Code:	4952
SIC Code 2:	Not reported
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Primary Waste:	DOMIND
Waste Type2:	Not reported
Waste2:	Domestic Sewage combined with Industrial Waste
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	8
Baseline Flow:	1
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The POTW Does not have an approved pretreatment program. Some POTWs may have local pretreatment programs that have not been approved by the regional board and/or EPA.
Treat To Water:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.

80
ESE
> 1
1.705 mi.
9004 ft.

RIVERBANK CITY DUMP
1/2 MILE NORTH OF RIVERBANK; S23 T2S R9E
RIPON, CA

SWF/LF **S102362324**
N/A

Relative:
Higher

Actual:
107 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	39-CR-0029
Lat/Long:	37.742 / -120.9483
Owner Name:	City Of Riverbank
Owner Telephone:	Not reported
Owner Address:	Not reported
Owner Address2:	6707 Third St.
Owner City,St,Zip:	Riverbank, CA 95367
Operational Status:	Closed
Operator:	City Of Riverbank
Operator Phone:	Not reported
Operator Address:	Not reported
Operator Address2:	6707 Third St.
Operator City,St,Zip:	Riverbank, CA 95367
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	$0.00
Activity:	Solid Waste Disposal Site
Regulation Status:	Pre-regulations
Landuse Name:	Not reported
GIS Source:	GPS
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Not reported
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	$0.00
SWIS Num:	39-CR-0029
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	37.742 / -120.9483

Count: 21 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ESCALON	S110128001		BURWOOD LN, 1/2 MILE S OF RIVE	95320	CDL
ESCALON	S109611805		ON CARROLTON RD, JUST NORTH OF	95320	CDL
ESCALON	S107538088		CLOUGH RD (1/2 MI E OF MCHENRY	95320	CDL
ESCALON	S107538666		HAROLD RD (1 MI NO OF RIVER RD	95320	CDL
ESCALON	S107538673		HARROLD RD (NEAR INTERSECTION	95320	CDL
ESCALON	S107538672		HARROLD RD (JUST N OF RIVER RD	95320	CDL
ESCALON	S107538671		HARROLD AVE (300 YDS S OF JONE	95320	CDL
ESCALON	S107538670		HARROLD AVE & RIVER RD (N OF R	95320	CDL
ESCALON	S107538701		HENRY RD, 1 MI S OF RIVER RD	95320	CDL
ESCALON	S107539023		INTERSECTION, HENRY & RIVER RO	95320	CDL
ESCALON	S107539309		MCBRYDE (.5 MI S OF RIVER RD)	95320	CDL
ESCALON	S107539466		MYERS RD (1/2 MI W OF MCHENRY)	95320	CDL
ESCALON	S107538367		E RIVER RD, EAST OF MCHENRY AV	95320	CDL
ESCALON	S107541111		WAGNER RD (@ RIVER RD) 7 MI W	95320	CDL
ESCALON	S107541199		WESTSIDE HAROLD AVE, 1/4 MILE	95320	CDL
MODESTO	S104571810	MODESTO ROCK WELL CLOSURES**	COFFEE RD		SLIC
RIVERBANK	S107540410		RIVER RD, 1/8 MILE WEST OF PIO	95367	CDL
RIVERBANK	S107540602		SANTA FE RD, AT STANISLAUS RIV	95320	CDL
RIVERBANK	S106230557	RUDY BONZI, INCORPORATED (ENTERPRI	TERMINAL & VAN DUSEN AVES, ONE		SLIC
STANISLAUS COUNTY	S107538454		END OF JENNINGS RD, ALONG THE		CDL
STANISLAUS COUNTY	S107540566		SAN JOAQUIN RIVER FLOOD PLAIN		CDL

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 09/14/2016
Date Data Arrived at EDR: 10/04/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/20/2016
Date Made Active in Reports: 01/06/2017
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/15/2016
Date Data Arrived at EDR: 11/29/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 43

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 66

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 02/19/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 105

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015
Date Data Arrived at EDR: 02/12/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 112
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

SLIC: Statewide SLIC Cases

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 40

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/16/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 120

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016
Date Data Arrived at EDR: 04/27/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 37

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 119

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 01/03/2017
Date Data Arrived at EDR: 01/04/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 57

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 01/04/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/19/2016
Date Data Arrived at EDR: 12/20/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 78

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/25/2016
Date Data Arrived at EDR: 08/26/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 49

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/31/2016
Next Scheduled EDR Contact: 02/13/2017
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/31/2016
Date Data Arrived at EDR: 11/01/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 08/31/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/01/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/27/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/24/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 45

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 37

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 83

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/25/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 10/11/2016
Date Data Arrived at EDR: 11/16/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 133

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2016
Date Data Arrived at EDR: 08/22/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/10/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 04/28/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 127
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 35
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 77

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 03/02/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016
Date Data Arrived at EDR: 09/01/2016
Date Made Active in Reports: 09/23/2016
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/28/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/03/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/15/2016
Date Data Arrived at EDR: 09/07/2016
Date Made Active in Reports: 11/11/2016
Number of Days to Update: 65

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/03/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 04/05/2016
Number of Days to Update: 67

Source: Department of Defense
Telephone: 571-373-0407
Last EDR Contact: 01/20/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/28/2016
Date Data Arrived at EDR: 12/28/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 64

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/28/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/27/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 09/23/2016
Date Made Active in Reports: 10/24/2016
Number of Days to Update: 31

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/23/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/18/2017
Number of Days to Update: 40

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/25/2016
Date Data Arrived at EDR: 04/29/2016
Date Made Active in Reports: 06/21/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/20/2017
Number of Days to Update: 63

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 62

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 64

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/11/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/12/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 86
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/15/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 107
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/15/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/06/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/03/2017
Number of Days to Update: 87
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/07/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 78
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 70
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/16/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 09/14/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 30
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/14/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/13/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/17/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/09/2016
Date Data Arrived at EDR: 06/13/2016
Date Made Active in Reports: 09/02/2016
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 12/11/2016
Date Data Arrived at EDR: 12/20/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/20/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/21/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 73

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/22/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/14/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 35

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/06/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/10/2016
Date Data Arrived at EDR: 10/12/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 90

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 11/10/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 9

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 10/21/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 11/18/2016
Number of Days to Update: 23

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/27/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/22/2016
Date Made Active in Reports: 01/26/2017
Number of Days to Update: 65

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 11/01/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 19

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/22/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 55

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/10/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 51

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/23/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 36

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing

Kern County Sites and Tanks Listing.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 63

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/14/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 6

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/18/2017
Date Data Arrived at EDR: 01/20/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 41

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: No Update Planned

HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 66

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/17/2016
Date Data Arrived at EDR: 10/18/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 58

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/18/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/29/2016
Date Data Arrived at EDR: 04/06/2016
Date Made Active in Reports: 06/13/2016
Number of Days to Update: 68
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/04/2016
Date Data Arrived at EDR: 10/11/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 93
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/05/2016
Date Data Arrived at EDR: 12/09/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 41
Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/19/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 79
Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/17/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 42

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/05/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 17

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/24/2016
Date Data Arrived at EDR: 06/27/2016
Date Made Active in Reports: 08/09/2016
Number of Days to Update: 43

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 44

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/04/2016
Date Data Arrived at EDR: 11/11/2016
Date Made Active in Reports: 01/23/2017
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/03/2016
Date Data Arrived at EDR: 11/08/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 65

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/02/2016
Date Data Arrived at EDR: 09/06/2016
Date Made Active in Reports: 10/14/2016
Number of Days to Update: 38

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/19/2017
Date Data Arrived at EDR: 01/25/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 36

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/20/2016
Date Data Arrived at EDR: 10/25/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 77
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/19/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/08/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 56
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/09/2016
Date Data Arrived at EDR: 12/13/2016
Date Made Active in Reports: 03/03/2017
Number of Days to Update: 80
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 10/05/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 86
Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/03/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 52
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/21/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/14/2017
Number of Days to Update: 49
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/15/2016
Next Scheduled EDR Contact: 04/03/2017
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/17/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 06/02/2016
Date Data Arrived at EDR: 06/07/2016
Date Made Active in Reports: 06/22/2016
Number of Days to Update: 15

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 76

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/24/2017
Next Scheduled EDR Contact: 06/12/2017
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 11/10/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 75

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/06/2017
Next Scheduled EDR Contact: 05/22/2017
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 11/16/2016
Date Data Arrived at EDR: 11/21/2016
Date Made Active in Reports: 01/19/2017
Number of Days to Update: 59

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 12/13/2016
Date Data Arrived at EDR: 12/16/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 76

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/21/2016
Date Made Active in Reports: 12/22/2016
Number of Days to Update: 1

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2016
Date Data Arrived at EDR: 12/22/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 19

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/09/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/22/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 65

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2017
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 55

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/22/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/02/2016
Date Data Arrived at EDR: 12/06/2016
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 35

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/06/2017
Next Scheduled EDR Contact: 06/19/2017
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/25/2017
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 34

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/17/2017
Number of Days to Update: 82

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/30/2016
Next Scheduled EDR Contact: 04/10/2017
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/13/2017
Next Scheduled EDR Contact: 05/29/2017
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2016
Date Data Arrived at EDR: 10/27/2016
Date Made Active in Reports: 01/24/2017
Number of Days to Update: 89
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/23/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/28/2016
Date Data Arrived at EDR: 12/14/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 29
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/15/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 11/14/2016
Date Data Arrived at EDR: 11/18/2016
Date Made Active in Reports: 01/12/2017
Number of Days to Update: 55
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/03/2017
Next Scheduled EDR Contact: 04/17/2017
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/28/2016
Date Data Arrived at EDR: 11/03/2016
Date Made Active in Reports: 12/15/2016
Number of Days to Update: 42
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/30/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/11/2016
Next Scheduled EDR Contact: 02/27/2017
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 09/29/2016
Date Made Active in Reports: 01/03/2017
Number of Days to Update: 96

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/09/2017
Next Scheduled EDR Contact: 04/24/2017
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/30/2017
Date Data Arrived at EDR: 02/01/2017
Date Made Active in Reports: 02/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/01/2017
Next Scheduled EDR Contact: 05/08/2017
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 07/22/2016
Date Made Active in Reports: 11/22/2016
Number of Days to Update: 123

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/12/2017
Next Scheduled EDR Contact: 05/01/2017
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/21/2017
Next Scheduled EDR Contact: 06/05/2017
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 04/14/2016
Date Made Active in Reports: 06/03/2016
Number of Days to Update: 50

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/13/2017
Next Scheduled EDR Contact: 06/26/2017
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

1711 PATTERSON
1711 PATTERSON ROAD
RIVERBANK, CA 95367

TARGET PROPERTY COORDINATES

Latitude (North):	37.746728 - 37° 44' 48.22''
Longitude (West):	120.978868 - 120° 58' 43.92''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	678072.3
UTM Y (Meters):	4179432.8
Elevation:	82 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640258 RIVERBANK, CA
Version Date:	2012
Northeast Map:	5639980 ESCALON, CA
Version Date:	2012
Southwest Map:	5640412 SALIDA, CA
Version Date:	2012
Northwest Map:	5640046 AVENA, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

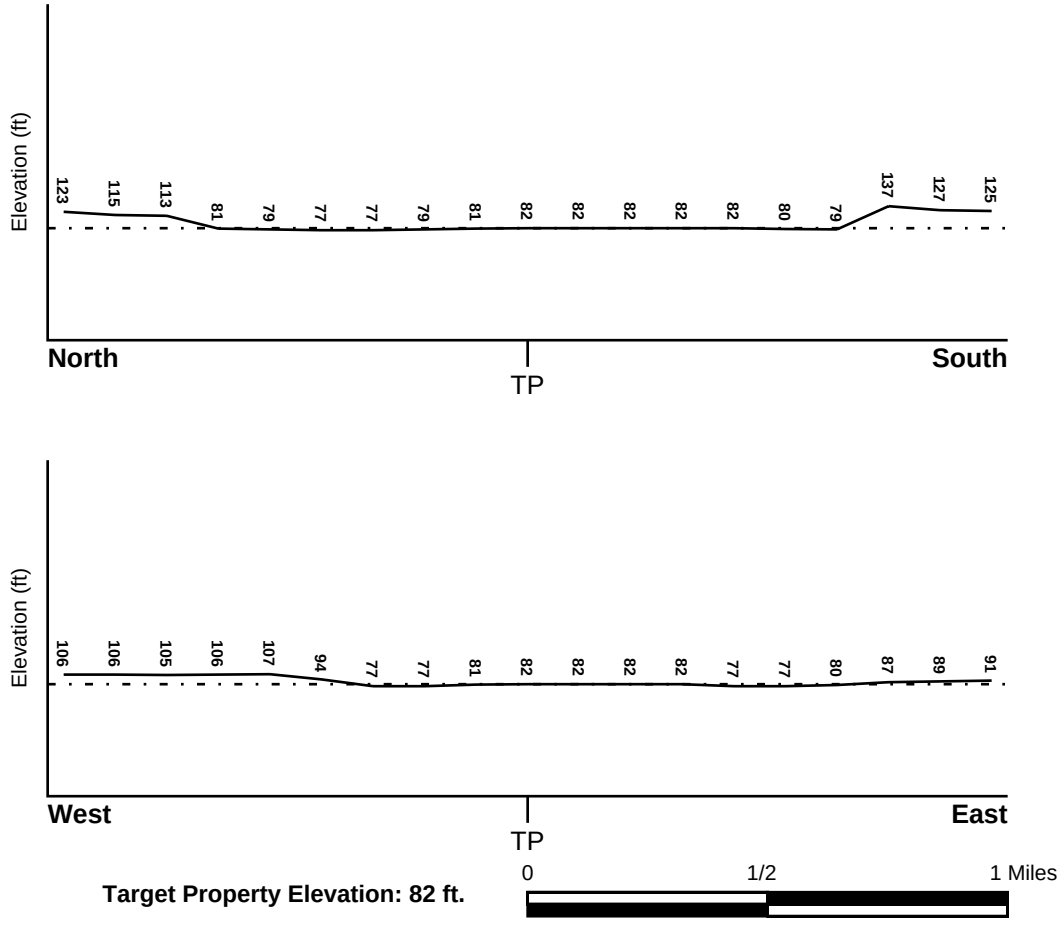
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06077C0830F	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06077C0690F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
RIVERBANK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

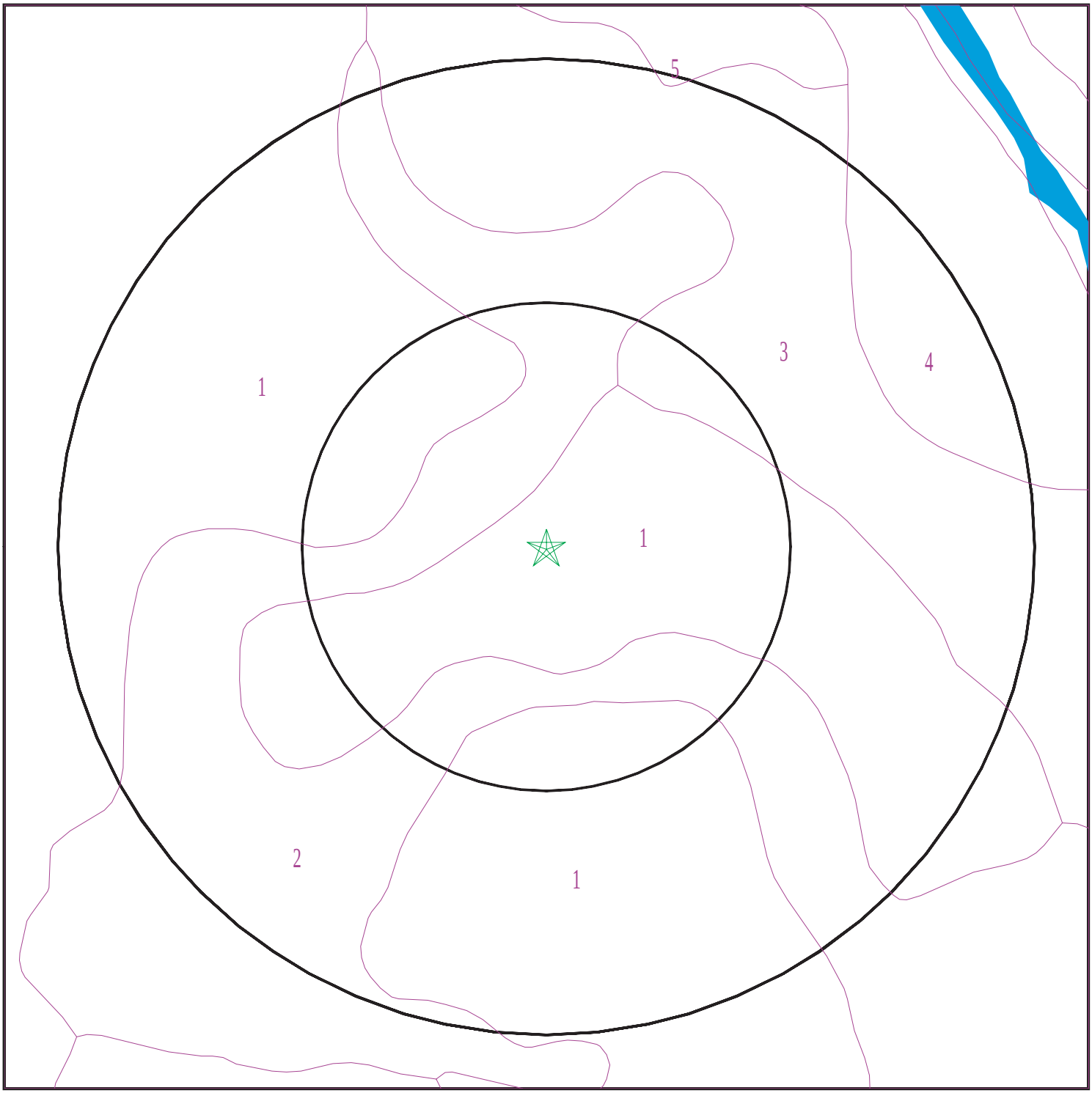
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4883461.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	1711 Patterson	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	1711 Patterson Road Riverbank CA 95367	CONTACT:	Brett Nielsen
LAT/LONG:	37.746728 / 120.978868	INQUIRY #:	4883461.2s
		DATE:	March 20, 2017 1:23 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Grangeville

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 6.1
2	7 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
3	40 inches	59 inches	stratified loamy sand to silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: Grangeville

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 9 Min: 7.4
2	7 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 9 Min: 7.4
3	40 inches	59 inches	stratified loamy sand to silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 9 Min: 7.4

Soil Map ID: 3

Soil Component Name: Grangeville

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	7 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
2	40 inches	59 inches	stratified loamy sand to silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.4
3	0 inches	7 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 6.1

Soil Map ID: 4

Soil Component Name: Riverwash

Soil Surface Texture: gravelly sand

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Excessively drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 141 Min: 42	Max: Min:
2	9 inches	59 inches	stratified gravelly sand to extremely gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILIS, Gravels, Clean Gravels, Well-graded gravel.	Max: 141 Min: 42	Max: Min:

Soil Map ID: 5

Soil Component Name: Hanford

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	11 inches	35 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
3	35 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 6.1

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.250
Federal FRDS PWS	Nearest PWS within 1.250 miles
State Database	2.250

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40000185393	1/2 - 1 Mile NNE
4	USGS40000185212	1 - 2 Miles South
5	USGS40000185433	1 - 2 Miles North

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
7	USGS40000185206	1 - 2 Miles SSW
8	USGS40000185379	1 - 2 Miles ENE
A13	USGS40000185194	1 - 2 Miles SSW
20	USGS40000185440	1 - 2 Miles NE
D24	USGS40000185226	1 - 2 Miles SE
29	USGS40000185514	1 - 2 Miles NNE
31	USGS40000185521	1 - 2 Miles NNW
32	USGS40000185200	1 - 2 Miles SE
33	USGS40000185279	2 - 3 Miles WSW
E37	USGS40000185328	2 - 3 Miles West
40	USGS40000185297	2 - 3 Miles East
43	USGS40000185525	2 - 3 Miles NNW
45	USGS40000185411	2 - 3 Miles ENE
46	USGS40000185215	2 - 3 Miles WSW
47	USGS40000185274	2 - 3 Miles ESE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADW60000030904	1/2 - 1 Mile South
3	CADW60000017465	1/2 - 1 Mile South
6	CADW60000019293	1 - 2 Miles WSW
9	CADW60000010183	1 - 2 Miles SE
10	2680	1 - 2 Miles SE
11	2681	1 - 2 Miles SE
12	2671	1 - 2 Miles West
A14	CADW60000030905	1 - 2 Miles SSW
B15	2679	1 - 2 Miles SE
B16	2678	1 - 2 Miles SE
C17	2669	1 - 2 Miles West
C18	2670	1 - 2 Miles West
19	2676	1 - 2 Miles ESE
21	CADW60000019296	1 - 2 Miles South
22	2668	1 - 2 Miles WSW
D23	CADW60000017464	1 - 2 Miles SE
25	CADW60000033670	1 - 2 Miles SSW
26	2677	1 - 2 Miles ESE
27	21023	1 - 2 Miles SE
28	CADW60000017025	1 - 2 Miles North
30	2683	1 - 2 Miles SSW
34	CADW60000033669	2 - 3 Miles SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

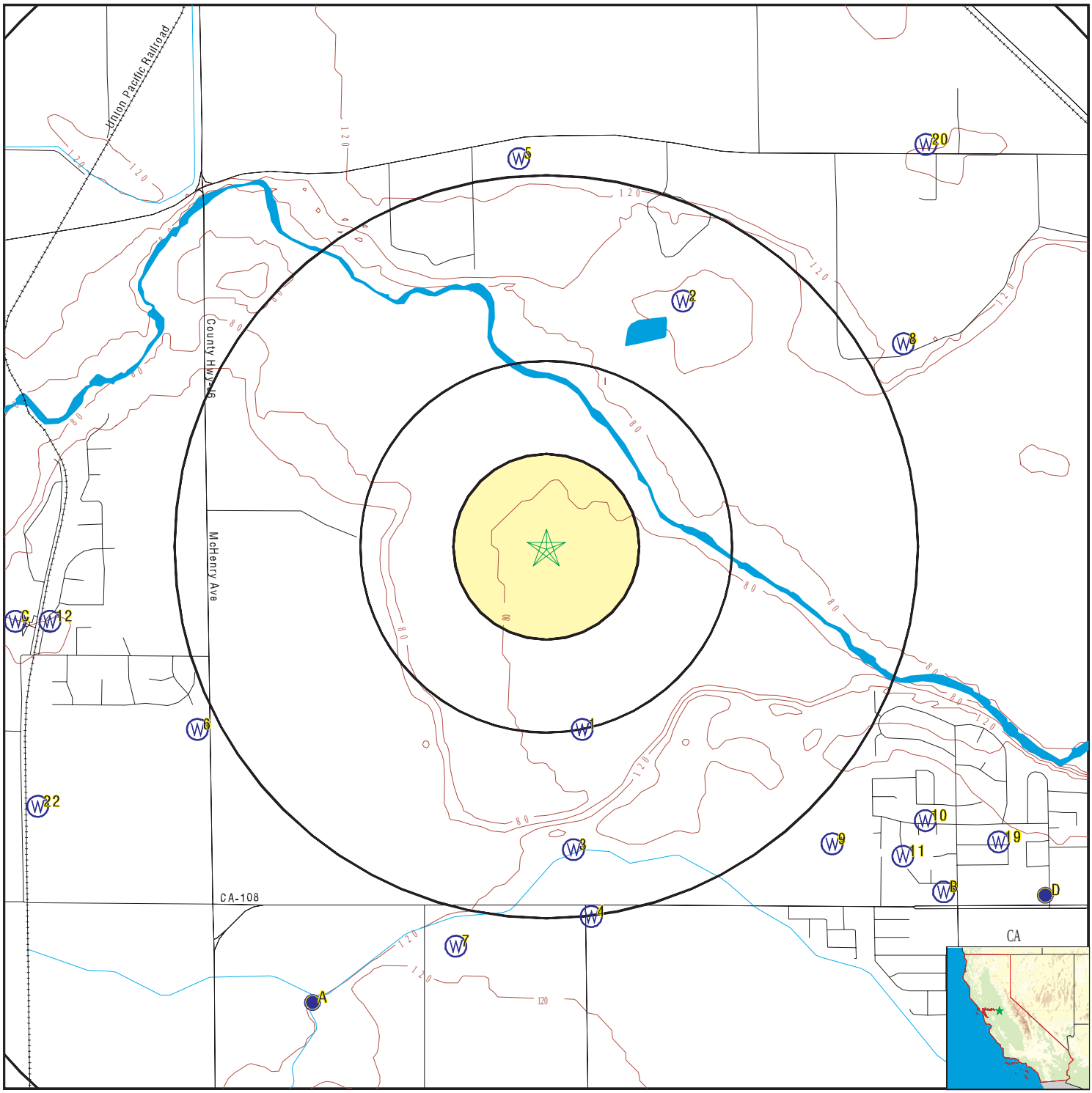
MAP ID	WELL ID	LOCATION FROM TP
35	2685	2 - 3 Miles SSW
36	2686	2 - 3 Miles SSW
E38	23244	2 - 3 Miles West
E39	2666	2 - 3 Miles West
41	2667	2 - 3 Miles West
42	CADW60000017026	2 - 3 Miles NNE
44	2684	2 - 3 Miles SSW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG11000236457	1 - 2 Miles NNE

PHYSICAL SETTING SOURCE MAP - 4883461.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	1711 Patterson	CLIENT:	Partner Engineering and Science, Inc.
ADDRESS:	1711 Patterson Road Riverbank CA 95367	CONTACT:	Brett Nielsen
LAT/LONG:	37.746728 / 120.978868	INQUIRY #:	4883461.2s
		DATE:	March 20, 2017 1:23 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
South
1/2 - 1 Mile
Higher

CA WELLS **CADW60000030904**

Objectid:	30904
Latitude:	37.7396
Longitude:	-120.9771
Site code:	377396N1209771W001
State well numbe:	02S09E28A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000030904

2
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000185393**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374523120581601		
Monloc name:	002S009E15P001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7563169
Longitude:	-120.9721574	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19690213	Welldepth:	133
Welldepth units:	ft	Wellholedepth:	180
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1969-02-13	8.00	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

3
South
1/2 - 1 Mile
Higher | **CA WELLS** | **CADW60000017465**

Objectid:	17465
Latitude:	37.734908
Longitude:	-120.977526
Site code:	377346N1209774W001
State well numbe:	02S09E28H001M
Local well name:	'Langdon Merle 241'
Well use id:	3
Well use descrip:	Irrigation
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000017465

4
South
1 - 2 Miles
Higher | **FED USGS** | **USGS40000185212**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374356120583701		
Monloc name:	002S009E28J001M		
Monloc type:	Well		
Monloc desc:	NAWQA GWSI data entry verif. by krburow on 6/6/01		
Huc code:	18040002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7322972
Longitude:	-120.9766528	Sourcemap scale:	24000
Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	122
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Quaternary Alluvium		
Aquifer type:	Unconfined single aquifer		
Construction date:	19900402	Welldepth:	165
Welldepth units:	ft	Wellholedepth:	175
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1994-07-26	57.92	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

5
North
1 - 2 Miles
Higher | **FED USGS** | **USGS40000185433**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374543120584501		
Monloc name:	002S009E16J001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7618723
Longitude:	-120.9802133	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	123.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19760203	Welldepth:	237
Welldepth units:	ft	Wellholedepth:	457
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

6
WSW
1 - 2 Miles
Higher | **CA WELLS** | **CADW60000019293**

Objectid:	19293
Latitude:	37.7396
Longitude:	-120.996
Site code:	377396N1209960W001
State well numbe:	02S09E29A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000019293

7
SSW
1 - 2 Miles
Higher | **FED USGS** | **USGS40000185206**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374352120585901		
Monloc name:	002S009E28K001M		
Monloc type:	Well		
Monloc desc:	GARMIN GPS ACCURACY +/- 16FT		
Huc code:	Not Reported	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7311389
Longitude:	-120.9833056	Sourcemap scale:	24000
Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	115
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Quaternary Alluvium		
Aquifer type:	Unconfined single aquifer		
Construction date:	Not Reported	Welldepth:	123
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

8
ENE **FED USGS** **USGS40000185379**
1 - 2 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374517120573701		
Monloc name:	002S009E22A001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7546503
Longitude:	-120.9613238	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	122.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	River Channel Deposits		
Aquifer type:	Not Reported		
Construction date:	19760226	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	292
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

9
SE | **CA WELLS** | **CADW60000010183**
1 - 2 Miles
Higher

Objectid:	10183
Latitude:	37.735134
Longitude:	-120.964821
Site code:	377351N1209648W001
State well numbe:	02S09E27G001M
Local well name:	'Riverbank OID-13'
Well use id:	3
Well use descrip:	Irrigation
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000010183

10
SE | **CA WELLS** | **2680**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-27H03 M	User ID:	50C
FRDS Number:	5000017002	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374410.0 1205733.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WEST WELL		
System Number:	5000017		
System Name:	PARK HEIGHTS		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	26-APR-11	Findings:	9.77 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	26-APR-11	Findings:	0.22 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	26-APR-11	Findings:	5.4 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	18-MAY-11	Findings:	0.54 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	24-AUG-11	Findings:	7.83 PCI/L
Chemical:	GROSS ALPHA		

Sample Collected:	24-AUG-11	Findings:	1.91 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	24-AUG-11	Findings:	9.07 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	24-AUG-11	Findings:	1.47 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	27-SEP-11	Findings:	830. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	14-OCT-11	Findings:	15.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-DEC-11	Findings:	5.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-OCT-12	Findings:	16.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-JUN-13	Findings:	16.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-AUG-13	Findings:	1433. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-AUG-13	Findings:	7.
Chemical:	PH, LABORATORY		
Sample Collected:	28-AUG-13	Findings:	239.4 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-AUG-13	Findings:	292.1 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-AUG-13	Findings:	320.4 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-AUG-13	Findings:	85.5 MG/L
Chemical:	CALCIUM		
Sample Collected:	28-AUG-13	Findings:	106. MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-AUG-13	Findings:	34.9 MG/L
Chemical:	SULFATE		
Sample Collected:	28-AUG-13	Findings:	632. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-AUG-13	Findings:	18.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-AUG-13	Findings:	0.33 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	28-AUG-13	Findings:	4204. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	28-AUG-13	Findings:	32. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-AUG-13	Findings:	47. MG/L
Chemical:	SODIUM		

Sample Collected:	28-AUG-13	Findings:	4.4 MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-AUG-13	Findings:	270. UG/L
Chemical:	BARIUM		
Sample Collected:	28-AUG-13	Findings:	130. UG/L
Chemical:	ZINC		
Sample Collected:	30-OCT-13	Findings:	22. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-SEP-14	Findings:	870. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	21-OCT-14	Findings:	11.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-15	Findings:	4. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-AUG-16	Findings:	826. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	22-AUG-16	Findings:	7.5
Chemical:	PH, LABORATORY		
Sample Collected:	22-AUG-16	Findings:	203.9 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	22-AUG-16	Findings:	248.8 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	22-AUG-16	Findings:	0.6 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	22-AUG-16	Findings:	256.4 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	22-AUG-16	Findings:	78.8 MG/L
Chemical:	CALCIUM		
Sample Collected:	22-AUG-16	Findings:	76. MG/L
Chemical:	CHLORIDE		
Sample Collected:	22-AUG-16	Findings:	33.9 MG/L
Chemical:	SULFATE		
Sample Collected:	22-AUG-16	Findings:	491. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	22-AUG-16	Findings:	0.19 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	22-AUG-16	Findings:	0.6 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	22-AUG-16	Findings:	26. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	22-AUG-16	Findings:	47. MG/L
Chemical:	SODIUM		
Sample Collected:	22-AUG-16	Findings:	5.9 MG/L
Chemical:	POTASSIUM		

Sample Collected:	22-AUG-16	Findings:	190. UG/L
Chemical:	BARIUM		
Sample Collected:	22-AUG-16	Findings:	420. UG/L
Chemical:	ZINC		

11
SE **CA WELLS** **2681**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-27Q01 M	User ID:	PTA
FRDS Number:	5010018005	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	374405.0 1205737.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 05		
System Number:	5010018		
System Name:	Riverbank, City of		
Organization That Operates System:			
	6707 Third St.		
	Riverbank, CA 95367		
Pop Served:	13360	Connections:	4077
Area Served:	RIVERBANK		
Sample Collected:	25-OCT-11	Findings:	20.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-MAR-12	Findings:	2.7 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	17-OCT-12	Findings:	22.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-13	Findings:	357. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-OCT-13	Findings:	7.2
Chemical:	PH, LABORATORY		
Sample Collected:	28-OCT-13	Findings:	156.5 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-OCT-13	Findings:	195.5 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-OCT-13	Findings:	192. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-OCT-13	Findings:	40. MG/L
Chemical:	CALCIUM		
Sample Collected:	28-OCT-13	Findings:	9.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-OCT-13	Findings:	7.1 MG/L
Chemical:	SULFATE		
Sample Collected:	28-OCT-13	Findings:	0.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		

Sample Collected:	28-OCT-13	Findings:	234. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-OCT-13	Findings:	17.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-13	Findings:	0.81 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	28-OCT-13	Findings:	3864. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	28-OCT-13	Findings:	12. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-OCT-13	Findings:	17. MG/L
Chemical:	SODIUM		
Sample Collected:	28-OCT-13	Findings:	4.8 MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-OCT-13	Findings:	2.2 UG/L
Chemical:	ARSENIC		
Sample Collected:	28-OCT-13	Findings:	110. UG/L
Chemical:	BARIUM		
Sample Collected:	28-OCT-13	Findings:	170. UG/L
Chemical:	IRON		
Sample Collected:	11-DEC-14	Findings:	2.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-NOV-15	Findings:	18.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	12-NOV-15	Findings:	360. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-NOV-15	Findings:	3.1 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	04-APR-16	Findings:	360. US
Chemical:	SPECIFIC CONDUCTANCE		

12
West
1 - 2 Miles
Higher

CA WELLS **2671**

Water System Information:

Prime Station Code:	02S/09E-20Q01 M	User ID:	PTA
FRDS Number:	5010029004	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	374438.0 1210008.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 289 - KRISTINA		
System Number:	5010029		
System Name:	City of Modesto, DE Hillcrest		
Organization That Operates System:			
	P.O. BOX 3250		
	MODESTO, CA 95353		
Pop Served:	805	Connections:	240
Area Served:	HILLCREST		

Sample Collected:	26-JAN-11	Findings:	7.39 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-JAN-11	Findings:	1.67 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	23-FEB-11	Findings:	1.8e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	25-JAN-12	Findings:	10.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-JAN-12	Findings:	2.3 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	22-FEB-12	Findings:	1.6e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	28-MAR-12	Findings:	180. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-MAR-12	Findings:	8.2
Chemical:	PH, LABORATORY		
Sample Collected:	28-MAR-12	Findings:	79. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-MAR-12	Findings:	97. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-MAR-12	Findings:	62. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-MAR-12	Findings:	16. MG/L
Chemical:	CALCIUM		
Sample Collected:	28-MAR-12	Findings:	5.4 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-MAR-12	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	28-MAR-12	Findings:	3.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-MAR-12	Findings:	3.6 MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-MAR-12	Findings:	3.9 MG/L
Chemical:	SULFATE		
Sample Collected:	28-MAR-12	Findings:	5.6 UG/L
Chemical:	ARSENIC		
Sample Collected:	28-MAR-12	Findings:	140. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-MAR-12	Findings:	- 0.2
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	28-MAR-12	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	03-OCT-12	Findings:	170. US
Chemical:	SPECIFIC CONDUCTANCE		

Sample Collected:	02-JAN-13	Findings:	6.64 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-JAN-13	Findings:	1.5 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	06-FEB-13	Findings:	0.22 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06-FEB-13	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	06-FEB-13	Findings:	2.3e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	08-JAN-14	Findings:	6.77 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	08-JAN-14	Findings:	1.53 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	05-FEB-14	Findings:	3.4e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	18-SEP-14	Findings:	5. UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	07-JAN-15	Findings:	8.02 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-JAN-15	Findings:	1.81 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	04-MAR-15	Findings:	180. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	04-MAR-15	Findings:	8.3
Chemical:	PH, LABORATORY		
Sample Collected:	04-MAR-15	Findings:	97. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	04-MAR-15	Findings:	120. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	04-MAR-15	Findings:	65. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	04-MAR-15	Findings:	16. MG/L
Chemical:	CALCIUM		
Sample Collected:	04-MAR-15	Findings:	5.9 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	04-MAR-15	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	04-MAR-15	Findings:	4.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	04-MAR-15	Findings:	3.7 MG/L
Chemical:	CHLORIDE		
Sample Collected:	04-MAR-15	Findings:	5. MG/L
Chemical:	SULFATE		

Sample Collected:	04-MAR-15	Findings:	0.13 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	04-MAR-15	Findings:	4.8 UG/L
Chemical:	ARSENIC		
Sample Collected:	04-MAR-15	Findings:	170. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	04-MAR-15	Findings:	11.9
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	04-NOV-15	Findings:	3.1e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	06-JAN-16	Findings:	1.93 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-JAN-16	Findings:	1.93 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-FEB-16	Findings:	1.13 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03-FEB-16	Findings:	1.29 PCI/L
Chemical:	GROSS ALPHA MDA95		

A13
SSW
1 - 2 Miles
Higher

FED USGS **USGS40000185194**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374345120592201		
Monloc name:	002S009E28N001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7290952
Longitude:	-120.9904908	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	119.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Alluvium of the Sierra Nevada		
Aquifer type:	Not Reported		
Construction date:	19480701	Welldepth:	132
Welldepth units:	ft	Wellholedepth:	150
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A14
SSW
1 - 2 Miles
Higher

CA WELLS **CADW60000030905**

Objectid:	30905
Latitude:	37.7288
Longitude:	-120.9902
Site code:	377288N1209902W001
State well numbe:	02S09E28N001M
Local well name:	'198'
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000030905

B15
SE **CA WELLS** **2679**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-27H02 M	User ID:	50C
FRDS Number:	5000056002	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374400.0 1205730.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	SOUTH WELL		
System Number:	5000056		
System Name:	PARK SIERRA M.H.P.		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

B16
SE **CA WELLS** **2678**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-27H01 M	User ID:	50C
FRDS Number:	5000056001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374400.0 1205730.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	NORTH WELL		
System Number:	5000056		
System Name:	PARK SIERRA M.H.P.		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C17
West
1 - 2 Miles
Higher

CA WELLS **2669**

Water System Information:

Prime Station Code:	02S/09E-20P01 M	User ID:	50C
FRDS Number:	5000099002	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374438.0 1210014.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	SOUTH WELL		
System Number:	5000099		
System Name:	DEL RIO EAST		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

C18
West
1 - 2 Miles
Higher

CA WELLS **2670**

Water System Information:

Prime Station Code:	02S/09E-20P02 M	User ID:	50C
FRDS Number:	5000265001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374438.0 1210014.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	CLUBHOUSE		
System Number:	5000265		
System Name:	DEL RIO COUNTRY CLUB		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

19
ESE
1 - 2 Miles
Higher

CA WELLS **2676**

Water System Information:

Prime Station Code:	02S/09E-26E01 M	User ID:	50C
FRDS Number:	5000017001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374407.0 1205720.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	EAST WELL		
System Number:	5000017		
System Name:	PARK HEIGHTS		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

Sample Collected:	29-NOV-11	Findings:	941. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	29-NOV-11	Findings:	6.5
Chemical:	PH, FIELD		
Sample Collected:	29-NOV-11	Findings:	333.9 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	29-NOV-11	Findings:	407.4 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	29-NOV-11	Findings:	499.2 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	29-NOV-11	Findings:	104.7 MG/L
Chemical:	CALCIUM		
Sample Collected:	29-NOV-11	Findings:	155. MG/L
Chemical:	CHLORIDE		
Sample Collected:	29-NOV-11	Findings:	28.8 MG/L
Chemical:	SULFATE		
Sample Collected:	29-NOV-11	Findings:	598. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	29-NOV-11	Findings:	5.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-NOV-11	Findings:	1243. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	29-NOV-11	Findings:	930. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	29-NOV-11	Findings:	33. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	29-NOV-11	Findings:	47. MG/L
Chemical:	SODIUM		
Sample Collected:	29-NOV-11	Findings:	6.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	29-NOV-11	Findings:	280. UG/L
Chemical:	BARIUM		
Sample Collected:	29-NOV-11	Findings:	9.7 UG/L
Chemical:	SELENIUM		
Sample Collected:	29-NOV-11	Findings:	8.34 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	29-NOV-11	Findings:	0.48 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	29-NOV-11	Findings:	8.7 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	28-DEC-12	Findings:	4.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-DEC-12	Findings:	8.3 PCI/L
Chemical:	URANIUM (PCI/L)		

Sample Collected:	28-AUG-13	Findings:	13.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-AUG-14	Findings:	8.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	29-SEP-14	Findings:	880. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	16-DEC-14	Findings:	919. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	16-DEC-14	Findings:	6.9
Chemical:	PH, LABORATORY		
Sample Collected:	16-DEC-14	Findings:	306.6 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	16-DEC-14	Findings:	374.1 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	16-DEC-14	Findings:	351.4 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	16-DEC-14	Findings:	88.5 MG/L
Chemical:	CALCIUM		
Sample Collected:	16-DEC-14	Findings:	100.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	16-DEC-14	Findings:	40.2 MG/L
Chemical:	SULFATE		
Sample Collected:	16-DEC-14	Findings:	609. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	16-DEC-14	Findings:	3.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	16-DEC-14	Findings:	0.29 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	16-DEC-14	Findings:	768. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	16-DEC-14	Findings:	30. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	16-DEC-14	Findings:	62. MG/L
Chemical:	SODIUM		
Sample Collected:	16-DEC-14	Findings:	6.6 MG/L
Chemical:	POTASSIUM		
Sample Collected:	16-DEC-14	Findings:	250. UG/L
Chemical:	BARIUM		
Sample Collected:	16-DEC-14	Findings:	530. UG/L
Chemical:	IRON		
Sample Collected:	16-DEC-14	Findings:	64. UG/L
Chemical:	MANGANESE		
Sample Collected:	16-DEC-14	Findings:	230. UG/L
Chemical:	ALUMINUM		

Sample Collected:	16-DEC-14	Findings:	0.6 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	25-AUG-15	Findings:	3.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-AUG-16	Findings:	0.6 MG/L
Chemical:	NITRATE (AS N)		

20
NE **FED USGS** **USGS40000185440**
1 - 2 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374545120573301		
Monloc name:	002S009E15H001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7624279
Longitude:	-120.9602128	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	130.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19710213	Welldepth:	116
Welldepth units:	ft	Wellholedepth:	144
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1971-02-13	42.00	

21
South **CA WELLS** **CADW60000019296**
1 - 2 Miles
Higher

Objectid:	19296
Latitude:	37.7249
Longitude:	-120.9774
Site code:	377249N1209774W001
State well numbe:	02S09E33A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus

Basin code: '5-22.02'
Basin desc: Modesto
Dwr region id: 80237
Dwr region: South Central Region Office
Site id: CADW60000019296

22
WSW **CA WELLS** **2668**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-20L01 M	User ID:	50C
FRDS Number:	5000099001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374412.0 1210010.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	NORTH WELL		
System Number:	5000099		
System Name:	DEL RIO EAST		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	16-FEB-11	Findings:	154. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	16-FEB-11	Findings:	6.9
Chemical:	PH, LABORATORY		
Sample Collected:	16-FEB-11	Findings:	65.1 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	16-FEB-11	Findings:	79.4 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	16-FEB-11	Findings:	163.2 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	16-FEB-11	Findings:	38.5 MG/L
Chemical:	CALCIUM		
Sample Collected:	16-FEB-11	Findings:	5.5 MG/L
Chemical:	CHLORIDE		
Sample Collected:	16-FEB-11	Findings:	130. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	16-FEB-11	Findings:	6.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	16-FEB-11	Findings:	1492. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	16-FEB-11	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	16-FEB-11	Findings:	3.6 MG/L
Chemical:	POTASSIUM		

Sample Collected:	16-FEB-11	Findings:	4.3 MG/L
Chemical:	SULFATE		
Sample Collected:	16-FEB-11	Findings:	2.4 UG/L
Chemical:	ARSENIC		
Sample Collected:	16-FEB-11	Findings:	110. UG/L
Chemical:	IRON		
Sample Collected:	28-OCT-11	Findings:	3. UNITS
Chemical:	COLOR		
Sample Collected:	28-OCT-11	Findings:	204. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-OCT-11	Findings:	6.9
Chemical:	PH, FIELD		
Sample Collected:	28-OCT-11	Findings:	109.2 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-OCT-11	Findings:	133.2 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-OCT-11	Findings:	115.2 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-OCT-11	Findings:	18.5 MG/L
Chemical:	CALCIUM		
Sample Collected:	28-OCT-11	Findings:	5.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-OCT-11	Findings:	5. MG/L
Chemical:	SULFATE		
Sample Collected:	28-OCT-11	Findings:	185. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-OCT-11	Findings:	6.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-11	Findings:	2.3 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	28-OCT-11	Findings:	1424. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	28-OCT-11	Findings:	180. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-OCT-11	Findings:	5.6 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-OCT-11	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	28-OCT-11	Findings:	4.2 MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-OCT-11	Findings:	110. UG/L
Chemical:	ZINC		
Sample Collected:	16-MAY-12	Findings:	6.8 MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	10-JUN-14	Findings:	186. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	10-JUN-14	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	10-JUN-14	Findings:	70. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	10-JUN-14	Findings:	80. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	10-JUN-14	Findings:	55.5 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	10-JUN-14	Findings:	14. MG/L
Chemical:	CALCIUM		
Sample Collected:	10-JUN-14	Findings:	5. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	10-JUN-14	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	10-JUN-14	Findings:	0.8
Chemical:	SODIUM ABSORPTION RATIO		
Sample Collected:	10-JUN-14	Findings:	4. MG/L
Chemical:	POTASSIUM		
Sample Collected:	10-JUN-14	Findings:	6. MG/L
Chemical:	CHLORIDE		
Sample Collected:	10-JUN-14	Findings:	3. MG/L
Chemical:	SULFATE		
Sample Collected:	10-JUN-14	Findings:	4. UG/L
Chemical:	ARSENIC		
Sample Collected:	10-JUN-14	Findings:	33. UG/L
Chemical:	VANADIUM		
Sample Collected:	10-JUN-14	Findings:	0.922 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	10-JUN-14	Findings:	150. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	10-JUN-14	Findings:	- 0.4
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	10-JUN-14	Findings:	7.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-JUN-14	Findings:	11.4
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	10-JUN-14	Findings:	1600. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	10-JUN-14	Findings:	1.23 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12-AUG-14	Findings:	3.54 UG/L
Chemical:	CHROMIUM, HEXAVALENT		

Sample Collected:	22-MAR-16	Findings:	1.7 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	07-JUN-16	Findings:	1.8 MG/L
Chemical:	NITRATE (AS N)		

D23
SE **CA WELLS** **CADW60000017464**
1 - 2 Miles
Higher

Objectid:	17464
Latitude:	37.733
Longitude:	-120.9546
Site code:	377330N1209546W001
State well numbe:	02S09E26F001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000017464

D24
SE **FED USGS** **USGS40000185226**
1 - 2 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374400120571101		
Monloc name:	002S009E26F002M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7332618
Longitude:	-120.954101	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	131.00
Vert measure units:	feet	Vertacc measure val:	5.
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19600101	Welldepth:	455
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1970-09-01	55.00	

25
SSW
1 - 2 Miles
Higher

CA WELLS **CADW60000033670**

Objectid:	33670
Latitude:	37.7249
Longitude:	-120.9957
Site code:	377249N1209957W001
State well numbe:	02S09E32A001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	50
County name:	Stanislaus
Basin code:	'5-22.02'
Basin desc:	Modesto
Dwr region id:	80237
Dwr region:	South Central Region Office
Site id:	CADW60000033670

26
ESE
1 - 2 Miles
Higher

CA WELLS **2677**

Water System Information:

Prime Station Code:	02S/09E-26L01 M	User ID:	PTA
FRDS Number:	5010018003	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	374400.0 1205700.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	WELL 03		
System Number:	5010018		
System Name:	Riverbank, City of		
Organization That Operates System:			
	6707 Third St. Riverbank, CA 95367		
Pop Served:	13360	Connections:	4077
Area Served:	RIVERBANK		
Sample Collected:	02-FEB-11	Findings:	2.6 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	25-OCT-11	Findings:	3.9 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	25-OCT-11	Findings:	7.5 MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	26-MAR-12	Findings:	2.5 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	17-OCT-12	Findings:	9.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-DEC-12	Findings:	2.9 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	28-OCT-13	Findings:	1.99 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	28-OCT-13	Findings:	286. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-OCT-13	Findings:	7.1
Chemical:	PH, LABORATORY		
Sample Collected:	28-OCT-13	Findings:	116.6 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-OCT-13	Findings:	142.2 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-OCT-13	Findings:	172.8 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	28-OCT-13	Findings:	31.6 MG/L
Chemical:	CALCIUM		
Sample Collected:	28-OCT-13	Findings:	6.9 MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-OCT-13	Findings:	4.7 MG/L
Chemical:	SULFATE		
Sample Collected:	28-OCT-13	Findings:	197. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-OCT-13	Findings:	9.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-13	Findings:	2215. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	28-OCT-13	Findings:	8.9 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-OCT-13	Findings:	16. MG/L
Chemical:	SODIUM		
Sample Collected:	28-OCT-13	Findings:	3.6 MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-OCT-13	Findings:	2.3 UG/L
Chemical:	ARSENIC		
Sample Collected:	20-OCT-14	Findings:	8.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-OCT-14	Findings:	4. UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	12-NOV-15	Findings:	9.1 MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	12-NOV-15	Findings:	200. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-NOV-15	Findings:	4.5 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	04-APR-16	Findings:	380. US
Chemical:	SPECIFIC CONDUCTANCE		

27
SE
1 - 2 Miles
Higher

CA WELLS **21023**

Water System Information:

Prime Station Code:	5010018-007	User ID:	PTA
FRDS Number:	5010018007	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	374338.0 1205722.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 07		
System Number:	5010018		
System Name:	Riverbank, City of		
Organization That Operates System:			
	6707 Third St.		
	Riverbank, CA 95367		
Pop Served:	13360	Connections:	4077
Area Served:	RIVERBANK		
Sample Collected:	25-JAN-11	Findings:	41.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-APR-11	Findings:	18.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-SEP-11	Findings:	34.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-OCT-11	Findings:	16.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-MAR-12	Findings:	3.3 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	17-OCT-12	Findings:	31.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-13	Findings:	410. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	28-OCT-13	Findings:	7.2
Chemical:	PH, LABORATORY		
Sample Collected:	28-OCT-13	Findings:	170.1 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	28-OCT-13	Findings:	207.5 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	28-OCT-13	Findings:	217. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		

Sample Collected:	28-OCT-13	Findings:	46.2 MG/L
Chemical:	CALCIUM		
Sample Collected:	28-OCT-13	Findings:	9.7 MG/L
Chemical:	CHLORIDE		
Sample Collected:	28-OCT-13	Findings:	11.1 MG/L
Chemical:	SULFATE		
Sample Collected:	28-OCT-13	Findings:	359. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	28-OCT-13	Findings:	21.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-OCT-13	Findings:	4904. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	28-OCT-13	Findings:	14. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	28-OCT-13	Findings:	22. MG/L
Chemical:	SODIUM		
Sample Collected:	28-OCT-13	Findings:	4. MG/L
Chemical:	POTASSIUM		
Sample Collected:	28-OCT-13	Findings:	110. UG/L
Chemical:	BARIUM		
Sample Collected:	20-OCT-14	Findings:	14.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-OCT-14	Findings:	3.9 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	23-DEC-15	Findings:	520. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	23-DEC-15	Findings:	3.3 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	04-APR-16	Findings:	560. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	30-SEP-16	Findings:	8.6 MG/L
Chemical:	NITRATE (AS N)		

28
North
1 - 2 Miles
Higher

CA WELLS **CADW60000017025**

Objectid:	17025
Latitude:	37.7727
Longitude:	-120.9843
Site code:	377727N1209843W001
State well numbe:	02S09E09Q001M
Local well name:	’’
Well use id:	4
Well use descrip:	Residential
County id:	39
County name:	San Joaquin

Basin code:	'5-22.01'
Basin desc:	Eastern San Joaquin
Dwr region id:	80236
Dwr region:	North Central Region Office
Site id:	CADW60000017025

29
NNE **FED USGS** **USGS40000185514**
1 - 2 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374618120580001		
Monloc name:	002S009E10Q001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7715944
Longitude:	-120.9677131	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	127.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Alluvial Fan Deposits		
Aquifer type:	Not Reported		
Construction date:	19760812	Welldepth:	130
Welldepth units:	ft	Wellholedepth:	158
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1976-08-12	47.00	

30
SSW **CA WELLS** **2683**
1 - 2 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-32A02 M	User ID:	50C
FRDS Number:	5000261001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374320.0 1205942.0	Precision:	100 Feet (one Second)
Source Name:	WELL 01		

System Number: 5000261
System Name: CASINO INN
Organization That Operates System:
Not Reported
Pop Served: Unknown, Small System Connections: Unknown, Small System
Area Served: Not Reported
Sample Collected: 28-JUL-06 Findings: 53.3 MG/L
Chemical: NITRATE (AS NO3)

31
NNW **FED USGS** **USGS40000185521**
1 - 2 Miles
Higher

Org. Identifier: USGS-CA
Formal name: USGS California Water Science Center
Monloc Identifier: USGS-374620120592901
Monloc name: 002S009E09N001M
Monloc type: Well
Monloc desc: NAWQA GWSI data entry verif. by krburow on 6/6/01
Huc code: 18040002 Drainagearea value: Not Reported
Drainagearea Units: Not Reported Contrib drainagearea: Not Reported
Contrib drainagearea units: Not Reported Latitude: 37.7727861
Longitude: -120.9925444 Sourcemap scale: 24000
Horiz Acc measure: .5 Horiz Acc measure units: seconds
Horiz Collection method: Global positioning system (GPS), uncorrected
Horiz coord refsys: NAD83 Vert measure val: 116
Vert measure units: feet Vertacc measure val: 2.5
Vert accmeasure units: feet
Vertcollection method: Interpolated from topographic map
Vert coord refsys: NGVD29 Countrycode: US
Aquifername: Central Valley aquifer system
Formation type: Quaternary Alluvium
Aquifer type: Unconfined single aquifer
Construction date: 19730620 Welldepth: 120
Welldepth units: ft Wellholedepth: 135
Wellholedepth units: ft

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1973-06-20	50	

32
SE **FED USGS** **USGS40000185200**
1 - 2 Miles
Higher

Org. Identifier: USGS-CA
Formal name: USGS California Water Science Center
Monloc Identifier: USGS-374349120565601
Monloc name: 002S009E26L001M
Monloc type: Well
Monloc desc: Not Reported
Huc code: 18040005 Drainagearea value: Not Reported
Drainagearea Units: Not Reported Contrib drainagearea: Not Reported
Contrib drainagearea units: Not Reported Latitude: 37.7302064
Longitude: -120.9499342 Sourcemap scale: 24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	130.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19650101	Welldepth:	420
Welldepth units:	ft	Wellholedepth:	420
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

33
WSW **FED USGS** **USGS40000185279**
2 - 3 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374424121004801		
Monloc name:	002S009E19R001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7399283
Longitude:	-121.0143804	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	98.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19560101	Welldepth:	235
Welldepth units:	ft	Wellholedepth:	261
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

34
SW **CA WELLS** **CADW60000033669**
2 - 3 Miles
Higher

Objectid:	33669
Latitude:	37.73
Longitude:	-121.008826
Site code:	377299N1210088W001
State well numbe:	02S09E29L001M
Local well name:	'Darpinian 242'
Well use id:	3
Well use descrip:	Irrigation
County id:	50
County name:	Stanislaus

Basin code: '5-22.02'
Basin desc: Modesto
Dwr region id: 80237
Dwr region: South Central Region Office
Site id: CADW60000033669

35
SSW **CA WELLS** **2685**
2 - 3 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-32H01 M	User ID:	50C
FRDS Number:	5000411001	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374313.0 1205940.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	EAST WELL		
System Number:	5000411		
System Name:	THOMAS EQUIP.		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	19-JAN-11	Findings:	440. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	15-FEB-11	Findings:	39.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-MAY-11	Findings:	44.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-JUL-11	Findings:	600. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	15-AUG-11	Findings:	42.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-OCT-11	Findings:	4.e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	14-NOV-11	Findings:	618. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	14-NOV-11	Findings:	6.6
Chemical:	PH, FIELD		
Sample Collected:	14-NOV-11	Findings:	107.1 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	14-NOV-11	Findings:	130.7 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	14-NOV-11	Findings:	240. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	14-NOV-11	Findings:	53.9 MG/L
Chemical:	CALCIUM		

Sample Collected:	14-NOV-11	Findings:	13. MG/L
Chemical:	CHLORIDE		
Sample Collected:	14-NOV-11	Findings:	32. MG/L
Chemical:	SULFATE		
Sample Collected:	14-NOV-11	Findings:	376. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	14-NOV-11	Findings:	41.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-NOV-11	Findings:	9469. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-FEB-12	Findings:	40.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-APR-12	Findings:	7.e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	03-APR-12	Findings:	40. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-APR-12	Findings:	9040. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	01-MAY-12	Findings:	46.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-AUG-12	Findings:	43.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-OCT-12	Findings:	7.e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	01-NOV-12	Findings:	44.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	01-NOV-12	Findings:	9995. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	05-FEB-13	Findings:	39.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-MAY-13	Findings:	39.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-JUN-13	Findings:	15.5 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	04-JUN-13	Findings:	0.592 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	04-JUN-13	Findings:	11. PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	04-JUN-13	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12-AUG-13	Findings:	43.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	14-OCT-13	Findings:	0.32 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		

Sample Collected:	26-NOV-13	Findings:	38.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	10-FEB-14	Findings:	38.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-MAY-14	Findings:	41. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-JUL-14	Findings:	540. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	25-AUG-14	Findings:	43.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-OCT-14	Findings:	0.11 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	03-NOV-14	Findings:	543. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	03-NOV-14	Findings:	6.9
Chemical:	PH, LABORATORY		
Sample Collected:	03-NOV-14	Findings:	227.8 MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	03-NOV-14	Findings:	278. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	03-NOV-14	Findings:	288. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	03-NOV-14	Findings:	54.7 MG/L
Chemical:	CALCIUM		
Sample Collected:	03-NOV-14	Findings:	14.3 MG/L
Chemical:	CHLORIDE		
Sample Collected:	03-NOV-14	Findings:	21.6 MG/L
Chemical:	SULFATE		
Sample Collected:	03-NOV-14	Findings:	388. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	03-NOV-14	Findings:	36.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-NOV-14	Findings:	8294. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-NOV-14	Findings:	21. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	03-NOV-14	Findings:	27. MG/L
Chemical:	SODIUM		
Sample Collected:	03-NOV-14	Findings:	5.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	03-NOV-14	Findings:	3.1 UG/L
Chemical:	ARSENIC		
Sample Collected:	03-NOV-14	Findings:	140. UG/L
Chemical:	BARIUM		

Sample Collected:	08-DEC-14	Findings:	2.5 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	03-FEB-15	Findings:	43.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	28-MAY-15	Findings:	46.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-AUG-15	Findings:	37.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-NOV-15	Findings:	43.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-FEB-16	Findings:	8. MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	07-APR-16	Findings:	5.2e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	24-MAY-16	Findings:	9.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	28-JUL-16	Findings:	2.5e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	22-AUG-16	Findings:	8.4 MG/L
Chemical:	NITRATE (AS N)		

36
SSW
2 - 3 Miles
Higher

CA WELLS **2686**

Water System Information:

Prime Station Code:	02S/09E-32H02 M	User ID:	50C
FRDS Number:	5000411002	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374315.0 1205945.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	NORTH		
System Number:	5000411		
System Name:	THOMAS EQUIP.		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

E37
West
2 - 3 Miles
Higher

FED USGS **USGS40000185328**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374446121010101		
Monloc name:	002S009E19J001M		
Monloc type:	Well		
Monloc desc:	GAMA-CESJO,FAST		
Huc code:	18040002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7461389
Longitude:	-121.0168333	Sourcemap scale:	24000

Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	95.77
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Reported		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	1980	Welldepth:	292
Welldepth units:	ft	Wellholedepth:	292
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

E38
West
2 - 3 Miles
Higher

CA WELLS **23244**

Water System Information:

Prime Station Code:	J50/029-82GAC	User ID:	PTA
FRDS Number:	5010029003	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/GAC/EFFL
Water Type:	Well/Groundwater	Well Status:	Active Treated
Source Lat/Long:	374444.0 1210059.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 282 - DEL RIO - TREATED		
System Number:	5010029		
System Name:	City of Modesto, DE Hillcrest		
Organization That Operates System:			
	P.O. BOX 3250 MODESTO, CA 95353		
Pop Served:	805	Connections:	240
Area Served:	HILLCREST		
Sample Collected:	03-JAN-06	Findings:	23.8 MG/L
Chemical:	NITRATE (AS NO3)		

E39
West
2 - 3 Miles
Higher

CA WELLS **2666**

Water System Information:

Prime Station Code:	02S/09E-19J01 M	User ID:	PTA
FRDS Number:	5010029002	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374444.0 1210059.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 282 - DEL RIO		
System Number:	5010029		
System Name:	City of Modesto, DE Hillcrest		
Organization That Operates System:			
	P.O. BOX 3250 MODESTO, CA 95353		
Pop Served:	805	Connections:	240
Area Served:	HILLCREST		

Sample Collected:	23-FEB-11	Findings:	5.98 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-FEB-11	Findings:	1.35 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	25-JAN-12	Findings:	180. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	25-JAN-12	Findings:	8.2
Chemical:	PH, LABORATORY		
Sample Collected:	25-JAN-12	Findings:	79. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	25-JAN-12	Findings:	96. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	25-JAN-12	Findings:	59. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	25-JAN-12	Findings:	15. MG/L
Chemical:	CALCIUM		
Sample Collected:	25-JAN-12	Findings:	5.2 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	25-JAN-12	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	25-JAN-12	Findings:	3.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	25-JAN-12	Findings:	4.9 MG/L
Chemical:	CHLORIDE		
Sample Collected:	25-JAN-12	Findings:	3.9 MG/L
Chemical:	SULFATE		
Sample Collected:	25-JAN-12	Findings:	0.12 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	25-JAN-12	Findings:	3.9 UG/L
Chemical:	ARSENIC		
Sample Collected:	25-JAN-12	Findings:	160. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	25-JAN-12	Findings:	- 0.24
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	25-JAN-12	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	22-FEB-12	Findings:	6.37 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-FEB-12	Findings:	1.44 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	25-APR-12	Findings:	4.9e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	03-OCT-12	Findings:	450. US
Chemical:	SPECIFIC CONDUCTANCE		

Sample Collected:	06-FEB-13	Findings:	3.31 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	06-FEB-13	Findings:	0.33 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06-FEB-13	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	03-APR-13	Findings:	4.3e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	06-NOV-13	Findings:	32.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-NOV-13	Findings:	7.37 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	05-FEB-14	Findings:	7.08 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-FEB-14	Findings:	1.6 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	02-APR-14	Findings:	2.4e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	18-SEP-14	Findings:	3. UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	07-JAN-15	Findings:	180. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	07-JAN-15	Findings:	8.26
Chemical:	PH, LABORATORY		
Sample Collected:	07-JAN-15	Findings:	76. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	07-JAN-15	Findings:	93. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	07-JAN-15	Findings:	63. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	07-JAN-15	Findings:	16. MG/L
Chemical:	CALCIUM		
Sample Collected:	07-JAN-15	Findings:	5.6 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	07-JAN-15	Findings:	15. MG/L
Chemical:	SODIUM		
Sample Collected:	07-JAN-15	Findings:	3.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	07-JAN-15	Findings:	3.5 MG/L
Chemical:	CHLORIDE		
Sample Collected:	07-JAN-15	Findings:	4.3 MG/L
Chemical:	SULFATE		
Sample Collected:	07-JAN-15	Findings:	5. UG/L
Chemical:	ARSENIC		

Sample Collected:	07-JAN-15	Findings:	150. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	07-JAN-15	Findings:	0.72 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	07-JAN-15	Findings:	11.75
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	04-FEB-15	Findings:	33.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-FEB-15	Findings:	7.56 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	01-APR-15	Findings:	3.9e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	06-JAN-16	Findings:	2.01 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-JAN-16	Findings:	2.01 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-FEB-16	Findings:	0.694 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03-FEB-16	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	06-APR-16	Findings:	2.5e-002 UG/L
Chemical:	DIBROMOCHLOROPROPANE (DBCP)		
Sample Collected:	06-APR-16	Findings:	8.24 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-APR-16	Findings:	8.24 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	06-JUL-16	Findings:	8.12 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	06-JUL-16	Findings:	8.12 MG/L
Chemical:	NITRATE + NITRITE (AS N)		

40
East
2 - 3 Miles
Higher

FED USGS **USGS40000185297**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374433120562201		
Monloc name:	002S009E24N001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7424283
Longitude:	-120.9404898	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	87.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19681126	Welldepth:	129
Welldepth units:	ft	Wellholedepth:	165
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1968-11-26	9.00	

41
West
2 - 3 Miles
Higher

CA WELLS **2667**

Water System Information:

Prime Station Code:	02S/09E-19R01 M	User ID:	PTA
FRDS Number:	5010029001	County:	Stanislaus
District Number:	10	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	374500.0 1210100.0	Precision:	Undefined
Source Name:	WELL 271 - HILLCREST ESTATES		
System Number:	5010029		
System Name:	City of Modesto, DE Hillcrest		
Organization That Operates System:	P.O. BOX 3250 MODESTO, CA 95353		
Pop Served:	805	Connections:	240
Area Served:	HILLCREST		
Sample Collected:	27-APR-11	Findings:	170. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	27-APR-11	Findings:	8.2
Chemical:	PH, LABORATORY		
Sample Collected:	27-APR-11	Findings:	75. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	27-APR-11	Findings:	91. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	27-APR-11	Findings:	51. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	27-APR-11	Findings:	14. MG/L
Chemical:	CALCIUM		

Sample Collected:	27-APR-11	Findings:	4. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	27-APR-11	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	27-APR-11	Findings:	3.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	27-APR-11	Findings:	2.3 MG/L
Chemical:	CHLORIDE		
Sample Collected:	27-APR-11	Findings:	2.7 MG/L
Chemical:	SULFATE		
Sample Collected:	27-APR-11	Findings:	0.14 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	27-APR-11	Findings:	6.7 UG/L
Chemical:	ARSENIC		
Sample Collected:	27-APR-11	Findings:	830. UG/L
Chemical:	IRON		
Sample Collected:	27-APR-11	Findings:	140. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	27-APR-11	Findings:	- 0.28
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	27-APR-11	Findings:	2. NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	27-APR-11	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	22-JUN-11	Findings:	2.88 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	22-JUN-11	Findings:	0.65 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	27-JUN-12	Findings:	3.01 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-JUN-12	Findings:	0.68 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-OCT-12	Findings:	160. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	06-FEB-13	Findings:	0.246 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	06-FEB-13	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	05-JUN-13	Findings:	2.12 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-JUN-13	Findings:	0.48 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	02-APR-14	Findings:	10. UNITS
Chemical:	COLOR		

Sample Collected:	02-APR-14	Findings:	150. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02-APR-14	Findings:	8.57
Chemical:	PH, LABORATORY		
Sample Collected:	02-APR-14	Findings:	69. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	02-APR-14	Findings:	84. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	02-APR-14	Findings:	43. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	02-APR-14	Findings:	12. MG/L
Chemical:	CALCIUM		
Sample Collected:	02-APR-14	Findings:	3.5 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	02-APR-14	Findings:	11. MG/L
Chemical:	SODIUM		
Sample Collected:	02-APR-14	Findings:	3.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	02-APR-14	Findings:	2.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	02-APR-14	Findings:	2.6 MG/L
Chemical:	SULFATE		
Sample Collected:	02-APR-14	Findings:	2.8 UG/L
Chemical:	ARSENIC		
Sample Collected:	02-APR-14	Findings:	870. UG/L
Chemical:	IRON		
Sample Collected:	02-APR-14	Findings:	30. UG/L
Chemical:	MANGANESE		
Sample Collected:	02-APR-14	Findings:	130. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	02-APR-14	Findings:	10. NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	02-APR-14	Findings:	11.87
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	23-APR-14	Findings:	0.37 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	04-JUN-14	Findings:	2.48 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-JUN-14	Findings:	0.56 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	25-NOV-14	Findings:	5. UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	03-FEB-16	Findings:	0.955 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		

Sample Collected:	03-FEB-16	Findings:	1.13 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	01-JUN-16	Findings:	0.62 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	01-JUN-16	Findings:	0.62 MG/L
Chemical:	NITRATE + NITRITE (AS N)		

42
NNE
2 - 3 Miles
Higher

CA WELLS **CADW60000017026**

Objectid:	17026
Latitude:	37.7771
Longitude:	-120.9685
Site code:	377771N1209685W001
State well numbe:	02S09E10G001M
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	39
County name:	San Joaquin
Basin code:	'5-22.01'
Basin desc:	Eastern San Joaquin
Dwr region id:	80236
Dwr region:	North Central Region Office
Site id:	CADW60000017026

43
NNW
2 - 3 Miles
Higher

FED USGS **USGS40000185525**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374623120595901		
Monloc name:	002S009E08R001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7729832
Longitude:	-121.0007696	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	112.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19760608	Welldepth:	314
Welldepth units:	ft	Wellholedepth:	414
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

44
SSW **CA WELLS** **2684**
2 - 3 Miles
Higher

Water System Information:

Prime Station Code:	02S/09E-32G01 M	User ID:	50C
FRDS Number:	5000411003	County:	Stanislaus
District Number:	80	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	374313.0 1205958.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WEST WELL		
System Number:	5000411		
System Name:	THOMAS EQUIP.		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		
Sample Collected:	19-JUL-11	Findings:	360. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05-DEC-11	Findings:	442. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05-DEC-11	Findings:	7.3
Chemical:	PH, LABORATORY		
Sample Collected:	05-DEC-11	Findings:	146. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	05-DEC-11	Findings:	178.1 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	05-DEC-11	Findings:	232.3 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	05-DEC-11	Findings:	34.7 MG/L
Chemical:	CALCIUM		
Sample Collected:	05-DEC-11	Findings:	3. MG/L
Chemical:	CHLORIDE		
Sample Collected:	05-DEC-11	Findings:	11. MG/L
Chemical:	SULFATE		
Sample Collected:	05-DEC-11	Findings:	280. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	05-DEC-11	Findings:	27.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	05-DEC-11	Findings:	6283. MG/L
Chemical:	NITRATE + NITRITE (AS N)		

Sample Collected:	05-DEC-11	Findings:	12. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	05-DEC-11	Findings:	25. MG/L
Chemical:	SODIUM		
Sample Collected:	05-DEC-11	Findings:	10. MG/L
Chemical:	POTASSIUM		
Sample Collected:	05-DEC-11	Findings:	2.3 UG/L
Chemical:	ARSENIC		
Sample Collected:	05-DEC-11	Findings:	140. UG/L
Chemical:	BARIUM		
Sample Collected:	01-NOV-12	Findings:	27.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-JUN-13	Findings:	0.269 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	21-JUN-13	Findings:	1.16 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	22-SEP-14	Findings:	500. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	03-NOV-14	Findings:	598. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	03-NOV-14	Findings:	7.
Chemical:	PH, LABORATORY		
Sample Collected:	03-NOV-14	Findings:	252. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	03-NOV-14	Findings:	307.4 MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	03-NOV-14	Findings:	297.6 MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	03-NOV-14	Findings:	60.1 MG/L
Chemical:	CALCIUM		
Sample Collected:	03-NOV-14	Findings:	14.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	03-NOV-14	Findings:	24.1 MG/L
Chemical:	SULFATE		
Sample Collected:	03-NOV-14	Findings:	434. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	03-NOV-14	Findings:	36.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	03-NOV-14	Findings:	8226. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	03-NOV-14	Findings:	22. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	03-NOV-14	Findings:	28. MG/L
Chemical:	SODIUM		

Sample Collected:	03-NOV-14	Findings:	6.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	03-NOV-14	Findings:	150. UG/L
Chemical:	BARIUM		
Sample Collected:	03-NOV-14	Findings:	1300. UG/L
Chemical:	ZINC		
Sample Collected:	08-DEC-14	Findings:	2. UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	31-AUG-15	Findings:	2.3 UG/L
Chemical:	TERT-BUTYL ALCOHOL		
Sample Collected:	24-SEP-15	Findings:	18.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	24-NOV-15	Findings:	27.5 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-MAR-16	Findings:	9.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	24-MAY-16	Findings:	8.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	22-AUG-16	Findings:	3.3 MG/L
Chemical:	NITRATE (AS N)		

45
ENE
2 - 3 Miles
Higher

FED USGS **USGS40000185411**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374529120562601		
Monloc name:	002S009E14R001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7579836
Longitude:	-120.9416012	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	127.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19770102	Welldepth:	160
Welldepth units:	ft	Wellholedepth:	180
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1977-01-02	58.00	

46
WSW **FED USGS** **USGS40000185215**
2 - 3 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374357121005301		
Monloc name:	002S009E30J001M		
Monloc type:	Well		
Monloc desc:	GARMIN GPS ACCURACY +/- 24FT		
Huc code:	Not Reported	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7325278
Longitude:	-121.0147222	Sourcemap scale:	24000
Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	97
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19770922	Welldepth:	108
Welldepth units:	ft	Wellholedepth:	118
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

47
ESE **FED USGS** **USGS40000185274**
2 - 3 Miles
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374422120561901		
Monloc name:	002S009E25D001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18040005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.7393728
Longitude:	-120.9396563	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	100.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported		
Construction date:	19720816	Welldepth:	436
Welldepth units:	ft	Wellholedepth:	436
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1972-08-16	86.00	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
NNE **OIL_GAS** **CAOG11000236457**
1 - 2 Miles

District nun:	6	Api number:	07720385
Blm well:	N	Redrill can:	Not Reported
Dryhole:	Y	Well status:	P
Operator name:	Sun Oil Company		
County name:	San Joaquin	Fieldname:	Any Field
Area name:	Any Area	Section:	15
Township:	02S	Range:	09E
Base meridian:	MD	Elevation:	147
Locationde:	Not Reported		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Roche Bros.	Wellnumber:	1-15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-DEC-81
Welldeptha:	5764		
Redrillfoo:	0		
Abandonedd:	27-DEC-81	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDH
Site id:	CAOG11000236457		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95367	6	4

Federal EPA Radon Zone for STANISLAUS County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for STANISLAUS COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.725 pCi/L	92%	8%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.250 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D: QUALIFICATIONS

PARTNER

Marc A. Hachey, PG, CEG

Partner Associate

Education

M.E. in Geological Engineering - Missouri University of Science and Technology, Rollo, MO
B.A. in Geology - Colby College, Waterville, ME

Registrations

Professional Geologist – CA, WA, AZ, OR and UT
Certified Engineering Geologist – CA
40 Hour Haz. Mat. Certified

Summary of Professional Experience

Mr. Hachey has over 15 years of experience in the environmental, engineering geology, and geotechnical engineering service industries. He has significant experience in due diligence assessments for a variety of property types, and the needs and requirements of varied number of reporting standards, including ASTM standards, EPA's All Appropriate Inquiry (AAI), and customized client formats. Specifically, Mr. Hachey has performed Geotechnical Investigations, Geologic Mapping, Geotechnical Construction Monitoring, Phase I Environmental Site Assessments (ESAs) Environmental Transaction Screens, Soil Vapor Surveys and Phase II and III Subsurface Investigations.

Mr. Hachey has managed several large geotechnical and engineering geology projects throughout California, including: large school district bond projects, large-scale commercial expansion projects, and OSPHD-regulated new hospital projects in Modesto, San Rafael and San Jose. Geotechnical and engineering geologic capabilities include soil boring and rock core logging, engineering geologic mapping, landslide evaluation and repair, fault investigations, seismic design criteria calculation, geotechnical and engineering geologic report preparation, engineering consultation, and project/construction monitoring including earthwork observation and testing, foundation preparation observations, including pile driving, drilled piers and shallow foundations.

He has prepared hundreds of Phase I ESAs for a variety of development in California, Washington, Nevada, Idaho and Oregon. He has worked with multiple school districts on the monitoring, testing, and documentation of fill soil being imported to project sites and ensuring that the soil is free of contamination. He has experience mapping and sampling for Naturally Occurring Asbestos (NOA) within high probability geologic units throughout the San Francisco Bay area. Mr. Hachey has also been involved in Phase II investigations throughout Northern California, including former dry cleaners, gas stations, and other industrial facilities.

Finally, Mr. Hachey's diversity across residential, industrial, municipal, educational, medical, and commercial environments is a major contribution to Partner Engineering and Science's Associate team in the West region of the United States.

Sarah Vosovic
Project Manager

PARTNER Engineering and Science, Inc.

Education

B.S., Environmental Science, California State University, Chico

Registrations

OSHA 40-Hour HAZWOPER
AHERA Building Inspector training
California Department of Health Services/USEPA Lead Inspector/Assessor training

Summary of Professional Experience

Ms. Vosovic has more than 14 years of experience in the environmental consulting field and has worked in various disciplines, including environmental due diligence, NEPA compliance, lead-based paint and asbestos assessment, and LUST monitoring and reporting. Ms. Vosovic has performed hundreds of Phase I ESAs. She has also served as senior reviewer for NEPA compliance documents, with thousands of reports reviewed. She has tracked and managed the regulatory compliance for hundreds of microwave sites for a major telecommunications carrier.

Ms. Vosovic is well versed in EPA's All Appropriate Inquiry and ASTM E1527-13. She is knowledgeable in due diligence reporting standards, including Fannie Mae DUS, Freddie Mac, and HUD. Ms. Vosovic has conducted Phase I ESAs on a wide range of properties. Site assessment experience includes agricultural properties, semiconductor manufacturing facilities, fueling and automobile repair facilities, chemical distribution facilities, landfills, oil well fields, telecommunications sites, and shopping centers with dry cleaning facilities. She has scoped projects, mentored field personnel, identified environmental risks, and regularly provides detailed reports within demanding deadlines.

Ms. Vosovic is responsible for conducting all aspects of Phase I Environmental Site Assessments including proposal writing, staffing projects, client liaison, site reconnaissance and record reviews. Ms. Vosovic also provides management and QA/QC review of Phase I ESAs and Transaction Screens, and is focused on providing exemplary client service. Ms. Vosovic is responsible for ensuring consistency and quality of due diligence services and ensuring that client-specific requirements are met, as well as the requirements of ASTM and AAI standards. Ms. Vosovic displays excellent technical writing and editing skills, attention to detail, and excels at providing concise, logical conclusions and recommendations.

Project experience for Ms. Vosovic includes the following:

- Provided senior review for thousands of NEPA Screening Reports, Environmental Assessments, Section 106 Reports, SHPO consultation packets, NEPA Audit Reports, and

other related documents for various telecommunications industry clients. NEPA Technical Manager for multiple telecommunications industry clients in the western United States. Served as the primary point of contact with multiple state and federal agencies.

- Assisted in subsurface investigations at heavily industrialized and commercially developed properties. Subsurface investigations included the installation of soil borings, characterization of soils, and subsequent sampling of soil and groundwater. Oversaw geophysical surveys.

- Evaluated proposed microwave installations, LTE installations and underlying support structures for compliance with environmental, FAA, and FCC regulations. Tracked and managed over 700 microwave sites in two markets. Worked closely with the client, construction managers, turf vendors, engineers, and RF safety engineers to obtain and track regulatory compliance documentation.

- Managed a database and scheduled quarterly reporting for 45 leaking underground storage tank (LUST) cases under regulatory direction. Prepared Groundwater Monitoring Reports, NPDES Quarterly Reports, Subsurface Investigation Reports, Remediation Work Plans, Sensitive Receptor Surveys, and UST Cleanup Fund submittals. Collected soil and groundwater samples for laboratory analysis.

- Performed regulatory compliance audits for a major telecommunications carrier. Provided solutions and established protocols for ensuring compliance.

- Laboratory Instructor for Introductory Geology and Environmental Science courses at California State University, Chico.

PARTNER

Jay Grenfell, REPA, LEED AP
National Client Manager, Principal

Education

B.A, Environmental Science, University of California at Berkeley

Registrations

Registered Environmental Property Assessor, National Registry of Environmental Professionals
LEED Accredited Professional, United States Green Building Council

Highlights

16 years in the environmental consulting industry
Experience in various disciplines, including regulatory compliance, asbestos abatement, point source air monitoring, Tier II reporting, and Environmental Health & Safety consulting services.

Experience Summary

Mr. Grenfell currently serves as a National Client Manager providing risk management solutions to clients' due diligence and engineering needs. Mr. Grenfell's breadth of experience and understanding of commercial real estate transactions from both an equity investment and lending view allow him to provide risk management consulting that align with client objectives.

Mr. Grenfell conducted and managed thousands of Phase I ESAs on industrial, office, multi-family, government, retail, and hospitality properties prior to assuming his role as a client manager and business development professional. His experience also includes management of large multi-site portfolios for varied and demanding stakeholders, where he mentored field assessors, identifying environmental risks, and provided detailed reports within demanding deadlines. Mr. Grenfell experience includes understanding and coordinating a full suite of due diligence services, including Phase II subsurface investigations, Property Condition Assessments, Seismic Risk Assessments, ALTA Surveys, Asbestos and Lead Surveys, and Energy Audits.

Mr. Grenfell has worked for nationwide and local clients that include commercial developers, mortgage bankers, real estate brokers, individual investors, equity/institutional investment groups, and financial lending institutions, including CMBS lenders, SBA lenders, and GSA (Fannie and Freddie) lenders.

Project Experience

Multi-Site Portfolio, Nationwide. Managed performance and delivery of summary matrix and complete reports for a 300-site portfolio of Class A high-rise office buildings, at the time valued as the largest real estate transaction in history. Lead scheduled conference calls summarizing and evaluating environmental liabilities for a large stakeholder group.

Phase II Subsurface Investigations, Kansas City, Missouri. Conducted eight Phase II Site Assessments at gasoline stations over a four-day period, coordinating and supervising the advancement of soil borings and collected soil and groundwater samples. Documented results in concise, well-written reports.

Industrial Compliance Evaluation, San Francisco, CA. Managed a compliance evaluation team at an 8,000 employee, 24-hour aircraft maintenance center, evaluating environmental regulatory compliance. Provided solutions and established protocols for ensuring compliance.

Third-Party Report Reviews, Chicago, IL. Conducted 3rd-party reviews of over 150 gasoline stations, documenting previous report findings and providing a matrix listing issues and updated risk-based recommendations.

High Rise Office Buildings, San Francisco. Worked with technical team to manage pre-acquisition due diligence for equity investor of high rise office buildings in downtown San Francisco. Included equity PCA with specialty evaluations of façade, MEP, Fire and Life Safety, Roof, and ADA. Provided red flag analysis and summary costs tables within 48 hours of initial site visits with final reports provided within 10 business days.

Multi-Site Portfolio, California. Managed performance and delivery of summary matrix and complete reports for a 150-site portfolio of fast food restaurants providing environmental and property condition assessments with specialty evaluations of roofs and MEP systems.

Affiliations

Bay Area Mortgage Association (BAMA)
International Council of Shopping Centers (ICSC)
The Risk Management Association (RMA)
The Commercial Real Estate Development Corporation (NAIOP)

Speaking

Due Diligence Panelist, Income Property Lending Group, San Francisco, Reoccurring. Provide industry insight into topical due diligence issues to an audience of investors and lenders.

Bisnow Moderator, Equity Investment and Construction Panels, San Francisco, Reoccurring. Moderator for specific topics regarding commercial real estate lending and development to a mixed audience of investors, attorneys, developers, and lenders.

Publications

Improving the Seismic Resilience of California Buildings, California Mortgage Finance, 2014, Co-Authored
Industrial Properties and Environmental Risk, GlobeSt.com, 2013
Change is in the Air, Scotsman Guide, 2012

Contact

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APPENDIX F

Environmental Noise Assessment

Environmental Noise Assessment

River Walk Specific Plan

City of Riverbank, California

July 5, 2022

Project # 191202

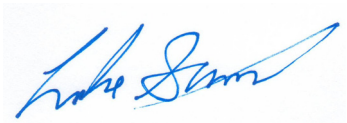
Prepared for:

DE NOVO PLANNING GROUP

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, California 95762

Prepared by:

Saxelby Acoustics LLC





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This section provides a general description of the existing noise sources in the Project Area, a discussion of the regulatory setting, and identifies potential noise impacts associated with new development in the Specific Plan Area. Project impacts are evaluated relative to applicable noise level criteria and to the existing ambient noise environment. Where feasible, mitigation measures have been identified for significant noise-related impacts. However, increased noise due to project traffic remains a significant unavoidable impact.

3.11.1 ENVIRONMENTAL SETTING

KEY TERMS

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given area consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
CNEL	Community noise equivalent level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic acoustic signal, expressed in cycles per second or Hertz.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
$L_{(n)}$	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50 percent of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
SEL	Sound exposure levels. A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.

FUNDAMENTALS OF ACOUSTICS

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60-dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. CNEL is similar to

L_{dn}, but includes a +5 dB penalty for evening noise. Table 3.11-1 lists several examples of the noise levels associated with common situations.

TABLE 3.11-1: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	*NOISE LEVEL (DBA)*	*COMMON INDOOR ACTIVITIES*
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

SOURCE: CALTRANS, TECHNICAL NOISE SUPPLEMENT, TRAFFIC NOISE ANALYSIS PROTOCOL. SEPTEMBER 2013.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;

- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE LEVELS

Existing and Surrounding Land Uses

Uses immediately adjacent to the southeast, south, southwest, and west of the Project Area include agricultural uses and limited residential uses, including ranchettes and large estates lots. Other nearby uses include residential subdivisions to the east within Riverbank and the unincorporated County, and to the west within the unincorporated County. The Modesto Rifle Club is also located near the southwest boundary of the Specific Plan Area.

Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the vicinity of the Specific Plan Area, continuous (24-hour) noise level measurements were conducted on the Development Area site on January 18th – January 20th, 2020. The noise measurement locations are shown on Figure 3.11-1. The noise level measurement survey results are provided in Table 3.11-2. Appendix B of Appendix F shows the complete results of the noise monitoring survey.

The sound level meters were programmed to collect hourly noise level intervals at each site during the survey. The maximum value (L_{max}) represents the highest noise level measured during an interval. The average value (L_{eq}) represents the energy average of all of the noise measured during an interval. The median value (L_{50}) represents the sound level exceeded 50 percent of the time during an interval.

Larson Davis Laboratories (LDL) Model 812, 820, and 831 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 3.11-2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

SITE	LOCATION	DATE/TIME	L_{DN}	AVERAGE MEASURED HOURLY NOISE LEVELS, dB					
				DAYTIME (7AM-10PM)			NIGHTTIME (10PM-7AM)		
				L_{EQ}	L_{50}	L_{MAX}	L_{EQ}	L_{50}	L_{MAX}
CONTINUOUS (24-HOUR) NOISE LEVEL MEASUREMENTS									
LT-1	Northern SP boundary	1/18/20	42	41	38	56	34	30	51
		1/19/20	43	41	39	57	35	31	52
		1/20/20	47	44	42	60	40	34	56
LT-2	Southern SP boundary, north of Modesto Rifle Club	1/18/20	46	46	36	67	36	30	55
		1/19/20	45	45	40	66	36	32	60
		1/20/20	48	46	41	68	40	35	49
LT-3	Southern SP boundary, south of Modesto Rifle Club	1/18/20	53	55	35	73	34	28	56
		1/19/20	47	48	38	65	34	29	55
		1/20/20	50	50	39	68	39	33	56
SHORT-TERM NOISE LEVEL MEASUREMENTS									
ST-1	North side of SP boundary near river	1/17/20 1:13 p.m.	N/A	42	36	63	N/A	N/A	N/A
ST-2	Northwest side of SP boundary near existing residence	1/17/20 11:15 a.m.	N/A	37	35	47	N/A	N/A	N/A
ST-3	East side of SP boundary by river	1/17/20 12:45 p.m.	N/A	42	37	54	N/A	N/A	N/A
ST-4	Southeast side of SP boundary by river	1/21/20 9:38 a.m.	N/A	46	45	57	N/A	N/A	N/A
ST-5	Southeast side of SP boundary by existing residential	1/21/20 9:59 a.m.	N/A	44	44	50	N/A	N/A	N/A
ST-6	South side of SP boundary by canal	1/21/20 9:59 a.m.	N/A	49	48	58	N/A	N/A	N/A

SOURCE: SAXELBY ACOUSTICS, 2021.

MODESTO RIFLE CLUB

Saxelby Acoustics observed that shooting range noise was audible within the Specific Plan boundaries. Based upon noise measurements conducted of pistol and rifle range operations at the Modest Rifle Club, noise contours were mapped across the Specific Plan boundaries. The results of this analysis are shown on Figure 3.11-2.

Existing Traffic Noise Environment at Sensitive Receptors

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To predict existing noise levels due to traffic, the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with

consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. Traffic volumes for existing conditions were obtained from the traffic data prepared for the project. Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. Where traffic noise barriers are predominately along a roadway segment, a -5 offset was added to the noise prediction model to account for various noise barrier heights. A -5 to dB offset was also applied where outdoor activity areas are shielded by intervening buildings. In some locations, sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the project-area roadway segments analyzed in this report.

Table 3.11-3 shows the existing traffic noise levels in terms of L_{dn} at closest sensitive receptors along each roadway segment. A complete listing of the FHWA Model input data is contained in Appendix C of Appendix F.

TABLE 3.11-3: EXISTING TRAFFIC NOISE LEVELS

ROADWAY	*SEGMENT*	*EXTERIOR TRAFFIC NOISE LEVEL, DB L_{DN}*
McHenry Ave	Jones Rd to River Rd	63.2
McHenry Ave	River Rd to Coffee Rd	64.7
McHenry Ave	Coffee Rd to Stewart Rd	66.5
McHenry Ave	Stewart Rd to Ladd Rd	68.5
McHenry Ave (SR 108)	Ladd Rd to Crawford Rd	72.6
McHenry Ave (SR 108)	Crawford Rd to Kiernan Ave (SR 219)	68.4
McHenry Ave (SR 108)	Kiernan Ave (SR 219) to Pelandale Ave	67.7
River Rd	Murphy Rd to McHenry Ave	67.4
River Rd	McHenry Ave to Harold Ave	66.7
Ladd Rd	Stoddard Rd to Carver Rd	63.1
Ladd Rd	Carver Rd to McHenry Ave	69.0
Patterson Rd (SR 108)	McHenry Ave to Coffee Rd	63.3
Patterson Rd (SR 108)	Coffee Rd to Oakdale Rd	64.6
Patterson Rd (SR 108)	Oakdale Rd to Jackson Ave	66.7
Kiernan Ave (SR 219)	Tully Rd to McHenry Ave	69.9
Claribel Rd	McHenry Ave to Coffee Rd	70.8
Claribel Rd	Coffee Rd to Oakdale Rd	65.5
Skittone Rd	Patterson Rd (SR 108) to Crawford Rd	51.5
Coffee Rd	Patterson Rd (SR 108) to Crawford Rd	64.4
Coffee Rd	Crawford Rd to relocated Claribel Rd	64.6
Coffee Rd	Relocated Claribel Rd to Claribel - NCC	66.3
Coffee Rd	Claribel - NCC to Claratina Ave	68.7

ROADWAY	*SEGMENT*	*EXTERIOR TRAFFIC NOISE LEVEL, DB L_{DN}*
Oakdale Rd	Patterson Rd (SR 108) to Morrill Rd	61.8
Oakdale Rd	Morrill Rd to Crawford Rd	63.6
Oakdale Rd	Crawford Rd to Claribel Rd	63.6
Oakdale Rd	Claribel Rd to Claratina Ave	66.9
Morrill Rd	Coffee Rd to Oakdale Rd	63.0

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM CALTRANS AND SAXELBY ACOUSTICS. 2021.

3.11.2 REGULATORY SETTING

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, includes questions that indicate that a significant noise impact may occur if a project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA case law also addresses noise impacts. (See, e.g., *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 883-894.) CEQA standards are discussed more below under the Thresholds of Significance section.

Governor's Office of Planning and Research

The State of California General Plan Guidelines (State of California 2017), published by the Office of Planning and Research (OPR), provides guidance for the acceptability of projects within specific CNEL or Ldn contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

LOCAL

City of Riverbank General Plan

The City of Riverbank General Plan Noise Element contains goals, policies, and implementation measures for assessing noise impacts within the City. Listed below are the noise goals, policies, and implementation. The overarching goal for the environment is to ensure that noise does not substantially reduce the quality of urban life.

GOALS: NOISE

- NOISE-1. Create land use patterns and transportation networks that minimize noise problems.
- NOISE-2. Minimize noise impacts associated with development projects and other land use change.

POLICIES: NOISE

- NOISE-1.1. Large-scale commercial land uses requiring frequent large truck deliveries shall not be developed within new or existing neighborhoods.
- NOISE-1.2. New growth areas shall avoid the use of large-volume, high-speed roadways within neighborhoods and instead disperse vehicular traffic onto a network of fully connected smaller roadways.
- NOISE-1.3. Industrial and other noise-generating land uses shall be located away from noise-sensitive land uses or shall enclose any substantial noise sources completely within buildings or structures.
- NOISE-1.4. Development of noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation, stationary sources, or agricultural operations exceeding, or estimated to exceed, levels specified in Table N-1 of the General Plan [Table 3.11-4 of this section] shall require transportation planning, traffic calming, site planning, buffering, sound insulation, or other methods to reduce noise exposure in outdoor activity areas and interior spaces to the levels specified in Table N-1 of the General Plan [Table 3.11-4 of this section].

TABLE 3.11-4: MAXIMUM ALLOWABLE NOISE EXPOSURE FROM TRANSPORTATION NOISE SOURCES AT NOISE-SENSITIVE LAND USES [FROM CITY OF RIVERBANK GENERAL PLAN TABLE N-1]

LAND USE	*OUTDOOR ACTIVITY AREAS (DB L_{EQ})*	*INTERIOR SPACES*	
		DB L_{DN}	*DB L_{EQ}*
Residential	60	45	--
Transient Lodging	60	45	--
Hospitals, Nursing Homes	60	45	--
Theatres, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	60	--	45
Playgrounds, Neighborhood Parks	70	--	--

NOTES: NOISE-SENSITIVE LAND USES INCLUDE SCHOOLS, HOSPITALS, REST HOMES, LONG-TERM CARE, MENTAL CARE FACILITIES, RESIDENCES, AND OTHER SIMILAR LAND USES. OUTDOOR ACTIVITY AREAS ARE CONSIDERED TO BE THE PORTION OF A NOISE-SENSITIVE PROPERTY WHERE OUTDOOR ACTIVITIES WOULD NORMALLY BE EXPECTED (I.E., PATIOS OF RESIDENCES AND OUTDOOR INSTRUCTIONAL AREAS OF SCHOOLS). OUTDOOR ACTIVITY AREAS FOR THE PURPOSES OF THIS ELEMENT DO NOT INCLUDE GATHERING SPACES ALONGSIDE TRANSPORTATION CORRIDORS OR ASSOCIATED PUBLIC RIGHTS-OF-WAY. WHERE DEVELOPMENT PROJECTS OR ROADWAY IMPROVEMENT PROJECTS COULD POTENTIALLY CREATE NOISE IMPACTS, AN ACOUSTICAL ANALYSIS SHALL BE REQUIRED AS PART OF THE ENVIRONMENTAL REVIEW PROCESS SO THAT NOISE MITIGATION MAY BE INCLUDED IN THE PROJECT DESIGN. SUCH ANALYSIS SHALL BE THE FINANCIAL RESPONSIBILITY OF THE APPLICANT AND BE PREPARED BY A QUALIFIED PERSON EXPERIENCED IN THE FIELDS OF ENVIRONMENTAL NOISE ASSESSMENT AND ARCHITECTURAL ACOUSTICS. MITIGATION STRATEGIES SHALL INCLUDE SITE PLANNING AND DESIGN OVER OTHER TYPES OF MITIGATION.

SOURCE: CITY OF RIVERBANK GENERAL PLAN, NOISE ELEMENT, TABLE N-1.

- NOISE-1.5. Sound walls are prohibited as a method for reducing noise exposure that could be addressed through other means.
- NOISE-2.1. Development projects and roadway improvement projects that increase traffic noise levels shall be mitigated to achieve acceptable levels specified in Table N-1 of the General Plan [Table 3.11-4 of this section] as measured at outdoor activity areas and

interior spaces of existing and planned noise sensitive land uses. If existing noise levels exceed allowable levels in Table N-1 of the General Plan [Table 3.11-4 of this section] at noise sensitive land uses, then:

- Where existing exterior noise levels are between 60 and 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, an increase of 3 dB L_{dn} or greater is considered significant and requires mitigation to achieve allowable levels.
- Where existing exterior noise levels are greater than 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, an increase of 1.5 dB L_{dn} or greater is considered significant and requires mitigation to achieve allowable levels.
- Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with Table N-1 of the General Plan [Table 3.11-4 of this section].

- NOISE-2.2. Development projects that produce, or are affected by, non-transportation related noise shall be mitigated to achieve acceptable levels specified in Table N-2 of the General Plan [Table 3.11-5 of this section], as measured at outdoor activity areas of existing and planned noise-sensitive land uses. If existing noise levels exceed acceptable levels in Table N-2 of the General Plan [Table 3.11-5 of this section] as measured at outdoor activity areas of noise sensitive land uses:
  - Where existing exterior noise levels are between 60 and 65 dB L_{eq} at outdoor activity areas of noise-sensitive uses, an increase of 3 dB L_{eq} or greater is considered significant and requires mitigation to achieve acceptable levels.
  - Where existing exterior noise levels are greater than 65 dB L_{eq} at outdoor activity areas of noise-sensitive uses, an increase of 1.5 dB L_{eq} or greater is considered significant and requires mitigation to achieve acceptable levels.
  - Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{eq} or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{eq} may be allowed, provided that available exterior noise level reduction measures have been implemented.

TABLE 3.11-5: NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY, OR INCLUDING NON-TRANSPORTATION NOISE SOURCES [FROM THE CITY OF RIVERBANK GENERAL PLAN TABLE N-2]

NOISE LEVEL DESCRIPTOR	*DAYTIME (7 AM – 10 PM)*	*NIGHTTIME (10 PM – 7 AM)*
Hourly L_{eq}, dB	60	45
L_{max}, dB	75	65

NOTES: EACH OF THE NOISE LEVELS SPECIFIED SHALL BE LOWERED BY FIVE dB FOR SIMPLE TONE NOISES, NOISES CONSISTING PRIMARILY OF SPEECH, OR MUSIC, OR FOR RECURRING IMPULSIVE NOISES. THESE NOISE LEVEL STANDARDS DO NOT APPLY TO RESIDENTIAL UNITS ESTABLISHED IN CONJUNCTION WITH INDUSTRIAL OR COMMERCIAL USES (E.G., CARETAKER DWELLINGS).
SOURCE: CITY OF RIVERBANK GENERAL PLAN, NOISE ELEMENT, TABLE N-2.

- NOISE-2.3. The City shall require all feasible noise mitigation to reduce construction and other short-term noise and vibration impacts as a condition of approval for development

projects by applying the performance standards outlined in Table N-3 of the General Plan [Table 3.11-6 of this section]. The total noise level resulting from new sources and ambient noise shall not exceed the standards in Table N-3 of the General Plan [Table 3.11-6 of this section], as measured at outdoor activity areas of any affected noise sensitive land use except:

- If the ambient noise level exceeds the standard in Table N-3, the standard becomes the ambient level plus 5 dB(A).
- Reduce the applicable standards in Table N-3 by 5 decibels if they exceed the ambient level by 10 or more decibels.

TABLE 3.11-6: NOISE LEVEL PERFORMANCE STANDARDS FOR NON-TRANSPORTATION NOISE SOURCES [FROM THE CITY OF RIVERBANK GENERAL PLAN TABLE N-3]

CUMULATIVE DURATION OF A NOISE EVENT[1] (MINUTES)	*MAXIMUM EXTERIOR NOISE LEVEL STANDARDS[2]*	
	DAY [3,5]	*NIGHT[4,5]*
30-60	50	45
15-30	55	50
5-15	60	55
1-5	65	60
0-1	70	65

NOTES:

1. CUMULATIVE DURATION REFERS TO TIME WITHIN ANY ONE-HOUR PERIOD.

2. NOISE LEVEL STANDARDS MEASURED IN DB.

3. DAYTIME = HOURS BETWEEN 7:00 A.M. AND 10:00 P.M.

4. NIGHTTIME = HOURS BETWEEN 10:00 P.M. AND 7:00 A.M.

5. EACH OF THE NOISE LEVEL STANDARDS SPECIFIED MAY BE REDUCED BY 5 DBA FOR TONAL NOISE (I.E., A SIGNAL WHICH HAS A PARTICULAR AND UNUSUAL PITCH) OR FOR NOISES CONSISTING PRIMARILY OF SPEECH OF FOR RECURRING IMPULSIVE NOISES (I.E., SOUNDS OF SHORT DURATION, USUALLY LESS THAN ONE SECOND, WITH AN ABRUPT ONSET AND RAPID DECAY SUCH AS THE DISCHARGE OF FIREARMS).

SOURCE: CITY OF RIVERBANK GENERAL PLAN, NOISE ELEMENT, TABLE N-3.

City of Riverbank Municipal Code

Chapter 93 of the City of Riverbank Municipal Code prohibits excessive or annoying noise or vibration to residential and commercial properties in the City. The following general rules are outlined in the Municipal Code:

93.04 EXTERIOR NOISE STANDARDS

A. It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any affected single- or multiple-family residence, school, church, hospital or public library situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in [Table 3.11-7 of this section].

B. In the event the measured ambient noise level exceeds the applicable noise level standard, the applicable standard shall be adjusted so as to equal the ambient noise level.

TABLE 3.11-7: EXTERIOR NOISE LEVEL STANDARDS

TIME PERIOD	*ALLOWABLE EQUIVALENT HOUR SOUND LEVEL (L_{EQ})*	*ALLOWABLE MAXIMUM SOUND LEVEL (L_{MAX})*
7 a.m. – 10 p.m.	50 dBA	70 dBA
10 p.m. – 7 a.m	45 dBA	65 dBA

SOURCE: RIVERBANK, CALIFORNIA CODE OF ORDINANCES, TITLE IX: GENERAL REGULATIONS, CHAPTER 93: NOISE

A. Each of the noise level standards specified above shall be reduced by five dB(A) for simple tone noises, noises consisting primarily of speech or music or for recurring impulsive noises.
B. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period so that the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared to the noise level standards specified above.

93.05 INTERIOR NOISE STANDARDS

A. It is unlawful for any person, at any location within the city, to operate or cause to be operated within a dwelling unit, any source of sound or to allow the creation of any noise which causes the noise level when measured inside a receiving dwelling unit situated in the area either within the city or adjacent to the city to exceed the noise level standards as set forth in [Table 3.11-8 of this section]:

TABLE 3.11-8: INTERIOR NOISE LEVEL STANDARDS

TIME PERIOD	*ALLOWABLE EQUIVALENT HOUR SOUND LEVEL (L_{EQ})*	*ALLOWABLE MAXIMUM SOUND LEVEL (L_{MAX})*
7 a.m. – 10 p.m.	40 dBA	60 dBA
10 p.m. – 7 a.m.	35 dBA	55 dBA

SOURCE: RIVERBANK, CALIFORNIA CODE OF ORDINANCES, TITLE IX: GENERAL REGULATIONS, CHAPTER 93: NOISE

A. In the event the measured ambient noise level exceeds the applicable noise level standard, the applicable standard shall be adjusted so as to equal the ambient noise level.
B. Each of the noise level standards specified above shall be reduced by five dB(A) for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.
C. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period so that the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared to the noise level standards specified above.

93.07 NOISE SOURCE EXEMPTIONS

The following activities shall be exempt from the provisions of this chapter:

A. Activities conducted in unlighted public parks, public playgrounds and public or private school grounds, during the hours of 7:00 a.m. to 10:00 p.m., and in lighted public parks,

public playgrounds and public or private school grounds, during the hours of 7:00 am. to 11:00 p.m., including but not limited to school athletic and school entertainment events.

B. Any mechanical device, apparatus or equipment used, related to or connected with emergency activities or emergency work
C. Noise sources associated with construction provided such activities do not take place between 6:30 p.m. and 6:00 a.m. on weekdays or 5:00 p.m. and 8:00 a.m. on weekends and legal holidays.
D. Noise sources associated with agricultural activities on agricultural zoned property.
E. Noise sources associated with the collection of waste, garbage, and street sweeping.
F. Any activity to the extent regulation thereof has been preempted by state or federal law.
G. Noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities.
H. Noise sources associated with the maintenance of residential property provided such activities take place between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday or 8:00 a.m. and 7:00 p.m., Saturday, Sunday, and holidays.
I. Noise sources associated with public supported events (that is, Farmers Market, Cheese and Wine Festival, parades, and similar events.)

VIBRATION STANDARDS

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City of Riverbank does not have specific policies pertaining to vibration levels. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 3.5-9 indicates that the threshold for damage to structures ranges from 0.2 to 0.6 peak particle velocity in inches per second (in/sec p.p.v). A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 3.11-9: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

PEAK PARTICLE VELOCITY		HUMAN REACTION	EFFECT ON BUILDINGS
MM/SEC.	IN./SEC.		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

SOURCE: CALTRANS. TRANSPORTATION RELATED EARTHBORN VIBRATIONS. TAV-02-01-R9601 FEBRUARY 20, 2002.

3.11.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines and case law, the Project will have a significant impact related to noise if it will result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project;
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without Project;
- For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels within two miles of a public airport or public use airport; or
- For a Project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

The Project Area is not located within two miles of a public or private airport or airstrip. The nearest airport, the Modesto City-County Airport, is located approximately 7.0 miles south of the Project Area. Therefore, airports and airport noise are not discussed further in this analysis.

Determination of a Significant Increase in Noise Levels

TEMPORARY CONSTRUCTION NOISE IMPACTS

With temporary noise impacts (construction), identification of "substantial increases" depends upon the duration of the impact, the temporal daily nature of the impact, and the absolute change in decibel levels. Per the Policy 2.3 of the City of Riverbank General Plan restricts maximum noise levels from construction to the standards listed in Table 3.11-6. In addition, Section 93.07 of the City Municipal Code exempts noisefrom construction provided that the construction occurs during the allowable hours of operation, as follows:

> Noise sources associated with construction provided such activities do not take place between 6:30 p.m. and 6:00 a.m. on weekdays or 5:00 p.m. and 8:00 a.m. on weekends and legal holidays.

OPERATIONAL IMPACTS

The noise standards applicable to the Project include the relevant portions of the City of Riverbank General Plan, the Regulatory Setting section (Section 3.11.2), and the following standards. Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible;
- A 5-dB change is clearly perceptible; and
- A 10-dB change is perceived as being twice or half as loud.

As noted above, the City's Noise Ordinance exempts noise sources associated with construction provided such activities do not take place between 6:30 p.m. and 6:00 a.m. on weekdays or 5:00 p.m. and 8:00 a.m. on weekends and legal holidays. This exemption is typical of City and County noise ordinances and reflect the recognition that construction-related noise is temporary in character, is generally acceptable when limited to daylight hours, and is part of what residents of urban areas expect as part of a typical urban noise environment (along with sirens, etc.)

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project-noise conditions. Table 3.11-10 is based upon recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of

changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been accepted that they are applicable to all sources of noise described in terms of cumulative noise exposure metrics such as the L_{dn}.

TABLE 3.11-10: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

AMBIENT NOISE LEVEL WITHOUT PROJECT, L_{DN}	*INCREASE REQUIRED FOR SIGNIFICANT IMPACT*
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

SOURCE: FEDERAL INTERAGENCY COMMITTEE ON NOISE (FICON)

Based on the Table 3.11-10 data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}, or 3 dB or more where existing noise levels are between 60 to 65 dB L_{dn}. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB L_{dn}. The rationale for the Table 3.11-10 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

IMPACTS AND MITIGATION MEASURES

Impact 3.11-1: Construction of the proposed Project may generate significant noise. (Significant Unavoidable)

During the construction of the proposed Project, including roads, water, and sewer lines and related infrastructure, noise from construction activities would add to the noise environment in the Project vicinity. As indicated in Table 3.11-11, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 3.11-11: CONSTRUCTION EQUIPMENT NOISE

TYPE OF EQUIPMENT	*MAXIMUM LEVEL, DB*	
	25 FEET	*50 FEET*
Backhoe	84	78
Compactor	89	83
Compressor (air)	84	78
Concrete Saw	96	90
Dozer	88	82
Dump Truck	82	76
Excavator	87	81
Generator	87	81
Jackhammer	94	89
Pneumatic Tools	91	85

SOURCE: ROADWAY CONSTRUCTION NOISE MODEL USER'S GUIDE. FEDERAL HIGHWAY ADMINISTRATION. FHWA-HEP-05-054. JANUARY 2006.

During the construction of the Project, including roads, water, sewer lines, and related infrastructure, noise from construction activities would add to the noise environment in the Project vicinity. Existing receptors adjacent to the proposed construction activities are located north, south, west, and east of the site.

As indicated in Table 3.11-11, activities involved in construction would generate maximum noise levels ranging from 82 to 96 dB L_{max} at a distance of 50 feet. Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant Project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration and would likely occur primarily during daytime hours, consistent with the City's Noise Ordinance.

Construction could result in periods of elevated ambient noise levels and the potential for annoyance. Policy 2.3 of the City of Riverbank General Plan restricts maximum noise levels from construction to the standards listed in Table 3.11-6. In addition, Section 93.07 of the City Municipal Code exempts noisefrom construction provided that the construction occurs during the allowable hours of operation, as follows:

> Noise sources associated with construction provided such activities do not take place between 6:30 p.m. and 6:00 a.m. on weekdays or 5:00 p.m. and 8:00 a.m. on weekends and legal holidays.

Per the Table 3.11-6 standards, daytime construction noise would be limited to 70 dBA L_{max} under the City's General Plan standards. With construction noise levels ranging between 82 to 96 dBA L_{max} at 50 feet, construction noise control measures achieving a reduction of 12 to 26 dBA would be required when construction activity occurs within 50 feet of an existing residential use. This would primarily occur during construction of Village B which borders existing single-family homes to the east. Use of a temporary construction barrier 8-feet in height would typically reduce construction noise by up to 5-6 dBA, resulting in maximum noise levels of 77-91dBA L_{max}. This would still result in construction noise levels exceeding the City's Table 3.11-6 standard of 70 dBA L_{max}. Therefore, with implementation of Mitigation Measure 3.5-1, temporary construction noise impacts would be ***significant unavoidable***.

MITIGATION MEASURE(S)

Mitigation Measure 3.11-1: *Construction activities shall not occur between 6:30 p.m. and 6:00 a.m. on weekdays or 5:00 p.m. and 8:00 a.m. on weekends and legal holidays, as required by the City of Riverbank Municipal Code. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Mitigation Measure 3.11-2: *In an effort to comply with the City General Plan standards contained in Table 3.11-6 (Table N-3 of the General Plan), all equipment shall be fitted with factory equipped mufflers, and in good working order. In addition, all staging areas shall be located as far as feasibly*

possible from residential areas. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.

Impact 3.11-2: Construction of the proposed Project may result in vibration impacts. (Less than Significant with Mitigation)

The primary vibration-generating activities associated with the proposed Project would occur during construction when activities such as demolition, grading, utilities placement, and parking lot construction occur. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 50-feet or further from the on-site construction activities. At distances of 50-feet or more, construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours. Table 3.11-12 shows the typical vibration levels produced by construction placement.

TABLE 3.11-12: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

TYPE OF EQUIPMENT	*PEAK PARTICLE VELOCITY @ 25 FEET (INCHES/SECOND)*	*PEAK PARTICLE VELOCITY @ 100 FEET (INCHES/SECOND)*
Large Bulldozer	0.089	0.011
Loaded Trucks	0.076	0.010
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.011
Jackhammer	0.035	0.004
Vibratory Hammer	0.070	0.009
Vibratory Compactor/roller	0.210	0.026

SOURCE: FEDERAL TRANSIT ADMINISTRATION, TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT GUIDELINES, MAY 2006

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural damage.

With the exception of vibratory compactors, the Table 3.11-12 data indicate that construction vibration levels anticipated for the Project are less than the 0.2 in/sec threshold at a distance of 25 feet. Use of vibratory compactors within 26 feet of the adjacent buildings could cause vibrations in excess of 0.2 in/sec. Sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are potentially located within 26 feet, or less, from future development. It is noted that, due to the size and location of the Specific Plan Area, the vast majority of construction activities would occur at distances further than 26 feet.

Implementation of the following mitigation measure will ensure that these potential impacts are reduced to a ***less-than-significant*** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.11-3: *Any compaction required less than 26 feet from the adjacent residential structures shall be accomplished by using static drum rollers which use weight instead of vibrations to achieve soil compaction. As an alternative to this requirement, pre-construction crack documentation and construction vibration monitoring could be conducted to ensure that construction vibrations do not cause damage to any adjacent structures. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Impact 3.11-3: The proposed Project may generate unacceptable traffic noise levels at existing receptors. (Less than Significant with Mitigation)

Implementation of the proposed Project would result in an increase in ADT volumes on the local roadway network, and consequently, an increase in noise levels from traffic sources along affected segments. Tables 3.11-13 and 3.11-14 show the predicted traffic noise level increases on the local roadway network for Existing, Existing + Project, Cumulative No Project, and Cumulative + Project conditions. Appendix C of Appendix F provides the complete inputs and results of the FHWA traffic noise modeling.

TABLE 3.11-13: EXISTING AND EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS

		NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
ROADWAY	*SEGMENT*	*EXISTING*	*EXISTING + PROJECT*	*CHANGE*	*CRITERIA*[1]	*SIGNIFICANT?*
McHenry Ave	Jones Rd to River Rd	63.2	64.0	0.8	+3 dB	No
McHenry Ave	River Rd to Coffee Rd	64.7	65.7	1.0	+3 dB	No
McHenry Ave	Coffee Rd to Stewart Rd	66.5	67.7	1.3	+1.5	No
McHenry Ave	Stewart Rd to Ladd Rd	68.5	69.7	1.2	+1.5	No
McHenry Ave (SR 108)	Ladd Rd to Crawford Rd	72.6	74.0	1.4	+1.5	No
McHenry Ave (SR 108)	Crawford Rd to Kiernan Ave (SR 219)	68.4	69.7	1.3	+1.5	No
McHenry Ave (SR 108)	Kiernan Ave (SR 219) to Pelandale Ave	67.7	68.4	0.7	+1.5	No
River Rd	Murphy Rd to McHenry Ave	67.4	68.4	0.9	+1.5	No
River Rd	McHenry Ave to Harold Ave	66.7	67.0	0.3	+1.5	No
Ladd Rd	Stoddard Rd to Carver Rd	63.1	64.6	1.5	+3 dB	No
Ladd Rd	Carver Rd to McHenry Ave	69.0	70.1	1.1	+1.5	No
Patterson Rd (SR 108)	McHenry Ave to Coffee Rd	63.3	65.5	2.2	+3 dB	No
Patterson Rd (SR 108)	Coffee Rd to Oakdale Rd	64.6	66.3	1.7	+3 dB	No
Patterson Rd (SR 108)	Oakdale Rd to Jackson Ave	66.7	67.6	1.0	+1.5	No
Kiernan Ave (SR 219)	Tully Rd to McHenry Ave	69.9	70.3	0.3	+1.5	No
Claribel Rd	McHenry Ave to Coffee Rd	70.8	71.0	0.1	+1.5	No
Claribel Rd	Coffee Rd to Oakdale Rd	65.5	65.7	0.2	+1.5	No
Skittone Rd	Patterson Rd (SR 108) to Crawford Rd	51.5	53.7	2.2	+5 dB or >60 dB	No
Coffee Rd	Patterson Rd (SR 108) to Crawford Rd	64.4	69.5	**5.1**	**+3 dB**	**Yes**
Coffee Rd	Crawford Rd to relocated Claribel Rd	64.6	68.4	**3.8**	**+3 dB**	**Yes**
Coffee Rd	Relocated Claribel Rd to Claribel - NCC	66.3	70.1	**3.8**	**+1.5**	**Yes**
Coffee Rd	Claribel - NCC to Claratina Ave	68.7	70.6	**1.9**	**+1.5**	**Yes**
Oakdale Rd	Patterson Rd (SR 108) to Morrill Rd	61.8	62.4	0.6	+3 dB	No
Oakdale Rd	Morrill Rd to Crawford Rd	63.6	64.1	0.5	+3 dB	No
Oakdale Rd	Crawford Rd to Claribel Rd	63.6	64.0	0.4	+3 dB	No

ROADWAY	SEGMENT	NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
		EXISTING	EXISTING + PROJECT	CHANGE	CRITERIA[1]	SIGNIFICANT?
Oakdale Rd	Claribel Rd to Claratina Ave	66.9	67.1	0.2	+1.5	No
Morrill Rd	Coffee Rd to Oakdale Rd	63.0	63.5	0.5	+3 dB	No

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM CALTRANS AND SAXELBY ACOUSTICS. 2021.

TABLE 3.11-14: CUMULATIVE AND CUMULATIVE + PROJECT TRAFFIC NOISE LEVELS

ROADWAY	SEGMENT	NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
		CUMULATIVE	CUMULATIVE + PROJECT	CHANGE	CRITERIA[1]	SIGNIFICANT?
McHenry Ave	Jones Rd to River Rd	63.6	64.3	0.7	+3 dB	No
McHenry Ave	River Rd to Coffee Rd	65.2	66.1	0.9	+1.5 dB	No
McHenry Ave	Coffee Rd to Stewart Rd	67.0	68.1	1.1	+1.5	No
McHenry Ave	Stewart Rd to Ladd Rd	69.1	70.2	1.1	+1.5	No
McHenry Ave (SR 108)	Ladd Rd to Crawford Rd	73.3	74.5	1.2	+1.5	No
McHenry Ave (SR 108)	Crawford Rd to Kiernan Ave (SR 219)	68.9	70.1	1.2	+1.5	No
McHenry Ave (SR 108)	Kiernan Ave (SR 219) to Pelandale Ave	69.2	69.7	0.5	+1.5	No
River Rd	Murphy Rd to McHenry Ave	67.8	68.7	0.9	+1.5	No
River Rd	McHenry Ave to Harold Ave	67.2	67.5	0.3	+1.5	No
Ladd Rd	Stoddard Rd to Carver Rd	65.8	66.6	0.8	+1.5 dB	No
Ladd Rd	Carver Rd to McHenry Ave	71.0	71.8	0.7	+1.5	No
Patterson Rd (SR 108)	McHenry Ave to Coffee Rd	64.4	66.2	1.8	+3 dB	No
Patterson Rd (SR 108)	Coffee Rd to Oakdale Rd	65.4	66.9	1.5	+3 dB	No
Patterson Rd (SR 108)	Oakdale Rd to Jackson Ave	67.4	68.3	0.8	+1.5	No
Kiernan Ave (SR 219)	Tully Rd to McHenry Ave	71.8	72.0	0.2	+1.5	No
Claribel Rd	McHenry Ave to Coffee Rd	73.8	73.9	0.1	+1.5	No
Claribel Rd	Coffee Rd to Oakdale Rd	61.5	61.9	0.4	+1.5	No
Skittone Rd	Patterson Rd (SR 108) to Crawford Rd	51.5	53.7	2.2	+5 dB or >60 dB	No
Coffee Rd	Patterson Rd (SR 108) to Crawford Rd	65.6	69.9	**4.3**	**+1.5 dB**	**Yes**
Coffee Rd	Crawford Rd to relocated Claribel Rd	67.8	70.0	**2.2**	**+1.5 dB**	**Yes**
Coffee Rd	Relocated Claribel Rd to Claribel - NCC	70.7	72.5	**1.8**	**+1.5**	**Yes**
Coffee Rd	Claribel - NCC to Claratina Ave	69.7	71.2	**1.6**	**+1.5**	**Yes**
Oakdale Rd	Patterson Rd (SR 108) to Morrill Rd	63.9	64.3	0.4	+3 dB	No
Oakdale Rd	Morrill Rd to Crawford Rd	64.6	65.1	0.4	+3 dB	No
Oakdale Rd	Crawford Rd to Claribel Rd	65.0	65.3	0.3	+1.5 dB	No
Oakdale Rd	Claribel Rd to Claratina Ave	68.0	68.2	0.1	+1.5 dB	No
Morrill Rd	Coffee Rd to Oakdale Rd	68.7	68.8	0.1	+1.5 dB	No

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM CALTRANS AND SAXELBY ACOUSTICS. 2021.

The data in Tables 3.11-13 and 3.11-14 indicate that some noise-sensitive receptors located along Project-area roadways are currently exposed to exterior traffic noise levels exceeding the City of Riverbank 60 dB L_{dn} exterior noise level standard for residential uses (shown in Table 3.11-4). These receptors would continue to experience elevated exterior noise levels with implementation of the proposed Project. Under Existing conditions, sensitive receptors located Coffee Road exceed the City's 60 dB L_{dn} exterior noise level standard for transportation noise sources. Under Existing Plus RWSP conditions, these roadways will continue to exceed the City

standards. The Project's contributions range between 1.9 dB and 5.1 dB L_{dn}. These increases exceed the FICON criteria outlined in Table 3.11-10.

Under Cumulative conditions, sensitive receptors located adjacent to Coffee Road exceed the City's 60 dB L_{dn} exterior noise level standard for transportation noise sources. Under Cumulative Plus RWSP conditions, these roadways will continue to exceed the City standards. The Project's contributions range between 1.6 dB and 4.3 dB L_{dn}. These increases exceed the FICON criteria outlined in Table 3.11-10.

Tables 3.11-13 and 3.11-14 indicate where increases in traffic noise levels due to the Project exceed the FICON criteria for increases in traffic noise. Table 3.11-15 indicates where significant traffic noise increases will occur, and the segments whichthe Project would result in an exceedance of the City of Riverbank exterior noise levels standard, under the Cumulative Plus RWSP condition.

TABLE 3.11-15: SIGNIFICANT TRAFFIC NOISE INCREASES - CUMULATIVE AND CUMULATIVE PLUS RWSP TRAFFIC NOISE LEVELS

ROADWAY	*SEGMENT*	*NOISE LEVELS (L_{DN}, DB) AT 75-FEET FROM CENTERLINE*				
		CUMULATIVE	*CUMULATIVE + RWSP*	*CHANGE*	*SIGNIFICANT?[1]*	*CREATES NEW EXCEEDANCE[2]?*
Coffee Rd	Patterson Rd (SR 108) to Crawford Rd	65.6	69.9	4.3	**Yes**	No
	Crawford Rd to relocated Claribel Rd	67.8	70.0	2.2	**Yes**	No
	Relocated Claribel Rd to Claribel - NCC	70.7	72.5	1.8	**Yes**	No
	Claribel - NCC to Claratina Ave	69.7	71.2	1.6	**Yes**	No

NOTES: 1. A SIGNIFICANT IMPACT IS DETERMINED BY THE FICON CRITERIA IN TABLE 3.11-10.
2. AN EXCEEDANCE OF CITY STANDARDS IS DETERMINED BY THE CITY OF RIVERBANK EXTERIOR NOISE LEVEL STANDARDS IN TABLE 3.11-4.
SOURCE: SAXELBY ACOUSTICS LLC, 2021.

Based upon Tables 3.11-13, and 3.11-14, the Project would cause increased noise levels exceeding the FICON substantial increase criteria shown in Table 3.11-10, which would be a **potentially significant** impact.

Potential mitigation measures would require increasing the height of existing sound walls, building new off-site sound walls, including traffic calming measures to reduce vehicle speeds, and/or using quieter pavement technologies. Generally, construction of new sound walls is not practical due to the openings for driveway accesses which would compromise any barrier effectiveness. Increasing the heights of existing sound walls requires additional engineering of footings and is also not practical. Traffic calming measures generally have not been found to reduce overall traffic noise levels by a significant amount. The use of quiet pavement technologies is the most practical mitigation measure and would generally reduce traffic noise levels between 3 and 5 dB. Under the Cumulative scenario shown in Table 3.11-15, each roadway segment which shows a significant impact could include future overlays of alternative quiet pavement. Assuming a minimum reduction of 3 dBA, quiet pavement placed along sensitive receptor areas on the previously listed roadway segment could reduce Project noise level increases, as outlined below:

- **Coffee Road from Patterson Road (SR 108) to Claratina Avenue** – noise levels are predicted to increase by 1.6 to 4.3 dB without mitigation. Use of quiet pavement would reduce these increases to approximately 0.0 to 1.3 dBA, depending on the performance of the quiet pavement. Approximately 6,600 feet (approximately 1.25 miles) of quiet pavement would be required. See Figure 3.10-3 for approximate required pavement locations.

With the use of quiet pavement on Coffee Road noise level increases are expected to be in the range of 0.0 to 1.3 dBA. Therefore, with implementation of Mitigation Measure 3.11-4, traffic noise impacts would be ***less-than-significant***.

MITIGATION MEASURE(S)

Mitigation Measure 3.11-4: *To reduce traffic noise increases to, the following roadway segments shall be paved with quiet pavement:*

- Coffee Road from Patterson Road (SR 108) to Claratina Avenue. Approximately 6,600 feet (approximately 1.25 miles) of quiet pavement for two-lanes of roadway would be required. Approximate distance includes extension of quiet pavement a minimum of 100 feet past noise-sensitive receptors located along the roadway. T*his requirement shall be noted on the Project improvement plans. Approximate pavement locations are shown on Figure 3.11-3.*

Impact 3.11-4: The proposed Project may be subject to shooting range noise at new sensitive receptors. (Significant and Unavoidable)

The Modesto Rifle Club is located within the Project Area at 1041 Patterson Road. This is just outside the Specific Plan Area. The Modesto Rifle Club is a private cub with shooting range that is open to members and non-paying guests only. Proposed land uses in the vicinity of the Club include Reserve, Low Density Residential, Dual Use Park/Ponding Basin, and Buffer/Greenway/Open Space – Bluff. The Reserve category is intended for land that the City has not yet planned for a specific urban, agricultural, or resource land use. The Low Density Residential land use designation includes single-family homes, one to each lot, developed at a net density of up to eight dwelling units per acre. Residential uses could be located near the Modesto Rifle Club. Anticipated noise levels at the nearest receptors were predicted as part of the noise analysis.

As shown in Figure 3.11-2, the maximum noise levels emanating from the shooting range are predicted to exceed the City of Riverbank 70 dBA L_{max} standard on Villages D, E, F, H, I, J, P, and Q without mitigation. Saxelby Acoustics developed noise control solutions to reduce the maximum noise level to below 70 dBA at as many of the Specific Plan residential Villages as possible. The results of the analysis is provided below, and the full technical report is included in Attachment 1 of Appendix F.

Shooting range noise control may be achieved by the addition of an acoustically absorptive sound wall, partial enclosure of the shooting area, and acoustical panels in the pistol range area. The

following noise control measures would be required to fully mitigate the impact for the full Specific Plan Area:

1. Two 180-foot-long sound walls with acoustically absorptive treatment should span the eastern boundary of the rifle range. The first wall should be 20 feet tall and connect directly to the shooting range enclosure, allowing no gaps. The second wall should be 25 feet tall and be located directly north of the first wall and offset approximately 20 feet to the east (along the eastern boundary of the rifle range). The base elevation for the walls should be greater than or equal to the elevation of the shooting line. The inner side of the newly constructed walls (facing west) must be acoustically absorptive to prevent reflection of shooting noise**.** Figure 3.11-4 shows the proposed location of the sound walls. This analysis specifically assumes use of Kinetics NOISEBLOCK perforated metal acoustical panels.
2. The existing rifle shooting range cover should be enclosed on the eastern side as shown in Figure 3.11-4. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.
3. The left sound wall of the pistol range should be treated with an acoustically absorptive treatment, as shown on Figure 3.11-4. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.
4. Acoustic absorption should be added above the shooting line and at the rear wall of the left side of the rifle shooting line, as shown on Figure 3.11-4. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.
5. In addition to modifications of the Modesto Rifle Club property, typical masonry type sound walls are required in the Specific Plan Area. Figure 3.11-5 shows the locations of the recommended sound walls.

As shown on Figure 3.11-5, implementation of these five noise control measures would reduce maximum noise levels to below 70 dB on Villages D, F, H, I, J, and Q as well as a partial section of Village E.

Shooting range noise control may be further improved by enclosing the back (south side) of the rifle range firing line, as described below:

6. Fully enclose the rear (south) side of the rifle shooting line. A 4-foot-wide covered exit walkway may be constructed which allows access from the south, as shown on Figure 3.11-6. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.

As shown on Figure 3.11-7, implementation of these six noise control measures would reduce maximum noise levels to below 70 dB on all proposed villages. It should be noted that this analysis examines the use of sound walls, as no other means of reducing noise levels from shooting activities exist. Use of vegetation is not practical as 100 feet of dense evergreen vegetation of sufficient height to block line of site from the shooting range to the project site would only yield a 5 dBA reduction. Use of additional setbacks is also not feasible as large portions of the project site would be impacted by shooting range noise, as shown by Figure 3.11-2.

Implementation of the following mitigation measure will ensure that potential rifle range noise impacts are reduced to a less-than-significant level. However, because the bulk of the mitigation requires the cooperation of a private land owner, the measures may not be feasible. Figure 3.11-8 shows the resulting noise levels on the project site with implementation of MM 3.11-4.6 below which includes construction of 8- to 10-foot-tall sound walls on the project site. Based upon this Figure, noise levels from shooting range operations are predicted to range from 71 to 79 dBA L_{max}, after construction of on-site sound walls. This would exceed the City of Riverbank 70 dBA L_{max} noise standard by up to 9 dBA for daytime shooting events. Therefore, this would remain a ***significant unavoidable*** impact.

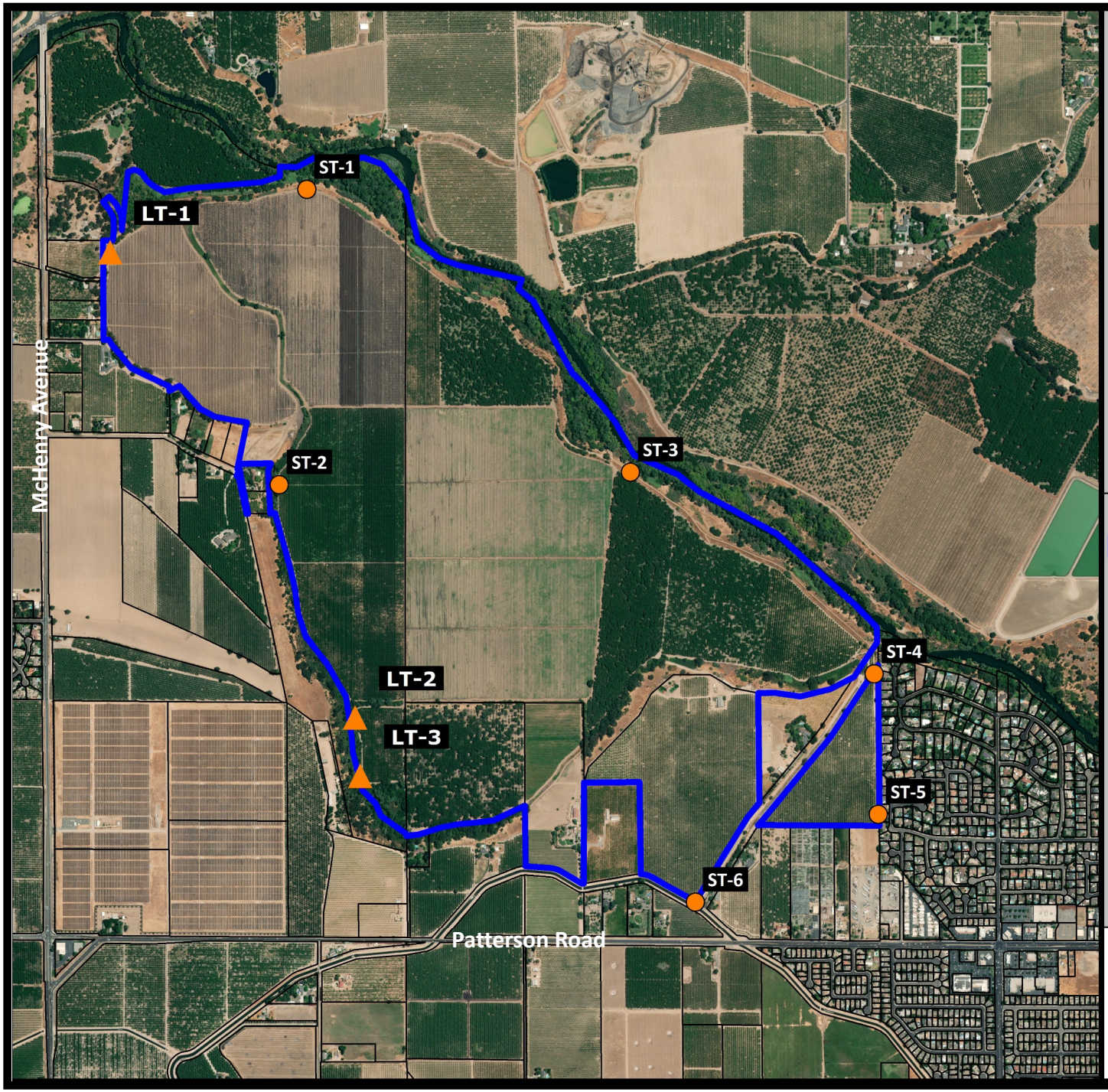
MITIGATION MEASURE(S)

Mitigation Measure 3.11-4: *The following noise control measures shall be noted in the improvements plans prior to approval by the City's Public Works Department:*

1. *Two 180-foot-long sound walls with acoustically absorptive treatment shall span the eastern boundary of the rifle range. The first wall shall be 20 feet tall and connect directly to the shooting range enclosure, allowing no gaps. The second wall shall be 25 feet tall and be located directly north of the first wall and offset approximately 20 feet to the east (along the eastern boundary of the rifle range). The base elevation for the walls shall be greater than or equal to the elevation of the shooting line. The inner side of the newly constructed walls (facing west) must be acoustically absorptive to prevent reflection of shooting noise. Figure 3.11-4 shows the proposed location of the sound walls. This analysis specifically assumes use of Kinetics NOISEBLOCK perforated metal acoustical panels.*
2. *The existing rifle shooting range cover shall be enclosed on the eastern side as shown in Figure 3.11-4. The enclosure shall span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure shall consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.*
3. *The left sound wall of the pistol range shall be treated with an acoustically absorptive treatment, as shown on Figure 3.11-4. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.*
4. *Acoustic absorption shall be added above the shooting line and at the rear wall of the left side of the rifle shooting line, as shown on Figure 3.11-4. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.*

5. *Fully enclose the rear (south) side of the rifle shooting line. A 4-foot-wide covered exit walkway may be constructed which allows access from the south, as shown on Figure 3.11-6. The enclosure shall span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure shall consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels.*

6. *In addition to modifications of the Modesto Rifle Club property, typical masonry type sound walls are required on the project site as well. Figure 3.11-7 shows the locations of the recommended sound walls.*



River Walk Specific Plan EIR

City of Riverbank, California

Figure 3.11-1

Noise Measurement Sites

Legend

- Project Site
- Noise Measurement - Short Term
- Noise Measurement Site - Long Term

500 ft 1500 ft 2500 ft

Projection: State Plane (California Zone 3) / NAD83 / meters
Rev. Date: 03/28/2022

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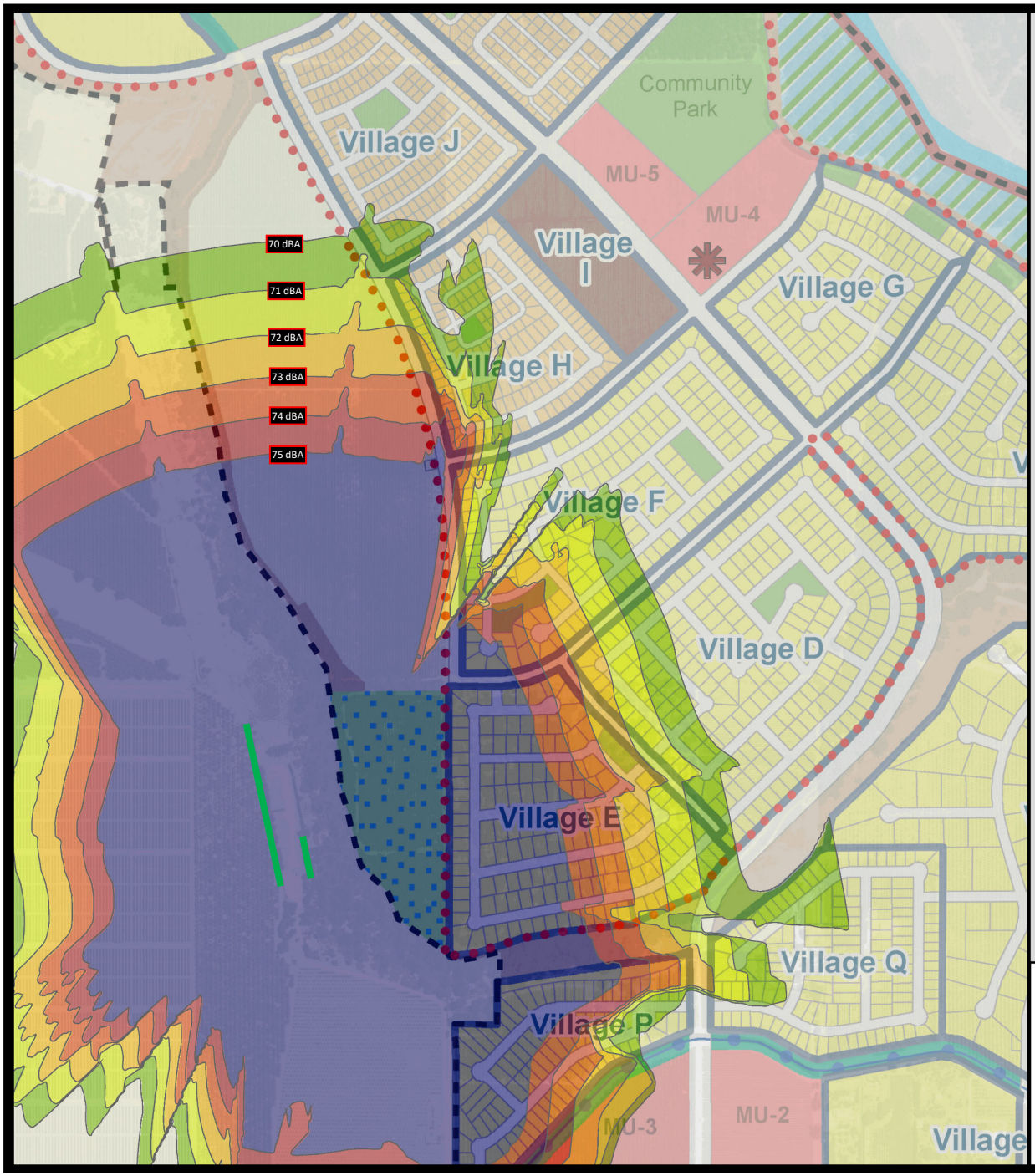

River Walk Specific Plan EIR

Stanislaus County, California

Figure 3.11-2

Existing Shooting Range Noise Contours (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Built-up area
- Existing Wall

Scale 1:725

0 250 500 1000 1500 2000 feet

N

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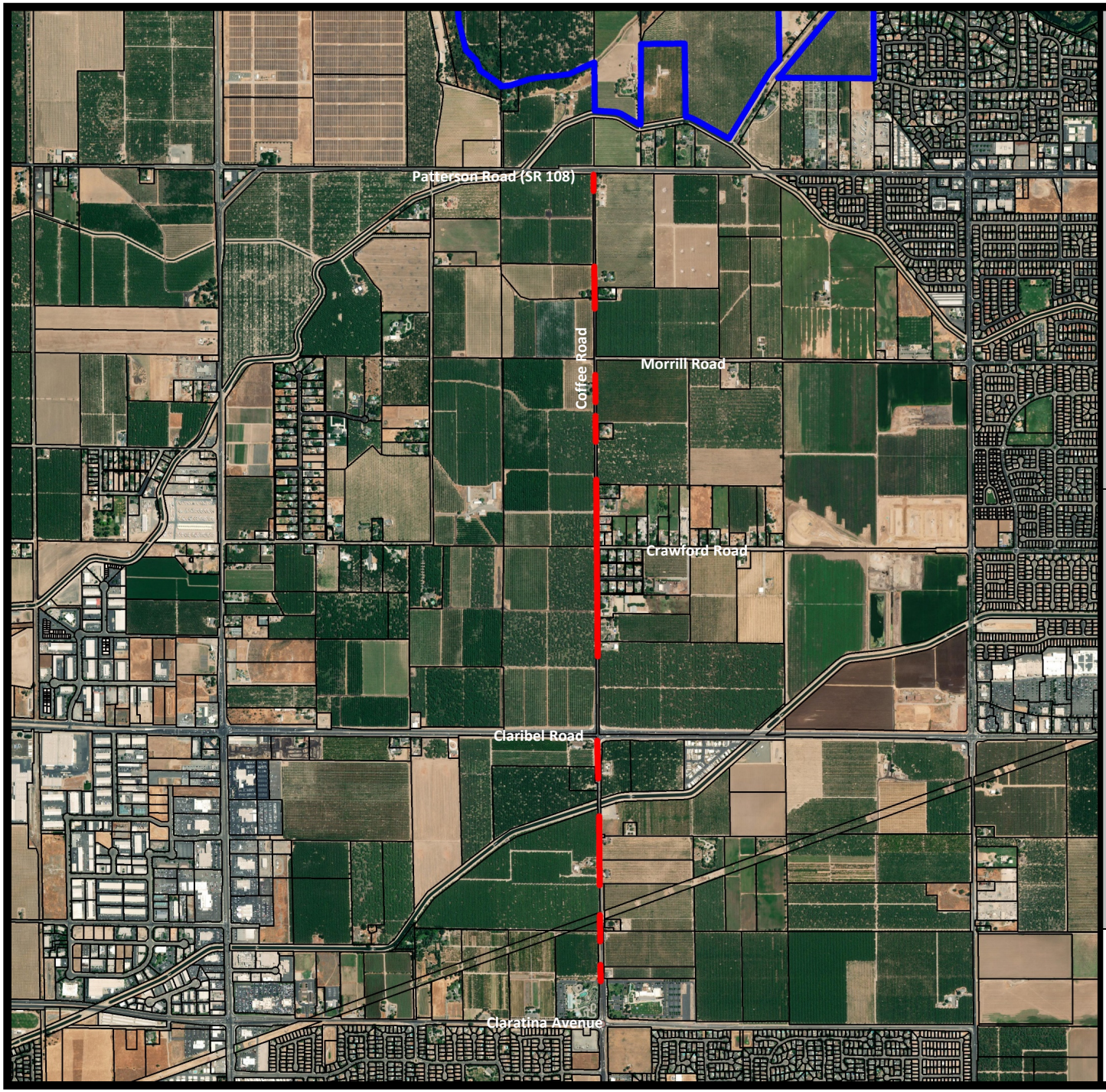

River Walk Specific Plan

City of Manteca, California

Figure 3.11-3

Quiet Pavement Locations

Legend

- Project Site
- Recommended Quiet Pavement

0 mi 0.25 mi 0.5 mi

Projection: State Plane (California Zone 3) / NAD83 / meters
Rev. Date: 03/28/2022

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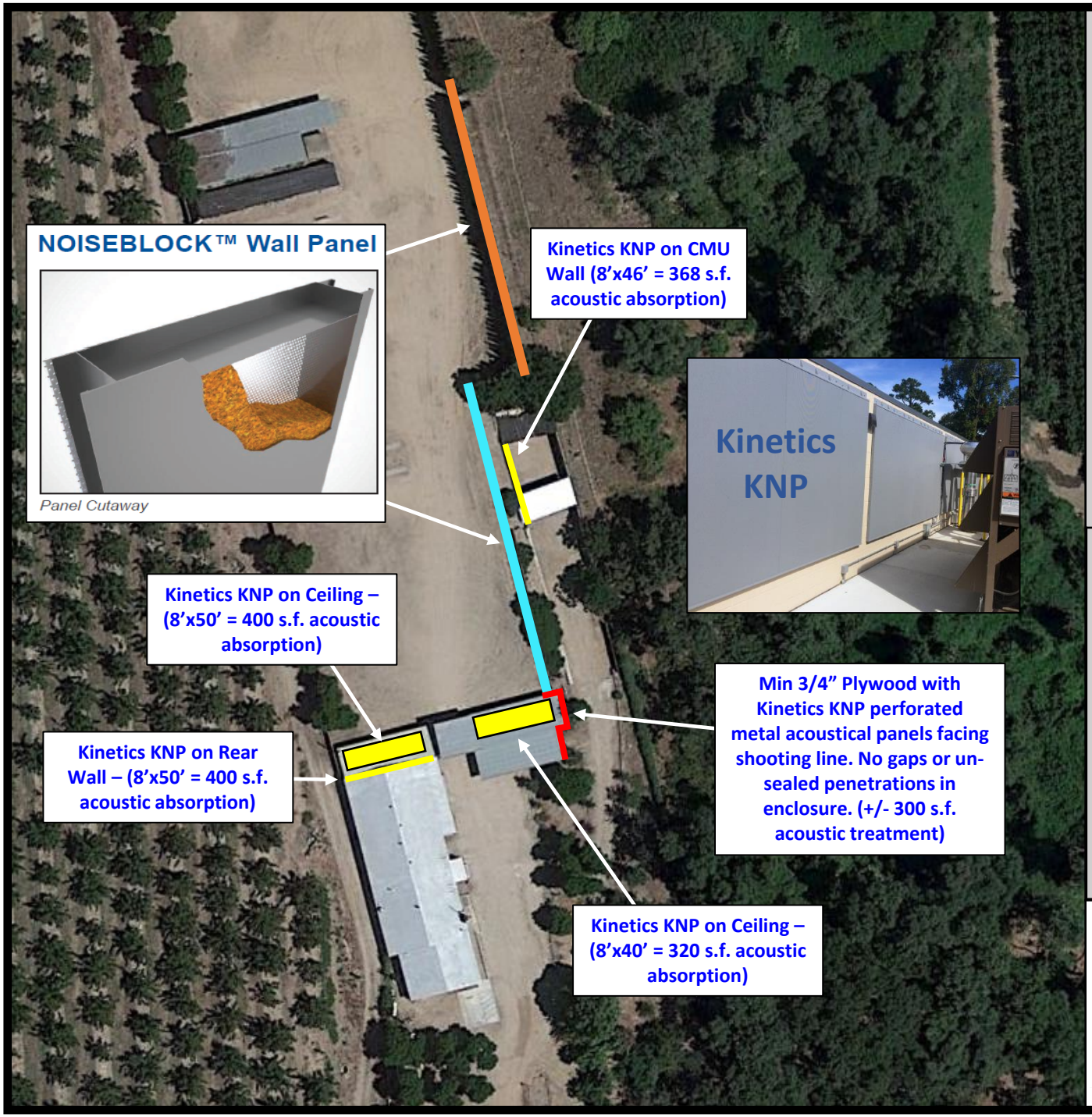
River Walk Specific Plan EIR

City of Riverbank, California

Figure 3.11-4

Partial Shooting Range Noise Control Measures



Legend

- : 20-foot Tall Sound Wall
- : 25-foot Tall Sound Wall
- : Shooting Range Enclosure
- : Kinetics KNP Acoustically Absorptive Panels on Existing Wall or Ceiling

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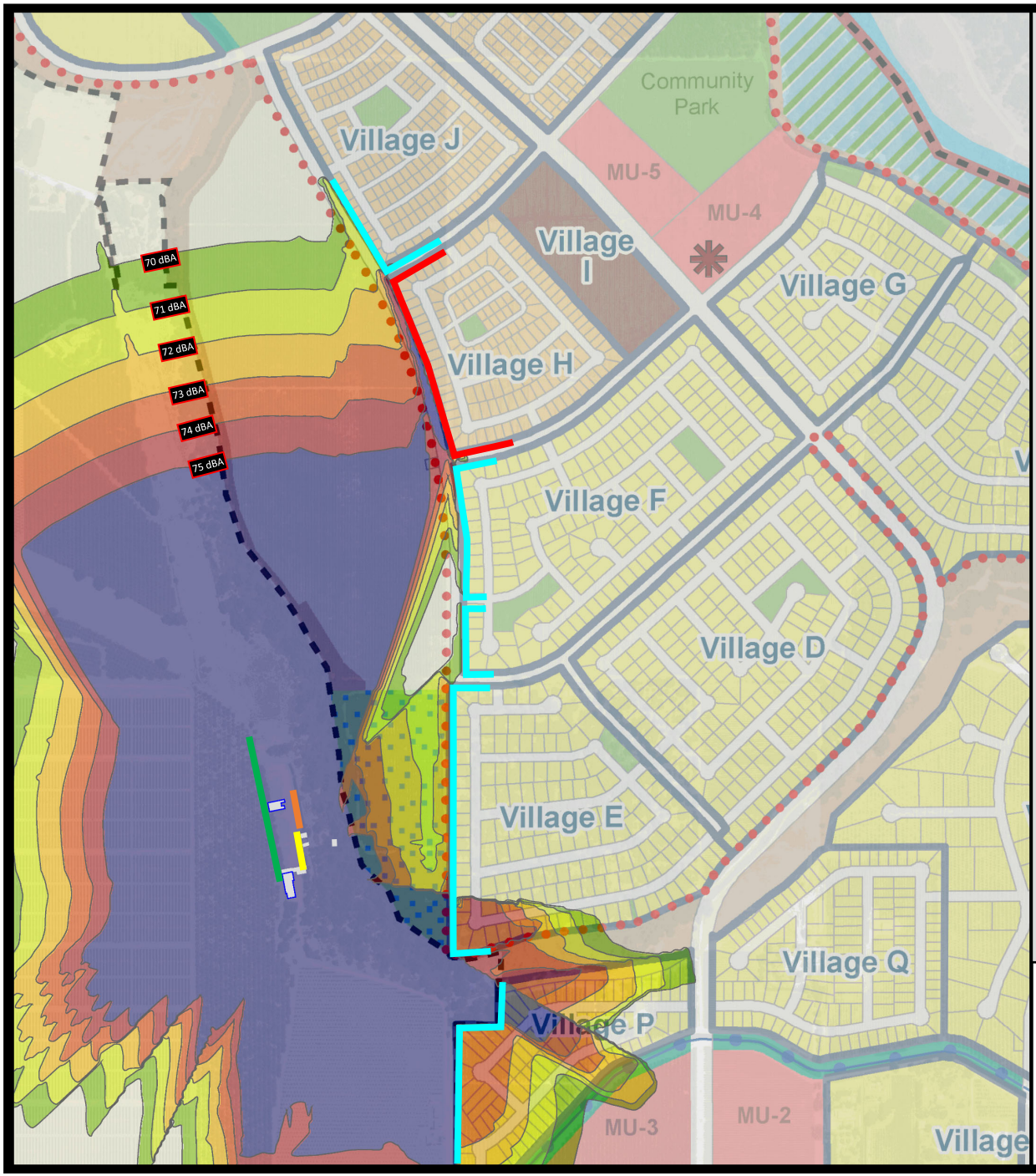

River Walk Specific Plan EIR

Stanislaus County, California

Figure 3.11-5

Predicted Shooting Range Noise Contours – Partial Enclosure (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Building
- Existing Sound Wall
- 8-foot Sound Wall
- 10-Foot Sound Wall
- 20-Foot Sound Wall
- 25-Foot Sound Wall

Scale 1:725

0 250 500 1000 1500 2000 feet

N

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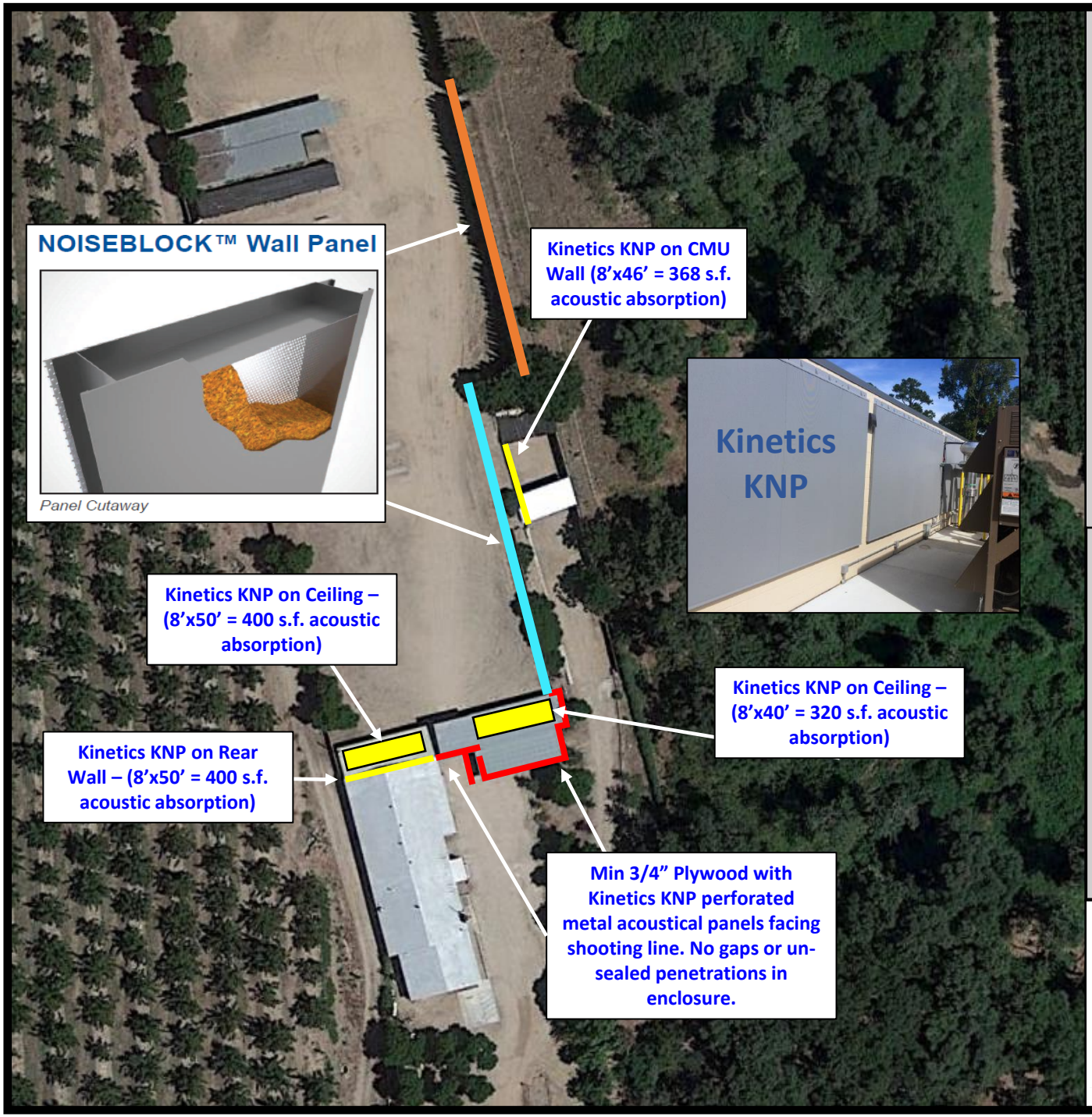

River Walk Specific Plan EIR

City of Riverbank, California

Figure 3.11-6

Full Shooting Range Noise Control Measures

Legend

- : 20-foot Tall Sound Wall
- : 25-foot Tall Sound Wall
- : Shooting Range Enclosure
- : Kinetics KNP Acoustically Absorptive Panels on Existing Wall or Ceiling

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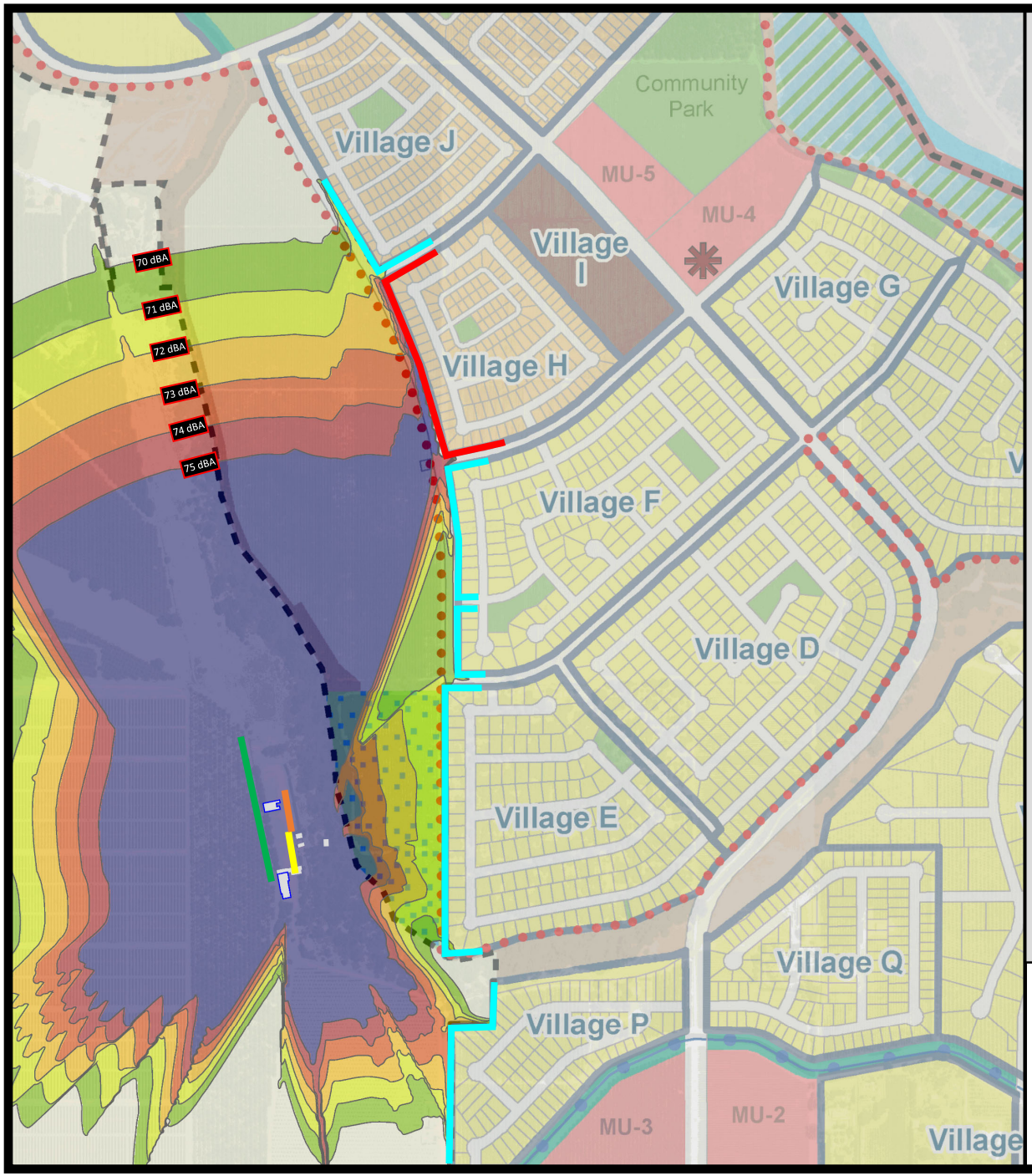

River Walk Specific Plan EIR

Stanislaus County, California

Figure 3.11-7

Predicted Shooting Range Noise Contours – Complete Enclosure (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Building
- Existing Sound Wall
- 8-foot Sound Wall
- 10-Foot Sound Wall
- 20-Foot Sound Wall
- 25-Foot Sound Wall

Scale 1:725

0 250 500 1000 1500 2000 feet

N

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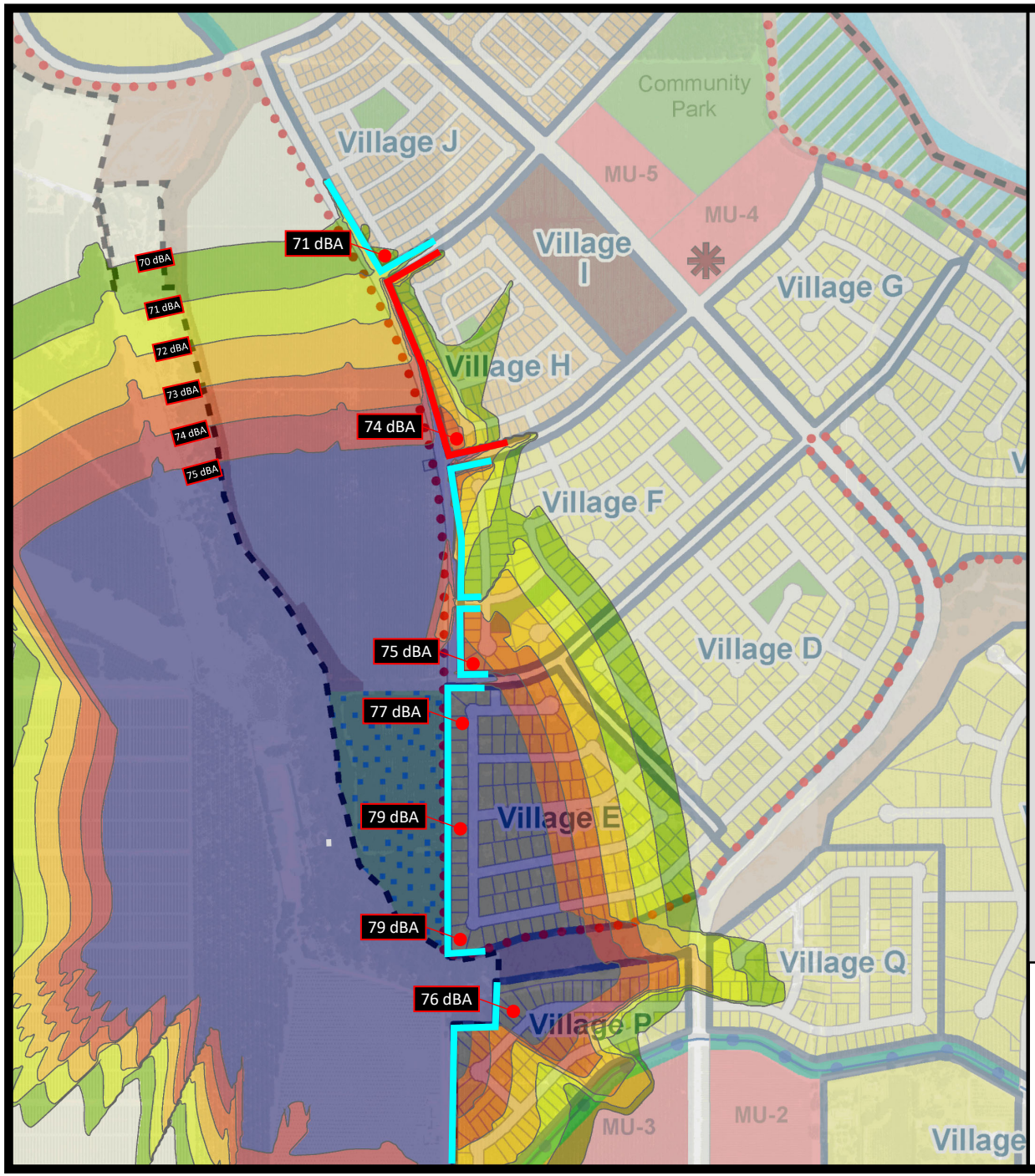

River Walk Specific Plan EIR

Stanislaus County, California

Figure 3.11-8

Predicted Shooting Range Noise Contours – Community Sound Walls Only (dBA L_{max})

Noise Level. dB(A)
- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend
- 8-foot Sound Wall
- 10-Foot Sound Wall

Scale 1:725

0 250 500 1000 1500 2000 feet

N

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Acoustics • Noise • Vibration

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Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

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Appendix B: Ambient Noise Measurement Results

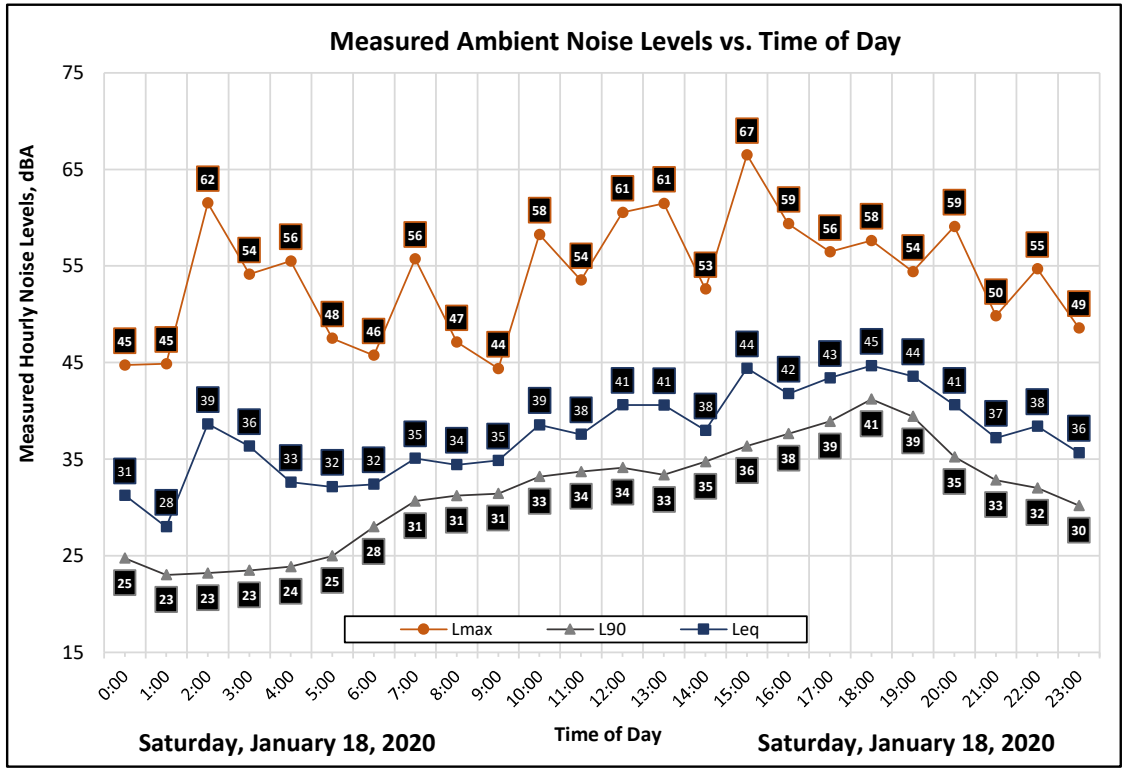


Appendix B1: Continuous Noise Monitoring Results

Site: LT-1
Project: Riverwalk Specific Plan EIR
Meter: LDL 820-1
Location: Northern Project Boundary
Calibrator: CAL200
Coordinates: 37.7537379°, -120.9930462 °

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, January 18, 2020	0:00	31	45	29	25
Saturday, January 18, 2020	1:00	28	45	26	23
Saturday, January 18, 2020	2:00	39	62	27	23
Saturday, January 18, 2020	3:00	36	54	27	23
Saturday, January 18, 2020	4:00	33	56	28	24
Saturday, January 18, 2020	5:00	32	48	30	25
Saturday, January 18, 2020	6:00	32	46	31	28
Saturday, January 18, 2020	7:00	35	56	34	31
Saturday, January 18, 2020	8:00	34	47	34	31
Saturday, January 18, 2020	9:00	35	44	34	31
Saturday, January 18, 2020	10:00	39	58	36	33
Saturday, January 18, 2020	11:00	38	54	36	34
Saturday, January 18, 2020	12:00	41	61	37	34
Saturday, January 18, 2020	13:00	41	61	36	33
Saturday, January 18, 2020	14:00	38	53	37	35
Saturday, January 18, 2020	15:00	44	67	39	36
Saturday, January 18, 2020	16:00	42	59	40	38
Saturday, January 18, 2020	17:00	43	56	42	39
Saturday, January 18, 2020	18:00	45	58	44	41
Saturday, January 18, 2020	19:00	44	54	43	39
Saturday, January 18, 2020	20:00	41	59	39	35
Saturday, January 18, 2020	21:00	37	50	35	33
Saturday, January 18, 2020	22:00	38	55	35	32
Saturday, January 18, 2020	23:00	36	49	34	30

Statistics	Leq	Lmax	L50	L90
Day Average	41	56	38	35
Night Average	34	51	30	26
Day Low	34	44	34	31
Day High	45	67	44	41
Night Low	28	45	26	23
Night High	39	62	35	32
Ldn	42	Day %		89
CNEL	43	Night %		11



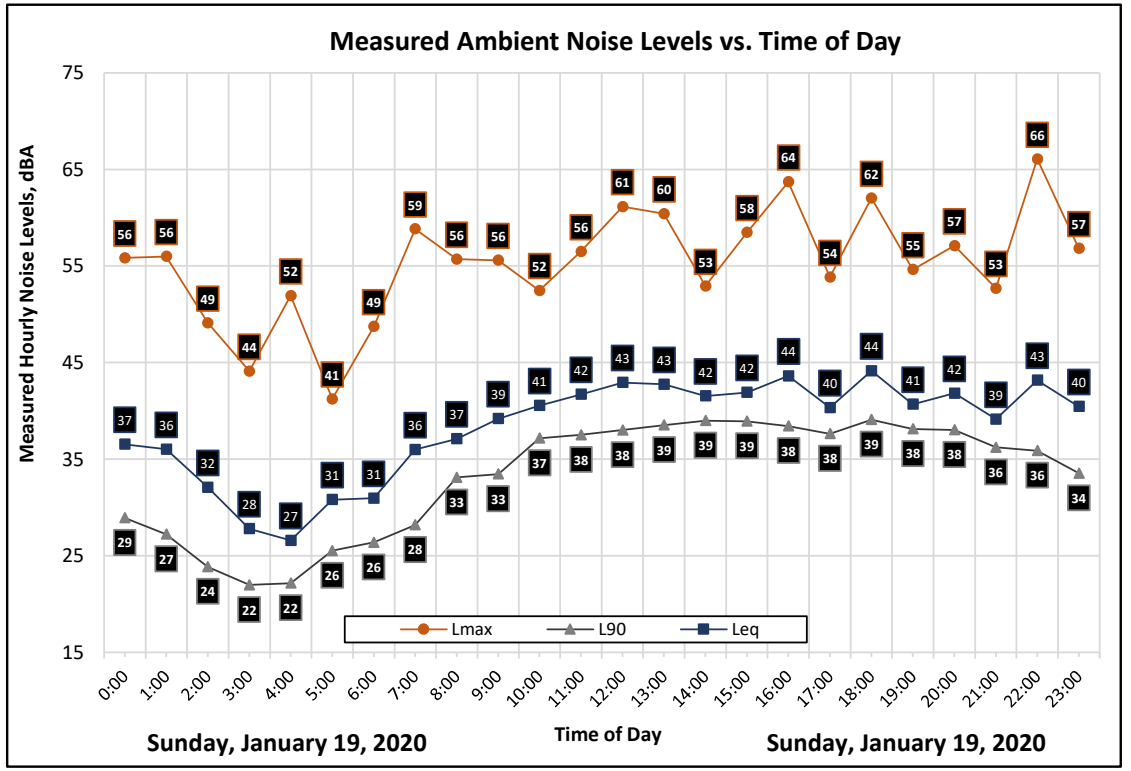


Appendix B2: Continuous Noise Monitoring Results

Site: LT-1
Project: Riverwalk Specific Plan EIR
Meter: LDL 820-1
Location: Northern Project Boundary
Calibrator: CAL200
Coordinates: 37.7537379°, -120.9930462 °

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, January 19, 2020	0:00	37	56	34	29
Sunday, January 19, 2020	1:00	36	56	31	27
Sunday, January 19, 2020	2:00	32	49	28	24
Sunday, January 19, 2020	3:00	28	44	25	22
Sunday, January 19, 2020	4:00	27	52	25	22
Sunday, January 19, 2020	5:00	31	41	30	26
Sunday, January 19, 2020	6:00	31	49	29	26
Sunday, January 19, 2020	7:00	36	59	33	28
Sunday, January 19, 2020	8:00	37	56	35	33
Sunday, January 19, 2020	9:00	39	56	37	33
Sunday, January 19, 2020	10:00	41	52	39	37
Sunday, January 19, 2020	11:00	42	56	40	38
Sunday, January 19, 2020	12:00	43	61	40	38
Sunday, January 19, 2020	13:00	43	60	40	39
Sunday, January 19, 2020	14:00	42	53	40	39
Sunday, January 19, 2020	15:00	42	58	40	39
Sunday, January 19, 2020	16:00	44	64	40	38
Sunday, January 19, 2020	17:00	40	54	39	38
Sunday, January 19, 2020	18:00	44	62	41	39
Sunday, January 19, 2020	19:00	41	55	40	38
Sunday, January 19, 2020	20:00	42	57	40	38
Sunday, January 19, 2020	21:00	39	53	38	36
Sunday, January 19, 2020	22:00	43	66	38	36
Sunday, January 19, 2020	23:00	40	57	37	34

Statistics	Leq	Lmax	L50	L90
Day Average	41	57	39	37
Night Average	35	52	31	27
Day Low	36	52	33	28
Day High	44	64	41	39
Night Low	27	41	25	22
Night High	40	66	38	36
Ldn	43	Day %		89
CNEL	43	Night %		11





Appendix B3: Continuous Noise Monitoring Results

Site: LT-1

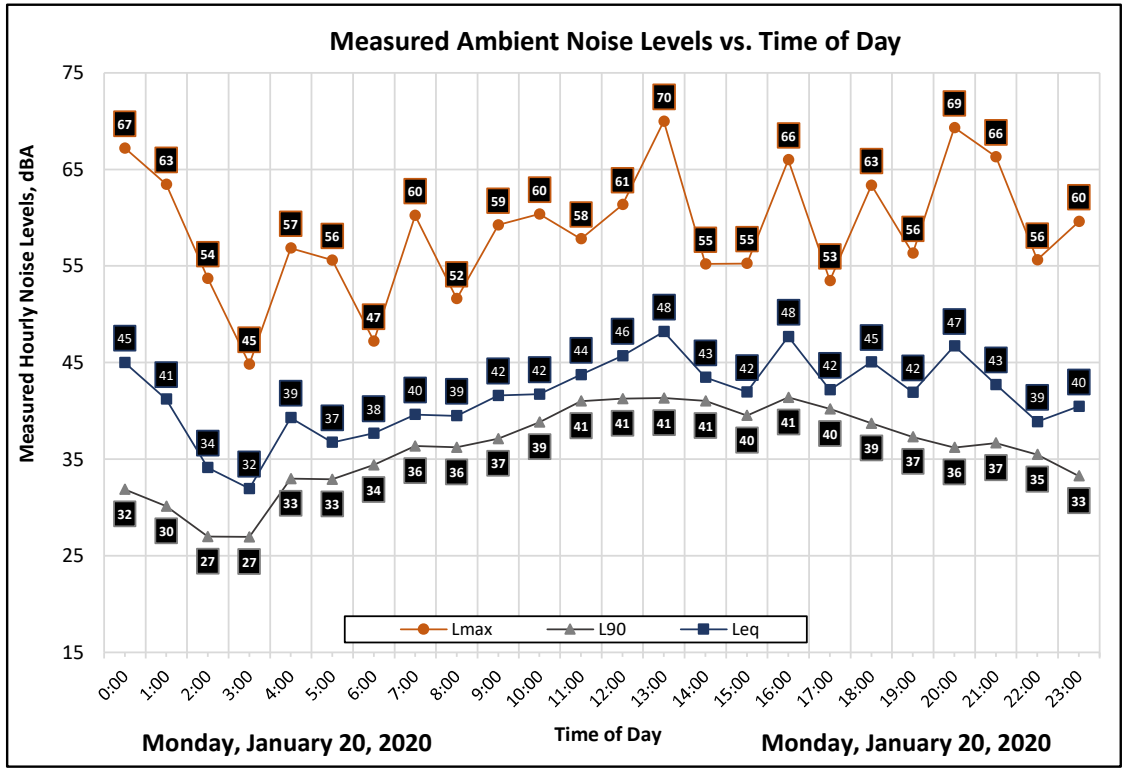
Project: Riverwalk Specific Plan EIR **Meter:** LDL 820-1

Location: Northern Project Boundary **Calibrator:** CAL200

Coordinates: 37.7537379°, -120.9930462 °

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, January 20, 2020	0:00	45	67	36	32
Monday, January 20, 2020	1:00	41	63	33	30
Monday, January 20, 2020	2:00	34	54	29	27
Monday, January 20, 2020	3:00	32	45	30	27
Monday, January 20, 2020	4:00	39	57	35	33
Monday, January 20, 2020	5:00	37	56	35	33
Monday, January 20, 2020	6:00	38	47	37	34
Monday, January 20, 2020	7:00	40	60	38	36
Monday, January 20, 2020	8:00	39	52	38	36
Monday, January 20, 2020	9:00	42	59	40	37
Monday, January 20, 2020	10:00	42	60	40	39
Monday, January 20, 2020	11:00	44	58	43	41
Monday, January 20, 2020	12:00	46	61	43	41
Monday, January 20, 2020	13:00	48	70	43	41
Monday, January 20, 2020	14:00	43	55	43	41
Monday, January 20, 2020	15:00	42	55	41	40
Monday, January 20, 2020	16:00	48	66	44	41
Monday, January 20, 2020	17:00	42	53	42	40
Monday, January 20, 2020	18:00	45	63	42	39
Monday, January 20, 2020	19:00	42	56	39	37
Monday, January 20, 2020	20:00	47	69	39	36
Monday, January 20, 2020	21:00	43	66	40	37
Monday, January 20, 2020	22:00	39	56	38	35
Monday, January 20, 2020	23:00	40	60	36	33

Statistics	Leq	Lmax	L50	L90
Day Average	44	60	41	39
Night Average	40	56	34	32
Day Low	39	52	38	36
Day High	48	70	44	41
Night Low	32	45	29	27
Night High	45	67	38	35
Ldn	47	Day %		84
CNEL	48	Night %		16



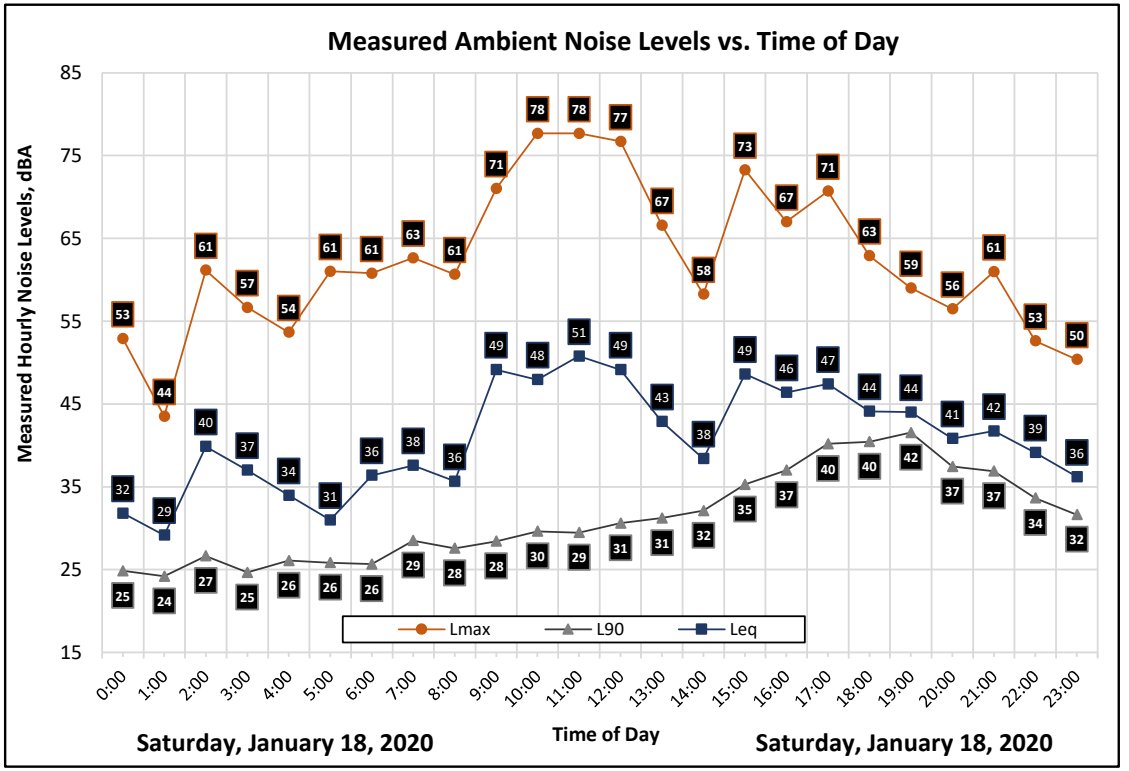


Appendix B4: Continuous Noise Monitoring Results

Site: LT-2
Project: Riverwalk Specific Plan EIR
Location: Southern Project Boundary
Coordinates: 37.7395542°, -120.9835220°
Meter: LDL 812-2
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, January 18, 2020	0:00	32	53	28	25
Saturday, January 18, 2020	1:00	29	44	27	24
Saturday, January 18, 2020	2:00	40	61	30	27
Saturday, January 18, 2020	3:00	37	57	28	25
Saturday, January 18, 2020	4:00	34	54	28	26
Saturday, January 18, 2020	5:00	31	61	28	26
Saturday, January 18, 2020	6:00	36	61	28	26
Saturday, January 18, 2020	7:00	38	63	32	29
Saturday, January 18, 2020	8:00	36	61	30	28
Saturday, January 18, 2020	9:00	49	71	31	28
Saturday, January 18, 2020	10:00	48	78	32	30
Saturday, January 18, 2020	11:00	51	78	31	29
Saturday, January 18, 2020	12:00	49	77	33	31
Saturday, January 18, 2020	13:00	43	67	34	31
Saturday, January 18, 2020	14:00	38	58	35	32
Saturday, January 18, 2020	15:00	49	73	38	35
Saturday, January 18, 2020	16:00	46	67	39	37
Saturday, January 18, 2020	17:00	47	71	43	40
Saturday, January 18, 2020	18:00	44	63	43	40
Saturday, January 18, 2020	19:00	44	59	43	42
Saturday, January 18, 2020	20:00	41	56	40	37
Saturday, January 18, 2020	21:00	42	61	39	37
Saturday, January 18, 2020	22:00	39	53	37	34
Saturday, January 18, 2020	23:00	36	50	35	32

Statistics	Leq	Lmax	L50	L90
Day Average	46	67	36	34
Night Average	36	55	30	27
Day Low	36	56	30	28
Day High	51	78	43	42
Night Low	29	44	27	24
Night High	40	61	37	34
Ldn	46	Day %		96
CNEL	46	Night %		4



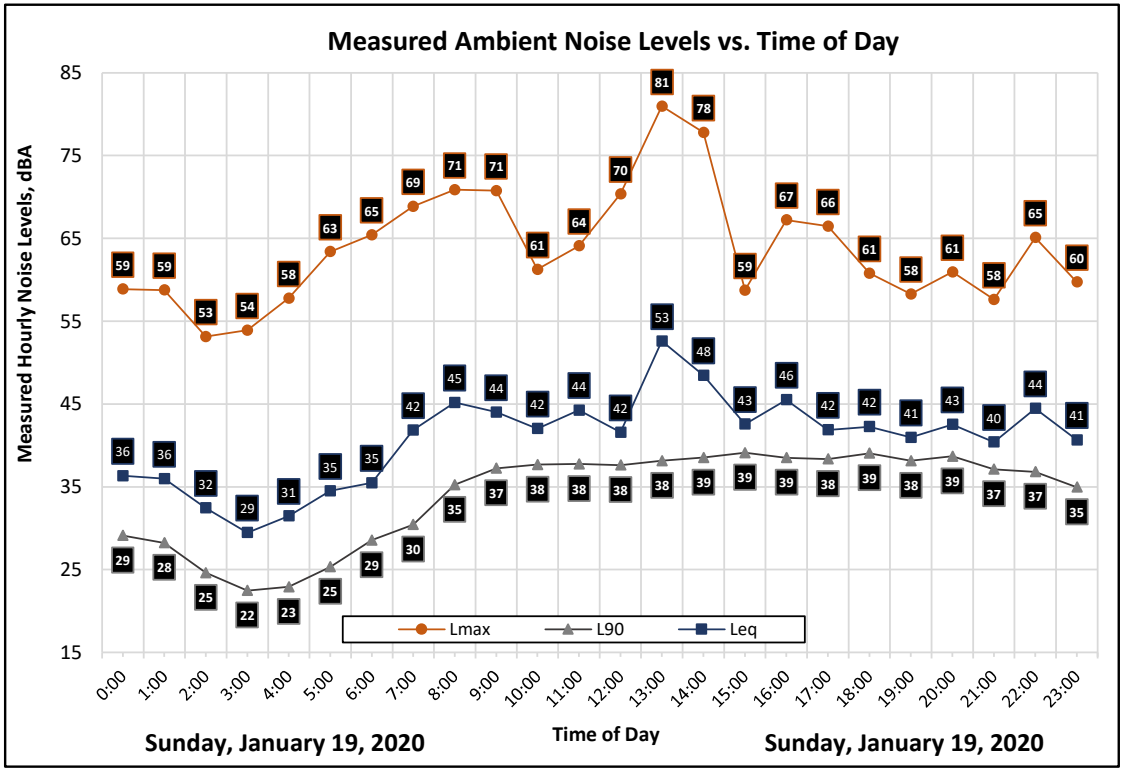


Appendix B5: Continuous Noise Monitoring Results

Site: LT-2
Project: Riverwalk Specific Plan EIR
Location: Southern Project Boundary
Coordinates: 37.7395542°, -120.9835220°
Meter: LDL 812-2
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, January 19, 2020	0:00	36	59	34	29
Sunday, January 19, 2020	1:00	36	59	32	28
Sunday, January 19, 2020	2:00	32	53	29	25
Sunday, January 19, 2020	3:00	29	54	26	22
Sunday, January 19, 2020	4:00	31	58	27	23
Sunday, January 19, 2020	5:00	35	63	31	25
Sunday, January 19, 2020	6:00	35	65	32	29
Sunday, January 19, 2020	7:00	42	69	35	30
Sunday, January 19, 2020	8:00	45	71	39	35
Sunday, January 19, 2020	9:00	44	71	40	37
Sunday, January 19, 2020	10:00	42	61	40	38
Sunday, January 19, 2020	11:00	44	64	40	38
Sunday, January 19, 2020	12:00	42	70	40	38
Sunday, January 19, 2020	13:00	53	81	40	38
Sunday, January 19, 2020	14:00	48	78	40	39
Sunday, January 19, 2020	15:00	43	59	40	39
Sunday, January 19, 2020	16:00	46	67	41	39
Sunday, January 19, 2020	17:00	42	66	40	38
Sunday, January 19, 2020	18:00	42	61	41	39
Sunday, January 19, 2020	19:00	41	58	40	38
Sunday, January 19, 2020	20:00	43	61	40	39
Sunday, January 19, 2020	21:00	40	58	39	37
Sunday, January 19, 2020	22:00	44	65	39	37
Sunday, January 19, 2020	23:00	41	60	37	35

Statistics	Leq	Lmax	L50	L90
Day Average	45	66	40	37
Night Average	36	60	32	28
Day Low	40	58	35	30
Day High	53	81	41	39
Night Low	29	53	26	22
Night High	41	65	39	37
Ldn	45	Day %		94
CNEL	46	Night %		6





Appendix B6: Continuous Noise Monitoring Results

Site: LT-2

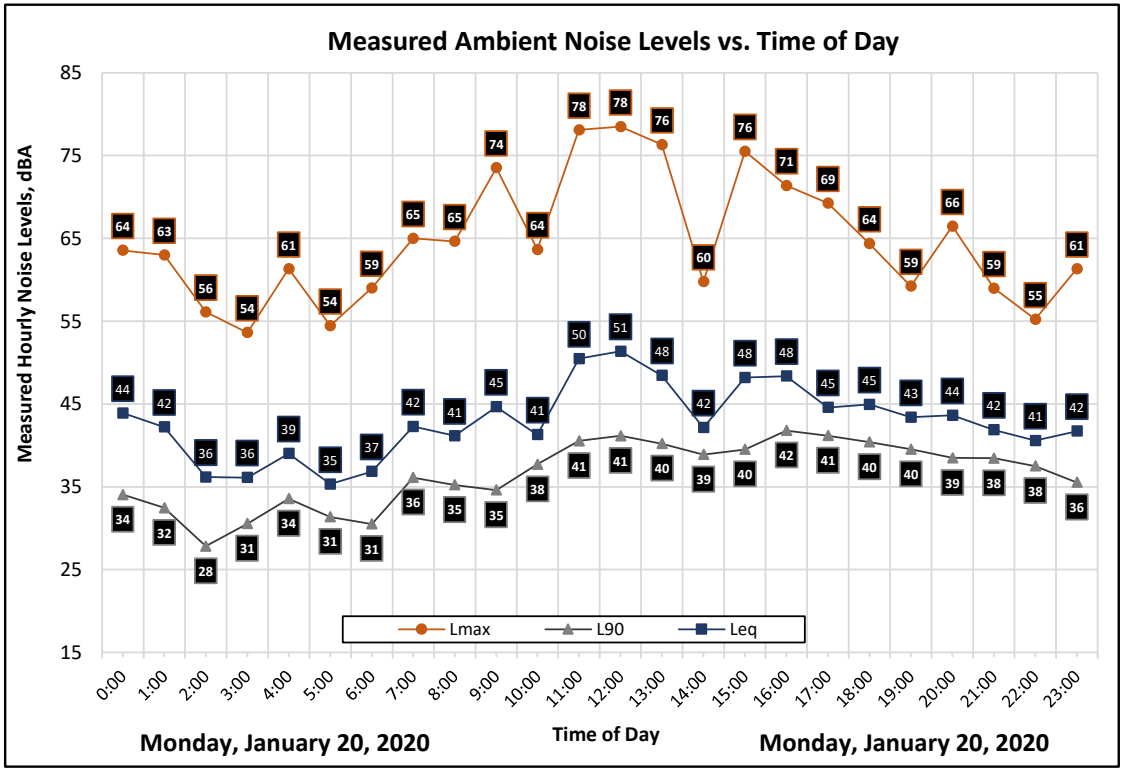
Project: Riverwalk Specific Plan EIR **Meter:** LDL 812-2

Location: Southern Project Boundary **Calibrator:** CAL200

Coordinates: 37.7395542°, -120.9835220°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, January 20, 2020	0:00	44	64	36	34
Monday, January 20, 2020	1:00	42	63	35	32
Monday, January 20, 2020	2:00	36	56	31	28
Monday, January 20, 2020	3:00	36	54	34	31
Monday, January 20, 2020	4:00	39	61	36	34
Monday, January 20, 2020	5:00	35	54	34	31
Monday, January 20, 2020	6:00	37	59	35	31
Monday, January 20, 2020	7:00	42	65	38	36
Monday, January 20, 2020	8:00	41	65	38	35
Monday, January 20, 2020	9:00	45	74	38	35
Monday, January 20, 2020	10:00	41	64	40	38
Monday, January 20, 2020	11:00	50	78	43	41
Monday, January 20, 2020	12:00	51	78	43	41
Monday, January 20, 2020	13:00	48	76	42	40
Monday, January 20, 2020	14:00	42	60	41	39
Monday, January 20, 2020	15:00	48	76	41	40
Monday, January 20, 2020	16:00	48	71	43	42
Monday, January 20, 2020	17:00	45	69	43	41
Monday, January 20, 2020	18:00	45	64	43	40
Monday, January 20, 2020	19:00	43	59	42	40
Monday, January 20, 2020	20:00	44	66	41	39
Monday, January 20, 2020	21:00	42	59	41	38
Monday, January 20, 2020	22:00	41	55	40	38
Monday, January 20, 2020	23:00	42	61	38	36

Statistics	Leq	Lmax	L50	L90
Day Average	46	68	41	39
Night Average	40	59	35	33
Day Low	41	59	38	35
Day High	51	78	43	42
Night Low	35	54	31	28
Night High	44	64	40	38
Ldn	48	Day %		89
CNEL	48	Night %		11



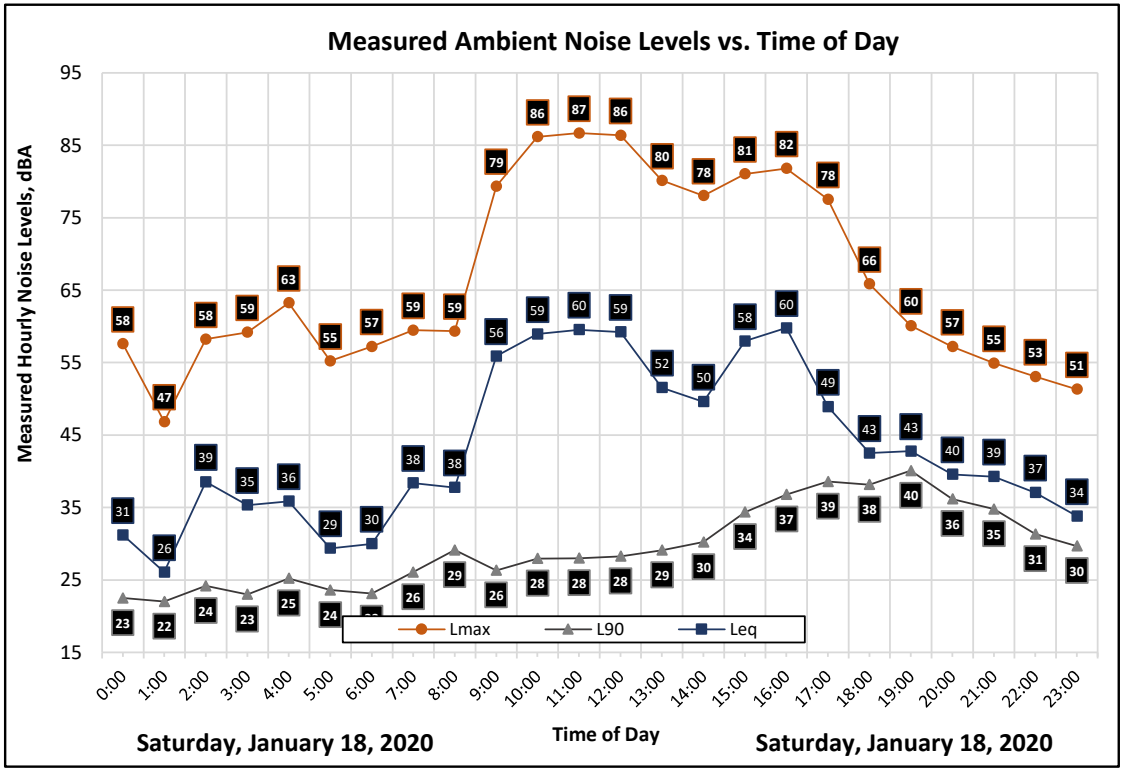


Appendix B7: Continuous Noise Monitoring Results

Site: LT-3
Project: Riverwalk Specific Plan EIR
Location: Southern Project Boundary
Coordinates: 37.737769°, -120.983312°
Meter: LDL 812-1
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, January 18, 2020	0:00	31	58	26	23
Saturday, January 18, 2020	1:00	26	47	24	22
Saturday, January 18, 2020	2:00	39	58	27	24
Saturday, January 18, 2020	3:00	35	59	26	23
Saturday, January 18, 2020	4:00	36	63	29	25
Saturday, January 18, 2020	5:00	29	55	26	24
Saturday, January 18, 2020	6:00	30	57	25	23
Saturday, January 18, 2020	7:00	38	59	33	26
Saturday, January 18, 2020	8:00	38	59	33	29
Saturday, January 18, 2020	9:00	56	79	28	26
Saturday, January 18, 2020	10:00	59	86	30	28
Saturday, January 18, 2020	11:00	60	87	30	28
Saturday, January 18, 2020	12:00	59	86	30	28
Saturday, January 18, 2020	13:00	52	80	31	29
Saturday, January 18, 2020	14:00	50	78	33	30
Saturday, January 18, 2020	15:00	58	81	37	34
Saturday, January 18, 2020	16:00	60	82	39	37
Saturday, January 18, 2020	17:00	49	78	41	39
Saturday, January 18, 2020	18:00	43	66	40	38
Saturday, January 18, 2020	19:00	43	60	42	40
Saturday, January 18, 2020	20:00	40	57	38	36
Saturday, January 18, 2020	21:00	39	55	37	35
Saturday, January 18, 2020	22:00	37	53	35	31
Saturday, January 18, 2020	23:00	34	51	32	30

Statistics	Leq	Lmax	L50	L90
Day Average	55	73	35	32
Night Average	34	56	28	25
Day Low	38	55	28	26
Day High	60	87	42	40
Night Low	26	47	24	22
Night High	39	63	35	31
Ldn	53	Day %		100
CNEL	53	Night %		0



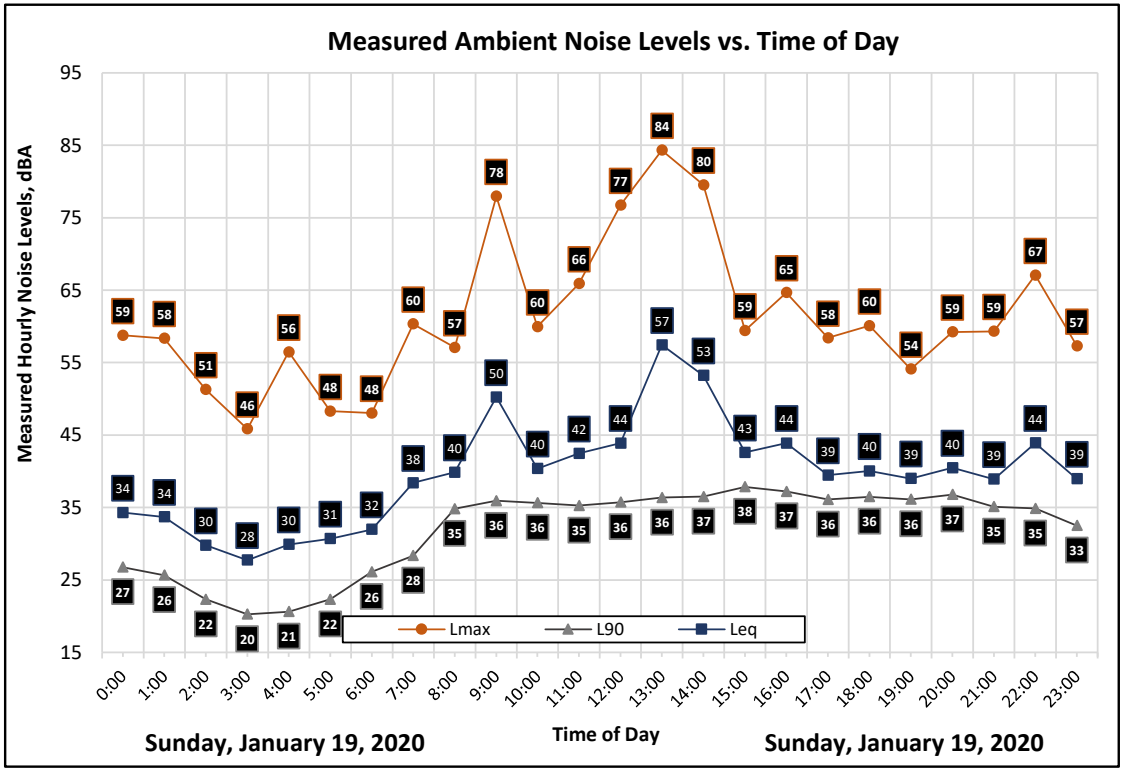


Appendix B8: Continuous Noise Monitoring Results

Site: LT-3
Project: Riverwalk Specific Plan EIR
Location: Southern Project Boundary
Coordinates: 37.737769°, -120.983312°
Meter: LDL 812-1
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, January 19, 2020	0:00	34	59	31	27
Sunday, January 19, 2020	1:00	34	58	29	26
Sunday, January 19, 2020	2:00	30	51	26	22
Sunday, January 19, 2020	3:00	28	46	23	20
Sunday, January 19, 2020	4:00	30	56	25	21
Sunday, January 19, 2020	5:00	31	48	28	22
Sunday, January 19, 2020	6:00	32	48	30	26
Sunday, January 19, 2020	7:00	38	60	34	28
Sunday, January 19, 2020	8:00	40	57	38	35
Sunday, January 19, 2020	9:00	50	78	39	36
Sunday, January 19, 2020	10:00	40	60	38	36
Sunday, January 19, 2020	11:00	42	66	37	35
Sunday, January 19, 2020	12:00	44	77	38	36
Sunday, January 19, 2020	13:00	57	84	38	36
Sunday, January 19, 2020	14:00	53	80	38	37
Sunday, January 19, 2020	15:00	43	59	40	38
Sunday, January 19, 2020	16:00	44	65	40	37
Sunday, January 19, 2020	17:00	39	58	38	36
Sunday, January 19, 2020	18:00	40	60	38	36
Sunday, January 19, 2020	19:00	39	54	38	36
Sunday, January 19, 2020	20:00	40	59	38	37
Sunday, January 19, 2020	21:00	39	59	37	35
Sunday, January 19, 2020	22:00	44	67	37	35
Sunday, January 19, 2020	23:00	39	57	35	33

Statistics	Leq	Lmax	L50	L90
Day Average	48	65	38	36
Night Average	34	55	29	26
Day Low	38	54	34	28
Day High	57	84	40	38
Night Low	28	46	23	20
Night High	39	67	37	35
Ldn	47	Day %		98
CNEL	47	Night %		2



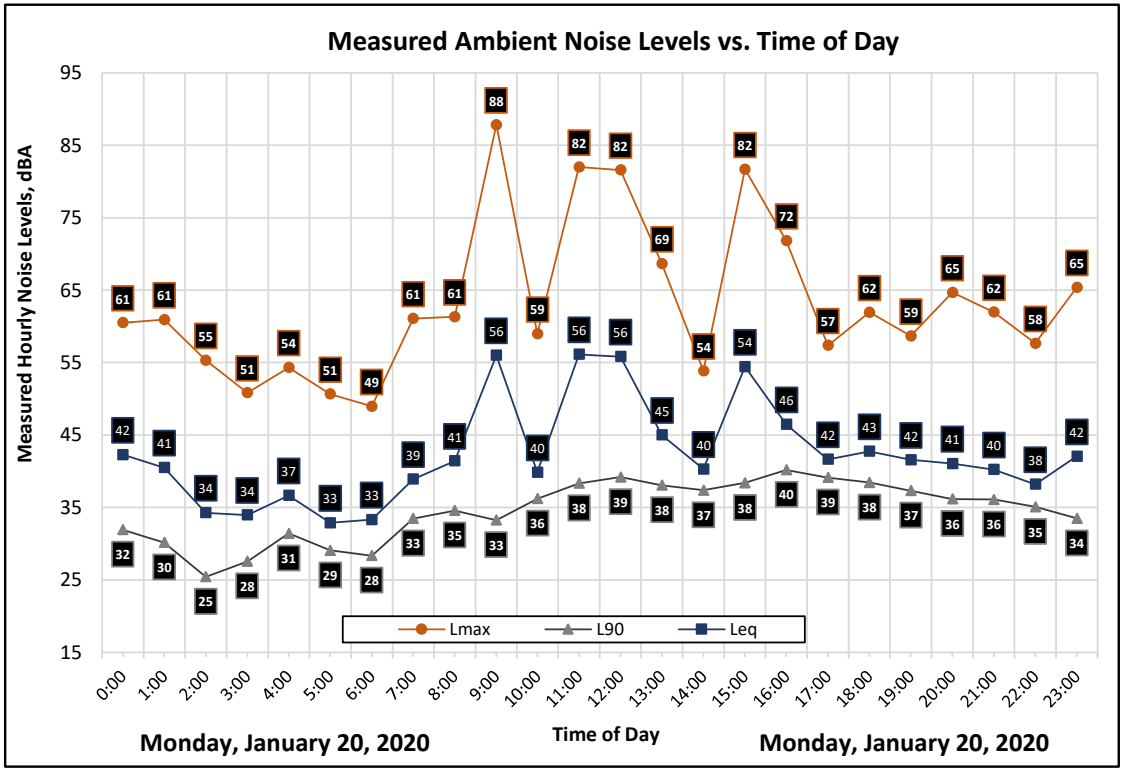


Appendix B9: Continuous Noise Monitoring Results

Site: LT-3
Project: Riverwalk Specific Plan EIR
Location: Southern Project Boundary
Coordinates: 37.737769°, -120.983312°
Meter: LDL 812-1
Calibrator: CAL200

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, January 20, 2020	0:00	42	61	34	32
Monday, January 20, 2020	1:00	41	61	33	30
Monday, January 20, 2020	2:00	34	55	29	25
Monday, January 20, 2020	3:00	34	51	32	28
Monday, January 20, 2020	4:00	37	54	34	31
Monday, January 20, 2020	5:00	33	51	31	29
Monday, January 20, 2020	6:00	33	49	32	28
Monday, January 20, 2020	7:00	39	61	36	33
Monday, January 20, 2020	8:00	41	61	38	35
Monday, January 20, 2020	9:00	56	88	37	33
Monday, January 20, 2020	10:00	40	59	38	36
Monday, January 20, 2020	11:00	56	82	41	38
Monday, January 20, 2020	12:00	56	82	41	39
Monday, January 20, 2020	13:00	45	69	39	38
Monday, January 20, 2020	14:00	40	54	39	37
Monday, January 20, 2020	15:00	54	82	40	38
Monday, January 20, 2020	16:00	46	72	42	40
Monday, January 20, 2020	17:00	42	57	41	39
Monday, January 20, 2020	18:00	43	62	40	38
Monday, January 20, 2020	19:00	42	59	39	37
Monday, January 20, 2020	20:00	41	65	38	36
Monday, January 20, 2020	21:00	40	62	38	36
Monday, January 20, 2020	22:00	38	58	37	35
Monday, January 20, 2020	23:00	42	65	36	34

Statistics	Leq	Lmax	L50	L90
Day Average	50	68	39	37
Night Average	39	56	33	30
Day Low	39	54	36	33
Day High	56	88	42	40
Night Low	33	49	29	25
Night High	42	65	37	35
Ldn	50	Day %		97
CNEL	50	Night %		3





Appendix B10 : Short Term Noise Monitoring Results

Site: ST-1
Project: Riverwalk Specific Plan and EIR
Location: Northern Project Boundary
Coordinates: 37.7466577°, -120.9864916°

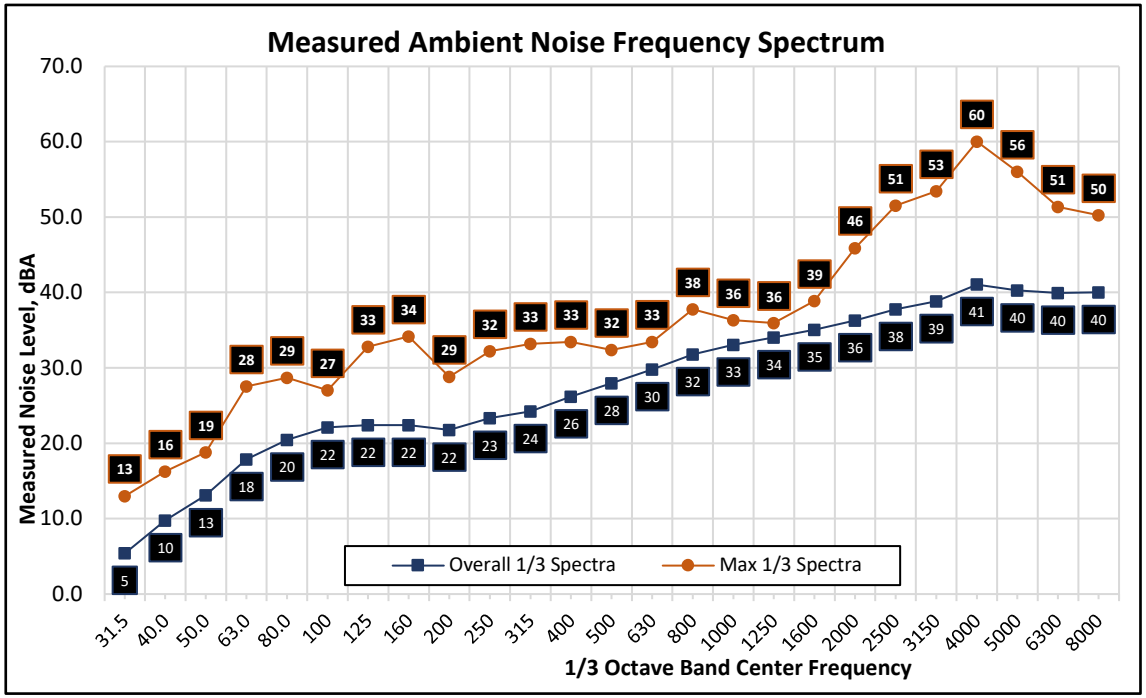
Meter: LDL 831-3
Calibrator: CAL200

Start: 2020-01-17 13:13:13
Stop: 2020-01-17 13:25:18
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	42
L_{max}:	63
L_{min}:	32
L_{50}:	36
L_{90}:	34

Notes





Appendix B11 : Short Term Noise Monitoring Results

Site: ST-2
Project: Riverwalk Specific Plan and EIR
Location: Western Project Boundary
Coordinates: 37.7466577°, -120.9864916°

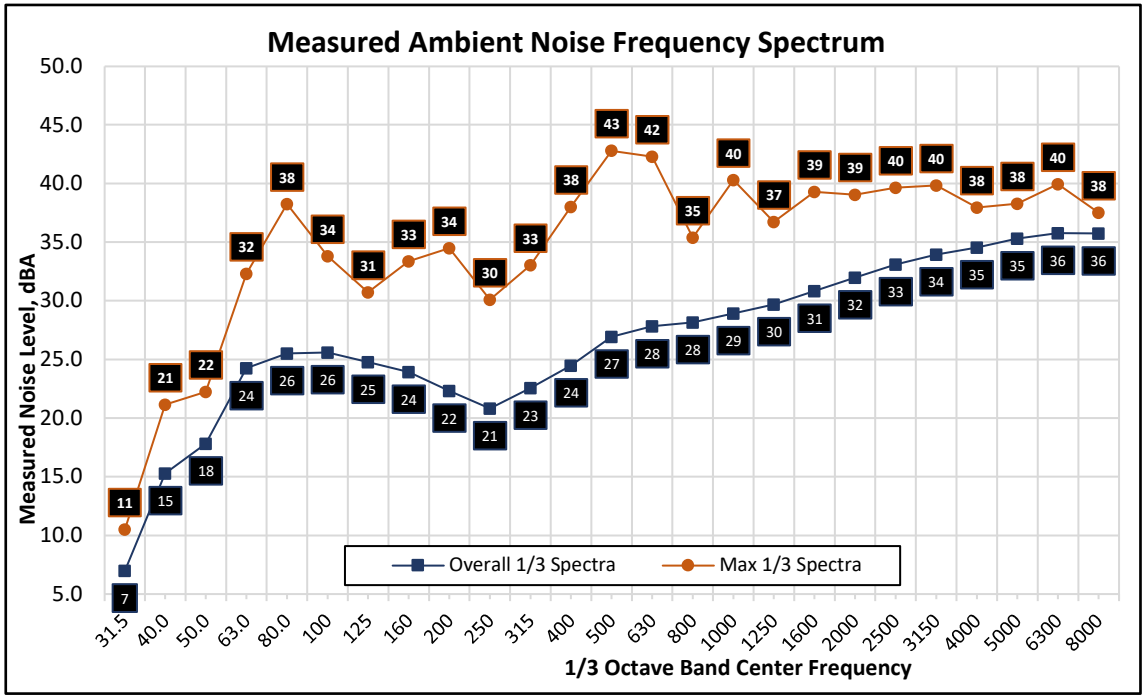
Meter: LDL 831-3
Calibrator: CAL200

Start: 2020-01-17 11:15:49
Stop: 2020-01-17 11:25:49
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	37
L_{max}:	47
L_{min}:	32
L_{50}:	35
L_{90}:	34

Notes





Appendix B12 : Short Term Noise Monitoring Results

Site: ST-3
Project: Riverwalk Specific Plan and EIR
Location: Eastern Project Boundary
Coordinates: 37.7470972°, -120.9729645°

Meter: LDL 831-3
Calibrator: CAL200

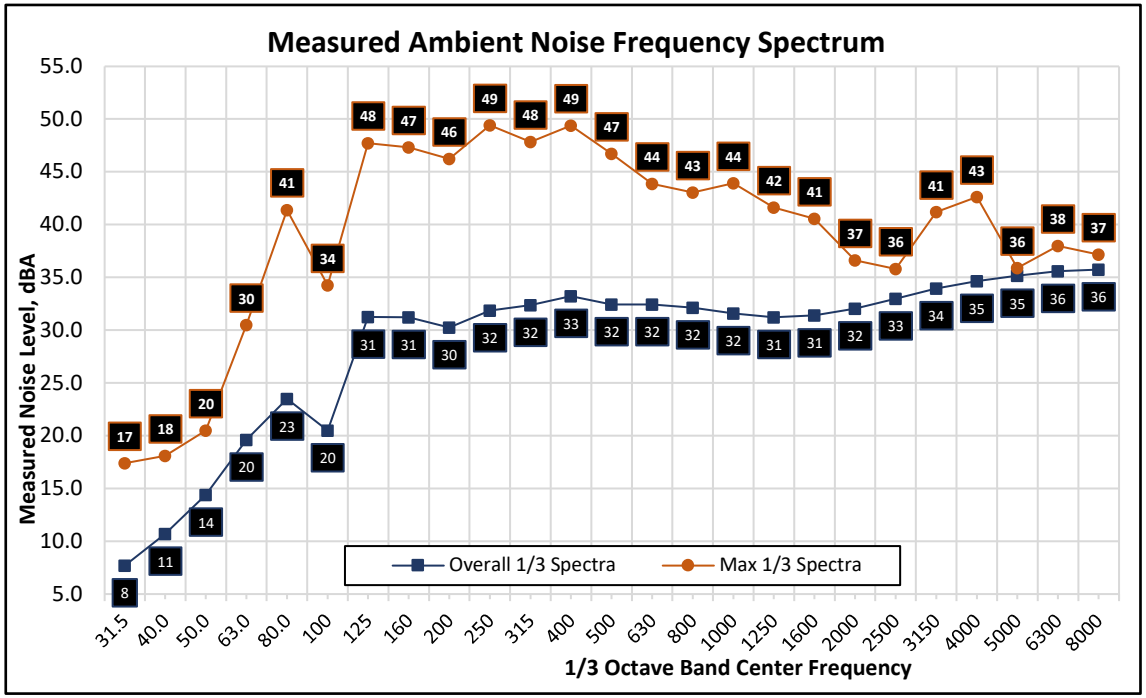
Start: 2020-01-17 12:45:21
Stop: 2020-01-17 12:55:21
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	42
L_{max}:	54
L_{min}:	34
L_{50}:	37
L_{90}:	35

Notes

Patterson Road, train and gunshots audible. Lmax caused by gunshots from shotting range.





Appendix B13 : Short Term Noise Monitoring Results

Site: ST-4
Project: Riverwalk Specific Plan and EIR
Location: Southeastern Project Boundary
Coordinates: 37.7410069°, -120.9635503°

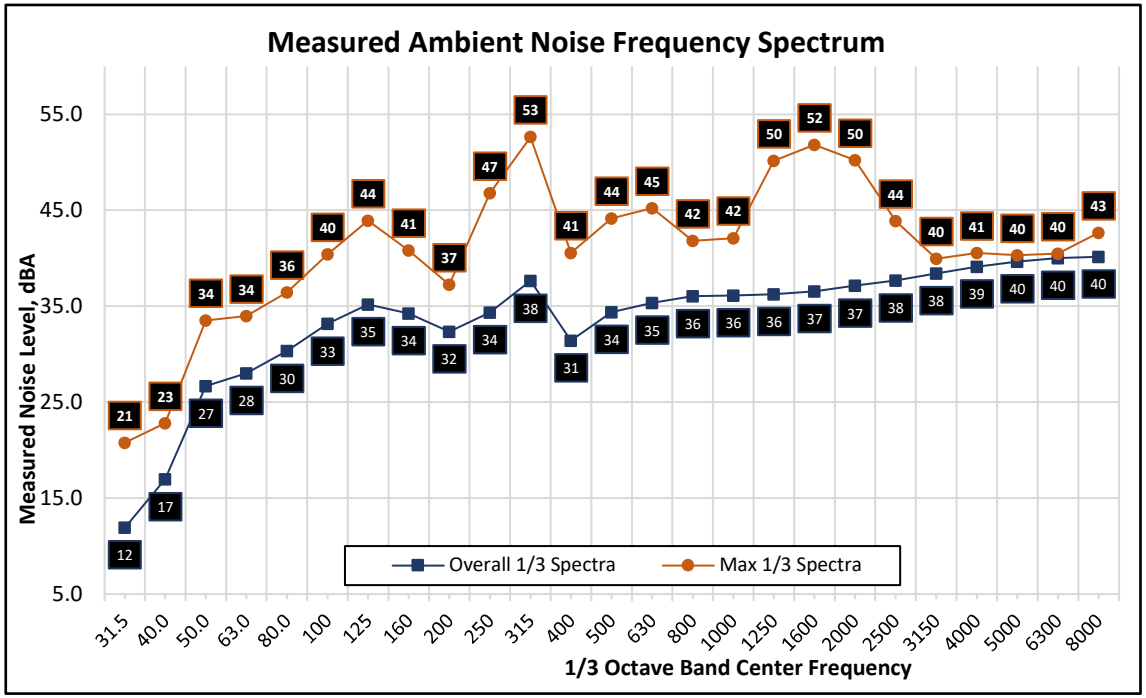
Meter: LDL 831-3
Calibrator: CAL200

Start: 2020-01-21 09:38:45
Stop: 2020-01-21 09:49:55
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	46
L_{max}:	57
L_{min}:	42
L_{50}:	45
L_{90}:	43

Notes





Appendix B14 : Short Term Noise Monitoring Results

Site: ST-5
Project: Riverwalk Specific Plan and EIR
Location: Southeastern Project Boundary
Coordinates: 37.7366711°, -120.9633588°

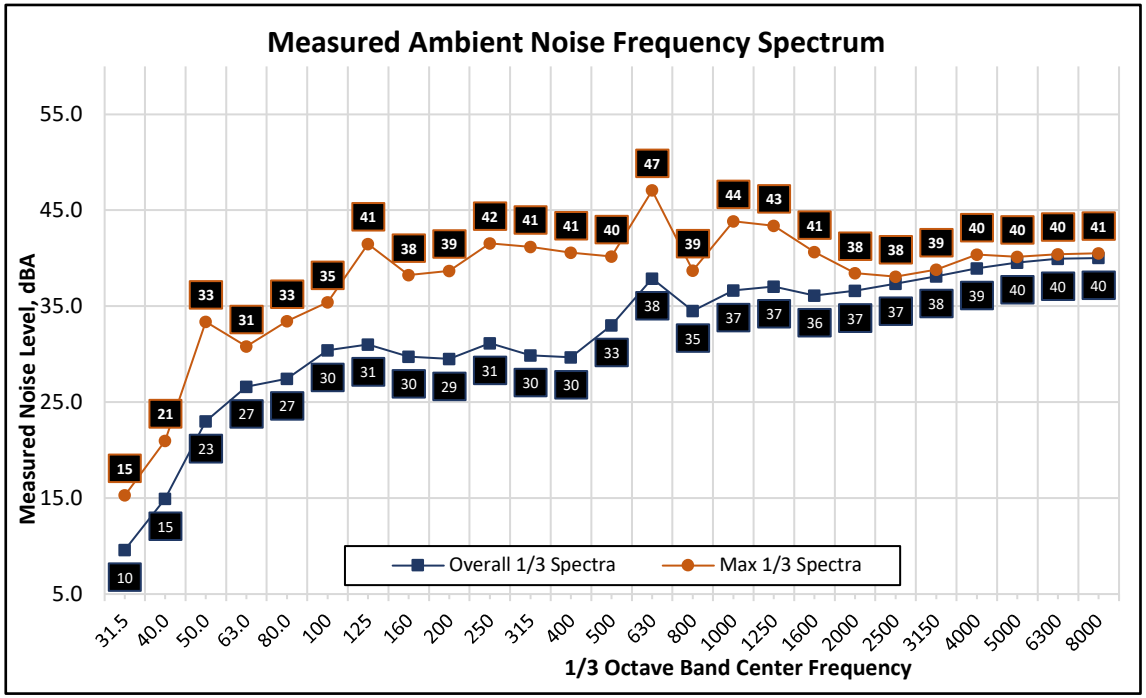
Meter: LDL 831-3
Calibrator: CAL200

Start: 2020-01-21 09:59:57
Stop: 2020-01-21 10:10:29
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	44
L_{max}:	50
L_{min}:	39
L_{50}:	44
L_{90}:	41

Notes





Appendix B15 : Short Term Noise Monitoring Results

Site: ST-6
Project: Riverwalk Specific Plan and EIR
Location: Southeastern Project Boundary
Coordinates: 37.7339660°, -120.9703789°

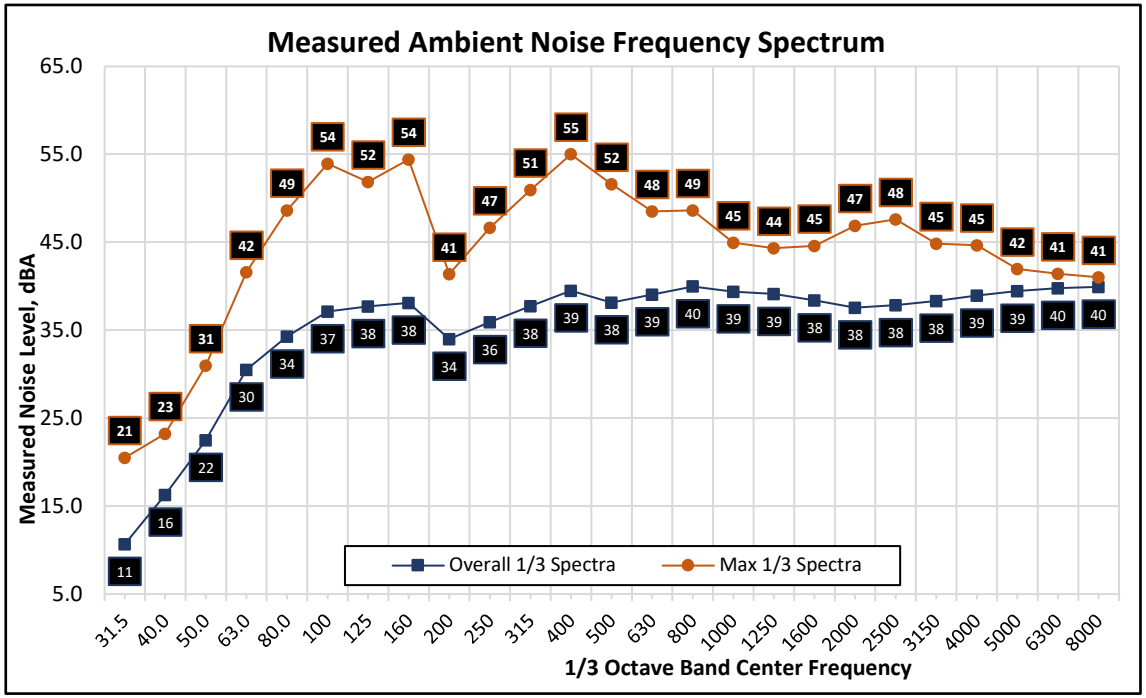
Meter: LDL 831-3
Calibrator: CAL200

Start: 2020-01-17 13:02:59
Stop: 2020-01-17 13:12:59
SLM: Model 831
Serial: 1329

Measurement Results, dBA

Duration:	0:10
L_{eq}:	49
L_{max}:	58
L_{min}:	37
L_{50}:	48
L_{90}:	44

Notes





Appendix C: Traffic Noise Calculation Inputs and Results



Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 191202
Description: River Walk Specific Plan EIR - Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	McHenry Avenue	Jones Rd to River Rd	12,930	84	0	16	1.0%	1.0%	40	90	0	148	69	32	63.2
2	McHenry Avenue	River Rd to Coffee Rd	18,205	84	0	16	1.0%	1.0%	45	110	0	225	105	49	64.7
3	McHenry Avenue	Coffee Rd to Stewart Rd	18,205	84	0	16	1.0%	1.0%	50	100	0	269	125	58	66.5
4	McHenry Avenue	Stewart Rd to Ladd Rd	18,830	84	0	16	1.0%	1.0%	50	75	0	276	128	59	68.5
5	McHenry Avenue (SR	Ladd Rd to Crawford Rd	14,795	84	0	16	3.0%	1.0%	45	30	0	208	97	45	72.6
6	McHenry Avenue (SR	Crawford Rd to Kiernan Ave (SR 219)	15,770	84	0	16	3.0%	1.0%	45	60	0	217	101	47	68.4
7	McHenry Avenue (SR	Kiernan Ave (SR 219) to Pelandale Ave	24,505	84	0	16	3.0%	1.0%	35	60	0	197	91	42	67.7
8	River Road	Murphy Rd to McHenry Ave	7,250	84	0	16	1.0%	1.0%	55	55	0	172	80	37	67.4
9	River Road	McHenry Ave to Harold Ave	5,285	84	0	16	1.0%	1.0%	55	50	0	139	65	30	66.7
10	Ladd Road	Stoddard Rd to Carver Rd	6,610	84	0	16	1.0%	1.0%	50	85	0	137	64	30	63.1
11	Ladd Road	Carver Rd to McHenry Ave	11,640	84	0	16	1.0%	1.0%	50	50	0	200	93	43	69.0
12	Patterson Road (SR 10	McHenry Ave to Coffee Rd	15,000	84	0	16	3.0%	1.0%	50	150	0	249	116	54	63.3
13	Patterson Road (SR 10	Coffee Rd to Oakdale Rd	15,810	84	0	16	3.0%	1.0%	45	50	-5	218	101	47	64.6
14	Patterson Road (SR 10	Oakdale Rd to Jackson Ave	21,275	84	0	16	3.0%	1.0%	45	95	0	265	123	57	66.7
15	Kiernan Avenue (SR 2:	Tully Rd to McHenry Ave	27,595	84	0	16	2.0%	7.0%	45	100	0	458	213	99	69.9
16	Claribel Road	McHenry Ave to Coffee Rd	27,870	84	0	16	1.0%	1.0%	55	80	0	422	196	91	70.8
17	Claribel Road	Coffee Rd to Oakdale Rd	25,865	84	0	16	1.0%	1.0%	55	80	-5	401	186	86	65.5
18	Skittone Road	Patterson Rd (SR 108) to Crawford Rd	270	84	0	16	1.0%	1.0%	50	60	0	16	8	4	51.5
19	Coffee Road	Patterson Rd (SR 108) to Crawford Rd	3,990	84	0	16	1.0%	1.0%	50	50	0	98	45	21	64.4
20	Coffee Road	Crawford Rd to relocated Claribel Rd	6,170	84	0	16	1.0%	1.0%	50	65	0	131	61	28	64.6
21	Coffee Road	Relocated Claribel Rd to Claribel - NCC	6,170	84	0	16	1.0%	1.0%	50	50	0	131	61	28	66.3
22	Coffee Road	Claribel - NCC to Claratina Ave	12,395	84	0	16	1.0%	1.0%	50	55	0	208	97	45	68.7
23	Oakdale Road	Patterson Rd (SR 108) to Morrill Rd	13,550	84	0	16	1.0%	1.0%	45	65	-5	185	86	40	61.8
24	Oakdale Road	Morrill Rd to Crawford Rd	13,800	84	0	16	1.0%	1.0%	45	50	-5	187	87	40	63.6
25	Oakdale Road	Crawford Rd to Claribel Rd	17,305	84	0	16	1.0%	1.0%	50	70	-5	260	121	56	63.6
26	Oakdale Road	Claribel Rd to Claratina Ave	18,815	84	0	16	1.0%	1.0%	50	95	0	275	128	59	66.9
27	Morrill Road	Coffee Rd to Oakdale Rd	2,475	84	0	16	1.0%	1.0%	50	45	0	71	33	15	63.0

SAXELBY ACOUSTICS
Acoustics · Noise · Vibration

Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 191202
Description: River Walk Specific Plan EIR - Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	McHenry Avenue	Jones Rd to River Rd	15,510	84	0	16	1.0%	1.0%	40	90	0	167	77	36	64.0
2	McHenry Avenue	River Rd to Coffee Rd	22,955	84	0	16	1.0%	1.0%	45	110	0	263	122	57	65.7
3	McHenry Avenue	Coffee Rd to Stewart Rd	24,410	84	0	16	1.0%	1.0%	50	100	0	328	152	71	67.7
4	McHenry Avenue	Stewart Rd to Ladd Rd	25,050	84	0	16	1.0%	1.0%	50	75	0	333	155	72	69.7
5	McHenry Avenue (SR	Ladd Rd to Crawford Rd	20,235	84	0	16	3.0%	1.0%	45	30	0	256	119	55	74.0
6	McHenry Avenue (SR	Crawford Rd to Kiernan Ave (SR 219)	21,385	84	0	16	3.0%	1.0%	45	60	0	266	124	57	69.7
7	McHenry Avenue (SR	Kiernan Ave (SR 219) to Pelandale Ave	28,670	84	0	16	3.0%	1.0%	35	60	0	219	102	47	68.4
8	River Road	Murphy Rd to McHenry Ave	8,990	84	0	16	1.0%	1.0%	55	55	0	198	92	43	68.4
9	River Road	McHenry Ave to Harold Ave	5,720	84	0	16	1.0%	1.0%	55	50	0	147	68	32	67.0
10	Ladd Road	Stoddard Rd to Carver Rd	9,235	84	0	16	1.0%	1.0%	50	85	0	171	80	37	64.6
11	Ladd Road	Carver Rd to McHenry Ave	15,025	84	0	16	1.0%	1.0%	50	50	0	237	110	51	70.1
12	Patterson Road (SR 10	McHenry Ave to Coffee Rd	24,880	84	0	16	3.0%	1.0%	50	150	0	349	162	75	65.5
13	Patterson Road (SR 10	Coffee Rd to Oakdale Rd	23,655	84	0	16	3.0%	1.0%	45	50	-5	285	132	61	66.3
14	Patterson Road (SR 10	Oakdale Rd to Jackson Ave	26,506	84	0	16	3.0%	1.0%	45	95	0	307	143	66	67.6
15	Kiernan Avenue (SR 2:	Tully Rd to McHenry Ave	29,875	84	0	16	2.0%	7.0%	45	100	0	483	224	104	70.3
16	Claribel Road	McHenry Ave to Coffee Rd	28,770	84	0	16	1.0%	1.0%	55	80	0	431	200	93	71.0
17	Claribel Road	Coffee Rd to Oakdale Rd	26,780	84	0	16	1.0%	1.0%	55	80	-5	411	191	88	65.7
18	Skittone Road	Patterson Rd (SR 108) to Crawford Rd	450	84	0	16	1.0%	1.0%	50	60	0	23	11	5	53.7
19	Coffee Road	Patterson Rd (SR 108) to Crawford Rd	12,920	84	0	16	1.0%	1.0%	50	50	0	214	99	46	69.5
20	Coffee Road	Crawford Rd to relocated Claribel Rd	14,805	84	0	16	1.0%	1.0%	50	65	0	235	109	51	68.4
21	Coffee Road	Relocated Claribel Rd to Claribel - NCC	14,805	84	0	16	1.0%	1.0%	50	50	0	235	109	51	70.1
22	Coffee Road	Claribel - NCC to Claratina Ave	19,285	84	0	16	1.0%	1.0%	50	55	0	280	130	60	70.6
23	Oakdale Road	Patterson Rd (SR 108) to Morrill Rd	15,615	84	0	16	1.0%	1.0%	45	65	-5	203	94	44	62.4
24	Oakdale Road	Morrill Rd to Crawford Rd	15,635	84	0	16	1.0%	1.0%	45	50	-5	204	95	44	64.1
25	Oakdale Road	Crawford Rd to Claribel Rd	19,140	84	0	16	1.0%	1.0%	50	70	-5	279	129	60	64.0
26	Oakdale Road	Claribel Rd to Claratina Ave	19,530	84	0	16	1.0%	1.0%	50	95	0	282	131	61	67.1
27	Morrill Road	Coffee Rd to Oakdale Rd	2,770	84	0	16	1.0%	1.0%	50	45	0	77	36	17	63.5

SAXELBY ACOUSTICS
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Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 191202
Description: River Walk Specific Plan EIR - Cumualtive
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	McHenry Avenue	Jones Rd to River Rd	14,000	84	0	16	1.0%	1.0%	40	90	0	156	72	34	63.6
2	McHenry Avenue	River Rd to Coffee Rd	20,500	84	0	16	1.0%	1.0%	45	110	0	244	113	53	65.2
3	McHenry Avenue	Coffee Rd to Stewart Rd	20,500	84	0	16	1.0%	1.0%	50	100	0	292	135	63	67.0
4	McHenry Avenue	Stewart Rd to Ladd Rd	21,600	84	0	16	1.0%	1.0%	50	75	0	302	140	65	69.1
5	McHenry Avenue (SR	Ladd Rd to Crawford Rd	17,250	84	0	16	3.0%	1.0%	45	30	0	231	107	50	73.3
6	McHenry Avenue (SR	Crawford Rd to Kiernan Ave (SR 219)	17,950	84	0	16	3.0%	1.0%	45	60	0	237	110	51	68.9
7	McHenry Avenue (SR	Kiernan Ave (SR 219) to Pelandale Ave	34,250	84	0	16	3.0%	1.0%	35	60	0	246	114	53	69.2
8	River Road	Murphy Rd to McHenry Ave	8,000	84	0	16	1.0%	1.0%	55	55	0	184	85	40	67.8
9	River Road	McHenry Ave to Harold Ave	6,000	84	0	16	1.0%	1.0%	55	50	0	151	70	33	67.2
10	Ladd Road	Stoddard Rd to Carver Rd	12,250	84	0	16	1.0%	1.0%	50	85	0	207	96	45	65.8
11	Ladd Road	Carver Rd to McHenry Ave	18,400	84	0	16	1.0%	1.0%	50	50	0	271	126	58	71.0
12	Patterson Road (SR 10	McHenry Ave to Coffee Rd	19,200	84	0	16	3.0%	1.0%	50	150	0	294	136	63	64.4
13	Patterson Road (SR 10	Coffee Rd to Oakdale Rd	19,000	84	0	16	3.0%	1.0%	45	50	-5	246	114	53	65.4
14	Patterson Road (SR 10	Oakdale Rd to Jackson Ave	25,300	84	0	16	3.0%	1.0%	45	95	0	298	138	64	67.4
15	Kiernan Avenue (SR 2:	Tully Rd to McHenry Ave	42,425	84	0	16	2.0%	7.0%	45	100	0	610	283	131	71.8
16	Claribel Road	McHenry Ave to Coffee Rd	55,650	84	0	16	1.0%	1.0%	55	80	0	669	310	144	73.8
17	Claribel Road	Coffee Rd to Oakdale Rd	10,300	84	0	16	1.0%	1.0%	55	80	-5	217	101	47	61.5
18	Skittone Road	Patterson Rd (SR 108) to Crawford Rd	270	84	0	16	1.0%	1.0%	50	60	0	16	8	4	51.5
19	Coffee Road	Patterson Rd (SR 108) to Crawford Rd	5,300	84	0	16	1.0%	1.0%	50	50	0	118	55	25	65.6
20	Coffee Road	Crawford Rd to relocated Claribel Rd	13,000	84	0	16	1.0%	1.0%	50	65	0	215	100	46	67.8
21	Coffee Road	Relocated Claribel Rd to Claribel - NCC	17,000	84	0	16	1.0%	1.0%	50	50	0	257	119	55	70.7
22	Coffee Road	Claribel - NCC to Claratina Ave	15,500	84	0	16	1.0%	1.0%	50	55	0	242	112	52	69.7
23	Oakdale Road	Patterson Rd (SR 108) to Morrill Rd	21,800	84	0	16	1.0%	1.0%	45	65	-5	254	118	55	63.9
24	Oakdale Road	Morrill Rd to Crawford Rd	17,500	84	0	16	1.0%	1.0%	45	50	-5	220	102	47	64.6
25	Oakdale Road	Crawford Rd to Claribel Rd	23,900	84	0	16	1.0%	1.0%	50	70	-5	323	150	70	65.0
26	Oakdale Road	Claribel Rd to Claratina Ave	24,200	84	0	16	1.0%	1.0%	50	95	0	326	151	70	68.0
27	Morrill Road	Coffee Rd to Oakdale Rd	9,200	84	0	16	1.0%	1.0%	50	45	0	171	79	37	68.7

SAXELBY ACOUSTICS
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Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 191202
Description: River Walk Specific Plan EIR - Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	McHenry Avenue	Jones Rd to River Rd	16,580	84	0	16	1.0%	1.0%	40	90	0	174	81	38	64.3
2	McHenry Avenue	River Rd to Coffee Rd	25,250	84	0	16	1.0%	1.0%	45	110	0	280	130	60	66.1
3	McHenry Avenue	Coffee Rd to Stewart Rd	26,705	84	0	16	1.0%	1.0%	50	100	0	348	161	75	68.1
4	McHenry Avenue	Stewart Rd to Ladd Rd	27,820	84	0	16	1.0%	1.0%	50	75	0	357	166	77	70.2
5	McHenry Avenue (SR	Ladd Rd to Crawford Rd	22,690	84	0	16	3.0%	1.0%	45	30	0	277	128	60	74.5
6	McHenry Avenue (SR	Crawford Rd to Kiernan Ave (SR 219)	23,565	84	0	16	3.0%	1.0%	45	60	0	284	132	61	70.1
7	McHenry Avenue (SR	Kiernan Ave (SR 219) to Pelandale Ave	38,415	84	0	16	3.0%	1.0%	35	60	0	266	123	57	69.7
8	River Road	Murphy Rd to McHenry Ave	9,740	84	0	16	1.0%	1.0%	55	55	0	209	97	45	68.7
9	River Road	McHenry Ave to Harold Ave	6,435	84	0	16	1.0%	1.0%	55	50	0	159	74	34	67.5
10	Ladd Road	Stoddard Rd to Carver Rd	14,875	84	0	16	1.0%	1.0%	50	85	0	235	109	51	66.6
11	Ladd Road	Carver Rd to McHenry Ave	21,785	84	0	16	1.0%	1.0%	50	50	0	304	141	65	71.8
12	Patterson Road (SR 10	McHenry Ave to Coffee Rd	29,080	84	0	16	3.0%	1.0%	50	150	0	388	180	84	66.2
13	Patterson Road (SR 10	Coffee Rd to Oakdale Rd	26,845	84	0	16	3.0%	1.0%	45	50	-5	310	144	67	66.9
14	Patterson Road (SR 10	Oakdale Rd to Jackson Ave	30,531	84	0	16	3.0%	1.0%	45	95	0	337	157	73	68.3
15	Kiernan Avenue (SR 2:	Tully Rd to McHenry Ave	44,705	84	0	16	2.0%	7.0%	45	100	0	632	293	136	72.0
16	Claribel Road	McHenry Ave to Coffee Rd	56,550	84	0	16	1.0%	1.0%	55	80	0	676	314	146	73.9
17	Claribel Road	Coffee Rd to Oakdale Rd	11,215	84	0	16	1.0%	1.0%	55	80	-5	230	107	50	61.9
18	Skittone Road	Patterson Rd (SR 108) to Crawford Rd	450	84	0	16	1.0%	1.0%	50	60	0	23	11	5	53.7
19	Coffee Road	Patterson Rd (SR 108) to Crawford Rd	14,230	84	0	16	1.0%	1.0%	50	50	0	229	106	49	69.9
20	Coffee Road	Crawford Rd to relocated Claribel Rd	21,635	84	0	16	1.0%	1.0%	50	65	0	302	140	65	70.0
21	Coffee Road	Relocated Claribel Rd to Claribel - NCC	25,635	84	0	16	1.0%	1.0%	50	50	0	338	157	73	72.5
22	Coffee Road	Claribel - NCC to Claratina Ave	22,390	84	0	16	1.0%	1.0%	50	55	0	309	144	67	71.2
23	Oakdale Road	Patterson Rd (SR 108) to Morrill Rd	23,865	84	0	16	1.0%	1.0%	45	65	-5	270	125	58	64.3
24	Oakdale Road	Morrill Rd to Crawford Rd	19,335	84	0	16	1.0%	1.0%	45	50	-5	235	109	51	65.1
25	Oakdale Road	Crawford Rd to Claribel Rd	25,735	84	0	16	1.0%	1.0%	50	70	-5	339	157	73	65.3
26	Oakdale Road	Claribel Rd to Claratina Ave	24,915	84	0	16	1.0%	1.0%	50	95	0	332	154	72	68.2
27	Morrill Road	Coffee Rd to Oakdale Rd	9,495	84	0	16	1.0%	1.0%	50	45	0	175	81	38	68.8

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Attachment 1: Modesto Rifle Club Noise Control Technical Report



Technical Noise Assessment

Modesto Rifle Club Noise Reduction Options for the Riverwalk Specific Plan

Stanislaus County, California

September 25, 2020

Project # 191202

Prepared for:

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, California 95762

Prepared by:

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INTRODUCTION

This report analyzes noise reduction options for the Modesto Rifle Club (shooting range) to benefit the proposed Riverwalk Specific Plan, located northeast of the intersection of McHenry Avenue and Patterson Road in Stanislaus County, California. The proposed project includes the annexation of Stanislaus County land into the City of Riverbank and the rezoning of agricultural land to a variety of land uses including residential, commercial, and reserve.

The primary noise-generating land use in the project vicinity is the existing Modesto Rifle Club located approximately 300 feet from the boundary of the Specific Plan Area to the southwest. This report has been prepared to evaluate methods for reducing shooting noise levels on the proposed Riverwalk Specific Plan project.

Figure 1 shows the proposed site plan. **Figure 2** shows an aerial view of the Modesto Rifle Club, Specific Plan boundaries, and locations where noise measurements were conducted.

ENVIRONMENTAL SETTING

Background Information on Noise

Fundamentals of Acoustics

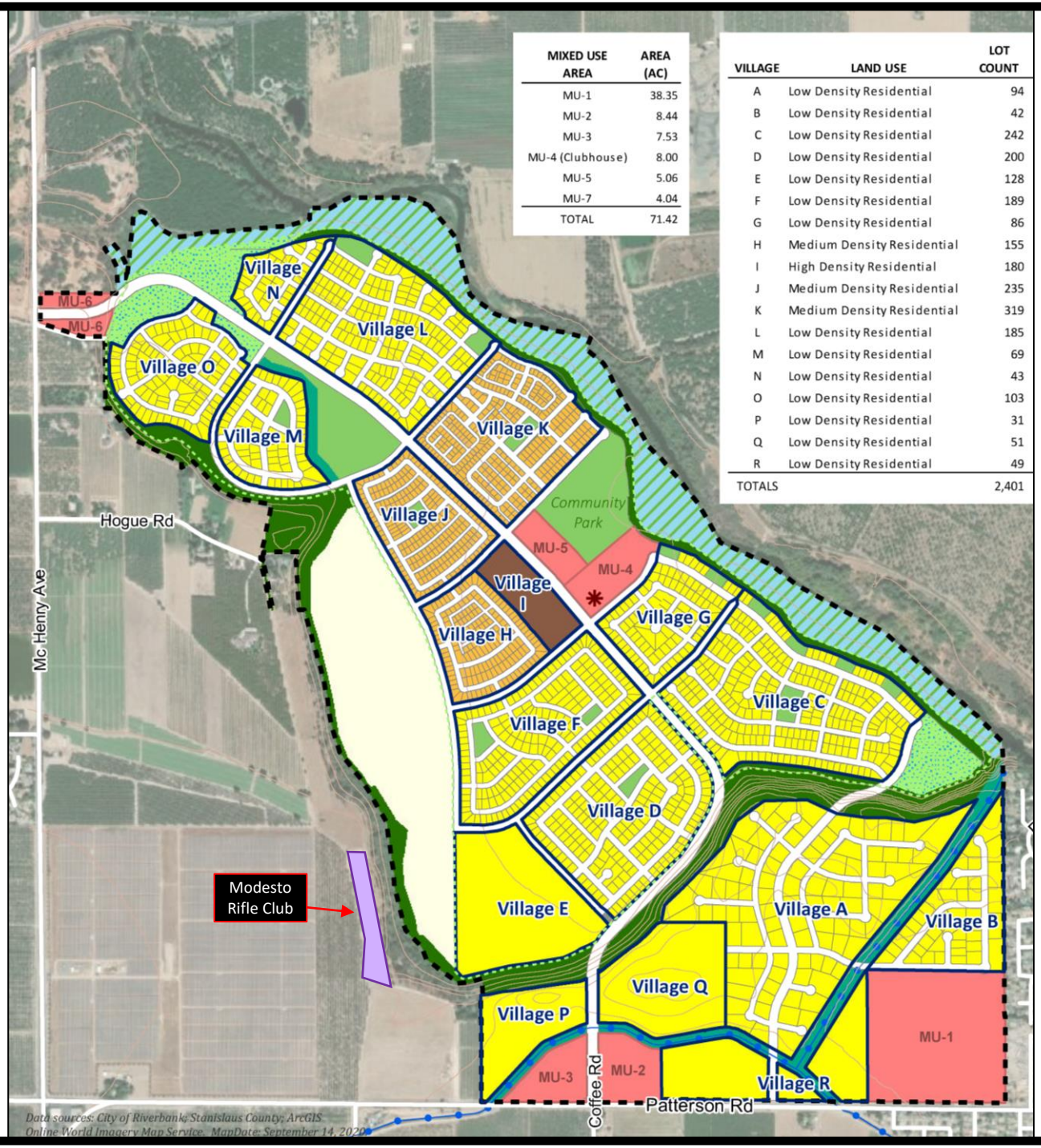
Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60 dBA sound.



MIXED USE AREA	AREA (AC)
MU-1	38.35
MU-2	8.44
MU-3	7.53
MU-4 (Clubhouse)	8.00
MU-5	5.06
MU-7	4.04
TOTAL	71.42

VILLAGE	LAND USE	LOT COUNT
A	Low Density Residential	94
B	Low Density Residential	42
C	Low Density Residential	242
D	Low Density Residential	200
E	Low Density Residential	128
F	Low Density Residential	189
G	Low Density Residential	86
H	Medium Density Residential	155
I	High Density Residential	180
J	Medium Density Residential	235
K	Medium Density Residential	319
L	Low Density Residential	185
M	Low Density Residential	69
N	Low Density Residential	43
O	Low Density Residential	103
P	Low Density Residential	31
Q	Low Density Residential	51
R	Low Density Residential	49
TOTALS		2,401

Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 1

Project Site Plan

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Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 2

Noise Measurement Sites

Legend

- Parcel Lines
- Noise Measurement - Short Term

0 ft 250 ft 500 ft

Projection: State Plane (California Zone 3) / NAD83 / meters
Rev. Date: 09/14/2020

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Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

Table 1: Typical noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE ENVIRONMENT

To quantify noise levels from the shooting range, noise measurements were made during normal operation of the shooting range. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**.

The sound level meters were programmed to record the maximum noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. Noise measurements were made using "fast" meter response.

Larson Davis Laboratories (LDL) model 831 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a B&K Model 4230 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

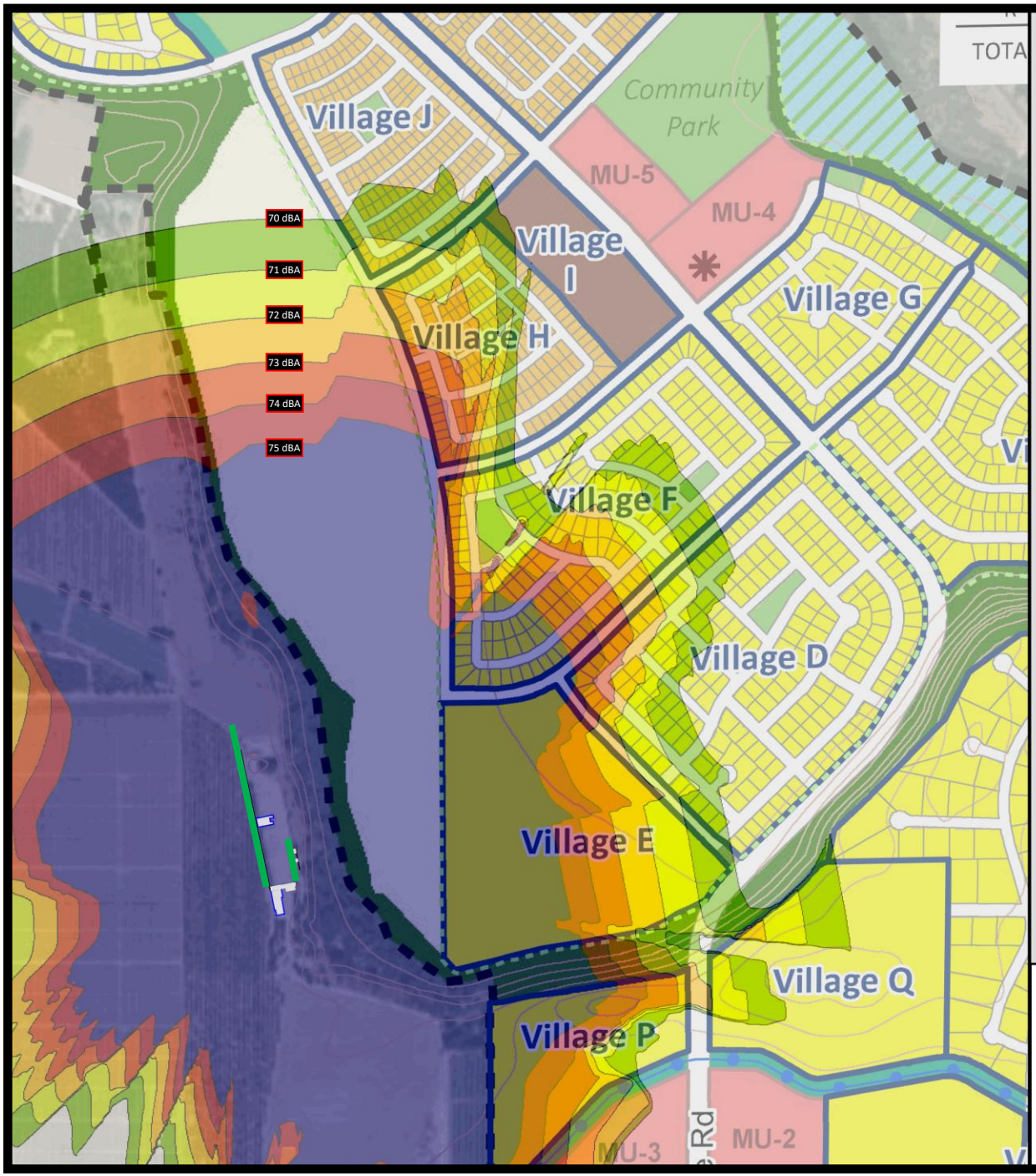
Saxelby Acoustics used the SoundPLAN noise prediction model to map predicted noise levels produced by the shooting range. Inputs to the SoundPLAN model included ground topography and ground type, the proposed facility structure location and height, existing sound barriers, noise receptor locations, and spectral data for the gunshots. These predictions are made in accordance with International Organization for Standardization (ISO) standard 9613-2:1996 (Acoustics – Attenuation of sound during propagation outdoors).

Figure 3 shows the maximum (L_{max}) noise contours on the project site.

Table 2: Summary of Existing Background Noise Measurement Data

Site	Location	Date	Rifle Noise Levels dBA, L_{max}	Pistol Noise Levels dBA, L_{max}
ST-1	Northeast	9/1/20	83	81
ST-2	East	9/1/20	74	67
ST-3	Southeast	9/1/20	87	76

Source: Saxelby Acoustics 2020



Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 3

Existing Shooting Range Noise Contours (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Building
- Existing Wall

Scale 1:713

0 250 500 1000 1500 2000 feet

N

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CITY OF RIVERBANK NOISE CONTROL STANDARDS

City of Riverbank General Plan contains a noise element which outlines noise standards applicable to new developments. **Table 3** below (Table NOISE-2 of the General Plan) presents the City of Riverbank noise standards for new projects affected by non-transportation noise sources.

Table 3: Noise Level Performance Standards for New Project Affected By, or Including, Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}	60 dB	45 dB
L_{max}	75 dB	65 dB

Notes: Each of the noise levels specified shall be lowered by five dB for simple tone noises, noises consisting primarily of speech, or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).

Based upon **Table 3**, the City establishes acceptable noise levels for impulsive noises (such as gunshots) of 70 dBA L_{max} for daytime (7:00 a.m. to 10:00 p.m.) and 60 dBA L_{max} for nighttime (10:00 p.m. to 7:00 a.m.) operations. This analysis assumes that the Modesto Rifle Club would only operate during daytime hours. Therefore, the project will need to meet a property line noise level of 70 dBA L_{max}.

Due to the impulsive and intermittent nature of gunshot noise, the time-average noise level will be much lower than the maximum noise level. Therefore, the maximum (L_{max}) standard is the most relevant standard. Exceedances of the City's average (L_{eq}) standards, which are 15 dBA lower, are not predicted to occur where L_{max} noise levels are in compliance with **Table 2**.

POTENTIAL NOISE CONTROL MEASURES

As shown in **Figure 3**, the maximum noise levels emanating from the shooting range are predicted to exceed the City of Riverbank 70 dBA L_{max} standard on Villages D, E, F, H, I, J, P, and Q. Saxelby Acoustics developed noise control solutions to reduce the maximum noise level to below 70 dBA at as many of the Specific Plan residential Villages as possible.

In this report, two possible noise control scenarios are presented. Saxelby Acoustics developed these solutions under the assumption that construction of sound walls exceeding 20 feet in height and that any noise control measures similar to shooting booths would not be accepted by the range.

Option 1 - Sound Wall, Partial Enclosure of Shooting Line, and Range Absorptive Treatments

Shooting range noise control may be achieved by the addition of an acoustically absorptive sound wall, partial enclosure of the shooting area, and acoustical panels in the pistol range area, as follows:

1. Two 180-foot long sound walls with acoustically absorptive treatment should span the eastern boundary of the rifle range. The first wall should be 20 feet tall and connect directly to the shooting range enclosure, allowing no gaps. The second wall should be 25 feet tall and be located directly north of the first wall and offset approximately 20 feet to the east (along the eastern boundary of the rifle range). The base elevation for the walls should be greater than or equal to the elevation of the shooting line. The inner side of the newly constructed walls (facing west) must be acoustically absorptive to prevent reflection of shooting noise. **Figure 4** shows the proposed location of the sound walls. This analysis specifically assumes use of Kinetics NOISEBLOCK perforated metal acoustical panels (**Attachment 2).**

2. The existing rifle shooting range cover should be enclosed on the eastern side as shown in **Figure 4**. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

3. The left sound wall of the pistol range should be treated with an acoustically absorptive treatment, as shown on **Figure 4**. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

4. Acoustic absorption should be added above the shooting line and at the rear wall of the left side of the rifle shooting line, as shown on **Figure 4.** This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

5. In addition to modifications of the Modesto Rifle Club property, typical masonry type sound walls are required on the proposed project site as well. **Figure 5** shows the locations of the recommended sound walls and corresponding heights.

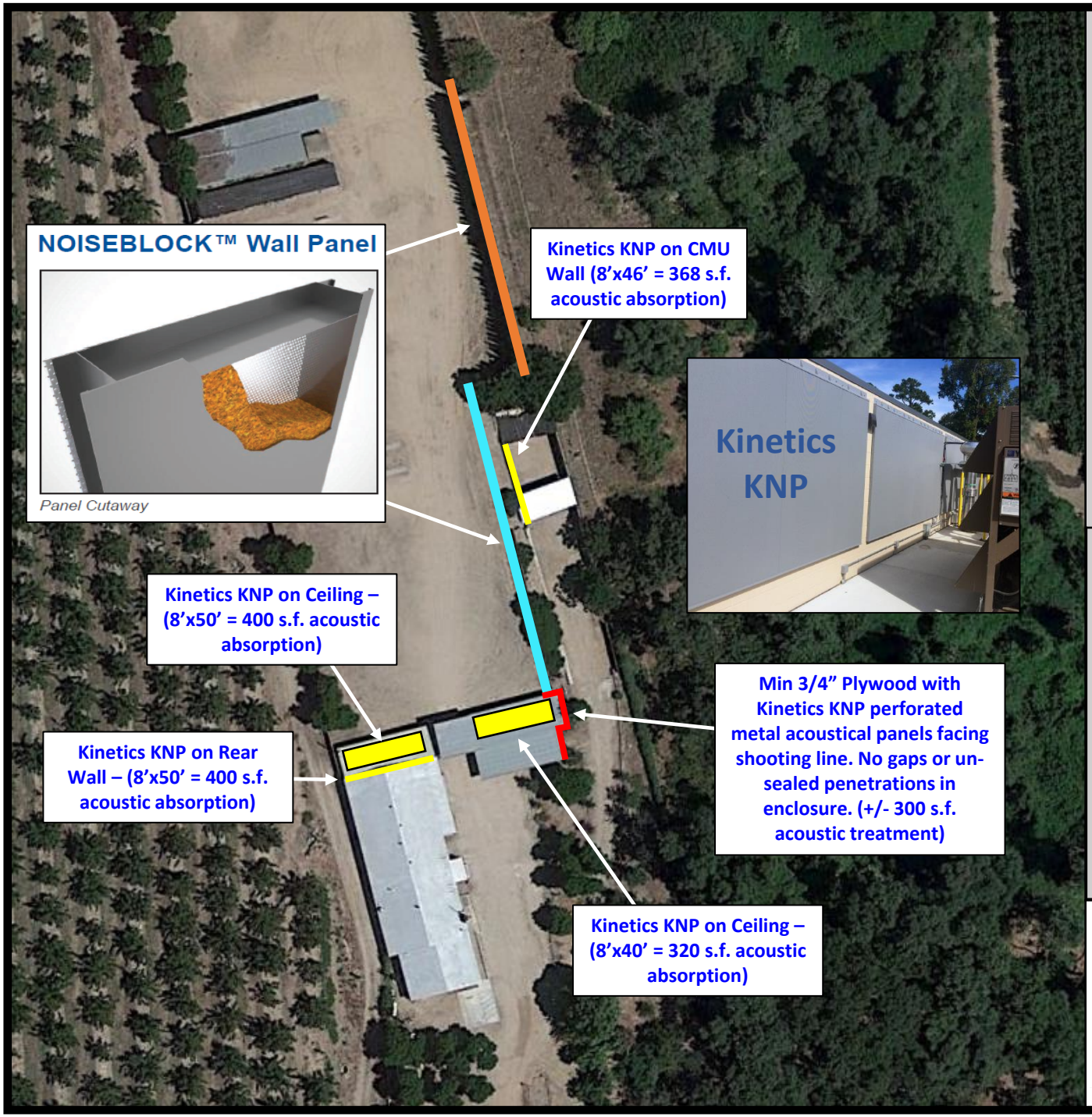
As shown on **Figure 5**, implementation of these noise control measures would reduce maximum noise levels to below 70 dB on Villages D, F, H, I, J, and Q as well as a partial section of Village E.

Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 4

Partial Shooting Range Noise Control Measures



Legend

- : 20-foot Tall Sound Wall
- : 25-foot Tall Sound Wall
- : Shooting Range Enclosure
- : Kinetics KNP Acoustically Absorptive Panels on Existing Wall or Ceiling

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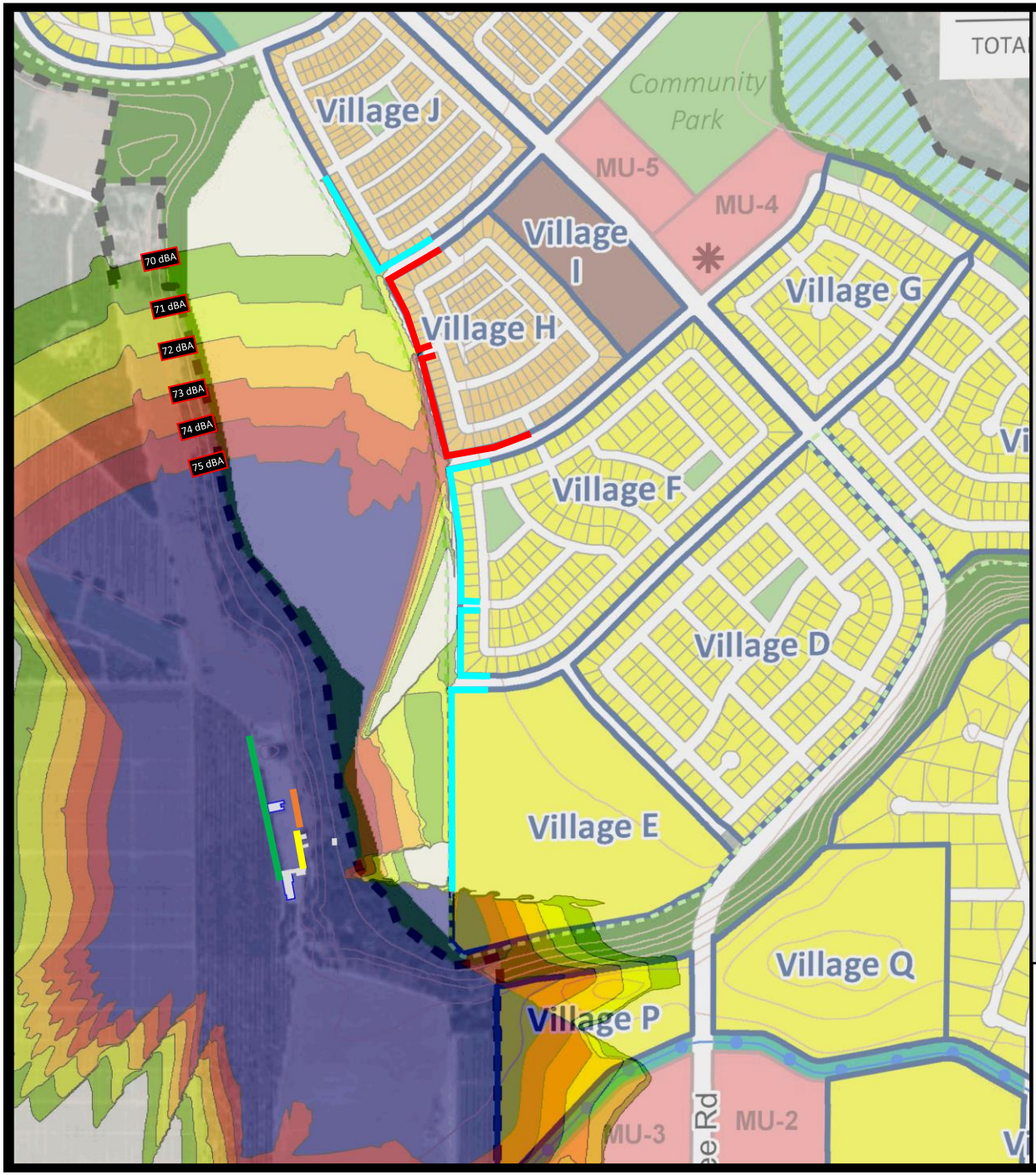

Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 5

Predicted Shooting Range Noise Contours – Partial Enclosure (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Building
- Existing Sound Wall
- 8-foot Sound Wall
- 10-Foot Sound Wall
- 20-Foot Sound Wall
- 25-Foot Sound Wall

Scale 1:723

0 250 500 1000 1500 2000 feet

N

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Option 2 - Sound Wall, Full Enclosure of Shooting Line, and Range Absorptive Treatments

Shooting range noise control may be further improved by enclosing the back (south side) of the rifle range firing line, as descried below:

1. Implement all Option 1 items above.

2. Fully enclose the rear (south) side of the rifle shooting line. A 4-foot wide covered exit walkway may be constructed which allows access from the south, as shown on **Figure 6**. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

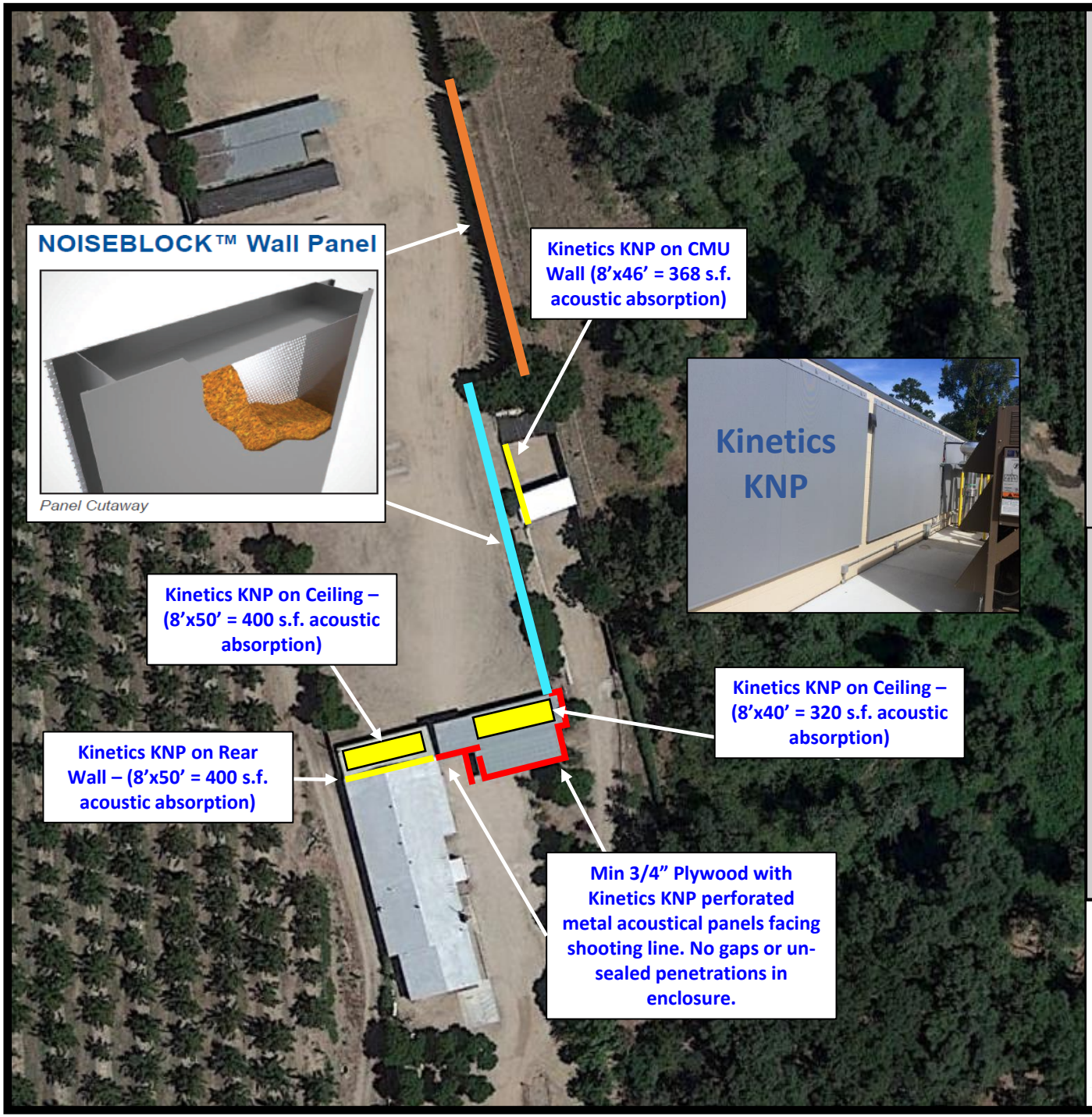
As shown on **Figure 7**, implementation of these noise control measures would reduce maximum noise levels to below 70 dB on all proposed villages.

Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 6

Full Shooting Range Noise Control Measures



Legend

- : 20-foot Tall Sound Wall
- : 25-foot Tall Sound Wall
- : Shooting Range Enclosure
- : Kinetics KNP Acoustically Absorptive Panels on Existing Wall or Ceiling

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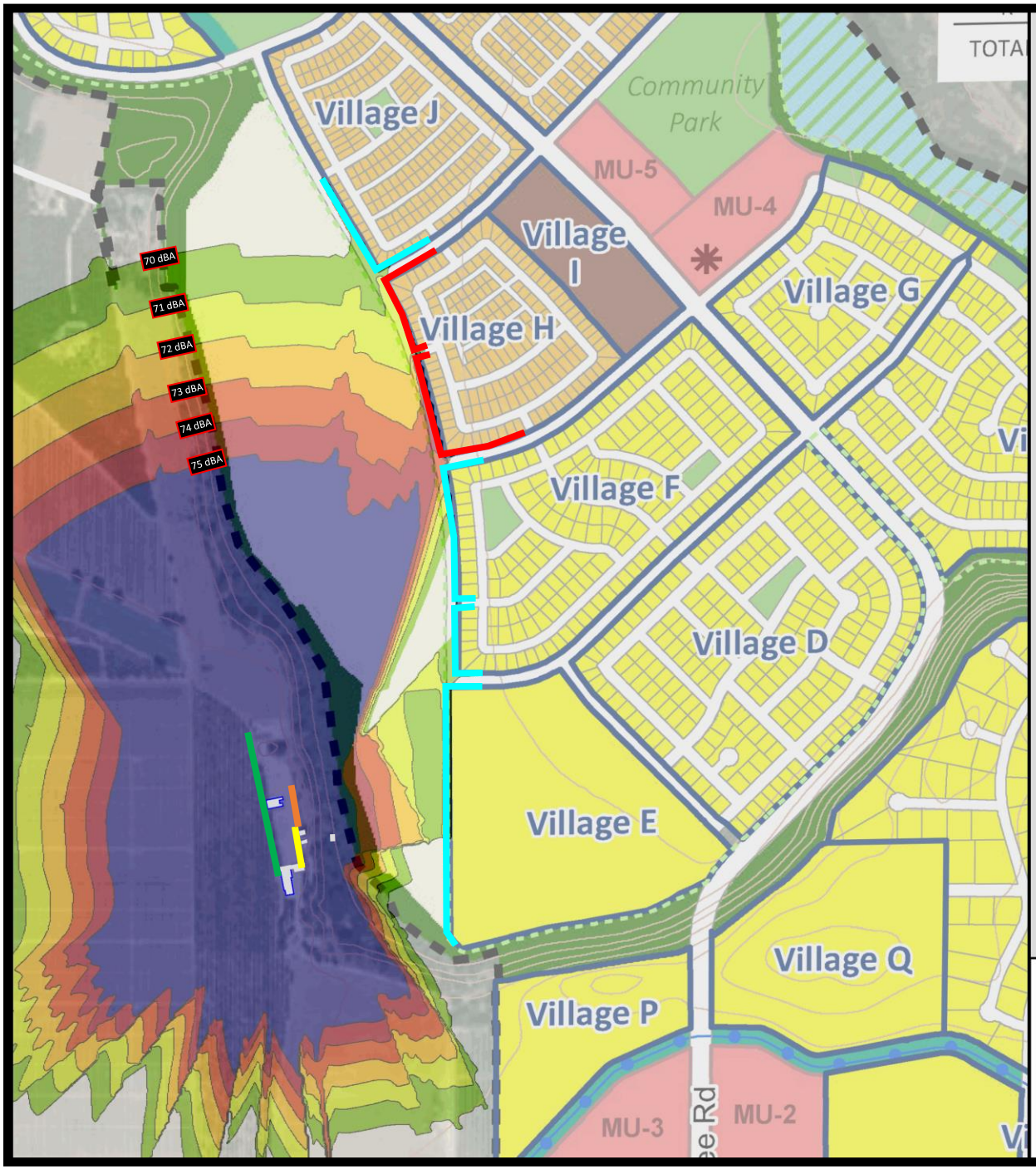

Modesto Rifle Club Noise Control

Stanislaus County, California

Figure 7

Predicted Shooting Range Noise Contours – Complete Enclosure (dBA L_{max})

Noise Level, dB(A)

- < 70
- 70 – 71
- 71 – 72
- 72 – 73
- 73 – 74
- 74 – 75
- > 75

Legend

- Building
- Existing Sound Wall
- 8-foot Sound Wall
- 10-Foot Sound Wall
- 20-Foot Sound Wall
- 25-Foot Sound Wall

Scale 1:723

0 250 500 1000 1500 2000 feet

N

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CONCLUSION

The proposed project area is currently exposed to noise levels emanating from the Modesto Rifle Club which exceed the City of Riverbank 70 dBA L_{max} daytime noise standard for impulsive sounds. The affected areas include Villages D, E, F, H, I, J, P, and Q. The following noise control options have been prepared to minimize the impact of shooting range noise on the proposed project site:

Option 1 - Sound Wall, Partial Enclosure of Shooting Line, and Range Absorptive Treatments

Maximum noise levels at Villages D, F, H, I, J, and Q as well as a partial section of Village E may be reduced to below 70 dBA assuming the following noise control measures are implemented:

1. Two 180-foot long sound walls with acoustically absorptive treatment should span the eastern boundary of the rifle range. The first wall should be 20 feet tall and connect directly to the shooting range enclosure, allowing no gaps. The second wall should be 25 feet tall and be located directly north of the first wall and offset approximately 20 feet to the east (along the eastern boundary of the rifle range). The base elevation for the walls should be greater than or equal to the elevation of the shooting line. The inner side of the newly constructed walls (facing west) must be acoustically absorptive to prevent reflection of shooting noise. **Figure 4** shows the proposed location of the sound walls. This analysis specifically assumes use of Kinetics NOISEBLOCK perforated metal acoustical panels (**Attachment 2).**

1. The existing rifle shooting range cover should be enclosed on the eastern side as shown in **Figure 4**. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

2. The left sound wall of the pistol range should be treated with an acoustically absorptive treatment, as shown on **Figure 4**. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

3. Acoustic absorption should be added above the rifle shooting line and at the rear wall of the left side of the rifle shooting line, as shown on **Figure 4.** This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

4. In addition to modifications of the Modesto Rifle Club property, sound walls are required on the proposed project site as well. **Figure 5** shows the locations of the recommended sound walls and corresponding heights.

As shown on **Figure 5**, implementation of these noise control measures would reduce maximum noise levels to below 70 dB on Villages D, F, H, I, J, and Q as well as a partial section of Village E.

Option 2 - Sound Wall, Full Enclosure of Shooting Line, and Range Absorptive Treatments

1. Implement all Option 1 items above.
2. Fully enclose the rear (south) side of the rifle shooting line. A 4-foot wide covered exit walkway may be constructed which allows access from the south, as shown on **Figure 6**. The enclosure should span from the floor to ceiling and have no gaps or penetrations that would allow sound to pass though. The enclosure should consist of minimum ¾" plywood with acoustical panels covering the inside walls, facing the shooting line. This analysis specifically assumes use of Kinetics KNP perforated metal acoustical panels (**Attachment 1).**

As shown on **Figure 7**, implementation of these noise control measures would reduce maximum noise levels to below 70 dB on all proposed villages.

Saxelby Acoustics recommends that any modifications to the existing covered shooting range structure be reviewed by a structural engineer prior to construction of the recommended noise control features.

Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Attachment 1

Kinetics KNP Perforated Metal Acoustical Panels



KINETICS®

Perforated Metal Acoustical Panels

Model KNP







Description

KNP perforated metal panels are highly durable acoustical sound absorbers. Ideal solution to air-borne noise problems in demanding environments. Available with a flat or V-groove surface.

KNP metal acoustic panels are functional and aesthetically pleasing perforated panels which are used to control reverberant noise problems. Although primarily intended as an absorber, KNP perforated metal panels will act as a barrier when a solid back is added. KNP sound absorbing panels are useful as additions to existing metal or concrete barriers to reduce reverberation time and to lower reflected sound.

Application

KNP perforated metal acoustic panels deliver ample sound absorption over a wide frequency range. KNP acoustical properties, appearance, and rugged durability make it the choice for controlling reverberant noise problem in factories, waste water treatment facilities, pump rooms, mechanical equipment yards, gymnasiums, natatoriums, multi-purpose rooms, and recreational facilities. KNP sound absorbing panels are suitable for outdoor use and are ideal for installation over existing barrier walls and are excellent in resisting damage from impacts, abrasion, or moisture.

KNP perforated metal panels can be attached to walls, ceilings, or other surfaces and can be located in a manner to achieve an aesthetically pleasing pattern. These sound absorbing panels are available with optional rear backing to increase transmission loss and be used as a barrier. Available faced with perforated material on both sides and used as hanging absorptive baffles.

Finish

KNP perforated metal panels are available factory powder-coat finish per selection of POWDURA® RAL Series Super Durable TGIC FREE Polyester Powder Coatings, color matching or mill/unpainted.

Composition

22 gauge perforated galvanized steel, galvanneal, if painted, or 0.040 perforated aluminum covering a glass fiber absorber in a heat sealed black poly vinyl bag. Solid channel framing for panel stability.

Applications

Reverberant, noisy spaces where panels must resist damage from impacts, abrasion, or moisture.

- Factories
- Waste Water Treatment Facilities
- Pump Rooms
- Mechanical Equipment Yards
- Gymnasiums
- Natatoriums
- Multi-Purpose Rooms
- Recreational Facilities.

Acoustical Performance

Sound Absorption per ASTM C423.
Type A Mounting

Frequency, Hz	125	250	500	1000	2000	4000	NRC
Absorption Coefficient	0.22	0.77	1.12	1.00	0.78	0.57	0.90

Note: Offset brackets (*optional*) will increase sound absorption

Fire Test Data

Class A per ASTM E84

Sizes and Tolerances

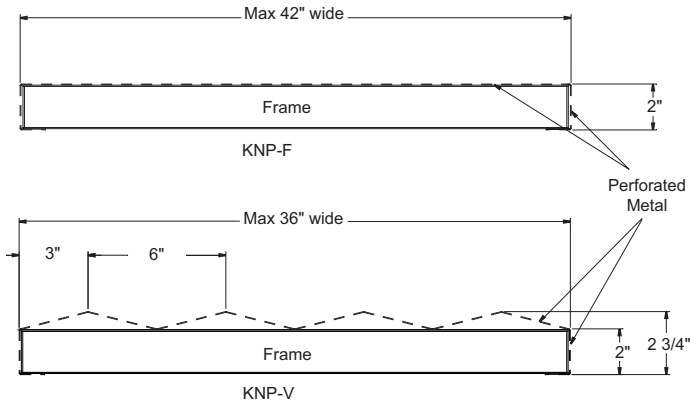
KNP-F, 2" thick Flat Face; maximum
42" wide x 120" high or 114" wide x 48" high.
Sizes up to 54" wide x 144" high or
138" wide x 60" high available as special order.

KNP-V, 2-3/4" thick V-Groove Face; maximum
36" wide x 120" high or 96" wide x 48" high.
Sizes up to 48" wide x 144" high or
132" wide x 60" high available as special order.
Note: KNP-V panels are sized in increments of 6", the width of each V ridge. Minimum panel size is 12" wide. *V-grooves run vertically*

Tolerances - KNP-F and KNP-V panels are built to plus or minus 1/8 inch tolerances for length, width and squareness.
Diagonal measurement

Mounting

Standard: Z-Clips (top), L-Bottom Support Angles
Options: Z-Channel (top); J-Channel (bottom);
Offset Brackets - 1", 2", 3", 4"

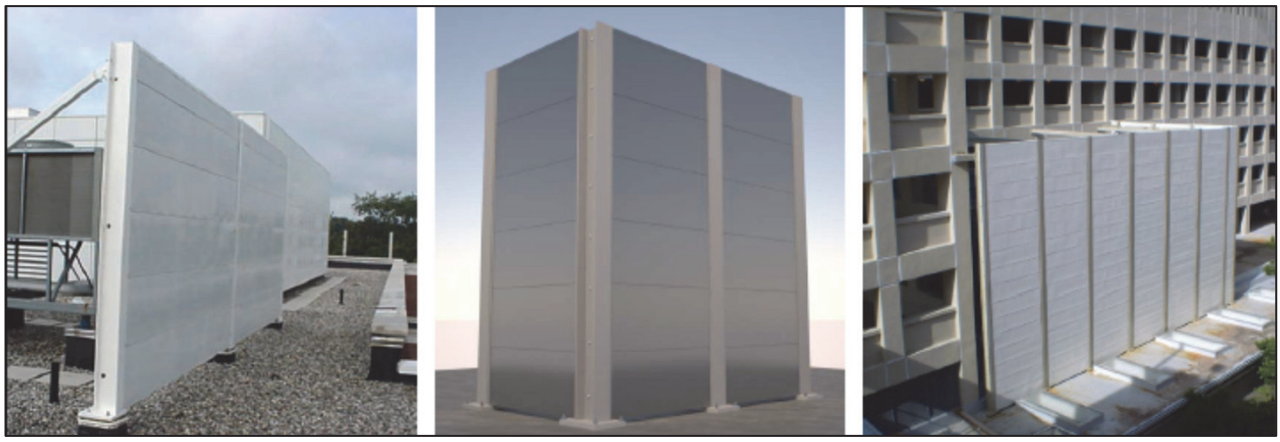


KINETICS Noise Control®
kineticsnoise.com
sales@kineticsnoise.com
1-800-959-1229

Kinetics Noise Control, Inc. is continually upgrading the quality of our products.
We reserve the right to make changes to this and all products without notice.

Attachment 2

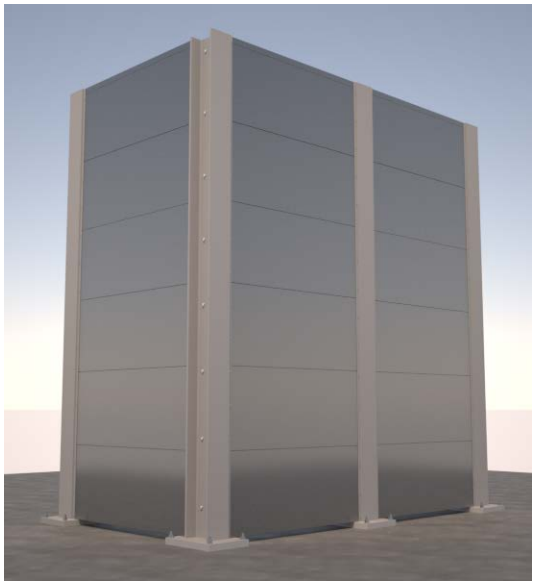
Kinetics NOISEBLOCK Barrier Wall System



NOISEBLOCK™

Barrier Wall Systems







KINETICS Noise Control®

www.kineticsnoise.com



NOISEBLOCK™ Barrier Wall Systems

Industrial, commercial, and environmental noise control is an important and often overlooked part of the design process. Whether it is to comply with municipal ordinances, conform to OSHA standards or to achieve occupant comfort, it takes knowledge and experience to design an acoustical system that achieves the required sound levels. NOISEBLOCK™ Barrier Wall Systems are modular, cost effective, custom engineered solutions for rooftop equipment, electrical sub-stations, oil and gas compressor stations, residential compliance, loading docks, railways, and airport noise.

NOISEBLOCK™ double-walled acoustic panels are quickly and easily assembled, deliver high levels of sound absorption (noise reduction) and transmission loss (noise blocking). Project management assistance, design, engineering, and manufacturing are included with purchase. Established in 1958, Kinetics Noise Control has the experience and manufacturing capabilities to deliver a noise control solution for your indoor or outdoor application.

Advantages of NOISEBLOCK™ Barrier Wall Systems

- Particularly suitable for outdoor mechanical equipment barriers allowing easy field cutting and sealing for electrical, piping, duct penetrations, etc.
- Panels are shipped knock-down in modular form for inherent freight cost savings.
- Self-draining, “wicking” moisture, durable, easy to install, remove and reuse.
- Acoustic performance is backed by independent tests conducted in a NVLAP accredited laboratory per ASTM E90 (transmission loss) and ASTM C423 (sound absorption). Panel performance is STC 40-43 and NRC 1.0.
- Each system includes AutoCAD submittals and piece-marked installation drawings.
- System structural steel is designed from baseplate upward. The column and base plates are supplied as factory-welded assemblies. The column and angle attachments are factory-punched and supplied with required bolts, washers and nuts. No field welding is required.
- Panels are available in galvanized G90, aluminum and stainless types 304 and 316. Structural steel components are available in various finishes from prime painted, hot dipped galvanized or painted.
- Detailed structural engineering calculations including column baseplate reaction forces.
- Maintenance free

Barrier Wall Comparison

The following tables compare the acoustic performance, physical properties, and application of NOISEBLOCK™ Barrier Wall System to standard concrete, wood, PVC, and metal vision screen barrier walls.

Acoustic Performance

Material	NOISEBLOCK™	Concrete	Wood	PVC	Metal Vision Screen
Type of System	Absorptive/Blocking	Reflective	Reflective	Reflective/Absorptive	Reflective
STC Rating[1]	43	28	26	36	21
NRC Rating[2]	1.0	0.0	0.85	1.0	0.0

Physical Properties

Material	NOISEBLOCK™	Concrete	Wood	PVC	Metal Vision Screen
Type of System	Post/Panel	Post/Panel	Post/Panel	Post/Panel	Post/Panel
Moisture Resistance	Excellent	Good	Poor	Good	Good
Freeze/Thaw Resistance	Excellent	Fair	Poor	Fair	Good
Fire Resistance	Excellent	Excellent	Poor	Unknown	Excellent
Weight (lbs./sf)	6-8	100-125	4-5	3-4	1-2

Application

Material	NOISEBLOCK™	Concrete	Wood	PVC	Metal Vision Screen
Heavy Equipment Needed	Some	Yes	Some	Some	Some
Works on Rooftops	Yes	No	Yes	Yes	Yes
Works on Bridges	Yes	No	Yes	Yes	Yes
Works in Challenging Terrain	Yes	No	Yes	Yes	Yes
Ease of Onsite Changes	Yes	No	Yes	No	Yes



NOISEBLOCK™ rooftop barrier wall surface mounted to structural support steel

NOISEBLOCK™ wall system, Hospital Rooftop Equipment Yard

Rooftop Equipment

Chillers, Condensers and Cooling Towers and other mechanical equipment generate unwanted noise negatively affecting surrounding residential and business communities. NOISEBLOCK™ barrier wall systems reduce the noise to acceptable levels.





Air-cooled chiller attenuation systems

Residential Noise Compliance

Many neighborhoods have strict noise ordinances for hearing protection and comfort levels. NOISEBLOCK™ barrier panels are used to control noise at shopping malls, schools, recreational facilities, parks and other outdoor applications.





Power plant process NOISEBLOCK™ wall system

Utilities

Electrical sub-stations, transformers and generators cause unwanted noise and can be unpleasant to view. NOISEBLOCK™ barrier wall systems reduce the unwanted noise to acceptable levels and block the view for increased security.







Midstream compressor NOISEBLOCK™ walls

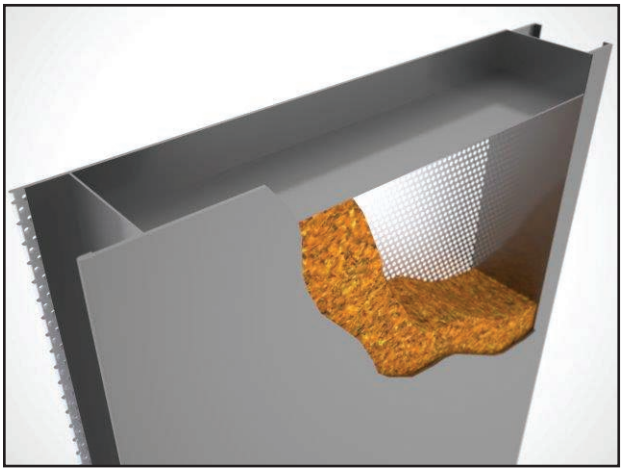
Oil and Gas Compressors Stations

NOISEBLOCK™ barrier wall systems are a cost effective solution to limit oil and gas midstream compressor noise.

Transportation / Drive-Thru Lanes / Loading Docks

Noise from loading docks, traveling motorists on major highways/interstates, airport areas, and railways are effectively reduced using Kinetics reflective or absorptive barrier wall systems.

NOISEBLOCK™ Wall Panel Construction



Panel Cutaway

KINETICS STL panels are fabricated with outer solid shell of 16/18 gage and inner perforated shell of 22 gage. Panels are stiffened with 18 gage internal channels and edge rails. The acoustic grade fill is 2.5 to 6 pcf long strand fiberglass or mineral wool depending on the application and are inert, mildew resistant, vermin proof and incombustible and is suitable for wet/dry and freeze/thaw cycling. Mating panels are attached by inherent tongue and groove panel joints. Typical panel joints are horizontal however vertical panel joints are used depending on the project requirements and aesthetics desired by the architect/owner.

Sound Absorption Coefficients

NOISEBLOCK™ panel acoustic performance is backed by independent testing in a NVLAP accredited laboratory. When tested in accordance with *ASTM C423, Standard Method of Test for Sound Absorption of Acoustic Materials in Reverberant Rooms*, the panel assembly shall have the following minimum airborne sound absorption:

		Sound Absorption						
Model	**Construction[2]**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**NRC[3]**
STL-4[1]	16 ga. solid / 22 ga. perforated	0.60	1.13	1.12	1.09	1.03	0.91	1.00
STL-4[1]	18 ga. solid / 22 ga. perforated	0.60	1.13	1.12	1.09	1.03	0.91	1.00

[1] (4) = 4-inch thickness

[2] solid inner skin available

[3] Noise Reduction Coefficient (NRC) is the average of coefficients at 250, 500, 1K and 2K Hz, expressed in the nearest integral multiple of 0.05.

Sound Transmission Loss

When tested in accordance with *ASTM E90, Standard Recommended Practice for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*, the panel assembly shall have the following minimum airborne sound transmission loss:

		Transmission Loss, dB						
Model	**Construction[2]**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**STC[3]**
STL-4[1]	16 ga. solid / 22 ga. perforated	24	32	41	51	60	66	43
STL-4[1]	18 ga. solid / 22 ga. perforated	21	28	39	48	56	58	40

[1] (4) = 4-inch thickness

[2] solid inner skin available

[3] Sound Transmission Class (STC) is determined by comparing test data with a set of standard STC contours as described in *ASTM E413, Standard Classification for Determination of Sound Transmission Class*.

The acoustic performance of NOISEBLOCK™ panel systems is not degraded through prolonged exposure to noise, vibration, pressure differential, rain, wind or snow.

Engineering Performance and Design

NOISEBLOCK™ wall systems are placed between a noise source and a receiver. The barrier creates a “sound shadow” zone of attenuation that can be designed to effectively attenuation an area either indoors or outdoors and at varied distances from the noise source.

Standard Panel Dimensions

NOISEBLOCK™ panels are available in standard designated widths of 21.625” and 45.625” and lengths up to 144”. Other widths and lengths are available by special order. NOISEBLOCK™ wall systems incorporate as many standard panels as possible and then finish with nonstandard panels for cost effectiveness.

Structural Performance

NOISEBLOCK™ wall systems are designed per industry standards following the applicable IBC building codes, referenced standards and guidelines. These referenced codes, standards, and guidelines include wind, snow, and seismic loading conditions. Deliverables include copies of the certified structural steel calculations and P.E. stamp. Kinetics engineering group uses the latest AutoCAD software and can incorporate your equipment or system layout into our submittals to assure proper clearances and access locations.

Structural Steel Components

Structural steel components and welded assemblies are designed for either bolt together (standard) or field welding assembly. Standard structural items are shipped with one factory coat of primer for protection during shipping. Kinetics can supply structural items with hot-dip galvanized coated finish or factory painted with either a wet paint or powder-coat finish depending on size and specification.

NOISEBLOCK™ Panel Joint



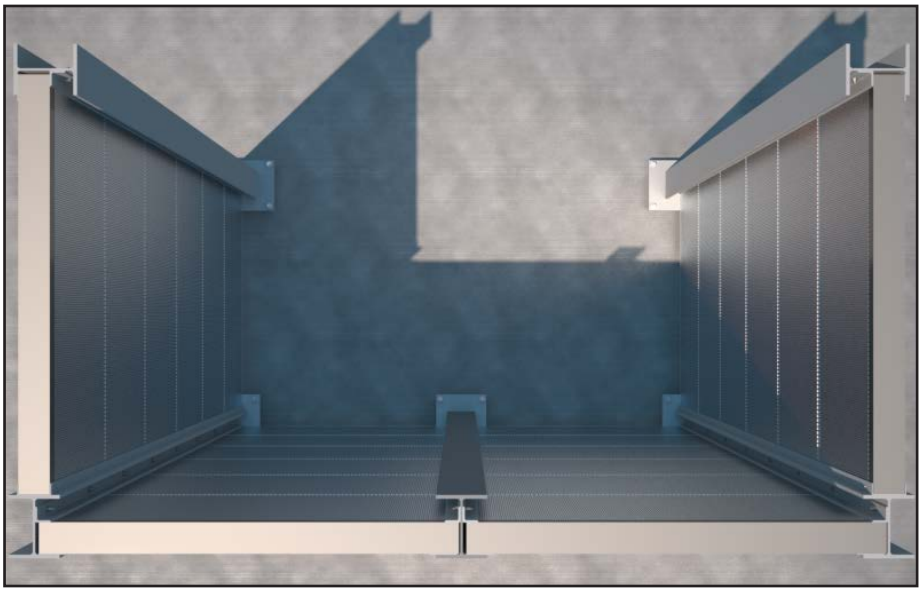
Typical groove and tongue (GT) panel joint

Finish

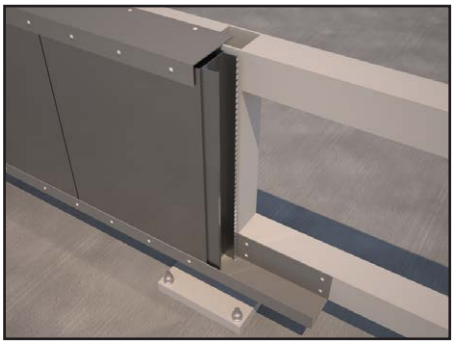
NOISEBLOCK wall systems are available factory powder-coat finish per selection of POWDURA® RAL Series Super Durable TGIC FREE Polyester Powder Coatings, color matching or mill/unpainted.

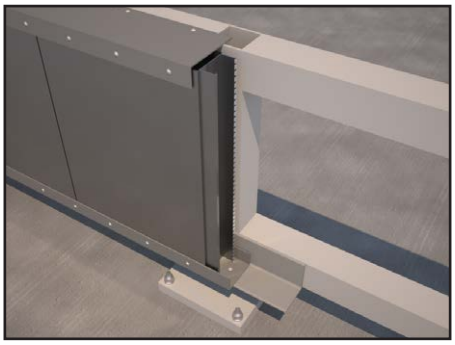
Typical Panel to Structural Connections

Other connection methods available

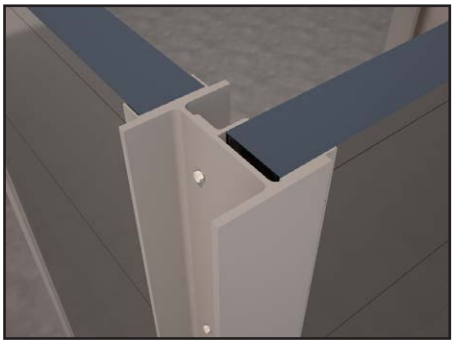


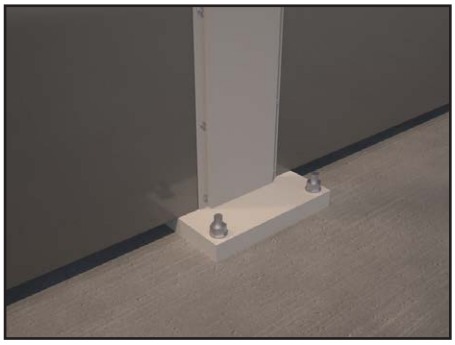
Surface connection to HSS steel framing





Standard W-Column to Panel Connection Detail





KINETICS Noise Control®

kineticsnoise.com/noiseblock
sales@kineticsnoise.com
1-800-959-1229

Kinetics Noise Control, Inc. is continually upgrading the quality of our products.
We reserve the right to make changes to this and all products without notice.

APPENDIX G

Transportation Technical Appendix

TECHNICAL APPENDIX 1 of 3

FOR

RIVERWALK SPECIFIC PLAN EIR
TRANSPORTATION IMPACT ANALYSIS FOR
Riverbank, CA

Prepared For:

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, CA 95762

Prepared By:

KD Anderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, CA 95650
(916) 660-1555

August 31, 2021

2290-02

Prepared by National Data & Surveying Services

McHenry Ave & River Rd

Peak Hour Turning Movement Count

ID: 20-07081-001
City: Escalon

Day: Wednesday
Date: 03/04/2020

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

McHenry Ave — SOUTHBOUND

AM	29	452	14	0	427	AM
NOON	0	0	0	0	0	NOON
PM	34	592	57	0	553	PM
	0	0	0	0		

River Rd — EASTBOUND

AM	NOON	PM	
391	0	261	
0	0	0	0
22	0	24	0
83	0	185	0
125	0	433	0
AM	NOON	PM	

River Rd — WESTBOUND

	PM	NOON	AM
0	12	0	21
0	108	0	167
0	108	0	142
0	0	0	0
	365	0	142
	PM	NOON	AM

CONTROL

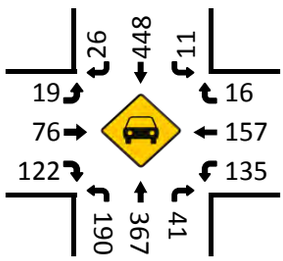
4-Way Yield

	AM	NOON	PM
TEV	1679	0	2312
PHF	0.92		0.92

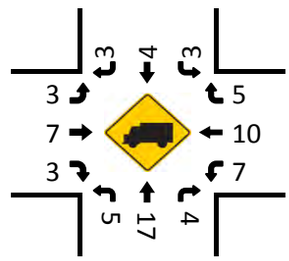
McHenry Ave — NORTHBOUND

	0	0	0	0		
PM	1133	0	119	517	123	PM
NOON	0	0	0	0	0	NOON
AM	719	0	195	384	45	AM

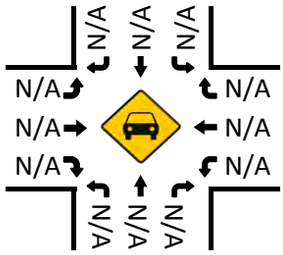
Cars (AM)



HT (AM)



Cars (NOON)



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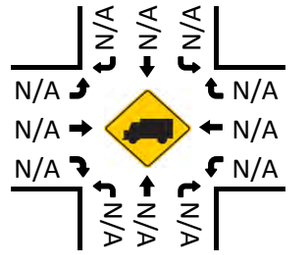
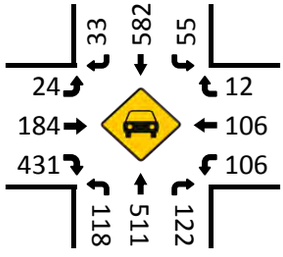
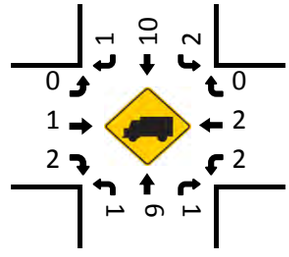


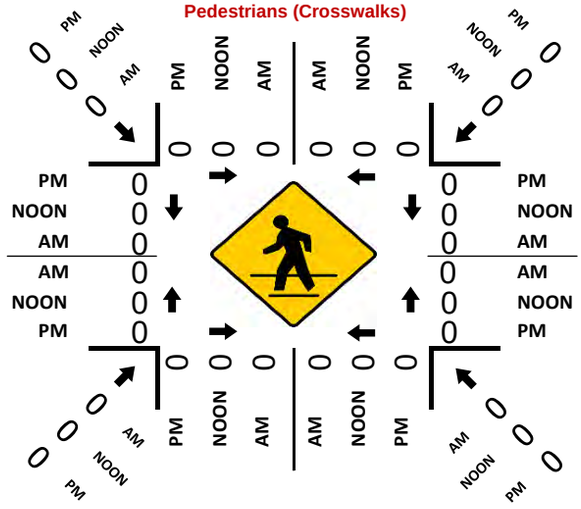
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & River Rd
City: Escalon
Control: 4-Way Yield

Project ID: 20-07081-001
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				River Rd				River Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	43	73	9	0	3	87	2	0	2	16	17	0	24	29	5	0	310
7:15 AM	49	100	6	0	6	118	6	0	4	9	23	0	37	53	5	0	416
7:30 AM	67	95	16	0	2	113	12	0	3	22	38	0	39	43	7	0	457
7:45 AM	44	99	13	0	1	116	6	0	10	33	35	0	33	37	7	0	434
8:00 AM	35	90	10	0	5	105	5	0	5	19	29	0	33	34	2	0	372
8:15 AM	32	77	7	0	3	113	5	0	4	20	56	0	37	19	5	0	378
8:30 AM	24	56	14	0	3	139	7	0	1	11	33	0	29	21	3	0	341
8:45 AM	19	53	13	0	1	104	10	0	3	20	32	0	28	24	6	0	313
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	313	643	88	0	24	895	53	0	32	150	263	0	260	260	40	0	3021
APPROACH %'s :	29.98%	61.59%	8.43%	0.00%	2.47%	92.08%	5.45%	0.00%	7.19%	33.71%	59.10%	0.00%	46.43%	46.43%	7.14%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	195	384	45	0	14	452	29	0	22	83	125	0	142	167	21	0	1679
PEAK HR FACTOR :	0.728	0.960	0.703	0.000	0.583	0.958	0.604	0.000	0.550	0.629	0.822	0.000	0.910	0.788	0.750	0.000	0.918
	0.876				0.952				0.737				0.868				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	34	100	26	0	26	87	16	0	6	57	85	0	23	16	6	0	482
4:15 PM	28	119	34	0	20	118	13	0	12	62	56	0	16	24	2	0	504
4:30 PM	37	111	33	0	19	113	20	0	9	79	78	0	13	20	9	0	541
4:45 PM	27	113	33	0	33	123	9	0	7	62	89	0	18	22	6	0	542
5:00 PM	29	143	34	0	9	189	13	0	4	38	107	0	25	36	3	0	630
5:15 PM	33	128	27	0	11	153	5	0	6	43	93	0	29	26	1	0	555
5:30 PM	30	133	29	0	4	127	7	0	7	42	144	0	36	24	2	0	585
5:45 PM	25	114	26	0	2	148	3	0	5	33	90	0	13	22	2	0	483
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	243	961	242	0	124	1058	86	0	56	416	742	0	173	190	31	0	4322
APPROACH %'s :	16.80%	66.46%	16.74%	0.00%	9.78%	83.44%	6.78%	0.00%	4.61%	34.27%	61.12%	0.00%	43.91%	48.22%	7.87%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	119	517	123	0	57	592	34	0	24	185	433	0	108	108	12	0	2312
PEAK HR FACTOR :	0.902	0.904	0.904	0.000	0.432	0.783	0.654	0.000	0.857	0.746	0.752	0.000	0.750	0.750	0.500	0.000	0.917
	0.921				0.809				0.832				0.891				

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & River Rd
City: Escalon
Control: 4-Way Yield

Project ID: 20-07081-001
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				River Rd				River Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	43	71	8	0	1	84	2	0	2	16	17	0	23	27	3	0	297
7:15 AM	48	100	6	0	5	117	5	0	3	9	22	0	37	51	1	0	404
7:30 AM	67	88	14	0	2	113	11	0	2	22	37	0	37	41	6	0	440
7:45 AM	42	93	12	0	0	114	6	0	9	31	34	0	30	33	7	0	411
8:00 AM	33	86	9	0	4	104	4	0	5	14	29	0	31	32	2	0	353
8:15 AM	31	75	7	0	1	110	5	0	4	16	55	0	35	18	4	0	361
8:30 AM	22	54	14	0	3	136	6	0	1	11	33	0	28	20	1	0	329
8:45 AM	19	50	12	0	1	100	9	0	3	14	31	0	26	22	4	0	291
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	305	617	82	0	17	878	48	0	29	133	258	0	247	244	28	0	2886
APPROACH %'s :	30.38%	61.45%	8.17%	0.00%	1.80%	93.11%	5.09%	0.00%	6.90%	31.67%	61.43%	0.00%	47.59%	47.01%	5.39%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	190	367	41	0	11	448	26	0	19	76	122	0	135	157	16	0	1608
PEAK HR FACTOR :	0.71	0.918	0.732	0.000	0.550	0.957	0.591	0.000	0.528	0.613	0.824	0.000	0.912	0.770	0.571	0.000	0.914
		0.885				0.955				0.733				0.865			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	34	99	25	0	26	85	14	0	6	57	84	0	23	14	4	0	471
4:15 PM	28	115	34	0	20	116	12	0	12	61	56	0	16	19	2	0	491
4:30 PM	36	110	33	0	19	113	20	0	9	78	78	0	11	20	8	0	535
4:45 PM	27	110	33	0	33	119	8	0	7	61	89	0	18	21	6	0	532
5:00 PM	29	142	33	0	7	188	13	0	4	38	107	0	24	35	3	0	623
5:15 PM	32	126	27	0	11	151	5	0	6	43	92	0	29	26	1	0	549
5:30 PM	30	133	29	0	4	124	7	0	7	42	143	0	35	24	2	0	580
5:45 PM	25	110	26	0	2	146	3	0	5	33	90	0	13	20	2	0	475
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	241	945	240	0	122	1042	82	0	56	413	739	0	169	179	28	0	4256
APPROACH %'s :	16.90%	66.27%	16.83%	0.00%	9.79%	83.63%	6.58%	0.00%	4.64%	34.19%	61.18%	0.00%	44.95%	47.61%	7.45%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	118	511	122	0	55	582	33	0	24	184	431	0	106	106	12	0	2284
PEAK HR FACTOR :	0.92	0.900	0.924	0.000	0.417	0.774	0.635	0.000	0.857	0.754	0.753	0.000	0.757	0.757	0.500	0.000	0.917
		0.920				0.805				0.832				0.903			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & River Rd
City: Escalon
Control: 4-Way Yield

Project ID: 20-07081-001
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				River Rd				River Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	1	0	2	3	0	0	0	0	0	0	1	2	2	0	13
7:15 AM	1	0	0	0	1	1	1	0	1	0	1	0	0	2	4	0	12
7:30 AM	0	7	2	0	0	0	1	0	1	0	1	0	2	2	1	0	17
7:45 AM	2	6	1	0	1	2	0	0	1	2	1	0	3	4	0	0	23
8:00 AM	2	4	1	0	1	1	1	0	0	5	0	0	2	2	0	0	19
8:15 AM	1	2	0	0	2	3	0	0	0	4	1	0	2	1	1	0	17
8:30 AM	2	2	0	0	0	3	1	0	0	0	0	0	1	1	2	0	12
8:45 AM	0	3	1	0	0	4	1	0	0	6	1	0	2	2	2	0	22
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	26	6	0	7	17	5	0	3	17	5	0	13	16	12	0	135
APPROACH %'s :	20.00%	65.00%	15.00%	0.00%	24.14%	58.62%	17.24%	0.00%	12.00%	68.00%	20.00%	0.00%	31.71%	39.02%	29.27%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	5	17	4	0	3	4	3	0	3	7	3	0	7	10	5	0	71
PEAK HR FACTOR :	0.625	0.607	0.500	0.000	0.750	0.500	0.750	0.000	0.750	0.350	0.750	0.000	0.583	0.625	0.313	0.000	0.772
		0.722				0.833				0.650				0.786			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	2	2	0	0	0	1	0	0	2	2	0	11
4:15 PM	0	4	0	0	0	2	1	0	0	1	0	0	0	5	0	0	13
4:30 PM	1	1	0	0	0	0	0	0	0	1	0	0	2	0	1	0	6
4:45 PM	0	3	0	0	0	4	1	0	0	1	0	0	0	1	0	0	10
5:00 PM	0	1	1	0	2	1	0	0	0	0	0	0	1	1	0	0	7
5:15 PM	1	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	6
5:30 PM	0	0	0	0	0	3	0	0	0	0	1	0	1	0	0	0	5
5:45 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	2	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	16	2	0	2	16	4	0	0	3	3	0	4	11	3	0	66
APPROACH %'s :	10.00%	80.00%	10.00%	0.00%	9.09%	72.73%	18.18%	0.00%	0.00%	50.00%	50.00%	0.00%	22.22%	61.11%	16.67%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	6	1	0	2	10	1	0	0	1	2	0	2	2	0	0	28
PEAK HR FACTOR :	0.25	0.500	0.250	0.000	0.250	0.625	0.250	0.000	0.000	0.250	0.500	0.000	0.500	0.500	0.000	0.000	0.700
		0.667				0.650				0.750				0.500			

Prepared by National Data & Surveying Services

McHenry Ave & Stewart Rd

Peak Hour Turning Movement Count

ID: 20-07081-002
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

McHenry Ave — SOUTHBOUND

AM	11	757	0	0	600	AM
NOON	0	0	0	0	0	NOON
PM	25	1183	0	0	733	PM

Stewart Rd — EASTBOUND

AM	NOON	PM	
32	0	71	⇦
0	0	0	↶ 0
16	0	22	↱ 0
0	0	0	→ 0
33	0	52	↴ 0
AM	NOON	PM	

WESTBOUND — Stewart Rd

PM	NOON	AM	
0	0	0	↰ 0
0	0	0	← 0
0	0	0	↶ 0
0	0	0	↶ 0
0	0	0	⇨
PM	NOON	AM	

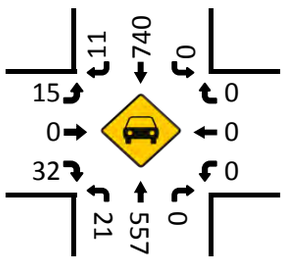
CONTROL: Signalized

	AM	NOON	PM
TEV	1423	0	2039
PHF	0.90		0.95

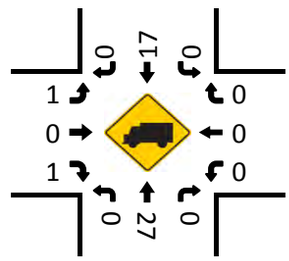
McHenry Ave — NORTHBOUND

PM	1235	0	46	711	0	PM
NOON	0	0	0	0	0	NOON
AM	791	1	21	584	0	AM

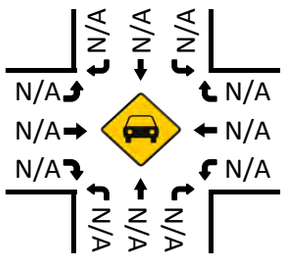
Cars (AM)



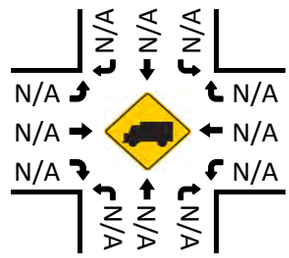
HT (AM)



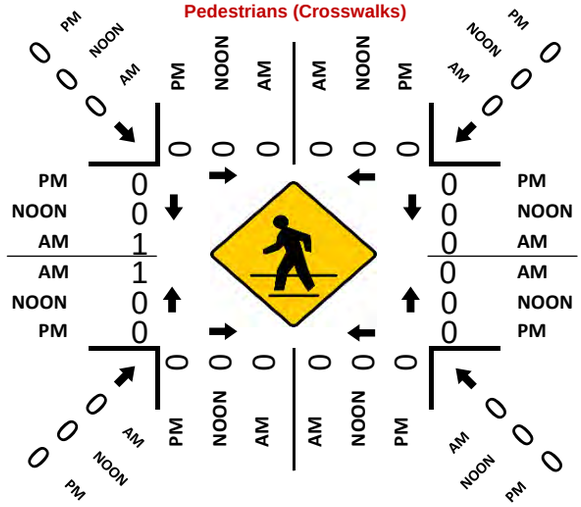
Cars (NOON)



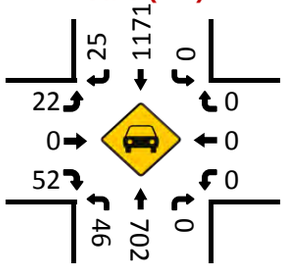
HT (NOON)



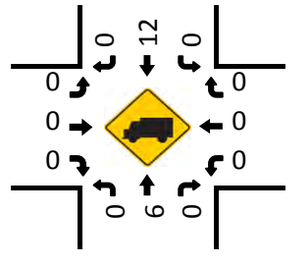
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Stewart Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-002
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				Stewart Rd				Stewart Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	132	0	0	1	132	3	0	3	0	5	0	0	0	0	0	280
7:15 AM	4	145	0	0	0	162	2	0	3	0	6	0	0	0	3	0	325
7:30 AM	6	170	0	0	0	202	2	0	4	0	11	0	0	0	0	0	395
7:45 AM	1	167	0	0	0	194	3	0	4	0	7	0	0	0	0	0	376
8:00 AM	7	128	0	0	0	158	1	0	8	0	5	0	0	0	0	0	307
8:15 AM	7	119	0	1	0	203	5	0	0	0	10	0	0	0	0	0	345
8:30 AM	3	83	0	0	0	177	5	0	0	0	5	0	0	0	0	0	273
8:45 AM	0	84	0	0	0	193	1	0	0	0	0	0	0	0	0	0	278
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	1028	0	1	1	1421	22	0	22	0	49	0	0	0	3	0	2579
APPROACH %'s :	3.02%	96.89%	0.00%	0.09%	0.07%	98.41%	1.52%	0.00%	30.99%	0.00%	69.01%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	21	584	0	1	0	757	11	0	16	0	33	0	0	0	0	0	1423
PEAK HR FACTOR :	0.750	0.859	0.000	0.250	0.000	0.932	0.550	0.000	0.500	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.901
	0.861				0.923				0.817								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	137	0	0	0	191	5	0	5	0	5	0	1	0	6	0	358
4:15 PM	12	164	0	0	0	190	6	0	4	0	7	0	0	0	0	0	383
4:30 PM	9	166	0	0	0	172	9	0	4	0	12	0	0	0	0	0	372
4:45 PM	6	196	0	1	0	268	4	0	3	0	7	0	0	0	0	0	485
5:00 PM	11	189	0	0	0	293	5	0	6	0	16	0	0	0	0	0	520
5:15 PM	6	190	0	0	0	321	5	0	7	0	9	0	0	0	0	0	538
5:30 PM	14	171	0	0	0	268	8	0	7	0	11	0	0	0	0	0	479
5:45 PM	15	161	0	0	0	301	7	0	2	0	16	0	0	0	0	0	502
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	81	1374	0	1	0	2004	49	0	38	0	83	0	1	0	6	0	3637
APPROACH %'s :	5.56%	94.37%	0.00%	0.07%	0.00%	97.61%	2.39%	0.00%	31.40%	0.00%	68.60%	0.00%	14.29%	0.00%	85.71%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	46	711	0	0	0	1183	25	0	22	0	52	0	0	0	0	0	2039
PEAK HR FACTOR :	0.767	0.936	0.000	0.000	0.000	0.921	0.781	0.000	0.786	0.000	0.813	0.000	0.000	0.000	0.000	0.000	0.947
	0.946				0.926				0.841								

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Stewart Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-002
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				Stewart Rd				Stewart Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	129	0	0	1	128	3	0	3	0	5	0	0	0	0	0	273
7:15 AM	4	144	0	0	0	161	2	0	3	0	6	0	0	0	3	0	323
7:30 AM	6	160	0	0	0	198	2	0	4	0	11	0	0	0	0	0	381
7:45 AM	1	159	0	0	0	188	3	0	4	0	7	0	0	0	0	0	362
8:00 AM	7	123	0	0	0	155	1	0	7	0	4	0	0	0	0	0	297
8:15 AM	7	115	0	0	0	199	5	0	0	0	10	0	0	0	0	0	336
8:30 AM	3	79	0	0	0	173	3	0	0	0	5	0	0	0	0	0	263
8:45 AM	0	80	0	0	0	187	0	0	0	0	0	0	0	0	0	0	267
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	989	0	0	1	1389	19	0	21	0	48	0	0	0	3	0	2502
APPROACH %'s :	3.13%	96.87%	0.00%	0.00%	0.07%	98.58%	1.35%	0.00%	30.43%	0.00%	69.57%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	21	557	0	0	0	740	11	0	15	0	32	0	0	0	0	0	1376
PEAK HR FACTOR :	0.75	0.870	0.000	0.000	0.000	0.930	0.550	0.000	0.536	0.000	0.727	0.000	0.000	0.000	0.000	0.000	0.903
		0.870				0.920				0.783							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	135	0	0	0	187	5	0	5	0	5	0	1	0	6	0	352
4:15 PM	12	160	0	0	0	189	6	0	4	0	7	0	0	0	0	0	378
4:30 PM	9	163	0	0	0	170	9	0	4	0	12	0	0	0	0	0	367
4:45 PM	5	194	0	0	0	264	4	0	3	0	7	0	0	0	0	0	477
5:00 PM	11	186	0	0	0	291	5	0	6	0	16	0	0	0	0	0	515
5:15 PM	6	188	0	0	0	318	5	0	7	0	9	0	0	0	0	0	533
5:30 PM	14	171	0	0	0	263	8	0	7	0	11	0	0	0	0	0	474
5:45 PM	15	157	0	0	0	299	7	0	2	0	16	0	0	0	0	0	496
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	80	1354	0	0	0	1981	49	0	38	0	83	0	1	0	6	0	3592
APPROACH %'s :	5.58%	94.42%	0.00%	0.00%	0.00%	97.59%	2.41%	0.00%	31.40%	0.00%	68.60%	0.00%	14.29%	0.00%	85.71%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	46	702	0	0	0	1171	25	0	22	0	52	0	0	0	0	0	2018
PEAK HR FACTOR :	0.77	0.934	0.000	0.000	0.000	0.921	0.781	0.000	0.786	0.000	0.813	0.000	0.000	0.000	0.000	0.000	0.947
		0.949				0.926				0.841							

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Stewart Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-002
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				Stewart Rd				Stewart Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	10	0	0	0	4	0	0	0	0	0	0	0	0	0	0	14
7:45 AM	0	8	0	0	0	6	0	0	0	0	0	0	0	0	0	0	14
8:00 AM	0	5	0	0	0	3	0	0	1	0	1	0	0	0	0	0	10
8:15 AM	0	4	0	1	0	4	0	0	0	0	0	0	0	0	0	0	9
8:30 AM	0	4	0	0	0	4	2	0	0	0	0	0	0	0	0	0	10
8:45 AM	0	4	0	0	0	6	1	0	0	0	0	0	0	0	0	0	11
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	39	0	1	0	32	3	0	1	0	1	0	0	0	0	0	77
APPROACH %'s :	0.00%	97.50%	0.00%	2.50%	0.00%	91.43%	8.57%	0.00%	50.00%	0.00%	50.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	27	0	1	0	17	0	0	1	0	1	0	0	0	0	0	47
PEAK HR FACTOR :	0.000	0.675	0.000	0.250	0.000	0.708	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.839
	0.700				0.708				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
4:15 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	1	2	0	1	0	4	0	0	0	0	0	0	0	0	0	0	8
5:00 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	20	0	1	0	23	0	0	0	0	0	0	0	0	0	0	45
APPROACH %'s :	4.55%	90.91%	0.00%	4.55%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	9	0	0	0	12	0	0	0	0	0	0	0	0	0	0	21
PEAK HR FACTOR :	0.00	0.563	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875
	0.563				0.600												

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Stewart Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-002
Date: 3/4/2020

Bikes

NS/EW Streets:	McHenry Ave				McHenry Ave				Stewart Rd				Stewart Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%													
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	0.250																0.250

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Stewart Rd
City: Modesto
Project ID: 20-07081-002
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	McHenry Ave		McHenry Ave		Stewart Rd		Stewart Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	1	2
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	1	1	3
APPROACH %'s :			100.00%	0.00%			50.00%	50.00%	
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	1	2
PEAK HR FACTOR :							0.250	0.250	0.250
							0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

McHenry Ave & Ladd Rd/Patterson Rd

Peak Hour Turning Movement Count

ID: 20-07081-003
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

McHenry Ave — SOUTHBOUND

AM	255	386	97	0	616	AM
NOON	0	0	0	0	0	NOON
PM	196	674	326	0	789	PM

Ladd Rd/Patterson Rd — EASTBOUND

AM	NOON	PM		
664	0	417	⇦	
0	0	0	↶	0
108	0	233	↱	0
121	0	267	→	0
37	0	20	↴	0
AM	NOON	PM		

Ladd Rd/Patterson Rd — WESTBOUND

PM	NOON	AM		
130	0	241	↰	0
204	0	376	←	0
6	0	1	↰	0
0	0	0	↶	0
595	0	218	⇨	
PM	NOON	AM		

CONTROL: Signalized

TEV	1922	0	2501
	AM	NOON	PM
PHF	0.88		0.96

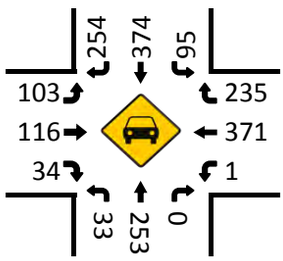
0 0 0 0 (EB turning movements)
0 0 0 0 (WB turning movements)

McHenry Ave — NORTHBOUND

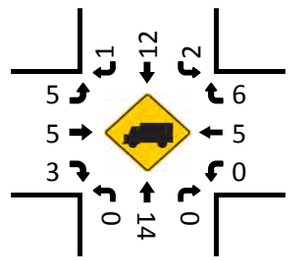
PM	700	0	17	426	2	PM
NOON	0	0	0	0	0	NOON
AM	424	0	33	267	0	AM

0 0 0 0 (NB turning movements)

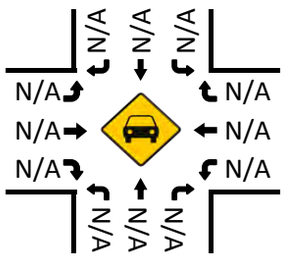
Cars (AM)



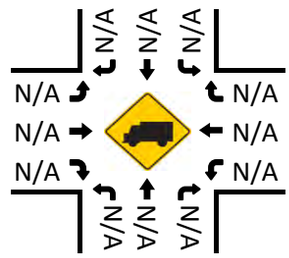
HT (AM)



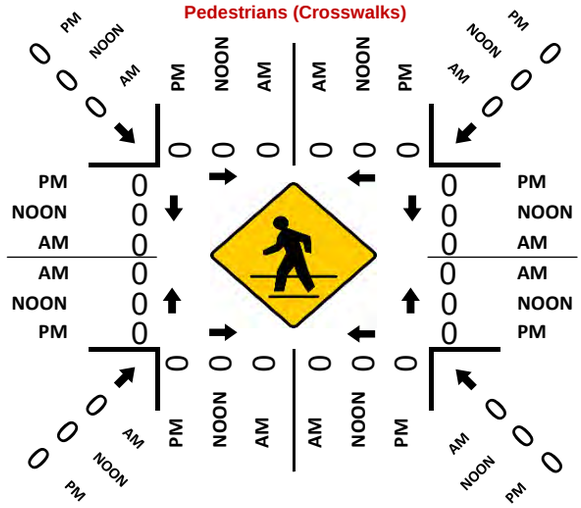
Cars (NOON)



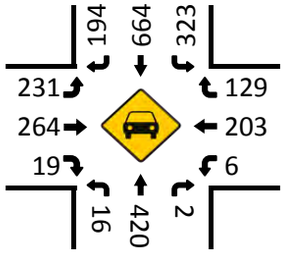
HT (NOON)



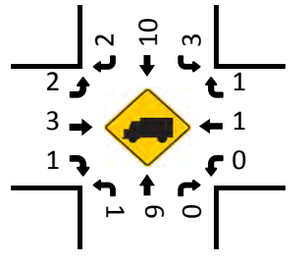
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-003
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	59	0	0	27	64	50	0	17	25	8	0	0	62	68	0	389
7:15 AM	8	55	0	0	13	82	67	0	26	35	3	0	0	109	59	0	457
7:30 AM	8	77	0	0	26	113	70	0	25	27	12	0	0	115	75	0	548
7:45 AM	10	77	0	0	36	104	64	0	28	26	11	0	0	73	61	0	490
8:00 AM	7	58	0	0	22	87	54	0	29	33	11	0	1	79	46	0	427
8:15 AM	13	64	0	0	38	117	53	0	24	35	10	0	1	62	38	0	455
8:30 AM	13	51	1	0	31	84	59	0	21	24	8	0	3	57	31	0	383
8:45 AM	6	42	0	0	40	95	66	0	25	40	8	0	1	56	24	0	403
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	74	483	1	0	233	746	483	0	195	245	71	0	6	613	402	0	3552
APPROACH %'s :	13.26%	86.56%	0.18%	0.00%	15.94%	51.03%	33.04%	0.00%	38.16%	47.95%	13.89%	0.00%	0.59%	60.04%	39.37%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	33	267	0	0	97	386	255	0	108	121	37	0	1	376	241	0	1922
PEAK HR FACTOR :	0.825	0.867	0.000	0.000	0.674	0.854	0.911	0.000	0.931	0.864	0.771	0.000	0.250	0.817	0.803	0.000	0.877
	0.862				0.883				0.911				0.813				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	63	0	0	59	104	36	0	51	69	5	0	1	46	22	0	471
4:15 PM	4	103	0	0	50	108	36	0	42	77	2	0	1	48	32	0	503
4:30 PM	7	81	1	0	52	104	31	0	47	84	7	0	2	57	41	0	514
4:45 PM	5	112	1	0	75	165	39	0	65	67	8	0	2	44	24	0	607
5:00 PM	1	120	1	0	87	161	57	0	55	66	2	0	2	50	38	0	640
5:15 PM	6	86	0	0	85	186	56	0	58	66	4	0	0	61	43	0	651
5:30 PM	5	108	0	0	79	162	44	0	55	68	6	0	2	49	25	0	603
5:45 PM	6	98	2	0	93	171	46	0	52	59	5	0	0	47	28	0	607
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	49	771	5	0	580	1161	345	0	425	556	39	0	10	402	253	0	4596
APPROACH %'s :	5.94%	93.45%	0.61%	0.00%	27.80%	55.66%	16.54%	0.00%	41.67%	54.51%	3.82%	0.00%	1.50%	60.45%	38.05%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	17	426	2	0	326	674	196	0	233	267	20	0	6	204	130	0	2501
PEAK HR FACTOR :	0.708	0.888	0.500	0.000	0.937	0.906	0.860	0.000	0.896	0.982	0.625	0.000	0.750	0.836	0.756	0.000	0.960
	0.912				0.914				0.929				0.817				

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-003
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	56	0	0	27	60	50	0	17	23	5	0	0	61	68	0	376
7:15 AM	8	55	0	0	13	82	67	0	25	33	3	0	0	106	59	0	451
7:30 AM	8	71	0	0	24	110	70	0	23	27	10	0	0	114	73	0	530
7:45 AM	10	73	0	0	36	99	64	0	27	24	11	0	0	73	58	0	475
8:00 AM	7	54	0	0	22	83	53	0	28	32	10	0	1	78	45	0	413
8:15 AM	13	61	0	0	38	114	53	0	24	34	10	0	1	59	37	0	444
8:30 AM	13	48	1	0	30	80	58	0	19	24	8	0	3	56	31	0	371
8:45 AM	5	39	0	0	39	91	65	0	25	37	8	0	1	55	24	0	389
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	73	457	1	0	229	719	480	0	188	234	65	0	6	602	395	0	3449
APPROACH %'s :	13.75%	86.06%	0.19%	0.00%	16.04%	50.35%	33.61%	0.00%	38.60%	48.05%	13.35%	0.00%	0.60%	60.02%	39.38%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	33	253	0	0	95	374	254	0	103	116	34	0	1	371	235	0	1869
PEAK HR FACTOR :	0.83	0.866	0.000	0.000	0.660	0.850	0.907	0.000	0.920	0.879	0.773	0.000	0.250	0.814	0.805	0.000	0.882
		0.861				0.886				0.904				0.811			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	15	63	0	0	59	100	36	0	50	69	5	0	0	46	21	0	464
4:15 PM	4	99	0	0	49	108	36	0	42	76	2	0	1	47	32	0	496
4:30 PM	6	78	1	0	52	102	31	0	47	84	7	0	2	56	40	0	506
4:45 PM	4	111	1	0	75	160	39	0	64	66	8	0	2	44	23	0	597
5:00 PM	1	117	1	0	86	160	57	0	54	66	2	0	2	50	38	0	634
5:15 PM	6	85	0	0	84	185	55	0	58	65	4	0	0	60	43	0	645
5:30 PM	5	107	0	0	78	159	43	0	55	67	5	0	2	49	25	0	595
5:45 PM	6	96	2	0	91	170	46	0	52	59	5	0	0	47	27	0	601
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	47	756	5	0	574	1144	343	0	422	552	38	0	9	399	249	0	4538
APPROACH %'s :	5.82%	93.56%	0.62%	0.00%	27.85%	55.51%	16.64%	0.00%	41.70%	54.55%	3.75%	0.00%	1.37%	60.73%	37.90%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	16	420	2	0	323	664	194	0	231	264	19	0	6	203	129	0	2471
PEAK HR FACTOR :	0.67	0.897	0.500	0.000	0.939	0.897	0.851	0.000	0.902	0.985	0.594	0.000	0.750	0.846	0.750	0.000	0.958
		0.920				0.911				0.931				0.820			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-003
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	4	0	0	0	2	3	0	0	1	0	0	13
7:15 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	3	0	0	6
7:30 AM	0	6	0	0	2	3	0	0	2	0	2	0	0	1	2	0	18
7:45 AM	0	4	0	0	0	5	0	0	1	2	0	0	0	0	3	0	15
8:00 AM	0	4	0	0	0	4	1	0	1	1	1	0	0	1	1	0	14
8:15 AM	0	3	0	0	0	3	0	0	0	1	0	0	0	3	1	0	11
8:30 AM	0	3	0	0	1	4	1	0	2	0	0	0	0	1	0	0	12
8:45 AM	1	3	0	0	1	4	1	0	0	3	0	0	0	1	0	0	14
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	26	0	0	4	27	3	0	7	11	6	0	0	11	7	0	103
APPROACH %'s :	3.70%	96.30%	0.00%	0.00%	11.76%	79.41%	8.82%	0.00%	29.17%	45.83%	25.00%	0.00%	0.00%	61.11%	38.89%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	14	0	0	2	12	1	0	5	5	3	0	0	5	6	0	53
PEAK HR FACTOR :	0.000	0.583	0.000	0.000	0.250	0.600	0.250	0.000	0.625	0.625	0.375	0.000	0.000	0.417	0.500	0.000	0.736
		0.583				0.750				0.813				0.917			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	4	0	0	1	0	0	0	1	0	1	0	7
4:15 PM	0	4	0	0	1	0	0	0	0	1	0	0	0	1	0	0	7
4:30 PM	1	3	0	0	0	2	0	0	0	0	0	0	0	1	1	0	8
4:45 PM	1	1	0	0	0	5	0	0	1	1	0	0	0	0	1	0	10
5:00 PM	0	3	0	0	1	1	0	0	1	0	0	0	0	0	0	0	6
5:15 PM	0	1	0	0	1	1	1	0	0	1	0	0	0	1	0	0	6
5:30 PM	0	1	0	0	1	3	1	0	0	1	1	0	0	0	0	0	8
5:45 PM	0	2	0	0	2	1	0	0	0	0	0	0	0	0	1	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	15	0	0	6	17	2	0	3	4	1	0	1	3	4	0	58
APPROACH %'s :	11.76%	88.24%	0.00%	0.00%	24.00%	68.00%	8.00%	0.00%	37.50%	50.00%	12.50%	0.00%	12.50%	37.50%	50.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	6	0	0	3	10	2	0	2	3	1	0	0	1	1	0	30
PEAK HR FACTOR :	0.25	0.500	0.000	0.000	0.750	0.500	0.500	0.000	0.500	0.750	0.250	0.000	0.000	0.250	0.250	0.000	0.750
		0.583				0.750				0.750				0.500			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-003
Date: 3/4/2020

Bikes

NS/EW Streets:	McHenry Ave				McHenry Ave				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
APPROACH %'s :													0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250
															0.250		

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Ladd Rd/Patterson Rd
City: Modesto

Project ID: 20-07081-003
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	McHenry Ave		McHenry Ave		Ladd Rd/Patterson Rd		Ladd Rd/Patterson Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by National Data & Surveying Services

McHenry Ave connection/Patterson Rd & Ladd Rd/Patterson Rd

Peak Hour Turning Movement Count

ID: 20-07081-004
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND — McHenry Ave connection/Patterson Rd

AM	1	0	0	0	1	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — Ladd Rd/Patterson Rd

AM	NOON	PM	
616	0	365	⇦
0	0	0	↶ 0
1	0	0	↱ 0
224	0	585	→ 0
0	0	3	↴ 0
AM	NOON	PM	

WESTBOUND — Ladd Rd/Patterson Rd

PM	NOON	AM	
0	0	0	0 ↰
365	0	615	0 ←
119	0	181	0 ↰
0	0	0	0 ↶
813	0	334	⇨
PM	NOON	AM	

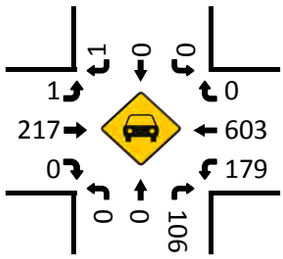
CONTROL: Signalized

TEV	1132 AM	0 NOON	1300 PM
PHF	0.85		0.95

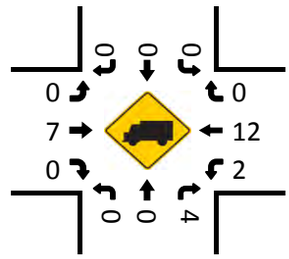
NORTHBOUND — McHenry Ave connection/Patterson R

PM	122	0	0	0	228	PM
NOON	0	0	0	0	0	NOON
AM	181	0	0	0	110	AM

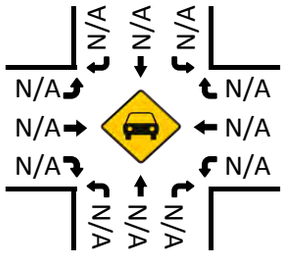
Cars (AM)



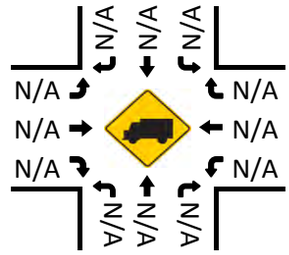
HT (AM)



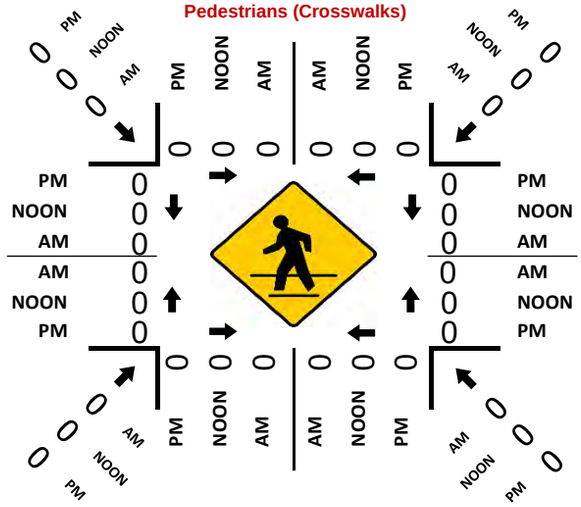
Cars (NOON)



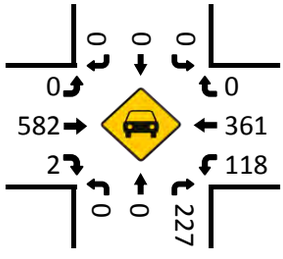
HT (NOON)



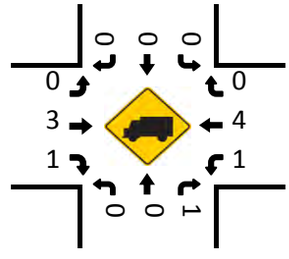
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave connection/Patterson Rd & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-004
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave connection/Patterson Rd				McHenry Ave connection/Patterson Rd				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	18	0	0	0	0	0	0	51	0	0	27	129	0	0	225
7:15 AM	0	0	17	0	0	0	0	0	1	49	0	0	32	165	0	0	264
7:30 AM	0	0	35	0	0	0	1	0	0	57	0	0	48	190	0	0	331
7:45 AM	0	0	35	0	0	0	0	0	0	61	0	0	53	139	0	0	288
8:00 AM	0	0	23	0	0	0	0	0	0	57	0	0	48	121	0	0	249
8:15 AM	0	0	26	0	0	0	0	0	0	67	1	0	35	99	0	0	228
8:30 AM	0	0	24	0	0	0	0	0	0	55	1	0	34	94	0	0	208
8:45 AM	0	0	19	0	0	0	0	0	0	83	0	0	25	79	0	0	206
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	197	0	0	0	1	0	1	480	2	0	302	1016	0	0	1999
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.21%	99.38%	0.41%	0.00%	22.91%	77.09%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	110	0	0	0	1	0	1	224	0	0	181	615	0	0	1132
PEAK HR FACTOR :	0.000	0.000	0.786	0.000	0.000	0.000	0.250	0.000	0.250	0.918	0.000	0.000	0.854	0.809	0.000	0.000	0.855
	0.786				0.250				0.922				0.836				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	44	0	0	0	0	0	0	129	0	0	29	70	0	0	272
4:15 PM	0	0	57	0	0	0	0	0	0	126	0	0	35	85	0	0	303
4:30 PM	0	0	56	0	0	0	0	0	0	142	0	0	30	95	0	0	323
4:45 PM	0	0	53	0	0	0	0	0	0	139	1	0	23	76	0	0	292
5:00 PM	0	0	63	0	0	0	0	0	0	154	1	0	31	94	0	0	343
5:15 PM	0	0	56	0	0	0	0	0	0	150	1	0	35	100	0	0	342
5:30 PM	0	0	45	0	0	0	0	0	0	149	1	0	26	75	0	0	296
5:45 PM	0	0	47	0	0	0	0	0	0	153	0	0	25	74	0	0	299
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	421	0	0	0	0	0	0	1142	4	0	234	669	0	0	2470
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	99.65%	0.35%	0.00%	25.91%	74.09%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	228	0	0	0	0	0	0	585	3	0	119	365	0	0	1300
PEAK HR FACTOR :	0.000	0.000	0.905	0.000	0.000	0.000	0.000	0.000	0.000	0.950	0.750	0.000	0.850	0.913	0.000	0.000	0.948
	0.905								0.948				0.896				

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave connection/Patterson Rd & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-004
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave connection/Patterson Rd				McHenry Ave connection/Patterson Rd				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	16	0	0	0	0	0	0	49	0	0	24	128	0	0	217
7:15 AM	0	0	17	0	0	0	0	0	1	47	0	0	31	162	0	0	258
7:30 AM	0	0	33	0	0	0	1	0	0	55	0	0	47	187	0	0	323
7:45 AM	0	0	33	0	0	0	0	0	0	59	0	0	53	136	0	0	281
8:00 AM	0	0	23	0	0	0	0	0	0	56	0	0	48	118	0	0	245
8:15 AM	0	0	24	0	0	0	0	0	0	66	1	0	34	95	0	0	220
8:30 AM	0	0	23	0	0	0	0	0	0	54	1	0	32	93	0	0	203
8:45 AM	0	0	19	0	0	0	0	0	0	79	0	0	25	78	0	0	201
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	188	0	0	0	1	0	1	465	2	0	294	997	0	0	1948
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.21%	99.36%	0.43%	0.00%	22.77%	77.23%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	106	0	0	0	1	0	1	217	0	0	179	603	0	0	1107
PEAK HR FACTOR :	0.00	0.000	0.803	0.000	0.000	0.000	0.250	0.000	0.250	0.919	0.000	0.000	0.844	0.806	0.000	0.000	0.857
		0.803				0.250				0.924				0.835			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	43	0	0	0	0	0	0	129	0	0	26	69	0	0	267
4:15 PM	0	0	56	0	0	0	0	0	0	124	0	0	34	84	0	0	298
4:30 PM	0	0	56	0	0	0	0	0	0	142	0	0	30	93	0	0	321
4:45 PM	0	0	52	0	0	0	0	0	0	139	0	0	22	75	0	0	288
5:00 PM	0	0	63	0	0	0	0	0	0	153	1	0	31	94	0	0	342
5:15 PM	0	0	56	0	0	0	0	0	0	148	1	0	35	99	0	0	339
5:30 PM	0	0	45	0	0	0	0	0	0	147	1	0	25	74	0	0	292
5:45 PM	0	0	46	0	0	0	0	0	0	151	0	0	25	74	0	0	296
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	417	0	0	0	0	0	0	1133	3	0	228	662	0	0	2443
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	99.74%	0.26%	0.00%	25.62%	74.38%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	227	0	0	0	0	0	0	582	2	0	118	361	0	0	1290
PEAK HR FACTOR :	0.00	0.000	0.901	0.000	0.000	0.000	0.000	0.000	0.000	0.951	0.500	0.000	0.843	0.912	0.000	0.000	0.943
		0.901								0.948				0.894			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave connection/Patterson Rd & Ladd Rd/Patterson Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-004
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave connection/Patterson Rd				McHenry Ave connection/Patterson Rd				Ladd Rd/Patterson Rd				Ladd Rd/Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	2	0	0	0	0	0	0	2	0	0	3	1	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	1	3	0	0	6
7:30 AM	0	0	2	0	0	0	0	0	0	2	0	0	1	3	0	0	8
7:45 AM	0	0	2	0	0	0	0	0	0	2	0	0	0	3	0	0	7
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
8:15 AM	0	0	2	0	0	0	0	0	0	1	0	0	1	4	0	0	8
8:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	2	1	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	9	0	0	0	0	0	0	15	0	0	8	19	0	0	51
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	29.63%	70.37%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	4	0	0	0	0	0	0	7	0	0	2	12	0	0	25
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.875	0.000	0.000	0.500	1.000	0.000	0.000	0.781
			0.500							0.875				0.875			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	0	5
4:15 PM	0	0	1	0	0	0	0	0	0	2	0	0	1	1	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	4
5:45 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	4	0	0	0	0	0	0	9	1	0	6	7	0	0	27
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	90.00%	10.00%	0.00%	46.15%	53.85%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	3	1	0	1	4	0	0	10
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.250	0.000	0.250	0.500	0.000	0.000	0.625
			0.250							0.500				0.625			

Prepared by National Data & Surveying Services

McHenry Ave & Patterson Rd connection

Peak Hour Turning Movement Count

ID: 20-07081-005
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

McHenry Ave — SOUTHBOUND

AM	0	465	0	0	315	AM
NOON	0	0	0	0	0	NOON
PM	0	710	0	0	436	PM

Patterson Rd connection — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND — Patterson Rd connection

PM	NOON	AM	
0	0	1	0
0	0	0	0
120	0	187	0
0	0	0	0
209	0	121	
PM	NOON	AM	

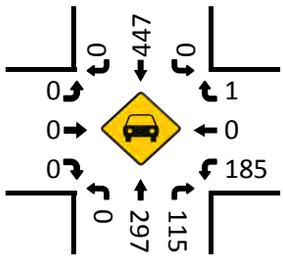
CONTROL: Signalized

TEV	1088 AM	0 NOON	1475 PM
PHF	0.91		0.95

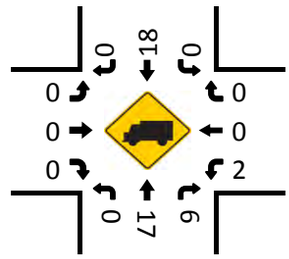
McHenry Ave — NORTHBOUND

PM	830	0	0	436	209	PM
NOON	0	0	0	0	0	NOON
AM	652	0	0	314	121	AM

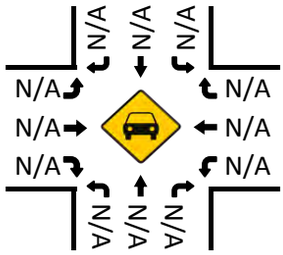
Cars (AM)



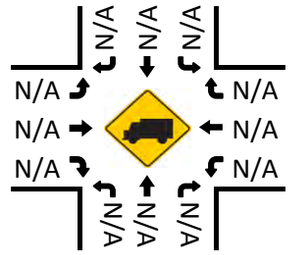
HT (AM)



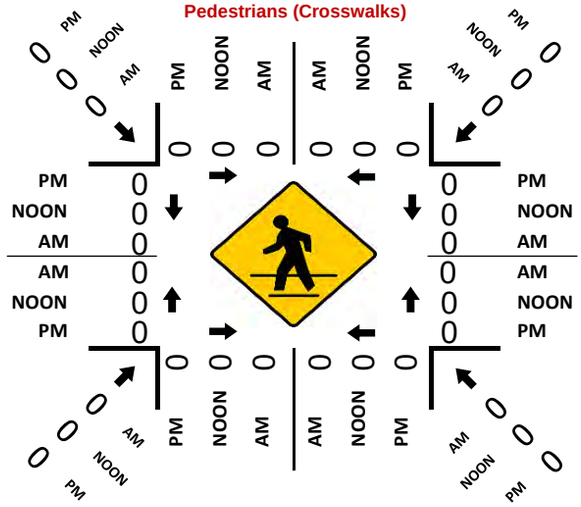
Cars (NOON)



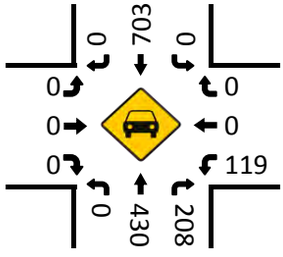
HT (NOON)



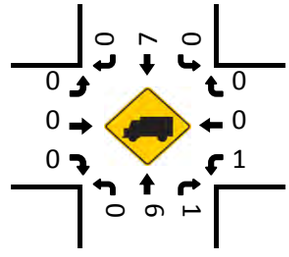
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Patterson Rd connection
City: Modesto
Control: Signalized

Project ID: 20-07081-005
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				Patterson Rd connection				Patterson Rd connection				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	69	18	0	0	68	0	0	0	0	0	0	25	0	0	0	180
7:15 AM	0	65	17	0	0	92	0	0	0	0	0	0	32	0	0	0	206
7:30 AM	0	90	36	0	0	125	0	0	0	0	0	0	46	0	1	0	298
7:45 AM	0	84	40	0	0	112	0	0	0	0	0	0	57	0	0	0	293
8:00 AM	0	63	19	0	0	105	0	0	0	0	0	0	44	0	0	0	231
8:15 AM	0	77	26	0	0	123	0	0	0	0	0	0	40	0	0	0	266
8:30 AM	0	60	24	0	0	96	0	0	0	0	0	0	23	0	1	0	204
8:45 AM	0	54	18	0	0	105	0	0	0	0	0	0	34	0	0	0	211
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	562	198	0	0	826	0	0	0	0	0	0	301	0	2	0	1889
APPROACH %'s :	0.00%	73.95%	26.05%	0.00%	0.00%	100.00%	0.00%	0.00%					99.34%	0.00%	0.66%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	314	121	0	0	465	0	0	0	0	0	0	187	0	1	0	1088
PEAK HR FACTOR :	0.000	0.872	0.756	0.000	0.000	0.930	0.000	0.000	0.000	0.000	0.000	0.000	0.820	0.000	0.250	0.000	0.913
		0.863				0.930							0.825				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	78	43	0	0	115	0	0	0	0	0	0	29	0	0	0	265
4:15 PM	0	109	58	0	0	104	0	0	0	0	0	0	35	0	0	0	306
4:30 PM	0	92	57	0	0	127	0	0	0	0	0	0	30	0	1	0	307
4:45 PM	0	111	54	0	0	159	0	0	0	0	0	0	24	0	1	0	349
5:00 PM	0	121	61	0	0	179	0	0	0	0	0	0	28	0	0	0	389
5:15 PM	0	100	55	0	0	189	0	0	0	0	0	0	39	0	0	0	383
5:30 PM	0	108	46	0	0	170	0	0	0	0	0	0	27	0	0	0	351
5:45 PM	0	107	47	0	0	172	0	0	0	0	0	0	26	0	0	0	352
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	826	421	0	0	1215	0	0	0	0	0	0	238	0	2	0	2702
APPROACH %'s :	0.00%	66.24%	33.76%	0.00%	0.00%	100.00%	0.00%	0.00%					99.17%	0.00%	0.83%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	436	209	0	0	710	0	0	0	0	0	0	120	0	0	0	1475
PEAK HR FACTOR :	0.000	0.901	0.857	0.000	0.000	0.939	0.000	0.000	0.000	0.000	0.000	0.000	0.769	0.000	0.000	0.000	0.948
		0.886				0.939							0.769				

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Patterson Rd connection
City: Modesto
Control: Signalized

Project ID: 20-07081-005
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				Patterson Rd connection				Patterson Rd connection				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	66	16	0	0	62	0	0	0	0	0	0	23	0	0	0	167
7:15 AM	0	65	17	0	0	92	0	0	0	0	0	0	30	0	0	0	204
7:30 AM	0	85	34	0	0	121	0	0	0	0	0	0	45	0	1	0	286
7:45 AM	0	80	38	0	0	106	0	0	0	0	0	0	57	0	0	0	281
8:00 AM	0	58	19	0	0	100	0	0	0	0	0	0	44	0	0	0	221
8:15 AM	0	74	24	0	0	120	0	0	0	0	0	0	39	0	0	0	257
8:30 AM	0	57	23	0	0	92	0	0	0	0	0	0	22	0	1	0	195
8:45 AM	0	50	18	0	0	101	0	0	0	0	0	0	33	0	0	0	202
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	535	189	0	0	794	0	0	0	0	0	0	293	0	2	0	1813
APPROACH %'s :	0.00%	73.90%	26.10%	0.00%	0.00%	100.00%	0.00%	0.00%					99.32%	0.00%	0.68%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	297	115	0	0	447	0	0	0	0	0	0	185	0	1	0	1045
PEAK HR FACTOR :	0.00	0.874	0.757	0.000	0.000	0.924	0.000	0.000	0.000	0.000	0.000	0.000	0.811	0.000	0.250	0.000	0.913
		0.866				0.924								0.816			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	77	42	0	0	112	0	0	0	0	0	0	26	0	0	0	257
4:15 PM	0	106	57	0	0	102	0	0	0	0	0	0	34	0	0	0	299
4:30 PM	0	88	57	0	0	125	0	0	0	0	0	0	30	0	1	0	301
4:45 PM	0	109	53	0	0	154	0	0	0	0	0	0	23	0	0	0	339
5:00 PM	0	119	61	0	0	178	0	0	0	0	0	0	28	0	0	0	386
5:15 PM	0	99	55	0	0	188	0	0	0	0	0	0	39	0	0	0	381
5:30 PM	0	107	46	0	0	166	0	0	0	0	0	0	27	0	0	0	346
5:45 PM	0	105	46	0	0	171	0	0	0	0	0	0	25	0	0	0	347
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	810	417	0	0	1196	0	0	0	0	0	0	232	0	1	0	2656
APPROACH %'s :	0.00%	66.01%	33.99%	0.00%	0.00%	100.00%	0.00%	0.00%					99.57%	0.00%	0.43%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	430	208	0	0	703	0	0	0	0	0	0	119	0	0	0	1460
PEAK HR FACTOR :	0.00	0.903	0.852	0.000	0.000	0.935	0.000	0.000	0.000	0.000	0.000	0.000	0.763	0.000	0.000	0.000	0.946
		0.886				0.935								0.763			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Patterson Rd connection
City: Modesto
Control: Signalized

Project ID: 20-07081-005
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				Patterson Rd connection				Patterson Rd connection				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	2	0	0	6	0	0	0	0	0	0	2	0	0	0	13
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	5	2	0	0	4	0	0	0	0	0	0	1	0	0	0	12
7:45 AM	0	4	2	0	0	6	0	0	0	0	0	0	0	0	0	0	12
8:00 AM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10
8:15 AM	0	3	2	0	0	3	0	0	0	0	0	0	1	0	0	0	9
8:30 AM	0	3	1	0	0	4	0	0	0	0	0	0	1	0	0	0	9
8:45 AM	0	4	0	0	0	4	0	0	0	0	0	0	1	0	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	27	9	0	0	32	0	0	0	0	0	0	8	0	0	0	76
APPROACH %'s :	0.00%	75.00%	25.00%	0.00%	0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	**07:30 AM - 08:30 AM**																TOTAL
PEAK HR VOL :	0	17	6	0	0	18	0	0	0	0	0	0	2	0	0	0	43
PEAK HR FACTOR :	0.000	0.850	0.750	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.896
		0.821				0.750								0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	1	0	0	3	0	0	0	0	0	0	3	0	0	0	8
4:15 PM	0	3	1	0	0	2	0	0	0	0	0	0	1	0	0	0	7
4:30 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
4:45 PM	0	2	1	0	0	5	0	0	0	0	0	0	1	0	1	0	10
5:00 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	2	1	0	0	1	0	0	0	0	0	0	1	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	16	4	0	0	19	0	0	0	0	0	0	6	0	1	0	46
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	0.00%	100.00%	0.00%	0.00%					85.71%	0.00%	14.29%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	6	1	0	0	7	0	0	0	0	0	0	1	0	0	0	15
PEAK HR FACTOR :	0.00	0.750	0.250	0.000	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.750
		0.583				0.438								0.250			

Prepared by National Data & Surveying Services

McHenry Ave & St Francis Ave

Peak Hour Turning Movement Count

ID: 20-07081-006
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

McHenry Ave — SOUTHBOUND

AM	8	645	0	0	430	AM
NOON	0	0	0	0	0	NOON
PM	5	835	0	0	639	PM

St Francis Ave — EASTBOUND

AM	NOON	PM	
17	0	25	⇦
0	0	0	↶ 0
7	0	5	↱ 0
0	0	0	→ 0
16	0	11	↴ 0
AM	NOON	PM	

St Francis Ave — WESTBOUND

PM	NOON	AM	
0	0	0	0 ↰
0	0	0	0 ←
0	0	0	0 ↰
0	0	0	0 ↰
0	0	0	⇨
PM	NOON	AM	

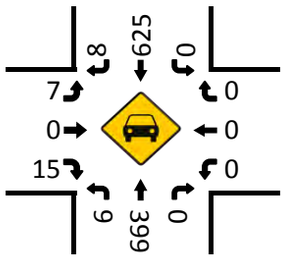
CONTROL: 1-Way Stop (EB)

	AM	NOON	PM
TEV	1108	0	1510
PHF	0.90		0.95

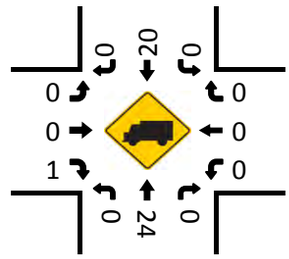
McHenry Ave — NORTHBOUND

PM	846	0	20	634	0	PM
NOON	0	0	0	0	0	NOON
AM	661	0	9	423	0	AM

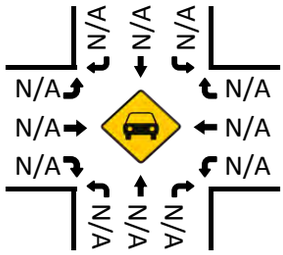
Cars (AM)



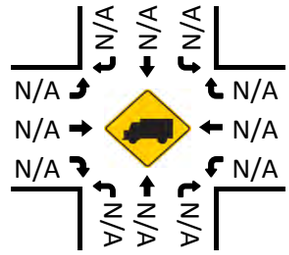
HT (AM)



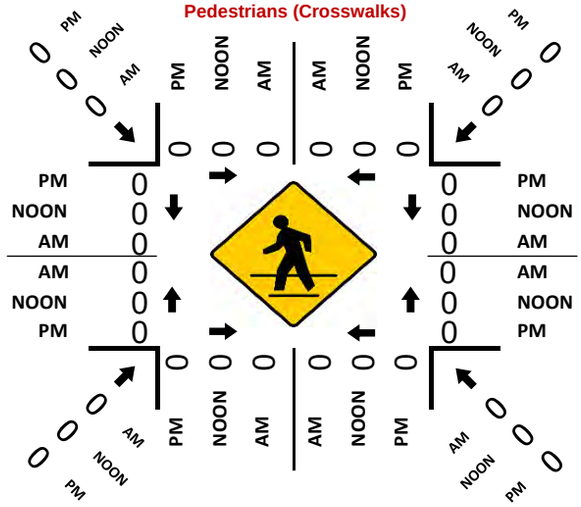
Cars (NOON)



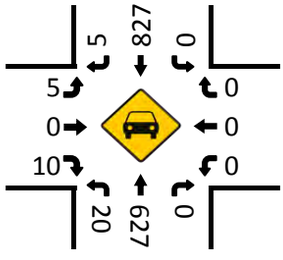
HT (NOON)



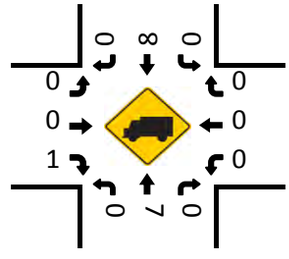
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & St Francis Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-006
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				St Francis Ave				St Francis Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	83	0	0	0	91	3	0	0	0	3	0	0	0	0	0	180
7:15 AM	1	87	0	0	0	120	0	0	1	0	4	0	0	0	0	0	213
7:30 AM	3	122	0	0	0	161	1	0	2	0	5	0	0	0	0	0	294
7:45 AM	2	120	0	0	0	176	5	0	2	0	3	0	0	0	0	0	308
8:00 AM	3	81	0	0	0	142	0	0	2	0	3	0	0	0	0	0	231
8:15 AM	1	100	0	0	0	166	2	0	1	0	5	0	0	0	0	0	275
8:30 AM	1	87	0	0	0	112	0	0	1	0	6	0	0	0	0	0	207
8:45 AM	0	76	0	0	0	150	1	0	1	0	1	0	0	0	0	0	229
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	756	0	0	0	1118	12	0	10	0	30	0	0	0	0	0	1937
APPROACH %'s :	1.43%	98.57%	0.00%	0.00%	0.00%	98.94%	1.06%	0.00%	25.00%	0.00%	75.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	423	0	0	0	645	8	0	7	0	16	0	0	0	0	0	1108
PEAK HR FACTOR :	0.750	0.867	0.000	0.000	0.000	0.916	0.400	0.000	0.875	0.000	0.800	0.000	0.000	0.000	0.000	0.000	0.899
		0.864				0.902				0.821							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	126	0	0	0	140	2	0	1	0	6	0	0	0	0	0	279
4:15 PM	2	163	0	0	0	148	1	0	0	0	4	0	0	0	0	0	318
4:30 PM	4	157	0	0	0	145	1	0	2	0	1	0	0	0	0	0	310
4:45 PM	4	151	0	0	0	182	1	0	2	0	5	0	0	0	0	0	345
5:00 PM	5	175	0	0	0	211	2	0	1	0	2	0	0	0	0	0	396
5:15 PM	9	156	0	0	0	217	1	0	1	0	4	0	0	0	0	0	388
5:30 PM	6	160	0	0	0	201	1	0	1	0	1	0	0	0	0	0	370
5:45 PM	0	143	0	0	0	206	1	0	2	0	4	0	0	0	0	0	356
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	1231	0	0	0	1450	10	0	10	0	27	0	0	0	0	0	2762
APPROACH %'s :	2.69%	97.31%	0.00%	0.00%	0.00%	99.32%	0.68%	0.00%	27.03%	0.00%	72.97%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	20	634	0	0	0	835	5	0	5	0	11	0	0	0	0	0	1510
PEAK HR FACTOR :	0.556	0.906	0.000	0.000	0.000	0.962	0.625	0.000	0.625	0.000	0.688	0.000	0.000	0.000	0.000	0.000	0.953
		0.908				0.963				0.667							

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & St Francis Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-006
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				St Francis Ave				St Francis Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	78	0	0	0	84	2	0	0	0	3	0	0	0	0	0	167
7:15 AM	1	87	0	0	0	118	0	0	1	0	4	0	0	0	0	0	211
7:30 AM	3	115	0	0	0	156	1	0	2	0	5	0	0	0	0	0	282
7:45 AM	2	113	0	0	0	170	5	0	2	0	3	0	0	0	0	0	295
8:00 AM	3	77	0	0	0	138	0	0	2	0	3	0	0	0	0	0	223
8:15 AM	1	94	0	0	0	161	2	0	1	0	4	0	0	0	0	0	263
8:30 AM	1	84	0	0	0	107	0	0	1	0	6	0	0	0	0	0	199
8:45 AM	0	72	0	0	0	146	1	0	1	0	1	0	0	0	0	0	221
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	720	0	0	0	1080	11	0	10	0	29	0	0	0	0	0	1861
APPROACH %'s :	1.50%	98.50%	0.00%	0.00%	0.00%	98.99%	1.01%	0.00%	25.64%	0.00%	74.36%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	9	399	0	0	0	625	8	0	7	0	15	0	0	0	0	0	1063
PEAK HR FACTOR :	0.75	0.867	0.000	0.000	0.000	0.919	0.400	0.000	0.875	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.901
		0.864				0.904				0.786							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	124	0	0	0	135	2	0	1	0	6	0	0	0	0	0	272
4:15 PM	2	158	0	0	0	144	1	0	0	0	4	0	0	0	0	0	309
4:30 PM	4	154	0	0	0	143	1	0	2	0	1	0	0	0	0	0	305
4:45 PM	4	148	0	0	0	176	1	0	2	0	5	0	0	0	0	0	336
5:00 PM	5	173	0	0	0	210	2	0	1	0	2	0	0	0	0	0	393
5:15 PM	9	155	0	0	0	216	1	0	1	0	3	0	0	0	0	0	385
5:30 PM	6	159	0	0	0	198	1	0	1	0	1	0	0	0	0	0	366
5:45 PM	0	140	0	0	0	203	1	0	2	0	4	0	0	0	0	0	350
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	34	1211	0	0	0	1425	10	0	10	0	26	0	0	0	0	0	2716
APPROACH %'s :	2.73%	97.27%	0.00%	0.00%	0.00%	99.30%	0.70%	0.00%	27.78%	0.00%	72.22%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	20	627	0	0	0	827	5	0	5	0	10	0	0	0	0	0	1494
PEAK HR FACTOR :	0.56	0.906	0.000	0.000	0.000	0.957	0.625	0.000	0.625	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.950
		0.909				0.959				0.625							

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & St Francis Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-006
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				St Francis Ave				St Francis Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	0	0	0	7	1	0	0	0	0	0	0	0	0	0	13
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	7	0	0	0	5	0	0	0	0	0	0	0	0	0	0	12
7:45 AM	0	7	0	0	0	6	0	0	0	0	0	0	0	0	0	0	13
8:00 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8
8:15 AM	0	6	0	0	0	5	0	0	0	0	1	0	0	0	0	0	12
8:30 AM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8
8:45 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	36	0	0	0	38	1	0	0	0	1	0	0	0	0	0	76
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	97.44%	2.56%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	24	0	0	0	20	0	0	0	0	1	0	0	0	0	0	45
PEAK HR FACTOR :	0.000	0.857	0.000	0.000	0.000	0.833	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.865
	0.857				0.833				0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7
4:15 PM	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9
4:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9
5:00 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3
5:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	20	0	0	0	25	0	0	0	0	1	0	0	0	0	0	46
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	7	0	0	0	8	0	0	0	0	1	0	0	0	0	0	16
PEAK HR FACTOR :	0.00	0.583	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.667
	0.583				0.667				0.250								

Prepared by National Data & Surveying Services

McHenry Ave & Crawford Rd

Peak Hour Turning Movement Count

ID: 20-07081-007
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND — McHenry Ave

AM	0	658	3	0	444	AM
NOON	0	0	0	0	0	NOON
PM	0	830	6	0	670	PM

EASTBOUND — Crawford Rd

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND — Crawford Rd

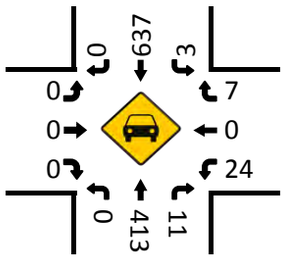
PM	NOON	AM	
2	0	7	0
0	0	0	0
18	0	24	0
0	0	0	0
34	0	14	
PM	NOON	AM	

NORTHBOUND — McHenry Ave

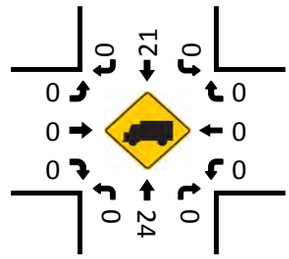
PM	848	0	0	668	28	PM
NOON	0	0	0	0	0	NOON
AM	682	0	0	437	11	AM

CONTROL			
1-Way Stop (WB)			
TEV	1140 AM	0 NOON	1552 PM
PHF	0.90		0.93

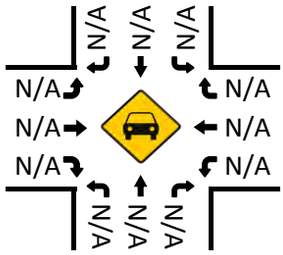
Cars (AM)



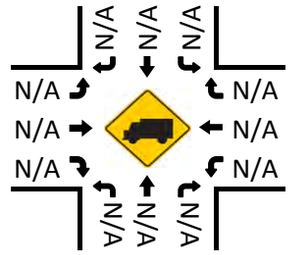
HT (AM)



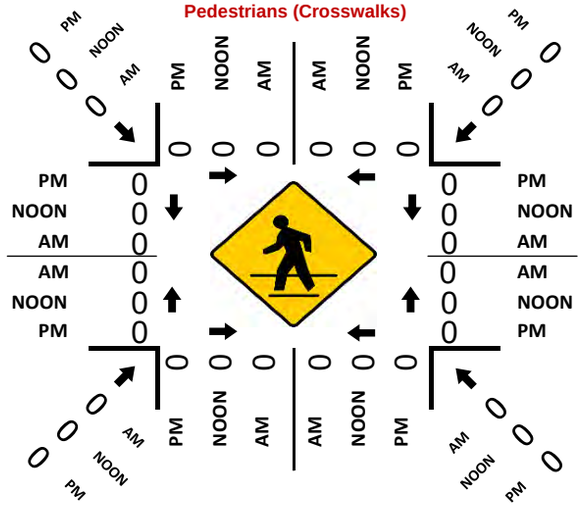
Cars (NOON)



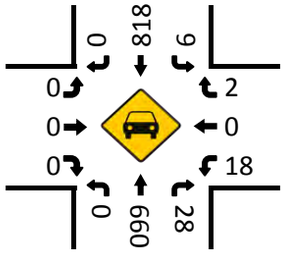
HT (NOON)



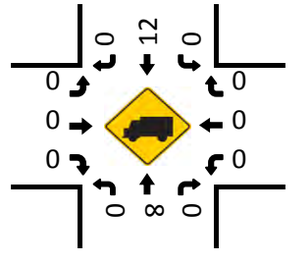
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-007
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	83	6	0	1	95	0	0	0	0	0	0	5	0	0	0	190
7:15 AM	0	86	0	0	2	124	0	0	0	0	0	0	7	0	3	0	222
7:30 AM	0	122	1	0	0	163	0	0	0	0	0	0	7	0	4	0	297
7:45 AM	0	125	5	0	1	180	0	0	0	0	0	0	5	0	1	0	317
8:00 AM	0	86	4	0	2	143	0	0	0	0	0	0	3	0	2	0	240
8:15 AM	0	104	1	0	0	172	0	0	0	0	0	0	9	0	0	0	286
8:30 AM	0	90	2	0	0	119	0	0	0	0	0	0	4	0	0	0	215
8:45 AM	0	76	0	0	0	153	0	0	0	0	0	0	6	0	1	0	236
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	772	19	0	6	1149	0	0	0	0	0	0	46	0	11	0	2003
APPROACH %'s :	0.00%	97.60%	2.40%	0.00%	0.52%	99.48%	0.00%	0.00%					80.70%	0.00%	19.30%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	437	11	0	3	658	0	0	0	0	0	0	24	0	7	0	1140
PEAK HR FACTOR :	0.000	0.874	0.550	0.000	0.375	0.914	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.438	0.000	0.899
		0.862				0.913								0.705			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	146	3	0	1	150	0	0	0	0	0	0	9	0	0	0	309
4:15 PM	0	160	11	0	3	148	0	0	0	1	0	0	3	0	0	0	326
4:30 PM	0	156	5	0	0	151	0	0	0	0	0	0	7	1	2	0	322
4:45 PM	0	160	5	0	1	189	0	0	0	0	0	0	5	0	0	0	360
5:00 PM	0	172	6	0	3	213	0	0	0	0	0	0	4	0	0	0	398
5:15 PM	0	174	9	0	0	225	0	0	0	0	0	0	7	0	1	0	416
5:30 PM	0	162	8	0	2	203	0	0	0	0	0	0	2	0	1	0	378
5:45 PM	0	136	6	0	3	207	0	0	0	0	0	0	4	0	0	0	356
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1266	53	0	13	1486	0	0	0	1	0	0	41	1	4	0	2865
APPROACH %'s :	0.00%	95.98%	4.02%	0.00%	0.87%	99.13%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	89.13%	2.17%	8.70%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	668	28	0	6	830	0	0	0	0	0	0	18	0	2	0	1552
PEAK HR FACTOR :	0.000	0.960	0.778	0.000	0.500	0.922	0.000	0.000	0.000	0.000	0.000	0.000	0.643	0.000	0.500	0.000	0.933
		0.951				0.929								0.625			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-007
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	78	5	0	1	88	0	0	0	0	0	0	5	0	0	0	177
7:15 AM	0	86	0	0	2	122	0	0	0	0	0	0	7	0	3	0	220
7:30 AM	0	115	1	0	0	159	0	0	0	0	0	0	7	0	4	0	286
7:45 AM	0	117	5	0	1	173	0	0	0	0	0	0	5	0	1	0	302
8:00 AM	0	83	4	0	2	139	0	0	0	0	0	0	3	0	2	0	233
8:15 AM	0	98	1	0	0	166	0	0	0	0	0	0	9	0	0	0	274
8:30 AM	0	86	2	0	0	113	0	0	0	0	0	0	4	0	0	0	205
8:45 AM	0	73	0	0	0	150	0	0	0	0	0	0	6	0	1	0	230
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	736	18	0	6	1110	0	0	0	0	0	0	46	0	11	0	1927
APPROACH %'s :	0.00%	97.61%	2.39%	0.00%	0.54%	99.46%	0.00%	0.00%					80.70%	0.00%	19.30%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	413	11	0	3	637	0	0	0	0	0	0	24	0	7	0	1095
PEAK HR FACTOR :	0.00	0.882	0.550	0.000	0.375	0.921	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.438	0.000	0.906
		0.869				0.920								0.705			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	143	3	0	1	144	0	0	0	0	0	0	9	0	0	0	300
4:15 PM	0	156	11	0	3	144	0	0	0	0	0	0	3	0	0	0	317
4:30 PM	0	153	5	0	0	149	0	0	0	0	0	0	6	0	2	0	315
4:45 PM	0	156	5	0	1	183	0	0	0	0	0	0	5	0	0	0	350
5:00 PM	0	171	6	0	3	212	0	0	0	0	0	0	4	0	0	0	396
5:15 PM	0	173	9	0	0	223	0	0	0	0	0	0	7	0	1	0	413
5:30 PM	0	160	8	0	2	200	0	0	0	0	0	0	2	0	1	0	373
5:45 PM	0	134	6	0	3	204	0	0	0	0	0	0	4	0	0	0	351
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1246	53	0	13	1459	0	0	0	0	0	0	40	0	4	0	2815
APPROACH %'s :	0.00%	95.92%	4.08%	0.00%	0.88%	99.12%	0.00%	0.00%					90.91%	0.00%	9.09%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	660	28	0	6	818	0	0	0	0	0	0	18	0	2	0	1532
PEAK HR FACTOR :	0.00	0.954	0.778	0.000	0.500	0.917	0.000	0.000	0.000	0.000	0.000	0.000	0.643	0.000	0.500	0.000	0.927
		0.945				0.924								0.625			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-007
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	5	1	0	0	7	0	0	0	0	0	0	0	0	0	0	13
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	7	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11
7:45 AM	0	8	0	0	0	7	0	0	0	0	0	0	0	0	0	0	15
8:00 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
8:15 AM	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	12
8:30 AM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10
8:45 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	36	1	0	0	39	0	0	0	0	0	0	0	0	0	0	76
APPROACH %'s :	0.00%	97.30%	2.70%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	24	0	0	0	21	0	0	0	0	0	0	0	0	0	0	45
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.750				0.750												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	0	4	0	0	0	4	0	0	0	1	0	0	0	0	0	0	9
4:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	1	1	0	0	7
4:45 PM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10
5:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	20	0	0	0	27	0	0	0	1	0	0	1	1	0	0	50
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	8	0	0	0	12	0	0	0	0	0	0	0	0	0	0	20
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.500				0.500												

Prepared by National Data & Surveying Services

McHenry Ave & Kiernan Ave/Claribel Rd

Peak Hour Turning Movement Count

ID: 20-07081-008
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND — McHenry Ave

AM	84	514	98	1	469	AM
NOON	0	0	0	0	0	NOON
PM	95	552	313	0	686	PM

EASTBOUND — Kiernan Ave/Claribel Rd

AM	NOON	PM	
1094	0	922	
15	0	20	0
78	0	101	0
403	0	873	0
135	0	186	0

WESTBOUND — Kiernan Ave/Claribel Rd

PM	NOON	AM	
90	0	138	0
610	0	868	0
161	0	362	0
0	0	3	0
1579	0	622	

NORTHBOUND — McHenry Ave

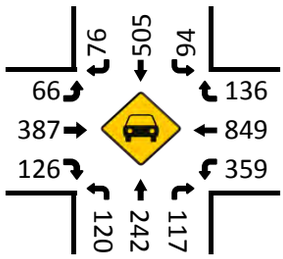
PM	899	0	197	495	393	PM
NOON	0	0	0	0	0	NOON
AM	1011	0	127	252	118	AM

CONTROL

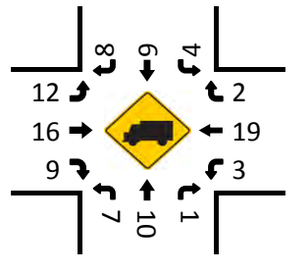
Signalized

TEV	3196 AM	0 NOON	4086 PM
PHF	0.92		0.94

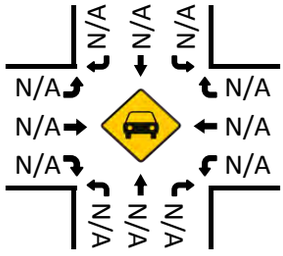
Cars (AM)



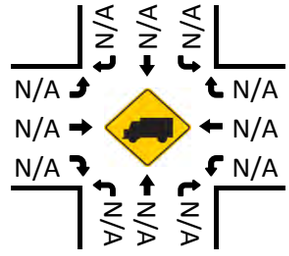
HT (AM)



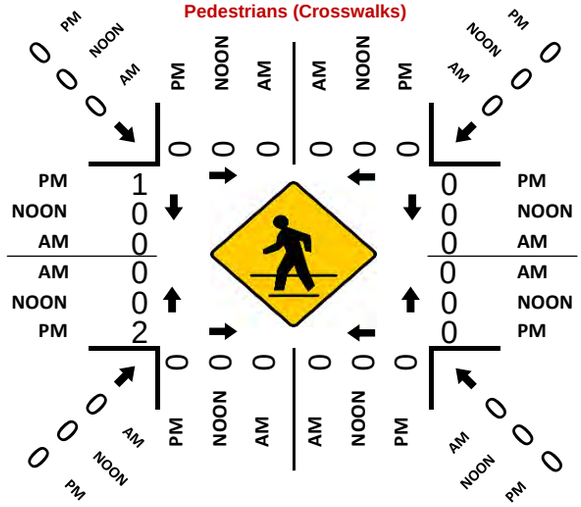
Cars (NOON)



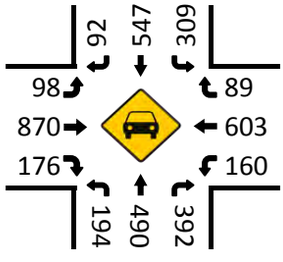
HT (NOON)



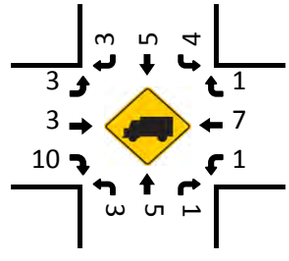
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Kiernan Ave/Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-008
Date: 3/4/2020

Total

NS/EW Streets:	McHenry Ave				McHenry Ave				Kiernan Ave/Claribel Rd				Kiernan Ave/Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	34	50	15	0	9	76	13	0	16	75	18	2	42	175	20	0	545
7:15 AM	43	41	25	0	23	104	15	0	12	96	41	8	46	245	31	0	730
7:30 AM	36	71	21	0	21	131	27	0	21	104	23	4	95	248	38	0	840
7:45 AM	29	73	21	0	23	132	17	1	25	105	45	1	118	235	37	2	864
8:00 AM	30	49	34	0	29	109	15	0	12	87	30	7	84	195	31	0	712
8:15 AM	32	59	42	0	25	142	25	0	20	107	37	3	65	190	32	1	780
8:30 AM	32	49	40	0	18	91	13	0	25	98	40	9	72	185	12	0	684
8:45 AM	21	51	31	0	14	123	20	0	16	67	54	10	56	133	20	0	616
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	257	443	229	0	162	908	145	1	147	739	288	44	578	1606	221	3	5771
APPROACH %'s :	27.66%	47.69%	24.65%	0.00%	13.32%	74.67%	11.92%	0.08%	12.07%	60.67%	23.65%	3.61%	24.00%	66.69%	9.18%	0.12%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	127	252	118	0	98	514	84	1	78	403	135	15	362	868	138	3	3196
PEAK HR FACTOR :	0.882	0.863	0.702	0.000	0.845	0.905	0.778	0.250	0.780	0.942	0.750	0.536	0.767	0.875	0.908	0.375	0.925
	0.934				0.908				0.896				0.874				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	46	99	93	0	50	102	26	0	33	225	41	2	43	113	15	1	889
4:15 PM	51	120	85	0	39	112	25	2	36	196	50	4	46	130	19	0	915
4:30 PM	52	104	91	0	56	100	15	0	20	195	35	5	38	177	22	1	911
4:45 PM	51	130	74	0	56	139	14	0	23	204	43	5	36	125	24	0	924
5:00 PM	47	122	114	0	85	150	25	0	36	227	55	2	47	142	24	0	1076
5:15 PM	47	133	111	0	88	132	33	0	20	232	46	9	37	174	24	0	1086
5:30 PM	52	110	94	0	84	131	23	0	22	210	42	4	41	169	18	0	1000
5:45 PM	48	112	61	0	88	135	20	1	17	168	36	2	36	124	20	0	868
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	394	930	723	0	546	1001	181	3	207	1657	348	33	324	1154	166	2	7669
APPROACH %'s :	19.25%	45.43%	35.32%	0.00%	31.54%	57.83%	10.46%	0.17%	9.22%	73.81%	15.50%	1.47%	19.68%	70.11%	10.09%	0.12%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	197	495	393	0	313	552	95	0	101	873	186	20	161	610	90	0	4086
PEAK HR FACTOR :	0.947	0.930	0.862	0.000	0.889	0.920	0.720	0.000	0.701	0.941	0.845	0.556	0.856	0.876	0.938	0.000	0.941
	0.932				0.923				0.922				0.916				

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Kiernan Ave/Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-008
Date: 3/4/2020

Cars

NS/EW Streets:	McHenry Ave				McHenry Ave				Kiernan Ave/Claribel Rd				Kiernan Ave/Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	33	47	14	0	8	76	9	0	14	69	17	2	41	173	19	0	522
7:15 AM	40	41	23	0	23	101	14	0	12	87	38	8	45	242	31	0	705
7:30 AM	34	68	21	0	21	128	26	0	17	101	22	4	93	245	38	0	818
7:45 AM	28	73	21	0	21	130	13	1	20	99	42	1	118	230	35	2	834
8:00 AM	29	45	33	0	28	108	14	0	12	85	26	6	84	190	31	0	691
8:15 AM	29	56	42	0	24	139	23	0	17	102	36	3	64	184	32	1	752
8:30 AM	30	49	39	0	18	89	8	0	21	88	37	9	71	183	12	0	654
8:45 AM	21	50	30	0	14	120	19	0	14	64	51	9	55	128	20	0	595
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	244	429	223	0	157	891	126	1	127	695	269	42	571	1575	218	3	5571
APPROACH %'s :	27.23%	47.88%	24.89%	0.00%	13.36%	75.83%	10.72%	0.09%	11.21%	61.34%	23.74%	3.71%	24.12%	66.54%	9.21%	0.13%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	120	242	117	0	94	505	76	1	66	387	126	14	359	849	136	3	3095
PEAK HR FACTOR :	0.88	0.829	0.696	0.000	0.839	0.908	0.731	0.250	0.825	0.949	0.750	0.583	0.761	0.866	0.895	0.375	0.928
		0.943				0.909				0.915				0.875			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	44	97	92	0	49	100	23	0	31	221	38	2	42	110	15	1	865
4:15 PM	51	119	84	0	39	111	23	2	34	193	48	4	45	126	19	0	898
4:30 PM	51	103	91	0	56	98	13	0	19	195	33	4	37	174	21	1	896
4:45 PM	50	127	74	0	55	136	13	0	22	204	39	5	36	124	24	0	909
5:00 PM	46	121	113	0	83	150	25	0	36	225	52	2	47	138	24	0	1062
5:15 PM	47	133	111	0	87	132	33	0	19	232	45	9	37	174	23	0	1082
5:30 PM	51	109	94	0	84	129	21	0	21	209	40	4	40	167	18	0	987
5:45 PM	48	110	61	0	88	134	19	1	16	167	34	2	36	124	20	0	860
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	388	919	720	0	541	990	170	3	198	1646	329	32	320	1137	164	2	7559
APPROACH %'s :	19.14%	45.34%	35.52%	0.00%	31.75%	58.10%	9.98%	0.18%	8.98%	74.65%	14.92%	1.45%	19.72%	70.06%	10.10%	0.12%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	194	490	392	0	309	547	92	0	98	870	176	20	160	603	89	0	4040
PEAK HR FACTOR :	0.95	0.921	0.867	0.000	0.888	0.912	0.697	0.000	0.681	0.938	0.846	0.556	0.851	0.866	0.927	0.000	0.933
		0.924				0.919				0.924				0.910			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Kiernan Ave/Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-008
Date: 3/4/2020

HT

NS/EW Streets:	McHenry Ave				McHenry Ave				Kiernan Ave/Claribel Rd				Kiernan Ave/Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	3	1	0	1	0	4	0	2	6	1	0	1	2	1	0	23
7:15 AM	3	0	2	0	0	3	1	0	0	9	3	0	1	3	0	0	25
7:30 AM	2	3	0	0	0	3	1	0	4	3	1	0	2	3	0	0	22
7:45 AM	1	0	0	0	2	2	4	0	5	6	3	0	0	5	2	0	30
8:00 AM	1	4	1	0	1	1	1	0	0	2	4	1	0	5	0	0	21
8:15 AM	3	3	0	0	1	3	2	0	3	5	1	0	1	6	0	0	28
8:30 AM	2	0	1	0	0	2	5	0	4	10	3	0	1	2	0	0	30
8:45 AM	0	1	1	0	0	3	1	0	2	3	3	1	1	5	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	14	6	0	5	17	19	0	20	44	19	2	7	31	3	0	200
APPROACH %'s :	39.39%	42.42%	18.18%	0.00%	12.20%	41.46%	46.34%	0.00%	23.53%	51.76%	22.35%	2.35%	17.07%	75.61%	7.32%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	7	10	1	0	4	9	8	0	12	16	9	1	3	19	2	0	101
PEAK HR FACTOR :	0.583	0.625	0.250	0.000	0.500	0.750	0.500	0.000	0.600	0.667	0.563	0.250	0.375	0.792	0.250	0.000	0.842
		0.750				0.656				0.679				0.857			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	2	1	0	1	2	3	0	2	4	3	0	1	3	0	0	24
4:15 PM	0	1	1	0	0	1	2	0	2	3	2	0	1	4	0	0	17
4:30 PM	1	1	0	0	0	2	2	0	1	0	2	1	1	3	1	0	15
4:45 PM	1	3	0	0	1	3	1	0	1	0	4	0	0	1	0	0	15
5:00 PM	1	1	1	0	2	0	0	0	0	2	3	0	0	4	0	0	14
5:15 PM	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	4
5:30 PM	1	1	0	0	0	2	2	0	1	1	2	0	1	2	0	0	13
5:45 PM	0	2	0	0	0	1	1	0	1	1	2	0	0	0	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	11	3	0	5	11	11	0	9	11	19	1	4	17	2	0	110
APPROACH %'s :	30.00%	55.00%	15.00%	0.00%	18.52%	40.74%	40.74%	0.00%	22.50%	27.50%	47.50%	2.50%	17.39%	73.91%	8.70%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	3	5	1	0	4	5	3	0	3	3	10	0	1	7	1	0	46
PEAK HR FACTOR :	0.75	0.417	0.250	0.000	0.500	0.417	0.375	0.000	0.750	0.375	0.625	0.000	0.250	0.438	0.250	0.000	0.767
		0.563				0.600				0.800				0.563			

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Kiernan Ave/Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-008
Date: 3/4/2020

Bikes

NS/EW Streets:	McHenry Ave				McHenry Ave				Kiernan Ave/Claribel Rd				Kiernan Ave/Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	1	3	0	0	0	0	1	0	5
APPROACH %'s :									25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500
										0.500							

National Data & Surveying Services

Intersection Turning Movement Count

Location: McHenry Ave & Kiernan Ave/Claribel Rd
City: Modesto

Project ID: 20-07081-008
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	McHenry Ave		McHenry Ave		Kiernan Ave/Claribel Rd		Kiernan Ave/Claribel Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	1	1
7:15 AM	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	1	2
APPROACH %'s :							50.00%	50.00%	
PEAK HR :	**07:30 AM - 08:30 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	2	0	0	0	0	2
4:15 PM	0	1	1	0	1	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	1	2
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	1	3	1	0	2	1	9
APPROACH %'s :	0.00%	100.00%	25.00%	75.00%	100.00%	0.00%	66.67%	33.33%	
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	1	3
PEAK HR FACTOR :							0.500	0.250	0.375
							0.375		

Prepared by National Data & Surveying Services

Carver Rd & Ladd Rd

Peak Hour Turning Movement Count

ID: 20-07081-009
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Carver Rd — SOUTHBOUND

AM	38	67	23	0	63	AM
NOON	0	0	0	0	0	NOON
PM	20	34	22	0	91	PM

Ladd Rd — EASTBOUND

AM	NOON	PM	
449	0	227	⇦
0	0	0	↶ 0
20	0	21	↱ 0
106	0	318	→ 0
7	0	11	↷ 0
AM	NOON	PM	

CONTROL

4-Way Stop

TEV	896	0	874
	AM	NOON	PM
PHF	0.81		0.96

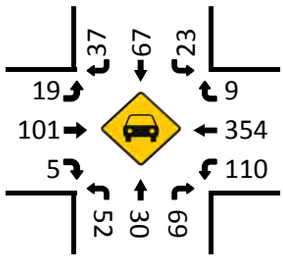
Ladd Rd — WESTBOUND

PM	NOON	AM	
13	0	9	0 ↶
200	0	359	0 ←
87	0	110	0 ↰
0	0	0	0 ↷
424	0	200	⇨
PM	NOON	AM	

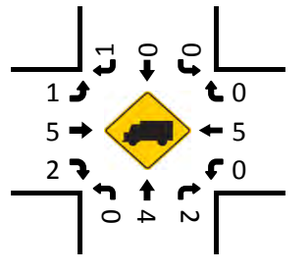
Carver Rd — NORTHBOUND

PM	132	0	7	57	84	PM
NOON	0	0	0	0	0	NOON
AM	184	0	52	34	71	AM

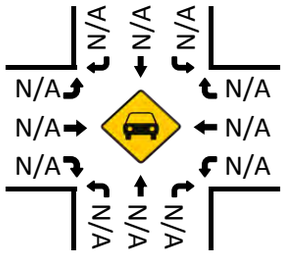
Cars (AM)



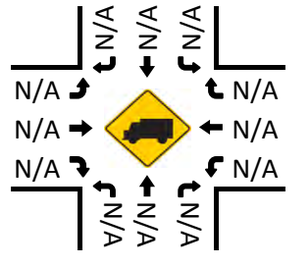
HT (AM)



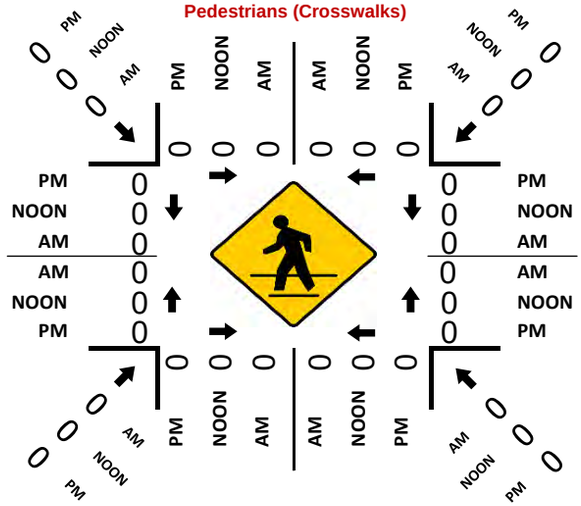
Cars (NOON)



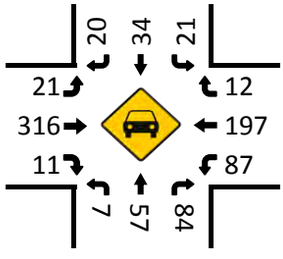
HT (NOON)



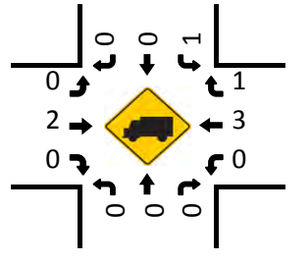
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Carver Rd & Ladd Rd
City: Modesto
Control: 4-Way Stop

Project ID: 20-07081-009
Date: 3/4/2020

Total

NS/EW Streets:	Carver Rd				Carver Rd				Ladd Rd				Ladd Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	10	10	0	5	9	4	0	2	18	0	0	14	71	2	0	146
7:15 AM	9	4	12	0	4	14	11	0	3	29	2	0	24	96	3	0	211
7:30 AM	32	8	18	0	7	22	16	0	5	25	3	0	32	106	1	0	275
7:45 AM	9	11	16	0	7	13	6	0	8	27	1	0	30	82	1	0	211
8:00 AM	2	11	25	0	5	18	5	0	4	25	1	0	24	75	4	0	199
8:15 AM	1	9	17	0	3	17	2	0	1	32	1	0	16	71	1	0	171
8:30 AM	3	12	14	0	5	12	3	0	2	28	2	0	12	61	5	0	159
8:45 AM	1	5	15	0	6	13	4	0	3	29	1	0	21	71	2	0	171
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	58	70	127	0	42	118	51	0	28	213	11	0	173	633	19	0	1543
APPROACH %'s :	22.75%	27.45%	49.80%	0.00%	19.91%	55.92%	24.17%	0.00%	11.11%	84.52%	4.37%	0.00%	20.97%	76.73%	2.30%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	52	34	71	0	23	67	38	0	20	106	7	0	110	359	9	0	896
PEAK HR FACTOR :	0.406	0.773	0.710	0.000	0.821	0.761	0.594	0.000	0.625	0.914	0.583	0.000	0.859	0.847	0.563	0.000	0.815
	0.677				0.711				0.924				0.860				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	10	17	0	2	6	3	0	3	67	4	0	18	42	7	0	180
4:15 PM	0	15	18	0	2	9	4	0	5	81	2	0	10	38	2	0	186
4:30 PM	1	9	23	0	9	12	4	0	4	72	0	0	13	51	2	0	200
4:45 PM	0	11	23	0	3	8	5	0	6	87	1	0	24	51	5	0	224
5:00 PM	2	11	22	0	3	7	7	0	6	75	6	0	29	52	3	0	223
5:15 PM	4	26	16	0	7	7	4	0	5	84	4	0	21	46	3	0	227
5:30 PM	1	11	15	0	4	3	4	0	2	71	0	0	12	51	2	0	176
5:45 PM	0	9	16	0	6	5	3	0	2	70	2	0	13	37	2	0	165
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	102	150	0	36	57	34	0	33	607	19	0	140	368	26	0	1581
APPROACH %'s :	3.45%	39.08%	57.47%	0.00%	28.35%	44.88%	26.77%	0.00%	5.01%	92.11%	2.88%	0.00%	26.22%	68.91%	4.87%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	7	57	84	0	22	34	20	0	21	318	11	0	87	200	13	0	874
PEAK HR FACTOR :	0.438	0.548	0.913	0.000	0.611	0.708	0.714	0.000	0.875	0.914	0.458	0.000	0.750	0.962	0.650	0.000	0.963
	0.804				0.760				0.931				0.893				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Carver Rd & Ladd Rd
City: Modesto
Control: 4-Way Stop

Project ID: 20-07081-009
Date: 3/4/2020

Cars

NS/EW Streets:	Carver Rd				Carver Rd				Ladd Rd				Ladd Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	9	8	0	5	9	4	0	2	18	0	0	14	71	2	0	143
7:15 AM	9	4	11	0	4	14	10	0	3	29	1	0	24	94	3	0	206
7:30 AM	32	8	17	0	7	22	16	0	5	23	3	0	32	104	1	0	270
7:45 AM	9	9	16	0	7	13	6	0	8	27	1	0	30	82	1	0	209
8:00 AM	2	9	25	0	5	18	5	0	3	22	0	0	24	74	4	0	191
8:15 AM	1	9	17	0	3	16	2	0	1	31	1	0	16	70	1	0	168
8:30 AM	2	12	14	0	5	12	3	0	2	27	2	0	12	60	5	0	156
8:45 AM	1	5	15	0	6	12	4	0	3	28	1	0	20	70	2	0	167
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	65	123	0	42	116	50	0	27	205	9	0	172	625	19	0	1510
APPROACH %'s :	23.27%	26.53%	50.20%	0.00%	20.19%	55.77%	24.04%	0.00%	11.20%	85.06%	3.73%	0.00%	21.08%	76.59%	2.33%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	52	30	69	0	23	67	37	0	19	101	5	0	110	354	9	0	876
PEAK HR FACTOR :	0.41	0.833	0.690	0.000	0.821	0.761	0.578	0.000	0.594	0.871	0.417	0.000	0.859	0.851	0.563	0.000	0.811
		0.662				0.706				0.868				0.863			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	10	17	0	2	6	3	0	3	66	4	0	18	42	7	0	179
4:15 PM	0	15	18	0	2	9	4	0	5	80	2	0	10	38	2	0	185
4:30 PM	1	9	23	0	9	12	4	0	4	72	0	0	13	50	2	0	199
4:45 PM	0	11	23	0	2	8	5	0	6	85	1	0	24	51	4	0	220
5:00 PM	2	11	22	0	3	7	7	0	6	75	6	0	29	52	3	0	223
5:15 PM	4	26	16	0	7	7	4	0	5	84	4	0	21	44	3	0	225
5:30 PM	1	11	15	0	4	3	4	0	2	70	0	0	12	51	2	0	175
5:45 PM	0	9	16	0	6	5	2	0	2	70	2	0	13	37	2	0	164
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	102	150	0	35	57	33	0	33	602	19	0	140	365	25	0	1570
APPROACH %'s :	3.45%	39.08%	57.47%	0.00%	28.00%	45.60%	26.40%	0.00%	5.05%	92.05%	2.91%	0.00%	26.42%	68.87%	4.72%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	7	57	84	0	21	34	20	0	21	316	11	0	87	197	12	0	867
PEAK HR FACTOR :	0.44	0.548	0.913	0.000	0.583	0.708	0.714	0.000	0.875	0.929	0.458	0.000	0.750	0.947	0.750	0.000	0.963
		0.804				0.750				0.935				0.881			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Carver Rd & Ladd Rd
City: Modesto
Control: 4-Way Stop

Project ID: 20-07081-009
Date: 3/4/2020

HT

NS/EW Streets:	Carver Rd				Carver Rd				Ladd Rd				Ladd Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	1	0	0	0	1	0	0	0	1	0	0	2	0	0	5
7:30 AM	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	5
7:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	2	0	0	0	0	0	0	1	3	1	0	0	1	0	0	8
8:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	3
8:30 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	5	4	0	0	2	1	0	1	8	2	0	1	8	0	0	33
APPROACH %'s :	10.00%	50.00%	40.00%	0.00%	0.00%	66.67%	33.33%	0.00%	9.09%	72.73%	18.18%	0.00%	11.11%	88.89%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	4	2	0	0	0	1	0	1	5	2	0	0	5	0	0	20
PEAK HR FACTOR :	0.000	0.500	0.500	0.000	0.000	0.000	0.250	0.000	0.250	0.417	0.500	0.000	0.000	0.625	0.000	0.000	0.625
		0.750				0.250				0.400				0.625			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	1	0	0	5	0	0	0	3	1	0	11
APPROACH %'s :					50.00%	0.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	75.00%	25.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	0	2	0	0	0	3	1	0	7
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.375	0.250	0.000	0.438
						0.250				0.250				0.500			

Prepared by National Data & Surveying Services

Skittone Rd & Patterson Rd

Peak Hour Turning Movement Count

ID: 20-07081-010
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

SOUTHBOUND (Skittone Rd)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Patterson Rd)

AM	NOON	PM	
793	0	484	⇦
0	0	0	↶ 0
0	0	0	↷ 0
326	0	798	→ 0
2	0	6	↷ 0
AM	NOON	PM	

WESTBOUND (Patterson Rd)

PM	NOON	AM	
0	0	0	0 ↷
482	0	789	0 ←
8	0	4	0 ↶
0	0	0	0 ↶
809	0	329	⇨
PM	NOON	AM	

CONTROL

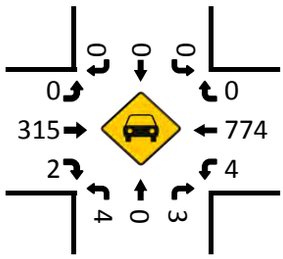
1-Way Stop (NB)

TEV	1128	0	1308
	AM	NOON	PM
PHF	0.87		0.95

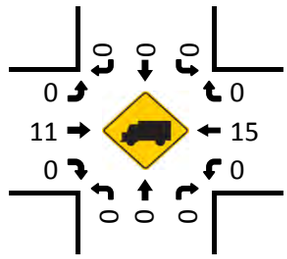
NORTHBOUND (Skittone Rd)

PM	15	1	2	0	11	PM
NOON	0	0	0	0	0	NOON
AM	6	0	4	0	3	AM

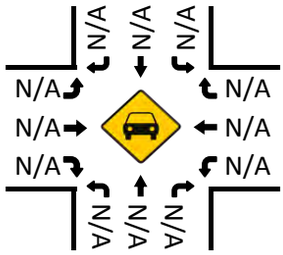
Cars (AM)



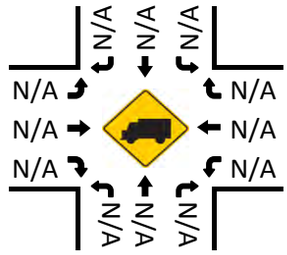
HT (AM)



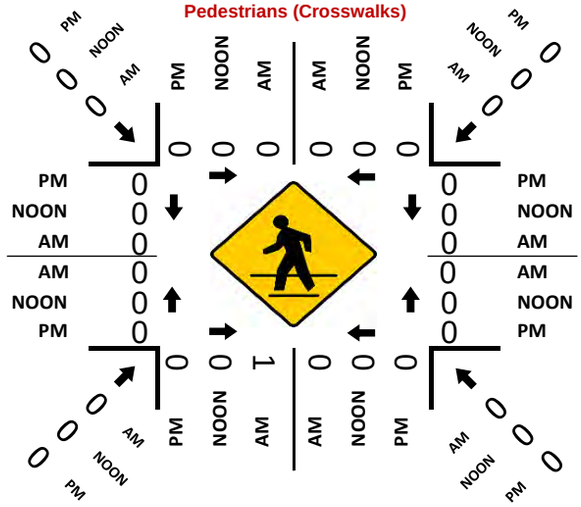
Cars (NOON)



HT (NOON)



Pedestrians (Crosswalks)


PM NOON AM
PM 0
NOON 0
AM 0
AM 0
NOON 0
PM 0
0 0 0
0 0 0
0 0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Skittone Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-010
Date: 3/4/2020

Total

NS/EW Streets:	Skittone Rd				Skittone Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	5	0	0	0	0	0	0	69	0	0	0	158	0	0	234
7:15 AM	1	0	1	0	0	0	0	0	0	64	0	0	2	194	0	0	262
7:30 AM	2	0	1	0	0	0	0	0	0	85	1	0	1	234	0	0	324
7:45 AM	0	0	0	0	0	0	0	0	0	97	1	0	0	188	0	0	286
8:00 AM	1	0	1	0	0	0	0	0	0	80	0	0	1	173	0	0	256
8:15 AM	0	0	1	0	0	0	0	0	0	94	0	0	1	131	0	0	227
8:30 AM	0	0	1	0	0	0	0	0	0	83	0	0	1	123	0	0	208
8:45 AM	1	0	0	0	0	0	0	0	0	93	1	0	0	107	0	0	202
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	0	10	0	0	0	0	0	0	665	3	0	6	1308	0	0	1999
APPROACH %'s :	41.18%	0.00%	58.82%	0.00%					0.00%	99.55%	0.45%	0.00%	0.46%	99.54%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	0	3	0	0	0	0	0	0	326	2	0	4	789	0	0	1128
PEAK HR FACTOR :	0.500	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.840	0.500	0.000	0.500	0.843	0.000	0.000	0.870
	0.583								0.837				0.844				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	1	1	1	0	0	176	1	0	2	98	0	0	282
4:15 PM	0	0	2	0	0	0	0	0	0	180	1	0	2	119	0	0	304
4:30 PM	0	0	6	1	0	0	0	0	0	193	2	0	2	125	0	0	329
4:45 PM	2	0	1	0	0	0	0	0	0	188	1	0	2	103	0	0	297
5:00 PM	0	0	2	0	0	0	0	0	0	214	1	0	2	119	0	0	338
5:15 PM	0	0	2	0	0	0	0	0	0	203	2	0	2	135	0	0	344
5:30 PM	0	0	4	0	0	0	0	0	0	200	0	0	4	102	0	0	310
5:45 PM	0	0	1	0	0	0	0	0	0	192	0	0	0	97	0	0	290
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	20	1	1	1	1	0	0	1546	8	0	16	898	0	0	2494
APPROACH %'s :	8.70%	0.00%	86.96%	4.35%	33.33%	33.33%	33.33%	0.00%	0.00%	99.49%	0.51%	0.00%	1.75%	98.25%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	0	11	1	0	0	0	0	0	798	6	0	8	482	0	0	1308
PEAK HR FACTOR :	0.250	0.000	0.458	0.250	0.000	0.000	0.000	0.000	0.000	0.932	0.750	0.000	1.000	0.893	0.000	0.000	0.951
	0.500								0.935				0.894				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Skittone Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-010
Date: 3/4/2020

Cars

NS/EW Streets:	Skittone Rd				Skittone Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	4	0	0	0	0	0	0	65	0	0	0	155	0	0	226
7:15 AM	1	0	1	0	0	0	0	0	0	62	0	0	2	190	0	0	256
7:30 AM	2	0	1	0	0	0	0	0	0	81	1	0	1	229	0	0	315
7:45 AM	0	0	0	0	0	0	0	0	0	93	1	0	0	186	0	0	280
8:00 AM	1	0	1	0	0	0	0	0	0	79	0	0	1	169	0	0	251
8:15 AM	0	0	1	0	0	0	0	0	0	91	0	0	1	127	0	0	220
8:30 AM	0	0	1	0	0	0	0	0	0	81	0	0	1	120	0	0	203
8:45 AM	1	0	0	0	0	0	0	0	0	90	1	0	0	106	0	0	198
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	0	9	0	0	0	0	0	0	642	3	0	6	1282	0	0	1949
APPROACH %'s :	43.75%	0.00%	56.25%	0.00%					0.00%	99.53%	0.47%	0.00%	0.47%	99.53%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	4	0	3	0	0	0	0	0	0	315	2	0	4	774	0	0	1102
PEAK HR FACTOR :	0.50	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.847	0.500	0.000	0.500	0.845	0.000	0.000	0.875
		0.583								0.843				0.846			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	2	0	1	1	1	0	0	175	1	0	2	94	0	0	277
4:15 PM	0	0	2	0	0	0	0	0	0	177	1	0	2	117	0	0	299
4:30 PM	0	0	6	1	0	0	0	0	0	193	2	0	2	123	0	0	327
4:45 PM	2	0	1	0	0	0	0	0	0	187	1	0	2	101	0	0	294
5:00 PM	0	0	2	0	0	0	0	0	0	213	1	0	2	119	0	0	337
5:15 PM	0	0	2	0	0	0	0	0	0	201	2	0	2	134	0	0	341
5:30 PM	0	0	4	0	0	0	0	0	0	198	0	0	4	100	0	0	306
5:45 PM	0	0	1	0	0	0	0	0	0	189	0	0	0	97	0	0	287
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	20	1	1	1	1	0	0	1533	8	0	16	885	0	0	2468
APPROACH %'s :	8.70%	0.00%	86.96%	4.35%	33.33%	33.33%	33.33%	0.00%	0.00%	99.48%	0.52%	0.00%	1.78%	98.22%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	0	11	1	0	0	0	0	0	794	6	0	8	477	0	0	1299
PEAK HR FACTOR :	0.25	0.000	0.458	0.250	0.000	0.000	0.000	0.000	0.000	0.932	0.750	0.000	1.000	0.890	0.000	0.000	0.952
		0.500								0.935				0.892			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Skittone Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-010
Date: 3/4/2020

HT

NS/EW Streets:	Skittone Rd				Skittone Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	4	0	0	0	3	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	9
7:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	23	0	0	0	26	0	0	50
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	11	0	0	0	15	0	0	26
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.000	0.000	0.000	0.750	0.000	0.000	0.722
										0.688				0.750			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	13	0	0	0	13	0	0	26
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	9
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.625	0.000	0.000	0.750
										0.500				0.625			

Prepared by National Data & Surveying Services

Coffee Rd & Patterson Rd

Peak Hour Turning Movement Count

ID: 20-07081-011
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Coffee Rd — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

Patterson Rd — EASTBOUND

AM	NOON	PM	
790	0	494	⇦
0	0	0	↶ 0
0	0	0	↱ 0
263	0	711	→ 0
63	0	100	↴ 0
AM	NOON	PM	

CONTROL

1-Way Stop (NB)

TEV	1326	0	1494
	AM	NOON	PM
PHF	0.87		0.93

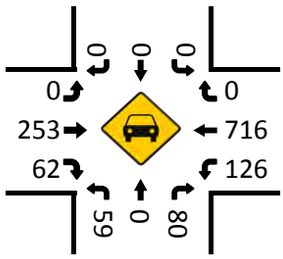
WESTBOUND — Patterson Rd

PM	NOON	AM	
0	0	0	0 ↰
455	0	729	0 ←
68	0	128	0 ↰
0	0	0	0 ↰
832	0	345	⇨
PM	NOON	AM	

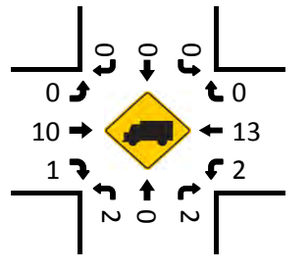
NORTHBOUND — Coffee Rd

PM	168	0	39	0	121	PM
NOON	0	0	0	0	0	NOON
AM	191	0	61	0	82	AM

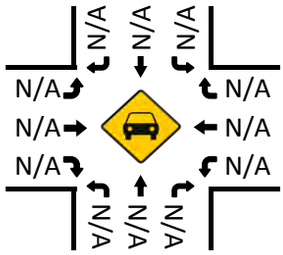
Cars (AM)



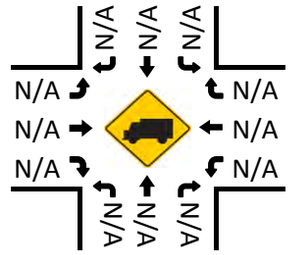
HT (AM)



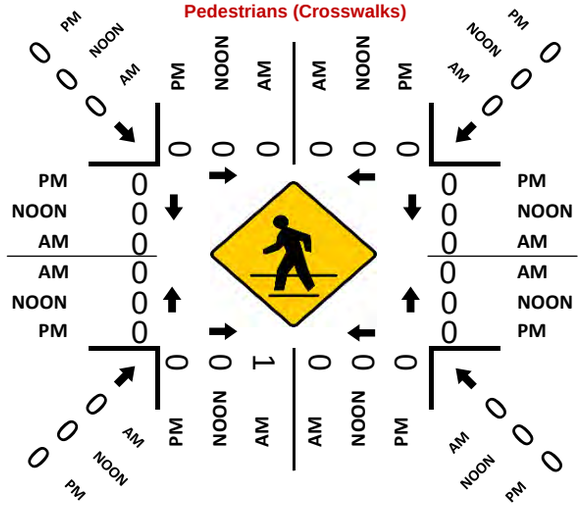
Cars (NOON)



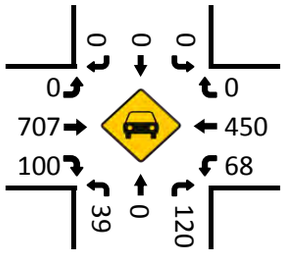
HT (NOON)



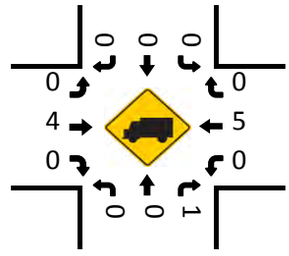
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-011
Date: 3/4/2020

Total

NS/EW Streets:	Coffee Rd				Coffee Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	0	13	0	0	0	0	0	0	60	15	0	17	155	0	0	271
7:15 AM	17	0	15	0	0	0	0	0	0	49	17	0	23	172	0	0	293
7:30 AM	19	0	26	0	0	0	0	0	0	65	15	0	39	219	0	0	383
7:45 AM	15	0	26	0	0	0	0	0	0	85	14	0	29	185	0	0	354
8:00 AM	10	0	15	0	0	0	0	0	0	64	17	0	37	153	0	0	296
8:15 AM	9	0	17	0	0	0	0	0	0	77	20	0	35	124	0	0	282
8:30 AM	6	0	13	0	0	0	0	0	0	61	21	0	27	123	0	0	251
8:45 AM	9	0	27	0	0	0	0	0	0	77	16	0	22	94	0	0	245
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	0	152	0	0	0	0	0	0	538	135	0	229	1225	0	0	2375
APPROACH %'s :	38.71%	0.00%	61.29%	0.00%					0.00%	79.94%	20.06%	0.00%	15.75%	84.25%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	61	0	82	0	0	0	0	0	0	263	63	0	128	729	0	0	1326
PEAK HR FACTOR :	0.803	0.000	0.788	0.000	0.000	0.000	0.000	0.000	0.000	0.774	0.926	0.000	0.821	0.832	0.000	0.000	0.866
	0.794								0.823				0.830				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	0	35	0	0	0	0	0	0	153	28	0	20	89	0	0	333
4:15 PM	18	0	42	0	0	0	0	0	0	153	27	0	19	100	0	0	359
4:30 PM	9	0	30	0	0	0	0	0	0	178	21	0	17	114	0	0	369
4:45 PM	8	0	28	0	0	0	0	0	0	166	24	0	15	104	0	0	345
5:00 PM	10	0	32	0	0	0	0	0	0	180	33	0	20	104	0	0	379
5:15 PM	12	0	31	0	0	0	0	0	0	187	22	0	16	133	0	0	401
5:30 PM	11	0	24	0	0	0	0	0	0	183	24	0	16	90	0	0	348
5:45 PM	3	0	30	0	0	0	0	0	0	163	28	0	21	92	0	0	337
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	79	0	252	0	0	0	0	0	0	1363	207	0	144	826	0	0	2871
APPROACH %'s :	23.87%	0.00%	76.13%	0.00%					0.00%	86.82%	13.18%	0.00%	14.85%	85.15%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	39	0	121	0	0	0	0	0	0	711	100	0	68	455	0	0	1494
PEAK HR FACTOR :	0.813	0.000	0.945	0.000	0.000	0.000	0.000	0.000	0.000	0.951	0.758	0.000	0.850	0.855	0.000	0.000	0.931
	0.930								0.952				0.878				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-011
Date: 3/4/2020

Cars

NS/EW Streets:	Coffee Rd				Coffee Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	0	12	0	0	0	0	0	0	56	15	0	17	152	0	0	263
7:15 AM	17	0	15	0	0	0	0	0	0	47	17	0	23	168	0	0	287
7:30 AM	19	0	26	0	0	0	0	0	0	61	15	0	39	214	0	0	374
7:45 AM	14	0	25	0	0	0	0	0	0	81	14	0	28	183	0	0	345
8:00 AM	9	0	14	0	0	0	0	0	0	64	16	0	36	151	0	0	290
8:15 AM	9	0	17	0	0	0	0	0	0	74	20	0	35	120	0	0	275
8:30 AM	6	0	13	0	0	0	0	0	0	60	20	0	27	120	0	0	246
8:45 AM	9	0	27	0	0	0	0	0	0	74	16	0	22	94	0	0	242
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	94	0	149	0	0	0	0	0	0	517	133	0	227	1202	0	0	2322
APPROACH %'s :	38.68%	0.00%	61.32%	0.00%					0.00%	79.54%	20.46%	0.00%	15.89%	84.11%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	59	0	80	0	0	0	0	0	0	253	62	0	126	716	0	0	1296
PEAK HR FACTOR :	0.78	0.000	0.769	0.000	0.000	0.000	0.000	0.000	0.000	0.781	0.912	0.000	0.808	0.836	0.000	0.000	0.866
	0.772								0.829				0.832				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	8	0	35	0	0	0	0	0	0	152	28	0	20	84	0	0	327
4:15 PM	18	0	42	0	0	0	0	0	0	150	27	0	19	98	0	0	354
4:30 PM	9	0	29	0	0	0	0	0	0	178	21	0	17	111	0	0	365
4:45 PM	8	0	28	0	0	0	0	0	0	165	24	0	15	103	0	0	343
5:00 PM	10	0	32	0	0	0	0	0	0	179	33	0	20	104	0	0	378
5:15 PM	12	0	31	0	0	0	0	0	0	185	22	0	16	132	0	0	398
5:30 PM	11	0	24	0	0	0	0	0	0	181	24	0	16	88	0	0	344
5:45 PM	3	0	30	0	0	0	0	0	0	161	27	0	21	92	0	0	334
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	79	0	251	0	0	0	0	0	0	1351	206	0	144	812	0	0	2843
APPROACH %'s :	23.94%	0.00%	76.06%	0.00%					0.00%	86.77%	13.23%	0.00%	15.06%	84.94%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	39	0	120	0	0	0	0	0	0	707	100	0	68	450	0	0	1484
PEAK HR FACTOR :	0.81	0.000	0.938	0.000	0.000	0.000	0.000	0.000	0.000	0.955	0.758	0.000	0.850	0.852	0.000	0.000	0.932
	0.924								0.952				0.875				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Patterson Rd
City: Modesto
Control: 1-Way Stop (NB)

Project ID: 20-07081-011
Date: 3/4/2020

HT

NS/EW Streets:	Coffee Rd				Coffee Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	0	0	0	0	4	0	0	0	3	0	0	8
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
7:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	0	9
7:45 AM	1	0	1	0	0	0	0	0	0	4	0	0	1	2	0	0	9
8:00 AM	1	0	1	0	0	0	0	0	0	0	1	0	1	2	0	0	6
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	4	0	0	7
8:30 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	3	0	0	5
8:45 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	3	0	0	0	0	0	0	21	2	0	2	23	0	0	53
APPROACH %'s :	40.00%	0.00%	60.00%	0.00%					0.00%	91.30%	8.70%	0.00%	8.00%	92.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	0	2	0	0	0	0	0	0	10	1	0	2	13	0	0	30
PEAK HR FACTOR :	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.500	0.650	0.000	0.000	0.833
	0.500								0.688				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	12	1	0	0	14	0	0	28
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	92.31%	7.69%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	4	0	0	0	5	0	0	10
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.417	0.000	0.000	0.625
	0.250								0.500				0.417				

Prepared by National Data & Surveying Services

Oakdale Rd & Patterson Rd

Peak Hour Turning Movement Count

ID: 20-07081-012
City: Riverbank

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Oakdale Rd — SOUTHBOUND

AM	119	113	63	0	205	AM
NOON	0	0	0	0	0	NOON
PM	44	95	91	0	265	PM

Patterson Rd — EASTBOUND

AM	NOON	PM	
777	0	517	⇦
11	0	13	↶ 0
59	0	126	↱ 0
284	0	540	→ 0
60	0	187	↷ 0
AM	NOON	PM	

CONTROL

Signalized

TEV	1935 AM	0 NOON	2329 PM
PHF	0.94		0.95

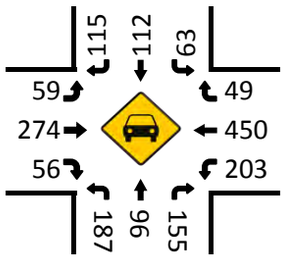
WESTBOUND — Patterson Rd

PM	NOON	AM	
0	0	0	0 ↶
36	0	49	0 ←
348	0	456	0 ↰
306	0	208	0 ↱
82	0	68	
959	0	572	⇨
PM	NOON	AM	

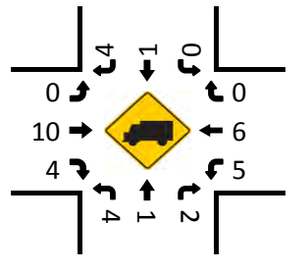
Oakdale Rd — NORTHBOUND

PM	588	0	112	103	246	PM
NOON	0	0	0	0	0	NOON
AM	381	0	191	97	157	AM

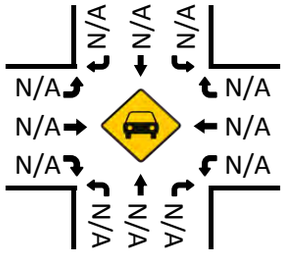
Cars (AM)



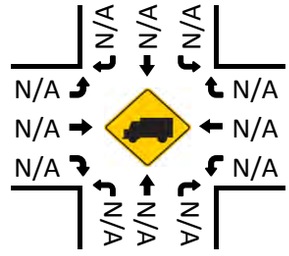
HT (AM)



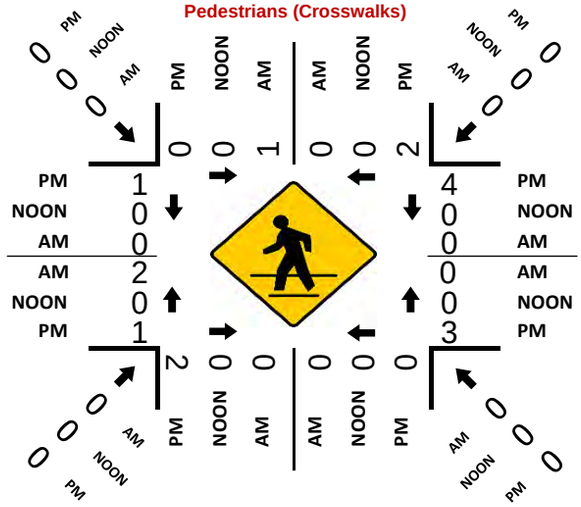
Cars (NOON)



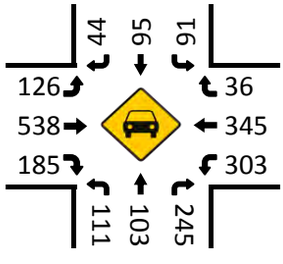
HT (NOON)



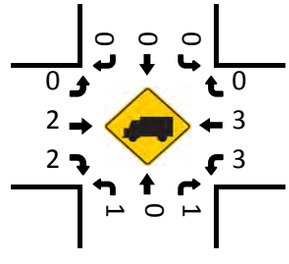
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Patterson Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-012
Date: 3/4/2020

Total

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	45	17	11	0	8	16	29	0	11	41	14	3	30	85	6	12	328
7:15 AM	57	22	21	0	7	17	31	0	13	34	19	2	29	112	9	17	390
7:30 AM	64	26	44	0	12	32	44	0	8	82	13	2	47	114	7	14	509
7:45 AM	50	38	47	0	8	25	25	0	21	73	11	1	50	133	12	19	513
8:00 AM	45	17	35	0	22	39	29	0	19	65	21	3	73	106	11	18	503
8:15 AM	32	16	31	0	21	17	21	0	11	64	15	5	38	103	19	17	410
8:30 AM	29	13	27	0	16	14	13	0	11	57	9	3	49	93	14	25	373
8:45 AM	23	26	37	0	20	18	18	0	12	80	19	4	33	63	8	15	376
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	345	175	253	0	114	178	210	0	106	496	121	23	349	809	86	137	3402
APPROACH %'s :	44.63%	22.64%	32.73%	0.00%	22.71%	35.46%	41.83%	0.00%	14.21%	66.49%	16.22%	3.08%	25.27%	58.58%	6.23%	9.92%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	191	97	157	0	63	113	119	0	59	284	60	11	208	456	49	68	1935
PEAK HR FACTOR :	0.746	0.638	0.835	0.000	0.716	0.724	0.676	0.000	0.702	0.866	0.714	0.550	0.712	0.857	0.645	0.895	0.943
	0.824				0.819				0.958				0.912				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	34	27	66	0	17	19	17	0	29	111	39	1	70	73	9	16	528
4:15 PM	32	33	59	0	17	20	9	0	30	153	35	1	76	91	11	14	581
4:30 PM	29	27	66	0	13	16	21	0	30	126	30	5	76	91	5	20	555
4:45 PM	33	23	60	0	32	28	4	0	35	123	33	2	74	84	8	20	559
5:00 PM	32	23	59	0	28	20	11	0	26	133	43	2	87	90	8	17	579
5:15 PM	29	30	62	0	14	25	18	0	30	139	59	6	67	98	12	24	613
5:30 PM	18	27	65	0	17	22	11	0	35	145	52	3	78	76	8	21	578
5:45 PM	24	40	62	0	19	17	15	0	19	106	55	4	60	73	15	21	530
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	231	230	499	0	157	167	106	0	234	1036	346	24	588	676	76	153	4523
APPROACH %'s :	24.06%	23.96%	51.98%	0.00%	36.51%	38.84%	24.65%	0.00%	14.27%	63.17%	21.10%	1.46%	39.38%	45.28%	5.09%	10.25%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	112	103	246	0	91	95	44	0	126	540	187	13	306	348	36	82	2329
PEAK HR FACTOR :	0.848	0.858	0.946	0.000	0.711	0.848	0.611	0.000	0.900	0.931	0.792	0.542	0.879	0.888	0.750	0.854	0.950
	0.952				0.898				0.921				0.955				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Patterson Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-012
Date: 3/4/2020

Cars

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	45	15	11	0	8	15	28	0	11	37	13	3	29	83	6	12	316
7:15 AM	57	21	20	0	7	17	28	0	13	33	19	2	29	109	9	17	381
7:30 AM	63	25	44	0	12	32	42	0	8	79	12	2	46	114	7	14	500
7:45 AM	49	38	47	0	8	24	24	0	21	70	10	1	49	132	12	19	504
8:00 AM	43	17	34	0	22	39	28	0	19	64	20	3	72	104	11	18	494
8:15 AM	32	16	30	0	21	17	21	0	11	61	14	5	36	100	19	17	400
8:30 AM	29	13	26	0	16	14	13	0	11	56	9	3	46	91	14	25	366
8:45 AM	23	26	35	0	19	18	18	0	12	77	19	4	31	62	8	15	367
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	341	171	247	0	113	176	202	0	106	477	116	23	338	795	86	137	3328
APPROACH %'s :	44.93%	22.53%	32.54%	0.00%	23.01%	35.85%	41.14%	0.00%	14.68%	66.07%	16.07%	3.19%	24.93%	58.63%	6.34%	10.10%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	187	96	155	0	63	112	115	0	59	274	56	11	203	450	49	68	1898
PEAK HR FACTOR :	0.74	0.632	0.824	0.000	0.716	0.718	0.685	0.000	0.702	0.867	0.700	0.550	0.705	0.852	0.645	0.895	0.941
		0.817				0.815				0.943				0.908			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	33	27	66	0	17	19	17	0	29	111	39	1	68	71	9	16	523
4:15 PM	32	33	58	0	17	20	9	0	30	151	35	1	75	88	11	14	574
4:30 PM	29	27	65	0	13	16	21	0	30	126	30	5	76	88	5	20	551
4:45 PM	33	23	60	0	32	28	4	0	35	122	33	2	73	83	8	19	555
5:00 PM	32	23	58	0	28	20	11	0	26	133	43	2	86	90	8	17	577
5:15 PM	29	30	62	0	14	25	18	0	30	139	57	6	67	97	12	24	610
5:30 PM	17	27	65	0	17	22	11	0	35	144	52	3	77	75	8	21	574
5:45 PM	24	40	62	0	18	17	15	0	19	106	55	4	60	73	15	20	528
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	229	230	496	0	156	167	106	0	234	1032	344	24	582	665	76	151	4492
APPROACH %'s :	23.98%	24.08%	51.94%	0.00%	36.36%	38.93%	24.71%	0.00%	14.32%	63.16%	21.05%	1.47%	39.48%	45.12%	5.16%	10.24%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	111	103	245	0	91	95	44	0	126	538	185	13	303	345	36	81	2316
PEAK HR FACTOR :	0.84	0.858	0.942	0.000	0.711	0.848	0.611	0.000	0.900	0.934	0.811	0.542	0.881	0.889	0.750	0.844	0.949
		0.948				0.898				0.921				0.951			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Patterson Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-012
Date: 3/4/2020

HT

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	1	1	0	0	4	1	0	1	2	0	0	12
7:15 AM	0	1	1	0	0	0	3	0	0	1	0	0	0	3	0	0	9
7:30 AM	1	1	0	0	0	0	2	0	0	3	1	0	1	0	0	0	9
7:45 AM	1	0	0	0	0	1	1	0	0	3	1	0	1	1	0	0	9
8:00 AM	2	0	1	0	0	0	1	0	0	1	1	0	1	2	0	0	9
8:15 AM	0	0	1	0	0	0	0	0	0	3	1	0	2	3	0	0	10
8:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	3	2	0	0	7
8:45 AM	0	0	2	0	1	0	0	0	0	3	0	0	2	1	0	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	4	6	0	1	2	8	0	0	19	5	0	11	14	0	0	74
APPROACH %'s :	28.57%	28.57%	42.86%	0.00%	9.09%	18.18%	72.73%	0.00%	0.00%	79.17%	20.83%	0.00%	44.00%	56.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	4	1	2	0	0	1	4	0	0	10	4	0	5	6	0	0	37
PEAK HR FACTOR :	0.500	0.250	0.500	0.000	0.000	0.250	0.500	0.000	0.000	0.833	1.000	0.000	0.625	0.500	0.000	0.000	0.925
			0.583				0.625				0.875				0.550		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	5
4:15 PM	0	0	1	0	0	0	0	0	0	2	0	0	1	3	0	0	7
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	4
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3
5:30 PM	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	4
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	3	0	1	0	0	0	0	4	2	0	6	11	0	2	31
APPROACH %'s :	40.00%	0.00%	60.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	31.58%	57.89%	0.00%	10.53%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	0	1	0	0	0	0	0	0	2	2	0	3	3	0	1	13
PEAK HR FACTOR :	0.25	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.750	0.750	0.000	0.250	0.813
			0.500								0.500				0.583		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Patterson Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-012
Date: 3/4/2020

Bikes

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Patterson Rd				Patterson Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	4
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	50.00%	50.00%	0.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
			0.250				0.500										

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
			0.250														

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Patterson Rd
City: Riverbank

Project ID: 20-07081-012
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	Oakdale Rd		Oakdale Rd		Patterson Rd		Patterson Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	3	0	0	0	2	6
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	2	0	2
8:15 AM	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	1	0	0	1	0	1	3
8:45 AM	0	0	0	0	0	1	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	2	3	0	2	2	3	13
APPROACH %'s :	100.00%	0.00%	40.00%	60.00%	0.00%	100.00%	40.00%	60.00%	
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	1	0	0	0	0	0	2	0	3
PEAK HR FACTOR :	0.250						0.250		0.375
	0.250						0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	2	1	1	0	0	4
4:15 PM	0	1	0	1	0	0	0	1	3
4:30 PM	0	0	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	2	0	2	0	0	0	4
5:15 PM	0	0	0	0	0	3	1	0	4
5:30 PM	0	2	0	0	0	1	0	0	3
5:45 PM	2	0	0	2	1	0	3	0	8
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	2	3	2	6	5	5	4	2	29
APPROACH %'s :	40.00%	60.00%	25.00%	75.00%	50.00%	50.00%	66.67%	33.33%	
PEAK HR :	04:45 PM - 05:45 PM								TOTAL
PEAK HR VOL :	0	2	2	0	3	4	1	1	13
PEAK HR FACTOR :		0.250	0.250		0.375	0.333	0.250	0.250	0.813
	0.250		0.250		0.583		0.500		

Prepared by National Data & Surveying Services

Coffee Rd & Morrill Rd

Peak Hour Turning Movement Count

ID: 20-07081-013
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND (Coffee Rd)

AM	0	204	2	0	133	AM
NOON	0	0	0	0	0	NOON
PM	0	146	33	0	157	PM

EASTBOUND (Morrill Rd)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND (Morrill Rd)

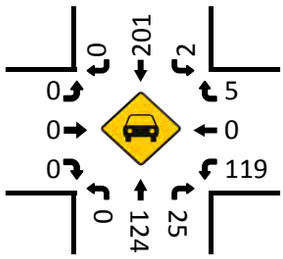
PM	NOON	AM	
4	0	5	0
0	0	0	0
71	0	119	0
0	0	0	0
153	0	27	
PM	NOON	AM	

NORTHBOUND (Coffee Rd)

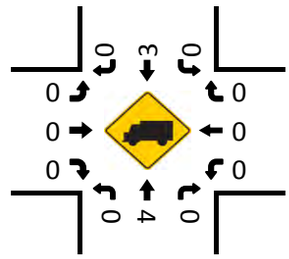
PM	217	0	0	153	120	PM
NOON	0	0	0	0	0	NOON
AM	323	0	0	128	25	AM

CONTROL			
1-Way Stop (WB)			
TEV	483 AM	0 NOON	527 PM
PHF	0.82		0.88

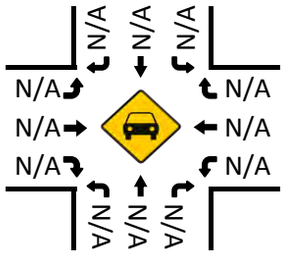
Cars (AM)



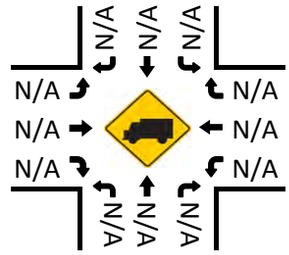
HT (AM)



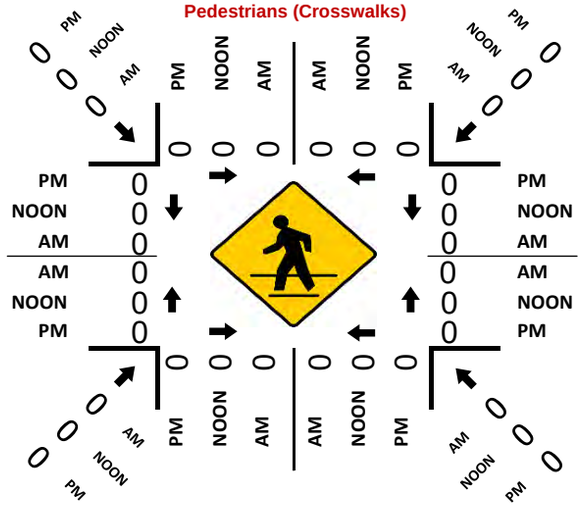
Cars (NOON)



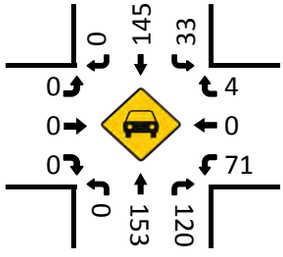
HT (NOON)



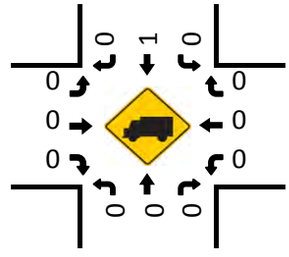
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Morrill Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-013
Date: 3/4/2020

Total

NS/EW Streets:	Coffee Rd				Coffee Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	22	6	0	1	32	0	0	0	0	0	0	19	0	2	0	82
7:15 AM	0	34	5	0	1	39	0	0	0	0	0	0	22	0	1	0	102
7:30 AM	0	38	5	0	1	54	0	0	0	0	0	0	44	0	5	0	147
7:45 AM	0	40	9	0	0	41	0	0	0	0	0	0	35	0	0	0	125
8:00 AM	0	24	6	0	0	52	0	0	0	0	0	0	23	0	0	0	105
8:15 AM	0	26	5	0	1	57	0	0	0	0	0	0	17	0	0	0	106
8:30 AM	0	23	5	0	1	47	0	0	0	0	0	0	10	0	0	0	86
8:45 AM	0	37	3	0	0	39	0	0	0	0	0	0	15	0	0	0	94
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	244	44	0	5	361	0	0	0	0	0	0	185	0	8	0	847
APPROACH %'s :	0.00%	84.72%	15.28%	0.00%	1.37%	98.63%	0.00%	0.00%					95.85%	0.00%	4.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	128	25	0	2	204	0	0	0	0	0	0	119	0	5	0	483
PEAK HR FACTOR :	0.000	0.800	0.694	0.000	0.500	0.895	0.000	0.000	0.000	0.000	0.000	0.000	0.676	0.000	0.250	0.000	0.821
		0.781				0.888								0.633			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	40	22	0	2	43	0	0	0	0	0	0	6	0	2	0	115
4:15 PM	0	57	34	0	5	43	0	0	0	0	0	0	7	0	2	0	148
4:30 PM	0	37	25	0	2	34	0	0	0	0	0	0	15	0	1	0	114
4:45 PM	0	32	25	0	3	38	0	0	0	0	0	0	8	0	0	0	106
5:00 PM	0	45	35	0	8	44	0	0	0	0	0	0	17	0	1	0	150
5:15 PM	0	44	37	0	8	29	0	0	0	0	0	0	17	0	1	0	136
5:30 PM	0	35	27	0	8	31	0	0	0	0	0	0	19	0	1	0	121
5:45 PM	0	29	21	0	9	42	0	0	0	0	0	0	18	0	1	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	319	226	0	45	304	0	0	0	0	0	0	107	0	9	0	1010
APPROACH %'s :	0.00%	58.53%	41.47%	0.00%	12.89%	87.11%	0.00%	0.00%					92.24%	0.00%	7.76%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	153	120	0	33	146	0	0	0	0	0	0	71	0	4	0	527
PEAK HR FACTOR :	0.000	0.850	0.811	0.000	0.917	0.830	0.000	0.000	0.000	0.000	0.000	0.000	0.934	0.000	1.000	0.000	0.878
		0.843				0.861								0.938			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Morrill Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-013
Date: 3/4/2020

Cars

NS/EW Streets:	Coffee Rd				Coffee Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	21	5	0	1	32	0	0	0	0	0	0	19	0	2	0	80
7:15 AM	0	34	5	0	1	39	0	0	0	0	0	0	22	0	1	0	102
7:30 AM	0	38	5	0	1	54	0	0	0	0	0	0	44	0	5	0	147
7:45 AM	0	38	9	0	0	40	0	0	0	0	0	0	35	0	0	0	122
8:00 AM	0	22	6	0	0	51	0	0	0	0	0	0	23	0	0	0	102
8:15 AM	0	26	5	0	1	56	0	0	0	0	0	0	17	0	0	0	105
8:30 AM	0	23	5	0	1	46	0	0	0	0	0	0	10	0	0	0	85
8:45 AM	0	37	3	0	0	39	0	0	0	0	0	0	15	0	0	0	94
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	239	43	0	5	357	0	0	0	0	0	0	185	0	8	0	837
APPROACH %'s :	0.00%	84.75%	15.25%	0.00%	1.38%	98.62%	0.00%	0.00%					95.85%	0.00%	4.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	124	25	0	2	201	0	0	0	0	0	0	119	0	5	0	476
PEAK HR FACTOR :	0.00	0.816	0.694	0.000	0.500	0.897	0.000	0.000	0.000	0.000	0.000	0.000	0.676	0.000	0.250	0.000	0.810
		0.793				0.890								0.633			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	40	22	0	2	43	0	0	0	0	0	0	6	0	2	0	115
4:15 PM	0	57	33	0	5	43	0	0	0	0	0	0	7	0	2	0	147
4:30 PM	0	36	25	0	2	34	0	0	0	0	0	0	15	0	1	0	113
4:45 PM	0	32	25	0	3	38	0	0	0	0	0	0	8	0	0	0	106
5:00 PM	0	45	35	0	8	44	0	0	0	0	0	0	17	0	1	0	150
5:15 PM	0	44	37	0	8	29	0	0	0	0	0	0	17	0	1	0	136
5:30 PM	0	35	27	0	8	31	0	0	0	0	0	0	19	0	1	0	121
5:45 PM	0	29	21	0	9	41	0	0	0	0	0	0	18	0	1	0	119
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	318	225	0	45	303	0	0	0	0	0	0	107	0	9	0	1007
APPROACH %'s :	0.00%	58.56%	41.44%	0.00%	12.93%	87.07%	0.00%	0.00%					92.24%	0.00%	7.76%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	153	120	0	33	145	0	0	0	0	0	0	71	0	4	0	526
PEAK HR FACTOR :	0.00	0.850	0.811	0.000	0.917	0.824	0.000	0.000	0.000	0.000	0.000	0.000	0.934	0.000	1.000	0.000	0.877
		0.843				0.856								0.938			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Morrill Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-013
Date: 3/4/2020

HT

NS/EW Streets:	Coffee Rd				Coffee Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	10
APPROACH %'s :	0.00%	83.33%	16.67%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583
		0.500				0.750											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

Prepared by National Data & Surveying Services

Coffee Rd & Crawford Rd

Peak Hour Turning Movement Count

ID: 20-07081-014
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND (Coffee Rd)

AM	0	321	1	0	155	AM
NOON	0	0	0	0	0	NOON
PM	0	210	10	0	275	PM

EASTBOUND (Crawford Rd)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

WESTBOUND (Crawford Rd)

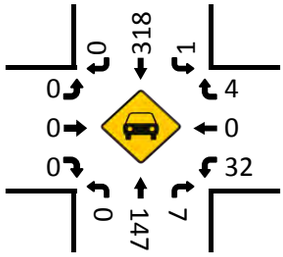
PM	NOON	AM	
4	0	5	0
0	0	0	0
22	0	33	0
0	0	0	0
25	0	8	
PM	NOON	AM	

NORTHBOUND (Coffee Rd)

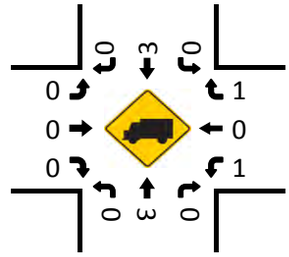
PM	232	0	0	271	15	PM
NOON	0	0	0	0	0	NOON
AM	354	0	0	150	7	AM

CONTROL			
1-Way Stop (WB)			
TEV	517	0	532
	AM	NOON	PM
PHF	0.86		0.88

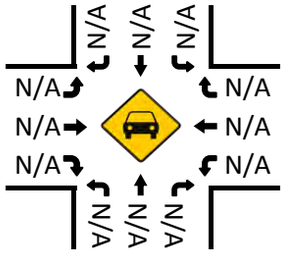
Cars (AM)



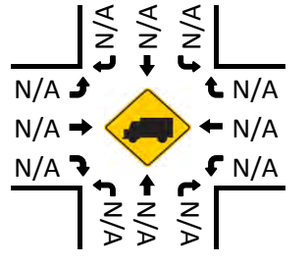
HT (AM)



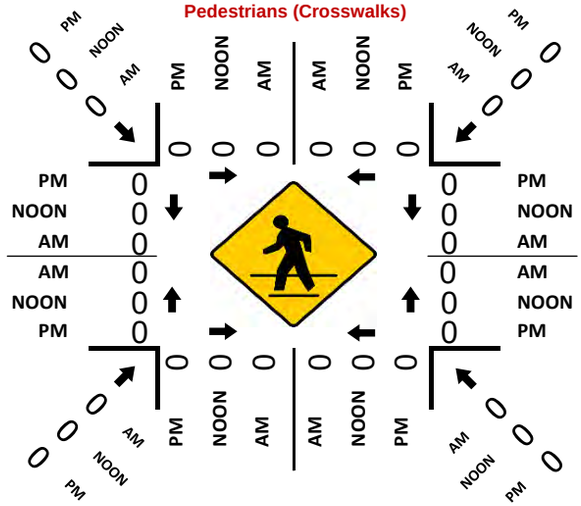
Cars (NOON)



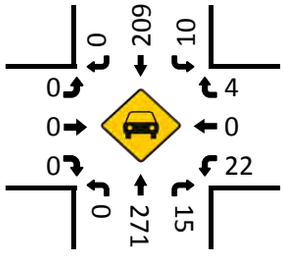
HT (NOON)



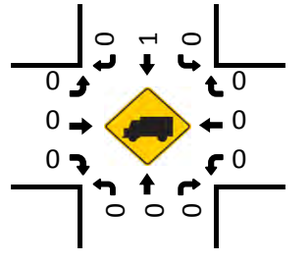
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-014
Date: 3/4/2020

Total

NS/EW Streets:	Coffee Rd				Coffee Rd				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	27	2	0	1	49	0	0	0	0	0	0	5	0	1	0	85
7:15 AM	0	38	2	0	1	62	0	0	0	0	0	0	5	0	1	0	109
7:30 AM	0	44	3	0	0	89	0	0	0	0	0	0	12	0	2	0	150
7:45 AM	0	46	3	0	0	84	0	0	0	0	0	0	9	0	2	0	144
8:00 AM	0	29	0	0	0	72	0	0	0	0	0	0	5	0	1	0	107
8:15 AM	0	31	1	0	1	76	0	0	0	0	0	0	7	0	0	0	116
8:30 AM	0	24	2	0	2	56	0	0	0	0	0	0	4	0	0	0	88
8:45 AM	0	42	0	0	1	48	0	0	0	0	0	0	4	0	1	0	96
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	281	13	0	6	536	0	0	0	0	0	0	51	0	8	0	895
APPROACH %'s :	0.00%	95.58%	4.42%	0.00%	1.11%	98.89%	0.00%	0.00%					86.44%	0.00%	13.56%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	150	7	0	1	321	0	0	0	0	0	0	33	0	5	0	517
PEAK HR FACTOR :	0.000	0.815	0.583	0.000	0.250	0.902	0.000	0.000	0.000	0.000	0.000	0.000	0.688	0.000	0.625	0.000	0.862
		0.801				0.904								0.679			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	62	8	0	2	51	0	0	0	0	0	0	8	0	0	0	131
4:15 PM	0	89	2	0	1	48	0	0	0	0	0	0	2	0	1	0	143
4:30 PM	0	62	2	0	2	51	0	0	0	0	0	0	3	0	0	0	120
4:45 PM	0	57	7	0	2	42	0	0	0	0	0	0	3	0	1	0	112
5:00 PM	0	78	6	0	6	54	0	0	0	0	0	0	8	0	0	0	152
5:15 PM	0	84	2	0	0	48	0	0	0	0	0	0	1	0	1	0	136
5:30 PM	0	61	4	0	1	47	0	0	0	0	0	0	4	0	2	0	119
5:45 PM	0	48	3	0	3	61	0	0	0	0	0	0	9	0	1	0	125
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	541	34	0	17	402	0	0	0	0	0	0	38	0	6	0	1038
APPROACH %'s :	0.00%	94.09%	5.91%	0.00%	4.06%	95.94%	0.00%	0.00%					86.36%	0.00%	13.64%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	271	15	0	10	210	0	0	0	0	0	0	22	0	4	0	532
PEAK HR FACTOR :	0.000	0.807	0.625	0.000	0.417	0.861	0.000	0.000	0.000	0.000	0.000	0.000	0.611	0.000	0.500	0.000	0.875
		0.831				0.859								0.650			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-014
Date: 3/4/2020

Cars

NS/EW Streets:	Coffee Rd				Coffee Rd				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	25	1	0	1	49	0	0	0	0	0	0	5	0	1	0	82
7:15 AM	0	38	1	0	1	62	0	0	0	0	0	0	5	0	1	0	108
7:30 AM	0	44	3	0	0	89	0	0	0	0	0	0	12	0	1	0	149
7:45 AM	0	45	3	0	0	83	0	0	0	0	0	0	8	0	2	0	141
8:00 AM	0	27	0	0	0	71	0	0	0	0	0	0	5	0	1	0	104
8:15 AM	0	31	1	0	1	75	0	0	0	0	0	0	7	0	0	0	115
8:30 AM	0	24	2	0	1	56	0	0	0	0	0	0	4	0	0	0	87
8:45 AM	0	42	0	0	1	48	0	0	0	0	0	0	4	0	1	0	96
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	276	11	0	5	533	0	0	0	0	0	0	50	0	7	0	882
APPROACH %'s :	0.00%	96.17%	3.83%	0.00%	0.93%	99.07%	0.00%	0.00%					87.72%	0.00%	12.28%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	147	7	0	1	318	0	0	0	0	0	0	32	0	4	0	509
PEAK HR FACTOR :	0.00	0.817	0.583	0.000	0.250	0.893	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.000	0.500	0.000	0.854
		0.802				0.896								0.692			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	62	8	0	2	51	0	0	0	0	0	0	8	0	0	0	131
4:15 PM	0	88	2	0	1	48	0	0	0	0	0	0	2	0	1	0	142
4:30 PM	0	61	2	0	2	51	0	0	0	0	0	0	3	0	0	0	119
4:45 PM	0	57	7	0	2	42	0	0	0	0	0	0	3	0	1	0	112
5:00 PM	0	78	6	0	6	54	0	0	0	0	0	0	8	0	0	0	152
5:15 PM	0	84	2	0	0	48	0	0	0	0	0	0	1	0	1	0	136
5:30 PM	0	61	4	0	1	47	0	0	0	0	0	0	4	0	2	0	119
5:45 PM	0	48	3	0	3	60	0	0	0	0	0	0	9	0	1	0	124
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	539	34	0	17	401	0	0	0	0	0	0	38	0	6	0	1035
APPROACH %'s :	0.00%	94.07%	5.93%	0.00%	4.07%	95.93%	0.00%	0.00%					86.36%	0.00%	13.64%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	271	15	0	10	209	0	0	0	0	0	0	22	0	4	0	531
PEAK HR FACTOR :	0.00	0.807	0.625	0.000	0.417	0.871	0.000	0.000	0.000	0.000	0.000	0.000	0.611	0.000	0.500	0.000	0.873
		0.831				0.869								0.650			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Crawford Rd
City: Modesto
Control: 1-Way Stop (WB)

Project ID: 20-07081-014
Date: 3/4/2020

HT

NS/EW Streets:	Coffee Rd				Coffee Rd				Crawford Rd				Crawford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	5	2	0	1	3	0	0	0	0	0	0	1	0	1	0	13
APPROACH %'s :	0.00%	71.43%	28.57%	0.00%	25.00%	75.00%	0.00%	0.00%					50.00%	0.00%	50.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	3	0	0	0	3	0	0	0	0	0	0	1	0	1	0	8
PEAK HR FACTOR :	0.000	0.375	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.667
		0.375				0.750								0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

Prepared by National Data & Surveying Services

Coffee Rd & Claribel Rd

Peak Hour Turning Movement Count

ID: 20-07081-015
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Coffee Rd — SOUTHBOUND

AM	117	216	10	0	169	AM
NOON	0	0	0	0	0	NOON
PM	40	151	14	0	304	PM

Claribel Rd — EASTBOUND

AM	NOON	PM	
1420	0	879	⇦
1	0	3	↶ 0
26	0	110	↱ 0
440	0	1154	→ 0
128	0	342	↴ 0
AM	NOON	PM	

Claribel Rd — WESTBOUND

PM	NOON	AM	
6	0	13	0 ↰
673	0	1103	0 ←
137	0	149	0 ↶
1	0	0	0 ↰
1338	0	560	⇨
PM	NOON	AM	

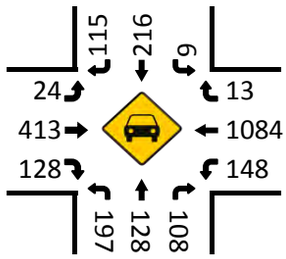
CONTROL: Signalized

TEV	2642 AM	0 NOON	3151 PM
PHF	0.91		0.93

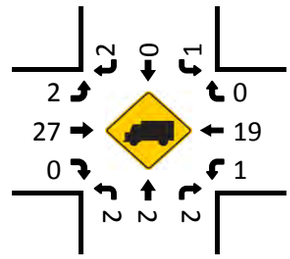
Coffee Rd — NORTHBOUND

PM	630	0	163	188	169	PM
NOON	0	0	0	0	0	NOON
AM	493	0	199	130	110	AM

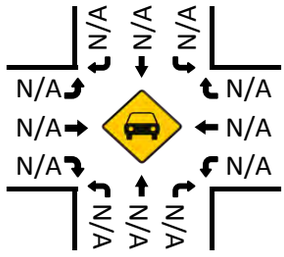
Cars (AM)



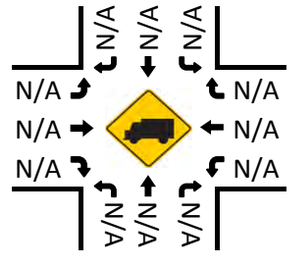
HT (AM)



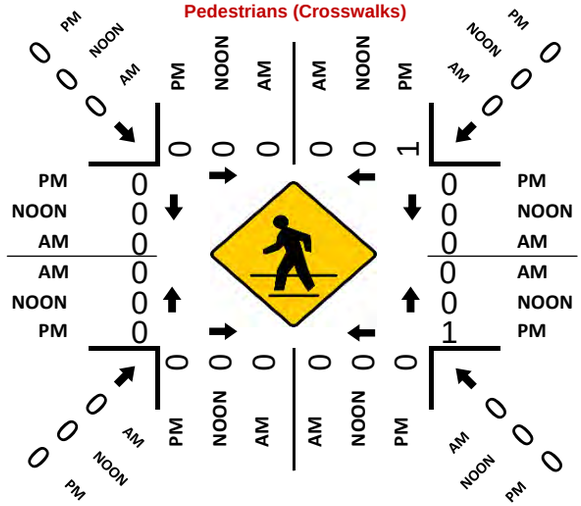
Cars (NOON)



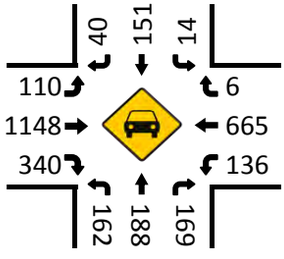
HT (NOON)



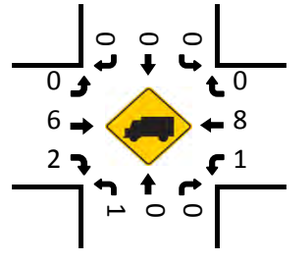
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-015
Date: 3/4/2020

Total

NS/EW Streets:	Coffee Rd				Coffee Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	37	26	13	0	0	35	13	0	3	74	13	0	12	184	1	0	411
7:15 AM	56	33	30	0	3	39	24	0	5	94	31	0	33	265	2	0	615
7:30 AM	53	36	24	0	3	58	31	0	6	104	33	0	39	301	5	0	693
7:45 AM	54	38	29	0	1	59	38	0	10	113	32	1	53	295	2	0	725
8:00 AM	36	23	27	0	3	60	24	0	5	129	32	0	24	242	4	0	609
8:15 AM	32	16	27	0	3	57	19	0	10	125	37	0	26	228	6	0	586
8:30 AM	30	21	25	0	2	53	12	0	7	118	22	1	28	216	2	0	537
8:45 AM	30	32	20	0	1	40	20	0	4	88	27	1	31	162	2	0	458
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	328	225	195	0	16	401	181	0	50	845	227	3	246	1893	24	0	4634
APPROACH %'s :	43.85%	30.08%	26.07%	0.00%	2.68%	67.06%	30.27%	0.00%	4.44%	75.11%	20.18%	0.27%	11.37%	87.52%	1.11%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	199	130	110	0	10	216	117	0	26	440	128	1	149	1103	13	0	2642
PEAK HR FACTOR :	0.888	0.855	0.917	0.000	0.833	0.900	0.770	0.000	0.650	0.853	0.970	0.250	0.703	0.916	0.650	0.000	0.911
	0.907				0.875				0.896				0.904				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	42	36	52	0	9	46	6	0	37	253	68	1	20	139	1	0	710
4:15 PM	35	53	47	0	3	41	6	0	34	251	69	1	30	166	3	0	739
4:30 PM	43	40	52	0	2	39	9	0	23	228	75	1	28	143	2	0	685
4:45 PM	33	40	44	0	4	32	8	0	23	265	89	0	37	180	3	0	758
5:00 PM	40	56	45	0	3	50	12	0	31	296	82	1	38	163	1	0	818
5:15 PM	61	51	42	0	2	40	9	0	32	314	93	0	34	163	1	1	843
5:30 PM	29	41	38	0	5	29	11	0	24	279	78	2	28	167	1	0	732
5:45 PM	33	34	52	0	8	58	9	0	20	220	78	0	26	154	0	0	692
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	316	351	372	0	36	335	70	0	224	2106	632	6	241	1275	12	1	5977
APPROACH %'s :	30.41%	33.78%	35.80%	0.00%	8.16%	75.96%	15.87%	0.00%	7.55%	70.96%	21.29%	0.20%	15.76%	83.39%	0.78%	0.07%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	163	188	169	0	14	151	40	0	110	1154	342	3	137	673	6	1	3151
PEAK HR FACTOR :	0.668	0.839	0.939	0.000	0.700	0.755	0.833	0.000	0.859	0.919	0.919	0.375	0.901	0.935	0.500	0.250	0.934
	0.844				0.788				0.916				0.928				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-015
Date: 3/4/2020

Cars

NS/EW Streets:	Coffee Rd				Coffee Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	37	23	13	0	0	35	13	0	3	69	12	0	12	181	1	0	399
7:15 AM	55	33	29	0	3	39	24	0	4	85	31	0	33	261	2	0	599
7:30 AM	52	36	23	0	3	58	31	0	6	98	33	0	39	296	5	0	680
7:45 AM	54	38	29	0	1	59	36	0	9	109	32	1	53	291	2	0	714
8:00 AM	36	21	27	0	2	60	24	0	5	121	32	0	23	236	4	0	591
8:15 AM	32	16	25	0	3	56	19	0	10	119	37	0	26	221	6	0	570
8:30 AM	30	21	25	0	2	53	12	0	7	109	22	1	26	212	2	0	522
8:45 AM	30	32	20	0	1	40	20	0	4	82	27	1	29	157	2	0	445
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	326	220	191	0	15	400	179	0	48	792	226	3	241	1855	24	0	4520
APPROACH %'s :	44.23%	29.85%	25.92%	0.00%	2.53%	67.34%	30.13%	0.00%	4.49%	74.09%	21.14%	0.28%	11.37%	87.50%	1.13%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	197	128	108	0	9	216	115	0	24	413	128	1	148	1084	13	0	2584
PEAK HR FACTOR :	0.90	0.842	0.931	0.000	0.750	0.900	0.799	0.000	0.667	0.853	0.970	0.250	0.698	0.916	0.650	0.000	0.905
		0.895				0.885				0.896				0.900			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	42	36	51	0	9	46	6	0	37	248	68	1	20	136	1	0	701
4:15 PM	34	53	47	0	3	41	6	0	33	249	68	1	30	160	3	0	728
4:30 PM	43	40	52	0	2	39	9	0	23	228	75	1	27	140	1	0	680
4:45 PM	33	40	44	0	4	32	8	0	23	265	88	0	37	179	3	0	756
5:00 PM	40	56	45	0	3	50	12	0	31	292	81	1	37	159	1	0	808
5:15 PM	60	51	42	0	2	40	9	0	32	314	93	0	34	162	1	1	841
5:30 PM	29	41	38	0	5	29	11	0	24	277	78	2	28	165	1	0	728
5:45 PM	33	34	52	0	7	58	9	0	20	219	78	0	26	154	0	0	690
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	314	351	371	0	35	335	70	0	223	2092	629	6	239	1255	11	1	5932
APPROACH %'s :	30.31%	33.88%	35.81%	0.00%	7.95%	76.14%	15.91%	0.00%	7.56%	70.92%	21.32%	0.20%	15.87%	83.33%	0.73%	0.07%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	162	188	169	0	14	151	40	0	110	1148	340	3	136	665	6	1	3133
PEAK HR FACTOR :	0.68	0.839	0.939	0.000	0.700	0.755	0.833	0.000	0.859	0.914	0.914	0.375	0.919	0.929	0.500	0.250	0.931
		0.848				0.788				0.912				0.922			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-015
Date: 3/4/2020

HT

NS/EW Streets:	Coffee Rd				Coffee Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	0	0	0	0	0	5	1	0	0	3	0	0	12
7:15 AM	1	0	1	0	0	0	0	0	1	9	0	0	0	4	0	0	16
7:30 AM	1	0	1	0	0	0	0	0	0	6	0	0	0	5	0	0	13
7:45 AM	0	0	0	0	0	0	2	0	1	4	0	0	0	4	0	0	11
8:00 AM	0	2	0	0	1	0	0	0	0	8	0	0	1	6	0	0	18
8:15 AM	0	0	2	0	0	1	0	0	0	6	0	0	0	7	0	0	16
8:30 AM	0	0	0	0	0	0	0	0	0	9	0	0	2	4	0	0	15
8:45 AM	0	0	0	0	0	0	0	0	0	6	0	0	2	5	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	5	4	0	1	1	2	0	2	53	1	0	5	38	0	0	114
APPROACH %'s :	18.18%	45.45%	36.36%	0.00%	25.00%	25.00%	50.00%	0.00%	3.57%	94.64%	1.79%	0.00%	11.63%	88.37%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	2	2	0	1	0	2	0	2	27	0	0	1	19	0	0	58
PEAK HR FACTOR :	0.500	0.250	0.500	0.000	0.250	0.000	0.250	0.000	0.500	0.750	0.000	0.000	0.250	0.792	0.000	0.000	0.806
		0.750				0.375				0.725				0.714			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	5	0	0	0	3	0	0	9
4:15 PM	1	0	0	0	0	0	0	0	1	2	1	0	0	6	0	0	11
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	4	1	0	1	4	0	0	10
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	0	1	0	1	0	0	0	1	14	3	0	2	20	1	0	45
APPROACH %'s :	66.67%	0.00%	33.33%	0.00%	100.00%	0.00%	0.00%	0.00%	5.56%	77.78%	16.67%	0.00%	8.70%	86.96%	4.35%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	6	2	0	1	8	0	0	18
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.000	0.250	0.500	0.000	0.000	0.450
		0.250								0.400				0.450			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claribel Rd
City: Modesto
Control: Signalized

Project ID: 20-07081-015
Date: 3/4/2020

Bikes

NS/EW Streets:	Coffee Rd				Coffee Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500
										0.500							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claribel Rd
City: Modesto
Project ID: 20-07081-015
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	Coffee Rd		Coffee Rd		Claribel Rd		Claribel Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	0	1	0	0	0	2
APPROACH %'s :	0.00%	100.00%			100.00%	0.00%			
PEAK HR :	**04:45 PM - 05:45 PM**								TOTAL
PEAK HR VOL :	0	1	0	0	1	0	0	0	2
PEAK HR FACTOR :		0.250			0.250				0.250
	0.250				0.250				

Prepared by National Data & Surveying Services

Coffee Rd & Claratina Ave

Peak Hour Turning Movement Count

ID: 20-07081-016
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND (Coffee Rd)

AM	44	439	9	2	436	AM
NOON	0	0	0	0	0	NOON
PM	64	511	70	1	554	PM

EASTBOUND (Claratina Ave)

AM	NOON	PM	
815	0	508	⇦
0	0	0	↶ 0
58	0	75	↱ 0
185	0	395	→ 0
194	0	229	↷ 0
AM	NOON	PM	

WESTBOUND (Claratina Ave)

PM	NOON	AM	
12	0	19	0 ↶
216	0	463	0 ←
13	0	17	0 ↰
3	0	0	0 ↶
481	0	198	⇨
PM	NOON	AM	

NORTHBOUND (Coffee Rd)

PM	753	0	228	466	13	PM
NOON	0	0	0	0	0	NOON
AM	650	0	308	357	4	AM

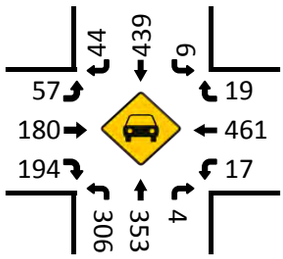
0 ↶	0 ↰	0 ↑	0 ↱	⇩

CONTROL

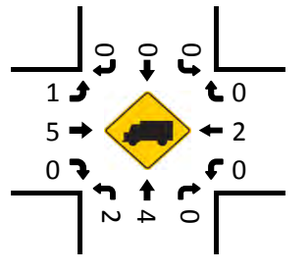
4-Way Yield

TEV	2099	0	2296
	AM	NOON	PM
PHF	0.89		0.97

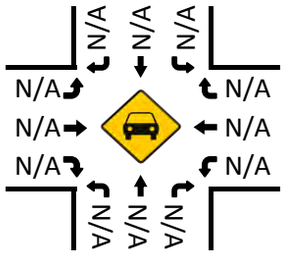
Cars (AM)



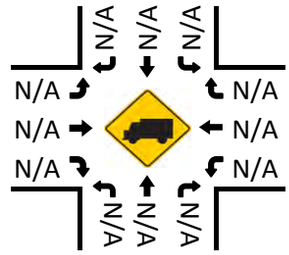
HT (AM)



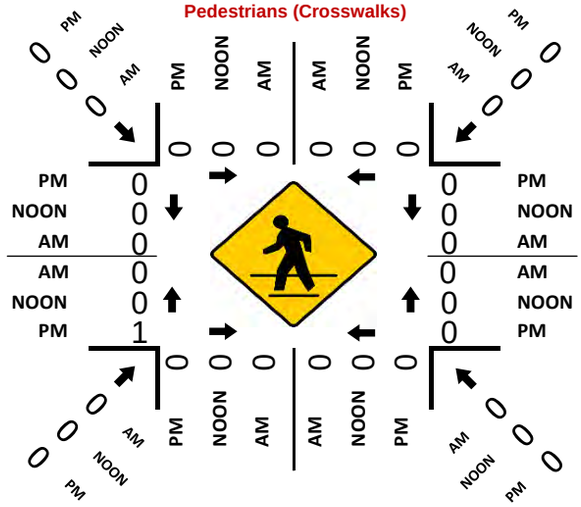
Cars (NOON)



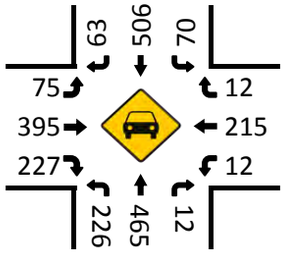
HT (NOON)



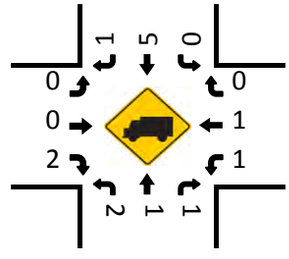
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claratina Ave
City: Modesto
Control: 4-Way Yield

Project ID: 20-07081-016
Date: 3/4/2020

Total

NS/EW Streets:	Coffee Rd				Coffee Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	41	70	0	0	3	48	5	0	3	31	27	0	3	79	2	1	313
7:15 AM	56	106	1	0	4	90	8	0	10	33	38	0	4	102	5	0	457
7:30 AM	77	90	1	0	3	111	17	1	18	51	48	0	1	108	6	0	532
7:45 AM	92	94	1	0	1	121	7	0	16	63	53	0	6	130	7	0	591
8:00 AM	83	67	1	0	1	117	12	1	14	38	55	0	6	123	1	0	519
8:15 AM	49	59	0	0	5	94	17	0	11	47	42	0	1	101	7	0	433
8:30 AM	42	53	0	0	4	96	8	0	13	41	54	0	2	79	6	0	398
8:45 AM	45	71	1	0	3	86	11	0	20	38	34	0	1	106	0	0	416
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	485	610	5	0	24	763	85	2	105	342	351	0	24	828	34	1	3659
APPROACH %'s :	44.09%	55.45%	0.45%	0.00%	2.75%	87.30%	9.73%	0.23%	13.16%	42.86%	43.98%	0.00%	2.71%	93.35%	3.83%	0.11%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	308	357	4	0	9	439	44	2	58	185	194	0	17	463	19	0	2099
PEAK HR FACTOR :	0.837	0.842	1.000	0.000	0.563	0.907	0.647	0.500	0.806	0.734	0.882	0.000	0.708	0.890	0.679	0.000	0.888
	0.894				0.936				0.828				0.872				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	48	104	3	1	17	108	17	0	21	105	63	0	4	45	3	0	539
4:15 PM	41	117	0	1	11	107	15	0	16	82	73	0	3	59	4	0	529
4:30 PM	65	112	2	0	14	117	7	0	19	91	59	0	3	50	3	0	542
4:45 PM	46	108	3	0	11	135	23	0	24	100	57	0	4	73	0	2	586
5:00 PM	54	128	2	0	19	139	18	0	18	107	45	0	2	34	7	1	574
5:15 PM	63	118	6	0	26	120	16	1	14	97	68	0	4	59	2	0	594
5:30 PM	56	98	1	0	22	107	11	0	12	114	51	0	5	52	3	0	532
5:45 PM	41	101	2	0	21	122	14	0	13	96	46	0	6	61	0	0	523
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	414	886	19	2	141	955	121	1	137	792	462	0	31	433	22	3	4419
APPROACH %'s :	31.34%	67.07%	1.44%	0.15%	11.58%	78.41%	9.93%	0.08%	9.85%	56.94%	33.21%	0.00%	6.34%	88.55%	4.50%	0.61%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	228	466	13	0	70	511	64	1	75	395	229	0	13	216	12	3	2296
PEAK HR FACTOR :	0.877	0.910	0.542	0.000	0.673	0.919	0.696	0.250	0.781	0.923	0.842	0.000	0.813	0.740	0.429	0.375	0.966
	0.945				0.918				0.965				0.772				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claratina Ave
City: Modesto
Control: 4-Way Yield

Project ID: 20-07081-016
Date: 3/4/2020

Cars

NS/EW Streets:	Coffee Rd				Coffee Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	41	67	0	0	2	48	5	0	3	30	27	0	3	78	2	1	307
7:15 AM	55	104	1	0	4	90	8	0	10	32	38	0	4	102	5	0	453
7:30 AM	76	88	1	0	3	111	17	1	18	48	48	0	1	108	6	0	526
7:45 AM	92	94	1	0	1	121	7	0	16	62	53	0	6	129	7	0	589
8:00 AM	83	67	1	0	1	117	12	0	13	38	55	0	6	122	1	0	516
8:15 AM	49	59	0	0	5	93	17	0	11	45	40	0	1	101	7	0	428
8:30 AM	42	53	0	0	4	95	8	0	13	38	52	0	2	77	6	0	390
8:45 AM	45	71	1	0	3	85	10	0	20	37	32	0	1	105	0	0	410
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	483	603	5	0	23	760	84	1	104	330	345	0	24	822	34	1	3619
APPROACH %'s :	44.27%	55.27%	0.46%	0.00%	2.65%	87.56%	9.68%	0.12%	13.35%	42.36%	44.29%	0.00%	2.72%	93.30%	3.86%	0.11%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	306	353	4	0	9	439	44	1	57	180	194	0	17	461	19	0	2084
PEAK HR FACTOR :	0.83	0.849	1.000	0.000	0.563	0.907	0.647	0.250	0.792	0.726	0.882	0.000	0.708	0.893	0.679	0.000	0.885
		0.886				0.934				0.823				0.875			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	47	104	3	1	17	108	17	0	20	104	63	0	4	45	3	0	536
4:15 PM	40	116	0	1	11	107	15	0	16	82	72	0	3	57	4	0	524
4:30 PM	65	112	2	0	14	115	7	0	19	91	59	0	2	50	3	0	539
4:45 PM	44	108	3	0	11	135	22	0	24	100	55	0	4	72	0	2	580
5:00 PM	54	128	2	0	19	136	18	0	18	107	45	0	2	34	7	1	571
5:15 PM	63	117	5	0	26	120	16	1	14	97	68	0	4	59	2	0	592
5:30 PM	56	98	1	0	22	107	11	0	12	114	51	0	5	52	3	0	532
5:45 PM	41	101	2	0	21	122	14	0	13	96	46	0	6	61	0	0	523
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	410	884	18	2	141	950	120	1	136	791	459	0	30	430	22	3	4397
APPROACH %'s :	31.20%	67.28%	1.37%	0.15%	11.63%	78.38%	9.90%	0.08%	9.81%	57.07%	33.12%	0.00%	6.19%	88.66%	4.54%	0.62%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	226	465	12	0	70	506	63	1	75	395	227	0	12	215	12	3	2282
PEAK HR FACTOR :	0.87	0.908	0.600	0.000	0.673	0.930	0.716	0.250	0.781	0.923	0.835	0.000	0.750	0.747	0.429	0.375	0.964
		0.950				0.925				0.973				0.776			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Coffee Rd & Claratina Ave
City: Modesto
Control: 4-Way Yield

Project ID: 20-07081-016
Date: 3/4/2020

HT

NS/EW Streets:	Coffee Rd				Coffee Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	3	0	0	1	0	0	0	0	1	0	0	0	1	0	0	6
7:15 AM	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
7:30 AM	1	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
8:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	3
8:15 AM	0	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	1	0	0	0	3	2	0	0	2	0	0	8
8:45 AM	0	0	0	0	0	1	1	0	0	1	2	0	0	1	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	7	0	0	1	3	1	1	1	12	6	0	0	6	0	0	40
APPROACH %'s :	22.22%	77.78%	0.00%	0.00%	16.67%	50.00%	16.67%	16.67%	5.26%	63.16%	31.58%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	2	4	0	0	0	0	0	1	1	5	0	0	0	2	0	0	15
PEAK HR FACTOR :	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.417	0.000	0.000	0.000	0.500	0.000	0.000	0.625
	0.500				0.250				0.500				0.500				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3
4:15 PM	1	1	0	0	0	0	0	0	0	0	1	0	0	2	0	0	5
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	3
4:45 PM	2	0	0	0	0	0	1	0	0	0	2	0	0	1	0	0	6
5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	2	1	0	0	5	1	0	1	1	3	0	1	3	0	0	22
APPROACH %'s :	57.14%	28.57%	14.29%	0.00%	0.00%	83.33%	16.67%	0.00%	20.00%	20.00%	60.00%	0.00%	25.00%	75.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	2	1	1	0	0	5	1	0	0	0	2	0	1	1	0	0	14
PEAK HR FACTOR :	0.25	0.250	0.250	0.000	0.000	0.417	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.583
	0.500				0.500				0.250				0.500				

Prepared by National Data & Surveying Services

Oakdale Rd & Morrill Rd

Peak Hour Turning Movement Count

ID: 20-07081-017
City: Riverbank

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	1173	0	1539
PHF	0.87		0.93

Oakdale Rd — SOUTHBOUND

AM	34	380	59	0	472	AM
NOON	0	0	0	0	0	NOON
PM	21	452	112	1	627	PM

Morrill Rd — EASTBOUND

AM	NOON	PM	
132	0	73	
0	0	0	0
7	0	30	0
20	0	111	0
2	0	10	0
AM	NOON	PM	

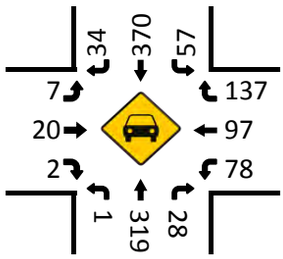
Morrill Rd — WESTBOUND

PM	NOON	AM	
91	0	137	0
37	0	97	0
56	0	80	0
0	0	0	0
319	0	107	
PM	NOON	AM	

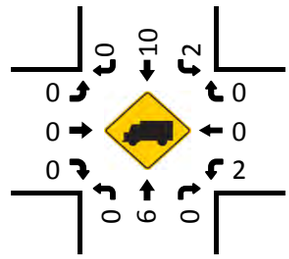
Oakdale Rd — NORTHBOUND

PM	520	2	15	505	96	PM
NOON	0	0	0	0	0	NOON
AM	462	0	1	328	28	AM

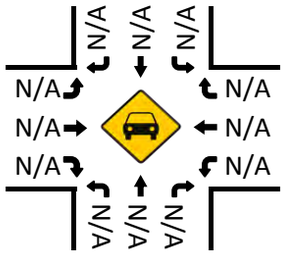
Cars (AM)



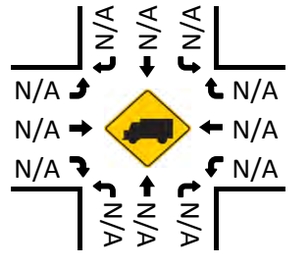
HT (AM)



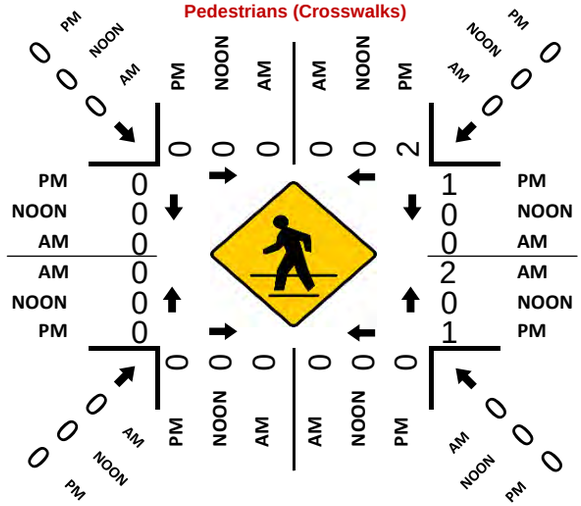
Cars (NOON)



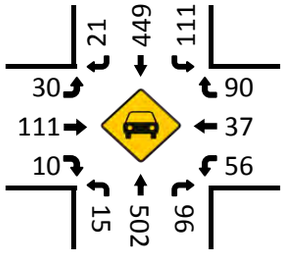
HT (NOON)



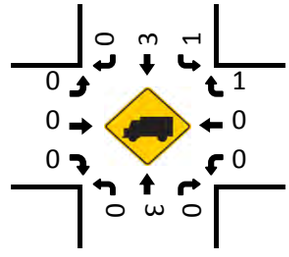
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Morrill Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-017
Date: 3/4/2020

Total

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	62	2	0	10	72	5	0	2	5	1	0	10	15	24	0	209
7:15 AM	0	71	6	0	15	81	3	0	1	4	1	0	20	21	28	0	251
7:30 AM	1	83	6	0	17	110	12	0	1	6	0	0	23	37	41	0	337
7:45 AM	0	107	10	0	16	75	8	0	2	4	0	0	24	26	37	0	309
8:00 AM	0	67	6	0	11	114	11	0	3	6	1	0	13	13	31	0	276
8:15 AM	1	74	10	0	9	72	7	0	3	2	1	0	11	9	9	0	208
8:30 AM	1	68	7	1	11	64	6	0	1	5	2	0	11	6	15	0	198
8:45 AM	1	74	5	0	5	60	5	0	4	2	0	0	14	7	10	0	187
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	606	52	1	94	648	57	0	17	34	6	0	126	134	195	0	1975
APPROACH %'s :	0.75%	91.27%	7.83%	0.15%	11.76%	81.10%	7.13%	0.00%	29.82%	59.65%	10.53%	0.00%	27.69%	29.45%	42.86%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	328	28	0	59	380	34	0	7	20	2	0	80	97	137	0	1173
PEAK HR FACTOR :	0.250	0.766	0.700	0.000	0.868	0.833	0.708	0.000	0.583	0.833	0.500	0.000	0.833	0.655	0.835	0.000	0.870
	0.763				0.851				0.725				0.777				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	126	27	0	25	103	3	0	5	19	2	0	9	8	25	0	354
4:15 PM	2	126	29	0	31	107	4	0	12	21	0	0	13	5	14	0	364
4:30 PM	0	124	28	2	22	99	4	0	10	11	1	0	18	7	15	0	341
4:45 PM	2	131	9	1	17	83	6	0	6	26	1	0	15	11	16	0	324
5:00 PM	1	94	25	0	23	104	1	0	5	25	3	0	12	8	22	0	323
5:15 PM	2	135	26	0	29	114	9	0	8	39	5	0	15	12	18	0	412
5:30 PM	4	136	24	1	33	112	6	1	10	30	1	0	13	7	25	0	403
5:45 PM	8	140	21	1	27	122	5	0	7	17	1	0	16	10	26	0	401
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	21	1012	189	5	207	844	38	1	63	188	14	0	111	68	161	0	2922
APPROACH %'s :	1.71%	82.48%	15.40%	0.41%	18.99%	77.43%	3.49%	0.09%	23.77%	70.94%	5.28%	0.00%	32.65%	20.00%	47.35%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	15	505	96	2	112	452	21	1	30	111	10	0	56	37	91	0	1539
PEAK HR FACTOR :	0.469	0.902	0.923	0.500	0.848	0.926	0.583	0.250	0.750	0.712	0.500	0.000	0.875	0.771	0.875	0.000	0.934
	0.909				0.951				0.726				0.885				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Morrill Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-017
Date: 3/4/2020

Cars

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	62	2	0	9	70	5	0	1	5	1	0	9	15	24	0	204
7:15 AM	0	68	6	0	13	81	3	0	1	4	1	0	20	21	28	0	246
7:30 AM	1	81	6	0	17	106	12	0	1	6	0	0	23	37	41	0	331
7:45 AM	0	106	10	0	16	72	8	0	2	4	0	0	23	26	37	0	304
8:00 AM	0	64	6	0	11	111	11	0	3	6	1	0	12	13	31	0	269
8:15 AM	1	74	10	0	9	70	7	0	3	2	1	0	11	9	9	0	206
8:30 AM	1	66	7	1	11	61	6	0	1	5	2	0	11	6	15	0	193
8:45 AM	1	72	5	0	5	60	5	0	4	2	0	0	14	7	10	0	185
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	593	52	1	91	631	57	0	16	34	6	0	123	134	195	0	1938
APPROACH %'s :	0.77%	91.09%	7.99%	0.15%	11.68%	81.00%	7.32%	0.00%	28.57%	60.71%	10.71%	0.00%	27.21%	29.65%	43.14%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	319	28	0	57	370	34	0	7	20	2	0	78	97	137	0	1150
PEAK HR FACTOR :	0.25	0.752	0.700	0.000	0.838	0.833	0.708	0.000	0.583	0.833	0.500	0.000	0.848	0.655	0.835	0.000	0.869
		0.750				0.854				0.725				0.772			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	124	27	0	25	101	3	0	5	19	2	0	8	8	25	0	349
4:15 PM	2	125	28	0	31	106	4	0	12	20	0	0	12	5	14	0	359
4:30 PM	0	124	27	2	21	96	4	0	10	11	1	0	16	7	15	0	334
4:45 PM	2	130	9	1	17	82	6	0	6	26	1	0	15	11	16	0	322
5:00 PM	1	93	25	0	23	104	1	0	5	25	3	0	12	8	21	0	321
5:15 PM	2	135	26	0	29	113	9	0	8	39	5	0	15	12	18	0	411
5:30 PM	4	135	24	1	32	110	6	1	10	30	1	0	13	7	25	0	399
5:45 PM	8	139	21	1	27	122	5	0	7	17	1	0	16	10	26	0	400
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	21	1005	187	5	205	834	38	1	63	187	14	0	107	68	160	0	2895
APPROACH %'s :	1.72%	82.51%	15.35%	0.41%	19.02%	77.37%	3.53%	0.09%	23.86%	70.83%	5.30%	0.00%	31.94%	20.30%	47.76%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	15	502	96	2	111	449	21	1	30	111	10	0	56	37	90	0	1531
PEAK HR FACTOR :	0.47	0.903	0.923	0.500	0.867	0.920	0.583	0.250	0.750	0.712	0.500	0.000	0.875	0.771	0.865	0.000	0.931
		0.910				0.945				0.726				0.880			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Morrill Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-017
Date: 3/4/2020

HT

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	1	2	0	0	1	0	0	0	1	0	0	0	5
7:15 AM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
7:45 AM	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0	0	5
8:00 AM	0	3	0	0	0	3	0	0	0	0	0	0	1	0	0	0	7
8:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	13	0	0	3	17	0	0	1	0	0	0	3	0	0	0	37
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	15.00%	85.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	9	0	0	2	10	0	0	0	0	0	0	2	0	0	0	23
PEAK HR FACTOR :	0.000	0.750	0.000	0.000	0.250	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.821
		0.750				0.750								0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5
4:15 PM	0	1	1	0	0	1	0	0	0	1	0	0	1	0	0	0	5
4:30 PM	0	0	1	0	1	3	0	0	0	0	0	0	2	0	0	0	7
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	7	2	0	2	10	0	0	0	1	0	0	4	0	1	0	27
APPROACH %'s :	0.00%	77.78%	22.22%	0.00%	16.67%	83.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	80.00%	0.00%	20.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	3	0	0	1	3	0	0	0	0	0	0	0	0	1	0	8
PEAK HR FACTOR :	0.00	0.750	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500
		0.750				0.333								0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Morrill Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-017
Date: 3/4/2020

Bikes

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Morrill Rd				Morrill Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%									
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375
		0.250				0.500											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	3	0	3	2	0	0	0	0	0	0	1	1	1	0	17
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%	60.00%	40.00%	0.00%	0.00%					33.33%	33.33%	33.33%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	1	0	2	0	0	0	0	0	0	0	1	1	1	0	7
PEAK HR FACTOR :	0.00	0.250	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.000	0.583
		0.500				0.500								0.375			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Morrill Rd
City: Riverbank

Project ID: 20-07081-017
Date: 3/4/2020

Pedestrians (Crosswalks)

NS/EW Streets:	Oakdale Rd		Oakdale Rd		Morrill Rd		Morrill Rd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	1
8:15 AM	0	0	0	0	1	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	0	1	4
APPROACH %'s :					100.00%	0.00%	0.00%	100.00%	
PEAK HR :	**07:15 AM - 08:15 AM**								TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	2
PEAK HR FACTOR :					0.500				0.500
					0.500				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	0	1	0	0	3
5:45 PM	0	0	0	0	1	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	0	0	1	1	0	0	4
APPROACH %'s :	0.00%	100.00%			50.00%	50.00%			
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	0	2	0	0	1	1	0	0	4
PEAK HR FACTOR :		0.250			0.250	0.250			0.333
	0.250				0.500				

Prepared by National Data & Surveying Services

Oakdale Rd & Claribel Rd

Peak Hour Turning Movement Count

ID: 20-07081-018
City: Riverbank

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Oakdale Rd — SOUTHBOUND

AM	326	380	34	0	543	AM
NOON	0	0	0	0	0	NOON
PM	182	289	57	9	842	PM

EASTBOUND — Claribel Rd

AM	NOON	PM	
1230	0	820	⇦
1	0	1	↶ 0
163	0	315	↱ 0
336	0	825	→ 0
87	0	191	↷ 0
AM	NOON	PM	

WESTBOUND — Claribel Rd

PM	NOON	AM	
64	0	60	0 ↶
522	0	694	0 ←
231	0	223	0 ↰
1	0	1	0 ↷
1084	0	494	⇨
PM	NOON	AM	

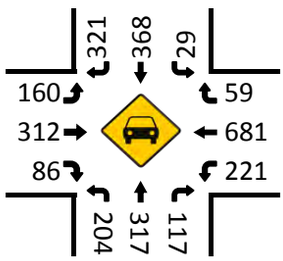
CONTROL: Signalized

TEV	2957 AM	0 NOON	3457 PM
PHF	0.89		0.97

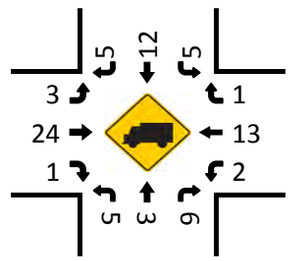
Oakdale Rd — NORTHBOUND

PM	711	0	115	454	201	PM
NOON	0	0	0	0	0	NOON
AM	690	0	209	320	123	AM

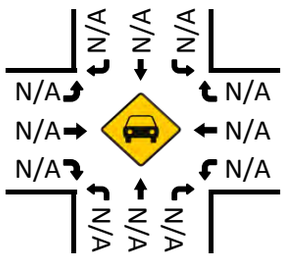
Cars (AM)



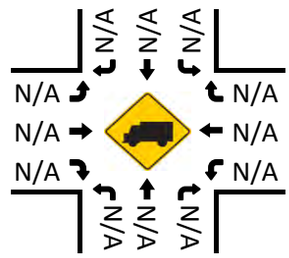
HT (AM)



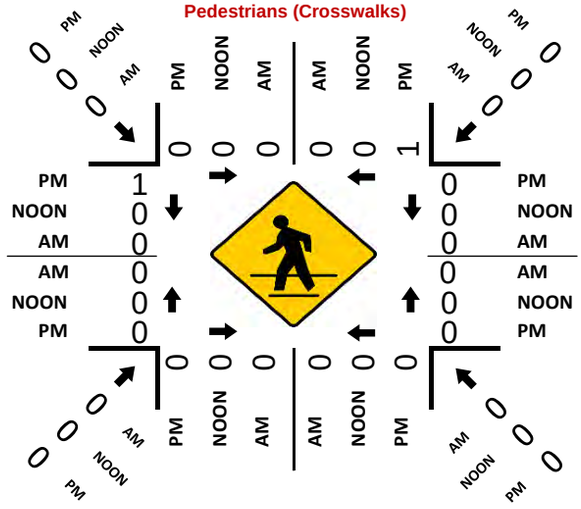
Cars (NOON)



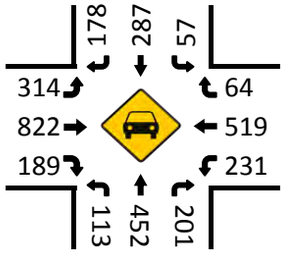
HT (NOON)



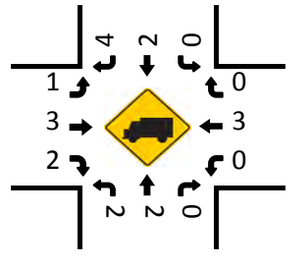
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claribel Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-018
Date: 3/4/2020

Total

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	40	41	12	0	5	71	35	0	15	60	14	0	37	129	15	0	474
7:15 AM	62	68	17	0	14	75	80	0	36	81	10	0	34	166	9	0	652
7:30 AM	56	85	26	0	10	135	104	0	31	66	24	1	64	181	11	0	794
7:45 AM	62	96	31	0	7	100	100	0	35	97	26	0	67	202	10	0	833
8:00 AM	48	61	42	0	9	95	65	0	43	80	21	0	54	133	14	1	666
8:15 AM	43	78	24	0	8	50	57	0	54	93	16	0	38	178	25	0	664
8:30 AM	31	74	21	0	9	62	63	0	39	77	22	0	38	137	9	0	582
8:45 AM	23	58	35	0	10	50	43	0	34	68	16	0	40	137	12	0	526
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	365	561	208	0	72	638	547	0	287	622	149	1	372	1263	105	1	5191
APPROACH %'s :	32.19%	49.47%	18.34%	0.00%	5.73%	50.76%	43.52%	0.00%	27.10%	58.73%	14.07%	0.09%	21.37%	72.54%	6.03%	0.06%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	209	320	123	0	34	380	326	0	163	336	87	1	223	694	60	1	2957
PEAK HR FACTOR :	0.843	0.833	0.732	0.000	0.850	0.704	0.784	0.000	0.755	0.866	0.837	0.250	0.832	0.859	0.600	0.250	0.887
		0.862				0.743				0.900				0.876			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	27	122	74	0	17	81	35	0	87	174	35	0	60	100	17	0	829
4:15 PM	35	102	60	0	9	75	45	1	77	208	30	0	53	127	13	0	835
4:30 PM	24	102	60	0	18	72	47	1	78	166	46	0	63	112	21	1	811
4:45 PM	27	114	51	0	17	64	34	7	69	193	43	0	51	151	16	0	837
5:00 PM	28	86	49	0	12	69	62	1	86	206	42	1	68	128	22	0	860
5:15 PM	34	141	49	0	13	83	47	1	76	221	45	0	59	111	13	0	893
5:30 PM	26	113	52	0	15	73	39	0	84	205	61	0	53	132	13	1	867
5:45 PM	12	108	62	0	9	63	37	1	86	160	46	0	55	113	17	0	769
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	213	888	457	0	110	580	346	12	643	1533	348	1	462	974	132	2	6701
APPROACH %'s :	13.67%	57.00%	29.33%	0.00%	10.50%	55.34%	33.02%	1.15%	25.47%	60.71%	13.78%	0.04%	29.43%	62.04%	8.41%	0.13%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	115	454	201	0	57	289	182	9	315	825	191	1	231	522	64	1	3457
PEAK HR FACTOR :	0.846	0.805	0.966	0.000	0.838	0.870	0.734	0.321	0.916	0.933	0.783	0.250	0.849	0.864	0.727	0.250	0.968
		0.859				0.932				0.951				0.938			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claribel Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-018
Date: 3/4/2020

Cars

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	40	41	11	0	5	70	35	0	14	57	14	0	36	126	15	0	464
7:15 AM	62	67	17	0	14	73	78	0	34	73	10	0	33	164	9	0	634
7:30 AM	55	85	25	0	10	130	101	0	30	63	23	1	64	180	11	0	778
7:45 AM	61	96	31	0	5	98	100	0	35	91	26	0	67	199	10	0	819
8:00 AM	47	59	38	0	6	92	64	0	43	71	21	0	52	128	14	1	636
8:15 AM	41	77	23	0	8	48	56	0	52	87	16	0	38	174	24	0	644
8:30 AM	31	72	19	0	8	60	60	0	38	69	21	0	36	134	9	0	557
8:45 AM	22	58	35	0	9	49	42	0	33	64	16	0	40	131	12	0	511
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	359	555	199	0	65	620	536	0	279	575	147	1	366	1236	104	1	5043
APPROACH %'s :	32.26%	49.87%	17.88%	0.00%	5.32%	50.78%	43.90%	0.00%	27.84%	57.39%	14.67%	0.10%	21.44%	72.41%	6.09%	0.06%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	204	317	117	0	29	368	321	0	160	312	86	1	221	681	59	1	2877
PEAK HR FACTOR :	0.84	0.826	0.770	0.000	0.725	0.708	0.795	0.000	0.769	0.857	0.827	0.250	0.825	0.856	0.615	0.250	0.878
		0.848				0.745				0.902				0.871			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	25	122	73	0	17	80	35	0	86	168	35	0	60	99	17	0	817
4:15 PM	34	102	60	0	9	75	44	1	76	208	30	0	53	123	12	0	827
4:30 PM	24	101	60	0	18	71	47	1	78	166	45	0	63	107	20	1	802
4:45 PM	26	114	51	0	17	63	33	7	69	193	43	0	51	150	16	0	833
5:00 PM	27	85	49	0	12	69	61	1	85	204	41	1	68	127	22	0	852
5:15 PM	34	140	49	0	13	82	46	1	76	221	45	0	59	110	13	0	889
5:30 PM	26	113	52	0	15	73	38	0	84	204	60	0	53	132	13	1	864
5:45 PM	12	108	62	0	9	63	37	1	85	159	46	0	55	113	17	0	767
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	208	885	456	0	110	576	341	12	639	1523	345	1	462	961	130	2	6651
APPROACH %'s :	13.43%	57.13%	29.44%	0.00%	10.59%	55.44%	32.82%	1.15%	25.48%	60.73%	13.76%	0.04%	29.71%	61.80%	8.36%	0.13%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	113	452	201	0	57	287	178	9	314	822	189	1	231	519	64	1	3438
PEAK HR FACTOR :	0.83	0.807	0.966	0.000	0.838	0.875	0.730	0.321	0.924	0.930	0.788	0.250	0.849	0.865	0.727	0.250	0.967
		0.859				0.928				0.953				0.939			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claribel Rd
City: Riverbank
Control: Signalized

Project ID: 20-07081-018
Date: 3/4/2020

HT

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claribel Rd				Claribel Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	0	1	0	0	1	3	0	0	1	3	0	0	10
7:15 AM	0	1	0	0	0	2	2	0	2	8	0	0	1	2	0	0	18
7:30 AM	1	0	1	0	0	5	3	0	1	3	1	0	0	1	0	0	16
7:45 AM	1	0	0	0	2	2	0	0	0	6	0	0	0	3	0	0	14
8:00 AM	1	2	4	0	3	3	1	0	0	9	0	0	2	5	0	0	30
8:15 AM	2	1	1	0	0	2	1	0	2	6	0	0	0	4	1	0	20
8:30 AM	0	2	2	0	1	2	3	0	1	8	1	0	2	3	0	0	25
8:45 AM	1	0	0	0	1	1	1	0	1	4	0	0	0	6	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	6	9	0	7	18	11	0	8	47	2	0	6	27	1	0	148
APPROACH %'s :	28.57%	28.57%	42.86%	0.00%	19.44%	50.00%	30.56%	0.00%	14.04%	82.46%	3.51%	0.00%	17.65%	79.41%	2.94%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	5	3	6	0	5	12	5	0	3	24	1	0	2	13	1	0	80
PEAK HR FACTOR :	0.625	0.375	0.375	0.000	0.417	0.600	0.417	0.000	0.375	0.667	0.250	0.000	0.250	0.650	0.250	0.000	0.667
	0.500				0.688				0.778				0.571				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	1	0	0	1	0	0	1	6	0	0	0	1	0	0	12
4:15 PM	1	0	0	0	0	0	1	0	1	0	0	0	0	4	1	0	8
4:30 PM	0	1	0	0	0	1	0	0	0	0	1	0	0	5	1	0	9
4:45 PM	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	4
5:00 PM	1	1	0	0	0	0	1	0	1	2	1	0	0	1	0	0	8
5:15 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	4
5:30 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	3	1	0	0	4	5	0	4	10	3	0	0	13	2	0	50
APPROACH %'s :	55.56%	33.33%	11.11%	0.00%	0.00%	44.44%	55.56%	0.00%	23.53%	58.82%	17.65%	0.00%	0.00%	86.67%	13.33%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	2	2	0	0	0	2	4	0	1	3	2	0	0	3	0	0	19
PEAK HR FACTOR :	0.50	0.500	0.000	0.000	0.000	0.500	1.000	0.000	0.250	0.375	0.500	0.000	0.000	0.750	0.000	0.000	0.594
	0.500				0.750				0.375				0.750				

Prepared by National Data & Surveying Services

Oakdale Rd & Claratina Ave

Peak Hour Turning Movement Count

ID: 20-07081-019
City: Modesto

Day: Wednesday
Date: 03/04/2020

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

SOUTHBOUND (Oakdale Rd)

AM	36	660	0	0	641	AM
NOON	0	0	0	0	0	NOON
PM	33	690	0	0	770	PM

EASTBOUND (Claratina Ave)

AM	NOON	PM	
494	0	235	
0	0	0	0
10	0	30	0
0	0	0	0
183	0	471	0
AM	NOON	PM	

WESTBOUND (Claratina Ave)

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
PM	NOON	AM	

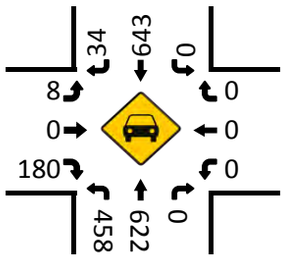
NORTHBOUND (Oakdale Rd)

PM	1161	0	202	740	0	PM
NOON	0	0	0	0	0	NOON
AM	843	0	458	631	0	AM

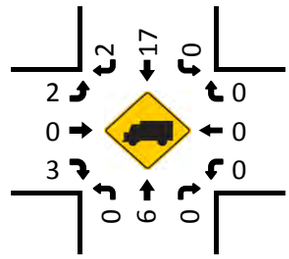
CONTROL: 1-Way Stop (EB)

	AM	NOON	PM
TEV	1978	0	2166
PHF	0.83		0.95

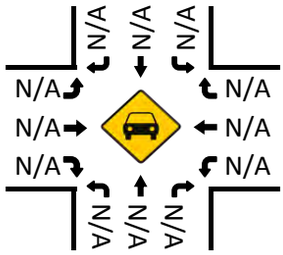
Cars (AM)



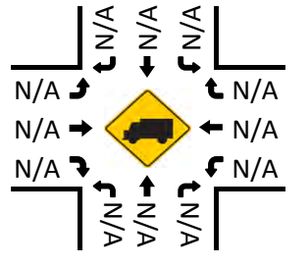
HT (AM)



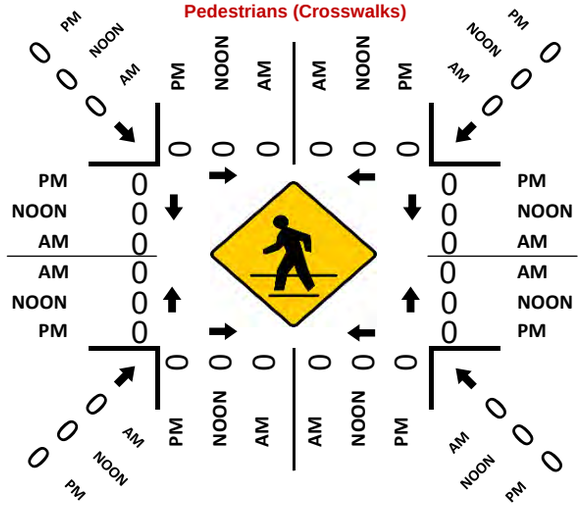
Cars (NOON)



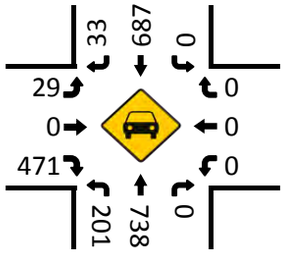
HT (NOON)



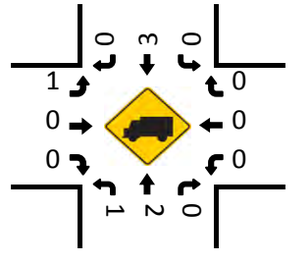
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claratina Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-019
Date: 3/4/2020

Total

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	79	101	0	0	0	112	11	0	1	0	36	0	0	0	0	0	340
7:15 AM	106	149	0	0	0	118	2	0	1	0	32	0	0	0	0	0	408
7:30 AM	109	156	0	0	0	203	7	0	2	0	54	0	0	0	0	0	531
7:45 AM	136	192	0	0	0	188	13	0	4	0	62	0	0	0	0	0	595
8:00 AM	107	134	0	0	0	151	14	0	3	0	35	0	0	0	0	0	444
8:15 AM	100	142	0	0	0	94	10	0	2	0	50	0	0	0	0	0	398
8:30 AM	90	112	0	0	0	114	6	0	5	0	40	0	0	0	0	0	367
8:45 AM	94	119	0	0	0	105	8	0	5	0	36	0	0	0	0	0	367
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	821	1105	0	0	0	1085	71	0	23	0	345	0	0	0	0	0	3450
APPROACH %'s :	42.63%	57.37%	0.00%	0.00%	0.00%	93.86%	6.14%	0.00%	6.25%	0.00%	93.75%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	458	631	0	0	0	660	36	0	10	0	183	0	0	0	0	0	1978
PEAK HR FACTOR :	0.842	0.822	0.000	0.000	0.000	0.813	0.643	0.000	0.625	0.000	0.738	0.000	0.000	0.000	0.000	0.000	0.831
	0.830				0.829				0.731								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	45	201	0	0	0	160	12	0	12	0	113	0	0	0	0	0	543
4:15 PM	58	187	0	1	0	164	6	0	10	0	83	0	0	0	0	0	509
4:30 PM	58	170	0	0	0	174	5	0	9	0	99	0	0	0	0	0	515
4:45 PM	68	170	0	0	0	151	10	0	10	0	102	0	0	0	0	0	511
5:00 PM	32	178	0	0	0	177	7	0	3	0	128	0	0	0	0	0	525
5:15 PM	59	199	0	0	0	174	7	0	10	0	113	0	0	0	0	0	562
5:30 PM	43	193	0	0	0	188	9	0	7	0	128	0	0	0	0	0	568
5:45 PM	61	167	0	0	0	153	9	0	5	0	111	0	0	0	0	0	506
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	424	1465	0	1	0	1341	65	0	66	0	877	0	0	0	0	0	4239
APPROACH %'s :	22.43%	77.51%	0.00%	0.05%	0.00%	95.38%	4.62%	0.00%	7.00%	0.00%	93.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	202	740	0	0	0	690	33	0	30	0	471	0	0	0	0	0	2166
PEAK HR FACTOR :	0.743	0.930	0.000	0.000	0.000	0.918	0.825	0.000	0.750	0.000	0.920	0.000	0.000	0.000	0.000	0.000	0.953
	0.913				0.918				0.928								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claratina Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-019
Date: 3/4/2020

Cars

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	79	99	0	0	0	111	10	0	1	0	34	0	0	0	0	0	334
7:15 AM	106	149	0	0	0	114	2	0	1	0	31	0	0	0	0	0	403
7:30 AM	109	155	0	0	0	197	7	0	1	0	52	0	0	0	0	0	521
7:45 AM	136	189	0	0	0	185	12	0	3	0	62	0	0	0	0	0	587
8:00 AM	107	129	0	0	0	147	13	0	3	0	35	0	0	0	0	0	434
8:15 AM	100	141	0	0	0	92	10	0	1	0	49	0	0	0	0	0	393
8:30 AM	88	109	0	0	0	109	6	0	4	0	38	0	0	0	0	0	354
8:45 AM	93	118	0	0	0	104	8	0	5	0	35	0	0	0	0	0	363
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	818	1089	0	0	0	1059	68	0	19	0	336	0	0	0	0	0	3389
APPROACH %'s :	42.89%	57.11%	0.00%	0.00%	0.00%	93.97%	6.03%	0.00%	5.35%	0.00%	94.65%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	458	622	0	0	0	643	34	0	8	0	180	0	0	0	0	0	1945
PEAK HR FACTOR :	0.84	0.823	0.000	0.000	0.000	0.816	0.654	0.000	0.667	0.000	0.726	0.000	0.000	0.000	0.000	0.000	0.828
	0.831				0.830				0.723								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	44	200	0	0	0	159	12	0	12	0	111	0	0	0	0	0	538
4:15 PM	57	186	0	1	0	162	6	0	10	0	83	0	0	0	0	0	505
4:30 PM	58	169	0	0	0	173	4	0	9	0	99	0	0	0	0	0	512
4:45 PM	67	169	0	0	0	151	10	0	10	0	102	0	0	0	0	0	509
5:00 PM	32	177	0	0	0	176	7	0	3	0	128	0	0	0	0	0	523
5:15 PM	59	199	0	0	0	173	7	0	9	0	113	0	0	0	0	0	560
5:30 PM	43	193	0	0	0	187	9	0	7	0	128	0	0	0	0	0	567
5:45 PM	61	166	0	0	0	153	9	0	5	0	111	0	0	0	0	0	505
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	421	1459	0	1	0	1334	64	0	65	0	875	0	0	0	0	0	4219
APPROACH %'s :	22.38%	77.57%	0.00%	0.05%	0.00%	95.42%	4.58%	0.00%	6.91%	0.00%	93.09%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	201	738	0	0	0	687	33	0	29	0	471	0	0	0	0	0	2159
PEAK HR FACTOR :	0.75	0.927	0.000	0.000	0.000	0.918	0.825	0.000	0.725	0.000	0.920	0.000	0.000	0.000	0.000	0.000	0.952
	0.910				0.918				0.926								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Oakdale Rd & Claratina Ave
City: Modesto
Control: 1-Way Stop (EB)

Project ID: 20-07081-019
Date: 3/4/2020

HT

NS/EW Streets:	Oakdale Rd				Oakdale Rd				Claratina Ave				Claratina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	2	0	0	0	1	1	0	0	0	2	0	0	0	0	0	6
7:15 AM	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	5
7:30 AM	0	1	0	0	0	6	0	0	1	0	2	0	0	0	0	0	10
7:45 AM	0	3	0	0	0	3	1	0	1	0	0	0	0	0	0	0	8
8:00 AM	0	5	0	0	0	4	1	0	0	0	0	0	0	0	0	0	10
8:15 AM	0	1	0	0	0	2	0	0	1	0	1	0	0	0	0	0	5
8:30 AM	2	3	0	0	0	5	0	0	1	0	2	0	0	0	0	0	13
8:45 AM	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	16	0	0	0	26	3	0	4	0	9	0	0	0	0	0	61
APPROACH %'s :	15.79%	84.21%	0.00%	0.00%	0.00%	89.66%	10.34%	0.00%	30.77%	0.00%	69.23%	0.00%					
PEAK HR :	**07:15 AM - 08:15 AM**																TOTAL
PEAK HR VOL :	0	9	0	0	0	17	2	0	2	0	3	0	0	0	0	0	33
PEAK HR FACTOR :	0.000	0.450	0.000	0.000	0.000	0.708	0.500	0.000	0.500	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.825
		0.450				0.792				0.417							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	5
4:15 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3
4:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	6	0	0	0	7	1	0	1	0	2	0	0	0	0	0	20
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	0.00%	87.50%	12.50%	0.00%	33.33%	0.00%	66.67%	0.00%					
PEAK HR :	**04:45 PM - 05:45 PM**																TOTAL
PEAK HR VOL :	1	2	0	0	0	3	0	0	1	0	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.25	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.875
		0.375				0.750				0.250							

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. Jones Rd & River Rd

Day: Wednesday
Date: 3/11/2020

City: Escalon
Project #: CA20_7082_001

DAILY TOTALS	NB	SB	EB	WB	Total
	6,368	6,563	0	0	12,931

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	9		24						33		**12:00**	86		87						173	
00:15	8		8						16		**12:15**	89		100						189	
00:30	1		10						11		**12:30**	94		93						187	
00:45	5	23	1	43					6	66	**12:45**	92	361	84	364					176	725
01:00	5		3						8		**13:00**	87		72						159	
01:15	2		3						5		**13:15**	90		85						175	
01:30	1		14						15		**13:30**	118		91						209	
01:45	3	11	7	27					10	38	**13:45**	102	397	89	337					191	734
02:00	2		2						4		**14:00**	117		98						215	
02:15	2		4						6		**14:15**	104		104						208	
02:30	4		3						7		**14:30**	102		130						232	
02:45	4	12	2	11					6	23	**14:45**	120	443	105	437					225	880
03:00	4		3						7		**15:00**	110		151						261	
03:15	2		4						6		**15:15**	111		141						252	
03:30	8		9						17		**15:30**	169		179						348	
03:45	9	23	5	21					14	44	**15:45**	111	501	160	631					271	1132
04:00	7		11						18		**16:00**	122		169						291	
04:15	16		9						25		**16:15**	131		168						299	
04:30	21		19						40		**16:30**	152		173						325	
04:45	28	72	17	56					45	128	**16:45**	140	545	163	673					303	1218
05:00	26		30						56		**17:00**	160		179						339	
05:15	44		37						81		**17:15**	152		153						305	
05:30	61		40						101		**17:30**	140		164						304	
05:45	81	212	36	143					117	355	**17:45**	112	564	138	634					250	1198
06:00	61		54						115		**18:00**	114		113						227	
06:15	115		51						166		**18:15**	79		100						179	
06:30	105		93						198		**18:30**	90		65						155	
06:45	112	393	94	292					206	685	**18:45**	71	354	71	349					142	703
07:00	79		123						202		**19:00**	68		49						117	
07:15	89		121						210		**19:15**	67		53						120	
07:30	99		134						233		**19:30**	53		45						98	
07:45	113	380	114	492					227	872	**19:45**	66	254	49	196					115	450
08:00	105		126						231		**20:00**	58		30						88	
08:15	89		123						212		**20:15**	62		32						94	
08:30	83		130						213		**20:30**	68		29						97	
08:45	64	341	109	488					173	829	**20:45**	47	235	26	117					73	352
09:00	85		96						181		**21:00**	35		28						63	
09:15	78		85						163		**21:15**	50		19						69	
09:30	91		84						175		**21:30**	45		23						68	
09:45	83	337	105	370					188	707	**21:45**	38	168	26	96					64	264
10:00	59		91						150		**22:00**	33		23						56	
10:15	70		87						157		**22:15**	36		11						47	
10:30	78		87						165		**22:30**	18		17						35	
10:45	71	278	70	335					141	613	**22:45**	17	104	10	61					27	165
11:00	76		76						152		**23:00**	12		10						22	
11:15	82		96						178		**23:15**	10		8						18	
11:30	84		86						170		**23:30**	12		7						19	
11:45	72	314	100	358					172	672	**23:45**	12	46	7	32					19	78
TOTALS		2396		2636						**5032**	**TOTALS**		3972		3927						**7899**
SPLIT %		47.6%		52.4%						**38.9%**	**SPLIT %**		50.3%		49.7%						**61.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	6,368	6,563	0	0	12,931

AM Peak Hour	06:15	07:30			**07:30**	**PM Peak Hour**	16:30	16:15			**16:30**
AM Pk Volume	411	497			**903**	**PM Pk Volume**	604	683			**1272**
Pk Hr Factor	0.893	0.927			**0.969**	**Pk Hr Factor**	0.944	0.954			**0.938**
7 - 9 Volume	721	980	0	0	**1701**	**4 - 6 Volume**	1109	1307	0	0	**2416**
7 - 9 Peak Hour	07:15	07:30			**07:30**	**4 - 6 Peak Hour**	16:30	16:15			**16:30**
7 - 9 Pk Volume	406	497	0	0	**903**	**4 - 6 Pk Volume**	604	683	0	0	**1272**
Pk Hr Factor	0.898	0.927	0.000	0.000	**0.969**	**Pk Hr Factor**	0.944	0.954	0.000	0.000	**0.938**

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. River Rd & Stewart Rd

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_002

DAILY TOTALS	NB	SB	EB	WB	Total
	8,649	9,554	0	0	18,203

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	13		31						44		**12:00**	117		103						220	
00:15	12		7						19		**12:15**	100		134						234	
00:30	2		11						13		**12:30**	114		124						238	
00:45	4	31	2	51					6	82	**12:45**	108	439	106	467					214	906
01:00	8		5						13		**13:00**	146		98						244	
01:15	3		6						9		**13:15**	118		124						242	
01:30	5		14						19		**13:30**	195		95						290	
01:45	4	20	5	30					9	50	**13:45**	136	595	138	455					274	1050
02:00	2		4						6		**14:00**	170		135						305	
02:15	5		6						11		**14:15**	149		135						284	
02:30	4		7						11		**14:30**	130		175						305	
02:45	8	19	4	21					12	40	**14:45**	156	605	128	573					284	1178
03:00	9		4						13		**15:00**	135		198						333	
03:15	8		4						12		**15:15**	160		152						312	
03:30	11		14						25		**15:30**	184		294						478	
03:45	16	44	9	31					25	75	**15:45**	143	622	265	909					408	1531
04:00	19		12						31		**16:00**	179		311						490	
04:15	21		11						32		**16:15**	163		326						489	
04:30	29		20						49		**16:30**	192		285						477	
04:45	42	111	22	65					64	176	**16:45**	190	724	289	1211					479	1935
05:00	40		33						73		**17:00**	204		302						506	
05:15	72		40						112		**17:15**	208		255						463	
05:30	85		46						131		**17:30**	180		275						455	
05:45	103	300	46	165					149	465	**17:45**	168	760	229	1061					397	1821
06:00	103		68						171		**18:00**	133		188						321	
06:15	176		73						249		**18:15**	119		168						287	
06:30	160		109						269		**18:30**	103		134						237	
06:45	158	597	117	367					275	964	**18:45**	112	467	119	609					231	1076
07:00	128		150						278		**19:00**	93		88						181	
07:15	138		183						321		**19:15**	86		81						167	
07:30	138		195						333		**19:30**	71		63						134	
07:45	176	580	194	722					370	1302	**19:45**	86	336	66	298					152	634
08:00	129		167						296		**20:00**	70		43						113	
08:15	119		183						302		**20:15**	77		43						120	
08:30	94		173						267		**20:30**	82		43						125	
08:45	103	445	161	684					264	1129	**20:45**	72	301	37	166					109	467
09:00	101		120						221		**21:00**	53		41						94	
09:15	90		132						222		**21:15**	65		26						91	
09:30	109		112						221		**21:30**	55		34						89	
09:45	103	403	133	497					236	900	**21:45**	51	224	36	137					87	361
10:00	87		104						191		**22:00**	50		42						92	
10:15	101		109						210		**22:15**	47		18						65	
10:30	104		112						216		**22:30**	26		23						49	
10:45	99	391	101	426					200	817	**22:45**	20	143	11	94					31	237
11:00	88		97						185		**23:00**	20		15						35	
11:15	105		134						239		**23:15**	13		12						25	
11:30	128		126						254		**23:30**	18		10						28	
11:45	105	426	109	466					214	892	**23:45**	15	66	12	49					27	115
TOTALS		3367		3525						**6892**	**TOTALS**		5282		6029						**11311**
SPLIT %		48.9%		51.1%						**37.9%**	**SPLIT %**		46.7%		53.3%						**62.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	8,649	9,554	0	0	18,203

AM Peak Hour	06:15	07:15			**07:15**	**PM Peak Hour**	16:30	16:00			**16:15**
AM Pk Volume	622	739			**1320**	**PM Pk Volume**	794	1211			**1951**
Pk Hr Factor	0.884	0.947			**0.892**	**Pk Hr Factor**	0.954	0.929			**0.964**
7 - 9 Volume	1025	1406	0	0	**2431**	**4 - 6 Volume**	1484	2272	0	0	**3756**
7 - 9 Peak Hour	07:15	07:15			**07:15**	**4 - 6 Peak Hour**	16:30	16:00			**16:15**
7 - 9 Pk Volume	581	739	0	0	**1320**	**4 - 6 Pk Volume**	794	1211	0	0	**1951**
Pk Hr Factor	0.825	0.947	0.000	0.000	**0.892**	**Pk Hr Factor**	0.954	0.929	0.000	0.000	**0.964**

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. Stewart Rd & Ladd Rd

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_003

DAILY TOTALS	NB	SB	EB	WB	Total
	8,711	9,918	0	0	18,629

AM Period	NB		SB		EB		WB		TOTAL	
00:00	13		28						41	
00:15	12		7						19	
00:30	4		13						17	
00:45	4	33	3	51					7	84
01:00	8		4						12	
01:15	3		7						10	
01:30	6		14						20	
01:45	4	21	6	31					10	52
02:00	4		4						8	
02:15	3		6						9	
02:30	7		7						14	
02:45	7	21	4	21					11	42
03:00	10		3						13	
03:15	10		3						13	
03:30	8		13						21	
03:45	16	44	8	27					24	71
04:00	18		13						31	
04:15	24		9						33	
04:30	30		20						50	
04:45	41	113	21	63					62	176
05:00	46		34						80	
05:15	73		44						117	
05:30	97		40						137	
05:45	99	315	51	169					150	484
06:00	109		65						174	
06:15	178		76						254	
06:30	165		112						277	
06:45	149	601	124	377					273	978
07:00	131		143						274	
07:15	134		188						322	
07:30	144		208						352	
07:45	166	575	189	728					355	1303
08:00	122		165						287	
08:15	123		196						319	
08:30	97		180						277	
08:45	104	446	155	696					259	1142
09:00	85		135						220	
09:15	83		142						225	
09:30	118		121						239	
09:45	107	393	138	536					245	929
10:00	93		120						213	
10:15	92		103						195	
10:30	109		111						220	
10:45	104	398	129	463					233	861
11:00	99		102						201	
11:15	102		118						220	
11:30	126		130						256	
11:45	108	435	136	486					244	921
TOTALS		3395		3648						**7043**
SPLIT %		48.2%		51.8%						**37.8%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	136		126						262	
12:15	105		129						234	
12:30	123		116						239	
12:45	112	476	123	494					235	970
13:00	129		103						232	
13:15	143		120						263	
13:30	149		101						250	
13:45	137	558	144	468					281	1026
14:00	152		116						268	
14:15	127		171						298	
14:30	133		161						294	
14:45	147	559	161	609					308	1168
15:00	135		180						315	
15:15	160		175						335	
15:30	135		301						436	
15:45	158	588	278	934					436	1522
16:00	173		322						495	
16:15	174		322						496	
16:30	195		307						502	
16:45	186	728	303	1254					489	1982
17:00	221		327						548	
17:15	194		253						447	
17:30	221		264						485	
17:45	166	802	250	1094					416	1896
18:00	133		194						327	
18:15	121		180						301	
18:30	117		140						257	
18:45	107	478	120	634					227	1112
19:00	109		89						198	
19:15	84		78						162	
19:30	86		68						154	
19:45	90	369	68	303					158	672
20:00	76		44						120	
20:15	81		47						128	
20:30	82		45						127	
20:45	68	307	40	176					108	483
21:00	57		50						107	
21:15	71		26						97	
21:30	51		33						84	
21:45	56	235	40	149					96	384
22:00	59		44						103	
22:15	46		21						67	
22:30	26		28						54	
22:45	22	153	11	104					33	257
23:00	19		15						34	
23:15	15		13						28	
23:30	15		10						25	
23:45	14	63	13	51					27	114
TOTALS		5316		6270						**11586**
SPLIT %		45.9%		54.1%						**62.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	8,711	9,918	0	0	18,629

AM Peak Hour	06:15	07:30			**07:15**
AM Pk Volume	623	758			**1316**
Pk Hr Factor	0.875	0.911			**0.927**
7 - 9 Volume	1021	1424	0	0	**2445**
7 - 9 Peak Hour	07:00	07:30			**07:15**
7 - 9 Pk Volume	575	758	0	0	**1316**
Pk Hr Factor	0.866	0.911	0.000	0.000	**0.927**

PM Peak Hour	16:45	16:15			**16:15**
PM Pk Volume	822	1259			**2035**
Pk Hr Factor	0.930	0.963			**0.928**
4 - 6 Volume	1530	2348	0	0	**3878**
4 - 6 Peak Hour	16:45	16:15			**16:15**
4 - 6 Pk Volume	822	1259	0	0	**2035**
Pk Hr Factor	0.930	0.963	0.000	0.000	**0.928**

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. Ladd Rd & Crawford Rd

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_004

DAILY TOTALS	NB	SB	EB	WB	Total
	7,045	7,750	0	0	14,795

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	9		17						26		**12:00**	112		103						215	
00:15	11		5						16		**12:15**	102		110						212	
00:30	4		9						13		**12:30**	102		114						216	
00:45	2	26	8	39					10	65	**12:45**	105	421	110	437					215	858
01:00	5		1						6		**13:00**	111		103						214	
01:15	3		9						12		**13:15**	128		105						233	
01:30	1		11						12		**13:30**	125		121						246	
01:45	1	10	8	29					9	39	**13:45**	125	489	102	431					227	920
02:00	4		6						10		**14:00**	138		124						262	
02:15	3		3						6		**14:15**	119		123						242	
02:30	5		6						11		**14:30**	123		143						266	
02:45	3	15	3	18					6	33	**14:45**	134	514	128	518					262	1032
03:00	4		3						7		**15:00**	126		126						252	
03:15	4		5						9		**15:15**	141		140						281	
03:30	2		8						10		**15:30**	153		218						371	
03:45	9	19	9	25					18	44	**15:45**	134	554	166	650					300	1204
04:00	4		16						20		**16:00**	155		220						375	
04:15	19		11						30		**16:15**	150		181						331	
04:30	15		16						31		**16:30**	155		228						383	
04:45	23	61	16	59					39	120	**16:45**	170	630	186	815					356	1445
05:00	14		21						35		**17:00**	194		210						404	
05:15	31		31						62		**17:15**	171		167						338	
05:30	68		30						98		**17:30**	168		183						351	
05:45	57	170	38	120					95	290	**17:45**	123	656	166	726					289	1382
06:00	53		51						104		**18:00**	124		130						254	
06:15	56		57						113		**18:15**	113		123						236	
06:30	84		76						160		**18:30**	94		122						216	
06:45	82	275	107	291					189	566	**18:45**	86	417	94	469					180	886
07:00	86		91						177		**19:00**	81		73						154	
07:15	89		160						249		**19:15**	73		74						147	
07:30	98		160						258		**19:30**	66		50						116	
07:45	123	396	190	601					313	997	**19:45**	72	292	45	242					117	534
08:00	86		140						226		**20:00**	68		43						111	
08:15	89		145						234		**20:15**	64		42						106	
08:30	78		142						220		**20:30**	61		41						102	
08:45	91	344	146	573					237	917	**20:45**	61	254	42	168					103	422
09:00	72		105						177		**21:00**	53		36						89	
09:15	62		111						173		**21:15**	57		24						81	
09:30	81		102						183		**21:30**	29		25						54	
09:45	101	316	119	437					220	753	**21:45**	44	183	34	119					78	302
10:00	92		110						202		**22:00**	42		34						76	
10:15	88		113						201		**22:15**	33		23						56	
10:30	102		90						192		**22:30**	21		23						44	
10:45	94	376	98	411					192	787	**22:45**	20	116	12	92					32	208
11:00	102		88						190		**23:00**	24		13						37	
11:15	100		104						204		**23:15**	15		14						29	
11:30	124		131						255		**23:30**	11		10						21	
11:45	126	452	112	435					238	887	**23:45**	9	59	8	45					17	104
TOTALS		2460		3038						**5498**	**TOTALS**		4585		4712						**9297**
SPLIT %		44.7%		55.3%						**37.2%**	**SPLIT %**		49.3%		50.7%						**62.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	7,045	7,750	0	0	14,795

AM Peak Hour	11:30	07:15			**07:15**	**PM Peak Hour**	16:45	16:00			**16:30**
AM Pk Volume	464	650			**1046**	**PM Pk Volume**	703	815			**1481**
Pk Hr Factor	0.921	0.855			**0.835**	**Pk Hr Factor**	0.906	0.894			**0.916**
7 - 9 Volume	740	1174	0	0	**1914**	**4 - 6 Volume**	1286	1541	0	0	**2827**
7 - 9 Peak Hour	07:00	07:15			**07:15**	**4 - 6 Peak Hour**	16:45	16:00			**16:30**
7 - 9 Pk Volume	396	650	0	0	**1046**	**4 - 6 Pk Volume**	703	815	0	0	**1481**
Pk Hr Factor	0.805	0.855	0.000	0.000	**0.835**	**Pk Hr Factor**	0.906	0.894	0.000	0.000	**0.916**

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. Crawford Rd & Kiernan Ave/SR 219

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_005

DAILY TOTALS	NB	SB	EB	WB	Total
	7,528	8,241	0	0	15,769

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	7		16				23		**12:00**	118		102				220	
00:15	11		9				20		**12:15**	104		120				224	
00:30	3		8				11		**12:30**	110		107				217	
00:45	2	23	9	42			11	65	**12:45**	112	444	122	451			234	895
01:00	5		4				9		**13:00**	118		111				229	
01:15	4		9				13		**13:15**	151		105				256	
01:30	1		9				10		**13:30**	135		133				268	
01:45	1	11	12	34			13	45	**13:45**	142	546	117	466			259	1012
02:00	4		5				9		**14:00**	151		133				284	
02:15	3		3				6		**14:15**	125		125				250	
02:30	6		6				12		**14:30**	137		153				290	
02:45	3	16	3	17			6	33	**14:45**	125	538	143	554			268	1092
03:00	3		4				7		**15:00**	139		142				281	
03:15	4		4				8		**15:15**	159		149				308	
03:30	4		10				14		**15:30**	156		213				369	
03:45	7	18	9	27			16	45	**15:45**	154	608	183	687			337	1295
04:00	3		16				19		**16:00**	144		232				376	
04:15	19		10				29		**16:15**	155		184				339	
04:30	19		14				33		**16:30**	175		234				409	
04:45	21	62	18	58			39	120	**16:45**	181	655	201	851			382	1506
05:00	12		25				37		**17:00**	206		245				451	
05:15	36		31				67		**17:15**	186		168				354	
05:30	72		31				103		**17:30**	167		195				362	
05:45	55	175	38	125			93	300	**17:45**	140	699	181	789			321	1488
06:00	54		49				103		**18:00**	133		139				272	
06:15	69		65				134		**18:15**	118		133				251	
06:30	95		74				169		**18:30**	106		124				230	
06:45	78	296	111	299			189	595	**18:45**	82	439	94	490			176	929
07:00	95		99				194		**19:00**	94		80				174	
07:15	77		175				252		**19:15**	82		78				160	
07:30	109		176				285		**19:30**	71		52				123	
07:45	124	405	189	639			313	1044	**19:45**	84	331	50	260			134	591
08:00	94		143				237		**20:00**	66		46				112	
08:15	92		152				244		**20:15**	74		48				122	
08:30	80		158				238		**20:30**	72		44				116	
08:45	104	370	168	621			272	991	**20:45**	60	272	38	176			98	448
09:00	76		111				187		**21:00**	61		45				106	
09:15	64		114				178		**21:15**	56		24				80	
09:30	86		117				203		**21:30**	37		32				69	
09:45	112	338	123	465			235	803	**21:45**	44	198	33	134			77	332
10:00	94		109				203		**22:00**	47		35				82	
10:15	98		117				215		**22:15**	37		26				63	
10:30	116		101				217		**22:30**	23		25				48	
10:45	102	410	109	436			211	846	**22:45**	25	132	15	101			40	233
11:00	110		101				211		**23:00**	25		15				40	
11:15	109		112				221		**23:15**	12		15				27	
11:30	134		137				271		**23:30**	14		10				24	
11:45	128	481	122	472			250	953	**23:45**	10	61	7	47			17	108
TOTALS		2605		3235				**5840**	**TOTALS**		4923		5006				**9929**
SPLIT %		44.6%		55.4%				**37.0%**	**SPLIT %**		49.6%		50.4%				**63.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	7,528	8,241	0	0	15,769

AM Peak Hour	11:15		07:15					**07:15**	**PM Peak Hour**	16:30		16:15					**16:30**
AM Pk Volume	489		683					**1087**	**PM Pk Volume**	748		864					**1596**
Pk Hr Factor	0.912		0.903					**0.868**	**Pk Hr Factor**	0.908		0.882					**0.885**
7 - 9 Volume	775		1260		0	0		**2035**	**4 - 6 Volume**	1354		1640		0	0		**2994**
7 - 9 Peak Hour	07:30		07:15					**07:15**	**4 - 6 Peak Hour**	16:30		16:15					**16:30**
7 - 9 Pk Volume	419		683		0	0		**1087**	**4 - 6 Pk Volume**	748		864		0	0		**1596**
Pk Hr Factor	0.845		0.903		0.000	0.000		**0.868**	**Pk Hr Factor**	0.908		0.882		0.000	0.000		**0.885**

Prepared by National Data & Surveying Services

VOLUME

McHenry Ave Bet. Kiernan Ave/SR 219 & Pelandale Ave

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_006

DAILY TOTALS	NB	SB	EB	WB	Total
	12,478	11,928	0	0	24,406

AM Period	NB		SB		EB		WB		TOTAL	
00:00	20		14						34	
00:15	15		9						24	
00:30	13		11						24	
00:45	7	55	11	45					18	100
01:00	7		3						10	
01:15	10		8						18	
01:30	7		10						17	
01:45	13	37	9	30					22	67
02:00	7		3						10	
02:15	7		5						12	
02:30	8		8						16	
02:45	7	29	4	20					11	49
03:00	9		8						17	
03:15	9		3						12	
03:30	14		17						31	
03:45	18	50	12	40					30	90
04:00	18		18						36	
04:15	22		13						35	
04:30	18		15						33	
04:45	33	91	33	79					66	170
05:00	24		16						40	
05:15	60		20						80	
05:30	68		35						103	
05:45	82	234	34	105					116	339
06:00	72		43						115	
06:15	87		58						145	
06:30	100		86						186	
06:45	121	380	120	307					241	687
07:00	160		106						266	
07:15	148		169						317	
07:30	177		221						398	
07:45	198	683	279	775					477	1458
08:00	179		203						382	
08:15	162		198						360	
08:30	173		194						367	
08:45	167	681	228	823					395	1504
09:00	167		161						328	
09:15	125		175						300	
09:30	141		188						329	
09:45	177	610	190	714					367	1324
10:00	165		165						330	
10:15	182		173						355	
10:30	166		168						334	
10:45	164	677	202	708					366	1385
11:00	190		168						358	
11:15	209		213						422	
11:30	214		234						448	
11:45	220	833	190	805					410	1638
TOTALS		4360		4451						**8811**
SPLIT %		49.5%		50.5%						**36.1%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	209		263						472	
12:15	216		180						396	
12:30	213		193						406	
12:45	216	854	185	821					401	1675
13:00	217		188						405	
13:15	207		187						394	
13:30	211		178						389	
13:45	248	883	210	763					458	1646
14:00	231		184						415	
14:15	226		212						438	
14:30	239		221						460	
14:45	227	923	241	858					468	1781
15:00	250		194						444	
15:15	242		210						452	
15:30	246		272						518	
15:45	239	977	250	926					489	1903
16:00	256		274						530	
16:15	269		248						517	
16:30	268		281						549	
16:45	312	1105	254	1057					566	2162
17:00	322		343						665	
17:15	269		243						512	
17:30	249		261						510	
17:45	214	1054	213	1060					427	2114
18:00	217		227						444	
18:15	178		173						351	
18:30	170		189						359	
18:45	162	727	149	738					311	1465
19:00	148		161						309	
19:15	156		121						277	
19:30	121		102						223	
19:45	126	551	95	479					221	1030
20:00	125		124						249	
20:15	123		88						211	
20:30	105		63						168	
20:45	91	444	60	335					151	779
21:00	77		73						150	
21:15	74		46						120	
21:30	71		39						110	
21:45	66	288	54	212					120	500
22:00	75		55						130	
22:15	50		33						83	
22:30	25		34						59	
22:45	42	192	28	150					70	342
23:00	53		27						80	
23:15	27		23						50	
23:30	21		16						37	
23:45	19	120	12	78					31	198
TOTALS		8118		7477						**15595**
SPLIT %		52.1%		47.9%						**63.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	12,478	11,928	0	0	24,406

AM Peak Hour	11:30	07:30			**11:15**
AM Pk Volume	859	901			**1752**
Pk Hr Factor	0.976	0.807			**0.928**
7 - 9 Volume	1364	1598	0	0	**2962**
7 - 9 Peak Hour	07:30	07:30			**07:30**
7 - 9 Pk Volume	716	901	0	0	**1617**
Pk Hr Factor	0.904	0.807	0.000	0.000	**0.847**

PM Peak Hour	16:15	16:15			**16:15**
PM Pk Volume	1171	1126			**2297**
Pk Hr Factor	0.909	0.821			**0.864**
4 - 6 Volume	2159	2117	0	0	**4276**
4 - 6 Peak Hour	16:15	16:15			**16:15**
4 - 6 Pk Volume	1171	1126	0	0	**2297**
Pk Hr Factor	0.909	0.821	0.000	0.000	**0.864**

Prepared by National Data & Surveying Services

VOLUME

River Rd Bet. Murphy Rd & McHenry Ave

Day: Tuesday
Date: 3/10/2020

City: Escalon
Project #: CA20_7082_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,977	3,271	7,248

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			3		2		5		12:00			31		36		67	
00:15			12		3		15		12:15			40		43		83	
00:30			5		1		6		12:30			47		35		82	
00:45			1	21	5	11	6	32	12:45			56	174	43	157	99	331
01:00			3		3		6		13:00			49		51		100	
01:15			8		0		8		13:15			42		29		71	
01:30			6		3		9		13:30			47		38		85	
01:45			3	20	2	8	5	28	13:45			47	185	36	154	83	339
02:00			1		5		6		14:00			60		28		88	
02:15			1		5		6		14:15			43		38		81	
02:30			6		12		18		14:30			73		59		132	
02:45			4	12	12	34	16	46	14:45			62	238	47	172	109	410
03:00			3		11		14		15:00			121		51		172	
03:15			5		26		31		15:15			115		51		166	
03:30			3		19		22		15:30			107		43		150	
03:45			2	13	25	81	27	94	15:45			145	488	44	189	189	677
04:00			2		20		22		16:00			143		45		188	
04:15			2		20		22		16:15			141		52		193	
04:30			7		42		49		16:30			139		52		191	
04:45			8	19	20	102	28	121	16:45			160	583	48	197	208	780
05:00			7		38		45		17:00			148		61		209	
05:15			10		36		46		17:15			159		62		221	
05:30			8		51		59		17:30			151		39		190	
05:45			13	38	58	183	71	221	17:45			102	560	46	208	148	768
06:00			13		44		57		18:00			101		27		128	
06:15			27		71		98		18:15			82		37		119	
06:30			19		116		135		18:30			59		30		89	
06:45			47	106	92	323	139	429	18:45			55	297	24	118	79	415
07:00			40		79		119		19:00			42		20		62	
07:15			47		99		146		19:15			34		29		63	
07:30			70		91		161		19:30			36		20		56	
07:45			59	216	117	386	176	602	19:45			31	143	16	85	47	228
08:00			55		79		134		20:00			37		17		54	
08:15			46		64		110		20:15			34		32		66	
08:30			35		53		88		20:30			22		19		41	
08:45			45	181	33	229	78	410	20:45			19	112	15	83	34	195
09:00			35		41		76		21:00			17		12		29	
09:15			29		50		79		21:15			30		8		38	
09:30			43		48		91		21:30			14		11		25	
09:45			30	137	26	165	56	302	21:45			15	76	12	43	27	119
10:00			34		38		72		22:00			12		9		21	
10:15			38		33		71		22:15			19		7		26	
10:30			30		37		67		22:30			13		8		21	
10:45			32	134	46	154	78	288	22:45			6	50	5	29	11	79
11:00			30		42		72		23:00			12		4		16	
11:15			37		41		78		23:15			5		1		6	
11:30			48		35		83		23:30			8		3		11	
11:45			30	145	29	147	59	292	23:45			4	29	5	13	9	42
TOTALS			1042		1823		2865		TOTALS			2935		1448		4383	
SPLIT %			36.4%		63.6%		39.5%		SPLIT %			67.0%		33.0%		60.5%	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,977	3,271	7,248

AM Peak Hour			07:15	06:30	07:15	PM Peak Hour			16:45	16:30	16:30
AM Pk Volume			231	386	617	PM Pk Volume			618	223	829
Pk Hr Factor			0.825	0.832	0.876	Pk Hr Factor			0.966	0.899	0.938
7 - 9 Volume	0	0	397	615	1012	4 - 6 Volume	0	0	1143	405	1548
7 - 9 Peak Hour			07:15	07:00	07:15	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	231	386	617	4 - 6 Pk Volume	0	0	618	223	829
Pk Hr Factor	0.000	0.000	0.825	0.825	0.876	Pk Hr Factor	0.000	0.000	0.966	0.899	0.938

Prepared by National Data & Surveying Services

VOLUME

River Rd Bet. McHenry Ave & Harold Ave

Day: Tuesday
Date: 3/10/2020

City: Escalon
Project #: CA20_7082_008

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,592	2,690	5,282

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					4		3		7		12:00					23		34		57	
00:15					7		4		11		12:15					36		36		72	
00:30					3		1		4		12:30					38		29		67	
00:45					3	17	1	9	4	26	12:45					33	130	23	122	56	252
01:00					3		2		5		13:00					28		37		65	
01:15					6		0		6		13:15					38		27		65	
01:30					2		1		3		13:30					40		44		84	
01:45					3	14	3	6	6	20	13:45					41	147	22	130	63	277
02:00					1		4		5		14:00					39		25		64	
02:15					1		5		6		14:15					45		32		77	
02:30					1		13		14		14:30					54		50		104	
02:45					7	10	12	34	19	44	14:45					58	196	48	155	106	351
03:00					2		14		16		15:00					66		42		108	
03:15					4		13		17		15:15					69		52		121	
03:30					4		21		25		15:30					62		40		102	
03:45					3	13	19	67	22	80	15:45					55	252	37	171	92	423
04:00					4		19		23		16:00					76		39		115	
04:15					0		16		16		16:15					65		45		110	
04:30					1		28		29		16:30					78		42		120	
04:45					7	12	18	81	25	93	16:45					76	295	34	160	110	455
05:00					8		24		32		17:00					80		37		117	
05:15					6		31		37		17:15					88		40		128	
05:30					9		37		46		17:30					63		24		87	
05:45					11	34	49	141	60	175	17:45					54	285	27	128	81	413
06:00					9		49		58		18:00					57		30		87	
06:15					14		82		96		18:15					42		23		65	
06:30					33		80		113		18:30					48		27		75	
06:45					44	100	47	258	91	358	18:45					43	190	18	98	61	288
07:00					26		65		91		19:00					20		16		36	
07:15					31		95		126		19:15					25		12		37	
07:30					30		96		126		19:30					24		15		39	
07:45					37	124	84	340	121	464	19:45					34	103	9	52	43	155
08:00					29		63		92		20:00					32		17		49	
08:15					40		62		102		20:15					25		14		39	
08:30					34		53		87		20:30					23		7		30	
08:45					22	125	37	215	59	340	20:45					22	102	9	47	31	149
09:00					14		54		68		21:00					13		5		18	
09:15					26		41		67		21:15					22		7		29	
09:30					22		27		49		21:30					20		6		26	
09:45					30	92	30	152	60	244	21:45					18	73	8	26	26	99
10:00					28		35		63		22:00					4		5		9	
10:15					25		34		59		22:15					13		7		20	
10:30					28		43		71		22:30					10		1		11	
10:45					24	105	35	147	59	252	22:45					4	31	3	16	7	47
11:00					28		30		58		23:00					6		2		8	
11:15					26		37		63		23:15					5		1		6	
11:30					35		30		65		23:30					9		1		10	
11:45					32	121	30	127	62	248	23:45					1	21	4	8	5	29
TOTALS						767		1577		2344	TOTALS						1825		1113		2938
SPLIT %						32.7%		67.3%		44.4%	SPLIT %						62.1%		37.9%		55.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,592	2,690	5,282

AM Peak Hour			07:45	07:00	07:15	PM Peak Hour			16:30	14:30	16:30
AM Pk Volume			140	340	465	PM Pk Volume			322	192	475
Pk Hr Factor			0.875	0.885	0.923	Pk Hr Factor			0.915	0.923	0.928
7 - 9 Volume	0	0	249	555	804	4 - 6 Volume	0	0	580	288	868
7 - 9 Peak Hour			07:45	07:00	07:15	4 - 6 Peak Hour			16:30	16:00	16:30
7 - 9 Pk Volume	0	0	140	340	465	4 - 6 Pk Volume	0	0	322	160	475
Pk Hr Factor	0.000	0.000	0.875	0.885	0.923	Pk Hr Factor	0.000	0.000	0.915	0.889	0.928

Prepared by National Data & Surveying Services

VOLUME

Ladd Rd Bet. Stoddard Rd & Carver Rd

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,936	3,572	6,508

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		1		2		12:00			47		48		95	
00:15			1		0		1		12:15			54		42		96	
00:30			1		0		1		12:30			51		64		115	
00:45			2	5	2	3	4	8	12:45			61	213	55	209	116	422
01:00			1		1		2		13:00			93		44		137	
01:15			0		1		1		13:15			68		57		125	
01:30			2		5		7		13:30			51		56		107	
01:45			0	3	5	12	5	15	13:45			59	271	65	222	124	493
02:00			1		0		1		14:00			41		46		87	
02:15			3		1		4		14:15			58		59		117	
02:30			0		1		1		14:30			69		60		129	
02:45			0	4	3	5	3	9	14:45			64	232	49	214	113	446
03:00			1		10		11		15:00			66		56		122	
03:15			0		7		7		15:15			61		61		122	
03:30			5		6		11		15:30			68		58		126	
03:45			3	9	5	28	8	37	15:45			63	258	59	234	122	492
04:00			1		10		11		16:00			83		56		139	
04:15			1		11		12		16:15			74		44		118	
04:30			2		17		19		16:30			72		52		124	
04:45			5	9	20	58	25	67	16:45			79	308	56	208	135	516
05:00			5		19		24		17:00			95		44		139	
05:15			8		29		37		17:15			92		49		141	
05:30			6		29		35		17:30			76		69		145	
05:45			11	30	50	127	61	157	17:45			54	317	56	218	110	535
06:00			7		46		53		18:00			59		43		102	
06:15			14		45		59		18:15			64		51		115	
06:30			15		57		72		18:30			47		38		85	
06:45			27	63	75	223	102	286	18:45			41	211	29	161	70	372
07:00			29		74		103		19:00			41		25		66	
07:15			25		79		104		19:15			42		24		66	
07:30			27		141		168		19:30			27		22		49	
07:45			37	118	107	401	144	519	19:45			30	140	18	89	48	229
08:00			14		85		99		20:00			29		19		48	
08:15			29		81		110		20:15			31		14		45	
08:30			21		75		96		20:30			28		20		48	
08:45			22	86	86	327	108	413	20:45			27	115	12	65	39	180
09:00			26		60		86		21:00			24		13		37	
09:15			28		47		75		21:15			28		10		38	
09:30			31		67		98		21:30			14		14		28	
09:45			24	109	54	228	78	337	21:45			14	80	10	47	24	127
10:00			35		59		94		22:00			16		17		33	
10:15			27		60		87		22:15			13		10		23	
10:30			44		54		98		22:30			6		8		14	
10:45			49	155	57	230	106	385	22:45			3	38	5	40	8	78
11:00			32		46		78		23:00			4		4		8	
11:15			33		65		98		23:15			8		4		12	
11:30			39		48		87		23:30			8		3		11	
11:45			34	138	51	210	85	348	23:45			4	24	2	13	6	37
TOTALS				729		1852		2581	TOTALS				2207		1720		3927
SPLIT %				28.2%		71.8%		39.7%	SPLIT %				56.2%		43.8%		60.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,936	3,572	6,508

AM Peak Hour				11:45	07:30	07:30	PM Peak Hour					16:45	15:00	16:45
AM Pk Volume				186	414	521	PM Pk Volume					342	234	560
Pk Hr Factor				0.861	0.734	0.775	Pk Hr Factor					0.900	0.959	0.966
7 - 9 Volume	0	0		204	728	932	4 - 6 Volume	0	0			625	426	1051
7 - 9 Peak Hour				07:00	07:30	07:30	4 - 6 Peak Hour					16:45	16:45	16:45
7 - 9 Pk Volume	0	0		118	414	521	4 - 6 Pk Volume	0	0			342	218	560
Pk Hr Factor	0.000	0.000		0.797	0.734	0.775	Pk Hr Factor	0.000	0.000			0.900	0.790	0.966

Prepared by National Data & Surveying Services

VOLUME

Ladd Rd Bet. Carver Rd & McHenry Ave

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_010

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,186	6,455	11,641

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			4		6		10		**12:00**			99		82		181	
00:15			3		1		4		**12:15**			76		90		166	
00:30			4		1		5		**12:30**			86		112		198	
00:45			2	13	3	11	5	24	**12:45**			64	325	97	381	161	706
01:00			5		1		6		**13:00**			115		81		196	
01:15			3		1		4		**13:15**			98		84		182	
01:30			4		8		12		**13:30**			102		81		183	
01:45			2	14	4	14	6	28	**13:45**			91	406	85	331	176	737
02:00			1		0		1		**14:00**			85		84		169	
02:15			5		1		6		**14:15**			89		102		191	
02:30			3		4		7		**14:30**			111		104		215	
02:45			0	9	5	10	5	19	**14:45**			103	388	105	395	208	783
03:00			1		11		12		**15:00**			118		109		227	
03:15			1		6		7		**15:15**			126		130		256	
03:30			5		9		14		**15:30**			102		151		253	
03:45			6	13	9	35	15	48	**15:45**			104	450	132	522	236	972
04:00			2		14		16		**16:00**			135		158		293	
04:15			2		14		16		**16:15**			130		124		254	
04:30			9		21		30		**16:30**			130		169		299	
04:45			13	26	26	75	39	101	**16:45**			130	525	145	596	275	1121
05:00			10		29		39		**17:00**			139		112		251	
05:15			11		37		48		**17:15**			131		146		277	
05:30			26		46		72		**17:30**			144		122		266	
05:45			24	71	57	169	81	240	**17:45**			91	505	123	503	214	1008
06:00			25		59		84		**18:00**			110		89		199	
06:15			49		69		118		**18:15**			94		98		192	
06:30			42		95		137		**18:30**			73		64		137	
06:45			60	176	122	345	182	521	**18:45**			76	353	55	306	131	659
07:00			64		116		180		**19:00**			75		50		125	
07:15			56		143		199		**19:15**			66		46		112	
07:30			64		207		271		**19:30**			60		46		106	
07:45			86	270	153	619	239	889	**19:45**			56	257	35	177	91	434
08:00			55		150		205		**20:00**			50		32		82	
08:15			60		149		209		**20:15**			56		22		78	
08:30			49		138		187		**20:30**			52		32		84	
08:45			49	213	120	557	169	770	**20:45**			40	198	23	109	63	307
09:00			57		105		162		**21:00**			35		30		65	
09:15			59		95		154		**21:15**			41		21		62	
09:30			66		93		159		**21:30**			27		30		57	
09:45			54	236	93	386	147	622	**21:45**			26	129	20	101	46	230
10:00			49		86		135		**22:00**			25		17		42	
10:15			57		95		152		**22:15**			20		11		31	
10:30			76		89		165		**22:30**			12		14		26	
10:45			71	253	103	373	174	626	**22:45**			8	65	10	52	18	117
11:00			57		85		142		**23:00**			12		17		29	
11:15			63		104		167		**23:15**			10		6		16	
11:30			71		73		144		**23:30**			8		7		15	
11:45			64	255	92	354	156	609	**23:45**			6	36	4	34	10	70
TOTALS				1549		2948		**4497**	**TOTALS**				3637		3507		**7144**
SPLIT %				34.4%		65.6%		**38.6%**	**SPLIT %**				50.9%		49.1%		**61.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,186	6,455	11,641

AM Peak Hour				11:45	07:30	**07:30**		**PM Peak Hour**				16:45	16:00	**16:00**
AM Pk Volume				325	659	**924**		**PM Pk Volume**				544	596	**1121**
Pk Hr Factor				0.821	0.796	**0.852**		**Pk Hr Factor**				0.944	0.882	**0.937**
7 - 9 Volume	0	0		483	1176	**1659**		**4 - 6 Volume**	0	0		1030	1099	**2129**
7 - 9 Peak Hour				07:00	07:30	**07:30**		**4 - 6 Peak Hour**				16:45	16:00	**16:00**
7 - 9 Pk Volume	0	0		270	659	**924**		**4 - 6 Pk Volume**	0	0		544	596	**1121**
Pk Hr Factor	0.000	0.000		0.785	0.796	**0.852**		**Pk Hr Factor**	0.000	0.000		0.944	0.882	**0.937**

Prepared by National Data & Surveying Services

VOLUME

Patterson Rd Bet. McHenry Ave & Coffee Rd

Day: Wednesday
Date: 3/11/2020

City: Modesto
Project #: CA20_7082_011

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,155	7,847	15,002

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			18		7		25		**12:00**			102		109		211	
00:15			8		4		12		**12:15**			117		105		222	
00:30			7		3		10		**12:30**			113		125		238	
00:45			5	38	9	23	14	61	**12:45**			102	434	120	459	222	893
01:00			4		4		8		**13:00**			123		129		252	
01:15			3		4		7		**13:15**			125		116		241	
01:30			4		9		13		**13:30**			138		123		261	
01:45			2	13	10	27	12	40	**13:45**			109	495	129	497	238	992
02:00			1		3		4		**14:00**			107		112		219	
02:15			9		3		12		**14:15**			123		109		232	
02:30			5		8		13		**14:30**			136		127		263	
02:45			2	17	6	20	8	37	**14:45**			150	516	117	465	267	981
03:00			0		19		19		**15:00**			154		142		296	
03:15			0		10		10		**15:15**			152		106		258	
03:30			1		13		14		**15:30**			189		100		289	
03:45			8	9	15	57	23	66	**15:45**			170	665	117	465	287	1130
04:00			1		29		30		**16:00**			219		115		334	
04:15			3		25		28		**16:15**			212		116		328	
04:30			6		31		37		**16:30**			185		121		306	
04:45			8	18	33	118	41	136	**16:45**			234	850	117	469	351	1319
05:00			6		55		61		**17:00**			213		101		314	
05:15			14		78		92		**17:15**			220		149		369	
05:30			23		82		105		**17:30**			194		122		316	
05:45			23	66	76	291	99	357	**17:45**			157	784	105	477	262	1261
06:00			22		107		129		**18:00**			157		88		245	
06:15			24		170		194		**18:15**			166		100		266	
06:30			49		159		208		**18:30**			107		95		202	
06:45			50	145	165	601	215	746	**18:45**			96	526	83	366	179	892
07:00			52		150		202		**19:00**			94		94		188	
07:15			79		184		263		**19:15**			91		79		170	
07:30			77		217		294		**19:30**			70		71		141	
07:45			96	304	204	755	300	1059	**19:45**			87	342	49	293	136	635
08:00			81		165		246		**20:00**			70		75		145	
08:15			83		148		231		**20:15**			64		54		118	
08:30			72		134		206		**20:30**			55		55		110	
08:45			73	309	133	580	206	889	**20:45**			66	255	51	235	117	490
09:00			75		112		187		**21:00**			56		37		93	
09:15			84		104		188		**21:15**			52		48		100	
09:30			73		107		180		**21:30**			27		35		62	
09:45			73	305	124	447	197	752	**21:45**			28	163	46	166	74	329
10:00			88		105		193		**22:00**			31		35		66	
10:15			85		123		208		**22:15**			24		22		46	
10:30			94		102		196		**22:30**			21		28		49	
10:45			89	356	108	438	197	794	**22:45**			22	98	15	100	37	198
11:00			82		105		187		**23:00**			16		20		36	
11:15			100		118		218		**23:15**			16		16		32	
11:30			105		102		207		**23:30**			10		14		24	
11:45			110	397	113	438	223	835	**23:45**			8	50	10	60	18	110
TOTALS				1977		3795		**5772**	**TOTALS**				5178		4052		**9230**
SPLIT %				34.3%		65.7%		**38.5%**	**SPLIT %**				56.1%		43.9%		**61.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,155	7,847	15,002

AM Peak Hour				11:45		07:15		**07:15**	**PM Peak Hour**				16:45		13:00		**16:45**
AM Pk Volume				442		770		**1103**	**PM Pk Volume**				861		497		**1350**
Pk Hr Factor				0.944		0.887		**0.919**	**Pk Hr Factor**				0.920		0.963		**0.915**
7 - 9 Volume	0	0		613		1335		**1948**	**4 - 6 Volume**	0	0		1634		946		**2580**
7 - 9 Peak Hour				07:30		07:15		**07:15**	**4 - 6 Peak Hour**				16:45		16:45		**16:45**
7 - 9 Pk Volume	0	0		337		770		**1103**	**4 - 6 Pk Volume**	0	0		861		489		**1350**
Pk Hr Factor	0.000	0.000		0.878		0.887		**0.919**	**Pk Hr Factor**	0.000	0.000		0.920		0.820		**0.915**

Prepared by National Data & Surveying Services

VOLUME

Patterson Rd Bet. Coffee Rd & Oakdale Rd

Day: Wednesday
Date: 3/11/2020

City: Riverbank
Project #: CA20_7082_012

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,604	8,207	15,811

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			16		10		26		**12:00**			105		113		218	
00:15			10		3		13		**12:15**			132		108		240	
00:30			9		3		12		**12:30**			122		136		258	
00:45			5	40	11	27	16	67	**12:45**			108	467	148	505	256	972
01:00			4		5		9		**13:00**			127		135		262	
01:15			3		4		7		**13:15**			130		123		253	
01:30			4		13		17		**13:30**			144		137		281	
01:45			4	15	10	32	14	47	**13:45**			132	533	130	525	262	1058
02:00			2		4		6		**14:00**			105		118		223	
02:15			6		4		10		**14:15**			148		119		267	
02:30			4		9		13		**14:30**			146		150		296	
02:45			4	16	7	24	11	40	**14:45**			157	556	117	504	274	1060
03:00			0		19		19		**15:00**			166		161		327	
03:15			0		12		12		**15:15**			171		115		286	
03:30			2		14		16		**15:30**			197		108		305	
03:45			9	11	14	59	23	70	**15:45**			177	711	117	501	294	1212
04:00			2		27		29		**16:00**			213		122		335	
04:15			4		27		31		**16:15**			219		118		337	
04:30			7		34		41		**16:30**			194		132		326	
04:45			4	17	38	126	42	143	**16:45**			227	853	105	477	332	1330
05:00			9		47		56		**17:00**			218		106		324	
05:15			19		63		82		**17:15**			227		135		362	
05:30			21		80		101		**17:30**			197		117		314	
05:45			35	84	63	253	98	337	**17:45**			164	806	110	468	274	1274
06:00			26		116		142		**18:00**			153		98		251	
06:15			27		160		187		**18:15**			184		109		293	
06:30			42		162		204		**18:30**			116		91		207	
06:45			44	139	161	599	205	738	**18:45**			113	566	103	401	216	967
07:00			47		165		212		**19:00**			111		83		194	
07:15			78		177		255		**19:15**			100		71		171	
07:30			72		250		322		**19:30**			78		67		145	
07:45			114	311	224	816	338	1127	**19:45**			91	380	47	268	138	648
08:00			75		188		263		**20:00**			86		66		152	
08:15			68		170		238		**20:15**			80		57		137	
08:30			72		151		223		**20:30**			68		52		120	
08:45			72	287	143	652	215	939	**20:45**			74	308	47	222	121	530
09:00			82		133		215		**21:00**			60		40		100	
09:15			77		108		185		**21:15**			68		48		116	
09:30			83		129		212		**21:30**			36		39		75	
09:45			84	326	121	491	205	817	**21:45**			35	199	41	168	76	367
10:00			91		110		201		**22:00**			39		34		73	
10:15			94		135		229		**22:15**			27		18		45	
10:30			98		120		218		**22:30**			24		28		52	
10:45			100	383	110	475	210	858	**22:45**			20	110	15	95	35	205
11:00			96		106		202		**23:00**			17		20		37	
11:15			97		130		227		**23:15**			18		14		32	
11:30			123		100		223		**23:30**			13		11		24	
11:45			109	425	129	465	238	890	**23:45**			13	61	9	54	22	115
TOTALS				2054		4019		**6073**	**TOTALS**				5550		4188		**9738**
SPLIT %				33.8%		66.2%		**38.4%**	**SPLIT %**				57.0%		43.0%		**61.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,604	8,207	15,811

AM Peak Hour				11:30		07:15		**07:15**	**PM Peak Hour**				16:45		14:15		**16:30**
AM Pk Volume				469		839		**1178**	**PM Pk Volume**				869		547		**1344**
Pk Hr Factor				0.888		0.839		**0.871**	**Pk Hr Factor**				0.957		0.849		**0.928**
7 - 9 Volume	0	0		598		1468		**2066**	**4 - 6 Volume**	0	0		1659		945		**2604**
7 - 9 Peak Hour				07:15		07:15		**07:15**	**4 - 6 Peak Hour**				16:45		16:30		**16:30**
7 - 9 Pk Volume	0	0		339		839		**1178**	**4 - 6 Pk Volume**	0	0		869		478		**1344**
Pk Hr Factor	0.000	0.000		0.743		0.839		**0.871**	**Pk Hr Factor**	0.000	0.000		0.957		0.885		**0.928**

Prepared by National Data & Surveying Services

VOLUME

Patterson Rd Bet. Oakdale Rd & Jackson Ave

Day: Wednesday
Date: 3/11/2020

City: Riverbank
Project #: CA20_7082_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,647	10,626	21,273

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			13		12		25		**12:00**			163		171		334	
00:15			16		10		26		**12:15**			192		188		380	
00:30			17		2		19		**12:30**			197		196		393	
00:45			7	53	12	36	19	89	**12:45**			179	731	185	740	364	1471
01:00			8		5		13		**13:00**			182		180		362	
01:15			5		5		10		**13:15**			172		166		338	
01:30			8		10		18		**13:30**			188		174		362	
01:45			5	26	13	33	18	59	**13:45**			198	740	182	702	380	1442
02:00			3		7		10		**14:00**			213		162		375	
02:15			6		6		12		**14:15**			230		185		415	
02:30			4		7		11		**14:30**			212		198		410	
02:45			9	22	12	32	21	54	**14:45**			222	877	198	743	420	1620
03:00			4		14		18		**15:00**			214		239		453	
03:15			5		13		18		**15:15**			237		178		415	
03:30			2		10		12		**15:30**			246		170		416	
03:45			9	20	11	48	20	68	**15:45**			251	948	169	756	420	1704
04:00			5		28		33		**16:00**			221		186		407	
04:15			6		17		23		**16:15**			265		186		451	
04:30			8		30		38		**16:30**			224		163		387	
04:45			15	34	32	107	47	141	**16:45**			232	942	161	696	393	1638
05:00			11		38		49		**17:00**			243		180		423	
05:15			17		45		62		**17:15**			270		206		476	
05:30			41		69		110		**17:30**			230		196		426	
05:45			31	100	57	209	88	309	**17:45**			227	970	174	756	401	1726
06:00			31		103		134		**18:00**			198		135		333	
06:15			43		130		173		**18:15**			223		163		386	
06:30			48		123		171		**18:30**			204		151		355	
06:45			59	181	126	482	185	663	**18:45**			166	791	143	592	309	1383
07:00			70		113		183		**19:00**			174		138		312	
07:15			82		161		243		**19:15**			161		120		281	
07:30			122		199		321		**19:30**			143		123		266	
07:45			172	446	201	674	373	1120	**19:45**			169	647	109	490	278	1137
08:00			102		228		330		**20:00**			123		128		251	
08:15			93		180		273		**20:15**			108		91		199	
08:30			99		163		262		**20:30**			114		78		192	
08:45			81	375	162	733	243	1108	**20:45**			116	461	75	372	191	833
09:00			128		133		261		**21:00**			109		62		171	
09:15			121		140		261		**21:15**			89		91		180	
09:30			114		159		273		**21:30**			60		72		132	
09:45			122	485	162	594	284	1079	**21:45**			53	311	44	269	97	580
10:00			144		139		283		**22:00**			67		55		122	
10:15			119		174		293		**22:15**			46		34		80	
10:30			147		174		321		**22:30**			37		39		76	
10:45			151	561	148	635	299	1196	**22:45**			41	191	25	153	66	344
11:00			133		168		301		**23:00**			29		32		61	
11:15			151		164		315		**23:15**			37		25		62	
11:30			181		165		346		**23:30**			16		21		37	
11:45			171	636	185	682	356	1318	**23:45**			17	99	14	92	31	191
TOTALS			2939		4265		**7204**		**TOTALS**			7708		6361		**14069**	
SPLIT %			40.8%		59.2%		**33.9%**		**SPLIT %**			54.8%		45.2%		**66.1%**	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,647	10,626	21,273

AM Peak Hour			11:45	07:30	**11:45**	**PM Peak Hour**			15:30	14:15	**17:00**
AM Pk Volume			723	808	**1463**	**PM Pk Volume**			983	820	**1726**
Pk Hr Factor			0.918	0.886	**0.931**	**Pk Hr Factor**			0.927	0.858	**0.907**
7 - 9 Volume	0	0	821	1407	**2228**	**4 - 6 Volume**	0	0	1912	1452	**3364**
7 - 9 Peak Hour			07:30	07:30	**07:30**	**4 - 6 Peak Hour**			16:45	17:00	**17:00**
7 - 9 Pk Volume	0	0	489	808	**1297**	**4 - 6 Pk Volume**	0	0	975	756	**1726**
Pk Hr Factor	0.000	0.000	0.711	0.886	**0.869**	**Pk Hr Factor**	0.000	0.000	0.903	0.917	**0.907**

Prepared by National Data & Surveying Services

VOLUME

Kiernan Ave Bet. Tully Rd & McHenry Ave

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_014

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,508	14,087	27,595

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			48		24		72		**12:00**			194		151		345	
00:15			29		15		44		**12:15**			206		173		379	
00:30			35		12		47		**12:30**			220		186		406	
00:45			24	136	18	69	42	205	**12:45**			207	827	213	723	420	1550
01:00			26		21		47		**13:00**			192		183		375	
01:15			14		32		46		**13:15**			207		213		420	
01:30			21		20		41		**13:30**			199		221		420	
01:45			22	83	22	95	44	178	**13:45**			188	786	233	850	421	1636
02:00			13		31		44		**14:00**			223		221		444	
02:15			17		22		39		**14:15**			258		226		484	
02:30			11		52		63		**14:30**			250		234		484	
02:45			13	54	41	146	54	200	**14:45**			261	992	241	922	502	1914
03:00			12		70		82		**15:00**			272		234		506	
03:15			15		70		85		**15:15**			281		241		522	
03:30			14		79		93		**15:30**			252		230		482	
03:45			10	51	69	288	79	339	**15:45**			279	1084	230	935	509	2019
04:00			16		74		90		**16:00**			295		246		541	
04:15			26		92		118		**16:15**			271		206		477	
04:30			35		99		134		**16:30**			297		271		568	
04:45			51	128	100	365	151	493	**16:45**			273	1136	225	948	498	2084
05:00			46		120		166		**17:00**			293		281		574	
05:15			58		135		193		**17:15**			251		227		478	
05:30			68		159		227		**17:30**			276		251		527	
05:45			91	263	139	553	230	816	**17:45**			245	1065	206	965	451	2030
06:00			84		134		218		**18:00**			223		205		428	
06:15			96		166		262		**18:15**			235		178		413	
06:30			129		154		283		**18:30**			241		193		434	
06:45			141	450	209	663	350	1113	**18:45**			206	905	156	732	362	1637
07:00			144		226		370		**19:00**			189		142		331	
07:15			171		260		431		**19:15**			189		132		321	
07:30			221		278		499		**19:30**			145		161		306	
07:45			192	728	277	1041	469	1769	**19:45**			146	669	116	551	262	1220
08:00			177		234		411		**20:00**			166		133		299	
08:15			189		245		434		**20:15**			135		123		258	
08:30			164		227		391		**20:30**			136		90		226	
08:45			188	718	214	920	402	1638	**20:45**			102	539	106	452	208	991
09:00			157		157		314		**21:00**			123		91		214	
09:15			150		209		359		**21:15**			102		62		164	
09:30			157		178		335		**21:30**			90		72		162	
09:45			144	608	180	724	324	1332	**21:45**			78	393	47	272	125	665
10:00			161		192		353		**22:00**			88		58		146	
10:15			164		191		355		**22:15**			83		55		138	
10:30			176		183		359		**22:30**			55		36		91	
10:45			176	677	191	757	367	1434	**22:45**			50	276	43	192	93	468
11:00			179		187		366		**23:00**			49		36		85	
11:15			187		193		380		**23:15**			45		30		75	
11:30			211		232		443		**23:30**			57		28		85	
11:45			170	747	195	807	365	1554	**23:45**			42	193	23	117	65	310
TOTALS				4643		6428		**11071**	**TOTALS**				8865		7659		**16524**
SPLIT %				41.9%		58.1%		**40.1%**	**SPLIT %**				53.6%		46.4%		**59.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,508	14,087	27,595

AM Peak Hour				11:45	07:15	**07:30**			**PM Peak Hour**				15:45	16:30	**16:30**		
AM Pk Volume				790	1049	**1813**			**PM Pk Volume**				1142	1004	**2118**		
Pk Hr Factor				0.898	0.943	**0.908**			**Pk Hr Factor**				0.961	0.893	**0.922**		
7 - 9 Volume	0	0		1446	1961	**3407**			**4 - 6 Volume**	0	0		2201	1913	**4114**		
7 - 9 Peak Hour				07:30	07:15	**07:30**			**4 - 6 Peak Hour**				16:00	16:30	**16:30**		
7 - 9 Pk Volume	0	0		779	1049	**1813**			**4 - 6 Pk Volume**	0	0		1136	1004	**2118**		
Pk Hr Factor	0.000	0.000		0.881	0.943	**0.908**			**Pk Hr Factor**	0.000	0.000		0.956	0.893	**0.922**		

Prepared by National Data & Surveying Services

VOLUME

Claribel Rd Bet. McHenry Ave & Coffee Rd

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_015

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,120	13,750	27,870

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			48		20		68		**12:00**			195		153		348	
00:15			44		13		57		**12:15**			202		176		378	
00:30			31		11		42		**12:30**			217		181		398	
00:45			28	151	14	58	42	209	**12:45**			202	816	188	698	390	1514
01:00			25		12		37		**13:00**			194		182		376	
01:15			22		19		41		**13:15**			246		220		466	
01:30			20		16		36		**13:30**			185		194		379	
01:45			26	93	18	65	44	158	**13:45**			206	831	184	780	390	1611
02:00			12		22		34		**14:00**			221		206		427	
02:15			16		19		35		**14:15**			257		198		455	
02:30			23		46		69		**14:30**			255		240		495	
02:45			12	63	32	119	44	182	**14:45**			260	993	191	835	451	1828
03:00			11		64		75		**15:00**			306		236		542	
03:15			10		55		65		**15:15**			307		239		546	
03:30			16		77		93		**15:30**			310		200		510	
03:45			7	44	70	266	77	310	**15:45**			289	1212	216	891	505	2103
04:00			14		67		81		**16:00**			346		204		550	
04:15			28		95		123		**16:15**			327		204		531	
04:30			19		90		109		**16:30**			352		228		580	
04:45			27	88	106	358	133	446	**16:45**			384	1409	209	845	593	2254
05:00			38		113		151		**17:00**			411		214		625	
05:15			37		134		171		**17:15**			355		223		578	
05:30			47		162		209		**17:30**			381		217		598	
05:45			53	175	150	559	203	734	**17:45**			320	1467	203	857	523	2324
06:00			60		137		197		**18:00**			271		145		416	
06:15			67		191		258		**18:15**			266		179		445	
06:30			100		196		296		**18:30**			261		161		422	
06:45			93	320	247	771	340	1091	**18:45**			225	1023	151	636	376	1659
07:00			109		248		357		**19:00**			227		145		372	
07:15			123		291		414		**19:15**			201		113		314	
07:30			164		375		539		**19:30**			181		127		308	
07:45			148	544	390	1304	538	1848	**19:45**			194	803	99	484	293	1287
08:00			155		288		443		**20:00**			210		100		310	
08:15			129		300		429		**20:15**			180		102		282	
08:30			141		235		376		**20:30**			145		87		232	
08:45			138	563	251	1074	389	1637	**20:45**			142	677	75	364	217	1041
09:00			121		167		288		**21:00**			132		63		195	
09:15			144		202		346		**21:15**			120		56		176	
09:30			156		172		328		**21:30**			103		73		176	
09:45			118	539	188	729	306	1268	**21:45**			99	454	47	239	146	693
10:00			143		187		330		**22:00**			88		66		154	
10:15			150		182		332		**22:15**			88		47		135	
10:30			152		190		342		**22:30**			60		39		99	
10:45			167	612	202	761	369	1373	**22:45**			53	289	35	187	88	476
11:00			172		186		358		**23:00**			47		37		84	
11:15			200		177		377		**23:15**			46		32		78	
11:30			203		203		406		**23:30**			50		20		70	
11:45			184	759	192	758	376	1517	**23:45**			52	195	23	112	75	307
TOTALS				3951		6822		**10773**	**TOTALS**				10169		6928		**17097**
SPLIT %				36.7%		63.3%		**38.7%**	**SPLIT %**				59.5%		40.5%		**61.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,120	13,750	27,870

AM Peak Hour				11:45	07:30	**07:30**		**PM Peak Hour**				16:45	14:30	**16:45**
AM Pk Volume				798	1353	**1949**		**PM Pk Volume**				1531	906	**2394**
Pk Hr Factor				0.919	0.867	**0.904**		**Pk Hr Factor**				0.931	0.944	**0.958**
7 - 9 Volume	0	0		1107	2378	**3485**		**4 - 6 Volume**	0	0		2876	1702	**4578**
7 - 9 Peak Hour				07:30	07:30	**07:30**		**4 - 6 Peak Hour**				16:45	16:30	**16:45**
7 - 9 Pk Volume	0	0		596	1353	**1949**		**4 - 6 Pk Volume**	0	0		1531	874	**2394**
Pk Hr Factor	0.000	0.000		0.909	0.867	**0.904**		**Pk Hr Factor**	0.000	0.000		0.931	0.958	**0.958**

Prepared by National Data & Surveying Services

VOLUME

Claribel Rd Bet. Coffee Rd & Oakdale Rd

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_016

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,214	12,651	25,865

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			44		22		66		**12:00**			198		141		339	
00:15			42		16		58		**12:15**			183		172		355	
00:30			29		9		38		**12:30**			230		161		391	
00:45			20	135	11	58	31	193	**12:45**			196	807	183	657	379	1464
01:00			26		11		37		**13:00**			199		166		365	
01:15			23		14		37		**13:15**			217		218		435	
01:30			20		18		38		**13:30**			201		214		415	
01:45			16	85	19	62	35	147	**13:45**			173	790	168	766	341	1556
02:00			11		18		29		**14:00**			222		202		424	
02:15			14		19		33		**14:15**			233		166		399	
02:30			17		33		50		**14:30**			245		228		473	
02:45			10	52	32	102	42	154	**14:45**			247	947	188	784	435	1731
03:00			10		46		56		**15:00**			270		219		489	
03:15			11		48		59		**15:15**			274		206		480	
03:30			13		67		80		**15:30**			273		205		478	
03:45			10	44	50	211	60	255	**15:45**			317	1134	203	833	520	1967
04:00			9		57		66		**16:00**			284		193		477	
04:15			22		72		94		**16:15**			308		189		497	
04:30			19		77		96		**16:30**			268		209		477	
04:45			30	80	92	298	122	378	**16:45**			340	1200	170	761	510	1961
05:00			32		104		136		**17:00**			324		214		538	
05:15			24		117		141		**17:15**			318		182		500	
05:30			52		141		193		**17:30**			351		191		542	
05:45			45	153	125	487	170	640	**17:45**			305	1298	174	761	479	2059
06:00			54		126		180		**18:00**			225		155		380	
06:15			55		175		230		**18:15**			248		172		420	
06:30			97		183		280		**18:30**			257		154		411	
06:45			89	295	208	692	297	987	**18:45**			219	949	142	623	361	1572
07:00			98		207		305		**19:00**			205		136		341	
07:15			115		240		355		**19:15**			201		112		313	
07:30			154		322		476		**19:30**			199		117		316	
07:45			159	526	330	1099	489	1625	**19:45**			167	772	98	463	265	1235
08:00			142		270		412		**20:00**			190		107		297	
08:15			115		249		364		**20:15**			196		91		287	
08:30			146		223		369		**20:30**			141		103		244	
08:45			125	528	208	950	333	1478	**20:45**			138	665	91	392	229	1057
09:00			117		164		281		**21:00**			127		59		186	
09:15			120		204		324		**21:15**			118		70		188	
09:30			142		167		309		**21:30**			90		91		181	
09:45			127	506	187	722	314	1228	**21:45**			130	465	61	281	191	746
10:00			132		168		300		**22:00**			92		66		158	
10:15			143		174		317		**22:15**			65		45		110	
10:30			141		164		305		**22:30**			71		34		105	
10:45			160	576	171	677	331	1253	**22:45**			46	274	35	180	81	454
11:00			173		172		345		**23:00**			53		29		82	
11:15			201		156		357		**23:15**			46		25		71	
11:30			201		183		384		**23:30**			40		21		61	
11:45			169	744	181	692	350	1436	**23:45**			50	189	25	100	75	289
TOTALS				3724		6050		**9774**	**TOTALS**				9490		6601		**16091**
SPLIT %				38.1%		61.9%		**37.8%**	**SPLIT %**				59.0%		41.0%		**62.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,214	12,651	25,865

AM Peak Hour			11:45	07:30	**07:30**	**PM Peak Hour**			16:45	14:30	**16:45**
AM Pk Volume			780	1171	**1741**	**PM Pk Volume**			1333	841	**2090**
Pk Hr Factor			0.848	0.887	**0.890**	**Pk Hr Factor**			0.949	0.922	**0.964**
7 - 9 Volume	0	0	1054	2049	**3103**	**4 - 6 Volume**	0	0	2498	1522	**4020**
7 - 9 Peak Hour			07:15	07:30	**07:30**	**4 - 6 Peak Hour**			16:45	16:15	**16:45**
7 - 9 Pk Volume	0	0	570	1171	**1741**	**4 - 6 Pk Volume**	0	0	1333	782	**2090**
Pk Hr Factor	0.000	0.000	0.896	0.887	**0.890**	**Pk Hr Factor**	0.000	0.000	0.949	0.914	**0.964**

Prepared by National Data & Surveying Services

VOLUME

Coffee Rd Bet. Patterson Rd/SR 108 & Crawford Rd

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_017

DAILY TOTALS	NB	SB	EB	WB	Total
	2,001	1,987	0	0	3,988

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	4		1				5		12:00	42		21				63	
00:15	4		4				8		12:15	35		29				64	
00:30	1		1				2		12:30	23		37				60	
00:45	3	12	1	7			4	19	12:45	21	121	36	123			57	244
01:00	1		2				3		13:00	31		24				55	
01:15	1		2				3		13:15	27		41				68	
01:30	1		0				1		13:30	33		27				60	
01:45	3	6	1	5			4	11	13:45	28	119	27	119			55	238
02:00	0		1				1		14:00	42		36				78	
02:15	0		2				2		14:15	28		34				62	
02:30	0		2				2		14:30	29		39				68	
02:45	0		0	5			0	5	14:45	31	130	35	144			66	274
03:00	2		0				2		15:00	27		35				62	
03:15	8		2				10		15:15	46		58				104	
03:30	3		1				4		15:30	39		40				79	
03:45	2	15	1	4			3	19	15:45	47	159	34	167			81	326
04:00	4		1				5		16:00	30		45				75	
04:15	4		1				5		16:15	40		41				81	
04:30	2		5				7		16:30	35		38				73	
04:45	6	16	4	11			10	27	16:45	33	138	45	169			78	307
05:00	11		3				14		17:00	41		47				88	
05:15	13		2				15		17:15	40		43				83	
05:30	18		5				23		17:30	41		34				75	
05:45	21	63	8	18			29	81	17:45	31	153	47	171			78	324
06:00	18		19				37		18:00	39		40				79	
06:15	32		15				47		18:15	44		36				80	
06:30	31		30				61		18:30	25		29				54	
06:45	22	103	33	97			55	200	18:45	27	135	16	121			43	256
07:00	27		25				52		19:00	27		19				46	
07:15	38		37				75		19:15	26		13				39	
07:30	36		57				93		19:30	27		15				42	
07:45	43	144	36	155			79	299	19:45	20	100	6	53			26	153
08:00	24		41				65		20:00	19		8				27	
08:15	23		40				63		20:15	21		16				37	
08:30	24		48				72		20:30	22		10				32	
08:45	22	93	45	174			67	267	20:45	16	78	6	40			22	118
09:00	21		26				47		21:00	12		8				20	
09:15	28		36				64		21:15	10		15				25	
09:30	22		35				57		21:30	11		5				16	
09:45	27	98	26	123			53	221	21:45	16	49	8	36			24	85
10:00	21		26				47		22:00	10		5				15	
10:15	33		35				68		22:15	13		9				22	
10:30	21		33				54		22:30	4		6				10	
10:45	25	100	22	116			47	216	22:45	8	35	3	23			11	58
11:00	26		21				47		23:00	6		2				8	
11:15	37		26				63		23:15	4		2				6	
11:30	23		24				47		23:30	4		1				5	
11:45	32	118	28	99			60	217	23:45	2	16	2	7			4	23
TOTALS		768		814				1582	TOTALS		1233		1173				2406
SPLIT %		48.5%		51.5%				39.7%	SPLIT %		51.2%		48.8%				60.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	2,001	1,987	0	0	3,988

AM Peak Hour	07:00	07:30					07:15		PM Peak Hour	15:15	15:15					15:15	
AM Pk Volume	144	174					312		PM Pk Volume	162	177					339	
Pk Hr Factor	0.837	0.763					0.839		Pk Hr Factor	0.862	0.763					0.815	
7 - 9 Volume	237	329	0	0			566		4 - 6 Volume	291	340	0	0			631	
7 - 9 Peak Hour	07:00	07:30					07:15		4 - 6 Peak Hour	16:45	16:30					16:45	
7 - 9 Pk Volume	144	174	0	0			312		4 - 6 Pk Volume	155	173	0	0			324	
Pk Hr Factor	0.837	0.763	0.000	0.000			0.839		Pk Hr Factor	0.945	0.920	0.000	0.000			0.920	

Prepared by National Data & Surveying Services

VOLUME

Coffee Rd Bet. Crawford Rd & Claribel Rd

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_018

DAILY TOTALS	NB	SB	EB	WB	Total
	3,075	3,093	0	0	6,168

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	3		1				4		**12:00**	50		49				99	
00:15	3		4				7		**12:15**	50		42				92	
00:30	2		0				2		**12:30**	34		57				91	
00:45	3	11	2	7			5	18	**12:45**	36	170	46	194			82	364
01:00	3		4				7		**13:00**	49		44				93	
01:15	1		3				4		**13:15**	54		60				114	
01:30	1		1				2		**13:30**	49		44				93	
01:45	4	9	2	10			6	19	**13:45**	39	191	51	199			90	390
02:00	0		2				2		**14:00**	51		42				93	
02:15	1		2				3		**14:15**	49		56				105	
02:30	1		6				7		**14:30**	57		57				114	
02:45	1	3	2	12			3	15	**14:45**	51	208	50	205			101	413
03:00	4		5				9		**15:00**	51		55				106	
03:15	7		3				10		**15:15**	59		71				130	
03:30	5		4				9		**15:30**	51		58				109	
03:45	2	18	5	17			7	35	**15:45**	67	228	57	241			124	469
04:00	6		3				9		**16:00**	60		55				115	
04:15	3		12				15		**16:15**	72		46				118	
04:30	4		6				10		**16:30**	60		55				115	
04:45	6	19	8	29			14	48	**16:45**	61	253	62	218			123	471
05:00	12		4				16		**17:00**	77		61				138	
05:15	12		12				24		**17:15**	77		52				129	
05:30	19		19				38		**17:30**	76		48				124	
05:45	22	65	14	49			36	114	**17:45**	73	303	59	220			132	523
06:00	19		26				45		**18:00**	71		54				125	
06:15	37		31				68		**18:15**	63		47				110	
06:30	30		44				74		**18:30**	53		52				105	
06:45	42	128	52	153			94	281	**18:45**	53	240	36	189			89	429
07:00	27		47				74		**19:00**	43		32				75	
07:15	47		69				116		**19:15**	52		24				76	
07:30	38		106				144		**19:30**	44		22				66	
07:45	47	159	81	303			128	462	**19:45**	43	182	11	89			54	271
08:00	32		73				105		**20:00**	30		23				53	
08:15	37		50				87		**20:15**	28		25				53	
08:30	30		72				102		**20:30**	34		16				50	
08:45	26	125	71	266			97	391	**20:45**	24	116	7	71			31	187
09:00	29		46				75		**21:00**	36		16				52	
09:15	40		47				87		**21:15**	19		15				34	
09:30	39		48				87		**21:30**	18		8				26	
09:45	33	141	38	179			71	320	**21:45**	35	108	13	52			48	160
10:00	37		45				82		**22:00**	15		10				25	
10:15	42		51				93		**22:15**	12		11				23	
10:30	34		45				79		**22:30**	11		9				20	
10:45	35	148	49	190			84	338	**22:45**	12	50	4	34			16	84
11:00	39		35				74		**23:00**	8		5				13	
11:15	56		42				98		**23:15**	8		2				10	
11:30	32		44				76		**23:30**	6		1				7	
11:45	48	175	34	155			82	330	**23:45**	3	25	3	11			6	36
TOTALS		1001		1370				**2371**	**TOTALS**		2074		1723				**3797**
SPLIT %		42.2%		57.8%				**38.4%**	**SPLIT %**		54.6%		45.4%				**61.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	3,075	3,093	0	0	6,168

AM Peak Hour	11:15	07:15					**07:15**	**PM Peak Hour**	17:00	15:00					**17:00**
AM Pk Volume	186	329					**493**	**PM Pk Volume**	303	241					**523**
Pk Hr Factor	0.830	0.776					**0.856**	**Pk Hr Factor**	0.984	0.849					**0.947**
7 - 9 Volume	284	569	0	0			**853**	**4 - 6 Volume**	556	438	0	0			**994**
7 - 9 Peak Hour	07:15	07:15					**07:15**	**4 - 6 Peak Hour**	17:00	16:30					**17:00**
7 - 9 Pk Volume	164	329	0	0			**493**	**4 - 6 Pk Volume**	303	230	0	0			**523**
Pk Hr Factor	0.872	0.776	0.000	0.000			**0.856**	**Pk Hr Factor**	0.984	0.927	0.000	0.000			**0.947**

Prepared by National Data & Surveying Services

VOLUME

Coffee Rd Bet. Claribel Rd & Claratina Ave

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_019

DAILY TOTALS	NB	SB	EB	WB	Total
	6,181	6,212	0	0	12,393

AM Period	NB		SB		EB		WB		TOTAL	
00:00	9		8						17	
00:15	7		14						21	
00:30	9		9						18	
00:45	6	31	5	36					11	67
01:00	5		9						14	
01:15	2		4						6	
01:30	3		3						6	
01:45	3	13	9	25					12	38
02:00	5		7						12	
02:15	5		5						10	
02:30	7		6						13	
02:45	10	27	0	18					10	45
03:00	15		4						19	
03:15	16		3						19	
03:30	14		4						18	
03:45	20	65	2	13					22	78
04:00	15		6						21	
04:15	19		4						23	
04:30	19		11						30	
04:45	28	81	11	32					39	113
05:00	29		14						43	
05:15	31		12						43	
05:30	44		22						66	
05:45	35	139	25	73					60	212
06:00	45		30						75	
06:15	62		46						108	
06:30	65		53						118	
06:45	85	257	79	208					164	465
07:00	89		59						148	
07:15	99		103						202	
07:30	111		121						232	
07:45	121	420	101	384					222	804
08:00	91		110						201	
08:15	80		90						170	
08:30	59		93						152	
08:45	66	296	107	400					173	696
09:00	73		72						145	
09:15	64		88						152	
09:30	68		93						161	
09:45	58	263	72	325					130	588
10:00	71		77						148	
10:15	75		80						155	
10:30	79		87						166	
10:45	84	309	88	332					172	641
11:00	85		75						160	
11:15	96		73						169	
11:30	85		76						161	
11:45	90	356	98	322					188	678
TOTALS		2257		2168						4425
SPLIT %		51.0%		49.0%						35.7%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	101		76						177	
12:15	97		95						192	
12:30	96		90						186	
12:45	97	391	100	361					197	752
13:00	85		96						181	
13:15	103		118						221	
13:30	109		115						224	
13:45	89	386	94	423					183	809
14:00	108		100						208	
14:15	118		100						218	
14:30	105		122						227	
14:45	102	433	126	448					228	881
15:00	119		113						232	
15:15	113		125						238	
15:30	107		124						231	
15:45	131	470	127	489					258	959
16:00	102		142						244	
16:15	115		124						239	
16:30	112		144						256	
16:45	112	441	176	586					288	1027
17:00	141		147						288	
17:15	142		146						288	
17:30	149		118						267	
17:45	136	568	131	542					267	1110
18:00	116		147						263	
18:15	105		98						203	
18:30	89		107						196	
18:45	81	391	77	429					158	820
19:00	70		71						141	
19:15	84		62						146	
19:30	87		57						144	
19:45	67	308	55	245					122	553
20:00	62		53						115	
20:15	48		60						108	
20:30	52		48						100	
20:45	43	205	50	211					93	416
21:00	42		44						86	
21:15	45		34						79	
21:30	36		54						90	
21:45	73	196	44	176					117	372
22:00	20		28						48	
22:15	26		31						57	
22:30	23		22						45	
22:45	15	84	12	93					27	177
23:00	20		13						33	
23:15	17		13						30	
23:30	8		7						15	
23:45	6	51	8	41					14	92
TOTALS		3924		4044						7968
SPLIT %		49.2%		50.8%						64.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	6,181	6,212	0	0	12,393

AM Peak Hour	07:15	07:15			07:15
AM Pk Volume	422	435			857
Pk Hr Factor	0.872	0.899			0.923
7 - 9 Volume	716	784	0	0	1500
7 - 9 Peak Hour	07:15	07:15			07:15
7 - 9 Pk Volume	422	435	0	0	857
Pk Hr Factor	0.872	0.899	0.000	0.000	0.923

PM Peak Hour	17:00	16:30			16:45
PM Pk Volume	568	613			1131
Pk Hr Factor	0.953	0.871			0.982
4 - 6 Volume	1009	1128	0	0	2137
4 - 6 Peak Hour	17:00	16:30			16:45
4 - 6 Pk Volume	568	613	0	0	1131
Pk Hr Factor	0.953	0.871	0.000	0.000	0.982

Prepared by National Data & Surveying Services

VOLUME

Oakdale Rd Bet. SR 108 & Morrill Rd

Day: Tuesday
Date: 3/10/2020

City: Riverbank
Project #: CA20_7082_020

DAILY TOTALS	NB	SB	EB	WB	Total
	7,155	6,393	0	0	13,548

AM Period	NB		SB		EB		WB		TOTAL	
00:00	9		16						25	
00:15	9		9						18	
00:30	6		9						15	
00:45	8	32	4	38					12	70
01:00	4		3						7	
01:15	1		5						6	
01:30	5		7						12	
01:45	2	12	7	22					9	34
02:00	3		5						8	
02:15	7		4						11	
02:30	9		4						13	
02:45	7	26	4	17					11	43
03:00	8		4						12	
03:15	10		6						16	
03:30	6		8						14	
03:45	14	38	4	22					18	60
04:00	6		6						12	
04:15	11		6						17	
04:30	15		8						23	
04:45	17	49	4	24					21	73
05:00	24		17						41	
05:15	29		12						41	
05:30	36		13						49	
05:45	37	126	25	67					62	193
06:00	51		20						71	
06:15	56		45						101	
06:30	57		44						101	
06:45	58	222	55	164					113	386
07:00	69		53						122	
07:15	97		83						180	
07:30	103		87						190	
07:45	149	418	70	293					219	711
08:00	101		95						196	
08:15	75		75						150	
08:30	83		79						162	
08:45	84	343	57	306					141	649
09:00	95		76						171	
09:15	71		72						143	
09:30	69		67						136	
09:45	104	339	81	296					185	635
10:00	77		94						171	
10:15	82		90						172	
10:30	108		91						199	
10:45	98	365	89	364					187	729
11:00	77		103						180	
11:15	123		86						209	
11:30	113		99						212	
11:45	123	436	109	397					232	833
TOTALS		2406		2010						4416
SPLIT %		54.5%		45.5%						32.6%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	130		117						247	
12:15	130		108						238	
12:30	138		114						252	
12:45	127	525	100	439					227	964
13:00	91		118						209	
13:15	130		108						238	
13:30	135		104						239	
13:45	119	475	115	445					234	920
14:00	126		112						238	
14:15	138		133						271	
14:30	124		129						253	
14:45	129	517	110	484					239	1001
15:00	144		125						269	
15:15	114		112						226	
15:30	145		129						274	
15:45	124	527	141	507					265	1034
16:00	123		120						243	
16:15	118		120						238	
16:30	139		111						250	
16:45	143	523	138	489					281	1012
17:00	139		139						278	
17:15	150		135						285	
17:30	140		145						285	
17:45	166	595	145	564					311	1159
18:00	118		100						218	
18:15	125		121						246	
18:30	112		113						225	
18:45	120	475	123	457					243	932
19:00	129		106						235	
19:15	105		102						207	
19:30	99		79						178	
19:45	79	412	87	374					166	786
20:00	109		74						183	
20:15	84		87						171	
20:30	90		72						162	
20:45	57	340	58	291					115	631
21:00	55		55						110	
21:15	40		47						87	
21:30	44		43						87	
21:45	33	172	31	176					64	348
22:00	40		35						75	
22:15	41		24						65	
22:30	30		27						57	
22:45	24	135	15	101					39	236
23:00	14		23						37	
23:15	14		10						24	
23:30	14		15						29	
23:45	11	53	8	56					19	109
TOTALS		4749		4383						9132
SPLIT %		52.0%		48.0%						67.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,155	6,393	0	0	13,548

AM Peak Hour	11:45	11:45			11:45
AM Pk Volume	521	448			969
Pk Hr Factor	0.944	0.957			0.961
7 - 9 Volume	761	599	0	0	1360
7 - 9 Peak Hour	07:15	07:15			07:15
7 - 9 Pk Volume	450	335	0	0	785
Pk Hr Factor	0.755	0.882	0.000	0.000	0.896

PM Peak Hour	17:00	17:00			17:00
PM Pk Volume	595	564			1159
Pk Hr Factor	0.896	0.972			0.932
4 - 6 Volume	1118	1053	0	0	2171
4 - 6 Peak Hour	17:00	17:00			17:00
4 - 6 Pk Volume	595	564	0	0	1159
Pk Hr Factor	0.896	0.972	0.000	0.000	0.932

Prepared by National Data & Surveying Services

VOLUME

Oakdale Rd Bet. Morrill Rd & Crawford Rd

Day: Tuesday
Date: 3/10/2020

City: Riverbank
Project #: CA20_7082_021

DAILY TOTALS	NB	SB	EB	WB	Total
	7,336	6,465	0	0	13,801

AM Period	NB		SB		EB		WB		TOTAL	
00:00	12		16						28	
00:15	17		13						30	
00:30	9		8						17	
00:45	13	51	7	44					20	95
01:00	6		4						10	
01:15	5		6						11	
01:30	7		9						16	
01:45	4	22	5	24					9	46
02:00	2		6						8	
02:15	7		5						12	
02:30	7		4						11	
02:45	8	24	4	19					12	43
03:00	4		7						11	
03:15	8		8						16	
03:30	8		17						25	
03:45	10	30	7	39					17	69
04:00	4		14						18	
04:15	10		9						19	
04:30	7		17						24	
04:45	12	33	14	54					26	87
05:00	15		23						38	
05:15	24		23						47	
05:30	24		20						44	
05:45	28	91	33	99					61	190
06:00	37		37						74	
06:15	52		48						100	
06:30	47		64						111	
06:45	38	174	83	232					121	406
07:00	53		68						121	
07:15	73		100						173	
07:30	79		109						188	
07:45	126	331	101	378					227	709
08:00	76		106						182	
08:15	62		95						157	
08:30	77		106						183	
08:45	73	288	68	375					141	663
09:00	85		82						167	
09:15	75		78						153	
09:30	67		85						152	
09:45	92	319	76	321					168	640
10:00	72		93						165	
10:15	89		83						172	
10:30	103		90						193	
10:45	80	344	91	357					171	701
11:00	79		108						187	
11:15	114		99						213	
11:30	124		91						215	
11:45	127	444	119	417					246	861
TOTALS		2151		2359						4510
SPLIT %		47.7%		52.3%						32.7%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	130		104						234	
12:15	123		103						226	
12:30	140		118						258	
12:45	120	513	99	424					219	937
13:00	102		108						210	
13:15	123		102						225	
13:30	143		107						250	
13:45	132	500	108	425					240	925
14:00	99		114						213	
14:15	133		133						266	
14:30	139		123						262	
14:45	136	507	119	489					255	996
15:00	138		121						259	
15:15	134		113						247	
15:30	163		106						269	
15:45	137	572	131	471					268	1043
16:00	129		107						236	
16:15	178		97						275	
16:30	138		120						258	
16:45	175	620	124	448					299	1068
17:00	171		123						294	
17:15	170		119						289	
17:30	168		131						299	
17:45	160	669	113	486					273	1155
18:00	137		79						216	
18:15	149		111						260	
18:30	139		108						247	
18:45	130	555	120	418					250	973
19:00	125		111						236	
19:15	95		84						179	
19:30	102		65						167	
19:45	99	421	86	346					185	767
20:00	108		89						197	
20:15	89		74						163	
20:30	92		71						163	
20:45	72	361	57	291					129	652
21:00	63		50						113	
21:15	51		44						95	
21:30	49		44						93	
21:45	44	207	27	165					71	372
22:00	54		33						87	
22:15	47		23						70	
22:30	39		26						65	
22:45	37	177	20	102					57	279
23:00	20		17						37	
23:15	17		9						26	
23:30	18		9						27	
23:45	28	83	6	41					34	124
TOTALS		5185		4106						9291
SPLIT %		55.8%		44.2%						67.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,336	6,465	0	0	13,801

AM Peak Hour	11:45	11:45			11:45
AM Pk Volume	520	444			964
Pk Hr Factor	0.929	0.933			0.934
7 - 9 Volume	619	753	0	0	1372
7 - 9 Peak Hour	07:15	07:15			07:15
7 - 9 Pk Volume	354	416	0	0	770
Pk Hr Factor	0.702	0.954	0.000	0.000	0.848

PM Peak Hour	16:45	16:45			16:45
PM Pk Volume	684	497			1181
Pk Hr Factor	0.977	0.948			0.987
4 - 6 Volume	1289	934	0	0	2223
4 - 6 Peak Hour	16:45	16:45			16:45
4 - 6 Pk Volume	684	497	0	0	1181
Pk Hr Factor	0.977	0.948	0.000	0.000	0.987

Prepared by National Data & Surveying Services

VOLUME

Oakdale Rd Bet. Crawford Rd & Claribel Rd

Day: Tuesday
Date: 3/10/2020

City: Riverbank
Project #: CA20_7082_022

DAILY TOTALS	NB	SB	EB	WB	Total
	9,038	8,268	0	0	17,306

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	21		16						37		**12:00**	139		119						258	
00:15	23		18						41		**12:15**	139		122						261	
00:30	15		7						22		**12:30**	167		139						306	
00:45	14	73	8	49					22	122	**12:45**	140	585	131	511					271	1096
01:00	7		5						12		**13:00**	142		128						270	
01:15	6		7						13		**13:15**	142		131						273	
01:30	8		11						19		**13:30**	171		155						326	
01:45	5	26	7	30					12	56	**13:45**	162	617	121	535					283	1152
02:00	2		7						9		**14:00**	134		137						271	
02:15	7		7						14		**14:15**	168		155						323	
02:30	6		11						17		**14:30**	174		159						333	
02:45	9	24	4	29					13	53	**14:45**	170	646	150	601					320	1247
03:00	2		11						13		**15:00**	159		148						307	
03:15	6		12						18		**15:15**	169		147						316	
03:30	7		22						29		**15:30**	183		130						313	
03:45	9	24	18	63					27	87	**15:45**	173	684	158	583					331	1267
04:00	4		20						24		**16:00**	181		122						303	
04:15	12		15						27		**16:15**	191		128						319	
04:30	6		33						39		**16:30**	181		142						323	
04:45	13	35	27	95					40	130	**16:45**	236	789	147	539					383	1328
05:00	17		29						46		**17:00**	210		153						363	
05:15	20		37						57		**17:15**	233		135						368	
05:30	20		39						59		**17:30**	201		152						353	
05:45	30	87	48	153					78	240	**17:45**	198	842	126	566					324	1408
06:00	42		64						106		**18:00**	156		113						269	
06:15	54		73						127		**18:15**	202		121						323	
06:30	47		98						145		**18:30**	152		123						275	
06:45	56	199	127	362					183	561	**18:45**	160	670	138	495					298	1165
07:00	51		116						167		**19:00**	148		117						265	
07:15	93		177						270		**19:15**	148		78						226	
07:30	90		212						302		**19:30**	133		85						218	
07:45	156	390	193	698					349	1088	**19:45**	132	561	85	365					217	926
08:00	93		153						246		**20:00**	136		98						234	
08:15	99		126						225		**20:15**	128		78						206	
08:30	98		140						238		**20:30**	121		81						202	
08:45	97	387	125	544					222	931	**20:45**	102	487	75	332					177	819
09:00	106		108						214		**21:00**	82		56						138	
09:15	80		117						197		**21:15**	76		58						134	
09:30	76		102						178		**21:30**	66		53						119	
09:45	101	363	107	434					208	797	**21:45**	70	294	36	203					106	497
10:00	79		108						187		**22:00**	74		45						119	
10:15	112		106						218		**22:15**	57		30						87	
10:30	112		103						215		**22:30**	46		28						74	
10:45	105	408	115	432					220	840	**22:45**	55	232	23	126					78	358
11:00	104		111						215		**23:00**	27		24						51	
11:15	145		116						261		**23:15**	24		13						37	
11:30	123		108						231		**23:30**	25		9						34	
11:45	138	510	133	468					271	978	**23:45**	29	105	9	55					38	160
TOTALS		2526		3357						**5883**	**TOTALS**		6512		4911						**11423**
SPLIT %		42.9%		57.1%						**34.0%**	**SPLIT %**		57.0%		43.0%						**66.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	9,038	8,268	0	0	17,306

AM Peak Hour	11:45	07:15			**07:15**	**PM Peak Hour**	16:45	14:15			**16:45**
AM Pk Volume	583	735			**1167**	**PM Pk Volume**	880	612			**1467**
Pk Hr Factor	0.873	0.867			**0.836**	**Pk Hr Factor**	0.932	0.962			**0.958**
7 - 9 Volume	777	1242	0	0	**2019**	**4 - 6 Volume**	1631	1105	0	0	**2736**
7 - 9 Peak Hour	07:45	07:15			**07:15**	**4 - 6 Peak Hour**	16:45	16:45			**16:45**
7 - 9 Pk Volume	446	735	0	0	**1167**	**4 - 6 Pk Volume**	880	587	0	0	**1467**
Pk Hr Factor	0.715	0.867	0.000	0.000	**0.836**	**Pk Hr Factor**	0.932	0.959	0.000	0.000	**0.958**

Prepared by National Data & Surveying Services

VOLUME

Oakdale Rd Bet. Claribel Rd & Claratina Ave

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_023

DAILY TOTALS	NB	SB	EB	WB	Total
	9,600	9,216	0	0	18,816

AM Period	NB		SB		EB		WB		TOTAL	
00:00	20		26						46	
00:15	11		20						31	
00:30	14		15						29	
00:45	11	56	9	70					20	126
01:00	7		8						15	
01:15	3		11						14	
01:30	8		8						16	
01:45	12	30	10	37					22	67
02:00	10		11						21	
02:15	11		4						15	
02:30	13		11						24	
02:45	14	48	3	29					17	77
03:00	16		6						22	
03:15	17		5						22	
03:30	18		5						23	
03:45	17	68	14	30					31	98
04:00	19		14						33	
04:15	31		7						38	
04:30	26		25						51	
04:45	45	121	18	64					63	185
05:00	39		16						55	
05:15	57		39						96	
05:30	53		37						90	
05:45	70	219	38	130					108	349
06:00	96		47						143	
06:15	78		60						138	
06:30	78		86						164	
06:45	94	346	126	319					220	665
07:00	103		106						209	
07:15	120		131						251	
07:30	156		202						358	
07:45	202	581	208	647					410	1228
08:00	155		176						331	
08:15	152		131						283	
08:30	105		139						244	
08:45	123	535	134	580					257	1115
09:00	119		89						208	
09:15	124		98						222	
09:30	103		108						211	
09:45	128	474	102	397					230	871
10:00	106		104						210	
10:15	146		95						241	
10:30	127		102						229	
10:45	126	505	107	408					233	913
11:00	130		116						246	
11:15	154		138						292	
11:30	133		123						256	
11:45	149	566	128	505					277	1071
TOTALS		3549		3216						**6765**
SPLIT %		52.5%		47.5%						**36.0%**

PM Period	NB		SB		EB		WB		TOTAL	
12:00	135		118						253	
12:15	143		152						295	
12:30	152		150						302	
12:45	153	583	177	597					330	1180
13:00	152		168						320	
13:15	143		152						295	
13:30	164		160						324	
13:45	172	631	142	622					314	1253
14:00	169		174						343	
14:15	185		166						351	
14:30	178		166						344	
14:45	162	694	165	671					327	1365
15:00	173		184						357	
15:15	188		177						365	
15:30	208		173						381	
15:45	174	743	170	704					344	1447
16:00	176		180						356	
16:15	203		170						373	
16:30	175		163						338	
16:45	198	752	177	690					375	1442
17:00	219		176						395	
17:15	205		163						368	
17:30	202		173						375	
17:45	174	800	179	691					353	1491
18:00	138		160						298	
18:15	182		152						334	
18:30	151		147						298	
18:45	127	598	162	621					289	1219
19:00	116		158						274	
19:15	119		106						225	
19:30	114		93						207	
19:45	114	463	109	466					223	929
20:00	126		104						230	
20:15	101		106						207	
20:30	87		90						177	
20:45	67	381	100	400					167	781
21:00	72		71						143	
21:15	77		79						156	
21:30	23		69						92	
21:45	7	179	58	277					65	456
22:00	37		58						95	
22:15	46		28						74	
22:30	33		48						81	
22:45	39	155	31	165					70	320
23:00	20		33						53	
23:15	16		31						47	
23:30	19		19						38	
23:45	17	72	13	96					30	168
TOTALS		6051		6000						**12051**
SPLIT %		50.2%		49.8%						**64.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	9,600	9,216	0	0	18,816

AM Peak Hour	07:30	07:15			**07:30**
AM Pk Volume	665	717			**1382**
Pk Hr Factor	0.823	0.862			**0.843**
7 - 9 Volume	1116	1227	0	0	**2343**
7 - 9 Peak Hour	07:30	07:15			**07:30**
7 - 9 Pk Volume	665	717	0	0	**1382**
Pk Hr Factor	0.823	0.862	0.000	0.000	**0.843**

PM Peak Hour	16:45	15:00			**16:45**
PM Pk Volume	824	704			**1513**
Pk Hr Factor	0.941	0.957			**0.958**
4 - 6 Volume	1552	1381	0	0	**2933**
4 - 6 Peak Hour	16:45	17:00			**16:45**
4 - 6 Pk Volume	824	691	0	0	**1513**
Pk Hr Factor	0.941	0.965	0.000	0.000	**0.958**

Prepared by National Data & Surveying Services

VOLUME

Morrill Rd Bet. Coffee Rd & Oakdale Rd

Day: Tuesday
Date: 3/10/2020

City: Modesto
Project #: CA20_7082_024

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,394	1,078	2,472

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		**12:00**			19		13		32	
00:15			0		1		1		**12:15**			15		15		30	
00:30			2		0		2		**12:30**			20		13		33	
00:45			3	5	2	3	5	8	**12:45**			11	65	11	52	22	117
01:00			2		1		3		**13:00**			22		17		39	
01:15			0		1		1		**13:15**			23		14		37	
01:30			1		1		2		**13:30**			20		20		40	
01:45			2	5	2	5	4	10	**13:45**			11	76	15	66	26	142
02:00			0		0		0		**14:00**			21		12		33	
02:15			1		0		1		**14:15**			21		15		36	
02:30			1		1		2		**14:30**			34		17		51	
02:45			1	3	3	4	4	7	**14:45**			19	95	19	63	38	158
03:00			2		3		5		**15:00**			23		16		39	
03:15			5		4		9		**15:15**			21		14		35	
03:30			4		1		5		**15:30**			25		14		39	
03:45			2	13	3	11	5	24	**15:45**			22	91	20	64	42	155
04:00			2		4		6		**16:00**			27		12		39	
04:15			7		11		18		**16:15**			30		15		45	
04:30			1		3		4		**16:30**			32		14		46	
04:45			2	12	3	21	5	33	**16:45**			41	130	19	60	60	190
05:00			2		2		4		**17:00**			35		13		48	
05:15			5		10		15		**17:15**			40		12		52	
05:30			12		16		28		**17:30**			50		16		66	
05:45			8	27	11	39	19	66	**17:45**			41	166	22	63	63	229
06:00			4		12		16		**18:00**			35		16		51	
06:15			12		19		31		**18:15**			22		16		38	
06:30			13		22		35		**18:30**			22		16		38	
06:45			9	38	10	63	19	101	**18:45**			24	103	27	75	51	178
07:00			17		19		36		**19:00**			13		6		19	
07:15			22		31		53		**19:15**			21		11		32	
07:30			19		40		59		**19:30**			26		12		38	
07:45			23	81	31	121	54	202	**19:45**			20	80	10	39	30	119
08:00			17		24		41		**20:00**			14		16		30	
08:15			20		16		36		**20:15**			16		10		26	
08:30			16		25		41		**20:30**			11		4		15	
08:45			16	69	24	89	40	158	**20:45**			8	49	3	33	11	82
09:00			16		16		32		**21:00**			21		11		32	
09:15			9		8		17		**21:15**			14		4		18	
09:30			15		13		28		**21:30**			8		2		10	
09:45			14	54	11	48	25	102	**21:45**			12	55	6	23	18	78
10:00			15		16		31		**22:00**			13		6		19	
10:15			11		15		26		**22:15**			3		3		6	
10:30			22		16		38		**22:30**			7		2		9	
10:45			17	65	20	67	37	132	**22:45**			8	31	3	14	11	45
11:00			17		10		27		**23:00**			5		2		7	
11:15			18		11		29		**23:15**			3		1		4	
11:30			18		15		33		**23:30**			4		3		7	
11:45			12	65	12	48	24	113	**23:45**			4	16	1	7	5	23
TOTALS				437		519		**956**	**TOTALS**				957		559		**1516**
SPLIT %				45.7%		54.3%		**38.7%**	**SPLIT %**				63.1%		36.9%		**61.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,394	1,078	2,472

AM Peak Hour				07:00	07:15	**07:15**		**PM Peak Hour**				16:45	18:00	**17:15**
AM Pk Volume				81	126	**207**		**PM Pk Volume**				166	75	**232**
Pk Hr Factor				0.880	0.788	**0.877**		**Pk Hr Factor**				0.830	0.694	**0.879**
7 - 9 Volume	0	0		150	210	**360**		**4 - 6 Volume**	0	0		296	123	**419**
7 - 9 Peak Hour				07:00	07:15	**07:15**		**4 - 6 Peak Hour**				16:45	17:00	**17:00**
7 - 9 Pk Volume	0	0		81	126	**207**		**4 - 6 Pk Volume**	0	0		166	63	**229**
Pk Hr Factor	0.000	0.000		0.880	0.788	**0.877**		**Pk Hr Factor**	0.000	0.000		0.830	0.716	**0.867**

TECHNICAL APPENDIX 2 of 3

FOR

RIVERWALK SPECIFIC PLAN EIR
TRANSPORTATION IMPACT ANALYSIS FOR
Riverbank, CA

Prepared For:

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, CA 95762

Prepared By:

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3853 Taylor Road, Suite G
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August 31, 2021

2290-02

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	26.1	22.4	29.6	20.0	23.1
Vehicles Entered	270	629	306	795	2000
Vehicles Exited	269	631	306	794	2000
Hourly Exit Rate	269	631	306	794	2000
Input Volume	266	624	315	790	1995
% of Volume	101	101	97	100	100
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.1
Total Del/Veh (s)	16.9	12.1	4.2	12.2
Vehicles Entered	223	834	121	1178
Vehicles Exited	223	834	121	1178
Hourly Exit Rate	223	834	121	1178
Input Volume	224	826	121	1172
% of Volume	99	101	100	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	10.3	13.2	8.6
Vehicles Entered	442	468	192	1102
Vehicles Exited	442	469	192	1103
Hourly Exit Rate	442	469	192	1103
Input Volume	450	465	190	1105
% of Volume	98	101	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

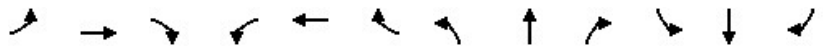
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	410.9
Vehicles Entered	187
Vehicles Exited	132
Hourly Exit Rate	132
Input Volume	4272
% of Volume	3
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	83	125	142	167	21	195	384	45	14	452	29
Future Volume (veh/h)	22	83	125	142	167	21	195	384	45	14	452	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	90	54	154	182	23	212	417	49	15	491	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	253	214	196	397	336	263	1073	125	39	709	46
Arrive On Green	0.03	0.14	0.14	0.11	0.21	0.21	0.15	0.33	0.33	0.02	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3205	375	1781	3387	220
Grp Volume(v), veh/h	24	90	54	154	182	23	212	230	236	15	257	266
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1803	1781	1777	1831
Q Serve(g_s), s	0.8	2.6	1.8	5.0	5.0	0.7	6.8	5.8	5.9	0.5	7.9	7.9
Cycle Q Clear(g_c), s	0.8	2.6	1.8	5.0	5.0	0.7	6.8	5.8	5.9	0.5	7.9	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.12
Lane Grp Cap(c), veh/h	59	253	214	196	397	336	263	595	604	39	372	383
V/C Ratio(X)	0.41	0.36	0.25	0.79	0.46	0.07	0.81	0.39	0.39	0.38	0.69	0.69
Avail Cap(c_a), veh/h	181	253	215	290	397	336	380	990	1004	181	791	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	23.2	22.9	25.6	20.3	18.6	24.4	15.0	15.0	28.5	21.6	21.6
Incr Delay (d2), s/veh	4.5	0.8	0.6	8.3	0.8	0.1	8.0	0.4	0.4	5.9	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	0.6	2.2	1.9	0.2	3.0	1.9	2.0	0.2	3.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	24.0	23.5	33.9	21.1	18.7	32.4	15.4	15.4	34.4	23.9	23.9
LnGrp LOS	C	C	C	C	C	B	C	B	B	C	C	C
Approach Vol, veh/h		168			359			678			538	
Approach Delay, s/veh		25.1			26.4			20.7			24.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	26.0	11.9	14.5	14.1	18.6	7.4	19.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	32.9	9.6	8.0	12.6	26.3	6.0	11.6
Max Q Clear Time (g_c+I1), s	2.5	7.9	7.0	4.6	8.8	9.9	2.8	7.0
Green Ext Time (p_c), s	0.0	2.4	0.1	0.1	0.2	2.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C



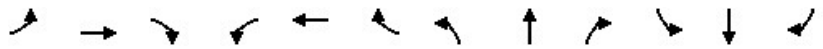
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	0	0	0	22	584	0	0	757	11
Future Volume (veh/h)	16	0	33	0	0	0	22	584	0	0	757	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	0	37	0	0	0	24	649	0	0	841	12
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	0	58	0	105	0	52	1304	0	4	1006	14
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.70	0.00	0.00	0.55	0.55
Sat Flow, veh/h	499	0	1027	0	1870	0	1781	1870	0	1781	1839	26
Grp Volume(v), veh/h	55	0	0	0	0	0	24	649	0	0	0	853
Grp Sat Flow(s),veh/h/ln	1526	0	0	0	1870	0	1781	1870	0	1781	0	1866
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	6.8	0.0	0.0	0.0	16.1
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	6.8	0.0	0.0	0.0	16.1
Prop In Lane	0.33		0.67	0.00		0.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	199	0	0	0	105	0	52	1304	0	4	0	1021
V/C Ratio(X)	0.28	0.00	0.00	0.00	0.00	0.00	0.46	0.50	0.00	0.00	0.00	0.84
Avail Cap(c_a), veh/h	352	0	0	0	293	0	228	1459	0	211	0	1438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	19.5	0.0	0.0	0.0	0.0	0.0	20.1	3.0	0.0	0.0	0.0	8.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	6.3	0.3	0.0	0.0	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	0.0	0.0	0.0	0.0	0.0	26.5	3.3	0.0	0.0	0.0	11.1
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	B
Approach Vol, veh/h		55			0			673			853	
Approach Delay, s/veh		20.2			0.0			4.1			11.1	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	35.2		7.0	6.3	28.9		7.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.8	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	8.8		3.5	2.6	18.1		0.0				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	5.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	121	37	1	376	241	33	267	0	97	386	255
Future Volume (veh/h)	108	121	37	1	376	241	33	267	0	97	386	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	138	42	1	427	217	38	303	0	110	439	290
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	499	152	3	515	437	66	787	0	143	543	356
Arrive On Green	0.09	0.36	0.36	0.00	0.28	0.28	0.04	0.22	0.00	0.08	0.26	0.26
Sat Flow, veh/h	1781	1376	419	1781	1870	1585	1781	3647	0	1781	2056	1349
Grp Volume(v), veh/h	123	0	180	1	427	217	38	303	0	110	379	350
Grp Sat Flow(s),veh/h/ln	1781	0	1795	1781	1870	1585	1781	1777	0	1781	1777	1628
Q Serve(g_s), s	4.7	0.0	5.0	0.0	15.0	8.1	1.5	5.1	0.0	4.3	14.0	14.2
Cycle Q Clear(g_c), s	4.7	0.0	5.0	0.0	15.0	8.1	1.5	5.1	0.0	4.3	14.0	14.2
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.00	1.00		0.83
Lane Grp Cap(c), veh/h	157	0	651	3	515	437	66	787	0	143	470	430
V/C Ratio(X)	0.78	0.00	0.28	0.39	0.83	0.50	0.57	0.39	0.00	0.77	0.81	0.81
Avail Cap(c_a), veh/h	244	0	846	127	759	643	127	787	0	350	592	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	15.9	35.0	23.9	21.3	33.3	23.3	0.0	31.7	24.2	24.2
Incr Delay (d2), s/veh	8.5	0.0	0.2	77.7	5.0	0.9	7.5	0.3	0.0	8.4	6.5	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.7	0.1	6.3	2.6	0.7	1.9	0.0	2.0	5.9	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	0.0	16.1	112.7	28.9	22.2	40.8	23.6	0.0	40.1	30.7	31.7
LnGrp LOS	D	A	B	F	C	C	D	C	A	D	C	C
Approach Vol, veh/h		303			645			341			839	
Approach Delay, s/veh		25.7			26.8			25.5			32.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	21.7	5.5	32.0	8.0	24.8	11.6	25.9
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	13.6	14.6	5.0	33.1	5.0	23.4	9.6	28.5
Max Q Clear Time (g_c+I1), s	6.3	7.1	2.0	7.0	3.5	16.2	6.7	17.0
Green Ext Time (p_c), s	0.1	0.9	0.0	0.8	0.0	2.4	0.1	2.3

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	224	0	181	615	0	0	0	110	0	0	0
Future Volume (veh/h)	0	224	0	181	615	0	0	0	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	264	0	213	724	0	0	0	129			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	516		283	1318	0	0	0	0			
Arrive On Green	0.00	0.28	0.00	0.17	0.70	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	264	0	213	724	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	2.6	0.0	2.6	4.1	0.0						
Cycle Q Clear(g_c), s	0.0	2.6	0.0	2.6	4.1	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	516		283	1318	0						
V/C Ratio(X)	0.00	0.51		0.75	0.55	0.00						
Avail Cap(c_a), veh/h	0	2548		1111	2429	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	6.7	0.0	8.8	1.6	0.0						
Incr Delay (d2), s/veh	0.0	0.8	0.0	4.0	0.4	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	0.6	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.5	0.0	12.8	1.9	0.0						
LnGrp LOS	A	A		B	A	A						
Approach Vol, veh/h		264	A		937							
Approach Delay, s/veh		7.5			4.4							
Approach LOS		A			A							

Timer - Assigned Phs		3	4			8
Phs Duration (G+Y+Rc), s		9.4	12.6			22.0
Change Period (Y+Rc), s		5.8	* 6.5			6.5
Max Green Setting (Gmax), s		14.3	* 30			28.6
Max Q Clear Time (g_c+I1), s		4.6	4.6			6.1
Green Ext Time (p_c), s		0.4	1.5			4.4

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	314	121	0	465	187	1
Future Volume (veh/h)	314	121	0	465	187	1
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	345	133	0	511	205	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	663	786	0	1259	277	
Arrive On Green	0.35	0.35	0.00	0.35	0.16	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	345	133	0	511	205	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	3.3	1.0	0.0	2.4	2.6	0.0
Cycle Q Clear(g_c), s	3.3	1.0	0.0	2.4	2.6	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	663	786	0	1259	277	
V/C Ratio(X)	0.52	0.17	0.00	0.41	0.74	
Avail Cap(c_a), veh/h	2656	2408	0	5047	1367	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.8	2.9	0.0	5.5	9.0	0.0
Incr Delay (d2), s/veh	0.6	0.1	0.0	0.2	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.1	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.4	3.0	0.0	5.7	12.9	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	478			511	205	A
Approach Delay, s/veh	5.4			5.7	12.9	
Approach LOS	A			A	B	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	14.2			14.2	8.3
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	32.0			32.0	18.0
Max Q Clear Time (g_c+I1), s	5.3			4.4	4.6
Green Ext Time (p_c), s	2.2			3.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	16	9	423	645	8
Future Vol, veh/h	7	16	9	423	645	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	8	18	10	470	717	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1212	722	726	0	-	0
Stage 1	722	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	201	427	877	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	199	427	877	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	877	-	417	-	-
HCM Lane V/C Ratio	0.011	-	0.061	-	-
HCM Control Delay (s)	9.2	-	14.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	7	437	11	3	658
Future Vol, veh/h	24	7	437	11	3	658
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	8	486	12	3	731

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1229	492	0	0	498	0
Stage 1	492	-	-	-	-	-
Stage 2	737	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	196	577	-	-	1066	-
Stage 1	615	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	195	577	-	-	1066	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	471	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	229	1066	-
HCM Lane V/C Ratio	-	-	0.15	0.003	-
HCM Control Delay (s)	-	-	23.5	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	403	135	365	868	138	127	252	118	99	514	84
Future Volume (veh/h)	93	403	135	365	868	138	127	252	118	99	514	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	101	438	147	397	943	150	138	274	128	108	559	91
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	183	1222	379	505	1153	523	172	769	357	137	725	318
Arrive On Green	0.06	0.25	0.25	0.15	0.34	0.34	0.10	0.23	0.23	0.08	0.21	0.21
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	101	438	147	397	943	150	138	274	128	108	559	91
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.4	5.9	6.5	8.8	20.4	5.7	6.4	5.4	5.4	4.9	12.3	4.1
Cycle Q Clear(g_c), s	2.4	5.9	6.5	8.8	20.4	5.7	6.4	5.4	5.4	4.9	12.3	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	183	1222	379	505	1153	523	172	769	357	137	725	318
V/C Ratio(X)	0.55	0.36	0.39	0.79	0.82	0.29	0.80	0.36	0.36	0.79	0.77	0.29
Avail Cap(c_a), veh/h	217	1314	408	785	1454	659	281	1037	482	283	1033	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	24.4	24.6	32.8	23.9	19.0	35.0	26.0	26.0	36.0	29.6	26.3
Incr Delay (d2), s/veh	2.6	0.2	0.6	2.9	3.0	0.3	8.5	0.3	0.6	9.5	2.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.0	2.1	3.5	7.4	1.8	2.9	2.1	1.9	2.3	4.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	24.6	25.3	35.7	26.9	19.3	43.5	26.3	26.6	45.4	31.9	26.8
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		686			1490			540			758	
Approach Delay, s/veh		26.9			28.5			30.8			33.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	23.7	17.4	26.7	12.8	22.7	10.3	33.9
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	13.2	* 24	18.1	21.7	* 13	24.1	5.3	34.5
Max Q Clear Time (g_c+I1), s	6.9	7.4	10.8	8.5	8.4	14.3	4.4	22.4
Green Ext Time (p_c), s	0.1	1.9	0.8	2.5	0.1	2.6	0.0	4.9

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	24.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	106	7	110	359	9	52	34	71	23	67	38
Future Vol, veh/h	20	106	7	110	359	9	52	34	71	23	67	38
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	131	9	136	443	11	64	42	88	28	83	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.5	35	12.4	11.9
HCM LOS	B	D	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	15%	23%	18%
Vol Thru, %	22%	80%	75%	52%
Vol Right, %	45%	5%	2%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	157	133	478	128
LT Vol	52	20	110	23
Through Vol	34	106	359	67
RT Vol	71	7	9	38
Lane Flow Rate	194	164	590	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.337	0.279	0.879	0.281
Departure Headway (Hd)	6.259	6.114	5.36	6.401
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	578	589	667	563
Service Time	4.267	4.128	3.448	4.42
HCM Lane V/C Ratio	0.336	0.278	0.885	0.281
HCM Control Delay	12.4	11.5	35	11.9
HCM Lane LOS	B	B	D	B
HCM 95th-tile Q	1.5	1.1	10.6	1.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	326	2	4	789	4	3
Future Vol, veh/h	326	2	4	789	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	375	2	5	907	5	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	377	0	1293	376
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	917	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1181	-	180	670
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	390	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1181	-	178	670
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	386	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	260	-	-	1181	-
HCM Lane V/C Ratio	0.031	-	-	0.004	-
HCM Control Delay (s)	19.3	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	263	63	128	729	61	82
Future Vol, veh/h	263	63	128	729	61	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	80	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	302	72	147	838	70	94

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	374	0	1470	338
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	1132	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1184	-	140	704
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	308	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1184	-	123	704
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	270	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	50.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	1184	-
HCM Lane V/C Ratio	0.702	-	-	0.124	-
HCM Control Delay (s)	50.1	-	-	8.5	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	4.6	-	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	284	60	276	456	49	191	97	157	63	113	119
Future Volume (veh/h)	70	284	60	276	456	49	191	97	157	63	113	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	302	64	294	485	52	203	103	167	67	120	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	110	469	98	497	775	83	262	452	383	104	272	231
Arrive On Green	0.06	0.17	0.17	0.14	0.25	0.25	0.15	0.24	0.24	0.06	0.15	0.15
Sat Flow, veh/h	1781	2810	587	3456	3111	332	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	74	182	184	294	265	272	203	103	167	67	120	127
Grp Sat Flow(s),veh/h/ln	1781	1706	1691	1728	1706	1736	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.2	5.5	5.6	4.4	7.6	7.7	6.0	2.4	4.9	2.0	3.2	4.1
Cycle Q Clear(g_c), s	2.2	5.5	5.6	4.4	7.6	7.7	6.0	2.4	4.9	2.0	3.2	4.1
Prop In Lane	1.00		0.35	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	285	282	497	425	433	262	452	383	104	272	231
V/C Ratio(X)	0.67	0.64	0.65	0.59	0.62	0.63	0.78	0.23	0.44	0.65	0.44	0.55
Avail Cap(c_a), veh/h	321	658	652	811	773	787	678	865	733	295	473	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	21.3	21.4	22.0	18.3	18.4	22.6	16.7	17.7	25.3	21.4	21.8
Incr Delay (d2), s/veh	7.0	2.4	2.6	1.1	1.5	1.5	4.9	0.3	0.8	6.6	1.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.0	2.1	1.7	2.8	2.9	2.5	0.9	1.7	1.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	23.7	24.0	23.1	19.8	19.9	27.5	17.0	18.5	31.9	22.6	23.8
LnGrp LOS	C	C	C	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		440			831			473			314	
Approach Delay, s/veh		25.3			21.0			22.0			25.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	19.1	13.0	15.0	13.2	13.8	8.5	19.5
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.1	25.4	12.9	21.2	20.9	* 14	9.9	* 25
Max Q Clear Time (g_c+I1), s	4.0	6.9	6.4	7.6	8.0	6.1	4.2	9.7
Green Ext Time (p_c), s	0.0	0.9	0.5	1.6	0.4	0.6	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	5	128	25	2	204
Future Vol, veh/h	119	5	128	25	2	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	6	156	30	2	249

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	424	171	0	0	186	0
Stage 1	171	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	587	873	-	-	1388	-
Stage 1	859	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	586	873	-	-	1388	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	594	1388	-
HCM Lane V/C Ratio	-	-	0.255	0.002	-
HCM Control Delay (s)	-	-	13.1	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	5	150	7	1	321
Future Vol, veh/h	33	5	150	7	1	321
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	6	174	8	1	373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	553	178	0	0	182	0
Stage 1	178	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	494	865	-	-	1393	-
Stage 1	853	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	494	865	-	-	1393	-
Mov Cap-2 Maneuver	494	-	-	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	694	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	524	1393	-
HCM Lane V/C Ratio	-	-	0.084	0.001	-
HCM Control Delay (s)	-	-	12.5	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

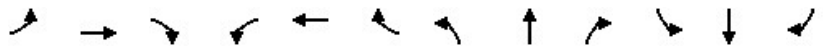
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	440	128	149	1103	13	199	130	110	10	216	117
Future Volume (veh/h)	27	440	128	149	1103	13	199	130	110	10	216	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	484	141	164	1212	14	219	143	121	11	237	129
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	1202	536	242	1344	600	258	535	454	24	290	245
Arrive On Green	0.03	0.34	0.34	0.07	0.38	0.38	0.14	0.29	0.29	0.01	0.15	0.15
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	30	484	141	164	1212	14	219	143	121	11	237	129
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	1.4	8.8	5.4	3.9	27.1	0.5	10.1	5.0	5.0	0.5	10.3	6.3
Cycle Q Clear(g_c), s	1.4	8.8	5.4	3.9	27.1	0.5	10.1	5.0	5.0	0.5	10.3	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	53	1202	536	242	1344	600	258	535	454	24	290	245
V/C Ratio(X)	0.56	0.40	0.26	0.68	0.90	0.02	0.85	0.27	0.27	0.46	0.82	0.53
Avail Cap(c_a), veh/h	106	1220	544	353	1414	631	322	615	521	106	389	329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	21.3	20.2	38.2	24.7	16.4	35.1	23.2	23.2	41.2	34.4	32.7
Incr Delay (d2), s/veh	9.0	0.2	0.3	3.3	8.0	0.0	15.9	0.3	0.3	13.0	9.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.2	1.8	1.6	11.2	0.2	5.1	2.0	1.7	0.3	5.1	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	21.6	20.5	41.6	32.7	16.4	51.0	23.5	23.5	54.3	44.2	34.5
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	D	C
Approach Vol, veh/h		655			1390			483			377	
Approach Delay, s/veh		22.6			33.6			36.0			41.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	30.6	11.7	35.0	18.0	19.5	8.3	38.4
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	2.5	7.0	5.9	10.8	12.1	12.3	3.4	29.1
Green Ext Time (p_c), s	0.0	0.9	0.1	3.0	0.2	0.7	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	20	2	80	97	137	1	328	28	59	380	34
Future Volume (veh/h)	7	20	2	80	97	137	1	328	28	59	380	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	23	2	92	111	157	1	377	32	68	437	39
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	218	185	138	343	291	4	836	71	115	577	489
Arrive On Green	0.01	0.12	0.12	0.08	0.18	0.18	0.00	0.25	0.25	0.06	0.31	0.31
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3317	280	1781	1870	1585
Grp Volume(v), veh/h	8	23	2	92	111	157	1	201	208	68	437	39
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1820	1781	1870	1585
Q Serve(g_s), s	0.2	0.5	0.0	2.2	2.2	3.9	0.0	4.1	4.2	1.6	9.1	0.8
Cycle Q Clear(g_c), s	0.2	0.5	0.0	2.2	2.2	3.9	0.0	4.1	4.2	1.6	9.1	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	19	218	185	138	343	291	4	448	459	115	577	489
V/C Ratio(X)	0.42	0.11	0.01	0.67	0.32	0.54	0.24	0.45	0.45	0.59	0.76	0.08
Avail Cap(c_a), veh/h	206	477	404	223	520	441	239	1071	1097	235	1127	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	17.0	16.8	19.4	15.3	16.0	21.5	13.6	13.6	19.6	13.5	10.6
Incr Delay (d2), s/veh	14.4	0.2	0.0	5.5	0.5	1.6	27.8	0.7	0.7	4.8	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.0	1.0	0.8	1.3	0.0	1.3	1.3	0.7	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	17.2	16.9	24.8	15.8	17.5	49.3	14.3	14.3	24.4	15.5	10.6
LnGrp LOS	D	B	B	C	B	B	D	B	B	C	B	B
Approach Vol, veh/h		33			360			410			544	
Approach Delay, s/veh		21.7			18.9			14.4			16.3	
Approach LOS		C			B			B			B	

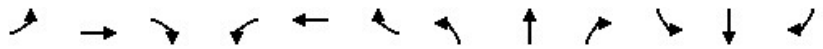
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	17.1	8.0	10.1	5.5	19.5	5.2	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.7	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.6	6.2	4.2	2.5	2.0	11.1	2.2	5.9
Green Ext Time (p_c), s	0.0	1.9	0.0	0.0	0.0	2.2	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	336	87	224	694	60	209	320	123	34	380	326
Future Volume (veh/h)	164	336	87	224	694	60	209	320	123	34	380	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	378	98	252	780	0	235	360	138	38	427	366
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	601	154	283	887		255	914	345	68	474	402
Arrive On Green	0.12	0.21	0.21	0.16	0.25	0.00	0.14	0.36	0.36	0.04	0.25	0.25
Sat Flow, veh/h	1781	2800	718	1781	3554	1585	1781	2523	952	1781	1870	1585
Grp Volume(v), veh/h	184	238	238	252	780	0	235	252	246	38	427	366
Grp Sat Flow(s),veh/h/ln	1781	1777	1741	1781	1777	1585	1781	1777	1699	1781	1870	1585
Q Serve(g_s), s	10.7	12.8	13.1	14.6	22.2	0.0	13.7	11.1	11.4	2.2	23.3	23.6
Cycle Q Clear(g_c), s	10.7	12.8	13.1	14.6	22.2	0.0	13.7	11.1	11.4	2.2	23.3	23.6
Prop In Lane	1.00		0.41	1.00		1.00	1.00		0.56	1.00		1.00
Lane Grp Cap(c), veh/h	214	381	374	283	887		255	644	615	68	474	402
V/C Ratio(X)	0.86	0.62	0.64	0.89	0.88		0.92	0.39	0.40	0.56	0.90	0.91
Avail Cap(c_a), veh/h	225	405	397	315	985		255	644	615	135	504	427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	37.5	37.6	43.4	38.0	0.0	44.5	24.9	25.0	49.8	38.0	38.2
Incr Delay (d2), s/veh	26.1	2.7	3.1	24.0	8.6	0.0	35.6	0.4	0.4	7.0	18.6	22.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	5.5	5.5	8.0	10.1	0.0	8.2	4.4	4.3	1.1	12.4	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	40.2	40.7	67.3	46.6	0.0	80.1	25.3	25.5	56.7	56.6	60.9
LnGrp LOS	E	D	D	E	D		F	C	C	E	E	E
Approach Vol, veh/h		660			1032	A		733			831	
Approach Delay, s/veh		49.1			51.7			43.0			58.5	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	44.7	22.1	29.1	20.9	33.2	18.4	32.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	8.6	35.6	18.6	24.0	15.1	* 28	13.3	* 29
Max Q Clear Time (g_c+I1), s	4.2	13.4	16.6	15.1	15.7	25.6	12.7	24.2
Green Ext Time (p_c), s	0.0	2.5	0.1	1.6	0.0	1.1	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	183	458	631	660	36
Future Volume (veh/h)	10	183	458	631	660	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	552	760	795	43
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	30		583	1610	836	45
Arrive On Green	0.02	0.00	0.33	0.86	0.48	0.48
Sat Flow, veh/h	1781	1585	1781	1870	1758	95
Grp Volume(v), veh/h	12	0	552	760	0	838
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1853
Q Serve(g_s), s	0.7	0.0	30.4	9.6	0.0	43.6
Cycle Q Clear(g_c), s	0.7	0.0	30.4	9.6	0.0	43.6
Prop In Lane	1.00	1.00	1.00			0.05
Lane Grp Cap(c), veh/h	30		583	1610	0	882
V/C Ratio(X)	0.40		0.95	0.47	0.00	0.95
Avail Cap(c_a), veh/h	106		623	1704	0	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.0	0.0	33.0	1.6	0.0	25.3
Incr Delay (d2), s/veh	8.2	0.0	22.9	0.2	0.0	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	15.5	0.1	0.0	20.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.2	0.0	55.9	1.9	0.0	43.4
LnGrp LOS	E		E	A	A	D
Approach Vol, veh/h	12	A		1312	838	
Approach Delay, s/veh	57.2			24.6	43.4	
Approach LOS	E			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.1		7.5	38.8	54.4
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		91.7		6.0	35.2	50.7
Max Q Clear Time (g_c+I1), s		11.6		2.7	32.4	45.6
Green Ext Time (p_c), s		5.3		0.0	0.6	2.3

Intersection Summary	
HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	308	3.0	346	3.0	0.736	16.3	LOS C	13.0	333.6	0.83	1.00	1.45	29.6
8	T1	357	3.0	401	3.0	0.736	16.3	LOS C	13.0	333.6	0.83	1.00	1.45	30.8
18	R2	4	3.0	4	3.0	0.736	16.3	LOS C	13.0	333.6	0.83	1.00	1.45	30.1
Approach		669	3.0	752	3.0	0.736	16.3	LOS C	13.0	333.6	0.83	1.00	1.45	30.2
East: Claratina Rd														
1	L2	17	3.0	19	3.0	0.982	60.2	LOS F	20.3	518.6	1.00	1.76	4.09	19.9
6	T1	463	3.0	520	3.0	0.982	60.2	LOS F	20.3	518.6	1.00	1.76	4.09	20.2
16	R2	19	3.0	21	3.0	0.982	60.2	LOS F	20.3	518.6	1.00	1.76	4.09	20.4
Approach		499	3.0	561	3.0	0.982	60.2	LOS F	20.3	518.6	1.00	1.76	4.09	20.2
North: Coffee Rd														
7	L2	11	3.0	12	3.0	0.841	34.0	LOS D	9.8	250.8	0.91	1.29	2.49	27.1
4	T1	439	3.0	493	3.0	0.841	34.0	LOS D	9.8	250.8	0.91	1.29	2.49	25.8
14	R2	44	3.0	49	3.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		494	3.0	555	3.0	0.841	30.9	LOS D	9.8	250.8	0.83	1.18	2.27	26.8
West: Claratina Rd														
5	L2	58	3.0	65	3.0	0.324	7.9	LOS A	1.4	36.1	0.59	0.58	0.59	36.6
2	T1	185	3.0	208	3.0	0.324	7.9	LOS A	1.4	36.1	0.59	0.58	0.59	36.8
12	R2	194	3.0	218	3.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		437	3.0	491	3.0	0.324	4.4	LOS A	1.4	36.1	0.33	0.32	0.33	38.1
All Vehicles		2099	3.0	2358	3.0	0.982	27.7	LOS D	20.3	518.6	0.77	1.08	2.04	27.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	41.5	30.2	37.9	25.0	31.4
Vehicles Entered	509	361	442	1185	2497
Vehicles Exited	508	360	441	1183	2492
Hourly Exit Rate	508	360	441	1183	2492
Input Volume	520	365	446	1235	2566
% of Volume	98	99	99	96	97
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0
Total Del/Veh (s)	18.9	11.4	10.8	14.6
Vehicles Entered	581	503	231	1315
Vehicles Exited	580	502	230	1312
Hourly Exit Rate	580	502	230	1312
Input Volume	595	502	228	1326
% of Volume	97	100	101	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	11.6	15.9	8.8
Vehicles Entered	668	690	124	1482
Vehicles Exited	667	691	124	1482
Hourly Exit Rate	667	691	124	1482
Input Volume	666	710	120	1496
% of Volume	100	97	103	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

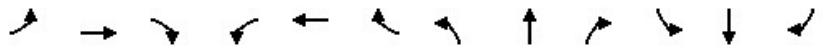
Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	613.6
Vehicles Entered	171
Vehicles Exited	114
Hourly Exit Rate	114
Input Volume	5388
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	185	433	108	108	12	119	517	123	57	592	34
Future Volume (veh/h)	24	185	433	108	108	12	119	517	123	57	592	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	201	308	117	117	13	129	562	134	62	643	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	413	350	149	505	428	165	815	194	109	870	50
Arrive On Green	0.03	0.22	0.22	0.08	0.27	0.27	0.09	0.29	0.29	0.06	0.25	0.25
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2848	677	1781	3415	196
Grp Volume(v), veh/h	26	201	308	117	117	13	129	350	346	62	334	346
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1749	1781	1777	1835
Q Serve(g_s), s	1.0	6.3	12.7	4.3	3.3	0.4	4.8	11.8	11.9	2.3	11.7	11.7
Cycle Q Clear(g_c), s	1.0	6.3	12.7	4.3	3.3	0.4	4.8	11.8	11.9	2.3	11.7	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.11
Lane Grp Cap(c), veh/h	61	413	350	149	505	428	165	509	500	109	453	468
V/C Ratio(X)	0.43	0.49	0.88	0.78	0.23	0.03	0.78	0.69	0.69	0.57	0.74	0.74
Avail Cap(c_a), veh/h	158	430	364	201	505	428	253	914	899	230	890	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	23.0	25.4	30.3	19.2	18.1	30.0	21.4	21.4	30.8	23.1	23.1
Incr Delay (d2), s/veh	4.6	0.9	20.8	13.2	0.2	0.0	8.4	1.7	1.7	4.6	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.5	6.1	2.2	1.2	0.1	2.2	4.4	4.4	1.0	4.5	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	23.9	46.3	43.5	19.4	18.2	38.3	23.1	23.2	35.4	25.5	25.4
LnGrp LOS	D	C	D	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		535			247			825			742	
Approach Delay, s/veh		37.4			30.8			25.5			26.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	25.5	11.1	21.4	11.6	23.4	7.7	24.7
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	8.7	34.7	7.6	15.5	9.6	33.8	6.0	17.1
Max Q Clear Time (g_c+I1), s	4.3	13.9	6.3	14.7	6.8	13.7	3.0	5.3
Green Ext Time (p_c), s	0.0	3.7	0.0	0.2	0.1	3.5	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C



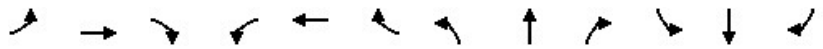
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	52	0	0	0	46	711	0	0	1183	25
Future Volume (veh/h)	22	0	52	0	0	0	46	711	0	0	1183	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	55	0	0	0	48	748	0	0	1245	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	2	69	0	119	0	85	1391	0	3	1098	23
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.05	0.74	0.00	0.00	0.60	0.60
Sat Flow, veh/h	423	31	1086	0	1870	0	1781	1870	0	1781	1825	38
Grp Volume(v), veh/h	78	0	0	0	0	0	48	748	0	0	0	1271
Grp Sat Flow(s),veh/h/ln	1540	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	0.0	1.4	9.2	0.0	0.0	0.0	32.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.0	0.0	0.0	1.4	9.2	0.0	0.0	0.0	32.5
Prop In Lane	0.29		0.71	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	185	0	0	0	119	0	85	1391	0	3	0	1121
V/C Ratio(X)	0.42	0.00	0.00	0.00	0.00	0.00	0.57	0.54	0.00	0.00	0.00	1.13
Avail Cap(c_a), veh/h	274	0	0	0	229	0	178	1391	0	178	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	0.0	0.0	0.0	25.2	3.0	0.0	0.0	0.0	10.8
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	5.8	0.4	0.0	0.0	0.0	71.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.0	0.0	0.0	29.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	0.0	0.0	0.0	0.0	31.0	3.4	0.0	0.0	0.0	82.3
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	F
Approach Vol, veh/h		78			0			796			1271	
Approach Delay, s/veh		26.5			0.0			5.0			82.3	
Approach LOS		C						A			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	46.0		8.0	7.7	38.3		8.0
Change Period (Y+Rc), s*	4.7	5.8		4.6	5.1	5.8		4.6
Max Green Setting (Gmax), s	5.4	32.9		6.6	5.4	32.5		6.6
Max Q Clear Time (g_c+I1), s	0.0	11.2		4.7	3.4	34.5		0.0
Green Ext Time (p_c), s	0.0	4.9		0.0	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	51.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	267	20	6	204	130	17	426	2	326	674	196
Future Volume (veh/h)	233	267	20	6	204	130	17	426	2	326	674	196
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	243	278	21	6	212	83	18	444	2	340	702	204
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	518	39	14	274	232	37	593	3	394	988	287
Arrive On Green	0.16	0.30	0.30	0.01	0.15	0.15	0.02	0.16	0.16	0.22	0.36	0.36
Sat Flow, veh/h	1781	1717	130	1781	1870	1585	1781	3628	16	1781	2716	789
Grp Volume(v), veh/h	243	0	299	6	212	83	18	217	229	340	459	447
Grp Sat Flow(s),veh/h/ln	1781	0	1847	1781	1870	1585	1781	1777	1867	1781	1777	1728
Q Serve(g_s), s	10.2	0.0	10.4	0.3	8.4	3.6	0.8	9.0	9.0	14.1	17.0	17.0
Cycle Q Clear(g_c), s	10.2	0.0	10.4	0.3	8.4	3.6	0.8	9.0	9.0	14.1	17.0	17.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.01	1.00		0.46
Lane Grp Cap(c), veh/h	290	0	557	14	274	232	37	290	305	394	646	629
V/C Ratio(X)	0.84	0.00	0.54	0.43	0.77	0.36	0.49	0.75	0.75	0.86	0.71	0.71
Avail Cap(c_a), veh/h	478	0	878	116	509	432	128	481	506	794	1146	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	22.3	37.9	31.5	29.5	37.2	30.6	30.6	28.8	21.0	21.0
Incr Delay (d2), s/veh	6.8	0.0	0.8	19.6	4.6	0.9	9.6	3.9	3.7	5.7	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	4.0	0.2	3.7	1.3	0.4	3.8	4.0	6.0	6.3	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	23.1	57.5	36.1	30.4	46.8	34.5	34.3	34.5	22.4	22.5
LnGrp LOS	D	A	C	E	D	C	D	C	C	C	C	C
Approach Vol, veh/h		542			301			464			1246	
Approach Delay, s/veh		29.8			35.0			34.9			25.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.4	18.7	6.0	29.6	7.0	34.1	17.9	17.8
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	34.3	20.8	5.0	36.5	5.5	49.5	20.6	20.9
Max Q Clear Time (g_c+I1), s	16.1	11.0	2.3	12.4	2.8	19.0	12.2	10.4
Green Ext Time (p_c), s	0.9	1.6	0.0	1.4	0.0	5.7	0.4	0.9

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	585	0	119	365	0	0	0	228	0	0	0
Future Volume (veh/h)	0	585	0	119	365	0	0	0	228	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	616	0	125	384	0	0	0	240			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	874		187	1452	0	0	0	0			
Arrive On Green	0.00	0.47	0.00	0.11	0.78	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	616	0	125	384	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	7.6	0.0	2.0	1.7	0.0						
Cycle Q Clear(g_c), s	0.0	7.6	0.0	2.0	1.7	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	874		187	1452	0						
V/C Ratio(X)	0.00	0.70		0.67	0.26	0.00						
Avail Cap(c_a), veh/h	0	1931		842	1841	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	6.1	0.0	12.4	0.9	0.0						
Incr Delay (d2), s/veh	0.0	1.1	0.0	4.1	0.1	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.0	0.6	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.2	0.0	16.5	1.0	0.0						
LnGrp LOS	A	A		B	A	A						
Approach Vol, veh/h		616	A		509							
Approach Delay, s/veh		7.2			4.8							
Approach LOS		A			A							

Timer - Assigned Phs		3	4				8		
Phs Duration (G+Y+Rc), s		9.0	20.1				29.1		
Change Period (Y+Rc), s		5.8	* 6.5				6.5		
Max Green Setting (Gmax), s		14.3	* 30				28.6		
Max Q Clear Time (g_c+I1), s		4.0	9.6				3.7		
Green Ext Time (p_c), s		0.2	4.0				1.9		

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	436	209	0	710	120	0
Future Volume (veh/h)	436	209	0	710	120	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	459	220	0	747	126	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	808	837	0	1535	202	
Arrive On Green	0.43	0.43	0.00	0.43	0.12	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	459	220	0	747	126	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	4.5	1.8	0.0	3.7	1.7	0.0
Cycle Q Clear(g_c), s	4.5	1.8	0.0	3.7	1.7	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	808	837	0	1535	202	
V/C Ratio(X)	0.57	0.26	0.00	0.49	0.62	
Avail Cap(c_a), veh/h	2471	2191	0	4695	1271	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.2	2.9	0.0	4.9	10.2	0.0
Incr Delay (d2), s/veh	0.6	0.2	0.0	0.2	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.8	3.0	0.0	5.2	13.3	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	679			747	126	A
Approach Delay, s/veh	4.9			5.2	13.3	
Approach LOS	A			A	B	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	16.7			16.7	7.6
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	32.0			32.0	18.0
Max Q Clear Time (g_c+I1), s	6.5			5.7	3.7
Green Ext Time (p_c), s	3.3			4.8	0.3

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	11	20	634	835	5
Future Vol, veh/h	5	11	20	634	835	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	5	12	21	667	879	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1591	882	884	0	-	0
Stage 1	882	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	118	345	765	-	-	-
Stage 1	405	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	345	765	-	-	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	394	-	-	-	-	-
Stage 2	488	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	765	-	333	-	-
HCM Lane V/C Ratio	0.028	-	0.051	-	-
HCM Control Delay (s)	9.8	-	16.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	2	668	28	6	830
Future Vol, veh/h	18	2	668	28	6	830
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	19	2	718	30	6	892

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1637	733	0	0	748	0
Stage 1	733	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	111	421	-	-	861	-
Stage 1	475	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	421	-	-	861	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	389	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.2	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	118	861	-
HCM Lane V/C Ratio	-	-	0.182	0.007	-
HCM Control Delay (s)	-	-	42.2	9.2	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	873	186	161	610	90	197	495	393	313	552	95
Future Volume (veh/h)	121	873	186	161	610	90	197	495	393	313	552	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	129	929	198	171	649	96	210	527	258	333	587	101
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	195	1127	350	244	821	372	246	720	334	371	987	433
Arrive On Green	0.06	0.23	0.23	0.07	0.24	0.24	0.15	0.21	0.21	0.22	0.29	0.29
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	129	929	198	171	649	96	210	527	258	333	587	101
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	3.4	16.0	10.2	4.2	15.9	4.5	10.7	12.6	13.4	16.6	12.9	4.5
Cycle Q Clear(g_c), s	3.4	16.0	10.2	4.2	15.9	4.5	10.7	12.6	13.4	16.6	12.9	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	1127	350	244	821	372	246	720	334	371	987	433
V/C Ratio(X)	0.66	0.82	0.57	0.70	0.79	0.26	0.85	0.73	0.77	0.90	0.59	0.23
Avail Cap(c_a), veh/h	306	1239	385	284	824	374	323	970	451	441	1192	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	31.9	29.6	39.8	31.0	26.7	36.5	32.3	32.6	33.4	26.7	23.7
Incr Delay (d2), s/veh	3.8	4.3	1.6	6.2	5.2	0.4	15.6	1.9	5.7	18.8	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.1	3.5	1.9	6.4	1.5	5.3	5.2	5.2	8.3	4.9	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	36.2	31.2	46.0	36.2	27.0	52.1	34.2	38.3	52.2	27.3	24.0
LnGrp LOS	D	D	C	D	D	C	D	C	D	D	C	C
Approach Vol, veh/h		1256			916			995			1021	
Approach Delay, s/veh		36.2			37.1			39.0			35.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.4	24.3	12.0	27.0	17.5	31.1	11.0	27.9
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	22.6	* 25	7.2	22.5	* 17	30.6	8.2	21.5
Max Q Clear Time (g_c+I1), s	18.6	15.4	6.2	18.0	12.7	14.9	5.4	17.9
Green Ext Time (p_c), s	0.4	3.0	0.0	2.5	0.2	3.5	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	318	11	87	200	13	7	57	84	22	34	20
Future Vol, veh/h	21	318	11	87	200	13	7	57	84	22	34	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	331	11	91	208	14	7	59	88	23	35	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.3	12.3	10.2	9.8
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	6%	29%	29%
Vol Thru, %	39%	91%	67%	45%
Vol Right, %	57%	3%	4%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	148	350	300	76
LT Vol	7	21	87	22
Through Vol	57	318	200	34
RT Vol	84	11	13	20
Lane Flow Rate	154	365	313	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.234	0.511	0.447	0.129
Departure Headway (Hd)	5.465	5.043	5.146	5.849
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	657	715	700	612
Service Time	3.507	3.074	3.179	3.897
HCM Lane V/C Ratio	0.234	0.51	0.447	0.129
HCM Control Delay	10.2	13.3	12.3	9.8
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	0.9	2.9	2.3	0.4

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	798	6	8	482	3	11
Future Vol, veh/h	798	6	8	482	3	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	840	6	8	507	3	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	846	0	1366	843
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	523	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	791	-	162	364
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	595	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	791	-	160	364
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	422	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	286	-	-	791	-
HCM Lane V/C Ratio	0.052	-	-	0.011	-
HCM Control Delay (s)	18.3	-	-	9.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	711	100	68	455	39	121
Future Vol, veh/h	711	100	68	455	39	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	80	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	765	108	73	489	42	130

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	873	0	1454	819
Stage 1	-	-	-	-	819	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	773	-	143	375
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	773	-	130	375
Mov Cap-2 Maneuver	-	-	-	-	130	-
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	478	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	43.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	257	-	-	773	-
HCM Lane V/C Ratio	0.669	-	-	0.095	-
HCM Control Delay (s)	43.4	-	-	10.1	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	4.3	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	540	187	388	348	36	112	103	246	91	95	44
Future Volume (veh/h)	139	540	187	388	348	36	112	103	246	91	95	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	146	568	197	408	366	38	118	108	259	96	100	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	186	707	244	510	1022	105	188	339	287	123	259	220
Arrive On Green	0.10	0.28	0.28	0.15	0.33	0.33	0.11	0.18	0.18	0.07	0.14	0.14
Sat Flow, veh/h	1781	2487	860	3456	3122	322	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	146	389	376	408	199	205	118	108	259	96	100	46
Grp Sat Flow(s),veh/h/ln	1781	1706	1641	1728	1706	1738	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.4	14.2	14.3	7.7	6.0	6.1	4.3	3.4	10.8	3.6	3.3	1.7
Cycle Q Clear(g_c), s	5.4	14.2	14.3	7.7	6.0	6.1	4.3	3.4	10.8	3.6	3.3	1.7
Prop In Lane	1.00		0.52	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	186	485	466	510	558	569	188	339	287	123	259	220
V/C Ratio(X)	0.78	0.80	0.81	0.80	0.36	0.36	0.63	0.32	0.90	0.78	0.39	0.21
Avail Cap(c_a), veh/h	325	623	600	575	613	625	214	339	287	175	306	259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	22.3	22.4	27.7	17.2	17.3	28.8	24.0	27.0	30.8	26.4	25.7
Incr Delay (d2), s/veh	7.1	5.8	6.2	7.1	0.4	0.4	4.6	0.5	29.3	13.3	0.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	5.7	5.6	3.5	2.2	2.3	1.9	1.4	6.1	1.9	1.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	28.2	28.6	34.9	17.6	17.7	33.4	24.5	56.3	44.1	27.3	26.2
LnGrp LOS	D	C	C	C	B	B	C	C	E	D	C	C
Approach Vol, veh/h		911			812			485			242	
Approach Delay, s/veh		29.7			26.3			43.6			33.8	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	18.0	15.0	24.9	12.2	15.1	12.1	27.8
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 6.6	12.2	11.2	24.6	8.1	* 11	12.3	* 24
Max Q Clear Time (g_c+I1), s	5.6	12.8	9.7	16.3	6.3	5.3	7.4	8.1
Green Ext Time (p_c), s	0.0	0.0	0.3	2.8	0.0	0.3	0.1	2.0

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	4	153	120	33	146
Future Vol, veh/h	71	4	153	120	33	146
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	5	174	136	38	166

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	484	242	0	0	310	0
Stage 1	242	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	542	797	-	-	1250	-
Stage 1	798	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	797	-	-	1250	-
Mov Cap-2 Maneuver	524	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	534	1250	-
HCM Lane V/C Ratio	-	-	0.16	0.03	-
HCM Control Delay (s)	-	-	13	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	271	15	10	210
Future Vol, veh/h	22	4	271	15	10	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	5	308	17	11	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	578	317	0	0	325	0
Stage 1	317	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	478	724	-	-	1235	-
Stage 1	738	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	473	724	-	-	1235	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	500	1235	-
HCM Lane V/C Ratio	-	-	0.059	0.009	-
HCM Control Delay (s)	-	-	12.7	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

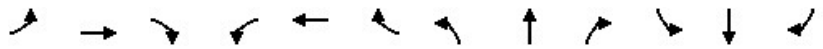
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	1154	342	138	673	6	163	188	169	14	151	40
Future Volume (veh/h)	113	1154	342	138	673	6	163	188	169	14	151	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	1241	368	148	724	6	175	202	182	15	162	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	1329	593	230	1334	595	216	412	349	32	218	185
Arrive On Green	0.07	0.37	0.37	0.07	0.38	0.38	0.12	0.22	0.22	0.02	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	122	1241	368	148	724	6	175	202	182	15	162	43
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	25.7	14.5	3.2	12.2	0.2	7.3	7.2	7.7	0.6	6.4	1.9
Cycle Q Clear(g_c), s	5.0	25.7	14.5	3.2	12.2	0.2	7.3	7.2	7.7	0.6	6.4	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1329	593	230	1334	595	216	412	349	32	218	185
V/C Ratio(X)	1.05	0.93	0.62	0.64	0.54	0.01	0.81	0.49	0.52	0.47	0.74	0.23
Avail Cap(c_a), veh/h	116	1341	598	388	1555	693	354	677	573	116	427	362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	23.0	19.5	34.9	18.8	15.0	32.8	26.1	26.3	37.2	32.7	30.7
Incr Delay (d2), s/veh	97.2	12.0	1.9	3.0	0.3	0.0	7.0	0.9	1.2	10.5	4.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	11.1	4.8	1.3	4.3	0.1	3.3	2.9	2.7	0.3	2.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.9	35.0	21.5	37.9	19.1	15.0	39.8	27.0	27.5	47.7	37.6	31.3
LnGrp LOS	F	D	C	D	B	B	D	C	C	D	D	C
Approach Vol, veh/h		1731			878			559			220	
Approach Delay, s/veh		39.0			22.2			31.2			37.1	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	23.4	10.9	35.1	15.1	15.4	10.8	35.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	2.6	9.7	5.2	27.7	9.3	8.4	7.0	14.2
Green Ext Time (p_c), s	0.0	1.4	0.1	0.9	0.2	0.5	0.0	4.1

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	111	10	56	37	91	17	505	96	113	452	21
Future Volume (veh/h)	30	111	10	56	37	91	17	505	96	113	452	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	119	11	60	40	98	18	543	103	122	486	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	269	228	102	309	262	40	806	152	156	616	522
Arrive On Green	0.04	0.14	0.14	0.06	0.17	0.17	0.02	0.27	0.27	0.09	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2982	564	1781	1870	1585
Grp Volume(v), veh/h	32	119	11	60	40	98	18	323	323	122	486	23
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1769	1781	1870	1585
Q Serve(g_s), s	0.8	2.8	0.3	1.6	0.9	2.6	0.5	7.8	7.8	3.2	11.3	0.5
Cycle Q Clear(g_c), s	0.8	2.8	0.3	1.6	0.9	2.6	0.5	7.8	7.8	3.2	11.3	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	64	269	228	102	309	262	40	480	478	156	616	522
V/C Ratio(X)	0.50	0.44	0.05	0.59	0.13	0.37	0.45	0.67	0.68	0.78	0.79	0.04
Avail Cap(c_a), veh/h	186	430	364	201	469	397	216	965	961	212	1016	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	18.7	17.7	22.0	17.0	17.8	23.1	15.6	15.6	21.4	14.5	10.9
Incr Delay (d2), s/veh	5.8	1.1	0.1	5.2	0.2	0.9	7.9	1.6	1.7	12.3	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.1	0.7	0.3	0.9	0.3	2.5	2.6	1.7	3.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	19.9	17.8	27.3	17.2	18.7	31.0	17.2	17.3	33.7	16.8	11.0
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		162			198			664			631	
Approach Delay, s/veh		21.4			21.0			17.6			19.9	
Approach LOS		C			C			B			B	

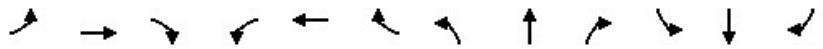
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	19.1	7.4	12.0	6.5	22.0	6.4	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	5.2	9.8	3.6	4.8	2.5	13.3	2.8	4.6
Green Ext Time (p_c), s	0.0	3.1	0.0	0.3	0.0	2.3	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	825	191	232	522	64	115	454	201	66	289	182
Future Volume (veh/h)	316	825	191	232	522	64	115	454	201	66	289	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	851	197	239	538	0	119	468	207	68	298	188
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	363	949	220	241	916		148	541	238	95	358	303
Arrive On Green	0.20	0.33	0.33	0.14	0.26	0.00	0.08	0.23	0.23	0.05	0.19	0.19
Sat Flow, veh/h	1781	2865	663	1781	3554	1585	1781	2402	1055	1781	1870	1585
Grp Volume(v), veh/h	326	528	520	239	538	0	119	345	330	68	298	188
Grp Sat Flow(s),veh/h/ln	1781	1777	1751	1781	1777	1585	1781	1777	1680	1781	1870	1585
Q Serve(g_s), s	16.6	26.4	26.4	12.5	12.4	0.0	6.1	17.4	17.6	3.5	14.3	10.2
Cycle Q Clear(g_c), s	16.6	26.4	26.4	12.5	12.4	0.0	6.1	17.4	17.6	3.5	14.3	10.2
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	363	588	580	241	916		148	401	379	95	358	303
V/C Ratio(X)	0.90	0.90	0.90	0.99	0.59		0.80	0.86	0.87	0.72	0.83	0.62
Avail Cap(c_a), veh/h	443	634	625	241	916		157	451	427	126	441	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	29.7	29.7	40.3	30.3	0.0	42.0	34.7	34.8	43.5	36.3	34.6
Incr Delay (d2), s/veh	18.2	14.9	15.1	56.1	1.0	0.0	24.4	14.4	16.1	12.2	10.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	12.4	12.3	8.9	5.0	0.0	3.5	8.5	8.3	1.8	7.2	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	44.5	44.8	96.4	31.3	0.0	66.4	49.1	50.9	55.6	47.1	36.7
LnGrp LOS	D	D	D	F	C		E	D	D	E	D	D
Approach Vol, veh/h		1374			777	A		794			554	
Approach Delay, s/veh		46.9			51.3			52.5			44.6	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	27.5	18.0	37.4	13.6	24.3	24.8	30.6
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	5.6	23.7	12.6	33.3	8.2	* 22	23.2	* 23
Max Q Clear Time (g_c+I1), s	5.5	19.6	14.5	28.4	8.1	16.3	18.6	14.4
Green Ext Time (p_c), s	0.0	1.4	0.0	2.5	0.0	1.1	0.4	2.0

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	471	202	740	690	33
Future Volume (veh/h)	30	471	202	740	690	33
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	0	213	779	726	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	75		266	1365	838	40
Arrive On Green	0.04	0.00	0.15	0.73	0.47	0.47
Sat Flow, veh/h	1781	1585	1781	1870	1770	85
Grp Volume(v), veh/h	32	0	213	779	0	761
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1855
Q Serve(g_s), s	0.9	0.0	6.2	10.4	0.0	19.8
Cycle Q Clear(g_c), s	0.9	0.0	6.2	10.4	0.0	19.8
Prop In Lane	1.00	1.00	1.00			0.05
Lane Grp Cap(c), veh/h	75		266	1365	0	878
V/C Ratio(X)	0.42		0.80	0.57	0.00	0.87
Avail Cap(c_a), veh/h	198		369	1790	0	1192
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	22.2	3.4	0.0	12.7
Incr Delay (d2), s/veh	3.7	0.0	8.4	0.4	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.7	0.2	0.0	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.0	0.0	30.6	3.8	0.0	18.0
LnGrp LOS	C		C	A	A	B
Approach Vol, veh/h	32	A		992	761	
Approach Delay, s/veh	29.0			9.5	18.0	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.9		8.1	13.9	32.1
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		51.7		6.0	11.2	34.7
Max Q Clear Time (g_c+I1), s		12.4		2.9	8.2	21.8
Green Ext Time (p_c), s		5.4		0.0	0.2	3.8

Intersection Summary		
HCM 6th Ctrl Delay		13.5
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	228	3.0	235	3.0	0.972	49.7	LOS E	27.1	693.4	1.00	2.01	3.83	20.8
8	T1	466	3.0	480	3.0	0.972	49.7	LOS E	27.1	693.4	1.00	2.01	3.83	21.4
18	R2	13	3.0	13	3.0	0.972	49.7	LOS E	27.1	693.4	1.00	2.01	3.83	21.1
Approach		707	3.0	729	3.0	0.972	49.7	LOS E	27.1	693.4	1.00	2.01	3.83	21.2
East: Claratina Rd														
1	L2	16	3.0	16	3.0	0.432	13.0	LOS B	2.3	58.2	0.74	0.80	1.01	33.8
6	T1	216	3.0	223	3.0	0.432	13.0	LOS B	2.3	58.2	0.74	0.80	1.01	34.6
16	R2	12	3.0	12	3.0	0.432	13.0	LOS B	2.3	58.2	0.74	0.80	1.01	35.3
Approach		244	3.0	252	3.0	0.432	13.0	LOS B	2.3	58.2	0.74	0.80	1.01	34.6
North: Coffee Rd														
7	L2	71	3.0	73	3.0	0.676	15.5	LOS C	7.6	195.7	0.79	0.98	1.44	34.5
4	T1	511	3.0	527	3.0	0.676	15.5	LOS C	7.6	195.7	0.79	0.98	1.44	32.4
14	R2	64	3.0	66	3.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		646	3.0	666	3.0	0.676	13.9	LOS B	7.6	195.7	0.71	0.89	1.30	33.6
West: Claratina Rd														
5	L2	75	3.0	77	3.0	0.626	15.3	LOS C	5.4	137.3	0.78	0.97	1.37	32.9
2	T1	395	3.0	407	3.0	0.626	15.3	LOS C	5.4	137.3	0.78	0.97	1.37	33.1
12	R2	229	3.0	236	3.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		699	3.0	721	3.0	0.626	10.3	LOS B	5.4	137.3	0.52	0.65	0.92	35.0
All Vehicles		2296	3.0	2367	3.0	0.972	23.7	LOS C	27.1	693.4	0.75	1.15	1.93	28.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	33.3	29.8	36.7	26.3	30.0
Vehicles Entered	360	850	371	962	2543
Vehicles Exited	359	848	371	959	2537
Hourly Exit Rate	359	848	371	959	2537
Input Volume	358	839	372	951	2521
% of Volume	100	101	100	101	101
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.1
Total Del/Veh (s)	17.3	19.0	8.1	17.3
Vehicles Entered	392	1188	223	1803
Vehicles Exited	392	1187	223	1802
Hourly Exit Rate	392	1187	223	1802
Input Volume	389	1176	220	1786
% of Volume	101	101	101	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	12.9	15.7	10.4
Vehicles Entered	609	528	317	1454
Vehicles Exited	609	528	318	1455
Hourly Exit Rate	609	528	318	1455
Input Volume	607	530	318	1456
% of Volume	100	100	100	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

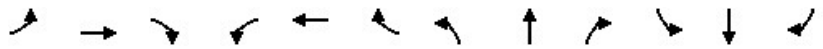
Total Zone Performance

Denied Del/Veh (s)	1.4
Total Del/Veh (s)	551.7
Vehicles Entered	202
Vehicles Exited	156
Hourly Exit Rate	156
Input Volume	5762
% of Volume	3
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	83	159	153	167	21	255	460	61	14	524	29
Future Volume (veh/h)	22	83	159	153	167	21	255	460	61	14	524	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	90	10	166	182	23	277	500	66	15	570	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	391	43	207	383	325	322	1216	160	39	773	43
Arrive On Green	0.03	0.12	0.12	0.12	0.20	0.20	0.18	0.39	0.39	0.02	0.23	0.23
Sat Flow, veh/h	1781	3230	353	1781	1870	1585	1781	3157	415	1781	3421	192
Grp Volume(v), veh/h	24	49	51	166	182	23	277	281	285	15	296	306
Grp Sat Flow(s),veh/h/ln	1781	1777	1807	1781	1870	1585	1781	1777	1796	1781	1777	1836
Q Serve(g_s), s	0.9	1.6	1.7	6.0	5.7	0.8	10.0	7.6	7.7	0.5	10.2	10.2
Cycle Q Clear(g_c), s	0.9	1.6	1.7	6.0	5.7	0.8	10.0	7.6	7.7	0.5	10.2	10.2
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.23	1.00		0.10
Lane Grp Cap(c), veh/h	58	215	218	207	383	325	322	684	691	39	402	415
V/C Ratio(X)	0.42	0.23	0.23	0.80	0.48	0.07	0.86	0.41	0.41	0.39	0.74	0.74
Avail Cap(c_a), veh/h	162	215	219	259	383	325	340	886	895	162	708	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	26.2	26.3	28.4	23.1	21.2	26.2	14.8	14.8	31.8	23.7	23.7
Incr Delay (d2), s/veh	4.7	0.5	0.5	13.4	0.9	0.1	18.7	0.4	0.4	6.1	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.7	3.0	2.2	0.3	5.4	2.6	2.6	0.3	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	26.8	26.8	41.8	24.0	21.3	45.0	15.2	15.2	38.0	26.4	26.3
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		124			371			843			617	
Approach Delay, s/veh		28.6			31.8			25.0			26.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	31.6	13.1	14.5	17.3	21.1	7.5	20.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	32.9	9.6	8.0	12.6	26.3	6.0	11.6
Max Q Clear Time (g_c+I1), s	2.5	9.7	8.0	3.7	12.0	12.2	2.9	7.7
Green Ext Time (p_c), s	0.0	3.0	0.1	0.1	0.1	2.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C



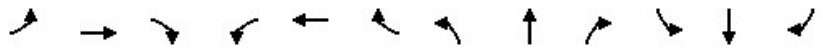
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	38	0	0	0	28	770	0	0	913	15
Future Volume (veh/h)	20	0	38	0	0	0	28	770	0	0	913	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	0	42	0	0	0	31	856	0	0	1014	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	0	59	0	110	0	62	1375	0	4	1099	18
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.74	0.00	0.00	0.60	0.60
Sat Flow, veh/h	524	0	1000	0	1870	0	1781	1870	0	1781	1834	31
Grp Volume(v), veh/h	64	0	0	0	0	0	31	856	0	0	0	1031
Grp Sat Flow(s),veh/h/ln	1523	0	0	0	1870	0	1781	1870	0	1781	0	1865
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	0.9	11.3	0.0	0.0	0.0	25.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	0.0	0.0	0.0	0.9	11.3	0.0	0.0	0.0	25.0
Prop In Lane	0.34		0.66	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	185	0	0	0	110	0	62	1375	0	4	0	1118
V/C Ratio(X)	0.35	0.00	0.00	0.00	0.00	0.00	0.50	0.62	0.00	0.00	0.00	0.92
Avail Cap(c_a), veh/h	295	0	0	0	245	0	191	1375	0	176	0	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	0.0	0.0	0.0	0.0	23.9	3.3	0.0	0.0	0.0	9.1
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	0.0	6.1	0.9	0.0	0.0	0.0	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.0	0.0	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	0.0	0.0	0.0	30.0	4.1	0.0	0.0	0.0	20.3
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	C
Approach Vol, veh/h		64			0			887			1031	
Approach Delay, s/veh		24.5			0.0			5.0			20.3	
Approach LOS		C						A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	42.9		7.6	6.9	36.1		7.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.8	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	13.3		4.1	2.9	27.0		0.0				
Green Ext Time (p_c), s	0.0	5.8		0.0	0.0	3.3		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	189	37	12	459	361	33	315	10	180	440	279
Future Volume (veh/h)	133	189	37	12	459	361	33	315	10	180	440	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	215	42	14	522	353	38	358	11	205	500	317
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	606	118	30	582	493	63	584	18	243	559	353
Arrive On Green	0.10	0.40	0.40	0.02	0.31	0.31	0.04	0.17	0.17	0.14	0.27	0.27
Sat Flow, veh/h	1781	1520	297	1781	1870	1585	1781	3520	108	1781	2089	1321
Grp Volume(v), veh/h	151	0	257	14	522	353	38	180	189	205	425	392
Grp Sat Flow(s),veh/h/ln	1781	0	1817	1781	1870	1585	1781	1777	1851	1781	1777	1633
Q Serve(g_s), s	6.9	0.0	8.3	0.6	22.2	16.4	1.8	7.8	7.9	9.3	19.2	19.3
Cycle Q Clear(g_c), s	6.9	0.0	8.3	0.6	22.2	16.4	1.8	7.8	7.9	9.3	19.2	19.3
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.06	1.00		0.81
Lane Grp Cap(c), veh/h	185	0	724	30	582	493	63	295	307	243	475	437
V/C Ratio(X)	0.81	0.00	0.35	0.47	0.90	0.72	0.61	0.61	0.61	0.84	0.89	0.90
Avail Cap(c_a), veh/h	205	0	724	107	640	543	107	312	325	295	499	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	17.5	40.6	27.4	25.4	39.6	32.2	32.2	35.1	29.4	29.4
Incr Delay (d2), s/veh	20.1	0.0	0.3	11.3	14.6	4.0	9.1	3.2	3.1	16.7	17.9	19.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	3.0	0.4	11.0	6.0	0.9	3.4	3.5	4.9	9.7	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	0.0	17.8	51.8	42.0	29.4	48.7	35.4	35.4	51.7	47.2	48.9
LnGrp LOS	E	A	B	D	D	C	D	D	D	D	D	D
Approach Vol, veh/h		408			889			407			1022	
Approach Delay, s/veh		32.2			37.2			36.6			48.8	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	20.0	6.8	39.7	8.3	28.5	14.1	32.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	13.8	14.6	5.0	33.1	5.0	23.4	9.6	28.5
Max Q Clear Time (g_c+I1), s	11.3	9.9	2.6	10.3	3.8	21.3	8.9	24.2
Green Ext Time (p_c), s	0.1	0.8	0.0	1.2	0.0	1.0	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	389	0	307	829	0	0	0	208	0	0	0
Future Volume (veh/h)	0	389	0	307	829	0	0	0	208	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	458	0	361	975	0	0	0	245			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	665		453	1495	0	0	0	0			
Arrive On Green	0.00	0.36	0.00	0.26	0.80	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	458	0	361	975	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	6.8	0.0	6.4	7.1	0.0						
Cycle Q Clear(g_c), s	0.0	6.8	0.0	6.4	7.1	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	665		453	1495	0						
V/C Ratio(X)	0.00	0.69		0.80	0.65	0.00						
Avail Cap(c_a), veh/h	0	1732		755	1651	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	8.9	0.0	11.1	1.4	0.0						
Incr Delay (d2), s/veh	0.0	1.3	0.0	3.2	0.8	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	1.9	0.0	1.6	0.3	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.2	0.0	14.3	2.2	0.0						
LnGrp LOS	A	B		B	A	A						
Approach Vol, veh/h		458	A		1336							
Approach Delay, s/veh		10.2			5.5							
Approach LOS		B			A							

Timer - Assigned Phs		3	4				8				
Phs Duration (G+Y+Rc), s		14.4	18.0				32.4				
Change Period (Y+Rc), s		5.8	* 6.5				6.5				
Max Green Setting (Gmax), s		14.3	* 30				28.6				
Max Q Clear Time (g_c+I1), s		8.4	8.8				9.1				
Green Ext Time (p_c), s		0.6	2.7				6.6				

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	371	219	0	530	313	1
Future Volume (veh/h)	371	219	0	530	313	1
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	408	241	0	582	344	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	663	944	0	1261	454	
Arrive On Green	0.35	0.35	0.00	0.35	0.27	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	408	241	0	582	344	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	5.2	2.1	0.0	3.6	5.3	0.0
Cycle Q Clear(g_c), s	5.2	2.1	0.0	3.6	5.3	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	663	944	0	1261	454	
V/C Ratio(X)	0.61	0.26	0.00	0.46	0.76	
Avail Cap(c_a), veh/h	2086	2102	0	3964	1073	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.6	2.5	0.0	7.1	9.7	0.0
Incr Delay (d2), s/veh	0.9	0.1	0.0	0.3	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.4	0.0	0.5	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.6	2.6	0.0	7.4	12.3	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	649			582	344	A
Approach Delay, s/veh	6.4			7.4	12.3	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	16.4				16.4	12.3
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	32.0				32.0	18.0
Max Q Clear Time (g_c+I1), s	7.2				5.6	7.3
Green Ext Time (p_c), s	3.0				3.6	0.8

Intersection Summary		
HCM 6th Ctrl Delay	8.0	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	16	9	570	827	17
Future Vol, veh/h	16	16	9	570	827	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	18	18	10	633	919	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1582	929	938	0	-	0
Stage 1	929	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	120	324	730	-	-	-
Stage 1	385	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	324	730	-	-	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	380	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	730	-	316	-	-
HCM Lane V/C Ratio	0.014	-	0.113	-	-
HCM Control Delay (s)	10	-	17.8	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	7	584	16	3	840
Future Vol, veh/h	30	7	584	16	3	840
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	33	8	649	18	3	933

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1597	658	0	0	667	0
Stage 1	658	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	117	464	-	-	923	-
Stage 1	515	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	464	-	-	923	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.9	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	135	923	-
HCM Lane V/C Ratio	-	-	0.305	0.004	-
HCM Control Delay (s)	-	-	42.9	8.9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	414	135	378	881	139	127	352	131	99	637	148
Future Volume (veh/h)	143	414	135	378	881	139	127	352	131	99	637	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	155	450	147	411	958	151	138	383	142	108	692	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	198	1208	375	507	1130	512	170	868	403	137	823	361
Arrive On Green	0.06	0.25	0.25	0.15	0.34	0.34	0.10	0.25	0.25	0.08	0.24	0.24
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	155	450	147	411	958	151	138	383	142	108	692	161
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	4.1	6.7	7.1	10.1	23.2	6.4	7.0	8.2	6.4	5.4	16.9	8.0
Cycle Q Clear(g_c), s	4.1	6.7	7.1	10.1	23.2	6.4	7.0	8.2	6.4	5.4	16.9	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	1208	375	507	1130	512	170	868	403	137	823	361
V/C Ratio(X)	0.78	0.37	0.39	0.81	0.85	0.29	0.81	0.44	0.35	0.79	0.84	0.45
Avail Cap(c_a), veh/h	198	1208	375	715	1324	600	256	944	439	258	940	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	27.1	27.2	36.1	26.9	21.4	38.5	27.4	26.7	39.5	31.6	28.2
Incr Delay (d2), s/veh	18.3	0.2	0.7	4.8	4.7	0.3	11.3	0.4	0.5	9.8	6.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.4	2.4	4.2	8.9	2.1	3.3	3.3	2.3	2.5	7.2	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	27.3	27.9	40.9	31.6	21.7	49.8	27.7	27.2	49.3	37.8	29.1
LnGrp LOS	E	C	C	D	C	C	D	C	C	D	D	C
Approach Vol, veh/h		752			1520			663			961	
Approach Delay, s/veh		33.9			33.2			32.2			37.6	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	28.0	18.6	28.4	13.5	26.9	11.1	35.9
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	13.2	* 24	18.1	21.7	* 13	24.1	5.3	34.5
Max Q Clear Time (g_c+I1), s	7.4	10.2	12.1	9.1	9.0	18.9	6.1	25.2
Green Ext Time (p_c), s	0.1	2.5	0.8	2.5	0.1	2.2	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	66.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	178	7	136	441	9	52	34	92	23	67	38
Future Vol, veh/h	20	178	7	136	441	9	52	34	92	23	67	38
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	220	9	168	544	11	64	42	114	28	83	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15	111.9	14.8	13.6
HCM LOS	B	F	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	10%	23%	18%
Vol Thru, %	19%	87%	75%	52%
Vol Right, %	52%	3%	2%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	178	205	586	128
LT Vol	52	20	136	23
Through Vol	34	178	441	67
RT Vol	92	7	9	38
Lane Flow Rate	220	253	723	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.405	0.447	1.163	0.304
Departure Headway (Hd)	7.09	6.704	5.787	7.408
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	512	542	629	488
Service Time	5.09	4.704	3.84	5.408
HCM Lane V/C Ratio	0.43	0.467	1.149	0.324
HCM Control Delay	14.8	15	111.9	13.6
HCM Lane LOS	B	B	F	B
HCM 95th-tile Q	1.9	2.3	23.8	1.3

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	585	2	10	1129	4	8
Future Vol, veh/h	585	2	10	1129	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	672	2	11	1298	5	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	674	0	1993	673
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	1320	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	917	-	66	455
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	250	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	917	-	63	455
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	239	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	31.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	148	-	-	917	-
HCM Lane V/C Ratio	0.093	-	-	0.013	-
HCM Control Delay (s)	31.8	-	-	9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	212	311	67	186	817	175	73	202	124	162	231	247
Future Vol, veh/h	212	311	67	186	817	175	73	202	124	162	231	247
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	87	87	92	87	92	87	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	230	357	77	214	939	190	84	220	143	176	251	268

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1129	0	0	434	0	0	2578	2413	396	2499	2356	1034
Stage 1	-	-	-	-	-	-	856	856	-	1462	1462	-
Stage 2	-	-	-	-	-	-	1722	1557	-	1037	894	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	619	-	-	1126	-	-	~ 17	~ 33	653	~ 20	~ 36	282
Stage 1	-	-	-	-	-	-	352	374	-	~ 160	~ 193	-
Stage 2	-	-	-	-	-	-	113	~ 174	-	279	360	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	619	-	-	1126	-	-	-	~ 13	653	-	~ 15	282
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 13	-	-	~ 15	-
Stage 1	-	-	-	-	-	-	178	~ 189	-	~ 81	~ 156	-
Stage 2	-	-	-	-	-	-	-	~ 141	-	-	~ 182	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.9	1.4		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	619	-	-	1126	-	-	-
HCM Lane V/C Ratio	-	0.372	-	-	0.19	-	-	-
HCM Control Delay (s)	-	14.2	0	-	8.9	-	-	-
HCM Lane LOS	-	B	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	1.7	-	-	0.7	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	411	101	276	607	49	235	97	157	63	113	131
Future Volume (veh/h)	83	411	101	276	607	49	235	97	157	63	113	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	437	107	294	646	52	250	103	167	67	120	139
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	114	592	144	444	902	73	308	474	402	98	242	205
Arrive On Green	0.06	0.22	0.22	0.13	0.28	0.28	0.17	0.25	0.25	0.06	0.13	0.13
Sat Flow, veh/h	1781	2722	661	3456	3199	257	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	88	273	271	294	344	354	250	103	167	67	120	139
Grp Sat Flow(s),veh/h/ln	1781	1706	1677	1728	1706	1750	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.0	9.2	9.4	5.0	11.2	11.3	8.4	2.7	5.4	2.3	3.7	5.2
Cycle Q Clear(g_c), s	3.0	9.2	9.4	5.0	11.2	11.3	8.4	2.7	5.4	2.3	3.7	5.2
Prop In Lane	1.00		0.39	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	371	365	444	481	493	308	474	402	98	242	205
V/C Ratio(X)	0.77	0.73	0.74	0.66	0.72	0.72	0.81	0.22	0.42	0.68	0.50	0.68
Avail Cap(c_a), veh/h	285	584	574	720	686	704	601	767	650	262	420	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	22.6	22.6	25.7	20.0	20.0	24.6	18.3	19.3	28.7	25.1	25.7
Incr Delay (d2), s/veh	10.5	2.8	3.0	1.7	2.0	2.0	5.1	0.2	0.7	8.0	1.6	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.5	3.5	2.0	4.3	4.4	3.5	1.0	1.9	1.1	1.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	25.4	25.6	27.4	22.0	22.0	29.8	18.5	20.0	36.7	26.7	29.7
LnGrp LOS	D	C	C	C	C	C	C	B	B	D	C	C
Approach Vol, veh/h		632			992			520			326	
Approach Delay, s/veh		27.4			23.6			24.4			30.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	21.5	13.0	19.3	15.8	13.8	9.1	23.3
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.1	25.4	12.9	21.2	20.9	* 14	9.9	* 25
Max Q Clear Time (g_c+I1), s	4.3	7.4	7.0	11.4	10.4	7.2	5.0	13.3
Green Ext Time (p_c), s	0.0	0.9	0.5	2.1	0.5	0.6	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	15	373	25	7	487
Future Vol, veh/h	119	15	373	25	7	487
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	18	455	30	9	594

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1082	470	0	0	485	0
Stage 1	470	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	241	594	-	-	1078	-
Stage 1	629	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	238	594	-	-	1078	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	41.3	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	255	1078	-
HCM Lane V/C Ratio	-	-	0.641	0.008	-
HCM Control Delay (s)	-	-	41.3	8.4	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	4	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	5	395	7	1	604
Future Vol, veh/h	33	5	395	7	1	604
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	6	459	8	1	702

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1167	463	0	0	467	0
Stage 1	463	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	214	599	-	-	1094	-
Stage 1	634	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	214	599	-	-	1094	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	234	1094	-
HCM Lane V/C Ratio	-	-	0.189	0.001	-
HCM Control Delay (s)	-	-	23.9	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

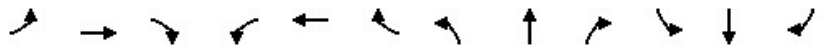
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	440	128	149	1104	43	199	320	110	41	438	147
Future Volume (veh/h)	51	440	128	149	1104	43	199	320	110	41	438	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	484	141	164	1213	47	219	352	121	45	481	162
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	1184	528	235	1280	571	254	552	468	66	355	300
Arrive On Green	0.04	0.33	0.33	0.07	0.36	0.36	0.14	0.30	0.30	0.04	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	56	484	141	164	1213	47	219	352	121	45	481	162
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.9	9.7	6.0	4.3	30.6	1.8	11.1	15.1	5.4	2.3	17.5	8.5
Cycle Q Clear(g_c), s	2.9	9.7	6.0	4.3	30.6	1.8	11.1	15.1	5.4	2.3	17.5	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	74	1184	528	235	1280	571	254	552	468	66	355	300
V/C Ratio(X)	0.76	0.41	0.27	0.70	0.95	0.08	0.86	0.64	0.26	0.68	1.36	0.54
Avail Cap(c_a), veh/h	96	1184	528	322	1289	575	293	561	476	96	355	300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	23.8	22.5	42.1	28.7	19.5	38.7	28.3	24.8	43.9	37.4	33.8
Incr Delay (d2), s/veh	22.2	0.2	0.3	3.9	14.4	0.1	20.1	2.4	0.3	11.6	178.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.7	2.1	1.8	14.0	0.6	5.9	6.5	1.9	1.2	24.9	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	24.0	22.8	46.0	43.1	19.5	58.8	30.6	25.1	55.6	215.4	35.7
LnGrp LOS	E	C	C	D	D	B	E	C	C	E	F	D
Approach Vol, veh/h		681			1424			692			688	
Approach Delay, s/veh		27.2			42.6			38.6			162.6	
Approach LOS		C			D			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	33.7	12.1	37.3	19.0	24.0	9.6	39.7
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	4.3	17.1	6.3	11.7	13.1	19.5	4.9	32.6
Green Ext Time (p_c), s	0.0	1.6	0.1	2.9	0.1	0.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	62.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	28	5	80	105	142	3	365	28	65	416	34
Future Volume (veh/h)	7	28	5	80	105	142	3	365	28	65	416	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	32	6	92	121	163	3	420	32	75	478	39
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	210	178	136	333	282	7	909	69	121	614	521
Arrive On Green	0.01	0.11	0.11	0.08	0.18	0.18	0.00	0.27	0.27	0.07	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3347	254	1781	1870	1585
Grp Volume(v), veh/h	8	32	6	92	121	163	3	222	230	75	478	39
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1825	1781	1870	1585
Q Serve(g_s), s	0.2	0.7	0.2	2.2	2.5	4.2	0.1	4.7	4.7	1.8	10.3	0.8
Cycle Q Clear(g_c), s	0.2	0.7	0.2	2.2	2.5	4.2	0.1	4.7	4.7	1.8	10.3	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	19	210	178	136	333	282	7	482	495	121	614	521
V/C Ratio(X)	0.42	0.15	0.03	0.68	0.36	0.58	0.41	0.46	0.46	0.62	0.78	0.07
Avail Cap(c_a), veh/h	199	460	390	215	502	426	231	1034	1062	227	1088	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	17.9	17.7	20.1	16.1	16.8	22.2	13.6	13.6	20.3	13.5	10.3
Incr Delay (d2), s/veh	14.4	0.3	0.1	5.8	0.7	1.9	33.2	0.7	0.7	5.1	2.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.1	1.0	1.0	1.4	0.1	1.4	1.5	0.8	3.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	18.2	17.7	25.9	16.8	18.7	55.4	14.2	14.2	25.4	15.7	10.4
LnGrp LOS	D	B	B	C	B	B	E	B	B	C	B	B
Approach Vol, veh/h		46			376			455			592	
Approach Delay, s/veh		21.3			19.9			14.5			16.6	
Approach LOS		C			B			B			B	

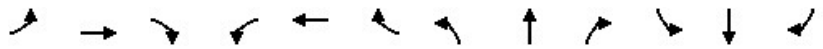
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	18.3	8.1	10.1	5.6	20.9	5.2	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.7	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.8	6.7	4.2	2.7	2.1	12.3	2.2	6.2
Green Ext Time (p_c), s	0.0	2.2	0.0	0.1	0.0	2.4	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	362	92	224	721	80	214	334	123	53	396	326
Future Volume (veh/h)	164	362	92	224	721	80	214	334	123	53	396	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	407	103	252	810	0	240	375	138	60	445	366
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	617	155	282	903		250	905	328	83	480	407
Arrive On Green	0.12	0.22	0.22	0.16	0.25	0.00	0.14	0.35	0.35	0.05	0.26	0.26
Sat Flow, veh/h	1781	2815	705	1781	3554	1585	1781	2554	927	1781	1870	1585
Grp Volume(v), veh/h	184	255	255	252	810	0	240	259	254	60	445	366
Grp Sat Flow(s),veh/h/ln	1781	1777	1743	1781	1777	1585	1781	1777	1704	1781	1870	1585
Q Serve(g_s), s	10.9	14.1	14.3	14.9	23.6	0.0	14.4	11.8	12.1	3.6	24.9	24.0
Cycle Q Clear(g_c), s	10.9	14.1	14.3	14.9	23.6	0.0	14.4	11.8	12.1	3.6	24.9	24.0
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	213	389	382	282	903		250	630	604	83	480	407
V/C Ratio(X)	0.86	0.66	0.67	0.89	0.90		0.96	0.41	0.42	0.72	0.93	0.90
Avail Cap(c_a), veh/h	221	397	390	309	966		250	630	604	133	495	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	38.2	38.3	44.3	38.7	0.0	45.8	26.2	26.3	50.5	38.9	38.6
Incr Delay (d2), s/veh	27.2	3.8	4.2	25.0	10.6	0.0	45.2	0.4	0.5	11.3	23.5	21.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.2	6.2	8.2	11.0	0.0	9.1	4.7	4.6	1.8	13.9	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.6	42.0	42.5	69.3	49.3	0.0	91.0	26.6	26.8	61.8	62.4	60.2
LnGrp LOS	E	D	D	E	D		F	C	C	E	E	E
Approach Vol, veh/h		694			1062	A		753			871	
Approach Delay, s/veh		50.6			54.0			47.2			61.4	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	44.5	22.4	30.0	20.9	34.0	18.7	33.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	8.6	35.6	18.6	24.0	15.1	* 28	13.3	* 29
Max Q Clear Time (g_c+I1), s	5.6	14.1	16.9	16.3	16.4	26.9	12.9	25.6
Green Ext Time (p_c), s	0.0	2.6	0.1	1.6	0.0	0.6	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	192	467	649	681	36
Future Volume (veh/h)	10	192	467	649	681	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	563	782	820	43
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	30		589	1619	844	44
Arrive On Green	0.02	0.00	0.33	0.87	0.48	0.48
Sat Flow, veh/h	1781	1585	1781	1870	1761	92
Grp Volume(v), veh/h	12	0	563	782	0	863
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1854
Q Serve(g_s), s	0.7	0.0	32.3	10.1	0.0	47.4
Cycle Q Clear(g_c), s	0.7	0.0	32.3	10.1	0.0	47.4
Prop In Lane	1.00	1.00	1.00			0.05
Lane Grp Cap(c), veh/h	30		589	1619	0	889
V/C Ratio(X)	0.40		0.96	0.48	0.00	0.97
Avail Cap(c_a), veh/h	102		600	1641	0	899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	0.0	34.2	1.6	0.0	26.5
Incr Delay (d2), s/veh	8.3	0.0	26.0	0.2	0.0	23.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	16.9	0.1	0.0	23.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.2	0.0	60.3	1.9	0.0	49.5
LnGrp LOS	E		E	A	A	D
Approach Vol, veh/h	12	A		1345	863	
Approach Delay, s/veh	59.2			26.3	49.5	
Approach LOS	E			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.9		7.6	40.3	56.6
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		91.7		6.0	35.2	50.7
Max Q Clear Time (g_c+I1), s		12.1		2.7	34.3	49.4
Green Ext Time (p_c), s		5.6		0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	71.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	90	662	129	86	813
Future Vol, veh/h	114	90	662	129	86	813
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	98	720	140	93	884

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1860	790	0	0	860	0
Stage 1	790	-	-	-	-	-
Stage 2	1070	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 81	390	-	-	781	-
Stage 1	447	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 62	390	-	-	781	-
Mov Cap-2 Maneuver	~ 62	-	-	-	-	-
Stage 1	447	-	-	-	-	-
Stage 2	252	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 658.6	0	1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	99	781	-
HCM Lane V/C Ratio	-	-	2.24	0.12	-
HCM Control Delay (s)	-	-	$ 658.6	10.2	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	19.6	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	33.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	115	471	996	69	55	110
Future Vol, veh/h	115	471	996	69	55	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	125	512	1083	75	60	120

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1158	0	-	0	1883	1121
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	762	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	603	-	-	-	78	251
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	603	-	-	-	~ 55	251
Mov Cap-2 Maneuver	-	-	-	-	~ 55	-
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	461	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	$ 356.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	603	-	-	-	115
HCM Lane V/C Ratio	0.207	-	-	-	1.56
HCM Control Delay (s)	12.5	0	-	-	$ 356.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	13.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	570	1100	6	16	78
Future Vol, veh/h	27	570	1100	6	16	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	620	1196	7	17	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1203	0	-	0	1878	1200
Stage 1	-	-	-	-	1200	-
Stage 2	-	-	-	-	678	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	580	-	-	-	78	226
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	580	-	-	-	72	226
Mov Cap-2 Maneuver	-	-	-	-	72	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	504	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	56.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	580	-	-	-	166
HCM Lane V/C Ratio	0.051	-	-	-	0.616
HCM Control Delay (s)	11.5	0	-	-	56.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	3.4

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Existing plus Project AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	308	3.0	346	3.0	0.935	34.9	LOS D	36.6	936.6	1.00	1.76	2.90	24.0
8	T1	530	3.0	596	3.0	0.935	34.9	LOS D	36.6	936.6	1.00	1.76	2.90	24.8
18	R2	4	3.0	4	3.0	0.935	34.9	LOS D	36.6	936.6	1.00	1.76	2.90	24.4
Approach		842	3.0	946	3.0	0.935	34.9	LOS D	36.6	936.6	1.00	1.76	2.90	24.5
East: Claratina Rd														
1	L2	17	3.0	19	3.0	1.238	151.5	LOS F	46.4	1186.7	1.00	2.72	8.53	11.1
6	T1	464	3.0	521	3.0	1.238	151.5	LOS F	46.4	1186.7	1.00	2.72	8.53	11.1
16	R2	27	3.0	30	3.0	1.238	151.5	LOS F	46.4	1186.7	1.00	2.72	8.53	11.2
Approach		508	3.0	571	3.0	1.238	151.5	LOS F	46.4	1186.7	1.00	2.72	8.53	11.1
North: Coffee Rd														
7	L2	18	3.0	20	3.0	1.127	98.8	LOS F	44.2	1132.5	1.00	2.53	7.12	15.3
4	T1	642	3.0	721	3.0	1.127	98.8	LOS F	44.2	1132.5	1.00	2.53	7.12	14.9
14	R2	55	3.0	62	3.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		715	3.0	803	3.0	1.127	91.2	LOS F	44.2	1132.5	0.92	2.34	6.57	15.7
West: Claratina Rd														
5	L2	66	3.0	74	3.0	0.382	9.8	LOS A	1.9	47.6	0.66	0.70	0.79	35.5
2	T1	185	3.0	208	3.0	0.382	9.8	LOS A	1.9	47.6	0.66	0.70	0.79	35.6
12	R2	194	3.0	218	3.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		445	3.0	500	3.0	0.382	5.5	LOS A	1.9	47.6	0.37	0.40	0.45	37.3
All Vehicles		2510	3.0	2820	3.0	1.238	69.3	LOS F	46.4	1186.7	0.87	1.87	4.65	18.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	67.3	49.0	61.6	54.8	57.7
Vehicles Entered	667	604	528	1173	2972
Vehicles Exited	661	602	527	1155	2945
Hourly Exit Rate	661	602	527	1155	2945
Input Volume	653	594	536	1491	3274
% of Volume	101	101	98	77	90
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0
Total Del/Veh (s)	50.2	22.3	19.0	31.9
Vehicles Entered	732	885	376	1993
Vehicles Exited	722	885	377	1984
Hourly Exit Rate	722	885	377	1984
Input Volume	844	880	377	2100
% of Volume	86	101	100	94
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.6	13.0	17.5	10.4
Vehicles Entered	903	633	252	1788
Vehicles Exited	903	633	251	1787
Hourly Exit Rate	903	633	251	1787
Input Volume	908	802	258	1968
% of Volume	99	79	97	91
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

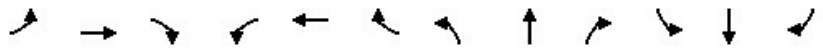
Denied Del/Veh (s)	1.1
Total Del/Veh (s)	1010.9
Vehicles Entered	190
Vehicles Exited	125
Hourly Exit Rate	125
Input Volume	7342
% of Volume	2
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	185	505	127	108	12	188	613	141	57	688	34
Future Volume (veh/h)	24	185	505	127	108	12	188	613	141	57	688	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	201	386	138	117	13	204	666	153	62	748	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	374	317	172	492	417	221	985	226	102	953	47
Arrive On Green	0.03	0.20	0.20	0.10	0.26	0.26	0.12	0.34	0.34	0.06	0.28	0.28
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2870	659	1781	3446	170
Grp Volume(v), veh/h	26	201	386	138	117	13	204	412	407	62	386	399
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1752	1781	1777	1840
Q Serve(g_s), s	1.1	7.5	15.5	5.9	3.8	0.5	8.8	15.4	15.4	2.6	15.5	15.6
Cycle Q Clear(g_c), s	1.1	7.5	15.5	5.9	3.8	0.5	8.8	15.4	15.4	2.6	15.5	15.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.09
Lane Grp Cap(c), veh/h	59	374	317	172	492	417	221	610	602	102	491	509
V/C Ratio(X)	0.44	0.54	1.22	0.80	0.24	0.03	0.92	0.68	0.68	0.61	0.78	0.79
Avail Cap(c_a), veh/h	138	374	317	175	492	417	221	795	784	200	775	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	27.8	31.0	34.3	22.4	21.2	33.6	21.8	21.8	35.7	25.9	25.9
Incr Delay (d2), s/veh	5.1	1.5	123.3	22.8	0.2	0.0	40.3	1.5	1.5	5.8	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.1	16.1	3.4	1.5	0.2	5.9	5.8	5.7	1.2	6.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	29.3	154.3	57.1	22.7	21.2	73.9	23.2	23.3	41.5	28.7	28.6
LnGrp LOS	D	C	F	E	C	C	E	C	C	D	C	C
Approach Vol, veh/h		613			268			1023			847	
Approach Delay, s/veh		108.5			40.3			33.4			29.6	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	32.8	12.9	22.0	15.0	27.6	8.0	26.9
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	8.7	34.7	7.6	15.5	9.6	33.8	6.0	17.1
Max Q Clear Time (g_c+I1), s	4.6	17.4	7.9	17.5	10.8	17.6	3.1	5.8
Green Ext Time (p_c), s	0.0	4.3	0.0	0.0	0.0	3.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	59	0	0	0	52	942	0	0	1432	31
Future Volume (veh/h)	28	0	59	0	0	0	52	942	0	0	1432	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	62	0	0	0	55	992	0	0	1507	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	3	75	0	134	0	92	1381	0	3	1082	24
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.05	0.74	0.00	0.00	0.59	0.59
Sat Flow, veh/h	444	47	1049	0	1870	0	1781	1870	0	1781	1823	40
Grp Volume(v), veh/h	91	0	0	0	0	0	55	992	0	0	0	1540
Grp Sat Flow(s),veh/h/ln	1540	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	1.7	16.2	0.0	0.0	0.0	32.5
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.0	1.7	16.2	0.0	0.0	0.0	32.5
Prop In Lane	0.32		0.68	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	197	0	0	0	134	0	92	1381	0	3	0	1106
V/C Ratio(X)	0.46	0.00	0.00	0.00	0.00	0.00	0.60	0.72	0.00	0.00	0.00	1.39
Avail Cap(c_a), veh/h	272	0	0	0	225	0	176	1381	0	176	0	1106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	0.0	0.0	0.0	0.0	25.4	4.0	0.0	0.0	0.0	11.1
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	0.0	0.0	6.0	1.8	0.0	0.0	0.0	182.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0	0.0	0.0	0.8	1.6	0.0	0.0	0.0	63.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	0.0	0.0	0.0	0.0	31.4	5.8	0.0	0.0	0.0	193.4
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	F
Approach Vol, veh/h		91			0			1047			1540	
Approach Delay, s/veh		26.7			0.0			7.2			193.4	
Approach LOS		C						A			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	46.2		8.5	7.9	38.3		8.5
Change Period (Y+Rc), s*	4.7	5.8		4.6	5.1	5.8		4.6
Max Green Setting (Gmax), s	5.4	32.9		6.6	5.4	32.5		6.6
Max Q Clear Time (g_c+I1), s	0.0	18.2		5.2	3.7	34.5		0.0
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	0.0		0.0

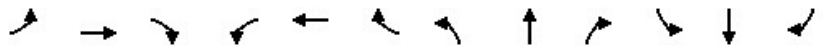
Intersection Summary	
HCM 6th Ctrl Delay	114.9
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	363	20	19	295	255	17	502	16	464	754	235
Future Volume (veh/h)	270	363	20	19	295	255	17	502	16	464	754	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	378	21	20	307	214	18	523	17	483	785	245
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	578	32	36	331	281	34	586	19	507	1153	360
Arrive On Green	0.17	0.33	0.33	0.02	0.18	0.18	0.02	0.17	0.17	0.28	0.43	0.43
Sat Flow, veh/h	1781	1755	98	1781	1870	1585	1781	3513	114	1781	2666	832
Grp Volume(v), veh/h	281	0	399	20	307	214	18	264	276	483	523	507
Grp Sat Flow(s),veh/h/ln	1781	0	1853	1781	1870	1585	1781	1777	1850	1781	1777	1721
Q Serve(g_s), s	18.3	0.0	21.7	1.3	19.1	15.2	1.2	17.2	17.2	31.4	27.9	27.9
Cycle Q Clear(g_c), s	18.3	0.0	21.7	1.3	19.1	15.2	1.2	17.2	17.2	31.4	27.9	27.9
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.06	1.00		0.48
Lane Grp Cap(c), veh/h	307	0	610	36	331	281	34	297	309	507	769	744
V/C Ratio(X)	0.92	0.00	0.65	0.55	0.93	0.76	0.54	0.89	0.89	0.95	0.68	0.68
Avail Cap(c_a), veh/h	311	0	610	76	331	281	83	313	326	516	769	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	33.8	57.2	47.8	46.2	57.4	48.1	48.1	41.4	26.9	26.9
Incr Delay (d2), s/veh	30.2	0.0	2.5	12.4	31.2	11.6	12.6	24.8	24.4	27.9	2.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.0	9.6	0.7	11.3	6.6	0.6	9.3	9.7	17.0	11.5	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.2	0.0	36.4	69.6	78.9	57.8	69.9	72.9	72.5	69.4	29.4	29.5
LnGrp LOS	E	A	D	E	E	E	E	E	E	E	C	C
Approach Vol, veh/h		680			541			558			1513	
Approach Delay, s/veh		53.6			70.2			72.6			42.2	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.0	25.9	7.8	45.3	7.6	57.2	25.7	27.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	34.2	20.8	5.0	36.5	5.5	49.5	20.6	20.9
Max Q Clear Time (g_c+I1), s	33.4	19.2	3.3	23.7	3.2	29.9	20.3	21.1
Green Ext Time (p_c), s	0.2	0.5	0.0	1.6	0.0	6.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	833	0	257	594	0	0	0	377	0	0	0
Future Volume (veh/h)	0	833	0	257	594	0	0	0	377	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	877	0	271	625	0	0	0	397			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	1009		335	1609	0	0	0	0			
Arrive On Green	0.00	0.54	0.00	0.20	0.86	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	877	0	271	625	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	18.9	0.0	7.0	3.3	0.0						
Cycle Q Clear(g_c), s	0.0	18.9	0.0	7.0	3.3	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	1009		335	1609	0						
V/C Ratio(X)	0.00	0.87		0.81	0.39	0.00						
Avail Cap(c_a), veh/h	0	1208		527	1609	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	9.3	0.0	17.8	0.7	0.0						
Incr Delay (d2), s/veh	0.0	6.1	0.0	5.1	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	6.4	0.0	2.5	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.4	0.0	23.0	0.8	0.0						
LnGrp LOS	A	B		C	A	A						
Approach Vol, veh/h		877	A		896							
Approach Delay, s/veh		15.4			7.5							
Approach LOS		B			A							

Timer - Assigned Phs		3	4				8				
Phs Duration (G+Y+Rc), s		14.9	31.6				46.5				
Change Period (Y+Rc), s		5.8	* 6.5				6.5				
Max Green Setting (Gmax), s		14.3	* 30				28.6				
Max Q Clear Time (g_c+I1), s		9.0	20.9				5.3				
Green Ext Time (p_c), s		0.3	4.2				3.6				

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	525	358	0	802	258	0
Future Volume (veh/h)	525	358	0	802	258	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	553	377	0	844	272	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	828	995	0	1572	361	
Arrive On Green	0.44	0.44	0.00	0.44	0.21	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	553	377	0	844	272	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	7.4	3.6	0.0	5.5	4.7	0.0
Cycle Q Clear(g_c), s	7.4	3.6	0.0	5.5	4.7	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	828	995	0	1572	361	
V/C Ratio(X)	0.67	0.38	0.00	0.54	0.75	
Avail Cap(c_a), veh/h	1902	1869	0	3614	979	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.9	2.5	0.0	6.4	11.6	0.0
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.6	0.0	0.7	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.9	2.7	0.0	6.7	14.8	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	930			844	272	A
Approach Delay, s/veh	5.8			6.7	14.8	
Approach LOS	A			A	B	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	20.1			20.1	11.3
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	32.0			32.0	18.0
Max Q Clear Time (g_c+I1), s	9.4			7.5	6.7
Green Ext Time (p_c), s	4.6			5.5	0.6

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	11	20	861	1054	16
Future Vol, veh/h	16	11	20	861	1054	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	17	12	21	906	1109	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2066	1118	1126	0	-	0
Stage 1	1118	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	60	252	620	-	-	-
Stage 1	312	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	58	252	620	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	620	-	238	-	-
HCM Lane V/C Ratio	0.034	-	0.119	-	-
HCM Control Delay (s)	11	-	22.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	2	895	35	6	1049
Future Vol, veh/h	25	2	895	35	6	1049
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	2	962	38	6	1128

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2121	981	0	0	1000	0
Stage 1	981	-	-	-	-	-
Stage 2	1140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	55	303	-	-	692	-
Stage 1	363	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	303	-	-	692	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	298	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	117.8	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	58	692	-
HCM Lane V/C Ratio	-	-	0.501	0.009	-
HCM Control Delay (s)	-	-	117.8	10.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	887	186	179	623	91	197	647	412	314	699	172
Future Volume (veh/h)	201	887	186	179	623	91	197	647	412	314	699	172
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	214	944	198	190	663	97	210	688	278	334	744	183
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	277	1105	343	257	733	333	243	808	375	366	1072	470
Arrive On Green	0.08	0.23	0.23	0.07	0.22	0.22	0.14	0.24	0.24	0.21	0.31	0.31
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	214	944	198	190	663	97	210	688	278	334	744	183
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	6.1	17.9	11.2	5.2	18.4	5.1	11.7	18.4	15.5	18.2	18.3	9.1
Cycle Q Clear(g_c), s	6.1	17.9	11.2	5.2	18.4	5.1	11.7	18.4	15.5	18.2	18.3	9.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	1105	343	257	733	333	243	808	375	366	1072	470
V/C Ratio(X)	0.77	0.85	0.58	0.74	0.90	0.29	0.87	0.85	0.74	0.91	0.69	0.39
Avail Cap(c_a), veh/h	280	1134	352	260	754	342	296	888	413	404	1095	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	35.3	32.8	43.4	36.4	31.2	40.0	34.9	33.8	36.7	28.8	25.6
Incr Delay (d2), s/veh	12.4	6.4	2.2	10.6	14.1	0.5	19.7	7.4	6.3	23.3	1.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	7.1	4.0	2.4	8.4	1.8	6.0	8.2	6.1	9.5	7.3	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	41.8	35.0	53.9	50.5	31.7	59.7	42.3	40.1	60.0	30.6	26.2
LnGrp LOS	E	D	C	D	D	C	E	D	D	E	C	C
Approach Vol, veh/h		1356			950			1176			1261	
Approach Delay, s/veh		42.9			49.3			44.9			37.8	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	28.4	12.9	28.4	18.5	35.8	13.9	27.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	22.6	* 25	7.2	22.5	* 17	30.7	8.2	21.5
Max Q Clear Time (g_c+I1), s	20.2	20.4	7.2	19.9	13.7	20.3	8.1	20.4
Green Ext Time (p_c), s	0.3	2.2	0.0	1.5	0.2	3.9	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	419	11	117	300	13	7	57	115	22	34	20
Future Vol, veh/h	21	419	11	117	300	13	7	57	115	22	34	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	436	11	122	313	14	7	59	120	23	35	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.4	20.3	12.2	11.1
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	5%	27%	29%
Vol Thru, %	32%	93%	70%	45%
Vol Right, %	64%	2%	3%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	451	430	76
LT Vol	7	21	117	22
Through Vol	57	419	300	34
RT Vol	115	11	13	20
Lane Flow Rate	186	470	448	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.324	0.716	0.691	0.151
Departure Headway (Hd)	6.254	5.485	5.553	6.861
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	578	653	645	525
Service Time	4.254	3.577	3.647	4.871
HCM Lane V/C Ratio	0.322	0.72	0.695	0.15
HCM Control Delay	12.2	21.4	20.3	11.1
HCM Lane LOS	B	C	C	B
HCM 95th-tile Q	1.4	6	5.5	0.5

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1194	6	15	849	3	18
Future Vol, veh/h	1194	6	15	849	3	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1257	6	16	894	3	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1263	0	2186	1260
Stage 1	-	-	-	-	1260	-
Stage 2	-	-	-	-	926	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	550	-	50	208
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	386	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	550	-	47	208
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	364	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	35.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	140	-	-	550	-
HCM Lane V/C Ratio	0.158	-	-	0.029	-
HCM Control Delay (s)	35.5	-	-	11.7	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	199	901	115	198	625	164	52	178	261	169	179	191
Future Vol, veh/h	199	901	115	198	625	164	52	178	261	169	179	191
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	93	93	92	93	92	93	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	216	969	124	213	672	178	56	193	281	184	195	208

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	850	0	0	1093	0	0	2852	2739	1031	2887	2712	761
Stage 1	-	-	-	-	-	-	1463	1463	-	1187	1187	-
Stage 2	-	-	-	-	-	-	1389	1276	-	1700	1525	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	788	-	-	638	-	-	~ 11	~ 20	283	~ 10	~ 21	405
Stage 1	-	-	-	-	-	-	160	~ 193	-	230	262	-
Stage 2	-	-	-	-	-	-	176	238	-	~ 117	~ 180	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	788	-	-	638	-	-	-	~ 4	283	-	~ 4	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 4	-	-	~ 4	-
Stage 1	-	-	-	-	-	-	~ 44	~ 53	-	~ 64	~ 174	-
Stage 2	-	-	-	-	-	-	-	~ 159	-	-	~ 50	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	2.7		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	788	-	-	638	-	-	-
HCM Lane V/C Ratio	-	0.274	-	-	0.334	-	-	-
HCM Control Delay (s)	-	11.3	0	-	13.4	-	-	-
HCM Lane LOS	-	B	A	-	B	-	-	-
HCM 95th %tile Q(veh)	-	1.1	-	-	1.5	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	719	282	388	517	36	205	103	246	91	95	60
Future Volume (veh/h)	155	719	282	388	517	36	205	103	246	91	95	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	757	297	408	544	38	216	108	259	96	100	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	203	797	313	496	1173	82	195	309	262	123	223	189
Arrive On Green	0.11	0.33	0.33	0.14	0.36	0.36	0.11	0.17	0.17	0.07	0.12	0.12
Sat Flow, veh/h	1781	2395	939	3456	3236	226	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	163	539	515	408	286	296	216	108	259	96	100	63
Grp Sat Flow(s),veh/h/ln	1781	1706	1627	1728	1706	1756	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.6	22.8	22.8	8.5	9.5	9.5	8.1	3.8	12.1	3.9	3.7	2.7
Cycle Q Clear(g_c), s	6.6	22.8	22.8	8.5	9.5	9.5	8.1	3.8	12.1	3.9	3.7	2.7
Prop In Lane	1.00		0.58	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	568	542	496	618	636	195	309	262	123	223	189
V/C Ratio(X)	0.80	0.95	0.95	0.82	0.46	0.46	1.11	0.35	0.99	0.78	0.45	0.33
Avail Cap(c_a), veh/h	296	568	542	524	618	636	195	309	262	159	278	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	24.0	24.1	30.7	18.1	18.1	32.9	27.3	30.8	33.8	30.3	29.9
Incr Delay (d2), s/veh	9.6	25.7	26.7	9.8	0.5	0.5	95.8	0.7	52.7	16.8	1.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	12.1	11.6	4.0	3.5	3.6	8.4	1.6	8.2	2.2	1.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	49.8	50.7	40.6	18.6	18.6	128.7	28.0	83.5	50.6	31.7	30.9
LnGrp LOS	D	D	D	D	B	B	F	C	F	D	C	C
Approach Vol, veh/h		1217			990			583			259	
Approach Delay, s/veh		49.1			27.7			90.0			38.5	
Approach LOS		D			C			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	18.0	15.7	30.4	13.2	14.6	13.5	32.6
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 6.6	12.2	11.2	24.6	8.1	* 11	12.3	* 24
Max Q Clear Time (g_c+I1), s	5.9	14.1	10.5	24.8	10.1	5.7	8.6	11.5
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.3	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	49.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	11	477	120	40	462
Future Vol, veh/h	71	11	477	120	40	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	13	542	136	45	525

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1225	610	0	0	678	0
Stage 1	610	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	198	494	-	-	914	-
Stage 1	542	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	494	-	-	914	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.5	0	0.7
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	201	914	-
HCM Lane V/C Ratio	-	-	0.464	0.05	-
HCM Control Delay (s)	-	-	37.5	9.1	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2.2	0.2	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	595	15	10	526
Future Vol, veh/h	22	4	595	15	10	526
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	5	676	17	11	598

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1305	685	0	0	693	0
Stage 1	685	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	177	448	-	-	902	-
Stage 1	500	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	174	448	-	-	902	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	526	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	192	902	-
HCM Lane V/C Ratio	-	-	0.154	0.013	-
HCM Control Delay (s)	-	-	27.1	9	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

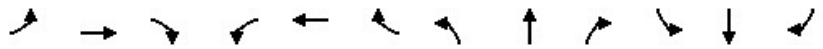
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1156	342	138	674	27	163	457	169	36	414	71
Future Volume (veh/h)	146	1156	342	138	674	27	163	457	169	36	414	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	1243	368	148	725	29	175	491	182	39	445	76
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	1174	524	222	1199	535	212	541	458	62	383	325
Arrive On Green	0.06	0.33	0.33	0.06	0.34	0.34	0.12	0.29	0.29	0.04	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	157	1243	368	148	725	29	175	491	182	39	445	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	28.9	17.7	3.7	14.9	1.1	8.4	22.1	8.1	1.9	17.9	3.5
Cycle Q Clear(g_c), s	5.0	28.9	17.7	3.7	14.9	1.1	8.4	22.1	8.1	1.9	17.9	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	1174	524	222	1199	535	212	541	458	62	383	325
V/C Ratio(X)	1.54	1.06	0.70	0.67	0.60	0.05	0.82	0.91	0.40	0.63	1.16	0.23
Avail Cap(c_a), veh/h	102	1174	524	340	1361	607	310	592	502	102	383	325
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	29.3	25.5	40.0	24.1	19.6	37.6	30.0	25.0	41.6	34.8	29.0
Incr Delay (d2), s/veh	286.5	43.2	4.2	3.4	0.6	0.0	11.1	17.0	0.6	9.8	97.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	17.8	6.5	1.6	5.6	0.4	4.0	11.4	2.8	0.9	17.8	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	327.8	72.5	29.7	43.5	24.7	19.6	48.8	47.0	25.5	51.5	132.2	29.4
LnGrp LOS	F	F	C	D	C	B	D	D	C	D	F	C
Approach Vol, veh/h		1768			902			848			560	
Approach Delay, s/veh		86.3			27.6			42.8			112.6	
Approach LOS		F			C			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	31.8	11.4	35.4	16.2	24.4	10.8	36.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	3.9	24.1	5.7	30.9	10.4	19.9	7.0	16.9
Green Ext Time (p_c), s	0.0	1.2	0.1	0.0	0.2	0.0	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	67.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	116	12	56	42	104	19	586	96	126	534	21
Future Volume (veh/h)	30	116	12	56	42	104	19	586	96	126	534	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	125	13	60	45	112	20	630	103	135	574	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	252	214	100	290	246	43	918	150	172	686	581
Arrive On Green	0.04	0.13	0.13	0.06	0.16	0.16	0.02	0.30	0.30	0.10	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3058	499	1781	1870	1585
Grp Volume(v), veh/h	32	125	13	60	45	112	20	366	367	135	574	23
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1781	1781	1870	1585
Q Serve(g_s), s	0.9	3.2	0.4	1.7	1.1	3.3	0.6	9.3	9.3	3.8	14.4	0.5
Cycle Q Clear(g_c), s	0.9	3.2	0.4	1.7	1.1	3.3	0.6	9.3	9.3	3.8	14.4	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	64	252	214	100	290	246	43	534	535	172	686	581
V/C Ratio(X)	0.50	0.50	0.06	0.60	0.15	0.46	0.46	0.69	0.69	0.78	0.84	0.04
Avail Cap(c_a), veh/h	174	402	341	188	438	372	202	902	904	198	950	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	20.5	19.3	23.6	18.7	19.7	24.6	15.8	15.8	22.6	14.8	10.4
Incr Delay (d2), s/veh	6.0	1.5	0.1	5.7	0.2	1.3	7.6	1.6	1.6	16.3	4.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	0.1	0.8	0.4	1.2	0.3	3.1	3.1	2.1	5.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	22.0	19.4	29.3	19.0	21.0	32.2	17.3	17.4	38.9	19.6	10.4
LnGrp LOS	C	C	B	C	B	C	C	B	B	D	B	B
Approach Vol, veh/h		170			217			753			732	
Approach Delay, s/veh		23.4			22.8			17.8			22.9	
Approach LOS		C			C			B			C	

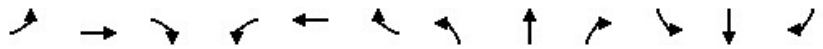
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	21.6	7.6	12.0	6.6	25.0	6.5	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	5.3	11.3	3.7	5.2	2.6	16.4	2.9	5.3
Green Ext Time (p_c), s	0.0	3.5	0.0	0.3	0.0	2.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	845	195	232	541	103	119	480	201	106	314	182
Future Volume (veh/h)	316	845	195	232	541	103	119	480	201	106	314	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	871	201	239	558	0	123	495	207	109	324	188
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	946	218	231	898		150	557	232	121	388	328
Arrive On Green	0.20	0.33	0.33	0.13	0.25	0.00	0.08	0.23	0.23	0.07	0.21	0.21
Sat Flow, veh/h	1781	2867	661	1781	3554	1585	1781	2447	1017	1781	1870	1585
Grp Volume(v), veh/h	326	540	532	239	558	0	123	359	343	109	324	188
Grp Sat Flow(s),veh/h/ln	1781	1777	1751	1781	1777	1585	1781	1777	1687	1781	1870	1585
Q Serve(g_s), s	17.4	28.4	28.4	12.6	13.5	0.0	6.6	19.0	19.2	5.9	16.1	10.4
Cycle Q Clear(g_c), s	17.4	28.4	28.4	12.6	13.5	0.0	6.6	19.0	19.2	5.9	16.1	10.4
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	361	586	578	231	898		150	405	384	121	388	328
V/C Ratio(X)	0.90	0.92	0.92	1.04	0.62		0.82	0.89	0.89	0.90	0.84	0.57
Avail Cap(c_a), veh/h	425	609	600	231	898		150	433	411	121	423	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	31.3	31.4	42.3	32.2	0.0	43.8	36.3	36.4	45.0	37.0	34.7
Incr Delay (d2), s/veh	20.1	19.1	19.4	68.7	1.3	0.0	28.6	18.6	20.4	52.6	12.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	14.0	13.9	9.6	5.6	0.0	3.9	9.7	9.4	4.2	8.3	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	50.5	50.8	111.0	33.5	0.0	72.4	54.9	56.7	97.6	49.7	36.5
LnGrp LOS	E	D	D	F	C		E	D	E	F	D	D
Approach Vol, veh/h		1398			797	A		825			621	
Approach Delay, s/veh		52.3			56.8			58.3			54.1	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	28.6	18.0	38.6	14.0	26.6	25.5	31.1
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	6.6	23.7	12.6	33.3	8.2	* 22	23.2	* 23
Max Q Clear Time (g_c+I1), s	7.9	21.2	14.6	30.4	8.6	18.1	19.4	15.5
Green Ext Time (p_c), s	0.0	1.0	0.0	1.6	0.0	0.9	0.4	1.9

Intersection Summary	
HCM 6th Ctrl Delay	54.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	479	210	770	719	33
Future Volume (veh/h)	30	479	210	770	719	33
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	0	221	811	757	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	75		272	1384	859	40
Arrive On Green	0.04	0.00	0.15	0.74	0.48	0.48
Sat Flow, veh/h	1781	1585	1781	1870	1774	82
Grp Volume(v), veh/h	32	0	221	811	0	792
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1856
Q Serve(g_s), s	1.0	0.0	6.8	11.2	0.0	21.7
Cycle Q Clear(g_c), s	1.0	0.0	6.8	11.2	0.0	21.7
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	75		272	1384	0	899
V/C Ratio(X)	0.43		0.81	0.59	0.00	0.88
Avail Cap(c_a), veh/h	189		354	1714	0	1141
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	23.1	3.4	0.0	13.1
Incr Delay (d2), s/veh	3.8	0.0	10.4	0.4	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.1	0.2	0.0	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.2	0.0	33.5	3.8	0.0	19.9
LnGrp LOS	C		C	A	A	B
Approach Vol, veh/h	32	A		1032	792	
Approach Delay, s/veh	30.2			10.1	19.9	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.3		8.2	14.4	33.8
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		51.7		6.0	11.2	34.7
Max Q Clear Time (g_c+I1), s		13.2		3.0	8.8	23.7
Green Ext Time (p_c), s		5.8		0.0	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	201	134	782	188	132	1263
Future Vol, veh/h	201	134	782	188	132	1263
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	218	146	850	204	143	1373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2611	952	0	0	1054	0
Stage 1	952	-	-	-	-	-
Stage 2	1659	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 27	315	-	-	661	-
Stage 1	375	-	-	-	-	-
Stage 2	~ 170	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 2	315	-	-	661	-
Mov Cap-2 Maneuver	~ 2	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	~ 15	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 56558.7	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	3	661	-
HCM Lane V/C Ratio	-	-	121.377	0.217	-
HCM Control Delay (s)	-	-	$ 56558.7	11.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	48	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	90.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	397	858	549	253	264	403
Future Vol, veh/h	397	858	549	253	264	403
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	432	933	597	275	287	438

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	872	0	-	0	2532	735
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	1797	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	773	-	-	-	~ 30	~ 420
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	~ 145	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	773	-	-	-	0	~ 420
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	~ 145	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	$ 359.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	773	-	-	-	420
HCM Lane V/C Ratio	0.558	-	-	-	1.726
HCM Control Delay (s)	15.4	0	-	-	$ 359.6
HCM Lane LOS	C	A	-	-	F
HCM 95th %tile Q(veh)	3.5	-	-	-	44.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	1243	934	18	12	53
Future Vol, veh/h	88	1243	934	18	12	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	1351	1015	20	13	58

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1035	0	-	0	2568	1025
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1543	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	672	-	-	-	29	285
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	194	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	672	-	-	-	~ 12	285
Mov Cap-2 Maneuver	-	-	-	-	~ 12	-
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	194	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	$ 339.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	672	-	-	-	55
HCM Lane V/C Ratio	0.142	-	-	-	1.285
HCM Control Delay (s)	11.2	0	-	-	$ 339.3
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	6.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Existing plus Project PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	228	3.0	235	3.0	1.330	175.8	LOS F	96.9	2481.1	1.00	4.30	10.32	9.7
8	T1	716	3.0	738	3.0	1.330	175.8	LOS F	96.9	2481.1	1.00	4.30	10.32	9.8
18	R2	13	3.0	13	3.0	1.330	175.8	LOS F	96.9	2481.1	1.00	4.30	10.32	9.8
Approach		957	3.0	987	3.0	1.330	175.8	LOS F	96.9	2481.1	1.00	4.30	10.32	9.8
East: Claratina Rd														
1	L2	16	3.0	16	3.0	0.463	14.1	LOS B	2.5	64.1	0.75	0.83	1.08	33.3
6	T1	217	3.0	224	3.0	0.463	14.1	LOS B	2.5	64.1	0.75	0.83	1.08	34.0
16	R2	19	3.0	20	3.0	0.463	14.1	LOS B	2.5	64.1	0.75	0.83	1.08	34.7
Approach		252	3.0	260	3.0	0.463	14.1	LOS B	2.5	64.1	0.75	0.83	1.08	34.0
North: Coffee Rd														
7	L2	78	3.0	80	3.0	0.904	31.5	LOS D	25.2	646.2	1.00	1.58	2.87	27.8
4	T1	755	3.0	778	3.0	0.904	31.5	LOS D	25.2	646.2	1.00	1.58	2.87	26.4
14	R2	76	3.0	78	3.0	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		909	3.0	937	3.0	0.904	28.9	LOS D	25.2	646.2	0.92	1.45	2.63	27.5
West: Claratina Rd														
5	L2	87	3.0	90	3.0	0.820	31.4	LOS D	9.0	231.6	0.90	1.31	2.34	26.7
2	T1	396	3.0	408	3.0	0.820	31.4	LOS D	9.0	231.6	0.90	1.31	2.34	26.8
12	R2	229	3.0	236	3.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		712	3.0	734	3.0	0.820	21.3	LOS C	9.0	231.6	0.61	0.89	1.59	29.9
All Vehicles		2830	3.0	2918	3.0	1.330	75.4	LOS F	96.9	2481.1	0.85	2.22	4.83	17.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	26.8	27.7	32.5	22.1	26.2
Vehicles Entered	299	760	327	822	2208
Vehicles Exited	300	760	327	825	2212
Hourly Exit Rate	300	760	327	825	2212
Input Volume	301	768	319	812	2200
% of Volume	100	99	102	102	101
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.1
Total Del/Veh (s)	16.7	14.7	4.8	14.2
Vehicles Entered	279	975	124	1378
Vehicles Exited	279	977	124	1380
Hourly Exit Rate	279	977	124	1380
Input Volume	277	983	123	1384
% of Volume	101	99	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	10.4	13.6	8.6
Vehicles Entered	465	471	198	1134
Vehicles Exited	465	472	197	1134
Hourly Exit Rate	465	472	197	1134
Input Volume	457	466	197	1120
% of Volume	102	101	100	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

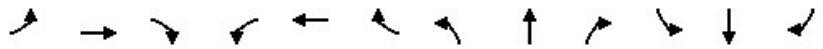
Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	461.6
Vehicles Entered	194
Vehicles Exited	145
Hourly Exit Rate	145
Input Volume	4704
% of Volume	3
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	83	132	145	167	21	205	410	52	14	461	29
Future Volume (veh/h)	22	83	132	145	167	21	205	410	52	14	461	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	90	-20	158	182	23	223	446	57	15	501	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	247	209	200	396	335	274	1087	138	39	716	46
Arrive On Green	0.03	0.13	0.00	0.11	0.21	0.21	0.15	0.34	0.34	0.02	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3171	403	1781	3392	216
Grp Volume(v), veh/h	24	90	-20	158	182	23	223	249	254	15	262	271
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1798	1781	1777	1831
Q Serve(g_s), s	0.8	2.6	0.0	5.2	5.1	0.7	7.3	6.4	6.5	0.5	8.2	8.2
Cycle Q Clear(g_c), s	0.8	2.6	0.0	5.2	5.1	0.7	7.3	6.4	6.5	0.5	8.2	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.12
Lane Grp Cap(c), veh/h	59	247	209	200	396	335	274	609	616	39	375	387
V/C Ratio(X)	0.41	0.36	-0.10	0.79	0.46	0.07	0.81	0.41	0.41	0.38	0.70	0.70
Avail Cap(c_a), veh/h	178	249	211	284	396	335	373	972	983	178	777	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	23.8	0.0	26.0	20.7	19.0	24.6	15.1	15.1	29.0	21.9	22.0
Incr Delay (d2), s/veh	4.5	0.9	0.0	9.3	0.8	0.1	9.6	0.4	0.4	5.9	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	0.0	2.4	1.9	0.2	3.4	2.2	2.2	0.3	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	24.7	0.0	35.3	21.5	19.1	34.2	15.5	15.6	35.0	24.3	24.3
LnGrp LOS	C	C	A	D	C	B	C	B	B	C	C	C
Approach Vol, veh/h		94			363			726			548	
Approach Delay, s/veh		32.1			27.4			21.3			24.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	26.8	12.2	14.4	14.6	18.9	7.4	19.2
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	32.9	9.6	8.0	12.6	26.3	6.0	11.6
Max Q Clear Time (g_c+I1), s	2.5	8.5	7.2	4.6	9.3	10.2	2.8	7.1
Green Ext Time (p_c), s	0.0	2.6	0.1	0.1	0.2	2.5	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C



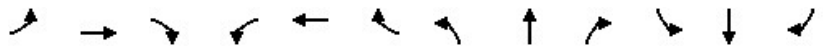
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	0	0	0	22	640	0	0	779	11
Future Volume (veh/h)	16	0	33	0	0	0	22	640	0	0	779	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	0	37	0	0	0	24	711	0	0	866	12
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	0	57	0	105	0	52	1316	0	4	1024	14
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.70	0.00	0.00	0.56	0.56
Sat Flow, veh/h	499	0	1027	0	1870	0	1781	1870	0	1781	1840	26
Grp Volume(v), veh/h	55	0	0	0	0	0	24	711	0	0	0	878
Grp Sat Flow(s),veh/h/ln	1526	0	0	0	1870	0	1781	1870	0	1781	0	1866
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	7.9	0.0	0.0	0.0	17.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	7.9	0.0	0.0	0.0	17.0
Prop In Lane	0.33		0.67	0.00		0.00	1.00		0.00	1.00		0.01
Lane Grp Cap(c), veh/h	196	0	0	0	105	0	52	1316	0	4	0	1038
V/C Ratio(X)	0.28	0.00	0.00	0.00	0.00	0.00	0.47	0.54	0.00	0.00	0.00	0.85
Avail Cap(c_a), veh/h	344	0	0	0	286	0	223	1424	0	206	0	1403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	0.0	0.0	0.0	0.0	20.6	3.1	0.0	0.0	0.0	8.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.0	6.4	0.3	0.0	0.0	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	0.0	0.0	0.0	0.0	27.0	3.4	0.0	0.0	0.0	11.8
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	B
Approach Vol, veh/h		55			0			735			878	
Approach Delay, s/veh		20.7			0.0			4.2			11.8	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	0.0	36.2		7.0	6.4	29.8		7.0
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6
Max Green Setting (Gmax), s	5.9	32.9		6.6	5.4	32.5		6.6
Max Q Clear Time (g_c+I1), s	0.0	9.9		3.5	2.6	19.0		0.0
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	5.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	155	37	1	468	292	33	271	0	116	387	255
Future Volume (veh/h)	109	155	37	1	468	292	33	271	0	116	387	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	176	42	1	532	275	38	308	0	132	440	290
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	594	142	2	599	507	64	699	0	168	525	344
Arrive On Green	0.09	0.41	0.41	0.00	0.32	0.32	0.04	0.20	0.00	0.09	0.26	0.26
Sat Flow, veh/h	1781	1459	348	1781	1870	1585	1781	3647	0	1781	2058	1347
Grp Volume(v), veh/h	124	0	218	1	532	275	38	308	0	132	379	351
Grp Sat Flow(s),veh/h/ln	1781	0	1808	1781	1870	1585	1781	1777	0	1781	1777	1628
Q Serve(g_s), s	5.3	0.0	6.4	0.0	21.1	11.1	1.6	6.0	0.0	5.7	15.8	16.0
Cycle Q Clear(g_c), s	5.3	0.0	6.4	0.0	21.1	11.1	1.6	6.0	0.0	5.7	15.8	16.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.00	1.00		0.83
Lane Grp Cap(c), veh/h	157	0	735	2	599	507	64	699	0	168	453	415
V/C Ratio(X)	0.79	0.00	0.30	0.41	0.89	0.54	0.59	0.44	0.00	0.79	0.84	0.84
Avail Cap(c_a), veh/h	219	0	766	114	682	578	114	699	0	315	532	488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	0.0	15.6	39.0	25.2	21.8	37.1	27.6	0.0	34.6	27.6	27.6
Incr Delay (d2), s/veh	12.2	0.0	0.2	83.6	12.6	0.9	8.5	0.4	0.0	7.9	9.9	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	2.2	0.1	10.1	3.7	0.8	2.3	0.0	2.6	7.2	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	15.9	122.5	37.8	22.8	45.6	28.0	0.0	42.5	37.5	38.9
LnGrp LOS	D	A	B	F	D	C	D	C	A	D	D	D
Approach Vol, veh/h		342			808			346			862	
Approach Delay, s/veh		27.2			32.8			30.0			38.8	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	21.6	5.5	38.3	8.2	26.1	12.3	31.5
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	13.8	14.6	5.0	33.1	5.0	23.4	9.6	28.5
Max Q Clear Time (g_c+I1), s	7.7	8.0	2.0	8.4	3.6	18.0	7.3	23.1
Green Ext Time (p_c), s	0.1	0.9	0.0	1.0	0.0	2.0	0.1	1.9

Intersection Summary	
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	277	0	188	758	0	0	0	112	0	0	0
Future Volume (veh/h)	0	277	0	188	758	0	0	0	112	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	326	0	221	892	0	0	0	132			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	579		293	1357	0	0	0	0			
Arrive On Green	0.00	0.31	0.00	0.17	0.73	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	326	0	221	892	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	3.5	0.0	2.9	5.9	0.0						
Cycle Q Clear(g_c), s	0.0	3.5	0.0	2.9	5.9	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	579		293	1357	0						
V/C Ratio(X)	0.00	0.56		0.75	0.66	0.00						
Avail Cap(c_a), veh/h	0	2368		1033	2258	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	6.8	0.0	9.3	1.7	0.0						
Incr Delay (d2), s/veh	0.0	0.9	0.0	3.9	0.5	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.7	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.7	0.0	13.3	2.3	0.0						
LnGrp LOS	A	A		B	A	A						
Approach Vol, veh/h		326	A		1113							
Approach Delay, s/veh		7.7			4.4							
Approach LOS		A			A							

Timer - Assigned Phs		3	4			8						
Phs Duration (G+Y+Rc), s		9.9	13.8			23.7						
Change Period (Y+Rc), s		5.8	* 6.5			6.5						
Max Green Setting (Gmax), s		14.3	* 30			28.6						
Max Q Clear Time (g_c+I1), s		4.9	5.5			7.9						
Green Ext Time (p_c), s		0.4	1.9			5.8						

Intersection Summary	
HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	318	123	0	466	194	1
Future Volume (veh/h)	318	123	0	466	194	1
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	349	135	0	512	213	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	657	792	0	1249	289	
Arrive On Green	0.35	0.35	0.00	0.35	0.17	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	349	135	0	512	213	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	3.4	1.1	0.0	2.5	2.7	0.0
Cycle Q Clear(g_c), s	3.4	1.1	0.0	2.5	2.7	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	657	792	0	1249	289	
V/C Ratio(X)	0.53	0.17	0.00	0.41	0.74	
Avail Cap(c_a), veh/h	2635	2401	0	5006	1355	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	2.9	0.0	5.6	9.0	0.0
Incr Delay (d2), s/veh	0.7	0.1	0.0	0.2	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.1	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.5	3.0	0.0	5.8	12.6	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	484			512	213	A
Approach Delay, s/veh	5.5			5.8	12.6	
Approach LOS	A			A	B	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	14.2			14.2	8.5
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	32.0			32.0	18.0
Max Q Clear Time (g_c+I1), s	5.4			4.5	4.7
Green Ext Time (p_c), s	2.3			3.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	16	9	429	653	8
Future Vol, veh/h	7	16	9	429	653	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	8	18	10	477	726	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1228	731	735	0	-	0
Stage 1	731	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	197	422	870	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	195	422	870	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.3	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	870	-	412	-	-
HCM Lane V/C Ratio	0.011	-	0.062	-	-
HCM Control Delay (s)	9.2	-	14.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	7	443	11	3	666
Future Vol, veh/h	24	7	443	11	3	666
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	8	492	12	3	740

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1244	498	0	0	504	0
Stage 1	498	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	192	572	-	-	1061	-
Stage 1	611	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	191	572	-	-	1061	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	225	1061	-
HCM Lane V/C Ratio	-	-	0.153	0.003	-
HCM Control Delay (s)	-	-	23.9	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	542	166	507	1142	138	138	252	167	99	514	92
Future Volume (veh/h)	99	542	166	507	1142	138	138	252	167	99	514	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	108	589	180	551	1241	150	150	274	182	108	559	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	169	1216	377	631	1285	583	182	768	356	136	697	306
Arrive On Green	0.05	0.25	0.25	0.18	0.38	0.38	0.11	0.22	0.22	0.08	0.20	0.20
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	108	589	180	551	1241	150	150	274	182	108	559	100
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.9	9.4	9.2	14.0	32.6	6.1	7.9	6.1	9.1	5.6	14.0	5.1
Cycle Q Clear(g_c), s	2.9	9.4	9.2	14.0	32.6	6.1	7.9	6.1	9.1	5.6	14.0	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	1216	377	631	1285	583	182	768	356	136	697	306
V/C Ratio(X)	0.64	0.48	0.48	0.87	0.97	0.26	0.82	0.36	0.51	0.79	0.80	0.33
Avail Cap(c_a), veh/h	192	1216	377	694	1285	583	248	917	426	251	913	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	28.7	28.6	35.8	27.2	19.0	39.3	29.4	30.6	40.7	34.1	30.6
Incr Delay (d2), s/veh	5.7	0.3	0.9	11.1	17.5	0.2	14.8	0.3	1.1	9.9	3.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.3	0.1	6.4	14.4	1.9	3.9	2.5	3.3	2.6	5.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	29.0	29.6	46.9	44.7	19.3	54.2	29.7	31.7	50.6	38.1	31.2
LnGrp LOS	D	C	C	D	D	B	D	C	C	D	D	C
Approach Vol, veh/h		877			1942			606			767	
Approach Delay, s/veh		31.4			43.4			36.4			38.9	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	26.1	22.3	29.2	14.4	24.2	10.5	41.0
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	13.2	* 24	18.1	21.7	* 13	24.1	5.3	34.5
Max Q Clear Time (g_c+I1), s	7.6	11.1	16.0	11.4	9.9	16.0	4.9	34.6
Green Ext Time (p_c), s	0.1	1.9	0.5	3.0	0.1	2.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	52.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	131	7	135	426	9	52	34	81	23	67	38
Future Vol, veh/h	20	131	7	135	426	9	52	34	81	23	67	38
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	162	9	167	526	11	64	42	100	28	83	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.8	84.1	13.7	12.9
HCM LOS	B	F	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	13%	24%	18%
Vol Thru, %	20%	83%	75%	52%
Vol Right, %	49%	4%	2%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	158	570	128
LT Vol	52	20	135	23
Through Vol	34	131	426	67
RT Vol	81	7	9	38
Lane Flow Rate	206	195	704	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.37	0.338	1.087	0.293
Departure Headway (Hd)	6.768	6.491	5.56	6.996
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	534	558	654	517
Service Time	4.768	4.491	3.612	4.996
HCM Lane V/C Ratio	0.386	0.349	1.076	0.306
HCM Control Delay	13.7	12.8	84.1	12.9
HCM Lane LOS	B	B	F	B
HCM 95th-tile Q	1.7	1.5	20	1.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	381	2	4	938	4	3
Future Vol, veh/h	381	2	4	938	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	438	2	5	1078	5	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	440	0	1527	439
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	1088	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1120	-	129	618
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	323	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1120	-	128	618
Mov Cap-2 Maneuver	-	-	-	-	128	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	319	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	-	-	1120	-
HCM Lane V/C Ratio	0.041	-	-	0.004	-
HCM Control Delay (s)	24.4	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	152

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	0	273	108	141	757	0	182	0	86	0	0	0
Future Vol, veh/h	0	273	108	141	757	0	182	0	86	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	87	87	92	87	92	87	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	314	124	162	870	0	209	0	99	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	870	0	0	438	0	0	1570	1570	376	1620	1632	870
Stage 1	-	-	-	-	-	-	376	376	-	1194	1194	-
Stage 2	-	-	-	-	-	-	1194	1194	-	426	438	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	775	-	-	1122	-	-	~ 90	111	670	83	101	351
Stage 1	-	-	-	-	-	-	645	616	-	228	260	-
Stage 2	-	-	-	-	-	-	228	260	-	606	579	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	775	-	-	1122	-	-	~ 80	95	670	63	86	351
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 80	95	-	63	86	-
Stage 1	-	-	-	-	-	-	645	616	-	228	223	-
Stage 2	-	-	-	-	-	-	~ 195	223	-	517	579	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	$ 872.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	112	775	-	-	1122	-	-	-
HCM Lane V/C Ratio	2.75	-	-	-	0.144	-	-	-
HCM Control Delay (s)	$ 872.5	0	-	-	8.8	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	28.6	0	-	-	0.5	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	293	65	330	484	49	204	109	166	63	119	119
Future Volume (veh/h)	70	293	65	330	484	49	204	109	166	63	119	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	312	69	351	515	52	217	116	177	67	127	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	109	476	104	494	791	80	277	462	392	103	267	226
Arrive On Green	0.06	0.17	0.17	0.14	0.25	0.25	0.16	0.25	0.25	0.06	0.14	0.14
Sat Flow, veh/h	1781	2786	608	3456	3131	315	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	74	189	192	351	280	287	217	116	177	67	127	127
Grp Sat Flow(s),veh/h/ln	1781	1706	1687	1728	1706	1740	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	2.3	5.8	6.0	5.4	8.2	8.3	6.6	2.8	5.3	2.1	3.5	4.2
Cycle Q Clear(g_c), s	2.3	5.8	6.0	5.4	8.2	8.3	6.6	2.8	5.3	2.1	3.5	4.2
Prop In Lane	1.00		0.36	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	109	292	288	494	431	440	277	462	392	103	267	226
V/C Ratio(X)	0.68	0.65	0.66	0.71	0.65	0.65	0.78	0.25	0.45	0.65	0.48	0.56
Avail Cap(c_a), veh/h	314	645	637	794	757	772	663	847	717	289	463	393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	21.7	21.8	22.9	18.7	18.8	22.8	16.9	17.9	25.9	22.1	22.4
Incr Delay (d2), s/veh	7.3	2.4	2.6	1.9	1.7	1.6	4.9	0.3	0.8	6.8	1.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.2	2.2	2.1	3.1	3.1	2.7	1.0	1.8	1.0	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	24.1	24.4	24.9	20.4	20.4	27.7	17.2	18.7	32.7	23.5	24.6
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	C	C
Approach Vol, veh/h		455			918			510			321	
Approach Delay, s/veh		25.7			22.1			22.2			25.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	19.7	13.1	15.4	13.8	13.8	8.5	20.0
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.1	25.4	12.9	21.2	20.9	* 14	9.9	* 25
Max Q Clear Time (g_c+I1), s	4.1	7.3	7.4	8.0	8.6	6.2	4.3	10.3
Green Ext Time (p_c), s	0.0	1.0	0.6	1.6	0.4	0.6	0.1	2.9

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	20.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	258	124	134	73	46	220
Future Vol, veh/h	258	124	134	73	46	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	315	151	163	89	56	268

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	588	208	0	0	252	0
Stage 1	208	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	471	832	-	-	1313	-
Stage 1	827	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	447	832	-	-	1313	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	656	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.3	0	1.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	526	1313	-
HCM Lane V/C Ratio	-	-	0.886	0.043	-
HCM Control Delay (s)	-	-	44.3	7.9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	10	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	5	203	7	1	476
Future Vol, veh/h	33	5	203	7	1	476
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	6	236	8	1	553

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	795	240	0	0	244	0
Stage 1	240	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	357	799	-	-	1322	-
Stage 1	800	-	-	-	-	-
Stage 2	575	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	357	799	-	-	1322	-
Mov Cap-2 Maneuver	357	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	574	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	385	1322	-
HCM Lane V/C Ratio	-	-	0.115	0.001	-
HCM Control Delay (s)	-	-	15.6	7.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

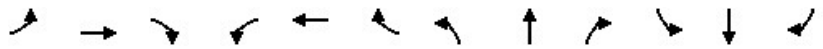
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	583	128	236	1390	15	199	138	184	13	229	246
Future Volume (veh/h)	71	583	128	236	1390	15	199	138	184	13	229	246
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	641	141	259	1527	16	219	152	202	14	252	270
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	1131	504	316	1267	565	253	584	495	29	348	295
Arrive On Green	0.05	0.32	0.32	0.09	0.36	0.36	0.14	0.31	0.31	0.02	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	78	641	141	259	1527	16	219	152	202	14	252	270
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.1	14.1	6.3	6.9	33.5	0.6	11.3	5.7	9.4	0.7	11.9	15.7
Cycle Q Clear(g_c), s	4.1	14.1	6.3	6.9	33.5	0.6	11.3	5.7	9.4	0.7	11.9	15.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	1131	504	316	1267	565	253	584	495	29	348	295
V/C Ratio(X)	0.82	0.57	0.28	0.82	1.21	0.03	0.86	0.26	0.41	0.48	0.72	0.91
Avail Cap(c_a), veh/h	95	1131	504	316	1267	565	288	584	495	95	348	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	26.6	24.0	41.9	30.2	19.7	39.4	24.2	25.5	45.8	36.0	37.5
Incr Delay (d2), s/veh	41.8	0.7	0.3	15.5	100.1	0.0	21.0	0.2	0.5	11.9	7.2	31.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.5	2.2	3.4	30.2	0.2	6.1	2.3	3.3	0.4	5.7	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.9	27.3	24.3	57.4	130.3	19.7	60.4	24.4	26.0	57.7	43.2	68.7
LnGrp LOS	F	C	C	E	F	B	E	C	C	E	D	E
Approach Vol, veh/h		860			1802			573			536	
Approach Delay, s/veh		32.1			118.8			38.7			56.4	
Approach LOS		C			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	35.8	14.4	36.4	19.2	24.0	10.8	40.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	2.7	11.4	8.9	16.1	13.3	17.7	6.1	35.5
Green Ext Time (p_c), s	0.0	1.2	0.0	3.4	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	78.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	26	126	84	99	137	44	379	34	59	418	60
Future Volume (veh/h)	82	26	126	84	99	137	44	379	34	59	418	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	94	30	145	97	114	157	51	436	39	68	480	69
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	284	240	129	286	242	89	1034	92	107	594	503
Arrive On Green	0.07	0.15	0.15	0.07	0.15	0.15	0.05	0.31	0.31	0.06	0.32	0.32
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3300	294	1781	1870	1585
Grp Volume(v), veh/h	94	30	145	97	114	157	51	234	241	68	480	69
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1817	1781	1870	1585
Q Serve(g_s), s	2.7	0.7	4.5	2.8	2.9	4.9	1.5	5.5	5.5	2.0	12.3	1.6
Cycle Q Clear(g_c), s	2.7	0.7	4.5	2.8	2.9	4.9	1.5	5.5	5.5	2.0	12.3	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	127	284	240	129	286	242	89	557	569	107	594	503
V/C Ratio(X)	0.74	0.11	0.60	0.75	0.40	0.65	0.57	0.42	0.42	0.64	0.81	0.14
Avail Cap(c_a), veh/h	170	393	333	184	429	363	197	882	902	194	928	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	19.2	20.7	23.8	20.0	20.9	24.3	14.2	14.2	24.1	16.4	12.8
Incr Delay (d2), s/veh	11.1	0.2	2.4	10.2	0.9	2.9	5.7	0.5	0.5	6.1	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.3	1.6	1.4	1.2	1.8	0.7	1.7	1.8	0.9	4.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	19.3	23.2	34.1	20.9	23.8	30.0	14.7	14.7	30.2	19.4	12.9
LnGrp LOS	C	B	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		269			368			526			617	
Approach Delay, s/veh		26.9			25.6			16.2			19.9	
Approach LOS		C			C			B			B	

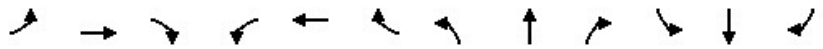
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	22.6	8.5	13.0	8.0	22.8	8.4	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.7	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	4.0	7.5	4.8	6.5	3.5	14.3	4.7	6.9
Green Ext Time (p_c), s	0.0	2.3	0.0	0.2	0.0	2.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	370	108	235	732	117	241	386	127	173	534	422
Future Volume (veh/h)	211	370	108	235	732	117	241	386	127	173	534	422
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	416	121	264	822	0	271	434	143	194	600	474
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	587	169	293	905		246	866	283	131	486	412
Arrive On Green	0.12	0.22	0.22	0.16	0.25	0.00	0.14	0.33	0.33	0.07	0.26	0.26
Sat Flow, veh/h	1781	2722	784	1781	3554	1585	1781	2633	860	1781	1870	1585
Grp Volume(v), veh/h	237	270	267	264	822	0	271	292	285	194	600	474
Grp Sat Flow(s),veh/h/ln	1781	1777	1729	1781	1777	1585	1781	1777	1716	1781	1870	1585
Q Serve(g_s), s	13.3	15.4	15.6	15.9	24.5	0.0	15.1	14.4	14.6	8.0	28.4	28.4
Cycle Q Clear(g_c), s	13.3	15.4	15.6	15.9	24.5	0.0	15.1	14.4	14.6	8.0	28.4	28.4
Prop In Lane	1.00		0.45	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	217	383	373	293	905		246	584	564	131	486	412
V/C Ratio(X)	1.09	0.70	0.72	0.90	0.91		1.10	0.50	0.51	1.49	1.23	1.15
Avail Cap(c_a), veh/h	217	391	380	303	950		246	584	564	131	486	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	39.6	39.7	44.8	39.5	0.0	47.0	29.4	29.5	50.6	40.4	40.4
Incr Delay (d2), s/veh	87.9	5.5	6.2	27.8	12.1	0.0	86.8	0.7	0.7	255.1	121.9	92.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	6.9	6.9	8.9	11.6	0.0	12.3	5.8	5.7	12.7	28.7	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.9	45.1	45.9	72.5	51.5	0.0	133.8	30.1	30.2	305.7	162.3	132.4
LnGrp LOS	F	D	D	E	D		F	C	C	F	F	F
Approach Vol, veh/h		774			1086	A		848			1268	
Approach Delay, s/veh		73.2			56.6			63.3			173.1	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	42.4	23.3	30.1	20.9	34.9	19.1	34.3
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	8.0	35.6	18.6	24.0	15.1	* 28	13.3	* 29
Max Q Clear Time (g_c+I1), s	10.0	16.6	17.9	17.6	17.1	30.4	15.3	26.5
Green Ext Time (p_c), s	0.0	2.8	0.1	1.5	0.0	0.0	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	98.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	183	458	713	811	73
Future Volume (veh/h)	30	183	458	713	811	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	0	552	859	977	88
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	56		542	1657	917	83
Arrive On Green	0.03	0.00	0.30	0.89	0.54	0.54
Sat Flow, veh/h	1781	1585	1781	1870	1691	152
Grp Volume(v), veh/h	36	0	552	859	0	1065
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1843
Q Serve(g_s), s	3.0	0.0	45.2	14.4	0.0	80.5
Cycle Q Clear(g_c), s	3.0	0.0	45.2	14.4	0.0	80.5
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	56		542	1657	0	999
V/C Ratio(X)	0.65		1.02	0.52	0.00	1.07
Avail Cap(c_a), veh/h	74		542	1657	0	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.1	0.0	51.6	1.8	0.0	34.0
Incr Delay (d2), s/veh	11.9	0.0	43.2	0.3	0.0	47.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	25.7	1.3	0.0	45.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	83.0	0.0	94.8	2.1	0.0	81.6
LnGrp LOS	F		F	A	A	F
Approach Vol, veh/h	36	A		1411	1065	
Approach Delay, s/veh	83.0			38.3	81.6	
Approach LOS	F			D	F	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	138.0		10.4	51.0	87.0
Change Period (Y+Rc), s	6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s	131.5		6.2	45.2	80.5
Max Q Clear Time (g_c+I1), s	16.4		5.0	47.2	82.5
Green Ext Time (p_c), s	6.6		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

EPAP AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	308	3.0	346	3.0	0.829	23.0	LOS C	19.3	494.9	0.97	1.40	2.13	27.3
8	T1	393	3.0	442	3.0	0.829	23.0	LOS C	19.3	494.9	0.97	1.40	2.13	28.3
18	R2	9	3.0	10	3.0	0.829	23.0	LOS C	19.3	494.9	0.97	1.40	2.13	27.8
Approach		710	3.0	798	3.0	0.829	23.0	LOS C	19.3	494.9	0.97	1.40	2.13	27.9
East: Claratina Rd														
1	L2	20	3.0	22	3.0	1.187	126.8	LOS F	46.1	1179.6	1.00	2.64	7.82	12.6
6	T1	497	3.0	558	3.0	1.187	126.8	LOS F	46.1	1179.6	1.00	2.64	7.82	12.7
16	R2	52	3.0	58	3.0	1.187	126.8	LOS F	46.1	1179.6	1.00	2.64	7.82	12.8
Approach		569	3.0	639	3.0	1.187	126.8	LOS F	46.1	1179.6	1.00	2.64	7.82	12.7
North: Coffee Rd														
7	L2	31	3.0	35	3.0	0.943	48.6	LOS E	16.9	433.8	0.99	1.63	3.61	23.1
4	T1	495	3.0	556	3.0	0.943	48.6	LOS E	16.9	433.8	0.99	1.63	3.61	22.1
14	R2	77	3.0	87	3.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		603	3.0	678	3.0	0.943	42.4	LOS E	16.9	433.8	0.86	1.42	3.15	23.7
West: Claratina Rd														
5	L2	71	3.0	80	3.0	0.391	9.5	LOS A	2.0	50.0	0.65	0.69	0.77	35.6
2	T1	200	3.0	225	3.0	0.391	9.5	LOS A	2.0	50.0	0.65	0.69	0.77	35.8
12	R2	194	3.0	218	3.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		465	3.0	522	3.0	0.391	5.6	LOS A	2.0	50.0	0.38	0.40	0.45	37.3
All Vehicles		2347	3.0	2637	3.0	1.187	49.7	LOS E	46.1	1179.6	0.83	1.51	3.44	21.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	46.7	34.5	44.8	27.1	35.7
Vehicles Entered	597	433	455	1187	2672
Vehicles Exited	594	433	455	1188	2670
Hourly Exit Rate	594	433	455	1188	2670
Input Volume	587	428	449	1276	2740
% of Volume	101	101	101	93	97
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.1	10.9	12.3	15.3
Vehicles Entered	675	577	235	1487
Vehicles Exited	674	578	234	1486
Hourly Exit Rate	674	578	234	1486
Input Volume	699	573	235	1507
% of Volume	96	101	100	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	11.7	15.8	8.8
Vehicles Entered	681	669	123	1473
Vehicles Exited	682	669	122	1473
Hourly Exit Rate	682	669	122	1473
Input Volume	675	714	124	1513
% of Volume	101	94	98	97
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

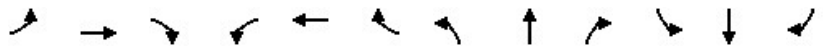
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	689.5
Vehicles Entered	177
Vehicles Exited	122
Hourly Exit Rate	122
Input Volume	5760
% of Volume	2
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	185	449	113	108	12	129	530	126	57	612	34
Future Volume (veh/h)	24	185	449	113	108	12	129	530	126	57	612	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	201	325	123	117	13	140	576	137	62	665	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	412	349	156	513	434	177	849	201	107	885	49
Arrive On Green	0.03	0.22	0.22	0.09	0.27	0.27	0.10	0.30	0.30	0.06	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2850	676	1781	3423	190
Grp Volume(v), veh/h	26	201	325	123	117	13	140	359	354	62	345	357
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1749	1781	1777	1836
Q Serve(g_s), s	1.0	6.6	14.1	4.8	3.4	0.4	5.4	12.5	12.6	2.4	12.6	12.6
Cycle Q Clear(g_c), s	1.0	6.6	14.1	4.8	3.4	0.4	5.4	12.5	12.6	2.4	12.6	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.10
Lane Grp Cap(c), veh/h	61	412	349	156	513	434	177	530	521	107	460	475
V/C Ratio(X)	0.43	0.49	0.93	0.79	0.23	0.03	0.79	0.68	0.68	0.58	0.75	0.75
Avail Cap(c_a), veh/h	152	412	349	192	513	434	243	876	863	220	854	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	24.0	26.9	31.4	19.8	18.7	31.0	21.7	21.7	32.2	24.0	24.0
Incr Delay (d2), s/veh	4.8	0.9	30.9	15.9	0.2	0.0	11.5	1.5	1.6	4.9	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.6	7.6	2.5	1.3	0.1	2.7	4.7	4.6	1.1	4.9	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	24.9	57.8	47.4	20.0	18.7	42.5	23.2	23.3	37.1	26.5	26.4
LnGrp LOS	D	C	E	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		552			253			853			764	
Approach Delay, s/veh		44.9			33.2			26.4			27.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	27.2	11.6	22.0	12.4	24.4	7.8	25.8
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	8.7	34.7	7.6	15.5	9.6	33.8	6.0	17.1
Max Q Clear Time (g_c+I1), s	4.4	14.6	6.8	16.1	7.4	14.6	3.0	5.4
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.1	3.6	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	52	0	0	0	46	737	0	0	1224	25
Future Volume (veh/h)	22	0	52	0	0	0	46	737	0	0	1224	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	55	0	0	0	48	776	0	0	1288	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	2	69	0	119	0	85	1391	0	3	1099	22
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.05	0.74	0.00	0.00	0.60	0.60
Sat Flow, veh/h	423	31	1086	0	1870	0	1781	1870	0	1781	1827	37
Grp Volume(v), veh/h	78	0	0	0	0	0	48	776	0	0	0	1314
Grp Sat Flow(s),veh/h/ln	1540	0	0	0	1870	0	1781	1870	0	1781	0	1864
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	0.0	1.4	9.8	0.0	0.0	0.0	32.5
Cycle Q Clear(g_c), s	2.7	0.0	0.0	0.0	0.0	0.0	1.4	9.8	0.0	0.0	0.0	32.5
Prop In Lane	0.29		0.71	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	185	0	0	0	119	0	85	1391	0	3	0	1121
V/C Ratio(X)	0.42	0.00	0.00	0.00	0.00	0.00	0.57	0.56	0.00	0.00	0.00	1.17
Avail Cap(c_a), veh/h	274	0	0	0	229	0	178	1391	0	178	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	0.0	0.0	0.0	25.2	3.0	0.0	0.0	0.0	10.8
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	5.8	0.5	0.0	0.0	0.0	87.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.0	0.7	0.6	0.0	0.0	0.0	33.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	0.0	0.0	0.0	0.0	31.0	3.5	0.0	0.0	0.0	97.8
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	F
Approach Vol, veh/h		78			0			824			1314	
Approach Delay, s/veh		26.5			0.0			5.1			97.8	
Approach LOS		C						A			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	46.0		8.0	7.7	38.3		8.0				
Change Period (Y+Rc), s*	4.7	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.4	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	11.8		4.7	3.4	34.5		0.0				
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	0.0		0.0				

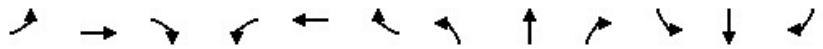
Intersection Summary	
HCM 6th Ctrl Delay	60.8
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	333	20	6	245	152	17	429	2	364	678	198
Future Volume (veh/h)	234	333	20	6	245	152	17	429	2	364	678	198
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	244	347	21	6	255	106	18	447	2	379	706	206
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	556	34	14	310	263	36	576	3	427	1027	300
Arrive On Green	0.16	0.32	0.32	0.01	0.17	0.17	0.02	0.16	0.16	0.24	0.38	0.38
Sat Flow, veh/h	1781	1746	106	1781	1870	1585	1781	3628	16	1781	2713	792
Grp Volume(v), veh/h	244	0	368	6	255	106	18	219	230	379	462	450
Grp Sat Flow(s),veh/h/ln	1781	0	1851	1781	1870	1585	1781	1777	1867	1781	1777	1728
Q Serve(g_s), s	11.4	0.0	14.5	0.3	11.3	5.1	0.9	10.1	10.1	17.6	18.7	18.7
Cycle Q Clear(g_c), s	11.4	0.0	14.5	0.3	11.3	5.1	0.9	10.1	10.1	17.6	18.7	18.7
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.01	1.00		0.46
Lane Grp Cap(c), veh/h	286	0	590	14	310	263	36	282	297	427	673	654
V/C Ratio(X)	0.85	0.00	0.62	0.43	0.82	0.40	0.50	0.78	0.78	0.89	0.69	0.69
Avail Cap(c_a), veh/h	429	0	790	104	457	387	115	432	454	712	1028	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	0.0	24.8	42.3	34.4	31.9	41.5	34.5	34.5	31.4	22.3	22.3
Incr Delay (d2), s/veh	10.3	0.0	1.1	20.0	7.5	1.0	10.1	4.8	4.5	7.6	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	5.8	0.2	5.3	1.9	0.5	4.4	4.6	7.8	7.1	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	0.0	25.9	62.2	41.9	32.9	51.6	39.3	39.1	39.0	23.6	23.6
LnGrp LOS	D	A	C	E	D	C	D	D	D	D	C	C
Approach Vol, veh/h		612			367			467			1291	
Approach Delay, s/veh		33.6			39.7			39.6			28.1	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	19.8	6.1	33.8	7.1	38.6	19.1	20.7
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	24.3	20.8	5.0	36.5	5.5	49.5	20.6	20.9
Max Q Clear Time (g_c+I1), s	19.6	12.1	2.3	16.5	2.9	20.7	13.4	13.3
Green Ext Time (p_c), s	1.0	1.5	0.0	1.8	0.0	5.7	0.4	0.9

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	686	0	123	428	0	0	0	235	0	0	0
Future Volume (veh/h)	0	686	0	123	428	0	0	0	235	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	722	0	129	451	0	0	0	247			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	961		181	1495	0	0	0	0			
Arrive On Green	0.00	0.51	0.00	0.11	0.80	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	722	0	129	451	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	9.9	0.0	2.4	2.1	0.0						
Cycle Q Clear(g_c), s	0.0	9.9	0.0	2.4	2.1	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	961		181	1495	0						
V/C Ratio(X)	0.00	0.75		0.71	0.30	0.00						
Avail Cap(c_a), veh/h	0	1734		756	1653	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	6.2	0.0	14.0	0.9	0.0						
Incr Delay (d2), s/veh	0.0	1.2	0.0	5.1	0.1	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	1.8	0.0	0.8	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	0.0	19.1	1.0	0.0						
LnGrp LOS	A	A		B	A	A						
Approach Vol, veh/h		722	A		580							
Approach Delay, s/veh		7.4			5.0							
Approach LOS		A			A							

Timer - Assigned Phs		3	4					8
Phs Duration (G+Y+Rc), s		9.2	23.1					32.4
Change Period (Y+Rc), s		5.8	* 6.5					6.5
Max Green Setting (Gmax), s		14.3	* 30					28.6
Max Q Clear Time (g_c+I1), s		4.4	11.9					4.1
Green Ext Time (p_c), s		0.2	4.7					2.4

Intersection Summary	
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	439	216	0	714	124	0
Future Volume (veh/h)	439	216	0	714	124	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	462	227	0	752	131	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	809	842	0	1538	206	
Arrive On Green	0.43	0.43	0.00	0.43	0.12	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	462	227	0	752	131	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	4.5	1.9	0.0	3.7	1.8	0.0
Cycle Q Clear(g_c), s	4.5	1.9	0.0	3.7	1.8	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	809	842	0	1538	206	
V/C Ratio(X)	0.57	0.27	0.00	0.49	0.63	
Avail Cap(c_a), veh/h	2453	2180	0	4661	1262	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.2	2.9	0.0	5.0	10.2	0.0
Incr Delay (d2), s/veh	0.6	0.2	0.0	0.2	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	0.1	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.9	3.0	0.0	5.2	13.4	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	689			752	131	A
Approach Delay, s/veh	4.9			5.2	13.4	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	16.8				16.8	7.6
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	32.0				32.0	18.0
Max Q Clear Time (g_c+I1), s	6.5				5.7	3.8
Green Ext Time (p_c), s	3.3				4.8	0.3

Intersection Summary	
HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	11	20	644	843	5
Future Vol, veh/h	5	11	20	644	843	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	5	12	21	678	887	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1610	890	892	0	-	0
Stage 1	890	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	115	342	760	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	112	342	760	-	-	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	482	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	760	-	330	-	-
HCM Lane V/C Ratio	0.028	-	0.051	-	-
HCM Control Delay (s)	9.9	-	16.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	2	678	28	6	838
Future Vol, veh/h	18	2	678	28	6	838
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	19	2	729	30	6	901

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1657	744	0	0	759	0
Stage 1	744	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	108	415	-	-	852	-
Stage 1	470	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	106	415	-	-	852	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	386	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	115	852	-
HCM Lane V/C Ratio	-	-	0.187	0.008	-
HCM Control Delay (s)	-	-	43.4	9.3	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1321	206	285	960	90	231	495	564	313	552	103
Future Volume (veh/h)	131	1321	206	285	960	90	231	495	564	313	552	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	139	1405	219	303	1021	96	246	527	440	333	587	110
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	200	1094	340	251	800	363	275	857	398	363	1047	459
Arrive On Green	0.06	0.23	0.23	0.07	0.24	0.24	0.16	0.25	0.25	0.21	0.31	0.31
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	139	1405	219	303	1021	96	246	527	440	333	587	110
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	4.1	22.5	13.1	7.2	23.6	5.1	14.2	13.6	24.9	18.9	14.3	5.5
Cycle Q Clear(g_c), s	4.1	22.5	13.1	7.2	23.6	5.1	14.2	13.6	24.9	18.9	14.3	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	1094	340	251	800	363	275	857	398	363	1047	459
V/C Ratio(X)	0.70	1.28	0.64	1.21	1.28	0.26	0.89	0.61	1.11	0.92	0.56	0.24
Avail Cap(c_a), veh/h	270	1094	340	251	800	363	285	857	398	390	1057	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	38.3	34.7	46.0	37.8	30.7	40.6	32.9	37.1	38.2	28.8	25.7
Incr Delay (d2), s/veh	4.8	134.8	4.2	124.7	134.2	0.4	27.4	1.3	76.8	25.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	21.8	4.8	7.3	23.8	1.8	7.8	5.6	17.3	10.0	5.6	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	173.2	38.9	170.7	172.0	31.1	68.0	34.2	113.9	63.3	29.4	26.0
LnGrp LOS	D	F	D	F	F	C	E	C	F	E	C	C
Approach Vol, veh/h		1763			1420			1213			1030	
Approach Delay, s/veh		146.8			162.2			70.0			40.0	
Approach LOS		F			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	30.7	13.0	29.0	20.9	36.2	11.9	30.1
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	22.6	* 25	7.2	22.5	* 17	30.7	8.2	21.5
Max Q Clear Time (g_c+I1), s	20.9	26.9	9.2	24.5	16.2	16.3	6.1	25.6
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.0	3.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	113.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	366	11	100	230	13	7	57	103	22	34	20
Future Vol, veh/h	21	366	11	100	230	13	7	57	103	22	34	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	381	11	104	240	14	7	59	107	23	35	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.9	14.3	11	10.3
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	5%	29%	29%
Vol Thru, %	34%	92%	67%	45%
Vol Right, %	62%	3%	4%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	398	343	76
LT Vol	7	21	100	22
Through Vol	57	366	230	34
RT Vol	103	11	13	20
Lane Flow Rate	174	415	357	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.277	0.602	0.53	0.137
Departure Headway (Hd)	5.725	5.224	5.339	6.21
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	625	688	675	574
Service Time	3.788	3.27	3.388	4.283
HCM Lane V/C Ratio	0.278	0.603	0.529	0.138
HCM Control Delay	11	15.9	14.3	10.3
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1.1	4.1	3.1	0.5

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	920	6	8	557	3	11
Future Vol, veh/h	920	6	8	557	3	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	968	6	8	586	3	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	974	0	1573	971
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	602	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	708	-	121	307
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	708	-	119	307
Mov Cap-2 Maneuver	-	-	-	-	119	-
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	21.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	-	-	708	-
HCM Lane V/C Ratio	0.064	-	-	0.012	-
HCM Control Delay (s)	21.8	-	-	10.1	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	48.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	0	733	186	76	468	0	93	0	135	0	0	0
Future Vol, veh/h	0	733	186	76	468	0	93	0	135	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	93	93	92	93	92	93	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	788	200	82	503	0	100	0	145	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	503	0	0	988	0	0	1555	1555	888	1628	1655	503
Stage 1	-	-	-	-	-	-	888	888	-	667	667	-
Stage 2	-	-	-	-	-	-	667	667	-	961	988	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1061	-	-	699	-	-	~ 92	113	343	82	98	569
Stage 1	-	-	-	-	-	-	338	362	-	448	457	-
Stage 2	-	-	-	-	-	-	448	457	-	308	325	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1061	-	-	699	-	-	~ 84	100	343	43	87	569
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 84	100	-	43	87	-
Stage 1	-	-	-	-	-	-	338	362	-	448	404	-
Stage 2	-	-	-	-	-	-	395	404	-	178	325	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	$ 356.9	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	152	1061	-	-	699	-	-	-
HCM Lane V/C Ratio	1.613	-	-	-	0.117	-	-	-
HCM Control Delay (s)	$ 356.9	0	-	-	10.8	-	-	0
HCM Lane LOS	F	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	17	0	-	-	0.4	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	571	192	513	366	36	115	141	330	91	142	44
Future Volume (veh/h)	139	571	192	513	366	36	115	141	330	91	142	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	146	601	202	540	385	38	121	148	347	96	149	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	185	728	244	553	1087	107	184	326	276	123	251	213
Arrive On Green	0.10	0.29	0.29	0.16	0.35	0.35	0.10	0.17	0.17	0.07	0.13	0.13
Sat Flow, veh/h	1781	2509	842	3456	3139	308	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	146	408	395	540	208	215	121	148	347	96	149	46
Grp Sat Flow(s),veh/h/ln	1781	1706	1645	1728	1706	1741	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.6	15.6	15.7	10.9	6.4	6.4	4.6	5.0	12.2	3.7	5.2	1.8
Cycle Q Clear(g_c), s	5.6	15.6	15.7	10.9	6.4	6.4	4.6	5.0	12.2	3.7	5.2	1.8
Prop In Lane	1.00		0.51	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	185	495	477	553	591	603	184	326	276	123	251	213
V/C Ratio(X)	0.79	0.82	0.83	0.98	0.35	0.36	0.66	0.45	1.25	0.78	0.59	0.22
Avail Cap(c_a), veh/h	313	600	579	553	591	603	206	326	276	168	294	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	23.2	23.2	29.2	17.0	17.0	30.2	25.9	28.9	32.0	28.5	27.0
Incr Delay (d2), s/veh	7.2	7.8	8.2	32.0	0.4	0.4	6.3	1.0	140.8	14.7	2.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.6	6.4	6.7	2.3	2.4	2.1	2.1	15.1	2.0	2.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	30.9	31.3	61.3	17.4	17.4	36.5	26.9	169.7	46.7	30.8	27.5
LnGrp LOS	D	C	C	E	B	B	D	C	F	D	C	C
Approach Vol, veh/h		949			963			616			291	
Approach Delay, s/veh		32.2			42.0			109.2			35.5	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	18.0	16.3	26.1	12.3	15.2	12.4	30.0
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 6.6	12.2	11.2	24.6	8.1	* 11	12.3	* 24
Max Q Clear Time (g_c+I1), s	5.7	14.2	12.9	17.7	6.6	7.2	7.6	8.4
Green Ext Time (p_c), s	0.0	0.0	0.0	2.6	0.0	0.3	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	10.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	54	171	301	116	157
Future Vol, veh/h	176	54	171	301	116	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	200	61	194	342	132	178

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	807	365	0	0	536	0
Stage 1	365	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	351	680	-	-	1032	-
Stage 1	702	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	301	680	-	-	1032	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	556	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	41.4	0	3.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	346	1032	-
HCM Lane V/C Ratio	-	-	0.755	0.128	-
HCM Control Delay (s)	-	-	41.4	9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	5.9	0.4	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	470	15	10	327
Future Vol, veh/h	22	4	470	15	10	327
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	5	534	17	11	372

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	937	543	0	0	551	0
Stage 1	543	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	294	540	-	-	1019	-
Stage 1	582	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	290	540	-	-	1019	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	312	1019	-
HCM Lane V/C Ratio	-	-	0.095	0.011	-
HCM Control Delay (s)	-	-	17.7	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

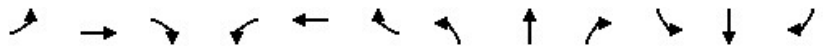
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	1632	352	278	1064	10	163	242	347	17	182	122
Future Volume (veh/h)	253	1632	352	278	1064	10	163	242	347	17	182	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	272	1755	378	299	1144	11	175	260	373	18	196	131
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	1181	527	342	1329	593	212	496	421	36	311	264
Arrive On Green	0.06	0.33	0.33	0.10	0.37	0.37	0.12	0.27	0.27	0.02	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	272	1755	378	299	1144	11	175	260	373	18	196	131
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	28.9	18.2	7.4	25.8	0.4	8.3	10.3	19.7	0.9	8.5	6.5
Cycle Q Clear(g_c), s	5.0	28.9	18.2	7.4	25.8	0.4	8.3	10.3	19.7	0.9	8.5	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	1181	527	342	1329	593	212	496	421	36	311	264
V/C Ratio(X)	2.65	1.49	0.72	0.87	0.86	0.02	0.82	0.52	0.89	0.50	0.63	0.50
Avail Cap(c_a), veh/h	102	1181	527	342	1369	611	311	596	505	102	377	319
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	29.0	25.4	38.6	25.1	17.2	37.4	27.2	30.7	42.1	33.7	32.9
Incr Delay (d2), s/veh	771.9	223.0	4.7	21.4	5.7	0.0	10.9	0.9	15.2	10.2	2.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.0	47.3	6.7	3.9	10.4	0.1	4.0	4.3	8.5	0.5	3.7	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	812.8	252.1	30.1	60.0	30.8	17.2	48.3	28.1	45.9	52.4	36.1	34.4
LnGrp LOS	F	F	C	E	C	B	D	C	D	D	D	C
Approach Vol, veh/h		2405			1454			808			345	
Approach Delay, s/veh		280.6			36.7			40.7			36.3	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	29.6	14.4	35.4	16.2	21.0	10.8	39.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	2.9	21.7	9.4	30.9	10.3	10.5	7.0	27.8
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.2	0.7	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	154.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	116	95	75	45	91	159	577	114	113	539	111
Future Volume (veh/h)	83	116	95	75	45	91	159	577	114	113	539	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	125	102	81	48	98	171	620	123	122	580	119
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	251	213	109	246	209	170	1093	216	155	667	565
Arrive On Green	0.06	0.13	0.13	0.06	0.13	0.13	0.10	0.37	0.37	0.09	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2956	585	1781	1870	1585
Grp Volume(v), veh/h	89	125	102	81	48	98	171	372	371	122	580	119
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1765	1781	1870	1585
Q Serve(g_s), s	3.0	3.8	3.6	2.7	1.4	3.5	5.8	10.1	10.2	4.1	17.6	3.2
Cycle Q Clear(g_c), s	3.0	3.8	3.6	2.7	1.4	3.5	5.8	10.1	10.2	4.1	17.6	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	114	251	213	109	246	209	170	657	652	155	667	565
V/C Ratio(X)	0.78	0.50	0.48	0.74	0.19	0.47	1.01	0.57	0.57	0.78	0.87	0.21
Avail Cap(c_a), veh/h	147	339	287	158	370	313	170	761	756	167	801	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	24.4	24.3	28.0	23.5	24.4	27.5	15.3	15.3	27.2	18.2	13.6
Incr Delay (d2), s/veh	18.2	1.5	1.7	10.2	0.4	1.6	70.4	0.8	0.8	20.1	8.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.7	1.3	1.4	0.6	1.3	5.5	3.4	3.3	2.4	7.8	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	25.9	26.0	38.2	23.9	26.0	97.8	16.0	16.1	47.3	27.1	13.8
LnGrp LOS	D	C	C	D	C	C	F	B	B	D	C	B
Approach Vol, veh/h		316			227			914			821	
Approach Delay, s/veh		31.7			29.9			31.3			28.2	
Approach LOS		C			C			C			C	

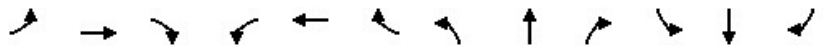
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	28.7	8.4	13.3	11.2	27.8	8.6	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	6.1	12.2	4.7	5.8	7.8	19.6	5.0	5.5
Green Ext Time (p_c), s	0.0	3.5	0.0	0.4	0.0	2.1	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	468	933	280	239	626	307	199	671	213	235	462	298
Future Volume (veh/h)	468	933	280	239	626	307	199	671	213	235	462	298
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	482	962	289	246	645	0	205	692	220	242	476	307
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	895	268	224	790		146	635	202	117	410	348
Arrive On Green	0.23	0.33	0.33	0.13	0.22	0.00	0.08	0.24	0.24	0.07	0.22	0.22
Sat Flow, veh/h	1781	2696	806	1781	3554	1585	1781	2652	843	1781	1870	1585
Grp Volume(v), veh/h	482	633	618	246	645	0	205	464	448	242	476	307
Grp Sat Flow(s),veh/h/ln	1781	1777	1725	1781	1777	1585	1781	1777	1719	1781	1870	1585
Q Serve(g_s), s	23.2	33.3	33.3	12.6	17.3	0.0	8.2	24.0	24.0	6.6	22.0	18.8
Cycle Q Clear(g_c), s	23.2	33.3	33.3	12.6	17.3	0.0	8.2	24.0	24.0	6.6	22.0	18.8
Prop In Lane	1.00		0.47	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	412	590	573	224	790		146	425	411	117	410	348
V/C Ratio(X)	1.17	1.07	1.08	1.10	0.82		1.41	1.09	1.09	2.06	1.16	0.88
Avail Cap(c_a), veh/h	412	590	573	224	801		146	425	411	117	410	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	33.5	33.5	43.8	37.1	0.0	46.1	38.1	38.2	46.9	39.2	37.9
Incr Delay (d2), s/veh	99.5	58.0	60.8	89.3	6.5	0.0	219.2	70.2	71.0	507.2	96.0	22.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	22.4	22.2	10.8	7.7	0.0	12.3	17.9	17.4	19.3	20.4	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	138.1	91.5	94.3	133.1	43.6	0.0	265.2	108.3	109.2	554.0	135.1	60.3
LnGrp LOS	F	F	F	F	D		F	F	F	F	F	E
Approach Vol, veh/h		1733			891	A		1117			1025	
Approach Delay, s/veh		105.5			68.3			137.5			211.6	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	30.5	18.0	39.8	14.0	28.5	29.0	28.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	6.6	23.7	12.6	33.3	8.2	* 22	23.2	* 23
Max Q Clear Time (g_c+I1), s	8.6	26.0	14.6	35.3	10.2	24.0	25.2	19.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	128.9
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	471	202	932	855	138
Future Volume (veh/h)	150	471	202	932	855	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	213	981	900	145
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	178		234	1428	892	144
Arrive On Green	0.10	0.00	0.13	0.76	0.57	0.57
Sat Flow, veh/h	1781	1585	1781	1870	1572	253
Grp Volume(v), veh/h	158	0	213	981	0	1045
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1825
Q Serve(g_s), s	7.9	0.0	10.6	23.5	0.0	51.1
Cycle Q Clear(g_c), s	7.9	0.0	10.6	23.5	0.0	51.1
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	178		234	1428	0	1036
V/C Ratio(X)	0.89		0.91	0.69	0.00	1.01
Avail Cap(c_a), veh/h	178		234	1428	0	1036
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.0	0.0	38.6	5.3	0.0	19.5
Incr Delay (d2), s/veh	37.5	0.0	36.0	1.4	0.0	30.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	6.6	4.6	0.0	24.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	77.5	0.0	74.6	6.7	0.0	49.5
LnGrp LOS	E		E	A	A	F
Approach Vol, veh/h	158	A		1194	1045	
Approach Delay, s/veh	77.5			18.8	49.5	
Approach LOS	E			B	D	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	75.2		14.8	17.6	57.6
Change Period (Y+Rc), s	6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s	68.7		9.0	11.8	51.1
Max Q Clear Time (g_c+I1), s	25.5		9.9	12.6	53.1
Green Ext Time (p_c), s	8.3		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

EPAP PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	228	3.0	235	3.0	1.448	230.5	LOS F	99.9	2558.2	1.00	4.67	12.41	7.9
8	T1	599	3.0	618	3.0	1.448	230.5	LOS F	99.9	2558.2	1.00	4.67	12.41	8.0
18	R2	22	3.0	23	3.0	1.448	230.5	LOS F	99.9	2558.2	1.00	4.67	12.41	7.9
Approach		849	3.0	875	3.0	1.448	230.5	LOS F	99.9	2558.2	1.00	4.67	12.41	7.9
East: Claratina Rd														
1	L2	25	3.0	26	3.0	0.602	17.5	LOS C	4.3	111.0	0.80	0.95	1.39	31.7
6	T1	312	3.0	322	3.0	0.602	17.5	LOS C	4.3	111.0	0.80	0.95	1.39	32.4
16	R2	17	3.0	18	3.0	0.602	17.5	LOS C	4.3	111.0	0.80	0.95	1.39	33.0
Approach		354	3.0	365	3.0	0.602	17.5	LOS C	4.3	111.0	0.80	0.95	1.39	32.3
North: Coffee Rd														
7	L2	75	3.0	77	3.0	0.816	23.9	LOS C	13.8	352.6	0.93	1.30	2.20	30.6
4	T1	605	3.0	624	3.0	0.816	23.9	LOS C	13.8	352.6	0.93	1.30	2.20	29.0
14	R2	121	3.0	125	3.0	0.077	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		801	3.0	826	3.0	0.816	20.3	LOS C	13.8	352.6	0.79	1.10	1.87	30.7
West: Claratina Rd														
5	L2	155	3.0	160	3.0	0.978	53.1	LOS F	23.4	600.3	1.00	1.94	4.13	21.2
2	T1	507	3.0	523	3.0	0.978	53.1	LOS F	23.4	600.3	1.00	1.94	4.13	21.3
12	R2	229	3.0	236	3.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		891	3.0	919	3.0	0.978	39.5	LOS E	23.4	600.3	0.74	1.44	3.07	24.1
All Vehicles		2895	3.0	2985	3.0	1.448	87.5	LOS F	99.9	2558.2	0.84	2.23	5.27	16.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.0	0.0	0.1
Total Del/Veh (s)	33.6	41.0	38.4	27.2	34.6
Vehicles Entered	395	970	374	977	2716
Vehicles Exited	394	966	375	981	2716
Hourly Exit Rate	394	966	375	981	2716
Input Volume	394	984	376	973	2726
% of Volume	100	98	100	101	100
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.7	0.0	0.5
Total Del/Veh (s)	18.1	47.9	8.4	37.0
Vehicles Entered	440	1326	221	1987
Vehicles Exited	440	1320	221	1981
Hourly Exit Rate	440	1320	221	1981
Input Volume	438	1334	222	1995
% of Volume	100	99	99	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.7	12.6	15.6	10.4
Vehicles Entered	609	533	323	1465
Vehicles Exited	609	531	322	1462
Hourly Exit Rate	609	531	322	1462
Input Volume	614	531	325	1470
% of Volume	99	100	99	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

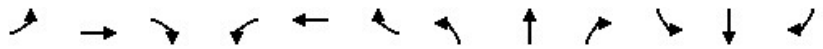
Total Zone Performance

Denied Del/Veh (s)	6.3
Total Del/Veh (s)	749.3
Vehicles Entered	209
Vehicles Exited	162
Hourly Exit Rate	162
Input Volume	6192
% of Volume	3
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	83	179	156	167	21	265	486	68	14	533	29
Future Volume (veh/h)	22	83	179	156	167	21	265	486	68	14	533	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	90	32	170	182	23	288	528	74	15	579	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	222	188	211	383	325	331	1226	171	39	779	43
Arrive On Green	0.03	0.12	0.12	0.12	0.20	0.20	0.19	0.39	0.39	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3131	437	1781	3424	189
Grp Volume(v), veh/h	24	90	32	170	182	23	288	299	303	15	300	311
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1792	1781	1777	1836
Q Serve(g_s), s	0.9	3.0	1.2	6.3	5.8	0.8	10.6	8.3	8.3	0.6	10.6	10.6
Cycle Q Clear(g_c), s	0.9	3.0	1.2	6.3	5.8	0.8	10.6	8.3	8.3	0.6	10.6	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.10
Lane Grp Cap(c), veh/h	57	222	188	211	383	325	331	696	702	39	404	418
V/C Ratio(X)	0.42	0.41	0.17	0.81	0.47	0.07	0.87	0.43	0.43	0.39	0.74	0.74
Avail Cap(c_a), veh/h	159	223	189	254	383	325	334	869	877	159	695	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	27.4	26.6	28.9	23.5	21.6	26.6	15.0	15.0	32.4	24.1	24.2
Incr Delay (d2), s/veh	4.8	1.2	0.4	14.6	0.9	0.1	21.0	0.4	0.4	6.2	2.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.4	3.2	2.3	0.3	5.8	2.8	2.8	0.3	4.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	28.6	27.1	43.5	24.5	21.7	47.5	15.4	15.4	38.6	26.9	26.8
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		146			375			890			626	
Approach Delay, s/veh		29.6			32.9			25.8			27.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	32.5	13.4	14.5	17.9	21.5	7.6	20.3
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	32.9	9.6	8.0	12.6	26.3	6.0	11.6
Max Q Clear Time (g_c+I1), s	2.6	10.3	8.3	5.0	12.6	12.6	2.9	7.8
Green Ext Time (p_c), s	0.0	3.2	0.1	0.1	0.0	2.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C



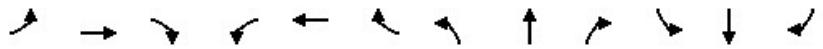
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	38	0	0	0	28	826	0	0	935	15
Future Volume (veh/h)	20	0	38	0	0	0	28	826	0	0	935	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	0	42	0	0	0	31	918	0	0	1039	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	0	58	0	109	0	62	1382	0	3	1110	18
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.74	0.00	0.00	0.60	0.60
Sat Flow, veh/h	524	0	1000	0	1870	0	1781	1870	0	1781	1835	30
Grp Volume(v), veh/h	64	0	0	0	0	0	31	918	0	0	0	1056
Grp Sat Flow(s),veh/h/ln	1523	0	0	0	1870	0	1781	1870	0	1781	0	1865
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	0.0	0.9	12.9	0.0	0.0	0.0	26.5
Cycle Q Clear(g_c), s	2.1	0.0	0.0	0.0	0.0	0.0	0.9	12.9	0.0	0.0	0.0	26.5
Prop In Lane	0.34		0.66	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	183	0	0	0	109	0	62	1382	0	3	0	1128
V/C Ratio(X)	0.35	0.00	0.00	0.00	0.00	0.00	0.50	0.66	0.00	0.00	0.00	0.94
Avail Cap(c_a), veh/h	290	0	0	0	241	0	187	1382	0	174	0	1181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	0.0	0.0	0.0	0.0	24.3	3.4	0.0	0.0	0.0	9.2
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	0.0	6.1	1.2	0.0	0.0	0.0	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.0	0.0	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	0.0	0.0	0.0	0.0	30.4	4.6	0.0	0.0	0.0	22.6
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	C
Approach Vol, veh/h		64			0			949			1056	
Approach Delay, s/veh		24.9			0.0			5.5			22.6	
Approach LOS		C						A			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	43.7		7.6	6.9	36.8		7.6
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6
Max Green Setting (Gmax), s	5.0	32.9		6.6	5.4	32.5		6.6
Max Q Clear Time (g_c+I1), s	10.0	14.9		4.1	2.9	28.5		0.0
Green Ext Time (p_c), s	0.0	6.2		0.0	0.0	2.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	223	37	12	551	412	33	319	10	199	441	279
Future Volume (veh/h)	134	223	37	12	551	412	33	319	10	199	441	279
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	253	42	14	626	411	38	362	11	226	501	317
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	650	108	29	614	520	62	529	16	262	549	347
Arrive On Green	0.10	0.42	0.42	0.02	0.33	0.33	0.03	0.15	0.15	0.15	0.26	0.26
Sat Flow, veh/h	1781	1564	260	1781	1870	1585	1781	3521	107	1781	2091	1319
Grp Volume(v), veh/h	152	0	295	14	626	411	38	182	191	226	426	392
Grp Sat Flow(s),veh/h/ln	1781	0	1824	1781	1870	1585	1781	1777	1851	1781	1777	1633
Q Serve(g_s), s	7.3	0.0	9.8	0.7	28.5	20.4	1.8	8.4	8.5	10.8	20.2	20.3
Cycle Q Clear(g_c), s	7.3	0.0	9.8	0.7	28.5	20.4	1.8	8.4	8.5	10.8	20.2	20.3
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.06	1.00		0.81
Lane Grp Cap(c), veh/h	185	0	758	29	614	520	62	267	278	262	467	429
V/C Ratio(X)	0.82	0.00	0.39	0.48	1.02	0.79	0.62	0.68	0.69	0.86	0.91	0.91
Avail Cap(c_a), veh/h	197	0	758	103	614	520	103	299	311	283	479	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	17.7	42.3	29.2	26.5	41.4	34.9	35.0	36.2	31.0	31.1
Incr Delay (d2), s/veh	22.3	0.0	0.3	11.5	41.5	8.1	9.7	5.5	5.3	21.8	21.4	23.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	3.6	0.4	18.2	7.9	0.9	3.8	4.0	5.9	10.6	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	0.0	18.0	53.8	70.7	34.5	51.0	40.4	40.3	58.0	52.4	54.3
LnGrp LOS	E	A	B	D	F	C	D	D	D	E	D	D
Approach Vol, veh/h		447			1051			411			1044	
Approach Delay, s/veh		32.4			56.3			41.3			54.3	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	19.2	6.8	42.6	8.4	29.0	14.4	35.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	13.8	14.6	5.0	33.1	5.0	23.4	9.6	28.5
Max Q Clear Time (g_c+I1), s	12.8	10.5	2.7	11.8	3.8	22.3	9.3	30.5
Green Ext Time (p_c), s	0.1	0.7	0.0	1.4	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	438	0	314	972	0	0	0	210	0	0	0
Future Volume (veh/h)	0	438	0	314	972	0	0	0	210	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	515	0	369	1144	0	0	0	247			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	713		456	1522	0	0	0	0			
Arrive On Green	0.00	0.38	0.00	0.27	0.81	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	515	0	369	1144	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	8.2	0.0	7.0	10.2	0.0						
Cycle Q Clear(g_c), s	0.0	8.2	0.0	7.0	10.2	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	713		456	1522	0						
V/C Ratio(X)	0.00	0.72		0.81	0.75	0.00						
Avail Cap(c_a), veh/h	0	1606		700	1531	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	9.2	0.0	12.0	1.6	0.0						
Incr Delay (d2), s/veh	0.0	1.4	0.0	4.1	2.1	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.0	2.0	0.9	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.6	0.0	16.1	3.7	0.0						
LnGrp LOS	A	B		B	A	A						
Approach Vol, veh/h		515	A		1513							
Approach Delay, s/veh		10.6			6.7							
Approach LOS		B			A							

Timer - Assigned Phs		3	4			8
Phs Duration (G+Y+Rc), s		15.1	19.8			34.9
Change Period (Y+Rc), s		5.8	* 6.5			6.5
Max Green Setting (Gmax), s		14.3	* 30			28.6
Max Q Clear Time (g_c+I1), s		9.0	10.2			12.2
Green Ext Time (p_c), s		0.5	3.1			7.8

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	375	221	0	531	320	1
Future Volume (veh/h)	375	221	0	531	320	1
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	412	243	0	584	352	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	665	952	0	1263	462	
Arrive On Green	0.36	0.36	0.00	0.36	0.27	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	412	243	0	584	352	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	5.3	2.1	0.0	3.7	5.5	0.0
Cycle Q Clear(g_c), s	5.3	2.1	0.0	3.7	5.5	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	665	952	0	1263	462	
V/C Ratio(X)	0.62	0.26	0.00	0.46	0.76	
Avail Cap(c_a), veh/h	2056	2085	0	3906	1058	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.8	2.4	0.0	7.2	9.8	0.0
Incr Delay (d2), s/veh	0.9	0.1	0.0	0.3	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.4	0.0	0.5	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.7	2.6	0.0	7.5	12.4	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	655			584	352	A
Approach Delay, s/veh	6.4			7.5	12.4	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	16.5				16.5	12.6
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	32.0				32.0	18.0
Max Q Clear Time (g_c+I1), s	7.3				5.7	7.5
Green Ext Time (p_c), s	3.0				3.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	16	9	576	835	17
Future Vol, veh/h	16	16	9	576	835	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	18	18	10	640	928	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1598	938	947	0	-	0
Stage 1	938	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	117	321	725	-	-	-
Stage 1	381	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	321	725	-	-	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	725	-	313	-	-
HCM Lane V/C Ratio	0.014	-	0.114	-	-
HCM Control Delay (s)	10	-	18	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	7	590	11	3	848
Future Vol, veh/h	30	7	590	11	3	848
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	33	8	656	12	3	942

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1610	662	0	0	668	0
Stage 1	662	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	115	462	-	-	922	-
Stage 1	513	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	114	462	-	-	922	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	374	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	133	922	-
HCM Lane V/C Ratio	-	-	0.309	0.004	-
HCM Control Delay (s)	-	-	43.7	8.9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	553	166	523	1155	139	138	352	180	99	637	156
Future Volume (veh/h)	149	553	166	523	1155	139	138	352	180	99	637	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	162	601	180	568	1255	151	150	383	196	108	692	170
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	182	1134	352	635	1219	553	181	867	403	136	797	349
Arrive On Green	0.06	0.24	0.24	0.18	0.36	0.36	0.11	0.25	0.25	0.08	0.23	0.23
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	162	601	180	568	1255	151	150	383	196	108	692	170
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	4.7	10.3	9.9	15.2	34.5	6.7	8.3	9.0	10.0	5.9	18.5	9.3
Cycle Q Clear(g_c), s	4.7	10.3	9.9	15.2	34.5	6.7	8.3	9.0	10.0	5.9	18.5	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	1134	352	635	1219	553	181	867	403	136	797	349
V/C Ratio(X)	0.89	0.53	0.51	0.89	1.03	0.27	0.83	0.44	0.49	0.80	0.87	0.49
Avail Cap(c_a), veh/h	182	1134	352	659	1219	553	236	870	404	238	866	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	31.7	31.6	37.8	30.2	21.4	41.5	29.7	30.1	43.0	35.0	31.5
Incr Delay (d2), s/veh	37.4	0.5	1.2	14.4	33.5	0.3	17.1	0.4	0.9	10.1	8.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.7	3.4	7.2	17.9	2.2	4.2	3.6	3.6	2.8	8.2	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.0	32.2	32.8	52.2	63.7	21.6	58.6	30.1	31.0	53.1	43.9	32.5
LnGrp LOS	F	C	C	D	F	C	E	C	C	D	D	C
Approach Vol, veh/h		943			1974			729			970	
Approach Delay, s/veh		40.9			57.2			36.2			42.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	29.9	23.3	28.8	14.9	28.0	11.1	41.0
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	13.2	* 24	18.1	21.7	* 13	24.1	5.3	34.5
Max Q Clear Time (g_c+I1), s	7.9	12.0	17.2	12.3	10.3	20.5	6.7	36.5
Green Ext Time (p_c), s	0.1	2.5	0.2	2.9	0.1	1.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	17.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	203	7	161	508	9	52	34	102	23	67	38
Future Vol, veh/h	20	203	7	161	508	9	52	34	102	23	67	38
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	251	9	199	627	11	64	42	126	28	83	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	17.1	198.3	16.3	14.6
HCM LOS	C	F	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	9%	24%	18%
Vol Thru, %	18%	88%	75%	52%
Vol Right, %	54%	3%	1%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	188	230	678	128
LT Vol	52	20	161	23
Through Vol	34	203	508	67
RT Vol	102	7	9	38
Lane Flow Rate	232	284	837	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.433	0.508	1.377	0.31
Departure Headway (Hd)	7.588	7.068	5.923	8.006
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	478	514	611	452
Service Time	5.588	5.068	3.992	6.006
HCM Lane V/C Ratio	0.485	0.553	1.37	0.35
HCM Control Delay	16.3	17.1	198.3	14.6
HCM Lane LOS	C	C	F	B
HCM 95th-tile Q	2.2	2.8	36.8	1.3

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	640	2	10	1278	4	8
Future Vol, veh/h	640	2	10	1278	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	736	2	11	1469	5	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	738	0	2228	737
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	1491	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	868	-	47	418
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	206	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	868	-	44	418
Mov Cap-2 Maneuver	-	-	-	-	44	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	192	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	42.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	109	-	-	868	-
HCM Lane V/C Ratio	0.127	-	-	0.013	-
HCM Control Delay (s)	42.8	-	-	9.2	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	261	272	112	199	797	223	194	202	128	211	231	295
Future Vol, veh/h	261	272	112	199	797	223	194	202	128	211	231	295
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	87	87	92	87	92	87	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	284	313	129	229	916	242	223	220	147	229	251	321

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1158	0	0	442	0	0	2727	2562	378	2624	2505	1037
Stage 1	-	-	-	-	-	-	946	946	-	1495	1495	-
Stage 2	-	-	-	-	-	-	1781	1616	-	1129	1010	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	603	-	-	1118	-	-	~ 13	~ 26	669	~ 16	~ 29	~ 281
Stage 1	-	-	-	-	-	-	314	340	-	~ 153	~ 186	-
Stage 2	-	-	-	-	-	-	~ 105	~ 162	-	248	317	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	603	-	-	1118	-	-	-	~ 8	669	-	~ 8	~ 281
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 8	-	-	~ 8	-
Stage 1	-	-	-	-	-	-	~ 114	~ 124	-	~ 56	~ 148	-
Stage 2	-	-	-	-	-	-	~ 8	~ 129	-	-	~ 115	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	6.3	1.5		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	603	-	-	1118	-	-	-
HCM Lane V/C Ratio	-	0.47	-	-	0.205	-	-	-
HCM Control Delay (s)	-	16.2	0	-	9	-	-	-
HCM Lane LOS	-	C	A	-	A	-	-	-
HCM 95th %tile Q(veh)	-	2.5	-	-	0.8	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	420	106	330	635	49	248	109	166	63	119	131
Future Volume (veh/h)	83	420	106	330	635	49	248	109	166	63	119	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	447	113	351	676	52	264	116	177	67	127	139
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	114	594	149	473	940	72	321	480	406	97	233	197
Arrive On Green	0.06	0.22	0.22	0.14	0.29	0.29	0.18	0.26	0.26	0.05	0.12	0.12
Sat Flow, veh/h	1781	2703	678	3456	3211	247	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	88	281	279	351	359	369	264	116	177	67	127	139
Grp Sat Flow(s),veh/h/ln	1781	1706	1674	1728	1706	1752	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.1	9.9	10.0	6.3	12.1	12.1	9.2	3.2	6.0	2.4	4.1	5.4
Cycle Q Clear(g_c), s	3.1	9.9	10.0	6.3	12.1	12.1	9.2	3.2	6.0	2.4	4.1	5.4
Prop In Lane	1.00		0.40	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	375	368	473	499	513	321	480	406	97	233	197
V/C Ratio(X)	0.77	0.75	0.76	0.74	0.72	0.72	0.82	0.24	0.44	0.69	0.55	0.71
Avail Cap(c_a), veh/h	274	562	552	693	661	678	579	739	626	252	404	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	23.4	23.5	26.7	20.4	20.4	25.4	19.0	20.0	29.9	26.5	27.0
Incr Delay (d2), s/veh	10.5	3.0	3.3	2.4	2.6	2.5	5.3	0.3	0.7	8.6	2.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.8	3.8	2.6	4.7	4.8	3.9	1.2	2.1	1.2	1.8	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	26.4	26.8	29.1	22.9	22.9	30.7	19.2	20.8	38.5	28.4	31.6
LnGrp LOS	D	C	C	C	C	C	C	B	C	D	C	C
Approach Vol, veh/h		648			1079			557			333	
Approach Delay, s/veh		28.5			24.9			25.1			31.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	22.3	13.9	19.9	16.7	13.8	9.2	24.6
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.1	25.4	12.9	21.2	20.9	* 14	9.9	* 25
Max Q Clear Time (g_c+I1), s	4.4	8.0	8.3	12.0	11.2	7.4	5.1	14.1
Green Ext Time (p_c), s	0.0	1.0	0.5	2.1	0.5	0.6	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	160.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	258	134	379	73	57	503
Future Vol, veh/h	258	134	379	73	57	503
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	315	163	462	89	70	613

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1260	507	0	0	551	0
Stage 1	507	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 188	566	-	-	1019	-
Stage 1	605	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 168	566	-	-	1019	-
Mov Cap-2 Maneuver	~ 168	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	417	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 573.4	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	221	1019	-
HCM Lane V/C Ratio	-	-	2.163	0.068	-
HCM Control Delay (s)	-	-	$ 573.4	8.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	37	0.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	5	448	7	1	759
Future Vol, veh/h	33	5	448	7	1	759
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	6	521	8	1	883

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1410	525	0	0	529	0
Stage 1	525	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	153	552	-	-	1038	-
Stage 1	593	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	552	-	-	1038	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	169	1038	-
HCM Lane V/C Ratio	-	-	0.261	0.001	-
HCM Control Delay (s)	-	-	33.7	8.5	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-

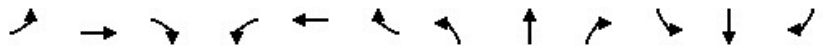
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	583	128	236	1391	45	199	328	184	44	451	276
Future Volume (veh/h)	95	583	128	236	1391	45	199	328	184	44	451	276
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	641	141	259	1529	49	219	360	202	48	496	303
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	1131	504	316	1267	565	253	543	460	68	348	295
Arrive On Green	0.05	0.32	0.32	0.09	0.36	0.36	0.14	0.29	0.29	0.04	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	104	641	141	259	1529	49	219	360	202	48	496	303
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	14.1	6.3	6.9	33.5	1.9	11.3	15.9	9.7	2.5	17.5	17.5
Cycle Q Clear(g_c), s	5.0	14.1	6.3	6.9	33.5	1.9	11.3	15.9	9.7	2.5	17.5	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	1131	504	316	1267	565	253	543	460	68	348	295
V/C Ratio(X)	1.10	0.57	0.28	0.82	1.21	0.09	0.86	0.66	0.44	0.71	1.42	1.03
Avail Cap(c_a), veh/h	95	1131	504	316	1267	565	288	551	467	95	348	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	26.6	24.0	41.9	30.2	20.1	39.4	29.3	27.1	44.7	38.2	38.2
Incr Delay (d2), s/veh	121.1	0.7	0.3	15.5	100.7	0.1	21.0	2.9	0.7	13.3	206.8	59.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	5.5	2.2	3.4	30.3	0.7	6.1	6.9	3.4	1.3	27.4	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	165.6	27.3	24.3	57.4	131.0	20.1	60.4	32.2	27.8	58.0	245.0	97.6
LnGrp LOS	F	C	C	E	F	C	E	C	C	E	F	F
Approach Vol, veh/h		886			1837			781			847	
Approach Delay, s/veh		43.1			117.6			39.0			181.7	
Approach LOS		D			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	33.8	14.4	36.4	19.2	24.0	10.8	40.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	4.5	17.9	8.9	16.1	13.3	19.5	7.0	35.5
Green Ext Time (p_c), s	0.0	1.8	0.0	3.4	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	100.8
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	34	129	84	107	144	46	416	34	65	454	60
Future Volume (veh/h)	82	34	129	84	107	144	46	416	34	65	454	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	94	39	148	97	123	166	53	478	39	75	522	69
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	274	232	126	276	234	90	1100	89	111	630	534
Arrive On Green	0.07	0.15	0.15	0.07	0.15	0.15	0.05	0.33	0.33	0.06	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3328	271	1781	1870	1585
Grp Volume(v), veh/h	94	39	148	97	123	166	53	255	262	75	522	69
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1822	1781	1870	1585
Q Serve(g_s), s	2.8	1.0	4.8	2.9	3.3	5.4	1.6	6.1	6.1	2.2	13.9	1.6
Cycle Q Clear(g_c), s	2.8	1.0	4.8	2.9	3.3	5.4	1.6	6.1	6.1	2.2	13.9	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	124	274	232	126	276	234	90	587	602	111	630	534
V/C Ratio(X)	0.76	0.14	0.64	0.77	0.45	0.71	0.59	0.43	0.44	0.67	0.83	0.13
Avail Cap(c_a), veh/h	164	380	322	178	414	351	191	853	874	187	898	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	20.1	21.8	24.7	21.1	22.0	25.2	14.2	14.2	24.9	16.5	12.5
Incr Delay (d2), s/veh	13.1	0.2	2.9	12.2	1.1	3.9	5.9	0.5	0.5	6.9	4.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.4	1.8	1.5	1.4	2.1	0.7	1.9	2.0	1.0	5.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	20.4	24.6	37.0	22.2	25.9	31.1	14.7	14.7	31.8	21.0	12.6
LnGrp LOS	D	C	C	D	C	C	C	B	B	C	C	B
Approach Vol, veh/h		281			386			570			666	
Approach Delay, s/veh		28.5			27.5			16.2			21.4	
Approach LOS		C			C			B			C	

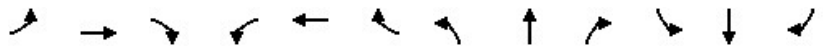
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	24.1	8.5	13.0	8.1	24.4	8.5	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.7	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	4.2	8.1	4.9	6.8	3.6	15.9	4.8	7.4
Green Ext Time (p_c), s	0.0	2.5	0.0	0.2	0.0	2.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	396	113	235	759	137	246	400	127	192	550	422
Future Volume (veh/h)	211	396	113	235	759	137	246	400	127	192	550	422
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	445	127	264	853	0	276	449	143	216	618	474
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	601	170	292	921		245	868	274	130	483	410
Arrive On Green	0.12	0.22	0.22	0.16	0.26	0.00	0.14	0.33	0.33	0.07	0.26	0.26
Sat Flow, veh/h	1781	2734	774	1781	3554	1585	1781	2657	839	1781	1870	1585
Grp Volume(v), veh/h	237	288	284	264	853	0	276	299	293	216	618	474
Grp Sat Flow(s),veh/h/ln	1781	1777	1731	1781	1777	1585	1781	1777	1719	1781	1870	1585
Q Serve(g_s), s	13.3	16.6	16.8	16.0	25.7	0.0	15.1	15.0	15.2	8.0	28.4	28.4
Cycle Q Clear(g_c), s	13.3	16.6	16.8	16.0	25.7	0.0	15.1	15.0	15.2	8.0	28.4	28.4
Prop In Lane	1.00		0.45	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	216	391	381	292	921		245	580	562	130	483	410
V/C Ratio(X)	1.10	0.74	0.75	0.90	0.93		1.13	0.52	0.52	1.67	1.28	1.16
Avail Cap(c_a), veh/h	216	391	381	301	944		245	580	562	130	483	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	39.9	40.0	45.1	39.7	0.0	47.4	30.0	30.0	50.9	40.7	40.7
Incr Delay (d2), s/veh	90.4	7.1	7.8	28.1	14.4	0.0	96.2	0.8	0.9	331.0	140.6	94.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	7.6	7.6	9.0	12.4	0.0	12.9	6.1	6.0	15.4	31.2	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	138.7	47.1	47.8	73.2	54.1	0.0	143.6	30.7	30.9	382.0	181.3	135.6
LnGrp LOS	F	D	D	E	D		F	C	C	F	F	F
Approach Vol, veh/h		809			1117	A		868			1308	
Approach Delay, s/veh		74.2			58.6			66.7			197.9	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	42.4	23.4	30.7	20.9	34.9	19.1	35.0
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	8.0	35.6	18.6	24.0	15.1	* 28	13.3	* 29
Max Q Clear Time (g_c+I1), s	10.0	17.2	18.0	18.8	17.1	30.4	15.3	27.7
Green Ext Time (p_c), s	0.0	2.9	0.1	1.4	0.0	0.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	107.8
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	192	467	731	832	73
Future Volume (veh/h)	30	192	467	731	832	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	0	563	881	1002	88
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	56		542	1657	919	81
Arrive On Green	0.03	0.00	0.30	0.89	0.54	0.54
Sat Flow, veh/h	1781	1585	1781	1870	1695	149
Grp Volume(v), veh/h	36	0	563	881	0	1090
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1844
Q Serve(g_s), s	3.0	0.0	45.2	15.1	0.0	80.5
Cycle Q Clear(g_c), s	3.0	0.0	45.2	15.1	0.0	80.5
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	56		542	1657	0	1000
V/C Ratio(X)	0.65		1.04	0.53	0.00	1.09
Avail Cap(c_a), veh/h	74		542	1657	0	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.1	0.0	51.6	1.8	0.0	34.0
Incr Delay (d2), s/veh	11.9	0.0	48.8	0.3	0.0	56.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	26.6	1.3	0.0	48.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	83.0	0.0	100.5	2.2	0.0	90.3
LnGrp LOS	F		F	A	A	F
Approach Vol, veh/h	36	A		1444	1090	
Approach Delay, s/veh	83.0			40.5	90.3	
Approach LOS	F			D	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		138.0		10.4	51.0	87.0
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		131.5		6.2	45.2	80.5
Max Q Clear Time (g_c+I1), s		17.1		5.0	47.2	82.5
Green Ext Time (p_c), s		6.9		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	85.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	90	717	129	86	833
Future Vol, veh/h	114	90	717	129	86	833
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	98	779	140	93	905

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1940	849	0	0	919	0
Stage 1	849	-	-	-	-	-
Stage 2	1091	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 72	361	-	-	743	-
Stage 1	419	-	-	-	-	-
Stage 2	322	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 54	361	-	-	743	-
Mov Cap-2 Maneuver	~ 54	-	-	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	241	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 819.9	0	1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	86	743	-
HCM Lane V/C Ratio	-	-	2.578	0.126	-
HCM Control Delay (s)	-	-	$ 819.9	10.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	20.9	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	337.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	182	459	1077	137	122	178
Future Vol, veh/h	182	459	1077	137	122	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	198	499	1171	149	133	193

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1320	0	-	0	2141	1246
Stage 1	-	-	-	-	1246	-
Stage 2	-	-	-	-	895	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	524	-	-	-	~ 54	212
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	399	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	524	-	-	-	~ 26	212
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	~ 129	-
Stage 2	-	-	-	-	399	-

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	$ 2416.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	524	-	-	-	54
HCM Lane V/C Ratio	0.378	-	-	-	6.039
HCM Control Delay (s)	16	0	-	-	$ 2416.3
HCM Lane LOS	C	A	-	-	F
HCM 95th %tile Q(veh)	1.7	-	-	-	37.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	625	1249	6	16	78
Future Vol, veh/h	27	625	1249	6	16	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	679	1358	7	17	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1365	0	-	0	2099	1362
Stage 1	-	-	-	-	1362	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	503	-	-	-	57	181
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	503	-	-	-	52	181
Mov Cap-2 Maneuver	-	-	-	-	52	-
Stage 1	-	-	-	-	216	-
Stage 2	-	-	-	-	473	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	99.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	503	-	-	-	127
HCM Lane V/C Ratio	0.058	-	-	-	0.805
HCM Control Delay (s)	12.6	0	-	-	99.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	4.8

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

EPAP plus Project AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	308	3.0	346	3.0	1.036	59.4	LOS F	54.0	1381.3	1.00	2.38	4.35	19.1
8	T1	566	3.0	636	3.0	1.036	59.4	LOS F	54.0	1381.3	1.00	2.38	4.35	19.6
18	R2	9	3.0	10	3.0	1.036	59.4	LOS F	54.0	1381.3	1.00	2.38	4.35	19.4
Approach		883	3.0	992	3.0	1.036	59.4	LOS F	54.0	1381.3	1.00	2.38	4.35	19.5
East: Claratina Rd														
1	L2	20	3.0	22	3.0	1.443	235.8	LOS F	73.6	1884.5	1.00	3.43	11.72	7.8
6	T1	498	3.0	560	3.0	1.443	235.8	LOS F	73.6	1884.5	1.00	3.43	11.72	7.9
16	R2	60	3.0	67	3.0	1.443	235.8	LOS F	73.6	1884.5	1.00	3.43	11.72	7.9
Approach		578	3.0	649	3.0	1.443	235.8	LOS F	73.6	1884.5	1.00	3.43	11.72	7.9
North: Coffee Rd														
7	L2	40	3.0	45	3.0	1.209	128.4	LOS F	62.3	1594.0	1.00	3.01	8.88	12.8
4	T1	698	3.0	784	3.0	1.209	128.4	LOS F	62.3	1594.0	1.00	3.01	8.88	12.5
14	R2	88	3.0	99	3.0	0.061	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		826	3.0	928	3.0	1.209	114.7	LOS F	62.3	1594.0	0.89	2.69	7.93	13.5
West: Claratina Rd														
5	L2	79	3.0	89	3.0	0.434	10.9	LOS B	2.3	60.1	0.69	0.76	0.92	34.8
2	T1	200	3.0	225	3.0	0.434	10.9	LOS B	2.3	60.1	0.69	0.76	0.92	35.0
12	R2	194	3.0	218	3.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		473	3.0	531	3.0	0.434	6.4	LOS A	2.3	60.1	0.41	0.45	0.54	36.8
All Vehicles		2760	3.0	3101	3.0	1.443	103.8	LOS F	73.6	1884.5	0.87	2.36	6.31	14.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	73.7	54.2	63.6	37.7	54.2
Vehicles Entered	722	653	532	1184	3091
Vehicles Exited	714	646	527	1185	3072
Hourly Exit Rate	714	646	527	1185	3072
Input Volume	720	657	538	1532	3447
% of Volume	99	98	98	77	89
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	1.1	0.2
Total Del/Veh (s)	26.7	29.2	64.4	34.5
Vehicles Entered	836	948	386	2170
Vehicles Exited	834	944	379	2157
Hourly Exit Rate	834	944	379	2157
Input Volume	948	951	384	2282
% of Volume	88	99	99	95
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.3	13.9	17.7	10.6
Vehicles Entered	916	635	259	1810
Vehicles Exited	915	636	259	1810
Hourly Exit Rate	915	636	259	1810
Input Volume	919	806	262	1986
% of Volume	100	79	99	91
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

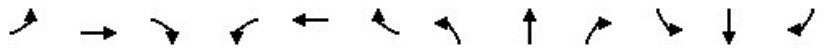
Total Zone Performance

Denied Del/Veh (s)	3.2
Total Del/Veh (s)	1050.2
Vehicles Entered	190
Vehicles Exited	126
Hourly Exit Rate	126
Input Volume	7716
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	185	521	132	108	12	198	626	144	57	708	34
Future Volume (veh/h)	24	185	521	132	108	12	198	626	144	57	708	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	201	403	143	117	13	215	680	157	62	770	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	370	314	173	490	415	218	998	230	101	974	47
Arrive On Green	0.03	0.20	0.20	0.10	0.26	0.26	0.12	0.35	0.35	0.06	0.28	0.28
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2867	661	1781	3452	166
Grp Volume(v), veh/h	26	201	403	143	117	13	215	421	416	62	396	411
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1751	1781	1777	1841
Q Serve(g_s), s	1.1	7.6	15.5	6.2	3.9	0.5	9.4	15.9	15.9	2.7	16.1	16.1
Cycle Q Clear(g_c), s	1.1	7.6	15.5	6.2	3.9	0.5	9.4	15.9	15.9	2.7	16.1	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.09
Lane Grp Cap(c), veh/h	59	370	314	173	490	415	218	619	610	101	501	519
V/C Ratio(X)	0.44	0.54	1.28	0.83	0.24	0.03	0.98	0.68	0.68	0.61	0.79	0.79
Avail Cap(c_a), veh/h	137	370	314	173	490	415	218	787	776	198	767	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	28.2	31.4	34.7	22.7	21.5	34.3	21.8	21.8	36.1	26.0	26.0
Incr Delay (d2), s/veh	5.1	1.6	150.1	27.0	0.2	0.0	56.3	1.7	1.7	5.9	3.2	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.2	18.3	3.7	1.5	0.2	7.2	6.0	6.0	1.2	6.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	29.8	181.5	61.7	23.0	21.5	90.6	23.5	23.5	42.0	29.1	29.0
LnGrp LOS	D	C	F	E	C	C	F	C	C	D	C	C
Approach Vol, veh/h		630			273			1052			869	
Approach Delay, s/veh		127.3			43.2			37.2			30.0	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	33.5	13.0	22.0	15.0	28.3	8.0	27.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	8.7	34.7	7.6	15.5	9.6	33.8	6.0	17.1
Max Q Clear Time (g_c+I1), s	4.7	17.9	8.2	17.5	11.4	18.1	3.1	5.9
Green Ext Time (p_c), s	0.0	4.3	0.0	0.0	0.0	4.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	55.7
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	59	0	0	0	52	968	0	0	1473	31
Future Volume (veh/h)	28	0	59	0	0	0	52	968	0	0	1473	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	62	0	0	0	55	1019	0	0	1551	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	3	75	0	134	0	92	1381	0	3	1083	23
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.05	0.74	0.00	0.00	0.59	0.59
Sat Flow, veh/h	444	47	1049	0	1870	0	1781	1870	0	1781	1825	39
Grp Volume(v), veh/h	91	0	0	0	0	0	55	1019	0	0	0	1584
Grp Sat Flow(s),veh/h/ln	1540	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	1.7	17.1	0.0	0.0	0.0	32.5
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.0	1.7	17.1	0.0	0.0	0.0	32.5
Prop In Lane	0.32		0.68	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	197	0	0	0	134	0	92	1381	0	3	0	1106
V/C Ratio(X)	0.46	0.00	0.00	0.00	0.00	0.00	0.60	0.74	0.00	0.00	0.00	1.43
Avail Cap(c_a), veh/h	272	0	0	0	225	0	176	1381	0	176	0	1106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	0.0	0.0	0.0	0.0	25.4	4.1	0.0	0.0	0.0	11.1
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	0.0	0.0	6.0	2.1	0.0	0.0	0.0	199.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0	0.0	0.0	0.8	1.8	0.0	0.0	0.0	68.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	0.0	0.0	0.0	0.0	31.4	6.2	0.0	0.0	0.0	210.9
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	F
Approach Vol, veh/h		91			0			1074			1584	
Approach Delay, s/veh		26.7			0.0			7.5			210.9	
Approach LOS		C						A			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	46.2		8.5	7.9	38.3		8.5				
Change Period (Y+Rc), s*	4.7	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.4	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	19.1		5.2	3.7	34.5		0.0				
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	0.0		0.0				

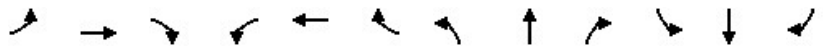
Intersection Summary	
HCM 6th Ctrl Delay	125.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	429	20	19	336	277	17	505	16	502	758	237
Future Volume (veh/h)	271	429	20	19	336	277	17	505	16	502	758	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	282	447	21	20	350	237	18	526	17	523	790	247
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	581	27	36	328	278	34	587	19	512	1161	363
Arrive On Green	0.17	0.33	0.33	0.02	0.18	0.18	0.02	0.17	0.17	0.29	0.44	0.44
Sat Flow, veh/h	1781	1772	83	1781	1870	1585	1781	3513	113	1781	2664	833
Grp Volume(v), veh/h	282	0	468	20	350	237	18	266	277	523	527	510
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	1870	1585	1781	1777	1850	1781	1777	1720
Q Serve(g_s), s	18.5	0.0	27.0	1.3	20.9	17.2	1.2	17.4	17.5	34.2	28.3	28.3
Cycle Q Clear(g_c), s	18.5	0.0	27.0	1.3	20.9	17.2	1.2	17.4	17.5	34.2	28.3	28.3
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.06	1.00		0.48
Lane Grp Cap(c), veh/h	307	0	608	36	328	278	34	297	309	512	774	749
V/C Ratio(X)	0.92	0.00	0.77	0.55	1.07	0.85	0.54	0.90	0.90	1.02	0.68	0.68
Avail Cap(c_a), veh/h	308	0	608	75	328	278	82	311	323	512	774	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	0.0	36.0	57.8	49.1	47.6	57.9	48.5	48.6	42.4	26.9	26.9
Incr Delay (d2), s/veh	30.9	0.0	6.0	12.5	68.1	21.5	12.6	25.9	25.4	45.4	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	0.0	12.4	0.7	15.5	8.1	0.6	9.6	9.9	20.7	11.6	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.3	0.0	41.9	70.2	117.2	69.1	70.5	74.4	74.0	87.8	29.4	29.5
LnGrp LOS	E	A	D	E	F	E	E	E	E	F	C	C
Approach Vol, veh/h		750			607			561			1560	
Approach Delay, s/veh		56.0			96.8			74.1			49.0	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.6	26.1	7.8	45.5	7.6	58.0	25.9	27.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	34.2	20.8	5.0	36.5	5.5	49.5	20.6	20.9
Max Q Clear Time (g_c+I1), s	36.2	19.5	3.3	29.0	3.2	30.3	20.5	22.9
Green Ext Time (p_c), s	0.0	0.4	0.0	1.5	0.0	6.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	934	0	261	657	0	0	0	384	0	0	0
Future Volume (veh/h)	0	934	0	261	657	0	0	0	384	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	983	0	275	692	0	0	0	404			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	1054		334	1632	0	0	0	0			
Arrive On Green	0.00	0.56	0.00	0.20	0.87	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	983	0	275	692	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	24.7	0.0	7.9	3.8	0.0						
Cycle Q Clear(g_c), s	0.0	24.7	0.0	7.9	3.8	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	1054		334	1632	0						
V/C Ratio(X)	0.00	0.93		0.82	0.42	0.00						
Avail Cap(c_a), veh/h	0	1099		479	1632	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	10.2	0.0	19.7	0.7	0.0						
Incr Delay (d2), s/veh	0.0	13.6	0.0	7.6	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	10.3	0.0	3.1	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	0.0	27.2	0.8	0.0						
LnGrp LOS	A	C		C	A	A						
Approach Vol, veh/h		983	A		967							
Approach Delay, s/veh		23.8			8.3							
Approach LOS		C			A							

Timer - Assigned Phs		3	4			8						
Phs Duration (G+Y+Rc), s		15.8	35.3			51.0						
Change Period (Y+Rc), s		5.8	* 6.5			6.5						
Max Green Setting (Gmax), s		14.3	* 30			28.6						
Max Q Clear Time (g_c+I1), s		9.9	26.7			5.8						
Green Ext Time (p_c), s		0.3	2.1			4.1						

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	528	365	0	806	262	0
Future Volume (veh/h)	528	365	0	806	262	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	556	384	0	848	276	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	829	1000	0	1575	366	
Arrive On Green	0.44	0.44	0.00	0.44	0.21	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	556	384	0	848	276	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	7.5	3.7	0.0	5.5	4.8	0.0
Cycle Q Clear(g_c), s	7.5	3.7	0.0	5.5	4.8	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	829	1000	0	1575	366	
V/C Ratio(X)	0.67	0.38	0.00	0.54	0.75	
Avail Cap(c_a), veh/h	1883	1858	0	3577	969	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	2.5	0.0	6.5	11.7	0.0
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.6	0.0	0.7	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	2.7	0.0	6.8	14.9	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	940			848	276	A
Approach Delay, s/veh	5.8			6.8	14.9	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	20.3				20.3	11.5
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	32.0				32.0	18.0
Max Q Clear Time (g_c+I1), s	9.5				7.5	6.8
Green Ext Time (p_c), s	4.6				5.5	0.6

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	11	20	871	1062	16
Future Vol, veh/h	16	11	20	871	1062	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	17	12	21	917	1118	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2086	1127	1135	0	-	0
Stage 1	1127	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	58	249	616	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	249	616	-	-	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	298	-	-	-	-	-
Stage 2	372	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.4	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	616	-	235	-	-
HCM Lane V/C Ratio	0.034	-	0.121	-	-
HCM Control Delay (s)	11.1	-	22.4	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	2	905	35	6	1057
Future Vol, veh/h	25	2	905	35	6	1057
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	2	973	38	6	1137

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2141	992	0	0	1011	0
Stage 1	992	-	-	-	-	-
Stage 2	1149	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	54	298	-	-	686	-
Stage 1	359	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	53	298	-	-	686	-
Mov Cap-2 Maneuver	53	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	295	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	124.5	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	56	686	-
HCM Lane V/C Ratio	-	-	0.518	0.009	-
HCM Control Delay (s)	-	-	124.5	10.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	1335	206	303	973	91	231	647	583	315	699	180
Future Volume (veh/h)	211	1335	206	303	973	91	231	647	583	315	699	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	224	1420	219	322	1035	97	246	688	460	335	744	191
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	270	1093	339	251	727	330	275	856	397	365	1050	461
Arrive On Green	0.08	0.23	0.23	0.07	0.22	0.22	0.16	0.25	0.25	0.21	0.31	0.31
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	224	1420	219	322	1035	97	246	688	460	335	744	191
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	6.7	22.5	13.2	7.2	21.5	5.3	14.2	18.8	24.9	19.0	19.2	10.1
Cycle Q Clear(g_c), s	6.7	22.5	13.2	7.2	21.5	5.3	14.2	18.8	24.9	19.0	19.2	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	1093	339	251	727	330	275	856	397	365	1050	461
V/C Ratio(X)	0.83	1.30	0.65	1.29	1.42	0.29	0.89	0.80	1.16	0.92	0.71	0.41
Avail Cap(c_a), veh/h	270	1093	339	251	727	330	285	856	397	389	1055	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	38.4	34.8	46.0	38.9	32.5	40.7	34.9	37.2	38.2	30.4	27.3
Incr Delay (d2), s/veh	19.3	141.5	4.2	155.1	198.8	0.5	27.4	5.6	95.5	25.4	2.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	22.5	4.8	8.3	28.2	1.9	7.9	8.2	19.4	10.1	7.7	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	179.9	39.0	201.1	237.7	33.0	68.1	40.5	132.7	63.6	32.6	27.9
LnGrp LOS	E	F	D	F	F	C	E	D	F	E	C	C
Approach Vol, veh/h		1863			1454			1394			1270	
Approach Delay, s/veh		149.4			216.0			75.8			40.1	
Approach LOS		F			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.6	30.7	13.0	29.0	20.9	36.3	14.0	28.0
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	22.6	* 25	7.2	22.5	* 17	30.7	8.2	21.5
Max Q Clear Time (g_c+I1), s	21.0	26.9	9.2	24.5	16.2	21.2	8.7	23.5
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.0	3.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	125.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	26.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	467	11	130	330	13	7	57	134	22	34	20
Future Vol, veh/h	21	467	11	130	330	13	7	57	134	22	34	20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	486	11	135	344	14	7	59	140	23	35	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	32	29	13.6	11.8
HCM LOS	D	D	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	4%	27%	29%
Vol Thru, %	29%	94%	70%	45%
Vol Right, %	68%	2%	3%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	499	473	76
LT Vol	7	21	130	22
Through Vol	57	467	330	34
RT Vol	134	11	13	20
Lane Flow Rate	206	520	493	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.377	0.839	0.806	0.162
Departure Headway (Hd)	6.583	5.808	5.888	7.347
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	624	616	487
Service Time	4.638	3.852	3.933	5.418
HCM Lane V/C Ratio	0.378	0.833	0.8	0.162
HCM Control Delay	13.6	32	29	11.8
HCM Lane LOS	B	D	D	B
HCM 95th-tile Q	1.7	9	8.1	0.6

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1316	6	15	924	3	18
Future Vol, veh/h	1316	6	15	924	3	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1385	6	16	973	3	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1391	0	2393	1388
Stage 1	-	-	-	-	1388	-
Stage 2	-	-	-	-	1005	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	492	-	37	175
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	354	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	492	-	34	175
Mov Cap-2 Maneuver	-	-	-	-	34	-
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	329	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	45.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	110	-	-	492	-
HCM Lane V/C Ratio	0.201	-	-	0.032	-
HCM Control Delay (s)	45.8	-	-	12.6	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	117	1005	201	206	719	83	106	178	275	87	179	110
Future Vol, veh/h	117	1005	201	206	719	83	106	178	275	87	179	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	93	93	93	93	92	93	92	93	92	92	92
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	127	1081	216	222	773	90	114	193	296	95	195	120

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	863	0	0	1297	0	0	2863	2750	1189	2950	2813	818
Stage 1	-	-	-	-	-	-	1443	1443	-	1262	1262	-
Stage 2	-	-	-	-	-	-	1420	1307	-	1688	1551	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	779	-	-	534	-	-	~ 11	~ 20	~ 229	~ 9	~ 18	376
Stage 1	-	-	-	-	-	-	164	197	-	208	241	-
Stage 2	-	-	-	-	-	-	169	230	-	119	~ 175	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	779	-	-	534	-	-	-	~ 4	~ 229	-	~ 4	376
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 4	-	-	~ 4	-
Stage 1	-	-	-	-	-	-	~ 59	~ 71	-	~ 75	~ 141	-
Stage 2	-	-	-	-	-	-	-	~ 134	-	~ 22	~ 63	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	3.4		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	779	-	-	534	-	-	-
HCM Lane V/C Ratio	-	0.163	-	-	0.415	-	-	-
HCM Control Delay (s)	-	10.5	0	-	16.4	-	-	-
HCM Lane LOS	-	B	A	-	C	-	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-	2	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	750	287	513	535	36	208	141	330	91	142	60
Future Volume (veh/h)	155	750	287	513	535	36	208	141	330	91	142	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	789	302	540	563	38	219	148	347	96	149	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	203	796	305	519	1189	80	194	306	259	123	222	188
Arrive On Green	0.11	0.33	0.33	0.15	0.37	0.37	0.11	0.16	0.16	0.07	0.12	0.12
Sat Flow, veh/h	1781	2414	923	3456	3245	219	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	163	558	533	540	296	305	219	148	347	96	149	63
Grp Sat Flow(s),veh/h/ln	1781	1706	1630	1728	1706	1757	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.7	24.2	24.3	11.2	9.9	9.9	8.1	5.4	12.2	4.0	5.7	2.7
Cycle Q Clear(g_c), s	6.7	24.2	24.3	11.2	9.9	9.9	8.1	5.4	12.2	4.0	5.7	2.7
Prop In Lane	1.00		0.57	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	563	538	519	625	644	194	306	259	123	222	188
V/C Ratio(X)	0.80	0.99	0.99	1.04	0.47	0.47	1.13	0.48	1.34	0.78	0.67	0.33
Avail Cap(c_a), veh/h	294	563	538	519	625	644	194	306	259	158	276	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	24.9	24.9	31.7	18.1	18.1	33.2	28.3	31.2	34.1	31.5	30.1
Incr Delay (d2), s/veh	9.9	35.3	36.5	50.3	0.6	0.5	104.5	1.2	175.7	17.1	4.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	14.1	13.6	8.1	3.7	3.8	8.8	2.3	17.1	2.2	2.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	60.2	61.4	82.0	18.7	18.7	137.7	29.5	206.9	51.3	35.9	31.2
LnGrp LOS	D	E	E	F	B	B	F	C	F	D	D	C
Approach Vol, veh/h		1254			1141			714			308	
Approach Delay, s/veh		58.3			48.6			148.9			39.7	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	18.0	16.3	30.4	13.2	14.6	13.6	33.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 6.6	12.2	11.2	24.6	8.1	* 11	12.3	* 24
Max Q Clear Time (g_c+I1), s	6.0	14.2	13.2	26.3	10.1	7.7	8.7	11.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.3	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	72.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	101.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	61	495	301	123	473
Future Vol, veh/h	176	61	495	301	123	473
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	200	69	563	342	140	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1552	734	0	0	905	0
Stage 1	734	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 125	420	-	-	752	-
Stage 1	475	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 92	420	-	-	752	-
Mov Cap-2 Maneuver	~ 92	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	319	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 690.6	0	2.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	115	752	-
HCM Lane V/C Ratio	-	-	2.342	0.186	-
HCM Control Delay (s)	-	-	$ 690.6	10.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	23.6	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	794	15	10	643
Future Vol, veh/h	22	4	794	15	10	643
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	5	902	17	11	731

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1664	911	0	0	919	0
Stage 1	911	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	107	332	-	-	743	-
Stage 1	392	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	104	332	-	-	743	-
Mov Cap-2 Maneuver	104	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	453	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.3	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	116	743	-
HCM Lane V/C Ratio	-	-	0.255	0.015	-
HCM Control Delay (s)	-	-	46.3	9.9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0	-

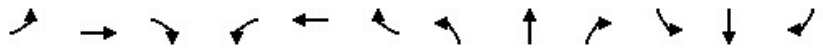
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	1634	352	278	1065	31	163	511	347	39	445	153
Future Volume (veh/h)	286	1634	352	278	1065	31	163	511	347	39	445	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	1757	378	299	1145	33	175	549	373	42	478	165
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	1104	492	319	1241	554	210	556	471	63	402	341
Arrive On Green	0.05	0.31	0.31	0.09	0.35	0.35	0.12	0.30	0.30	0.04	0.21	0.21
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	308	1757	378	299	1145	33	175	549	373	42	478	165
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	28.9	20.1	8.0	28.8	1.3	9.0	27.2	20.1	2.2	20.0	8.5
Cycle Q Clear(g_c), s	5.0	28.9	20.1	8.0	28.8	1.3	9.0	27.2	20.1	2.2	20.0	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	1104	492	319	1241	554	210	556	471	63	402	341
V/C Ratio(X)	3.22	1.59	0.77	0.94	0.92	0.06	0.83	0.99	0.79	0.66	1.19	0.48
Avail Cap(c_a), veh/h	96	1104	492	319	1278	570	291	556	471	96	402	341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	32.1	29.1	42.0	29.1	20.1	40.2	32.5	30.1	44.4	36.6	32.0
Incr Delay (d2), s/veh	1026.2	270.5	7.2	34.3	11.0	0.0	13.6	34.7	8.9	11.2	107.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.3	52.5	7.8	4.7	12.7	0.4	4.4	16.4	8.1	1.1	20.3	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1070.2	302.6	36.3	76.3	40.1	20.2	53.8	67.3	39.0	55.6	143.9	33.1
LnGrp LOS	F	F	D	E	D	C	D	E	D	E	F	C
Approach Vol, veh/h		2443			1477			1097			685	
Approach Delay, s/veh		358.2			47.0			55.5			111.8	
Approach LOS		F			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	34.2	14.4	35.4	16.8	26.5	10.8	39.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	27.7	8.6	28.9	15.2	17.5	5.0	33.5
Max Q Clear Time (g_c+I1), s	4.2	29.2	10.0	30.9	11.0	22.0	7.0	30.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	189.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	121	97	75	50	104	161	658	114	126	621	111
Future Volume (veh/h)	83	121	97	75	50	104	161	658	114	126	621	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	130	104	81	54	112	173	708	123	135	668	119
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	242	205	106	233	198	161	1191	207	158	724	614
Arrive On Green	0.06	0.13	0.13	0.06	0.12	0.12	0.09	0.39	0.39	0.09	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3027	526	1781	1870	1585
Grp Volume(v), veh/h	89	130	104	81	54	112	173	415	416	135	668	119
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1776	1781	1870	1585
Q Serve(g_s), s	3.2	4.2	3.9	2.9	1.7	4.3	5.8	11.9	11.9	4.8	21.8	3.2
Cycle Q Clear(g_c), s	3.2	4.2	3.9	2.9	1.7	4.3	5.8	11.9	11.9	4.8	21.8	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	114	242	205	106	233	198	161	699	699	158	724	614
V/C Ratio(X)	0.78	0.54	0.51	0.76	0.23	0.57	1.07	0.59	0.59	0.85	0.92	0.19
Avail Cap(c_a), veh/h	139	321	272	150	350	297	161	720	720	158	758	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	26.1	26.0	29.7	25.3	26.4	29.2	15.4	15.4	28.8	18.7	13.0
Incr Delay (d2), s/veh	20.4	1.9	1.9	13.5	0.5	2.5	91.9	1.3	1.3	33.6	16.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.9	1.5	1.6	0.7	1.6	6.3	4.0	4.0	3.3	10.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	28.0	28.0	43.3	25.8	29.0	121.1	16.7	16.7	62.4	35.1	13.2
LnGrp LOS	D	C	C	D	C	C	F	B	B	E	D	B
Approach Vol, veh/h		323			247			1004			922	
Approach Delay, s/veh		34.0			33.0			34.7			36.3	
Approach LOS		C			C			C			D	

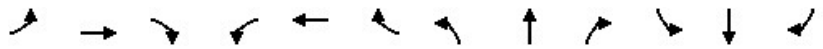
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	31.4	8.5	13.4	11.2	31.0	8.8	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.7	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	6.8	13.9	4.9	6.2	7.8	23.8	5.2	6.3
Green Ext Time (p_c), s	0.0	3.7	0.0	0.4	0.0	1.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	35.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	468	953	284	239	645	346	203	697	213	275	487	298
Future Volume (veh/h)	468	953	284	239	645	346	203	697	213	275	487	298
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	482	982	293	246	665	0	209	719	220	284	502	307
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	897	266	224	790		146	641	196	117	410	348
Arrive On Green	0.23	0.33	0.33	0.13	0.22	0.00	0.08	0.24	0.24	0.07	0.22	0.22
Sat Flow, veh/h	1781	2701	802	1781	3554	1585	1781	2680	820	1781	1870	1585
Grp Volume(v), veh/h	482	644	631	246	665	0	209	477	462	284	502	307
Grp Sat Flow(s),veh/h/ln	1781	1777	1726	1781	1777	1585	1781	1777	1723	1781	1870	1585
Q Serve(g_s), s	23.2	33.3	33.3	12.6	18.0	0.0	8.2	24.0	24.0	6.6	22.0	18.8
Cycle Q Clear(g_c), s	23.2	33.3	33.3	12.6	18.0	0.0	8.2	24.0	24.0	6.6	22.0	18.8
Prop In Lane	1.00		0.46	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	412	590	573	224	790		146	425	412	117	410	348
V/C Ratio(X)	1.17	1.09	1.10	1.10	0.84		1.44	1.12	1.12	2.42	1.22	0.88
Avail Cap(c_a), veh/h	412	590	573	224	801		146	425	412	117	410	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	33.5	33.5	43.8	37.3	0.0	46.1	38.1	38.2	46.9	39.2	37.9
Incr Delay (d2), s/veh	99.5	64.7	68.1	89.3	8.0	0.0	230.5	81.0	81.6	665.5	120.7	22.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	23.5	23.3	10.8	8.2	0.0	12.7	19.2	18.6	24.5	23.2	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	138.1	98.2	101.6	133.1	45.3	0.0	276.5	119.1	119.8	712.3	159.8	60.3
LnGrp LOS	F	F	F	F	D		F	F	F	F	F	E
Approach Vol, veh/h		1757			911	A		1148			1093	
Approach Delay, s/veh		110.4			69.0			148.0			275.4	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	30.5	18.0	39.8	14.0	28.5	29.0	28.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	6.6	23.7	12.6	33.3	8.2	* 22	23.2	* 23
Max Q Clear Time (g_c+I1), s	8.6	26.0	14.6	35.3	10.2	24.0	25.2	20.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	148.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	479	210	962	884	138
Future Volume (veh/h)	150	479	210	962	884	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	221	1013	931	145
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	178		234	1428	897	140
Arrive On Green	0.10	0.00	0.13	0.76	0.57	0.57
Sat Flow, veh/h	1781	1585	1781	1870	1580	246
Grp Volume(v), veh/h	158	0	221	1013	0	1076
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1826
Q Serve(g_s), s	7.9	0.0	11.1	25.2	0.0	51.1
Cycle Q Clear(g_c), s	7.9	0.0	11.1	25.2	0.0	51.1
Prop In Lane	1.00	1.00	1.00			0.13
Lane Grp Cap(c), veh/h	178		234	1428	0	1037
V/C Ratio(X)	0.89		0.95	0.71	0.00	1.04
Avail Cap(c_a), veh/h	178		234	1428	0	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.0	0.0	38.8	5.5	0.0	19.5
Incr Delay (d2), s/veh	37.5	0.0	44.1	1.7	0.0	38.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	7.3	4.9	0.0	27.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	77.5	0.0	82.8	7.2	0.0	57.7
LnGrp LOS	E		F	A	A	F
Approach Vol, veh/h	158	A		1234	1076	
Approach Delay, s/veh	77.5			20.7	57.7	
Approach LOS	E			C	E	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	75.2		14.8	17.6	57.6
Change Period (Y+Rc), s	6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s	68.7		9.0	11.8	51.1
Max Q Clear Time (g_c+I1), s	27.2		9.9	13.1	53.1
Green Ext Time (p_c), s	8.8		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2136.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	164	97	843	152	95	1341
Future Vol, veh/h	164	97	843	152	95	1341
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	105	916	165	103	1458

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2663	999	0	0	1081	0
Stage 1	999	-	-	-	-	-
Stage 2	1664	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 25	295	-	-	645	-
Stage 1	356	-	-	-	-	-
Stage 2	~ 169	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 4	295	-	-	645	-
Mov Cap-2 Maneuver	~ 4	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	~ 27	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 22028.1	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	6	645	-
HCM Lane V/C Ratio	-	-	47.283	0.16	-
HCM Control Delay (s)	-	-	$ 22028.1	11.6	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	37.5	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	49.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	308	1069	713	164	175	314
Future Vol, veh/h	308	1069	713	164	175	314
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	335	1162	775	178	190	341

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	953	0	-	0	2696	864
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	1832	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	721	-	-	-	~ 24	354
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	~ 139	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	721	-	-	-	0	354
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	~ 139	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	268
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	721	-	-	-	354
HCM Lane V/C Ratio	0.464	-	-	-	1.501
HCM Control Delay (s)	14.2	0	-	-	268
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	2.5	-	-	-	29.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	56

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	1365	1009	18	12	53
Future Vol, veh/h	88	1365	1009	18	12	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	1484	1097	20	13	58

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1117	0	-	0	2783	1107
Stage 1	-	-	-	-	1107	-
Stage 2	-	-	-	-	1676	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	625	-	-	-	21	256
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	625	-	-	-	~ 3	256
Mov Cap-2 Maneuver	-	-	-	-	~ 3	-
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	167	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	$ 2177.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	625	-	-	-	15
HCM Lane V/C Ratio	0.153	-	-	-	4.71
HCM Control Delay (s)	11.8	0	-	-	$ 2177.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	9.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

EPAP plus Project PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	228	3.0	235	3.0	1.681	329.4	LOS F	161.3	4128.7	1.00	5.89	15.49	5.9
8	T1	849	3.0	875	3.0	1.681	329.4	LOS F	161.3	4128.7	1.00	5.89	15.49	5.9
18	R2	22	3.0	23	3.0	1.681	329.4	LOS F	161.3	4128.7	1.00	5.89	15.49	5.9
Approach		1099	3.0	1133	3.0	1.681	329.4	LOS F	161.3	4128.7	1.00	5.89	15.49	5.9
East: Claratina Rd														
1	L2	25	3.0	26	3.0	0.653	20.6	LOS C	5.0	126.8	0.83	1.01	1.55	30.4
6	T1	313	3.0	323	3.0	0.653	20.6	LOS C	5.0	126.8	0.83	1.01	1.55	31.0
16	R2	24	3.0	25	3.0	0.653	20.6	LOS C	5.0	126.8	0.83	1.01	1.55	31.5
Approach		362	3.0	373	3.0	0.653	20.6	LOS C	5.0	126.8	0.83	1.01	1.55	31.0
North: Coffee Rd														
7	L2	82	3.0	85	3.0	1.080	75.0	LOS F	53.5	1370.7	1.00	2.39	5.70	18.2
4	T1	849	3.0	875	3.0	1.080	75.0	LOS F	53.5	1370.7	1.00	2.39	5.70	17.6
14	R2	133	3.0	137	3.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	45.1
Approach		1064	3.0	1097	3.0	1.080	65.6	LOS F	53.5	1370.7	0.88	2.10	4.98	19.1
West: Claratina Rd														
5	L2	167	3.0	172	3.0	1.185	123.3	LOS F	48.5	1242.3	1.00	3.05	8.36	12.9
2	T1	508	3.0	524	3.0	1.185	123.3	LOS F	48.5	1242.3	1.00	3.05	8.36	12.9
12	R2	229	3.0	236	3.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		904	3.0	932	3.0	1.185	92.1	LOS F	48.5	1242.3	0.75	2.28	6.24	15.5
All Vehicles		3429	3.0	3535	3.0	1.681	152.4	LOS F	161.3	4128.7	0.88	3.24	8.32	11.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.0	0.0	0.1
Total Del/Veh (s)	52.5	58.0	48.2	52.3	53.3
Vehicles Entered	614	876	547	934	2971
Vehicles Exited	606	866	551	931	2954
Hourly Exit Rate	606	866	551	931	2954
Input Volume	605	925	550	930	3010
% of Volume	100	94	100	100	98
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	1.8	0.0	1.3
Total Del/Veh (s)	15.4	105.6	7.5	77.1
Vehicles Entered	449	1227	108	1784
Vehicles Exited	449	1169	107	1725
Hourly Exit Rate	449	1169	107	1725
Input Volume	455	1224	110	1788
% of Volume	99	96	97	96
Denied Entry Before	0	0	0	0
Denied Entry After	0	1	0	1

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	14.1	16.5	11.7
Vehicles Entered	673	666	264	1603
Vehicles Exited	675	666	265	1606
Hourly Exit Rate	675	666	265	1606
Input Volume	680	672	270	1622
% of Volume	99	99	98	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

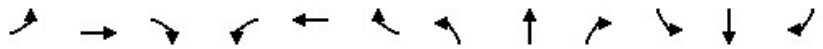
Total Zone Performance

Denied Del/Veh (s)	7.6
Total Del/Veh (s)	1092.2
Vehicles Entered	326
Vehicles Exited	136
Hourly Exit Rate	136
Input Volume	6421
% of Volume	2
Denied Entry Before	0
Denied Entry After	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Future Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	89	-16	195	174	26	216	442	58	16	526	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	235	200	242	435	369	265	1084	141	41	748	37
Arrive On Green	0.03	0.13	0.00	0.14	0.23	0.23	0.15	0.34	0.34	0.02	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3160	413	1781	3446	170
Grp Volume(v), veh/h	21	89	-16	195	174	26	216	247	253	16	271	281
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1796	1781	1777	1840
Q Serve(g_s), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Cycle Q Clear(g_c), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		0.09
Lane Grp Cap(c), veh/h	52	235	200	242	435	369	265	609	616	41	386	399
V/C Ratio(X)	0.40	0.38	-0.08	0.80	0.40	0.07	0.81	0.41	0.41	0.39	0.70	0.70
Avail Cap(c_a), veh/h	169	237	201	355	435	369	383	1122	1134	169	908	941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	25.3	0.0	26.5	20.5	18.9	26.0	15.8	15.9	30.4	22.8	22.9
Incr Delay (d2), s/veh	4.9	1.0	0.0	8.2	0.6	0.1	8.5	0.4	0.4	5.8	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.0	3.0	1.9	0.3	3.4	2.3	2.4	0.3	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	26.3	0.0	34.7	21.1	19.0	34.5	16.3	16.3	36.2	25.2	25.1
LnGrp LOS	D	C	A	C	C	B	C	B	B	D	C	C
Approach Vol, veh/h		94			395			716			568	
Approach Delay, s/veh		32.8			27.7			21.8			25.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	27.9	14.0	14.5	14.8	19.9	7.2	21.2
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	39.9	12.6	8.0	13.6	32.3	6.0	14.6
Max Q Clear Time (g_c+I1), s	2.6	8.8	8.7	4.8	9.4	10.9	2.7	7.0
Green Ext Time (p_c), s	0.0	2.7	0.2	0.1	0.2	2.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C



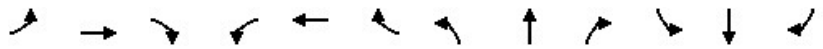
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Future Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	37	0	0	0	26	889	0	0	942	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	0	55	0	106	0	55	1350	0	4	1068	18
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.72	0.00	0.00	0.58	0.58
Sat Flow, veh/h	550	0	970	0	1870	0	1781	1870	0	1781	1834	31
Grp Volume(v), veh/h	58	0	0	0	0	0	26	889	0	0	0	958
Grp Sat Flow(s),veh/h/ln	1520	0	0	0	1870	0	1781	1870	0	1781	0	1865
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Prop In Lane	0.36		0.64	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	190	0	0	0	106	0	55	1350	0	4	0	1086
V/C Ratio(X)	0.30	0.00	0.00	0.00	0.00	0.00	0.48	0.66	0.00	0.00	0.00	0.88
Avail Cap(c_a), veh/h	318	0	0	0	263	0	205	1350	0	190	0	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	0.0	0.0	0.0	22.4	3.5	0.0	0.0	0.0	8.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.0	6.3	1.2	0.0	0.0	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	0.0	0.0	0.0	0.0	0.0	28.7	4.6	0.0	0.0	0.0	15.0
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	B
Approach Vol, veh/h		58			0			915			958	
Approach Delay, s/veh		22.6			0.0			5.3			15.0	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	39.7		7.3	6.5	33.1		7.3				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	13.8		3.8	2.7	22.7		0.0				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	4.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	335	70	20	705	200	40	470	20	100	580	240
Future Volume (veh/h)	200	335	70	20	705	200	40	470	20	100	580	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	353	74	21	742	158	42	495	21	105	611	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	757	159	37	748	748	54	764	32	129	641	265
Arrive On Green	0.13	0.51	0.51	0.02	0.40	0.40	0.03	0.22	0.22	0.07	0.26	0.26
Sat Flow, veh/h	1781	1499	314	1781	1870	1585	1781	3474	147	1781	2451	1014
Grp Volume(v), veh/h	211	0	427	21	742	158	42	253	263	105	443	421
Grp Sat Flow(s),veh/h/ln	1781	0	1814	1781	1870	1585	1781	1777	1844	1781	1777	1688
Q Serve(g_s), s	15.1	0.0	19.6	1.5	50.8	7.5	3.0	16.7	16.7	7.5	31.6	31.6
Cycle Q Clear(g_c), s	15.1	0.0	19.6	1.5	50.8	7.5	3.0	16.7	16.7	7.5	31.6	31.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.08	1.00		0.60
Lane Grp Cap(c), veh/h	224	0	916	37	748	748	54	391	405	129	465	442
V/C Ratio(X)	0.94	0.00	0.47	0.57	0.99	0.21	0.78	0.65	0.65	0.82	0.95	0.95
Avail Cap(c_a), veh/h	224	0	916	80	748	748	69	391	405	153	466	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	20.6	62.5	38.5	19.9	62.0	45.7	45.7	58.9	46.8	46.8
Incr Delay (d2), s/veh	44.1	0.0	0.4	13.5	30.9	0.1	33.7	3.7	3.6	24.3	29.8	31.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	7.7	0.8	27.9	2.6	1.8	7.5	7.8	4.2	17.2	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.9	0.0	21.0	76.0	69.4	20.1	95.8	49.4	49.3	83.3	76.5	77.8
LnGrp LOS	F	A	C	E	E	C	F	D	D	F	E	E
Approach Vol, veh/h		638			921			558			969	
Approach Delay, s/veh		47.1			61.1			52.9			77.8	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	34.5	8.0	71.6	9.3	39.9	21.6	58.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	11.3	27.7	5.8	61.9	5.0	33.8	16.2	51.5
Max Q Clear Time (g_c+I1), s	9.5	18.7	3.5	21.6	5.0	33.6	17.1	52.8
Green Ext Time (p_c), s	0.0	1.8	0.0	2.4	0.0	0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	435	10	250	925	0	0	0	110	0	0	0
Future Volume (veh/h)	0	435	10	250	925	0	0	0	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	458	0	263	974	0	0	0	116			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	671		354	1441	0	0	0	0			
Arrive On Green	0.00	0.36	0.00	0.21	0.77	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	458	0	263	974	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	5.9	0.0	4.1	7.1	0.0						
Cycle Q Clear(g_c), s	0.0	5.9	0.0	4.1	7.1	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	671		354	1441	0						
V/C Ratio(X)	0.00	0.68		0.74	0.68	0.00						
Avail Cap(c_a), veh/h	0	1381		1342	3140	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	7.7	0.0	10.5	1.6	0.0						
Incr Delay (d2), s/veh	0.0	1.2	0.0	3.1	0.6	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.0	1.0	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	0.0	13.6	2.1	0.0						
LnGrp LOS	A	A		B	A	A						
Approach Vol, veh/h		458	A		1237							
Approach Delay, s/veh		8.9			4.6							
Approach LOS		A			A							

Timer - Assigned Phs		3	4				8					
Phs Duration (G+Y+Rc), s		11.7	16.6				28.3					
Change Period (Y+Rc), s		5.8	* 6.5				6.5					
Max Green Setting (Gmax), s		22.2	* 21				47.5					
Max Q Clear Time (g_c+I1), s		6.1	7.9				9.1					
Green Ext Time (p_c), s		0.6	2.3				8.0					

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	530	110	0	670	250	20
Future Volume (veh/h)	530	110	0	670	250	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	558	116	0	705	263	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	804	969	0	1527	354	
Arrive On Green	0.43	0.43	0.00	0.43	0.21	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	558	116	0	705	263	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	7.3	0.9	0.0	4.2	4.3	0.0
Cycle Q Clear(g_c), s	7.3	0.9	0.0	4.2	4.3	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	804	969	0	1527	354	
V/C Ratio(X)	0.69	0.12	0.00	0.46	0.74	
Avail Cap(c_a), veh/h	2107	2030	0	4004	1158	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	2.1	0.0	6.1	11.1	0.0
Incr Delay (d2), s/veh	1.1	0.1	0.0	0.2	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.0	0.5	1.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	2.2	0.0	6.3	14.2	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	674			705	263	A
Approach Delay, s/veh	7.0			6.3	14.2	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	19.1				19.1	10.9
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	33.8				33.8	20.3
Max Q Clear Time (g_c+I1), s	9.3				6.2	6.3
Green Ext Time (p_c), s	3.6				4.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	10	670	865	10
Future Vol, veh/h	10	20	10	670	865	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	11	21	11	705	911	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1644	917	922	0	-	0
Stage 1	917	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	110	330	741	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	330	741	-	-	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	741	-	320	-	-
HCM Lane V/C Ratio	0.014	-	0.099	-	-
HCM Control Delay (s)	9.9	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	670	20	5	805
Future Vol, veh/h	40	10	670	20	5	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	42	11	705	21	5	847

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1573	716	0	0	726	0
Stage 1	716	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	121	430	-	-	877	-
Stage 1	484	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	120	430	-	-	877	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	411	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	140	877	-
HCM Lane V/C Ratio	-	-	0.376	0.006	-
HCM Control Delay (s)	-	-	45.4	9.1	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	0	175	710	0	325	185	255	260	190	550	105
Future Volume (veh/h)	90	0	175	710	0	325	185	255	260	190	550	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	95	0	184	747	0	342	195	268	0	200	579	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	246	0	0	947	0	0	245	745		253	805	
Arrive On Green	0.08	0.00	0.00	0.27	0.00	0.00	0.15	0.22	0.00	0.15	0.24	0.00
Sat Flow, veh/h	3264	95		3456	747		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	95	21.8		747	18.4		195	268	0	200	579	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	B		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	1.3			9.5			5.3	3.1	0.0	5.3	7.4	0.0
Cycle Q Clear(g_c), s	1.3			9.5			5.3	3.1	0.0	5.3	7.4	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246			947			245	745		253	805	
V/C Ratio(X)	0.39			0.79			0.80	0.36		0.79	0.72	
Avail Cap(c_a), veh/h	345			1257			367	989		431	1104	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.8			15.9			19.5	15.7	0.0	19.4	16.6	0.0
Incr Delay (d2), s/veh	1.0			2.5			7.2	0.3	0.0	5.5	1.4	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4			3.0			2.3	1.1	0.0	2.1	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8			18.4			26.7	16.0	0.0	24.9	18.1	0.0
LnGrp LOS	C			B			C	B		C	B	
Approach Vol, veh/h								463	A		779	A
Approach Delay, s/veh								20.5			19.8	
Approach LOS								C			B	

Timer - Assigned Phs	1	2	3		5	6	7
Phs Duration (G+Y+Rc), s	12.4	16.1	18.8		11.6	16.9	9.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8		* 4.7	5.8	5.8
Max Green Setting (Gmax), s	11.9	* 14	17.2		* 10	15.3	5.0
Max Q Clear Time (g_c+I1), s	7.3	5.1	11.5		7.3	9.4	3.3
Green Ext Time (p_c), s	0.2	1.0	1.5		0.1	1.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	163.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	155	60	300	460	10	270	45	135	30	70	40
Future Vol, veh/h	25	155	60	300	460	10	270	45	135	30	70	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	163	63	316	484	11	284	47	142	32	74	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.2	296.7	56.2	17.5
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	10%	39%	21%
Vol Thru, %	10%	65%	60%	50%
Vol Right, %	30%	25%	1%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	450	240	770	140
LT Vol	270	25	300	30
Through Vol	45	155	460	70
RT Vol	135	60	10	40
Lane Flow Rate	474	253	811	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.928	0.53	1.597	0.331
Departure Headway (Hd)	8.309	8.733	7.094	9.771
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	441	417	519	371
Service Time	6.309	6.733	5.151	7.771
HCM Lane V/C Ratio	1.075	0.607	1.563	0.396
HCM Control Delay	56.2	21.2	296.7	17.5
HCM Lane LOS	F	C	F	C
HCM 95th-tile Q	10.5	3	44.4	1.4

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	720	5	5	1195	5	5
Future Vol, veh/h	720	5	5	1195	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	758	5	5	1258	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	763	0	2029	761
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	1268	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	850	-	63	405
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	265	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	850	-	62	405
Mov Cap-2 Maneuver	-	-	-	-	62	-
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	260	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	41.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	108	-	-	850	-
HCM Lane V/C Ratio	0.097	-	-	0.006	-
HCM Control Delay (s)	41.9	-	-	9.3	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	239.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	0	580	145	110	1030	0	170	0	105	0	0	0
Future Vol, veh/h	0	580	145	110	1030	0	170	0	105	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	611	153	116	1084	0	179	0	111	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1084	0	0	764	0	0	2004	2004	688	2059	2080	1084
Stage 1	-	-	-	-	-	-	688	688	-	1316	1316	-
Stage 2	-	-	-	-	-	-	1316	1316	-	743	764	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	643	-	-	849	-	-	~ 44	60	446	40	53	264
Stage 1	-	-	-	-	-	-	436	447	-	194	227	-
Stage 2	-	-	-	-	-	-	194	227	-	407	413	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	643	-	-	849	-	-	~ 39	52	446	27	46	264
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 39	52	-	27	46	-
Stage 1	-	-	-	-	-	-	436	447	-	194	196	-
Stage 2	-	-	-	-	-	-	~ 167	196	-	306	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	$ 1858.7	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	643	-	-	849	-	-	-
HCM Lane V/C Ratio	4.825	-	-	-	0.136	-	-	-
HCM Control Delay (s)	$ 1858.7	0	-	-	9.9	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	32.1	0	-	-	0.5	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Future Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	579	100	289	653	53	168	63	163	74	121	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	137	772	133	445	1015	82	218	375	318	104	243	206
Arrive On Green	0.08	0.27	0.27	0.13	0.32	0.32	0.12	0.20	0.20	0.06	0.13	0.13
Sat Flow, veh/h	1781	2911	501	3456	3197	259	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	105	339	340	289	348	358	168	63	163	74	121	111
Grp Sat Flow(s),veh/h/ln	1781	1706	1706	1728	1706	1750	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Cycle Q Clear(g_c), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Prop In Lane	1.00		0.29	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	453	453	445	542	555	218	375	318	104	243	206
V/C Ratio(X)	0.77	0.75	0.75	0.65	0.64	0.64	0.77	0.17	0.51	0.71	0.50	0.54
Avail Cap(c_a), veh/h	347	711	711	729	758	778	471	622	527	272	422	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	20.8	20.8	25.5	18.0	18.1	26.2	20.4	22.0	28.5	25.0	25.1
Incr Delay (d2), s/veh	8.7	2.5	2.5	1.6	1.3	1.3	5.7	0.2	1.3	8.7	1.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.1	4.1	2.0	3.9	4.0	2.5	0.7	2.0	1.3	1.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	23.3	23.3	27.1	19.3	19.3	31.9	20.6	23.2	37.2	26.5	27.3
LnGrp LOS	D	C	C	C	B	B	C	C	C	D	C	C
Approach Vol, veh/h		784			995			394			306	
Approach Delay, s/veh		25.1			21.6			26.5			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	18.2	13.0	22.2	12.6	13.8	9.8	25.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.5	7.6	6.9	13.3	7.6	6.0	5.6	12.8
Green Ext Time (p_c), s	0.1	0.6	0.5	3.1	0.3	0.6	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	225	125	150	15	35	220
Future Vol, veh/h	225	125	150	15	35	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	132	158	16	37	232

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	472	166	0	0	174	0
Stage 1	166	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	551	878	-	-	1403	-
Stage 1	863	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	534	878	-	-	1403	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	621	1403	-
HCM Lane V/C Ratio	-	-	0.593	0.026	-
HCM Control Delay (s)	-	-	18.9	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.9	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	55	270	55	25	590
Future Vol, veh/h	150	55	270	55	25	590
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	58	284	58	26	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	986	313	0	0	342	0
Stage 1	313	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	275	727	-	-	1217	-
Stage 1	741	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	727	-	-	1217	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.4	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	321	1217	-
HCM Lane V/C Ratio	-	-	0.672	0.022	-
HCM Control Delay (s)	-	-	36.4	8	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	4.6	0.1	-

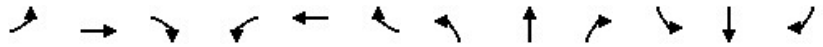
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Future Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	189	242	105	95	53	168	400	32	21	468	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	313	266	134	230	128	207	671	54	42	526	29
Arrive On Green	0.04	0.17	0.17	0.08	0.20	0.20	0.12	0.39	0.39	0.02	0.30	0.30
Sat Flow, veh/h	1781	1870	1585	1781	1128	629	1781	1709	137	1781	1755	98
Grp Volume(v), veh/h	42	189	242	105	0	148	168	0	432	21	0	494
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1757	1781	0	1846	1781	0	1853
Q Serve(g_s), s	1.7	6.8	10.8	4.2	0.0	5.3	6.6	0.0	13.4	0.8	0.0	18.4
Cycle Q Clear(g_c), s	1.7	6.8	10.8	4.2	0.0	5.3	6.6	0.0	13.4	0.8	0.0	18.4
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.07	1.00		0.05
Lane Grp Cap(c), veh/h	70	313	266	134	0	358	207	0	725	42	0	556
V/C Ratio(X)	0.60	0.60	0.91	0.78	0.00	0.41	0.81	0.00	0.60	0.50	0.00	0.89
Avail Cap(c_a), veh/h	148	313	266	178	0	358	252	0	795	123	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	27.8	29.5	32.8	0.0	25.0	31.1	0.0	17.4	34.8	0.0	24.1
Incr Delay (d2), s/veh	7.9	3.2	32.8	14.9	0.0	0.8	15.1	0.0	1.0	8.7	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	6.0	2.2	0.0	2.0	3.4	0.0	4.8	0.4	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	31.1	62.4	47.7	0.0	25.8	46.2	0.0	18.4	43.5	0.0	36.5
LnGrp LOS	D	C	E	D	A	C	D	A	B	D	A	D
Approach Vol, veh/h		473			253			600			515	
Approach Delay, s/veh		48.1			34.9			26.2			36.8	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	34.8	11.2	18.6	14.2	28.2	8.6	21.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	31.1	7.2	12.1	10.2	25.9	6.0	13.3
Max Q Clear Time (g_c+I1), s	2.8	15.4	6.2	12.8	8.6	20.4	3.7	7.3
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.1	1.3	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Future Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	26	158	42	58	89	68	174	37	47	326	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	372	315	80	315	267	111	761	158	87	449	380
Arrive On Green	0.08	0.20	0.20	0.04	0.17	0.17	0.06	0.26	0.26	0.05	0.24	0.24
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2928	609	1781	1870	1585
Grp Volume(v), veh/h	95	26	158	42	58	89	68	104	107	47	326	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1761	1781	1870	1585
Q Serve(g_s), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Cycle Q Clear(g_c), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	134	372	315	80	315	267	111	462	458	87	449	380
V/C Ratio(X)	0.71	0.07	0.50	0.53	0.18	0.33	0.61	0.23	0.23	0.54	0.73	0.19
Avail Cap(c_a), veh/h	189	436	370	204	476	403	219	980	971	215	1031	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	15.3	16.8	22.0	16.8	17.3	21.5	13.7	13.7	21.9	16.5	14.3
Incr Delay (d2), s/veh	6.8	0.1	1.2	5.3	0.3	0.7	5.3	0.2	0.3	5.2	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.2	1.4	0.5	0.5	0.8	0.8	0.7	0.7	0.6	2.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	15.4	18.0	27.3	17.1	18.0	26.9	14.0	14.0	27.1	18.8	14.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		279			189			279			447	
Approach Delay, s/veh		21.2			19.8			17.1			18.9	
Approach LOS		C			B			B			B	

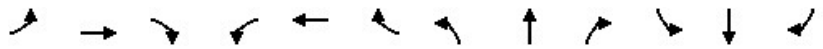
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	18.5	6.8	14.5	8.3	17.5	8.3	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.3	4.3	3.1	6.2	3.8	9.6	4.5	4.3
Green Ext Time (p_c), s	0.0	0.9	0.0	0.3	0.0	1.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Future Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	53	153	368	37	0	153	358	247	105	853	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	545	243	433	345		188	1211	540	135	974	120
Arrive On Green	0.09	0.15	0.15	0.13	0.18	0.00	0.11	0.34	0.34	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3185	392
Grp Volume(v), veh/h	95	53	153	368	37	0	153	358	247	105	476	482
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1800
Q Serve(g_s), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Cycle Q Clear(g_c), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	159	545	243	433	345		188	1211	540	135	543	550
V/C Ratio(X)	0.60	0.10	0.63	0.85	0.11		0.81	0.30	0.46	0.78	0.88	0.88
Avail Cap(c_a), veh/h	185	546	243	433	345		189	1211	540	235	591	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	28.4	31.0	33.4	26.5	0.0	34.2	18.9	20.1	35.5	25.7	25.7
Incr Delay (d2), s/veh	3.9	0.1	5.1	14.7	0.1	0.0	22.9	0.1	0.6	9.3	13.2	13.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.4	2.8	4.0	0.5	0.0	3.8	2.1	3.2	2.2	9.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	28.5	36.1	48.1	26.6	0.0	57.0	19.0	20.7	44.7	38.9	38.7
LnGrp LOS	D	C	D	D	C		E	B	C	D	D	D
Approach Vol, veh/h		301			405	A		758			1063	
Approach Delay, s/veh		35.4			46.1			27.2			39.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	33.1	15.2	18.5	14.1	30.4	12.8	20.9
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	24.1	9.8	12.0	8.3	* 26	8.1	* 14
Max Q Clear Time (g_c+I1), s	6.5	11.5	10.1	9.1	8.6	21.8	6.0	3.3
Green Ext Time (p_c), s	0.1	2.3	0.0	0.2	0.0	2.0	0.0	0.1

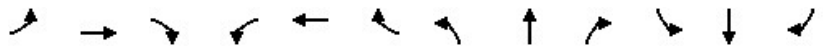
Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Future Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.26	0.41	0.41	0.05	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Cycle Q Clear(g_c), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
V/C Ratio(X)	0.95	0.34	0.38	0.28	0.99	0.14	1.01	0.29	0.13	0.21	0.88	0.94
Avail Cap(c_a), veh/h	429	890	815	207	586	262	912	1470	656	276	714	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	30.7	14.7	46.7	41.6	35.7	36.8	19.5	18.2	45.5	38.8	32.8
Incr Delay (d2), s/veh	29.9	0.2	0.3	1.1	33.9	0.2	32.2	0.1	0.1	0.6	12.7	25.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.8	3.7	0.4	9.4	0.7	14.2	3.0	1.1	0.4	8.2	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	30.9	15.0	47.8	75.5	35.9	69.0	19.6	18.2	46.1	51.6	58.2
LnGrp LOS	E	C	B	D	E	D	F	B	B	D	D	E
Approach Vol, veh/h		1016			653			1426			1153	
Approach Delay, s/veh		43.0			71.7			51.4			54.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	47.9	9.7	31.5	32.2	26.6	18.2	23.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	38.5	6.0	22.9	26.4	20.1	12.4	16.5
Max Q Clear Time (g_c+I1), s	3.0	9.9	3.0	13.9	28.4	22.1	13.6	18.3
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Cumulative AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	450	3.0	474	3.0	1.116	104.6	LOS F	31.1	795.1	1.00	2.64	6.72	13.8
8	T1	460	3.0	484	3.0	1.116	104.6	LOS F	31.1	795.1	1.00	2.64	6.72	14.2
18	R2	130	3.0	137	3.0	1.116	104.6	LOS F	31.1	795.1	1.00	2.64	6.72	14.0
Approach		1040	3.0	1095	3.0	1.116	104.6	LOS F	31.1	795.1	1.00	2.64	6.72	14.0
East: Claratina Rd														
1	L2	125	3.0	132	3.0	2.008	480.0	LOS F	166.9	4271.4	1.00	5.15	19.50	4.3
6	T1	1620	3.0	1705	3.0	2.008	480.0	LOS F	166.9	4271.4	1.00	5.15	19.50	4.3
16	R2	125	3.0	132	3.0	2.008	480.0	LOS F	166.9	4271.4	1.00	5.15	19.50	4.3
Approach		1870	3.0	1968	3.0	2.008	480.0	LOS F	166.9	4271.4	1.00	5.15	19.50	4.3
North: Coffee Rd														
7	L2	55	3.0	58	3.0	1.427	233.2	LOS F	61.7	1579.3	1.00	3.26	11.70	8.0
4	T1	590	3.0	621	3.0	1.427	233.2	LOS F	61.7	1579.3	1.00	3.26	11.70	7.9
14	R2	420	3.0	442	3.0	1.427	233.2	LOS F	61.7	1579.3	1.00	3.26	11.70	7.8
Approach		1065	3.0	1121	3.0	1.427	233.2	LOS F	61.7	1579.3	1.00	3.26	11.70	7.9
West: Claratina Rd														
5	L2	230	3.0	242	3.0	0.789	22.2	LOS C	11.8	301.2	0.91	1.29	2.05	29.5
2	T1	780	3.0	821	3.0	0.789	22.2	LOS C	11.8	301.2	0.91	1.29	2.05	30.0
12	R2	250	3.0	263	3.0	0.789	22.2	LOS C	11.8	301.2	0.91	1.29	2.05	27.8
Approach		1260	3.0	1326	3.0	0.789	22.2	LOS C	11.8	301.2	0.91	1.29	2.05	29.4
All Vehicles		5235	3.0	5511	3.0	2.008	245.0	LOS F	166.9	4271.4	0.98	3.34	11.17	7.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	66.0	84.4	76.2	78.0	76.1
Vehicles Entered	746	632	733	1306	3417
Vehicles Exited	742	625	728	1276	3371
Hourly Exit Rate	742	625	728	1276	3371
Input Volume	749	640	730	1356	3476
% of Volume	99	98	100	94	97
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.1
Total Del/Veh (s)	21.1	71.8	25.9	43.1
Vehicles Entered	885	836	276	1997
Vehicles Exited	882	810	275	1967
Hourly Exit Rate	882	810	275	1967
Input Volume	905	826	270	2000
% of Volume	97	98	102	98
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	6.6	11.7	17.5	9.3
Vehicles Entered	1019	700	125	1844
Vehicles Exited	1018	702	125	1845
Hourly Exit Rate	1018	702	125	1845
Input Volume	1010	750	130	1890
% of Volume	101	94	96	98
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

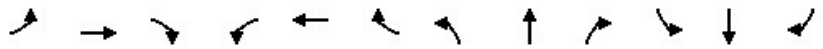
Denied Del/Veh (s)	1.4
Total Del/Veh (s)	1188.8
Vehicles Entered	226
Vehicles Exited	134
Hourly Exit Rate	134
Input Volume	7366
% of Volume	2
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	170	470	145	110	15	130	565	155	55	670	30
Future Volume (veh/h)	25	170	470	145	110	15	130	565	155	55	670	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	179	337	153	116	16	137	595	163	58	705	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	405	343	189	541	458	171	842	230	100	919	42
Arrive On Green	0.03	0.22	0.22	0.11	0.29	0.29	0.10	0.31	0.31	0.06	0.27	0.27
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2758	754	1781	3462	157
Grp Volume(v), veh/h	26	179	337	153	116	16	137	383	375	58	362	375
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1735	1781	1777	1842
Q Serve(g_s), s	1.1	6.2	15.7	6.2	3.5	0.5	5.6	14.2	14.3	2.4	14.0	14.0
Cycle Q Clear(g_c), s	1.1	6.2	15.7	6.2	3.5	0.5	5.6	14.2	14.3	2.4	14.0	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		0.09
Lane Grp Cap(c), veh/h	60	405	343	189	541	458	171	542	530	100	472	489
V/C Ratio(X)	0.44	0.44	0.98	0.81	0.21	0.03	0.80	0.71	0.71	0.58	0.77	0.77
Avail Cap(c_a), veh/h	144	405	343	201	541	458	182	831	811	172	821	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	25.3	29.0	32.5	20.0	19.0	32.9	22.9	22.9	34.2	25.2	25.2
Incr Delay (d2), s/veh	4.9	0.8	43.8	20.3	0.2	0.0	20.9	1.7	1.8	5.2	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.5	9.4	3.5	1.4	0.2	3.2	5.4	5.3	1.1	5.5	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	26.0	72.8	52.8	20.2	19.0	53.8	24.6	24.7	39.4	27.9	27.8
LnGrp LOS	D	C	E	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		542			285			895			795	
Approach Delay, s/veh		55.8			37.7			29.1			28.7	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	28.9	13.3	22.6	12.6	26.0	7.9	28.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	7.2	34.8	8.4	16.1	7.6	34.4	6.0	18.5
Max Q Clear Time (g_c+I1), s	4.4	16.3	8.2	17.7	7.6	16.0	3.1	5.5
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.0	3.8	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D



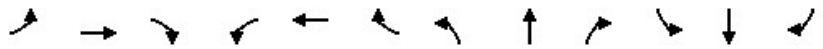
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	55	0	0	0	50	895	0	0	1300	30
Future Volume (veh/h)	25	0	55	0	0	0	50	895	0	0	1300	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	0	58	0	0	0	53	942	0	0	1368	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	3	56	0	99	0	69	1575	0	2	1368	32
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.04	0.84	0.00	0.00	0.75	0.75
Sat Flow, veh/h	419	59	1066	0	1870	0	1781	1870	0	1781	1820	43
Grp Volume(v), veh/h	84	0	0	0	0	0	53	942	0	0	0	1400
Grp Sat Flow(s),veh/h/ln	1544	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	4.6	0.0	0.0	0.0	0.0	0.0	2.9	15.8	0.0	0.0	0.0	74.2
Cycle Q Clear(g_c), s	5.2	0.0	0.0	0.0	0.0	0.0	2.9	15.8	0.0	0.0	0.0	74.2
Prop In Lane	0.31		0.69	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	129	0	0	0	99	0	69	1575	0	2	0	1400
V/C Ratio(X)	0.65	0.00	0.00	0.00	0.00	0.00	0.77	0.60	0.00	0.00	0.00	1.00
Avail Cap(c_a), veh/h	129	0	0	0	99	0	92	1575	0	90	0	1400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	0.0	0.0	0.0	0.0	47.0	2.5	0.0	0.0	0.0	12.3
Incr Delay (d2), s/veh	11.0	0.0	0.0	0.0	0.0	0.0	23.5	0.6	0.0	0.0	0.0	24.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	0.0	0.0	0.0	1.7	1.8	0.0	0.0	0.0	27.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	0.0	0.0	0.0	70.5	3.1	0.0	0.0	0.0	36.3
LnGrp LOS	E	A	A	A	A	A	E	A	A	A	A	F
Approach Vol, veh/h		84			0			995			1400	
Approach Delay, s/veh		57.8			0.0			6.7			36.3	
Approach LOS		E						A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	88.9		9.8	8.9	80.0		9.8				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.0	74.3		5.2	5.1	74.2		5.2				
Max Q Clear Time (g_c+I1), s	10.0	17.8		7.2	4.9	76.2		0.0				
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	500	40	20	485	125	80	610	20	365	690	300
Future Volume (veh/h)	210	500	40	20	485	125	80	610	20	365	690	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	221	526	42	21	511	79	84	642	21	384	726	316
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	652	52	36	512	783	105	691	23	393	863	376
Arrive On Green	0.13	0.38	0.38	0.02	0.27	0.27	0.06	0.20	0.20	0.22	0.36	0.36
Sat Flow, veh/h	1781	1709	136	1781	1870	1585	1781	3512	115	1781	2410	1049
Grp Volume(v), veh/h	221	0	568	21	511	79	84	325	338	384	535	507
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	1870	1585	1781	1777	1850	1781	1777	1682
Q Serve(g_s), s	16.0	0.0	35.7	1.5	35.4	3.4	6.0	23.3	23.3	27.8	35.9	35.9
Cycle Q Clear(g_c), s	16.0	0.0	35.7	1.5	35.4	3.4	6.0	23.3	23.3	27.8	35.9	35.9
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.06	1.00		0.62
Lane Grp Cap(c), veh/h	228	0	704	36	512	783	105	350	364	393	636	602
V/C Ratio(X)	0.97	0.00	0.81	0.58	1.00	0.10	0.80	0.93	0.93	0.98	0.84	0.84
Avail Cap(c_a), veh/h	228	0	704	69	512	783	106	353	368	393	640	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.3	0.0	35.9	63.0	47.1	17.5	60.3	51.2	51.2	50.2	38.2	38.2
Incr Delay (d2), s/veh	50.8	0.0	6.9	13.5	39.3	0.1	33.7	30.2	29.6	39.4	9.8	10.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	0.0	16.3	0.8	21.2	1.2	3.6	12.9	13.4	16.2	16.5	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	107.1	0.0	42.8	76.5	86.4	17.5	94.0	81.4	80.8	89.6	48.0	48.5
LnGrp LOS	F	A	D	E	F	B	F	F	F	F	D	D
Approach Vol, veh/h		789			611			747			1426	
Approach Delay, s/veh		60.8			77.1			82.5			59.4	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	31.7	8.1	55.9	13.1	52.7	22.0	42.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	28.6	25.8	5.0	47.1	7.7	46.7	16.6	35.5
Max Q Clear Time (g_c+I1), s	29.8	25.3	3.5	37.7	8.0	37.9	18.0	37.4
Green Ext Time (p_c), s	0.0	0.2	0.0	2.2	0.0	4.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	885	20	110	640	0	0	0	270	0	0	0
Future Volume (veh/h)	0	885	20	110	640	0	0	0	270	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	932	0	116	674	0	0	0	284			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	1164		150	1584	0	0	0	0			
Arrive On Green	0.00	0.62	0.00	0.09	0.85	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	932	0	116	674	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	15.9	0.0	2.8	3.7	0.0						
Cycle Q Clear(g_c), s	0.0	15.9	0.0	2.8	3.7	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	1164		150	1584	0						
V/C Ratio(X)	0.00	0.80		0.77	0.43	0.00						
Avail Cap(c_a), veh/h	0	2157		533	2933	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	6.0	0.0	18.9	0.8	0.0						
Incr Delay (d2), s/veh	0.0	1.3	0.0	8.1	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	1.2	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	0.0	27.0	1.0	0.0						
LnGrp LOS	A	A		C	A	A						
Approach Vol, veh/h		932	A		790							
Approach Delay, s/veh		7.4			4.8							
Approach LOS		A			A							

Timer - Assigned Phs		3	4				8				
Phs Duration (G+Y+Rc), s		9.5	32.9				42.4				
Change Period (Y+Rc), s		5.8	* 6.5				6.5				
Max Green Setting (Gmax), s		13.2	* 49				66.5				
Max Q Clear Time (g_c+I1), s		4.8	17.9				5.7				
Green Ext Time (p_c), s		0.1	8.5				4.4				

Intersection Summary	
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	710	270	0	750	110	20
Future Volume (veh/h)	710	270	0	750	110	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	747	284	0	789	116	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	1040	1000	0	1976	173	
Arrive On Green	0.56	0.56	0.00	0.56	0.10	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	747	284	0	789	116	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	9.4	2.5	0.0	4.0	2.1	0.0
Cycle Q Clear(g_c), s	9.4	2.5	0.0	4.0	2.1	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1040	1000	0	1976	173	
V/C Ratio(X)	0.72	0.28	0.00	0.40	0.67	
Avail Cap(c_a), veh/h	2521	2205	0	4789	609	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.2	2.3	0.0	4.0	13.8	0.0
Incr Delay (d2), s/veh	0.9	0.2	0.0	0.1	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.0	0.1	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.2	2.5	0.0	4.2	18.3	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	1031			789	116	A
Approach Delay, s/veh	5.1			4.2	18.3	
Approach LOS	A			A	B	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	23.9			23.9	7.9
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	42.8			42.8	11.3
Max Q Clear Time (g_c+I1), s	11.4			6.0	4.1
Green Ext Time (p_c), s	6.3			5.4	0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	30	900	1000	10
Future Vol, veh/h	5	20	30	900	1000	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	5	21	32	947	1053	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2070	1059	1064	0	-	0
Stage 1	1059	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	59	273	655	-	-	-
Stage 1	333	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	273	655	-	-	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	655	-	263	-	-
HCM Lane V/C Ratio	0.048	-	0.1	-	-
HCM Control Delay (s)	10.8	-	20.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	810	40	10	1195
Future Vol, veh/h	40	10	810	40	10	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	42	11	853	42	11	1258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2154	874	0	0	895	0
Stage 1	874	-	-	-	-	-
Stage 2	1280	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	53	349	-	-	758	-
Stage 1	408	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	50	349	-	-	758	-
Mov Cap-2 Maneuver	50	-	-	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	193.7	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	60	758	-
HCM Lane V/C Ratio	-	-	0.877	0.014	-
HCM Control Delay (s)	-	-	193.7	9.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	4	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	0	305	340	0	150	320	545	750	485	625	125
Future Volume (veh/h)	155	0	305	340	0	150	320	545	750	485	625	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	163	0	321	358	0	158	337	574	0	511	658	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	265	0	0	484	0	0	400	762		579	1147	
Arrive On Green	0.08	0.00	0.00	0.14	0.00	0.00	0.24	0.22	0.00	0.34	0.34	0.00
Sat Flow, veh/h	3264	163		3456	358		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	163	27.7		358	26.8		337	574	0	511	658	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	C		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.8			5.7			10.9	9.0	0.0	16.1	9.0	0.0
Cycle Q Clear(g_c), s	2.8			5.7			10.9	9.0	0.0	16.1	9.0	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265			484			400	762		579	1147	
V/C Ratio(X)	0.62			0.74			0.84	0.75		0.88	0.57	
Avail Cap(c_a), veh/h	527			631			679	988		849	1305	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.3			23.5			20.7	20.7	0.0	17.8	15.6	0.0
Incr Delay (d2), s/veh	2.3			3.3			4.8	2.4	0.0	7.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0			2.1			4.3	3.4	0.0	6.3	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7			26.8			25.5	23.1	0.0	25.4	16.0	0.0
LnGrp LOS	C			C			C	C		C	B	
Approach Vol, veh/h								911	A		1169	A
Approach Delay, s/veh								24.0			20.1	
Approach LOS								C			C	

Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	24.7	18.5	13.8	18.3	25.0	10.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8	* 4.7	5.8	5.8
Max Green Setting (Gmax), s	28.3	* 17	10.4	* 23	21.8	9.2
Max Q Clear Time (g_c+I1), s	18.1	11.0	7.7	12.9	11.0	4.8
Green Ext Time (p_c), s	1.2	1.8	0.3	0.8	3.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	89.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	415	135	180	270	15	105	85	210	25	55	25
Future Vol, veh/h	25	415	135	180	270	15	105	85	210	25	55	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	437	142	189	284	16	111	89	221	26	58	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	147.1	74.2	45.2	16.8
HCM LOS	F	F	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	4%	39%	24%
Vol Thru, %	21%	72%	58%	52%
Vol Right, %	53%	23%	3%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	400	575	465	105
LT Vol	105	25	180	25
Through Vol	85	415	270	55
RT Vol	210	135	15	25
Lane Flow Rate	421	605	489	111
Geometry Grp	1	1	1	1
Degree of Util (X)	0.871	1.236	1.012	0.28
Departure Headway (Hd)	8.048	7.474	8.022	10
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	455	490	455	361
Service Time	6.048	5.474	6.022	8
HCM Lane V/C Ratio	0.925	1.235	1.075	0.307
HCM Control Delay	45.2	147.1	74.2	16.8
HCM Lane LOS	E	F	F	C
HCM 95th-tile Q	9	23.6	13.4	1.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1000	10	15	815	10	15
Future Vol, veh/h	1000	10	15	815	10	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1053	11	16	858	11	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1064	0	1949	1059
Stage 1	-	-	-	-	1059	-
Stage 2	-	-	-	-	890	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	655	-	71	273
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	655	-	68	273
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	382	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	41.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	124	-	-	655	-
HCM Lane V/C Ratio	0.212	-	-	0.024	-
HCM Control Delay (s)	41.7	-	-	10.6	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection	
Int Delay, s/veh	44.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	0	700	175	70	800	0	80	0	100	0	0	0
Future Vol, veh/h	0	700	175	70	800	0	80	0	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	737	184	74	842	0	84	0	105	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	842	0	0	921	0	0	1819	1819	829	1872	1911	842
Stage 1	-	-	-	-	-	-	829	829	-	990	990	-
Stage 2	-	-	-	-	-	-	990	990	-	882	921	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	794	-	-	741	-	-	~ 60	78	370	55	68	364
Stage 1	-	-	-	-	-	-	365	385	-	297	324	-
Stage 2	-	-	-	-	-	-	297	324	-	341	349	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	794	-	-	741	-	-	~ 55	70	370	36	61	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 55	70	-	36	61	-
Stage 1	-	-	-	-	-	-	365	385	-	297	292	-
Stage 2	-	-	-	-	-	-	267	292	-	244	349	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	$ 474.7	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	104	794	-	-	741	-	-	-
HCM Lane V/C Ratio	1.822	-	-	-	0.099	-	-	-
HCM Control Delay (s)	$ 474.7	0	-	-	10.4	-	-	0
HCM Lane LOS	F	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	15.3	0	-	-	0.3	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	685	185	465	450	50	200	130	145	60	140	50
Future Volume (veh/h)	110	685	185	465	450	50	200	130	145	60	140	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	721	195	489	474	53	211	137	153	63	147	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	149	815	220	567	1200	134	254	387	328	85	200	170
Arrive On Green	0.08	0.31	0.31	0.16	0.39	0.39	0.14	0.21	0.21	0.05	0.11	0.11
Sat Flow, veh/h	1781	2655	718	3456	3096	345	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	116	463	453	489	260	267	211	137	153	63	147	53
Grp Sat Flow(s),veh/h/ln	1781	1706	1667	1728	1706	1734	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	20.2	20.2	10.7	8.6	8.7	9.0	4.9	6.6	2.7	5.9	2.4
Cycle Q Clear(g_c), s	5.0	20.2	20.2	10.7	8.6	8.7	9.0	4.9	6.6	2.7	5.9	2.4
Prop In Lane	1.00		0.43	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	523	511	567	661	672	254	387	328	85	200	170
V/C Ratio(X)	0.78	0.89	0.89	0.86	0.39	0.40	0.83	0.35	0.47	0.74	0.73	0.31
Avail Cap(c_a), veh/h	274	562	549	576	661	672	372	491	416	215	333	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	25.7	25.7	31.7	17.3	17.3	32.5	26.5	27.1	36.7	33.8	32.2
Incr Delay (d2), s/veh	8.6	14.9	15.2	12.6	0.4	0.4	9.9	0.5	1.0	11.9	5.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	9.4	9.3	5.3	3.2	3.3	4.3	2.1	2.5	1.4	2.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	40.6	40.9	44.3	17.7	17.7	42.4	27.0	28.2	48.6	38.9	33.2
LnGrp LOS	D	D	D	D	B	B	D	C	C	D	D	C
Approach Vol, veh/h		1032			1016			501			263	
Approach Delay, s/veh		41.1			30.5			33.9			40.1	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	22.0	17.9	29.7	16.2	14.2	11.6	36.0
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.7	8.6	12.7	22.2	11.0	7.9	7.0	10.7
Green Ext Time (p_c), s	0.0	0.9	0.1	1.8	0.3	0.4	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	45	135	265	75	170
Future Vol, veh/h	165	45	135	265	75	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	174	47	142	279	79	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	619	282	0	0	421	0
Stage 1	282	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	452	757	-	-	1138	-
Stage 1	766	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	417	757	-	-	1138	-
Mov Cap-2 Maneuver	417	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	2.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	461	1138	-
HCM Lane V/C Ratio	-	-	0.48	0.069	-
HCM Control Delay (s)	-	-	19.8	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.2	-

Intersection	
Int Delay, s/veh	12.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	120	35	685	185	45	440
Future Vol, veh/h	120	35	685	185	45	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	37	721	195	47	463

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1376	819	0	0	916	0
Stage 1	819	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	160	375	-	-	745	-
Stage 1	433	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	146	375	-	-	745	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	115	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	169	745	-
HCM Lane V/C Ratio	-	-	0.965	0.064	-
HCM Control Delay (s)	-	-	115	10.2	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	7.5	0.2	-

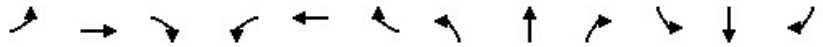
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	415	170	140	405	25	225	500	45	45	415	40
Future Volume (veh/h)	35	415	170	140	405	25	225	500	45	45	415	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	437	179	147	426	26	237	526	47	47	437	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	443	375	162	513	31	249	610	54	68	435	42
Arrive On Green	0.03	0.24	0.24	0.09	0.29	0.29	0.14	0.36	0.36	0.04	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1745	106	1781	1692	151	1781	1680	161
Grp Volume(v), veh/h	37	437	179	147	0	452	237	0	573	47	0	479
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1851	1781	0	1843	1781	0	1841
Q Serve(g_s), s	1.8	20.9	8.7	7.4	0.0	20.5	11.9	0.0	26.0	2.3	0.0	23.3
Cycle Q Clear(g_c), s	1.8	20.9	8.7	7.4	0.0	20.5	11.9	0.0	26.0	2.3	0.0	23.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.08	1.00		0.09
Lane Grp Cap(c), veh/h	60	443	375	162	0	545	249	0	664	68	0	477
V/C Ratio(X)	0.62	0.99	0.48	0.91	0.00	0.83	0.95	0.00	0.86	0.69	0.00	1.00
Avail Cap(c_a), veh/h	101	443	375	162	0	545	249	0	664	101	0	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	34.2	29.6	40.5	0.0	29.7	38.4	0.0	26.7	42.7	0.0	33.4
Incr Delay (d2), s/veh	10.0	39.3	0.9	44.4	0.0	10.4	43.3	0.0	11.3	11.5	0.0	42.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	13.4	3.1	5.0	0.0	9.7	7.8	0.0	12.0	1.2	0.0	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	73.5	30.5	84.9	0.0	40.1	81.7	0.0	38.0	54.3	0.0	75.8
LnGrp LOS	D	E	C	F	A	D	F	A	D	D	A	F
Approach Vol, veh/h		653			599			810			526	
Approach Delay, s/veh		60.6			51.1			50.8			73.9	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	38.9	14.0	27.8	18.4	29.8	8.8	33.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.1	30.8	8.2	21.3	12.6	23.3	5.1	24.4
Max Q Clear Time (g_c+I1), s	4.3	28.0	9.4	22.9	13.9	25.3	3.8	22.5
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	90	120	75	85	95	175	395	115	110	495	115
Future Volume (veh/h)	85	90	120	75	85	95	175	395	115	110	495	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	95	126	79	89	100	184	416	121	116	521	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	251	213	107	244	207	229	1026	295	150	613	520
Arrive On Green	0.06	0.13	0.13	0.06	0.13	0.13	0.13	0.38	0.38	0.08	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2722	784	1781	1870	1585
Grp Volume(v), veh/h	89	95	126	79	89	100	184	270	267	116	521	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1729	1781	1870	1585
Q Serve(g_s), s	3.0	2.8	4.6	2.7	2.7	3.6	6.2	6.8	7.0	3.9	15.9	3.4
Cycle Q Clear(g_c), s	3.0	2.8	4.6	2.7	2.7	3.6	6.2	6.8	7.0	3.9	15.9	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	114	251	213	107	244	207	229	670	652	150	613	520
V/C Ratio(X)	0.78	0.38	0.59	0.74	0.36	0.48	0.81	0.40	0.41	0.77	0.85	0.23
Avail Cap(c_a), veh/h	154	251	213	169	244	207	279	740	720	294	797	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	24.2	24.9	28.3	24.3	24.7	26.0	14.0	14.1	27.5	19.2	15.0
Incr Delay (d2), s/veh	16.4	0.9	4.3	9.3	0.9	1.7	13.2	0.4	0.4	8.2	6.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.3	1.8	1.3	1.2	1.3	3.1	2.2	2.2	1.8	6.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	25.1	29.3	37.6	25.2	26.5	39.1	14.4	14.5	35.6	26.1	15.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	B
Approach Vol, veh/h		310			268			721			758	
Approach Delay, s/veh		32.4			29.3			20.7			25.8	
Approach LOS		C			C			C			C	

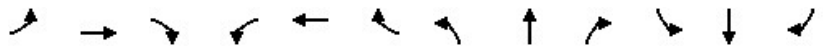
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	29.3	8.4	13.3	13.3	26.3	8.6	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	10.3	25.5	* 5.8	* 7.9	9.6	* 26	* 5.3	8.0
Max Q Clear Time (g_c+I1), s	5.9	9.0	4.7	6.6	8.2	17.9	5.0	5.6
Green Ext Time (p_c), s	0.1	2.6	0.0	0.1	0.1	2.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	150	295	435	100	165	405	880	450	125	790	50
Future Volume (veh/h)	90	150	295	435	100	165	405	880	450	125	790	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	158	311	458	105	0	426	926	474	132	832	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	429	191	482	341		430	1463	653	162	873	56
Arrive On Green	0.07	0.12	0.12	0.14	0.18	0.00	0.24	0.41	0.41	0.09	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3392	216
Grp Volume(v), veh/h	95	158	311	458	105	0	426	926	474	132	436	449
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1831
Q Serve(g_s), s	5.2	4.1	12.1	13.2	4.9	0.0	23.9	20.8	25.2	7.3	24.2	24.2
Cycle Q Clear(g_c), s	5.2	4.1	12.1	13.2	4.9	0.0	23.9	20.8	25.2	7.3	24.2	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	132	429	191	482	341		430	1463	653	162	457	471
V/C Ratio(X)	0.72	0.37	1.63	0.95	0.31		0.99	0.63	0.73	0.82	0.95	0.95
Avail Cap(c_a), veh/h	211	429	191	482	341		430	1463	653	194	457	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	40.6	44.1	42.8	35.5	0.0	37.9	23.5	24.8	44.8	36.7	36.7
Incr Delay (d2), s/veh	7.2	0.5	304.5	28.6	0.5	0.0	41.0	0.9	4.0	20.0	30.5	29.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.7	20.7	7.2	2.2	0.0	14.5	8.0	9.3	4.0	13.6	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	41.1	348.6	71.4	36.0	0.0	78.9	24.4	28.8	64.7	67.1	66.6
LnGrp LOS	D	D	F	E	D		E	C	C	E	E	E
Approach Vol, veh/h		564			563	A		1826			1017	
Approach Delay, s/veh		212.6			64.8			38.3			66.6	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	47.8	19.4	18.6	30.0	32.3	13.2	24.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	39.2	14.0	12.1	24.2	* 26	11.9	* 14
Max Q Clear Time (g_c+I1), s	9.3	27.2	15.2	14.1	25.9	26.2	7.2	6.9
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.0	0.0	0.1	0.2

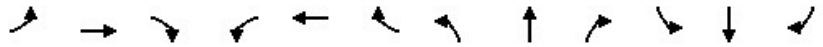
Intersection Summary	
HCM 6th Ctrl Delay	74.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	825	1000	55	565	45	595	790	105	45	625	385
Future Volume (veh/h)	400	825	1000	55	565	45	595	790	105	45	625	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	868	1053	58	595	47	626	832	111	47	658	405
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	1040	800	157	706	315	733	1356	605	192	799	578
Arrive On Green	0.14	0.29	0.29	0.05	0.20	0.20	0.21	0.38	0.38	0.06	0.22	0.22
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	421	868	1053	58	595	47	626	832	111	47	658	405
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.1	25.0	32.0	1.8	17.6	2.7	19.1	20.7	5.1	1.4	19.3	23.9
Cycle Q Clear(g_c), s	13.1	25.0	32.0	1.8	17.6	2.7	19.1	20.7	5.1	1.4	19.3	23.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	1040	800	157	706	315	733	1356	605	192	799	578
V/C Ratio(X)	0.87	0.83	1.32	0.37	0.84	0.15	0.85	0.61	0.18	0.24	0.82	0.70
Avail Cap(c_a), veh/h	512	1040	800	190	708	316	1352	1930	861	253	799	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	36.2	27.1	50.7	42.2	36.2	41.5	27.3	22.5	49.4	40.3	29.7
Incr Delay (d2), s/veh	14.8	6.0	151.1	1.4	9.1	0.2	3.0	0.5	0.1	0.7	7.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	10.9	51.4	0.8	8.2	1.0	7.9	8.1	1.8	0.6	8.7	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	42.2	178.2	52.1	51.3	36.4	44.4	27.8	22.6	50.1	47.3	33.5
LnGrp LOS	E	D	F	D	D	D	D	C	C	D	D	C
Approach Vol, veh/h		2342			700			1569			1110	
Approach Delay, s/veh		106.7			50.4			34.1			42.4	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	48.2	10.8	38.5	29.0	31.1	21.1	28.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	6.0	59.4	6.0	32.0	42.8	24.6	16.2	21.8
Max Q Clear Time (g_c+I1), s	3.8	22.7	3.8	34.0	21.1	25.9	15.1	19.6
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	2.1	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	67.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Cumulative PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	320	3.0	337	3.0	1.572	299.8	LOS F	68.7	1758.7	1.00	4.09	12.78	6.4
8	T1	485	3.0	511	3.0	1.572	299.8	LOS F	68.7	1758.7	1.00	4.09	12.78	6.4
18	R2	200	3.0	211	3.0	1.572	299.8	LOS F	68.7	1758.7	1.00	4.09	12.78	6.3
Approach		1005	3.0	1058	3.0	1.572	299.8	LOS F	68.7	1758.7	1.00	4.09	12.78	6.4
East: Claratina Rd														
1	L2	220	3.0	232	3.0	1.264	152.6	LOS F	67.1	1717.8	1.00	3.21	10.06	11.0
6	T1	1150	3.0	1211	3.0	1.264	152.6	LOS F	67.1	1717.8	1.00	3.21	10.06	11.1
16	R2	145	3.0	153	3.0	1.264	152.6	LOS F	67.1	1717.8	1.00	3.21	10.06	11.1
Approach		1515	3.0	1595	3.0	1.264	152.6	LOS F	67.1	1717.8	1.00	3.21	10.06	11.1
North: Coffee Rd														
7	L2	65	3.0	68	3.0	0.948	67.0	LOS F	10.8	277.0	0.97	1.52	3.59	19.4
4	T1	280	3.0	295	3.0	0.948	67.0	LOS F	10.8	277.0	0.97	1.52	3.59	18.7
14	R2	400	3.0	421	3.0	1.100	108.7	LOS F	22.9	586.4	1.00	2.06	6.03	13.7
Approach		745	3.0	784	3.0	1.100	89.4	LOS F	22.9	586.4	0.99	1.81	4.90	15.7
West: Claratina Rd														
5	L2	530	3.0	558	3.0	1.816	385.5	LOS F	240.6	6159.3	1.00	6.52	17.52	5.2
2	T1	1940	3.0	2042	3.0	1.816	385.5	LOS F	240.6	6159.3	1.00	6.52	17.52	5.2
12	R2	470	3.0	495	3.0	1.816	385.5	LOS F	240.6	6159.3	1.00	6.52	17.52	5.1
Approach		2940	3.0	3095	3.0	1.816	385.5	LOS F	240.6	6159.3	1.00	6.52	17.52	5.2
All Vehicles		6205	3.0	6532	3.0	1.816	279.2	LOS F	240.6	6159.3	1.00	4.75	13.42	6.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.1	0.0	0.0	0.1
Total Del/Veh (s)	80.6	56.5	54.6	95.2	73.8
Vehicles Entered	694	927	612	1071	3304
Vehicles Exited	681	926	613	1044	3264
Hourly Exit Rate	681	926	613	1044	3264
Input Volume	698	1138	607	1087	3530
% of Volume	98	81	101	96	92
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	3.0	0.0	1.9
Total Del/Veh (s)	25.9	153.9	11.4	105.4
Vehicles Entered	587	1341	203	2131
Vehicles Exited	584	1286	204	2074
Hourly Exit Rate	584	1286	204	2074
Input Volume	615	1568	206	2389
% of Volume	95	82	99	87
Denied Entry Before	0	0	0	0
Denied Entry After	0	3	0	3

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.9	16.1	19.3	13.1
Vehicles Entered	835	712	336	1883
Vehicles Exited	835	711	334	1880
Hourly Exit Rate	835	711	334	1880
Input Volume	832	731	392	1956
% of Volume	100	97	85	96
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

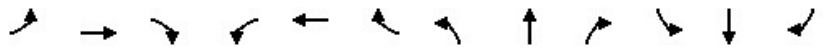
Total Zone Performance

Denied Del/Veh (s)	13.0
Total Del/Veh (s)	1496.0
Vehicles Entered	327
Vehicles Exited	128
Hourly Exit Rate	128
Input Volume	7874
% of Volume	2
Denied Entry Before	0
Denied Entry After	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	182	196	165	25	265	496	71	15	572	25
Future Volume (veh/h)	20	85	182	196	165	25	265	496	71	15	572	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	89	34	206	174	26	279	522	75	16	602	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	211	179	250	420	356	322	1222	175	41	811	35
Arrive On Green	0.03	0.11	0.11	0.14	0.22	0.22	0.18	0.39	0.39	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3120	447	1781	3470	150
Grp Volume(v), veh/h	21	89	34	206	174	26	279	296	301	16	308	320
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1790	1781	1777	1843
Q Serve(g_s), s	0.8	3.1	1.4	7.9	5.6	0.9	10.8	8.6	8.7	0.6	11.4	11.4
Cycle Q Clear(g_c), s	0.8	3.1	1.4	7.9	5.6	0.9	10.8	8.6	8.7	0.6	11.4	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.08
Lane Grp Cap(c), veh/h	51	211	179	250	420	356	322	696	701	41	415	431
V/C Ratio(X)	0.41	0.42	0.19	0.83	0.41	0.07	0.87	0.43	0.43	0.39	0.74	0.74
Avail Cap(c_a), veh/h	151	212	179	317	420	356	343	1003	1010	151	812	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	29.2	28.4	29.6	23.4	21.6	28.1	15.7	15.7	34.1	25.1	25.1
Incr Delay (d2), s/veh	5.2	1.3	0.5	13.1	0.7	0.1	19.4	0.4	0.4	6.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.5	3.9	2.2	0.3	5.8	3.0	3.0	0.3	4.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	30.5	28.9	42.7	24.1	21.7	47.6	16.1	16.1	40.1	27.7	27.7
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		144			406			876			644	
Approach Delay, s/veh		31.4			33.4			26.1			28.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	33.9	15.3	14.5	18.2	22.7	7.4	22.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	39.9	12.6	8.0	13.6	32.3	6.0	14.6
Max Q Clear Time (g_c+I1), s	2.6	10.7	9.9	5.1	12.8	13.4	2.8	7.6
Green Ext Time (p_c), s	0.0	3.3	0.1	0.1	0.1	3.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C



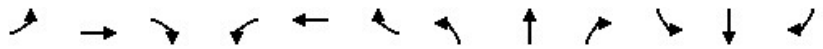
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	0	40	0	0	0	31	1029	0	0	1047	19
Future Volume (veh/h)	24	0	40	0	0	0	31	1029	0	0	1047	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	0	42	0	0	0	33	1083	0	0	1102	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	0	56	0	111	0	65	1393	0	3	1122	20
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.04	0.74	0.00	0.00	0.61	0.61
Sat Flow, veh/h	566	0	952	0	1870	0	1781	1870	0	1781	1831	33
Grp Volume(v), veh/h	67	0	0	0	0	0	33	1083	0	0	0	1122
Grp Sat Flow(s),veh/h/ln	1518	0	0	0	1870	0	1781	1870	0	1781	0	1864
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	1.0	18.6	0.0	0.0	0.0	31.1
Cycle Q Clear(g_c), s	2.3	0.0	0.0	0.0	0.0	0.0	1.0	18.6	0.0	0.0	0.0	31.1
Prop In Lane	0.37		0.63	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	183	0	0	0	111	0	65	1393	0	3	0	1142
V/C Ratio(X)	0.37	0.00	0.00	0.00	0.00	0.00	0.51	0.78	0.00	0.00	0.00	0.98
Avail Cap(c_a), veh/h	282	0	0	0	233	0	181	1393	0	168	0	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	0.0	0.0	0.0	0.0	25.1	4.1	0.0	0.0	0.0	10.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.0	0.0	6.1	2.9	0.0	0.0	0.0	22.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.5	1.6	0.0	0.0	0.0	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	0.0	0.0	0.0	0.0	0.0	31.2	7.0	0.0	0.0	0.0	32.4
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	C
Approach Vol, veh/h		67			0			1116			1122	
Approach Delay, s/veh		25.8			0.0			7.7			32.4	
Approach LOS		C						A			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	45.3		7.7	7.0	38.3		7.7				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	20.6		4.3	3.0	33.1		0.0				
Green Ext Time (p_c), s	0.0	6.4		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	403	70	31	788	319	40	516	29	183	630	264
Future Volume (veh/h)	225	403	70	31	788	319	40	516	29	183	630	264
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	424	74	33	829	283	42	543	31	193	663	278
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	773	135	48	747	770	54	705	40	153	640	268
Arrive On Green	0.13	0.50	0.50	0.03	0.40	0.40	0.03	0.21	0.21	0.09	0.26	0.26
Sat Flow, veh/h	1781	1551	271	1781	1870	1585	1781	3417	195	1781	2440	1023
Grp Volume(v), veh/h	237	0	498	33	829	283	42	282	292	193	483	458
Grp Sat Flow(s),veh/h/ln	1781	0	1822	1781	1870	1585	1781	1777	1835	1781	1777	1686
Q Serve(g_s), s	16.2	0.0	24.3	2.4	51.5	14.4	3.0	19.3	19.4	11.1	33.8	33.8
Cycle Q Clear(g_c), s	16.2	0.0	24.3	2.4	51.5	14.4	3.0	19.3	19.4	11.1	33.8	33.8
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.11	1.00		0.61
Lane Grp Cap(c), veh/h	224	0	908	48	747	770	54	367	379	153	466	442
V/C Ratio(X)	1.06	0.00	0.55	0.69	1.11	0.37	0.78	0.77	0.77	1.26	1.04	1.04
Avail Cap(c_a), veh/h	224	0	908	80	747	770	69	382	394	153	466	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	0.0	22.3	62.2	38.7	20.8	62.1	48.2	48.3	58.9	47.6	47.6
Incr Delay (d2), s/veh	76.5	0.0	0.7	16.1	67.1	0.3	33.8	8.9	8.8	158.2	51.4	52.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	0.0	9.7	1.3	35.7	5.0	1.8	9.1	9.5	11.6	20.9	20.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.8	0.0	23.0	78.3	105.8	21.1	95.8	57.1	57.0	217.1	98.9	100.1
LnGrp LOS	F	A	C	E	F	C	F	E	E	F	F	F
Approach Vol, veh/h		735			1145			616			1134	
Approach Delay, s/veh		58.4			84.1			59.7			119.5	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	32.8	8.9	70.7	9.3	40.0	21.6	58.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	11.1	27.7	5.8	61.9	5.0	33.8	16.2	51.5
Max Q Clear Time (g_c+I1), s	13.1	21.4	4.4	26.3	5.0	35.8	18.2	53.5
Green Ext Time (p_c), s	0.0	1.6	0.0	2.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	85.8
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	595	10	372	1138	0	0	0	206	0	0	0
Future Volume (veh/h)	0	595	10	372	1138	0	0	0	206	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	626	0	392	1198	0	0	0	217			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	761		484	1564	0	0	0	0			
Arrive On Green	0.00	0.41	0.00	0.28	0.84	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	626	0	392	1198	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	11.8	0.0	8.5	11.6	0.0						
Cycle Q Clear(g_c), s	0.0	11.8	0.0	8.5	11.6	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	761		484	1564	0						
V/C Ratio(X)	0.00	0.82		0.81	0.77	0.00						
Avail Cap(c_a), veh/h	0	986		958	2241	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	10.5	0.0	13.2	1.5	0.0						
Incr Delay (d2), s/veh	0.0	4.4	0.0	3.3	1.0	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	4.2	0.0	2.4	0.4	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.9	0.0	16.5	2.5	0.0						
LnGrp LOS	A	B		B	A	A						
Approach Vol, veh/h		626	A		1590							
Approach Delay, s/veh		14.9			6.0							
Approach LOS		B			A							

Timer - Assigned Phs		3	4			8						
Phs Duration (G+Y+Rc), s		17.0	22.6			39.6						
Change Period (Y+Rc), s		5.8	* 6.5			6.5						
Max Green Setting (Gmax), s		22.2	* 21			47.5						
Max Q Clear Time (g_c+I1), s		10.5	13.8			13.6						
Green Ext Time (p_c), s		0.9	2.3			12.1						

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	586	206	0	731	372	20
Future Volume (veh/h)	586	206	0	731	372	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	617	217	0	769	392	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	819	1099	0	1556	486	
Arrive On Green	0.44	0.44	0.00	0.44	0.28	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	617	217	0	769	392	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	10.8	1.8	0.0	6.1	8.3	0.0
Cycle Q Clear(g_c), s	10.8	1.8	0.0	6.1	8.3	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	819	1099	0	1556	486	
V/C Ratio(X)	0.75	0.20	0.00	0.49	0.81	
Avail Cap(c_a), veh/h	1614	1746	0	3066	886	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.2	1.8	0.0	7.9	13.0	0.0
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.2	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.6	0.0	1.2	3.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	1.9	0.0	8.1	16.2	0.0
LnGrp LOS	B	A	A	A	B	
Approach Vol, veh/h	834			769	392	A
Approach Delay, s/veh	8.4			8.1	16.2	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	23.3				23.3	15.8
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	33.8				33.8	20.3
Max Q Clear Time (g_c+I1), s	12.8				8.1	10.3
Green Ext Time (p_c), s	4.3				5.0	0.9

Intersection Summary		
HCM 6th Ctrl Delay	9.8	
HCM 6th LOS	A	

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	20	10	813	1038	19
Future Vol, veh/h	19	20	10	813	1038	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	20	21	11	856	1093	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1981	1103	1113	0	-	0
Stage 1	1103	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	68	257	627	-	-	-
Stage 1	318	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	67	257	627	-	-	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	312	-	-	-	-	-
Stage 2	406	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	627	-	249	-	-
HCM Lane V/C Ratio	0.017	-	0.165	-	-
HCM Control Delay (s)	10.8	-	22.3	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	10	813	25	5	978
Future Vol, veh/h	46	10	813	25	5	978
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	48	11	856	26	5	1029

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1908	869	0	0	882	0
Stage 1	869	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	75	351	-	-	767	-
Stage 1	410	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	351	-	-	767	-
Mov Cap-2 Maneuver	74	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	336	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	110	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	86	767	-
HCM Lane V/C Ratio	-	-	0.685	0.007	-
HCM Control Delay (s)	-	-	110	9.7	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	3.3	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	0	175	725	0	326	185	351	273	190	664	169
Future Volume (veh/h)	140	0	175	725	0	326	185	351	273	190	664	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	147	0	184	763	0	343	195	369	0	200	699	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	282	0	0	942	0	0	243	830		251	887	
Arrive On Green	0.09	0.00	0.00	0.27	0.00	0.00	0.14	0.24	0.00	0.15	0.26	0.00
Sat Flow, veh/h	3264	147		3456	763		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	147	23.5		763	20.6		195	369	0	200	699	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	C		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.2			10.4			5.7	4.6	0.0	5.7	9.6	0.0
Cycle Q Clear(g_c), s	2.2			10.4			5.7	4.6	0.0	5.7	9.6	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282			942			243	830		251	887	
V/C Ratio(X)	0.52			0.81			0.80	0.44		0.80	0.79	
Avail Cap(c_a), veh/h	324			1179			344	927		404	1035	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.0			17.1			20.9	16.2	0.0	20.8	17.4	0.0
Incr Delay (d2), s/veh	1.5			3.5			8.8	0.4	0.0	5.7	3.6	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7			3.5			2.6	1.6	0.0	2.3	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5			20.6			29.7	16.6	0.0	26.4	21.0	0.0
LnGrp LOS	C			C			C	B		C	C	
Approach Vol, veh/h								564	A		899	A
Approach Delay, s/veh								21.1			22.2	
Approach LOS								C			C	

Timer - Assigned Phs	1	2	3		5	6	7					
Phs Duration (G+Y+Rc), s	12.8	18.1	19.5		12.0	18.9	10.2					
Change Period (Y+Rc), s	5.4	* 5.8	5.8		* 4.7	5.8	5.8					
Max Green Setting (Gmax), s	11.9	* 14	17.2		* 10	15.3	5.0					
Max Q Clear Time (g_c+I1), s	7.7	6.6	12.4		7.7	11.6	4.2					
Green Ext Time (p_c), s	0.2	1.3	1.4		0.1	1.5	0.0					

Intersection Summary	
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	251.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	227	60	326	542	10	270	45	156	30	70	40
Future Vol, veh/h	25	227	60	326	542	10	270	45	156	30	70	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	239	63	343	571	11	284	47	164	32	74	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	33.8	457.5	80.2	20.7
HCM LOS	D	F	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	8%	37%	21%
Vol Thru, %	10%	73%	62%	50%
Vol Right, %	33%	19%	1%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	471	312	878	140
LT Vol	270	25	326	30
Through Vol	45	227	542	70
RT Vol	156	60	10	40
Lane Flow Rate	496	328	924	147
Geometry Grp	1	1	1	1
Degree of Util (X)	1.012	0.716	1.959	0.357
Departure Headway (Hd)	9.315	9.745	7.63	11.456
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	392	374	481	317
Service Time	7.315	7.745	5.711	9.456
HCM Lane V/C Ratio	1.265	0.877	1.921	0.464
HCM Control Delay	80.2	33.8	457.5	20.7
HCM Lane LOS	F	D	F	C
HCM 95th-tile Q	12.4	5.4	61.5	1.6

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	976	5	11	1530	5	10
Future Vol, veh/h	976	5	11	1530	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1027	5	12	1611	5	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1032	0	2665	1030
Stage 1	-	-	-	-	1030	-
Stage 2	-	-	-	-	1635	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	673	-	25	283
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	175	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	673	-	21	283
Mov Cap-2 Maneuver	-	-	-	-	21	-
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	145	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	94.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	55	-	-	673	-
HCM Lane V/C Ratio	0.287	-	-	0.017	-
HCM Control Delay (s)	94.9	-	-	10.4	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	210	627	149	172	1115	173	182	207	148	160	240	244
Future Vol, veh/h	210	627	149	172	1115	173	182	207	148	160	240	244
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	221	660	157	181	1174	182	192	218	156	168	253	257

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1356	0	0	817	0	0	3063	2899	739	2995	2886	1265
Stage 1	-	-	-	-	-	-	1181	1181	-	1627	1627	-
Stage 2	-	-	-	-	-	-	1882	1718	-	1368	1259	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	507	-	-	811	-	-	~ 8	~ 16	417	~ 8	~ 16	~ 207
Stage 1	-	-	-	-	-	-	232	264	-	~ 129	~ 160	-
Stage 2	-	-	-	-	-	-	~ 91	~ 145	-	181	~ 242	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	507	-	-	811	-	-	-	~ 2	417	-	~ 2	~ 207
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 2	-	-	~ 2	-
Stage 1	-	-	-	-	-	-	~ 41	~ 46	-	~ 23	~ 124	-
Stage 2	-	-	-	-	-	-	~ 18	~ 113	-	-	~ 43	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.7	1.3		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	507	-	-	811	-	-	-
HCM Lane V/C Ratio	-	0.436	-	-	0.223	-	-	-
HCM Control Delay (s)	-	17.5	0	-	10.7	-	-	-
HCM Lane LOS	-	C	A	-	B	-	-	-
HCM 95th %tile Q(veh)	-	2.2	-	-	0.9	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	677	133	275	771	50	201	60	155	70	115	117
Future Volume (veh/h)	113	677	133	275	771	50	201	60	155	70	115	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	713	140	289	812	53	212	63	163	74	121	123
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	154	868	170	401	1089	71	260	398	338	98	217	184
Arrive On Green	0.09	0.31	0.31	0.12	0.33	0.33	0.15	0.21	0.21	0.05	0.12	0.12
Sat Flow, veh/h	1781	2844	558	3456	3252	212	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	119	428	425	289	426	439	212	63	163	74	121	123
Grp Sat Flow(s),veh/h/ln	1781	1706	1696	1728	1706	1758	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	4.5	16.0	16.0	5.6	15.2	15.2	7.9	1.9	6.2	2.8	4.2	5.1
Cycle Q Clear(g_c), s	4.5	16.0	16.0	5.6	15.2	15.2	7.9	1.9	6.2	2.8	4.2	5.1
Prop In Lane	1.00		0.33	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	521	517	401	572	589	260	398	338	98	217	184
V/C Ratio(X)	0.77	0.82	0.82	0.72	0.75	0.75	0.81	0.16	0.48	0.76	0.56	0.67
Avail Cap(c_a), veh/h	310	637	633	652	679	700	422	557	472	243	378	320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	22.2	22.2	29.4	20.3	20.3	28.5	22.1	23.8	32.1	28.8	29.2
Incr Delay (d2), s/veh	8.1	7.1	7.2	2.4	3.7	3.6	6.2	0.2	1.1	11.1	2.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.6	6.5	2.3	6.0	6.2	3.5	0.8	2.3	1.5	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	29.3	29.4	31.8	24.0	23.9	34.7	22.2	24.8	43.2	31.0	33.3
LnGrp LOS	D	C	C	C	C	C	C	C	C	D	C	C
Approach Vol, veh/h		972			1154			438			318	
Approach Delay, s/veh		30.5			25.9			29.3			34.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	20.5	13.1	26.8	15.2	13.8	11.0	28.9
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.8	8.2	7.6	18.0	9.9	7.1	6.5	17.2
Green Ext Time (p_c), s	0.0	0.6	0.5	3.0	0.3	0.5	0.1	3.8

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	47.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	225	135	402	15	45	516
Future Vol, veh/h	225	135	402	15	45	516
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	142	423	16	47	543

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1068	431	0	0	439	0
Stage 1	431	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	245	624	-	-	1121	-
Stage 1	655	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 230	624	-	-	1121	-
Mov Cap-2 Maneuver	~ 230	-	-	-	-	-
Stage 1	655	-	-	-	-	-
Stage 2	495	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	176.1	0	0.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	301	1121	-
HCM Lane V/C Ratio	-	-	1.259	0.042	-
HCM Control Delay (s)	-	-	176.1	8.4	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	17.8	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	40.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	60	517	55	36	876
Future Vol, veh/h	150	60	517	55	36	876
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	63	544	58	38	922

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1571	573	0	0	602	0
Stage 1	573	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 122	519	-	-	975	-
Stage 1	564	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 112	519	-	-	975	-
Mov Cap-2 Maneuver	~ 112	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	328	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 328.6	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	144	975	-
HCM Lane V/C Ratio	-	-	1.535	0.039	-
HCM Control Delay (s)	-	-	$ 328.6	8.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	15.1	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

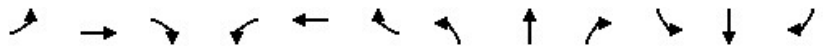
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	180	230	100	91	74	160	572	30	45	669	54
Future Volume (veh/h)	64	180	230	100	91	74	160	572	30	45	669	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	189	242	105	96	78	168	602	32	47	704	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	293	248	134	174	141	205	720	38	73	572	46
Arrive On Green	0.05	0.16	0.16	0.08	0.18	0.18	0.12	0.41	0.41	0.04	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	955	776	1781	1760	94	1781	1707	138
Grp Volume(v), veh/h	67	189	242	105	0	174	168	0	634	47	0	761
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1731	1781	0	1854	1781	0	1845
Q Serve(g_s), s	2.9	7.3	11.8	4.5	0.0	7.1	7.1	0.0	23.8	2.0	0.0	25.9
Cycle Q Clear(g_c), s	2.9	7.3	11.8	4.5	0.0	7.1	7.1	0.0	23.8	2.0	0.0	25.9
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	88	293	248	134	0	316	205	0	758	73	0	618
V/C Ratio(X)	0.76	0.65	0.98	0.78	0.00	0.55	0.82	0.00	0.84	0.64	0.00	1.23
Avail Cap(c_a), veh/h	138	293	248	166	0	316	235	0	758	115	0	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.3	30.6	32.5	35.1	0.0	28.7	33.4	0.0	20.5	36.5	0.0	25.7
Incr Delay (d2), s/veh	12.7	4.8	50.2	17.6	0.0	2.1	17.9	0.0	8.1	9.0	0.0	117.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.4	7.5	2.4	0.0	2.8	3.8	0.0	10.1	1.0	0.0	29.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	35.4	82.7	52.7	0.0	30.8	51.3	0.0	28.6	45.5	0.0	143.5
LnGrp LOS	D	D	F	D	A	C	D	A	C	D	A	F
Approach Vol, veh/h		498			279			802			808	
Approach Delay, s/veh		60.2			39.0			33.4			137.8	
Approach LOS		E			D			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	38.1	11.6	18.6	14.7	32.4	9.6	20.6
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	31.1	7.2	12.1	10.2	25.9	6.0	13.3
Max Q Clear Time (g_c+I1), s	4.0	25.8	6.5	13.8	9.1	27.9	4.9	9.1
Green Ext Time (p_c), s	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	75.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	33	152	40	63	92	67	199	35	51	342	70
Future Volume (veh/h)	90	33	152	40	63	92	67	199	35	51	342	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	35	160	42	66	97	71	209	37	54	360	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	133	363	307	79	307	260	113	828	144	95	481	408
Arrive On Green	0.07	0.19	0.19	0.04	0.16	0.16	0.06	0.27	0.27	0.05	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3026	527	1781	1870	1585
Grp Volume(v), veh/h	95	35	160	42	66	97	71	121	125	54	360	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1776	1781	1870	1585
Q Serve(g_s), s	2.5	0.7	4.4	1.1	1.5	2.6	1.9	2.6	2.7	1.4	8.6	1.8
Cycle Q Clear(g_c), s	2.5	0.7	4.4	1.1	1.5	2.6	1.9	2.6	2.7	1.4	8.6	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	133	363	307	79	307	260	113	486	486	95	481	408
V/C Ratio(X)	0.72	0.10	0.52	0.53	0.22	0.37	0.63	0.25	0.26	0.57	0.75	0.18
Avail Cap(c_a), veh/h	183	424	359	198	462	392	213	952	951	209	1002	849
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	16.1	17.5	22.7	17.6	18.1	22.2	13.7	13.8	22.4	16.6	14.0
Incr Delay (d2), s/veh	7.9	0.1	1.4	5.4	0.3	0.9	5.6	0.3	0.3	5.3	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.3	1.5	0.5	0.6	0.9	0.8	0.8	0.8	0.7	3.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	16.2	18.9	28.1	17.9	19.0	27.8	14.0	14.0	27.7	18.9	14.3
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		290			205			317			488	
Approach Delay, s/veh		22.2			20.5			17.1			19.2	
Approach LOS		C			C			B			B	

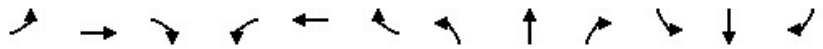
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	19.5	6.9	14.5	8.5	18.7	8.3	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.4	4.7	3.1	6.4	3.9	10.6	4.5	4.6
Green Ext Time (p_c), s	0.0	1.1	0.0	0.3	0.0	1.9	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	63	149	350	49	95	149	360	235	109	831	100
Future Volume (veh/h)	90	63	149	350	49	95	149	360	235	109	831	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	66	157	368	52	0	157	379	247	115	875	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	542	242	431	343		188	1199	535	147	988	119
Arrive On Green	0.09	0.15	0.15	0.12	0.18	0.00	0.11	0.34	0.34	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3195	383
Grp Volume(v), veh/h	95	66	157	368	52	0	157	379	247	115	487	493
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1801
Q Serve(g_s), s	4.0	1.3	7.3	8.2	1.8	0.0	6.8	6.2	9.6	5.0	20.5	20.5
Cycle Q Clear(g_c), s	4.0	1.3	7.3	8.2	1.8	0.0	6.8	6.2	9.6	5.0	20.5	20.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	159	542	242	431	343		188	1199	535	147	549	557
V/C Ratio(X)	0.60	0.12	0.65	0.85	0.15		0.83	0.32	0.46	0.78	0.89	0.89
Avail Cap(c_a), veh/h	184	543	242	431	343		188	1199	535	233	588	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	28.7	31.3	33.7	27.0	0.0	34.5	19.3	20.4	35.4	25.8	25.8
Incr Delay (d2), s/veh	4.0	0.1	6.0	15.3	0.2	0.0	26.4	0.1	0.6	8.8	14.5	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.5	3.0	4.1	0.8	0.0	4.1	2.2	3.2	2.4	9.8	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	28.8	37.3	49.0	27.2	0.0	60.9	19.5	21.1	44.2	40.3	40.2
LnGrp LOS	D	C	D	D	C		E	B	C	D	D	D
Approach Vol, veh/h		318			420	A		783			1095	
Approach Delay, s/veh		35.9			46.3			28.3			40.7	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	33.0	15.2	18.5	14.1	30.8	12.8	20.9
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	24.1	9.8	12.0	8.3	* 26	8.1	* 14
Max Q Clear Time (g_c+I1), s	17.0	11.6	10.2	9.3	8.8	22.5	6.0	3.8
Green Ext Time (p_c), s	0.1	2.4	0.0	0.2	0.0	1.8	0.0	0.1

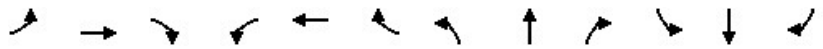
Intersection Summary	
HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	289	303	35	555	36	882	414	80	36	618	460
Future Volume (veh/h)	385	289	303	35	555	36	882	414	80	36	618	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	304	319	37	584	38	928	436	84	38	651	484
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	890	815	133	586	262	912	1467	654	180	714	515
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.26	0.41	0.41	0.05	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	405	304	319	37	584	38	928	436	84	38	651	484
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.6	7.0	12.2	1.0	16.4	2.1	26.4	8.2	3.3	1.1	17.9	20.1
Cycle Q Clear(g_c), s	11.6	7.0	12.2	1.0	16.4	2.1	26.4	8.2	3.3	1.1	17.9	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	890	815	133	586	262	912	1467	654	180	714	515
V/C Ratio(X)	0.95	0.34	0.39	0.28	1.00	0.15	1.02	0.30	0.13	0.21	0.91	0.94
Avail Cap(c_a), veh/h	429	890	815	207	586	262	912	1467	654	276	714	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	30.7	14.8	46.7	41.7	35.7	36.8	19.6	18.2	45.4	39.1	32.8
Incr Delay (d2), s/veh	29.9	0.2	0.3	1.1	36.1	0.3	34.2	0.1	0.1	0.6	15.9	25.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.8	3.9	0.4	9.6	0.8	14.5	3.1	1.1	0.4	8.8	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	30.9	15.1	47.8	77.8	36.0	71.0	19.8	18.3	46.0	55.0	58.2
LnGrp LOS	E	C	B	D	E	D	F	B	B	D	E	E
Approach Vol, veh/h		1028			659			1448			1173	
Approach Delay, s/veh		42.7			73.7			52.5			56.0	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	47.8	9.7	31.5	32.2	26.6	18.2	23.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.3	38.5	6.0	22.9	26.4	20.1	12.4	16.5
Max Q Clear Time (g_c+I1), s	13.1	10.2	3.0	14.2	28.4	22.1	13.6	18.4
Green Ext Time (p_c), s	0.0	2.8	0.0	1.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	75.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	111	90	742	127	86	865
Future Vol, veh/h	111	90	742	127	86	865
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	117	95	781	134	91	911

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1941	848	0	0	915	0
Stage 1	848	-	-	-	-	-
Stage 2	1093	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 72	361	-	-	745	-
Stage 1	420	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 54	361	-	-	745	-
Mov Cap-2 Maneuver	~ 54	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	242	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 754.7	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	87	745	-
HCM Lane V/C Ratio	-	-	2.432	0.122	-
HCM Control Delay (s)	-	-	$ 754.7	10.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	19.6	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	106.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	115	808	1276	69	55	110
Future Vol, veh/h	115	808	1276	69	55	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	121	851	1343	73	58	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1416	0	-	0	2473	1380
Stage 1	-	-	-	-	1380	-
Stage 2	-	-	-	-	1093	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	481	-	-	-	~ 33	177
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	321	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	481	-	-	-	~ 17	177
Mov Cap-2 Maneuver	-	-	-	-	~ 17	-
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	321	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	$ 1559.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	481	-	-	-	43
HCM Lane V/C Ratio	0.252	-	-	-	4.039
HCM Control Delay (s)	15	0	-	-	$ 1559.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	1	-	-	-	19.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	908	1381	5	15	80
Future Vol, veh/h	28	908	1381	5	15	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	956	1454	5	16	84

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1459	0	-	0	2471	1457
Stage 1	-	-	-	-	1457	-
Stage 2	-	-	-	-	1014	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	463	-	-	-	33	159
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	350	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	463	-	-	-	29	159
Mov Cap-2 Maneuver	-	-	-	-	29	-
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	350	-

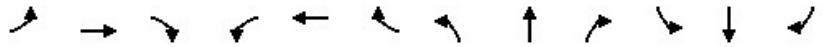
Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	198.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	463	-	-	-	93
HCM Lane V/C Ratio	0.064	-	-	-	1.075
HCM Control Delay (s)	13.3	0	-	-	198.5
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Future Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	89	-16	195	174	26	216	442	58	16	526	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	235	200	242	435	369	265	1084	141	41	748	37
Arrive On Green	0.03	0.13	0.00	0.14	0.23	0.23	0.15	0.34	0.34	0.02	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3160	413	1781	3446	170
Grp Volume(v), veh/h	21	89	-16	195	174	26	216	247	253	16	271	281
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1796	1781	1777	1840
Q Serve(g_s), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Cycle Q Clear(g_c), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		0.09
Lane Grp Cap(c), veh/h	52	235	200	242	435	369	265	609	616	41	386	399
V/C Ratio(X)	0.40	0.38	-0.08	0.80	0.40	0.07	0.81	0.41	0.41	0.39	0.70	0.70
Avail Cap(c_a), veh/h	169	237	201	355	435	369	383	1122	1134	169	908	941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	25.3	0.0	26.5	20.5	18.9	26.0	15.8	15.9	30.4	22.8	22.9
Incr Delay (d2), s/veh	4.9	1.0	0.0	8.2	0.6	0.1	8.5	0.4	0.4	5.8	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.0	3.0	1.9	0.3	3.4	2.3	2.4	0.3	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	26.3	0.0	34.7	21.1	19.0	34.5	16.3	16.3	36.2	25.2	25.1
LnGrp LOS	D	C	A	C	C	B	C	B	B	D	C	C
Approach Vol, veh/h		94			395			716			568	
Approach Delay, s/veh		32.8			27.7			21.8			25.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	27.9	14.0	14.5	14.8	19.9	7.2	21.2
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	39.9	12.6	8.0	13.6	32.3	6.0	14.6
Max Q Clear Time (g_c+I1), s	2.6	8.8	8.7	4.8	9.4	10.9	2.7	7.0
Green Ext Time (p_c), s	0.0	2.7	0.2	0.1	0.2	2.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C



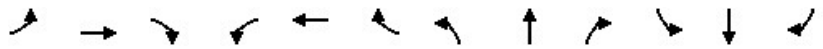
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Future Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	37	0	0	0	26	889	0	0	942	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	0	55	0	106	0	55	1350	0	4	1068	18
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.72	0.00	0.00	0.58	0.58
Sat Flow, veh/h	550	0	970	0	1870	0	1781	1870	0	1781	1834	31
Grp Volume(v), veh/h	58	0	0	0	0	0	26	889	0	0	0	958
Grp Sat Flow(s),veh/h/ln	1520	0	0	0	1870	0	1781	1870	0	1781	0	1865
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Prop In Lane	0.36		0.64	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	190	0	0	0	106	0	55	1350	0	4	0	1086
V/C Ratio(X)	0.30	0.00	0.00	0.00	0.00	0.00	0.48	0.66	0.00	0.00	0.00	0.88
Avail Cap(c_a), veh/h	318	0	0	0	263	0	205	1350	0	190	0	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	0.0	0.0	0.0	22.4	3.5	0.0	0.0	0.0	8.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.0	6.3	1.2	0.0	0.0	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	0.0	0.0	0.0	0.0	0.0	28.7	4.6	0.0	0.0	0.0	15.0
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	B
Approach Vol, veh/h		58			0			915			958	
Approach Delay, s/veh		22.6			0.0			5.3			15.0	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	39.7		7.3	6.5	33.1		7.3				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	13.8		3.8	2.7	22.7		0.0				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	4.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	335	70	20	705	200	40	470	20	100	580	240
Future Volume (veh/h)	200	335	70	20	705	200	40	470	20	100	580	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	353	74	21	742	158	42	495	21	105	611	253
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	757	159	37	748	748	54	764	32	129	641	265
Arrive On Green	0.13	0.51	0.51	0.02	0.40	0.40	0.03	0.22	0.22	0.07	0.26	0.26
Sat Flow, veh/h	1781	1499	314	1781	1870	1585	1781	3474	147	1781	2451	1014
Grp Volume(v), veh/h	211	0	427	21	742	158	42	253	263	105	443	421
Grp Sat Flow(s),veh/h/ln	1781	0	1814	1781	1870	1585	1781	1777	1844	1781	1777	1688
Q Serve(g_s), s	15.1	0.0	19.6	1.5	50.8	7.5	3.0	16.7	16.7	7.5	31.6	31.6
Cycle Q Clear(g_c), s	15.1	0.0	19.6	1.5	50.8	7.5	3.0	16.7	16.7	7.5	31.6	31.6
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.08	1.00		0.60
Lane Grp Cap(c), veh/h	224	0	916	37	748	748	54	391	405	129	465	442
V/C Ratio(X)	0.94	0.00	0.47	0.57	0.99	0.21	0.78	0.65	0.65	0.82	0.95	0.95
Avail Cap(c_a), veh/h	224	0	916	80	748	748	69	391	405	153	466	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	20.6	62.5	38.5	19.9	62.0	45.7	45.7	58.9	46.8	46.8
Incr Delay (d2), s/veh	44.1	0.0	0.4	13.5	30.9	0.1	33.7	3.7	3.6	24.3	29.8	31.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	7.7	0.8	27.9	2.6	1.8	7.5	7.8	4.2	17.2	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.9	0.0	21.0	76.0	69.4	20.1	95.8	49.4	49.3	83.3	76.5	77.8
LnGrp LOS	F	A	C	E	E	C	F	D	D	F	E	E
Approach Vol, veh/h		638			921			558			969	
Approach Delay, s/veh		47.1			61.1			52.9			77.8	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	34.5	8.0	71.6	9.3	39.9	21.6	58.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	11.1	27.7	5.8	61.9	5.0	33.8	16.2	51.5
Max Q Clear Time (g_c+I1), s	9.5	18.7	3.5	21.6	5.0	33.6	17.1	52.8
Green Ext Time (p_c), s	0.0	1.8	0.0	2.4	0.0	0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	435	10	250	925	0	0	0	110	0	0	0
Future Volume (veh/h)	0	435	10	250	925	0	0	0	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	833	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	458	0	263	974	0	0	0	116			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	72	2	0	0	2	7			
Cap, veh/h	0	604		285	1556	0	0	0	0			
Arrive On Green	0.00	0.32	0.00	0.36	0.83	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	793	1870	0		0				
Grp Volume(v), veh/h	0	458	0	263	974	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	793	1870	0						
Q Serve(g_s), s	0.0	8.5	0.0	12.3	7.1	0.0						
Cycle Q Clear(g_c), s	0.0	8.5	0.0	12.3	7.1	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	604		285	1556	0						
V/C Ratio(X)	0.00	0.76		0.92	0.63	0.00						
Avail Cap(c_a), veh/h	0	1010		455	2294	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	11.8	0.0	11.9	1.1	0.0						
Incr Delay (d2), s/veh	0.0	2.0	0.0	17.1	0.4	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	2.5	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.7	0.0	29.0	1.6	0.0						
LnGrp LOS	A	B		C	A	A						
Approach Vol, veh/h		458	A		1237							
Approach Delay, s/veh		13.7			7.4							
Approach LOS		B			A							

Timer - Assigned Phs		3	4					8
Phs Duration (G+Y+Rc), s		19.7	19.0					38.7
Change Period (Y+Rc), s		5.8	* 6.5					6.5
Max Green Setting (Gmax), s		22.2	* 21					47.5
Max Q Clear Time (g_c+I1), s		14.3	10.5					9.1
Green Ext Time (p_c), s		0.5	2.0					8.0

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	530	110	0	670	250	20
Future Volume (veh/h)	530	110	0	670	250	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	558	116	0	705	263	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	804	969	0	1527	354	
Arrive On Green	0.43	0.43	0.00	0.43	0.21	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	558	116	0	705	263	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	7.3	0.9	0.0	4.2	4.3	0.0
Cycle Q Clear(g_c), s	7.3	0.9	0.0	4.2	4.3	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	804	969	0	1527	354	
V/C Ratio(X)	0.69	0.12	0.00	0.46	0.74	
Avail Cap(c_a), veh/h	2107	2030	0	4004	1158	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.0	2.1	0.0	6.1	11.1	0.0
Incr Delay (d2), s/veh	1.1	0.1	0.0	0.2	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.0	0.5	1.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.0	2.2	0.0	6.3	14.2	0.0
LnGrp LOS	A	A	A	A	B	
Approach Vol, veh/h	674			705	263	A
Approach Delay, s/veh	7.0			6.3	14.2	
Approach LOS	A			A	B	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	19.1				19.1	10.9
Change Period (Y+Rc), s	6.2				6.2	4.7
Max Green Setting (Gmax), s	33.8				33.8	20.3
Max Q Clear Time (g_c+I1), s	9.3				6.2	6.3
Green Ext Time (p_c), s	3.6				4.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	10	670	865	10
Future Vol, veh/h	10	20	10	670	865	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	11	21	11	705	911	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1644	917	922	0	-	0
Stage 1	917	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	110	330	741	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	330	741	-	-	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	741	-	320	-	-
HCM Lane V/C Ratio	0.014	-	0.099	-	-
HCM Control Delay (s)	9.9	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	670	20	5	805
Future Vol, veh/h	40	10	670	20	5	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	42	11	705	21	5	847

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1573	716	0	0	726	0
Stage 1	716	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	121	430	-	-	877	-
Stage 1	484	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	120	430	-	-	877	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	411	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	140	877	-
HCM Lane V/C Ratio	-	-	0.376	0.006	-
HCM Control Delay (s)	-	-	45.4	9.1	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	920	175	710	2010	325	185	255	260	190	550	105
Future Volume (veh/h)	90	920	175	710	2010	325	185	255	260	190	550	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1870	1767	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	95	968	184	747	2116	342	195	268	274	200	579	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	9	9	2	9	7	9	7	2	7	7	9
Cap, veh/h	108	1658	515	819	1838	833	171	473	220	213	568	249
Arrive On Green	0.03	0.34	0.34	0.24	0.55	0.55	0.10	0.14	0.14	0.12	0.17	0.17
Sat Flow, veh/h	3264	4823	1497	3456	3357	1522	1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	95	968	184	747	2116	342	195	268	274	200	579	111
Grp Sat Flow(s),veh/h/ln	1632	1608	1497	1728	1678	1522	1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	4.4	24.8	13.9	31.7	82.5	19.8	15.3	11.1	20.9	17.5	25.1	10.1
Cycle Q Clear(g_c), s	4.4	24.8	13.9	31.7	82.5	19.8	15.3	11.1	20.9	17.5	25.1	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	1658	515	819	1838	833	171	473	220	213	568	249
V/C Ratio(X)	0.88	0.58	0.36	0.91	1.15	0.41	1.14	0.57	1.25	0.94	1.02	0.45
Avail Cap(c_a), veh/h	108	1658	515	986	1838	833	171	473	220	213	568	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.5	40.6	37.0	56.0	34.1	19.9	67.7	60.7	64.9	65.4	62.8	56.5
Incr Delay (d2), s/veh	50.2	0.5	0.4	11.1	75.0	0.3	112.0	1.6	143.0	44.2	42.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	9.5	5.0	14.6	49.5	6.7	11.9	4.9	16.9	10.1	14.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	122.8	41.1	37.4	67.1	109.1	20.2	179.7	62.2	207.9	109.6	105.3	57.8
LnGrp LOS	F	D	D	E	F	C	F	E	F	F	F	E
Approach Vol, veh/h		1247			3205			737			890	
Approach Delay, s/veh		46.8			89.8			147.5			100.3	
Approach LOS		D			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.2	26.7	41.5	58.3	20.0	30.9	10.8	89.0
Change Period (Y+Rc), s	5.4	* 5.8	5.8	6.5	* 4.7	5.8	5.8	6.5
Max Green Setting (Gmax), s	18.8	* 21	43.0	44.5	* 15	24.4	5.0	82.5
Max Q Clear Time (g_c+I1), s	19.5	22.9	33.7	26.8	17.3	27.1	6.4	84.5
Green Ext Time (p_c), s	0.0	0.0	2.0	6.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	89.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	163.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	155	60	300	460	10	270	45	135	30	70	40
Future Vol, veh/h	25	155	60	300	460	10	270	45	135	30	70	40
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	163	63	316	484	11	284	47	142	32	74	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.2	296.7	56.2	17.5
HCM LOS	C	F	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	10%	39%	21%
Vol Thru, %	10%	65%	60%	50%
Vol Right, %	30%	25%	1%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	450	240	770	140
LT Vol	270	25	300	30
Through Vol	45	155	460	70
RT Vol	135	60	10	40
Lane Flow Rate	474	253	811	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.928	0.53	1.597	0.331
Departure Headway (Hd)	8.309	8.733	7.094	9.771
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	441	417	519	371
Service Time	6.309	6.733	5.151	7.771
HCM Lane V/C Ratio	1.075	0.607	1.563	0.396
HCM Control Delay	56.2	21.2	296.7	17.5
HCM Lane LOS	F	C	F	C
HCM 95th-tile Q	10.5	3	44.4	1.4

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	720	5	5	1195	5	5
Future Vol, veh/h	720	5	5	1195	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	758	5	5	1258	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	763	0	2029	761
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	1268	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	850	-	63	405
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	265	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	850	-	62	405
Mov Cap-2 Maneuver	-	-	-	-	62	-
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	260	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	41.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	108	-	-	850	-
HCM Lane V/C Ratio	0.097	-	-	0.006	-
HCM Control Delay (s)	41.9	-	-	9.3	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	239.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	0	580	145	110	1030	0	170	0	105	0	0	0
Future Vol, veh/h	0	580	145	110	1030	0	170	0	105	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	0	611	153	116	1084	0	179	0	111	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1084	0	0	764	0	0	2004	2004	688	2059	2080	1084
Stage 1	-	-	-	-	-	-	688	688	-	1316	1316	-
Stage 2	-	-	-	-	-	-	1316	1316	-	743	764	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	643	-	-	849	-	-	~ 44	60	446	40	53	264
Stage 1	-	-	-	-	-	-	436	447	-	194	227	-
Stage 2	-	-	-	-	-	-	194	227	-	407	413	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	643	-	-	849	-	-	~ 39	52	446	27	46	264
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 39	52	-	27	46	-
Stage 1	-	-	-	-	-	-	436	447	-	194	196	-
Stage 2	-	-	-	-	-	-	~ 167	196	-	306	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	$ 1858.7	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	643	-	-	849	-	-	-
HCM Lane V/C Ratio	4.825	-	-	-	0.136	-	-	-
HCM Control Delay (s)	$ 1858.7	0	-	-	9.9	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	32.1	0	-	-	0.5	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Future Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	579	100	289	653	53	168	63	163	74	121	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	137	772	133	445	1015	82	218	375	318	104	243	206
Arrive On Green	0.08	0.27	0.27	0.13	0.32	0.32	0.12	0.20	0.20	0.06	0.13	0.13
Sat Flow, veh/h	1781	2911	501	3456	3197	259	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	105	339	340	289	348	358	168	63	163	74	121	111
Grp Sat Flow(s),veh/h/ln	1781	1706	1706	1728	1706	1750	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Cycle Q Clear(g_c), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Prop In Lane	1.00		0.29	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	453	453	445	542	555	218	375	318	104	243	206
V/C Ratio(X)	0.77	0.75	0.75	0.65	0.64	0.64	0.77	0.17	0.51	0.71	0.50	0.54
Avail Cap(c_a), veh/h	347	711	711	729	758	778	471	622	527	272	422	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	20.8	20.8	25.5	18.0	18.1	26.2	20.4	22.0	28.5	25.0	25.1
Incr Delay (d2), s/veh	8.7	2.5	2.5	1.6	1.3	1.3	5.7	0.2	1.3	8.7	1.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.1	4.1	2.0	3.9	4.0	2.5	0.7	2.0	1.3	1.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	23.3	23.3	27.1	19.3	19.3	31.9	20.6	23.2	37.2	26.5	27.3
LnGrp LOS	D	C	C	C	B	B	C	C	C	D	C	C
Approach Vol, veh/h		784			995			394			306	
Approach Delay, s/veh		25.1			21.6			26.5			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	18.2	13.0	22.2	12.6	13.8	9.8	25.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.5	7.6	6.9	13.3	7.6	6.0	5.6	12.8
Green Ext Time (p_c), s	0.1	0.6	0.5	3.1	0.3	0.6	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	225	125	150	15	35	220
Future Vol, veh/h	225	125	150	15	35	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	132	158	16	37	232

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	472	166	0	0	174	0
Stage 1	166	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	551	878	-	-	1403	-
Stage 1	863	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	534	878	-	-	1403	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	621	1403	-
HCM Lane V/C Ratio	-	-	0.593	0.026	-
HCM Control Delay (s)	-	-	18.9	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.9	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	55	270	55	25	590
Future Vol, veh/h	150	55	270	55	25	590
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	58	284	58	26	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	986	313	0	0	342	0
Stage 1	313	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	275	727	-	-	1217	-
Stage 1	741	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	266	727	-	-	1217	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.4	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	321	1217	-
HCM Lane V/C Ratio	-	-	0.672	0.022	-
HCM Control Delay (s)	-	-	36.4	8	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	4.6	0.1	-

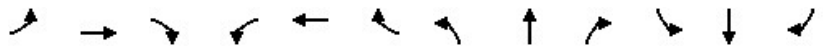
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Future Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	189	242	105	95	53	168	400	32	21	468	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	313	266	134	230	128	207	671	54	42	526	29
Arrive On Green	0.04	0.17	0.17	0.08	0.20	0.20	0.12	0.39	0.39	0.02	0.30	0.30
Sat Flow, veh/h	1781	1870	1585	1781	1128	629	1781	1709	137	1781	1755	98
Grp Volume(v), veh/h	42	189	242	105	0	148	168	0	432	21	0	494
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1757	1781	0	1846	1781	0	1853
Q Serve(g_s), s	1.7	6.8	10.8	4.2	0.0	5.3	6.6	0.0	13.4	0.8	0.0	18.4
Cycle Q Clear(g_c), s	1.7	6.8	10.8	4.2	0.0	5.3	6.6	0.0	13.4	0.8	0.0	18.4
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.07	1.00		0.05
Lane Grp Cap(c), veh/h	70	313	266	134	0	358	207	0	725	42	0	556
V/C Ratio(X)	0.60	0.60	0.91	0.78	0.00	0.41	0.81	0.00	0.60	0.50	0.00	0.89
Avail Cap(c_a), veh/h	148	313	266	178	0	358	252	0	795	123	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	27.8	29.5	32.8	0.0	25.0	31.1	0.0	17.4	34.8	0.0	24.1
Incr Delay (d2), s/veh	7.9	3.2	32.8	14.9	0.0	0.8	15.1	0.0	1.0	8.7	0.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	6.0	2.2	0.0	2.0	3.4	0.0	4.8	0.4	0.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	31.1	62.4	47.7	0.0	25.8	46.2	0.0	18.4	43.5	0.0	36.5
LnGrp LOS	D	C	E	D	A	C	D	A	B	D	A	D
Approach Vol, veh/h		473			253			600			515	
Approach Delay, s/veh		48.1			34.9			26.2			36.8	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	34.8	11.2	18.6	14.2	28.2	8.6	21.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	31.1	7.2	12.1	10.2	25.9	6.0	13.3
Max Q Clear Time (g_c+I1), s	2.8	15.4	6.2	12.8	8.6	20.4	3.7	7.3
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.1	1.3	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Future Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	26	158	42	58	89	68	174	37	47	326	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	372	315	80	315	267	111	761	158	87	449	380
Arrive On Green	0.08	0.20	0.20	0.04	0.17	0.17	0.06	0.26	0.26	0.05	0.24	0.24
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2928	609	1781	1870	1585
Grp Volume(v), veh/h	95	26	158	42	58	89	68	104	107	47	326	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1761	1781	1870	1585
Q Serve(g_s), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Cycle Q Clear(g_c), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	134	372	315	80	315	267	111	462	458	87	449	380
V/C Ratio(X)	0.71	0.07	0.50	0.53	0.18	0.33	0.61	0.23	0.23	0.54	0.73	0.19
Avail Cap(c_a), veh/h	189	436	370	204	476	403	219	980	971	215	1031	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	15.3	16.8	22.0	16.8	17.3	21.5	13.7	13.7	21.9	16.5	14.3
Incr Delay (d2), s/veh	6.8	0.1	1.2	5.3	0.3	0.7	5.3	0.2	0.3	5.2	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.2	1.4	0.5	0.5	0.8	0.8	0.7	0.7	0.6	2.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	15.4	18.0	27.3	17.1	18.0	26.9	14.0	14.0	27.1	18.8	14.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		279			189			279			447	
Approach Delay, s/veh		21.2			19.8			17.1			18.9	
Approach LOS		C			B			B			B	

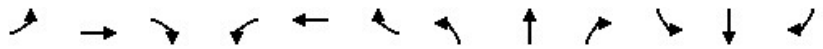
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	18.5	6.8	14.5	8.3	17.5	8.3	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.3	4.3	3.1	6.2	3.8	9.6	4.5	4.3
Green Ext Time (p_c), s	0.0	0.9	0.0	0.3	0.0	1.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Future Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	53	153	368	37	0	153	358	247	105	853	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	545	243	433	345		188	1211	540	135	974	120
Arrive On Green	0.09	0.15	0.15	0.13	0.18	0.00	0.11	0.34	0.34	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3185	392
Grp Volume(v), veh/h	95	53	153	368	37	0	153	358	247	105	476	482
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1800
Q Serve(g_s), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Cycle Q Clear(g_c), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	159	545	243	433	345		188	1211	540	135	543	550
V/C Ratio(X)	0.60	0.10	0.63	0.85	0.11		0.81	0.30	0.46	0.78	0.88	0.88
Avail Cap(c_a), veh/h	185	546	243	433	345		189	1211	540	235	591	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	28.4	31.0	33.4	26.5	0.0	34.2	18.9	20.1	35.5	25.7	25.7
Incr Delay (d2), s/veh	3.9	0.1	5.1	14.7	0.1	0.0	22.9	0.1	0.6	9.3	13.2	13.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.4	2.8	4.0	0.5	0.0	3.8	2.1	3.2	2.2	9.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	28.5	36.1	48.1	26.6	0.0	57.0	19.0	20.7	44.7	38.9	38.7
LnGrp LOS	D	C	D	D	C		E	B	C	D	D	D
Approach Vol, veh/h		301			405	A		758			1063	
Approach Delay, s/veh		35.4			46.1			27.2			39.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	33.1	15.2	18.5	14.1	30.4	12.8	20.9
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	24.1	9.8	12.0	8.3	* 26	8.1	* 14
Max Q Clear Time (g_c+I1), s	6.5	11.5	10.1	9.1	8.6	21.8	6.0	3.3
Green Ext Time (p_c), s	0.1	2.3	0.0	0.2	0.0	2.0	0.0	0.1

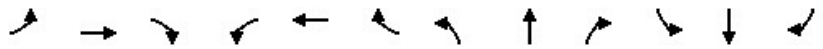
Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Future Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.26	0.41	0.41	0.05	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Cycle Q Clear(g_c), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
V/C Ratio(X)	0.95	0.34	0.38	0.28	0.99	0.14	1.01	0.29	0.13	0.21	0.88	0.94
Avail Cap(c_a), veh/h	429	890	815	207	586	262	912	1470	656	276	714	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	30.7	14.7	46.7	41.6	35.7	36.8	19.5	18.2	45.5	38.8	32.8
Incr Delay (d2), s/veh	29.9	0.2	0.3	1.1	33.9	0.2	32.2	0.1	0.1	0.6	12.7	25.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.8	3.7	0.4	9.4	0.7	14.2	3.0	1.1	0.4	8.2	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	30.9	15.0	47.8	75.5	35.9	69.0	19.6	18.2	46.1	51.6	58.2
LnGrp LOS	E	C	B	D	E	D	F	B	B	D	D	E
Approach Vol, veh/h		1016			653			1426			1153	
Approach Delay, s/veh		43.0			71.7			51.4			54.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	47.9	9.7	31.5	32.2	26.6	18.2	23.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	38.5	6.0	22.9	26.4	20.1	12.4	16.5
Max Q Clear Time (g_c+I1), s	3.0	9.9	3.0	13.9	28.4	22.1	13.6	18.3
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	81.8	83.4	120.8	158.8	116.8
Vehicles Entered	802	716	784	1173	3475
Vehicles Exited	785	708	769	1138	3400
Hourly Exit Rate	785	708	769	1138	3400
Input Volume	883	868	815	1608	4174
% of Volume	89	82	94	71	81
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.5	0.0	0.0	0.2
Total Del/Veh (s)	30.6	220.5	132.5	132.5
Vehicles Entered	910	1042	397	2349
Vehicles Exited	908	972	383	2263
Hourly Exit Rate	908	972	383	2263
Input Volume	1152	1187	414	2754
% of Volume	79	82	92	82
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	7.8	0.0	0.0	4.6
Total Del/Veh (s)	41.2	13.8	27.8	31.5
Vehicles Entered	1218	627	210	2055
Vehicles Exited	1200	626	209	2035
Hourly Exit Rate	1200	626	209	2035
Input Volume	1242	838	264	2346
% of Volume	97	75	79	87
Denied Entry Before	0	0	0	0
Denied Entry After	9	0	0	9

Total Zone Performance

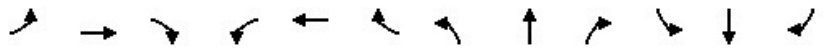
Denied Del/Veh (s)	44.0
Total Del/Veh (s)	1802.8
Vehicles Entered	221
Vehicles Exited	128
Hourly Exit Rate	128
Input Volume	9274
% of Volume	1
Denied Entry Before	0
Denied Entry After	9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	170	542	164	110	15	199	661	173	55	766	30
Future Volume (veh/h)	25	170	542	164	110	15	199	661	173	55	766	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	179	413	173	116	16	209	696	182	58	806	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	384	325	191	522	442	173	929	243	98	1015	40
Arrive On Green	0.03	0.21	0.21	0.11	0.28	0.28	0.10	0.33	0.33	0.05	0.29	0.29
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2787	729	1781	3484	138
Grp Volume(v), veh/h	26	179	413	173	116	16	209	444	434	58	411	427
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1739	1781	1777	1845
Q Serve(g_s), s	1.1	6.6	16.1	7.5	3.7	0.6	7.6	17.4	17.4	2.5	16.7	16.7
Cycle Q Clear(g_c), s	1.1	6.6	16.1	7.5	3.7	0.6	7.6	17.4	17.4	2.5	16.7	16.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.07
Lane Grp Cap(c), veh/h	59	384	325	191	522	442	173	592	580	98	518	538
V/C Ratio(X)	0.44	0.47	1.27	0.91	0.22	0.04	1.21	0.75	0.75	0.59	0.79	0.79
Avail Cap(c_a), veh/h	136	384	325	191	522	442	173	788	771	163	779	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	27.4	31.2	34.6	21.7	20.6	35.4	23.2	23.2	36.2	25.6	25.6
Incr Delay (d2), s/veh	5.1	0.9	143.5	40.2	0.2	0.0	136.7	2.8	2.9	5.6	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.7	18.4	5.1	1.5	0.2	9.6	6.8	6.7	1.2	6.7	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	28.3	174.7	74.9	21.9	20.6	172.2	26.0	26.1	41.9	29.0	28.9
LnGrp LOS	D	C	F	E	C	C	F	C	C	D	C	C
Approach Vol, veh/h		618			305			1087			896	
Approach Delay, s/veh		126.7			51.9			54.1			29.8	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	32.4	13.8	22.6	13.0	29.1	8.0	28.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	7.2	34.8	8.4	16.1	7.6	34.4	6.0	18.5
Max Q Clear Time (g_c+I1), s	4.5	19.4	9.5	18.1	9.6	18.7	3.1	5.7
Green Ext Time (p_c), s	0.0	4.4	0.0	0.0	0.0	4.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	61.8
HCM 6th LOS	E



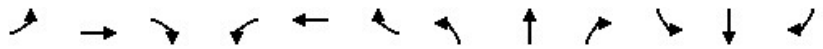
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	62	0	0	0	56	1122	0	0	1545	36
Future Volume (veh/h)	31	0	62	0	0	0	56	1122	0	0	1545	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	65	0	0	0	59	1181	0	0	1626	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	2	53	0	98	0	76	1576	0	2	1363	32
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.04	0.84	0.00	0.00	0.75	0.75
Sat Flow, veh/h	482	34	1017	0	1870	0	1781	1870	0	1781	1820	43
Grp Volume(v), veh/h	98	0	0	0	0	0	59	1181	0	0	0	1664
Grp Sat Flow(s),veh/h/ln	1533	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	4.9	0.0	0.0	0.0	0.0	0.0	3.3	26.7	0.0	0.0	0.0	74.2
Cycle Q Clear(g_c), s	5.2	0.0	0.0	0.0	0.0	0.0	3.3	26.7	0.0	0.0	0.0	74.2
Prop In Lane	0.34		0.66	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	129	0	0	0	98	0	76	1576	0	2	0	1394
V/C Ratio(X)	0.76	0.00	0.00	0.00	0.00	0.00	0.78	0.75	0.00	0.00	0.00	1.19
Avail Cap(c_a), veh/h	129	0	0	0	98	0	92	1576	0	90	0	1394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.4	0.0	0.0	0.0	0.0	0.0	47.0	3.3	0.0	0.0	0.0	12.5
Incr Delay (d2), s/veh	22.7	0.0	0.0	0.0	0.0	0.0	28.6	2.0	0.0	0.0	0.0	94.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	0.0	0.0	2.0	3.4	0.0	0.0	0.0	55.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	0.0	0.0	0.0	0.0	0.0	75.6	5.4	0.0	0.0	0.0	106.8
LnGrp LOS	E	A	A	A	A	A	E	A	A	A	A	F
Approach Vol, veh/h		98			0			1240			1664	
Approach Delay, s/veh		70.1			0.0			8.7			106.8	
Approach LOS		E						A			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	89.3		9.8	9.3	80.0		9.8				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.0	74.3		5.2	5.1	74.2		5.2				
Max Q Clear Time (g_c+I1), s	10.0	28.7		7.2	5.3	76.2		0.0				
Green Ext Time (p_c), s	0.0	13.9		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	65.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	596	40	32	576	250	80	682	33	502	766	339
Future Volume (veh/h)	247	596	40	32	576	250	80	682	33	502	766	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	260	627	42	34	606	210	84	718	35	528	806	357
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	648	43	48	511	782	105	684	33	392	862	381
Arrive On Green	0.13	0.37	0.37	0.03	0.27	0.27	0.06	0.20	0.20	0.22	0.36	0.36
Sat Flow, veh/h	1781	1733	116	1781	1870	1585	1781	3449	168	1781	2398	1059
Grp Volume(v), veh/h	260	0	669	34	606	210	84	370	383	528	597	566
Grp Sat Flow(s),veh/h/ln	1781	0	1849	1781	1870	1585	1781	1777	1840	1781	1777	1680
Q Serve(g_s), s	16.6	0.0	46.2	2.5	35.5	10.1	6.1	25.8	25.8	28.6	42.1	42.3
Cycle Q Clear(g_c), s	16.6	0.0	46.2	2.5	35.5	10.1	6.1	25.8	25.8	28.6	42.1	42.3
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.09	1.00		0.63
Lane Grp Cap(c), veh/h	227	0	691	48	511	782	105	353	365	392	639	604
V/C Ratio(X)	1.14	0.00	0.97	0.70	1.19	0.27	0.80	1.05	1.05	1.35	0.93	0.94
Avail Cap(c_a), veh/h	227	0	691	69	511	782	106	353	365	392	639	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	40.0	62.7	47.3	19.3	60.4	52.1	52.1	50.7	40.1	40.2
Incr Delay (d2), s/veh	103.7	0.0	26.5	16.8	102.3	0.2	33.8	61.2	60.6	172.4	21.0	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	0.0	24.6	1.3	30.1	3.5	3.6	17.1	17.6	31.0	21.1	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.4	0.0	66.4	79.5	149.6	19.4	94.2	113.3	112.7	223.1	61.1	62.7
LnGrp LOS	F	A	E	E	F	B	F	F	F	F	E	E
Approach Vol, veh/h		929			850			837			1691	
Approach Delay, s/veh		92.7			114.6			111.1			112.3	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	32.0	8.9	55.1	13.1	52.9	22.0	42.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	28.6	25.8	5.0	47.1	7.7	46.7	16.6	35.5
Max Q Clear Time (g_c+I1), s	30.6	27.8	4.5	48.2	8.1	44.3	18.6	37.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	108.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	1131	20	244	868	0	0	0	414	0	0	0
Future Volume (veh/h)	0	1131	20	244	868	0	0	0	414	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1796	1870	0	0	1870	1796			
Adj Flow Rate, veh/h	0	1191	0	257	914	0	0	0	436			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	0	2	2	7	2	0	0	2	7			
Cap, veh/h	0	1232		296	1704	0	0	0	0			
Arrive On Green	0.00	0.66	0.00	0.17	0.91	0.00	0.00	0.00	0.00			
Sat Flow, veh/h	0	1870	1585	1711	1870	0		0				
Grp Volume(v), veh/h	0	1191	0	257	914	0		0.0				
Grp Sat Flow(s),veh/h/ln	0	1870	1585	1711	1870	0						
Q Serve(g_s), s	0.0	43.8	0.0	10.7	6.2	0.0						
Cycle Q Clear(g_c), s	0.0	43.8	0.0	10.7	6.2	0.0						
Prop In Lane	0.00		1.00	1.00		0.00						
Lane Grp Cap(c), veh/h	0	1232		296	1704	0						
V/C Ratio(X)	0.00	0.97		0.87	0.54	0.00						
Avail Cap(c_a), veh/h	0	1251		309	1704	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	11.7	0.0	29.4	0.6	0.0						
Incr Delay (d2), s/veh	0.0	17.9	0.0	21.5	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	18.7	0.0	5.6	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.6	0.0	50.9	0.9	0.0						
LnGrp LOS	A	C		D	A	A						
Approach Vol, veh/h		1191	A		1171							
Approach Delay, s/veh		29.6			11.9							
Approach LOS		C			B							

Timer - Assigned Phs		3	4				8				
Phs Duration (G+Y+Rc), s		18.5	54.6				73.1				
Change Period (Y+Rc), s		5.8	* 6.5				6.5				
Max Green Setting (Gmax), s		13.2	* 49				66.5				
Max Q Clear Time (g_c+I1), s		12.7	45.8				8.2				
Green Ext Time (p_c), s		0.0	2.4				7.3				

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	795	414	0	838	244	20
Future Volume (veh/h)	795	414	0	838	244	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1796	0	1870	1796	1870
Adj Flow Rate, veh/h	837	436	0	882	257	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	0	2	7	2
Cap, veh/h	1064	1149	0	2021	318	
Arrive On Green	0.57	0.57	0.00	0.57	0.19	0.00
Sat Flow, veh/h	1870	1522	0	3741	1711	1585
Grp Volume(v), veh/h	837	436	0	882	257	0
Grp Sat Flow(s),veh/h/ln	1870	1522	0	1777	1711	1585
Q Serve(g_s), s	15.5	4.4	0.0	6.3	6.4	0.0
Cycle Q Clear(g_c), s	15.5	4.4	0.0	6.3	6.4	0.0
Prop In Lane		1.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1064	1149	0	2021	318	
V/C Ratio(X)	0.79	0.38	0.00	0.44	0.81	
Avail Cap(c_a), veh/h	1803	1750	0	3425	435	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.5	1.9	0.0	5.5	17.3	0.0
Incr Delay (d2), s/veh	1.3	0.2	0.0	0.1	7.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	1.0	0.0	0.9	2.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.8	2.1	0.0	5.6	25.1	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h	1273			882	257	A
Approach Delay, s/veh	6.5			5.6	25.1	
Approach LOS	A			A	C	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	31.5			31.5	13.0
Change Period (Y+Rc), s	6.2			6.2	4.7
Max Green Setting (Gmax), s	42.8			42.8	11.3
Max Q Clear Time (g_c+I1), s	17.5			8.3	8.4
Green Ext Time (p_c), s	7.7			6.2	0.2

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [SWR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	20	30	1117	1211	21
Future Vol, veh/h	16	20	30	1117	1211	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	17	21	32	1176	1275	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2526	1286	1297	0	-	0
Stage 1	1286	-	-	-	-	-
Stage 2	1240	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	31	201	534	-	-	-
Stage 1	259	-	-	-	-	-
Stage 2	273	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	29	201	534	-	-	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	243	-	-	-	-	-
Stage 2	273	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.1	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	534	-	187	-	-
HCM Lane V/C Ratio	0.059	-	0.203	-	-
HCM Control Delay (s)	12.2	-	29.1	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-

Intersection	
Int Delay, s/veh	17.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	10	1027	47	10	1406
Future Vol, veh/h	47	10	1027	47	10	1406
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	49	11	1081	49	11	1480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2608	1106	0	0	1130	0
Stage 1	1106	-	-	-	-	-
Stage 2	1502	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 27	256	-	-	618	-
Stage 1	317	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 24	256	-	-	618	-
Mov Cap-2 Maneuver	~ 24	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	183	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 786.1	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	29	618	-
HCM Lane V/C Ratio	-	-	2.069	0.017	-
HCM Control Delay (s)	-	-	$ 786.1	10.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	7.1	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	0	305	357	0	151	320	687	768	487	764	202
Future Volume (veh/h)	235	0	305	357	0	151	320	687	768	487	764	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	247	0	321	376	0	159	337	723	0	513	804	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	350	0	0	488	0	0	395	850		574	1233	
Arrive On Green	0.11	0.00	0.00	0.14	0.00	0.00	0.23	0.25	0.00	0.34	0.36	0.00
Sat Flow, veh/h	3264	247		3456	376		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	247	29.5		376	30.9		337	723	0	513	804	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	C		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	4.5			6.5			11.9	12.5	0.0	17.6	12.2	0.0
Cycle Q Clear(g_c), s	4.5			6.5			11.9	12.5	0.0	17.6	12.2	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350			488			395	850		574	1233	
V/C Ratio(X)	0.71			0.77			0.85	0.85		0.89	0.65	
Avail Cap(c_a), veh/h	484			580			624	908		781	1233	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.7			25.7			22.7	22.2	0.0	19.6	16.6	0.0
Incr Delay (d2), s/veh	2.8			5.3			6.7	7.4	0.0	10.1	1.2	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7			2.6			5.0	5.4	0.0	7.4	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5			30.9			29.4	29.5	0.0	29.6	17.8	0.0
LnGrp LOS	C			C			C	C		C	B	
Approach Vol, veh/h								1060	A		1317	A
Approach Delay, s/veh								29.5			22.4	
Approach LOS								C			C	

Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	26.2	21.2	14.6	19.3	28.2	12.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8	* 4.7	5.8	5.8
Max Green Setting (Gmax), s	28.3	* 17	10.4	* 23	21.8	9.2
Max Q Clear Time (g_c+I1), s	19.6	14.5	8.5	13.9	14.2	6.5
Green Ext Time (p_c), s	1.2	0.9	0.3	0.7	3.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	174.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	516	135	210	370	15	105	85	241	25	55	25
Future Vol, veh/h	25	516	135	210	370	15	105	85	241	25	55	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	543	142	221	389	16	111	89	254	26	58	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	253.5	192.9	61.2	19.4
HCM LOS	F	F	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	4%	35%	24%
Vol Thru, %	20%	76%	62%	52%
Vol Right, %	56%	20%	3%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	431	676	595	105
LT Vol	105	25	210	25
Through Vol	85	516	370	55
RT Vol	241	135	15	25
Lane Flow Rate	454	712	626	111
Geometry Grp	1	1	1	1
Degree of Util (X)	0.939	1.488	1.339	0.286
Departure Headway (Hd)	8.937	8.21	8.627	11.729
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	408	448	426	308
Service Time	6.937	6.21	6.627	9.729
HCM Lane V/C Ratio	1.113	1.589	1.469	0.36
HCM Control Delay	61.2	253.5	192.9	19.4
HCM Lane LOS	F	F	F	C
HCM 95th-tile Q	10.5	34	25.8	1.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1390	10	22	1177	10	22
Future Vol, veh/h	1390	10	22	1177	10	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1463	11	23	1239	11	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1474	0	2754	1469
Stage 1	-	-	-	-	1469	-
Stage 2	-	-	-	-	1285	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	457	-	22	156
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	260	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	457	-	18	156
Mov Cap-2 Maneuver	-	-	-	-	18	-
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	218	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	194.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	46	-	-	457	-
HCM Lane V/C Ratio	0.732	-	-	0.051	-
HCM Control Delay (s)	194.5	-	-	13.3	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	2.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↰	↱			↕			↕	
Traffic Vol, veh/h	195	887	190	203	968	162	93	188	244	167	188	188
Future Vol, veh/h	195	887	190	203	968	162	93	188	244	167	188	188
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	7	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	205	934	200	214	1019	171	98	198	257	176	198	198

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1190	0	0	1134	0	0	3175	3062	1034	3205	3077	1105
Stage 1	-	-	-	-	-	-	1444	1444	-	1533	1533	-
Stage 2	-	-	-	-	-	-	1731	1618	-	1672	1544	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	587	-	-	616	-	-	~ 6	~ 12	282	~ 6	~ 12	256
Stage 1	-	-	-	-	-	-	164	~ 197	-	~ 146	~ 178	-
Stage 2	-	-	-	-	-	-	112	~ 162	-	~ 121	~ 176	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	587	-	-	616	-	-	-	0	282	-	0	256
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-	-	0	-
Stage 1	-	-	-	-	-	-	164	0	-	~ 146	~ 116	-
Stage 2	-	-	-	-	-	-	-	~ 106	-	-	0	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	2.1		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	587	-	-	616	-	-	-
HCM Lane V/C Ratio	-	0.35	-	-	0.347	-	-	-
HCM Control Delay (s)	-	14.4	0	-	13.9	-	-	-
HCM Lane LOS	-	B	A	-	B	-	-	-
HCM 95th %tile Q(veh)	-	1.6	-	-	1.5	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	864	277	465	619	50	289	130	145	60	140	66
Future Volume (veh/h)	126	864	277	465	619	50	289	130	145	60	140	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	909	292	489	652	53	304	137	153	63	147	69
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	167	762	244	524	1144	93	338	474	402	81	195	166
Arrive On Green	0.09	0.30	0.30	0.15	0.36	0.36	0.19	0.25	0.25	0.05	0.10	0.10
Sat Flow, veh/h	1781	2542	814	3456	3196	260	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	133	609	592	489	348	357	304	137	153	63	147	69
Grp Sat Flow(s),veh/h/ln	1781	1706	1650	1728	1706	1750	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.3	25.7	25.7	12.0	14.1	14.1	14.3	5.1	6.8	3.0	6.5	3.5
Cycle Q Clear(g_c), s	6.3	25.7	25.7	12.0	14.1	14.1	14.3	5.1	6.8	3.0	6.5	3.5
Prop In Lane	1.00		0.49	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	511	494	524	611	626	338	474	402	81	195	166
V/C Ratio(X)	0.80	1.19	1.20	0.93	0.57	0.57	0.90	0.29	0.38	0.77	0.75	0.42
Avail Cap(c_a), veh/h	249	511	494	524	611	626	339	474	402	195	303	257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	30.0	30.0	35.9	22.2	22.2	33.9	25.8	26.4	40.5	37.3	35.9
Incr Delay (d2), s/veh	10.3	104.2	106.8	24.0	1.3	1.2	25.4	0.3	0.6	14.4	5.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	24.4	23.9	6.6	5.5	5.7	8.1	2.1	0.1	1.6	3.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	134.2	136.9	59.9	23.5	23.5	59.4	26.1	27.0	54.9	43.0	37.6
LnGrp LOS	D	F	F	E	C	C	E	C	C	D	D	D
Approach Vol, veh/h		1334			1194			594			279	
Approach Delay, s/veh		126.8			38.4			43.4			44.4	
Approach LOS		F			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	27.5	18.1	31.5	21.4	14.8	13.1	36.5
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	5.0	8.8	14.0	27.7	16.3	8.5	8.3	16.1
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.4	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	74.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	32.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	52	473	265	82	498
Future Vol, veh/h	165	52	473	265	82	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	174	55	498	279	86	524

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1334	638	0	0	777	0
Stage 1	638	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 170	477	-	-	839	-
Stage 1	526	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 145	477	-	-	839	-
Mov Cap-2 Maneuver	~ 145	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	227.1	0	1.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	174	839	-
HCM Lane V/C Ratio	-	-	1.313	0.103	-
HCM Control Delay (s)	-	-	227.1	9.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	13.3	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	74.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	120	47	1011	185	55	757
Future Vol, veh/h	120	47	1011	185	55	757
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	49	1064	195	58	797

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2075	1162	0	0	1259	0
Stage 1	1162	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 59	237	-	-	552	-
Stage 1	298	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 48	237	-	-	552	-
Mov Cap-2 Maneuver	~ 48	-	-	-	-	-
Stage 1	298	-	-	-	-	-
Stage 2	317	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 970.6	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	62	552	-
HCM Lane V/C Ratio	-	-	2.835	0.105	-
HCM Control Delay (s)	-	-	$ 970.6	12.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	17.9	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

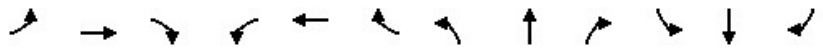
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	417	170	140	406	49	225	769	45	68	678	71
Future Volume (veh/h)	67	417	170	140	406	49	225	769	45	68	678	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	439	179	147	427	52	237	809	47	72	714	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	443	375	162	452	55	249	607	35	92	431	45
Arrive On Green	0.05	0.24	0.24	0.09	0.28	0.28	0.14	0.35	0.35	0.05	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1635	199	1781	1750	102	1781	1664	175
Grp Volume(v), veh/h	71	439	179	147	0	479	237	0	856	72	0	789
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1835	1781	0	1852	1781	0	1839
Q Serve(g_s), s	3.5	21.1	8.7	7.4	0.0	23.0	11.9	0.0	31.2	3.6	0.0	23.3
Cycle Q Clear(g_c), s	3.5	21.1	8.7	7.4	0.0	23.0	11.9	0.0	31.2	3.6	0.0	23.3
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.05	1.00		0.10
Lane Grp Cap(c), veh/h	91	443	375	162	0	507	249	0	643	92	0	476
V/C Ratio(X)	0.78	0.99	0.48	0.91	0.00	0.94	0.95	0.00	1.33	0.78	0.00	1.66
Avail Cap(c_a), veh/h	101	443	375	162	0	507	249	0	643	101	0	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.2	34.3	29.6	40.5	0.0	31.9	38.4	0.0	29.4	42.2	0.0	33.4
Incr Delay (d2), s/veh	28.9	40.5	0.9	44.4	0.0	26.5	43.3	0.0	159.9	29.2	0.0	305.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	13.6	3.1	5.0	0.0	12.9	7.8	0.0	40.6	2.2	0.0	49.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	74.8	30.5	84.9	0.0	58.4	81.7	0.0	189.3	71.4	0.0	338.4
LnGrp LOS	E	E	C	F	A	E	F	A	F	E	A	F
Approach Vol, veh/h		689			626			1093			861	
Approach Delay, s/veh		62.9			64.6			165.9			316.1	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	37.7	14.0	27.8	18.4	29.8	10.4	31.4
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.1	30.8	8.2	21.3	12.6	23.3	5.1	24.4
Max Q Clear Time (g_c+I1), s	5.6	33.2	9.4	23.1	13.9	25.3	5.5	25.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	164.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	95	122	75	90	108	177	472	115	123	573	115
Future Volume (veh/h)	85	95	122	75	90	108	177	472	115	123	573	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	100	128	79	95	114	186	497	121	129	603	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	239	203	104	228	193	229	1132	274	165	672	569
Arrive On Green	0.06	0.13	0.13	0.06	0.12	0.12	0.13	0.40	0.40	0.09	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2837	687	1781	1870	1585
Grp Volume(v), veh/h	89	100	128	79	95	114	186	310	308	129	603	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1747	1781	1870	1585
Q Serve(g_s), s	3.2	3.2	5.0	2.9	3.1	4.5	6.7	8.3	8.4	4.6	20.0	3.5
Cycle Q Clear(g_c), s	3.2	3.2	5.0	2.9	3.1	4.5	6.7	8.3	8.4	4.6	20.0	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	114	239	203	104	228	193	229	709	697	165	672	569
V/C Ratio(X)	0.78	0.42	0.63	0.76	0.42	0.59	0.81	0.44	0.44	0.78	0.90	0.21
Avail Cap(c_a), veh/h	144	239	203	158	228	193	261	709	697	275	745	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	26.3	27.1	30.4	26.6	27.2	27.8	14.3	14.4	29.1	19.9	14.6
Incr Delay (d2), s/veh	18.9	1.2	6.2	11.0	1.2	4.6	15.9	0.4	0.4	7.7	12.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.5	2.1	1.5	1.4	1.8	3.5	2.8	2.8	2.2	9.6	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	27.5	33.3	41.4	27.8	31.8	43.7	14.8	14.8	36.8	32.8	14.8
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	B
Approach Vol, veh/h		317			288			804			853	
Approach Delay, s/veh		35.9			33.1			21.5			30.8	
Approach LOS		D			C			C			C	

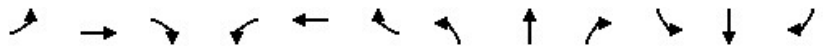
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	32.4	8.5	13.5	13.8	29.7	8.9	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	10.1	25.5	* 5.8	* 7.9	9.6	* 26	* 5.3	8.0
Max Q Clear Time (g_c+I1), s	6.6	10.4	4.9	7.0	8.7	22.0	5.2	6.5
Green Ext Time (p_c), s	0.1	2.9	0.0	0.1	0.0	1.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	160	298	435	109	184	408	921	450	145	831	50
Future Volume (veh/h)	90	160	298	435	109	184	408	921	450	145	831	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	168	314	458	115	0	429	969	474	153	875	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	429	191	482	341		430	1420	633	183	876	53
Arrive On Green	0.07	0.12	0.12	0.14	0.18	0.00	0.24	0.40	0.40	0.10	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3404	206
Grp Volume(v), veh/h	95	168	314	458	115	0	429	969	474	153	457	471
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1833
Q Serve(g_s), s	5.2	4.4	12.1	13.2	5.4	0.0	24.1	22.6	25.7	8.5	25.8	25.8
Cycle Q Clear(g_c), s	5.2	4.4	12.1	13.2	5.4	0.0	24.1	22.6	25.7	8.5	25.8	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	132	429	191	482	341		430	1420	633	183	457	472
V/C Ratio(X)	0.72	0.39	1.64	0.95	0.34		1.00	0.68	0.75	0.83	1.00	1.00
Avail Cap(c_a), veh/h	211	429	191	482	341		430	1420	633	194	457	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	40.7	44.1	42.8	35.7	0.0	38.0	24.9	25.8	44.2	37.2	37.2
Incr Delay (d2), s/veh	7.2	0.6	311.3	28.6	0.6	0.0	42.9	1.4	4.9	24.9	41.9	41.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.8	21.0	7.2	2.4	0.0	14.8	8.7	9.6	4.8	15.7	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	41.3	355.4	71.4	36.3	0.0	80.9	26.2	30.7	69.1	79.1	78.5
LnGrp LOS	D	D	F	E	D		F	C	C	E	E	E
Approach Vol, veh/h		577			573	A		1872			1081	
Approach Delay, s/veh		214.1			64.4			39.9			77.4	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	46.6	19.4	18.6	30.0	32.3	13.2	24.8
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	39.2	14.0	12.1	24.2	* 26	11.9	* 14
Max Q Clear Time (g_c+I1), s	10.5	27.7	15.2	14.1	26.1	27.8	7.2	7.4
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.0	0.0	0.1	0.2

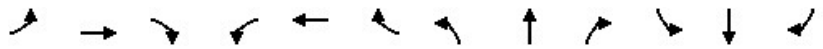
Intersection Summary	
HCM 6th Ctrl Delay	77.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	828	1007	55	568	49	602	814	105	50	648	385
Future Volume (veh/h)	400	828	1007	55	568	49	602	814	105	50	648	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	872	1060	58	598	52	634	857	111	53	682	405
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	1037	802	157	703	313	741	1351	603	202	797	576
Arrive On Green	0.14	0.29	0.29	0.05	0.20	0.20	0.21	0.38	0.38	0.06	0.22	0.22
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	421	872	1060	58	598	52	634	857	111	53	682	405
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.1	25.3	32.0	1.8	17.8	3.0	19.4	21.6	5.1	1.6	20.2	24.0
Cycle Q Clear(g_c), s	13.1	25.3	32.0	1.8	17.8	3.0	19.4	21.6	5.1	1.6	20.2	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	1037	802	157	703	313	741	1351	603	202	797	576
V/C Ratio(X)	0.87	0.84	1.32	0.37	0.85	0.17	0.86	0.63	0.18	0.26	0.86	0.70
Avail Cap(c_a), veh/h	510	1037	802	189	706	315	1348	1924	858	252	797	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	36.5	27.1	50.8	42.5	36.5	41.5	27.8	22.7	49.4	40.8	29.8
Incr Delay (d2), s/veh	14.9	6.3	153.2	1.5	9.7	0.2	3.0	0.5	0.1	0.7	9.1	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	11.1	52.1	0.8	8.3	1.1	8.0	8.5	1.8	0.7	9.3	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.2	42.8	180.3	52.3	52.2	36.8	44.4	28.3	22.8	50.1	50.0	33.7
LnGrp LOS	E	D	F	D	D	D	D	C	C	D	D	C
Approach Vol, veh/h		2353			708			1602			1140	
Approach Delay, s/veh		108.1			51.1			34.3			44.2	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	48.2	10.8	38.5	29.3	31.1	21.1	28.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	8.3	59.4	6.0	32.0	42.8	24.6	16.2	21.8
Max Q Clear Time (g_c+I1), s	3.6	23.6	3.8	34.0	21.4	26.0	15.1	19.8
Green Ext Time (p_c), s	0.0	6.2	0.0	0.0	2.2	0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	68.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	6337.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	197	134	899	184	132	1285
Future Vol, veh/h	197	134	899	184	132	1285
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	141	946	194	139	1353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2674	1043	0	0	1140	0
Stage 1	1043	-	-	-	-	-
Stage 2	1631	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 25	279	-	-	613	-
Stage 1	339	-	-	-	-	-
Stage 2	~ 176	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 2	279	-	-	613	-
Mov Cap-2 Maneuver	~ 2	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	~ 15	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 54201.6	0	1.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	3	613	-
HCM Lane V/C Ratio	-	-	116.14	0.227	-
HCM Control Delay (s)	-	-	$ 54201.6	12.6	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	46	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	172.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	397	823	892	253	264	403
Future Vol, veh/h	397	823	892	253	264	403
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	7	7	2	2	2
Mvmt Flow	418	866	939	266	278	424

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1205	0	-	0	2774	1072
Stage 1	-	-	-	-	1072	-
Stage 2	-	-	-	-	1702	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	579	-	-	-	~ 21	~ 268
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	~ 162	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	579	-	-	-	0	~ 268
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	~ 162	-

Approach	EB	WB	SB
HCM Control Delay, s	8.4	0	$ 768.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	579	-	-	-	268
HCM Lane V/C Ratio	0.722	-	-	-	2.62
HCM Control Delay (s)	25.7	0	-	-	$ 768.5
HCM Lane LOS	D	A	-	-	F
HCM 95th %tile Q(veh)	6	-	-	-	58.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	17.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	90	1208	1279	16	11	54
Future Vol, veh/h	90	1208	1279	16	11	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	1272	1346	17	12	57

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1363	0	-	0	2817	1355
Stage 1	-	-	-	-	1355	-
Stage 2	-	-	-	-	1462	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	504	-	-	-	20	183
Stage 1	-	-	-	-	240	-
Stage 2	-	-	-	-	213	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	504	-	-	-	~ 7	183
Mov Cap-2 Maneuver	-	-	-	-	~ 7	-
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	213	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	$ 692.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	504	-	-	-	35
HCM Lane V/C Ratio	0.188	-	-	-	1.955
HCM Control Delay (s)	13.8	0	-	-	$ 692.4
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

Cumulative plus Project PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	320	3.0	337	3.0	1.662	333.1	LOS F	91.9	2353.5	1.00	4.73	14.74	5.8
8	T1	735	3.0	774	3.0	1.662	333.1	LOS F	91.9	2353.5	1.00	4.73	14.74	5.8
18	R2	200	3.0	211	3.0	1.662	333.1	LOS F	91.9	2353.5	1.00	4.73	14.74	5.8
Approach		1255	3.0	1321	3.0	1.662	333.1	LOS F	91.9	2353.5	1.00	4.73	14.74	5.8
East: Claratina Rd														
1	L2	220	3.0	232	3.0	1.417	218.7	LOS F	86.6	2216.2	1.00	3.78	12.82	8.3
6	T1	1151	3.0	1212	3.0	1.417	218.7	LOS F	86.6	2216.2	1.00	3.78	12.82	8.4
16	R2	153	3.0	161	3.0	1.417	218.7	LOS F	86.6	2216.2	1.00	3.78	12.82	8.4
Approach		1524	3.0	1604	3.0	1.417	218.7	LOS F	86.6	2216.2	1.00	3.78	12.82	8.4
North: Coffee Rd														
7	L2	73	3.0	77	3.0	1.225	148.4	LOS F	40.9	1048.0	1.00	2.67	8.69	11.5
4	T1	524	3.0	552	3.0	1.225	148.4	LOS F	40.9	1048.0	1.00	2.67	8.69	11.2
14	R2	411	3.0	433	3.0	1.225	148.4	LOS F	40.9	1048.0	1.00	2.67	8.69	11.0
Approach		1008	3.0	1061	3.0	1.225	148.4	LOS F	40.9	1048.0	1.00	2.67	8.69	11.2
West: Claratina Rd														
5	L2	542	3.0	571	3.0	2.055	493.8	LOS F	269.6	6902.8	1.00	7.11	20.67	4.2
2	T1	1942	3.0	2044	3.0	2.055	493.8	LOS F	269.6	6902.8	1.00	7.11	20.67	4.2
12	R2	470	3.0	495	3.0	2.055	493.8	LOS F	269.6	6902.8	1.00	7.11	20.67	4.1
Approach		2954	3.0	3109	3.0	2.055	493.8	LOS F	269.6	6902.8	1.00	7.11	20.67	4.1
All Vehicles		6741	3.0	7096	3.0	2.055	350.0	LOS F	269.6	6902.8	1.00	5.25	16.00	5.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	33.4	25.5	33.4	24.8	27.6
Vehicles Entered	356	827	387	965	2535
Vehicles Exited	360	825	387	964	2536
Hourly Exit Rate	360	825	387	964	2536
Input Volume	358	839	372	951	2521
% of Volume	100	98	104	101	101
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.0	11.2	4.4	11.2
Vehicles Entered	394	1169	217	1780
Vehicles Exited	394	1171	217	1782
Hourly Exit Rate	394	1171	217	1782
Input Volume	389	1176	220	1786
% of Volume	101	100	99	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.0	12.8	16.2	10.7
Vehicles Entered	615	536	324	1475
Vehicles Exited	616	536	324	1476
Hourly Exit Rate	616	536	324	1476
Input Volume	607	530	318	1456
% of Volume	101	101	102	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	517.4
Vehicles Entered	203
Vehicles Exited	149
Hourly Exit Rate	149
Input Volume	5762
% of Volume	3
Denied Entry Before	0
Denied Entry After	0

HCM 6th Signalized Intersection Summary
2: Stewart Rd & McHenry Rd

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	38	0	0	0	28	770	0	0	913	15
Future Volume (veh/h)	20	0	38	0	0	0	28	770	0	0	913	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	0	42	0	0	0	31	856	0	0	1014	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	0	66	0	124	0	66	1194	0	5	1633	27
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.04	0.64	0.00	0.00	0.46	0.46
Sat Flow, veh/h	524	0	1000	0	1870	0	1781	1870	0	1781	3576	60
Grp Volume(v), veh/h	64	0	0	0	0	0	31	856	0	0	504	527
Grp Sat Flow(s),veh/h/ln	1523	0	0	0	1870	0	1781	1870	0	1781	1777	1860
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.0	0.6	10.7	0.0	0.0	7.6	7.6
Cycle Q Clear(g_c), s	1.4	0.0	0.0	0.0	0.0	0.0	0.6	10.7	0.0	0.0	7.6	7.6
Prop In Lane	0.34		0.66	0.00		0.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	238	0	0	0	124	0	66	1194	0	5	811	849
V/C Ratio(X)	0.27	0.00	0.00	0.00	0.00	0.00	0.47	0.72	0.00	0.00	0.62	0.62
Avail Cap(c_a), veh/h	354	0	0	0	266	0	268	1833	0	253	1726	1806
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	0.0	0.0	0.0	0.0	0.0	16.6	4.2	0.0	0.0	7.3	7.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	0.0	5.1	0.8	0.0	0.0	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	0.0	0.0	0.0	0.0	0.0	21.7	5.1	0.0	0.0	8.0	8.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	A	A	A
Approach Vol, veh/h		64			0			887			1031	
Approach Delay, s/veh		16.6			0.0			5.6			8.0	
Approach LOS		B						A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	28.3		6.9	6.4	21.9		6.9				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.0	34.5		5.0	5.3	34.2		5.0				
Max Q Clear Time (g_c+I1), s	0.0	12.7		3.4	2.6	9.6		0.0				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	6.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	7	584	16	3	840
Future Vol, veh/h	30	7	584	16	3	840
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	33	8	649	18	3	933

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1597	658	0	0	667	0
Stage 1	658	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	117	464	-	-	923	-
Stage 1	515	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	117	464	-	-	923	-
Mov Cap-2 Maneuver	251	-	-	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	379	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	275	923	-
HCM Lane V/C Ratio	-	-	0.149	0.004	-
HCM Control Delay (s)	-	-	20.4	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	585	2	10	1129	4	8
Future Vol, veh/h	585	2	10	1129	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	672	2	11	1298	5	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	674	0	1993	673
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	1320	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	917	-	66	455
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	250	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	917	-	63	455
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	239	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	30.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	63	455	-	-	917	-
HCM Lane V/C Ratio	0.073	0.02	-	-	0.013	-
HCM Control Delay (s)	66.6	13.1	-	-	9	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	311	67	186	817	175	73	202	124	162	231	247
Future Volume (veh/h)	212	311	67	186	817	175	73	202	124	162	231	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	357	77	214	939	190	84	220	143	176	251	268
Peak Hour Factor	0.92	0.87	0.87	0.87	0.87	0.92	0.87	0.92	0.87	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	260	964	206	253	964	195	107	272	230	204	360	305
Arrive On Green	0.15	0.34	0.34	0.14	0.34	0.34	0.06	0.15	0.15	0.11	0.19	0.19
Sat Flow, veh/h	1781	2798	597	1781	2828	572	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	230	216	218	214	566	563	84	220	143	176	251	268
Grp Sat Flow(s),veh/h/ln	1781	1706	1689	1781	1706	1693	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.3	8.5	8.7	10.4	29.2	29.2	4.1	10.2	7.6	8.7	11.2	14.6
Cycle Q Clear(g_c), s	11.3	8.5	8.7	10.4	29.2	29.2	4.1	10.2	7.6	8.7	11.2	14.6
Prop In Lane	1.00		0.35	1.00		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	588	582	253	582	577	107	272	230	204	360	305
V/C Ratio(X)	0.89	0.37	0.37	0.84	0.97	0.97	0.78	0.81	0.62	0.86	0.70	0.88
Avail Cap(c_a), veh/h	260	588	582	382	582	577	122	290	245	204	390	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	21.9	22.0	37.3	29.0	29.0	41.3	36.9	35.8	38.8	33.6	35.0
Incr Delay (d2), s/veh	28.3	0.4	0.4	10.5	30.5	30.9	24.6	15.0	4.3	29.6	4.9	21.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	3.1	3.2	5.0	15.5	15.5	2.4	5.5	3.0	5.4	5.4	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	22.3	22.4	47.7	59.4	59.9	65.9	51.9	40.1	68.4	38.4	56.4
LnGrp LOS	E	C	C	D	E	E	E	D	D	E	D	E
Approach Vol, veh/h		664			1343			447			695	
Approach Delay, s/veh		37.4			57.8			50.8			53.0	
Approach LOS		D			E			D			D	

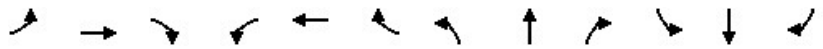
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	19.1	18.1	36.9	10.8	23.4	18.4	36.6
Change Period (Y+Rc), s	* 4.8	6.2	5.4	6.2	5.4	* 6.2	5.4	6.2
Max Green Setting (Gmax), s	* 10	13.8	19.1	24.3	6.1	* 19	13.0	30.4
Max Q Clear Time (g_c+I1), s	10.7	12.2	12.4	10.7	6.1	16.6	13.3	31.2
Green Ext Time (p_c), s	0.0	0.3	0.3	1.9	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	51.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	440	128	149	1104	43	199	320	110	41	438	147
Future Volume (veh/h)	51	440	128	149	1104	43	199	320	110	41	438	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	484	141	164	1213	47	219	352	121	45	481	162
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1130	504	238	1225	547	237	557	472	67	530	177
Arrive On Green	0.04	0.32	0.32	0.07	0.34	0.34	0.13	0.30	0.30	0.04	0.20	0.20
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	2615	875
Grp Volume(v), veh/h	56	484	141	164	1213	47	219	352	121	45	326	317
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1777	1713
Q Serve(g_s), s	2.8	9.5	5.9	4.1	30.1	1.8	10.8	14.4	5.1	2.2	15.9	16.1
Cycle Q Clear(g_c), s	2.8	9.5	5.9	4.1	30.1	1.8	10.8	14.4	5.1	2.2	15.9	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	75	1130	504	238	1225	547	237	557	472	67	360	347
V/C Ratio(X)	0.75	0.43	0.28	0.69	0.99	0.09	0.92	0.63	0.26	0.67	0.90	0.91
Avail Cap(c_a), veh/h	100	1130	504	339	1225	547	237	557	472	100	360	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	23.9	22.6	40.4	28.9	19.6	38.0	26.9	23.7	42.1	34.5	34.6
Incr Delay (d2), s/veh	18.5	0.3	0.3	3.5	23.2	0.1	38.5	2.3	0.3	10.9	25.2	27.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.6	2.0	1.7	15.1	0.6	6.9	6.1	1.8	1.1	8.8	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	24.1	22.9	43.9	52.1	19.7	76.5	29.2	24.0	53.0	59.8	62.1
LnGrp LOS	E	C	C	D	D	B	E	C	C	D	E	E
Approach Vol, veh/h		681			1424			692			688	
Approach Delay, s/veh		26.9			50.1			43.3			60.4	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	32.9	11.9	34.7	17.6	24.5	9.5	37.1
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.8	24.8	8.7	26.9	11.8	18.0	5.0	30.6
Max Q Clear Time (g_c+I1), s	4.2	16.4	6.1	11.5	12.8	18.1	4.8	32.1
Green Ext Time (p_c), s	0.0	1.4	0.1	2.8	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	192	467	649	681	36
Future Volume (veh/h)	10	192	467	649	681	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	563	782	820	43
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	30		592	1631	858	45
Arrive On Green	0.02	0.00	0.33	0.87	0.49	0.49
Sat Flow, veh/h	1781	1585	1781	1870	1761	92
Grp Volume(v), veh/h	12	0	563	782	0	863
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1854
Q Serve(g_s), s	0.7	0.0	34.1	10.2	0.0	49.4
Cycle Q Clear(g_c), s	0.7	0.0	34.1	10.2	0.0	49.4
Prop In Lane	1.00	1.00	1.00			0.05
Lane Grp Cap(c), veh/h	30		592	1631	0	903
V/C Ratio(X)	0.40		0.95	0.48	0.00	0.96
Avail Cap(c_a), veh/h	97		632	1721	0	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.8	0.0	36.0	1.6	0.0	27.2
Incr Delay (d2), s/veh	8.5	0.0	23.6	0.2	0.0	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	17.4	0.1	0.0	23.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.3	0.0	59.7	1.8	0.0	46.1
LnGrp LOS	E		E	A	A	D
Approach Vol, veh/h	12	A		1345	863	
Approach Delay, s/veh	62.3			26.0	46.1	
Approach LOS	E			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		102.9		7.6	42.5	60.3
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		101.7		6.0	39.2	56.7
Max Q Clear Time (g_c+I1), s		12.2		2.7	36.1	51.4
Green Ext Time (p_c), s		5.6		0.0	0.6	2.5

Intersection Summary		
HCM 6th Ctrl Delay		34.0
HCM 6th LOS		C

Notes

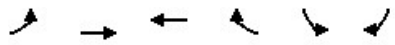
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	114	90	662	129	86	813
Future Volume (veh/h)	114	90	662	129	86	813
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	98	720	140	93	884
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	211	188	867	735	158	1232
Arrive On Green	0.12	0.12	0.46	0.46	0.09	0.66
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	124	98	720	140	93	884
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	3.2	2.8	16.1	2.5	2.4	14.7
Cycle Q Clear(g_c), s	3.2	2.8	16.1	2.5	2.4	14.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	211	188	867	735	158	1232
V/C Ratio(X)	0.59	0.52	0.83	0.19	0.59	0.72
Avail Cap(c_a), veh/h	263	234	1212	1027	223	1644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	19.9	11.2	7.6	21.0	5.3
Incr Delay (d2), s/veh	2.6	2.2	3.5	0.1	3.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.0	5.1	0.6	1.0	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.6	22.1	14.8	7.7	24.5	6.3
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	222		860			977
Approach Delay, s/veh	22.4		13.6			8.0
Approach LOS	C		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	28.1			37.4	10.6
Change Period (Y+Rc), s	5.1	5.8			5.8	4.9
Max Green Setting (Gmax), s	6.3	31.1			42.2	7.1
Max Q Clear Time (g_c+I1), s	4.4	18.1			16.7	5.2
Green Ext Time (p_c), s	0.0	4.1			6.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	471	996	69	55	110
Future Volume (veh/h)	115	471	996	69	55	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	125	512	1083	75	60	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	182	1169	1408	97	204	344
Arrive On Green	0.10	0.65	0.43	0.43	0.11	0.11
Sat Flow, veh/h	1781	1796	3328	224	1781	1585
Grp Volume(v), veh/h	125	512	570	588	60	120
Grp Sat Flow(s),veh/h/ln	1781	1796	1706	1756	1781	1585
Q Serve(g_s), s	3.2	6.6	13.4	13.5	1.5	3.0
Cycle Q Clear(g_c), s	3.2	6.6	13.4	13.5	1.5	3.0
Prop In Lane	1.00			0.13	1.00	1.00
Lane Grp Cap(c), veh/h	182	1169	742	764	204	344
V/C Ratio(X)	0.69	0.44	0.77	0.77	0.29	0.35
Avail Cap(c_a), veh/h	323	1547	965	993	304	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	4.0	11.4	11.4	19.2	15.7
Incr Delay (d2), s/veh	4.5	0.3	2.8	2.8	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.7	3.7	3.8	0.6	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.1	4.3	14.2	14.1	20.0	16.3
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h		637	1158		180	
Approach Delay, s/veh		8.4	14.2		17.5	
Approach LOS		A	B		B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	37.0	10.3	10.2	26.8
Change Period (Y+Rc), s	6.2	4.9	5.4	6.2
Max Green Setting (Gmax), s	40.8	8.1	8.6	26.8
Max Q Clear Time (g_c+I1), s	8.6	5.0	5.2	15.5
Green Ext Time (p_c), s	3.0	0.1	0.1	5.1

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	570	1100	6	16	78
Future Vol, veh/h	27	570	1100	6	16	78
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	620	1196	7	17	85

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1203	0	-	0	1878	1200
Stage 1	-	-	-	-	1200	-
Stage 2	-	-	-	-	678	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	580	-	-	-	78	226
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	580	-	-	-	74	226
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	504	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	33.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	580	-	-	-	227
HCM Lane V/C Ratio	0.051	-	-	-	0.45
HCM Control Delay (s)	11.5	-	-	-	33.2
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	2.2

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	47.8	38.0	38.8	26.9	35.9
Vehicles Entered	645	605	536	1180	2966
Vehicles Exited	641	603	535	1180	2959
Hourly Exit Rate	641	603	535	1180	2959
Input Volume	653	594	536	1491	3274
% of Volume	98	101	100	79	90
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	19.5	14.1	8.6	15.1
Vehicles Entered	740	891	380	2011
Vehicles Exited	739	890	381	2010
Hourly Exit Rate	739	890	381	2010
Input Volume	844	880	377	2100
% of Volume	88	101	101	96
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.3	14.0	17.7	10.7
Vehicles Entered	915	654	255	1824
Vehicles Exited	915	653	255	1823
Hourly Exit Rate	915	653	255	1823
Input Volume	908	802	258	1968
% of Volume	101	81	99	93
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	754.6
Vehicles Entered	190
Vehicles Exited	124
Hourly Exit Rate	124
Input Volume	7342
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

HCM 6th Signalized Intersection Summary
2: Stewart Rd & McHenry Rd

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	59	0	0	0	52	942	0	0	1432	31
Future Volume (veh/h)	28	0	59	0	0	0	52	942	0	0	1432	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	0	1870	1870	1870
Adj Flow Rate, veh/h	29	0	62	0	0	0	55	992	0	0	1507	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	0	2	2	2
Cap, veh/h	133	2	77	0	137	0	96	1328	0	4	1955	43
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.05	0.71	0.00	0.00	0.55	0.55
Sat Flow, veh/h	461	29	1046	0	1870	0	1781	1870	0	1781	3555	78
Grp Volume(v), veh/h	91	0	0	0	0	0	55	992	0	0	752	788
Grp Sat Flow(s),veh/h/ln	1535	0	0	0	1870	0	1781	1870	0	1781	1777	1856
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	0.0	1.4	15.7	0.0	0.0	15.9	15.9
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.0	0.0	0.0	1.4	15.7	0.0	0.0	15.9	15.9
Prop In Lane	0.32		0.68	0.00		0.00	1.00		0.00	1.00		0.04
Lane Grp Cap(c), veh/h	211	0	0	0	137	0	96	1328	0	4	977	1021
V/C Ratio(X)	0.43	0.00	0.00	0.00	0.00	0.00	0.57	0.75	0.00	0.00	0.77	0.77
Avail Cap(c_a), veh/h	309	0	0	0	257	0	200	1328	0	200	1203	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	0.0	0.0	0.0	22.2	4.3	0.0	0.0	8.4	8.5
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.0	5.2	2.4	0.0	0.0	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.0	0.7	1.5	0.0	0.0	3.9	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	0.0	0.0	0.0	0.0	0.0	27.4	6.7	0.0	0.0	10.9	10.9
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	B	B
Approach Vol, veh/h		91			0			1047			1540	
Approach Delay, s/veh		23.3			0.0			7.7			10.9	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	39.9		8.1	7.7	32.2		8.1				
Change Period (Y+Rc), s	* 4.7	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	* 5.4	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	17.7		4.8	3.4	17.9		0.0				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	8.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	2	895	35	6	1049
Future Vol, veh/h	25	2	895	35	6	1049
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	2	962	38	6	1128

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2121	981	0	0	1000	0
Stage 1	981	-	-	-	-	-
Stage 2	1140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	55	303	-	-	692	-
Stage 1	363	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	55	303	-	-	692	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	302	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	181	692	-
HCM Lane V/C Ratio	-	-	0.16	0.009	-
HCM Control Delay (s)	-	-	28.7	10.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	419	11	117	300	13	7	57	115	22	34	20
Future Volume (veh/h)	21	419	11	117	300	13	7	57	115	22	34	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	436	11	122	312	14	7	59	120	23	35	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	550	14	190	670	30	91	88	167	155	150	71
Arrive On Green	0.03	0.30	0.30	0.11	0.38	0.38	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	1816	46	1781	1776	80	29	562	1075	302	965	459
Grp Volume(v), veh/h	22	0	447	122	0	326	186	0	0	79	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1862	1781	0	1856	1666	0	0	1726	0	0
Q Serve(g_s), s	0.5	0.0	9.5	2.8	0.0	5.7	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	9.5	2.8	0.0	5.7	4.6	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.04	0.04		0.65	0.29		0.27
Lane Grp Cap(c), veh/h	57	0	563	190	0	700	346	0	0	376	0	0
V/C Ratio(X)	0.38	0.00	0.79	0.64	0.00	0.47	0.54	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	280	0	883	338	0	940	567	0	0	583	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.5	0.0	13.8	18.5	0.0	10.2	17.3	0.0	0.0	16.1	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	2.7	3.6	0.0	0.5	1.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.0	1.1	0.0	1.5	1.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	0.0	16.5	22.1	0.0	10.7	18.6	0.0	0.0	16.4	0.0	0.0
LnGrp LOS	C	A	B	C	A	B	B	A	A	B	A	A
Approach Vol, veh/h		469			448			186			79	
Approach Delay, s/veh		16.9			13.8			18.6			16.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.2	10.4	19.6		13.2	7.2	22.8				
Change Period (Y+Rc), s		6.5	5.8	6.5		6.5	5.8	6.5				
Max Green Setting (Gmax), s		12.5	8.2	20.5		12.5	6.8	21.9				
Max Q Clear Time (g_c+I1), s		6.6	4.8	11.5		3.7	2.5	7.7				
Green Ext Time (p_c), s		0.5	0.1	1.6		0.2	0.0	1.3				

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1194	6	15	849	3	18
Future Vol, veh/h	1194	6	15	849	3	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1257	6	16	894	3	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1263	0	2186	1260
Stage 1	-	-	-	-	1260	-
Stage 2	-	-	-	-	926	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	550	-	50	208
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	386	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	550	-	47	208
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	364	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	33
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	47	208	-	-	550	-
HCM Lane V/C Ratio	0.067	0.091	-	-	0.029	-
HCM Control Delay (s)	87	24	-	-	11.7	0
HCM Lane LOS	F	C	-	-	B	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	901	115	198	625	164	52	178	261	169	179	191
Future Volume (veh/h)	199	901	115	198	625	164	52	178	261	169	179	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	969	124	213	672	178	56	193	281	184	195	208
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	252	1009	129	247	878	232	90	308	261	202	414	351
Arrive On Green	0.14	0.33	0.33	0.14	0.33	0.33	0.05	0.16	0.16	0.11	0.22	0.22
Sat Flow, veh/h	1781	3043	389	1781	2669	706	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	216	543	550	213	429	421	56	193	281	184	195	208
Grp Sat Flow(s),veh/h/ln	1781	1706	1726	1781	1706	1669	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.6	28.0	28.1	10.5	20.3	20.3	2.8	8.6	14.8	9.2	8.1	10.6
Cycle Q Clear(g_c), s	10.6	28.0	28.1	10.5	20.3	20.3	2.8	8.6	14.8	9.2	8.1	10.6
Prop In Lane	1.00		0.23	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	566	572	247	561	549	90	308	261	202	414	351
V/C Ratio(X)	0.86	0.96	0.96	0.86	0.77	0.77	0.63	0.63	1.08	0.91	0.47	0.59
Avail Cap(c_a), veh/h	293	566	572	250	561	549	121	308	261	202	414	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	29.4	29.4	37.9	27.0	27.1	41.8	35.0	37.5	39.4	30.4	31.4
Incr Delay (d2), s/veh	19.3	28.0	27.9	25.0	6.2	6.4	7.0	4.0	77.5	39.3	0.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	14.7	14.8	6.0	8.4	8.3	1.3	4.0	10.9	6.2	3.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	57.4	57.3	62.9	33.3	33.5	48.8	38.9	115.0	78.6	31.3	34.0
LnGrp LOS	E	E	E	E	C	C	D	D	F	E	C	C
Approach Vol, veh/h		1309			1063			530			587	
Approach Delay, s/veh		57.3			39.3			80.3			47.1	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	21.0	17.9	36.0	9.9	26.1	18.1	35.7
Change Period (Y+Rc), s	* 4.8	6.2	5.4	6.2	5.4	* 6.2	5.4	6.2
Max Green Setting (Gmax), s	* 10	14.8	12.6	29.8	6.1	* 20	14.8	27.6
Max Q Clear Time (g_c+I1), s	11.2	16.8	12.5	30.1	4.8	12.6	12.6	22.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.1	0.1	2.2

Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	71	11	477	120	40	462
Future Vol, veh/h	71	11	477	120	40	462
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	100	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	13	542	136	45	525

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1225	610	0	0	678	0
Stage 1	610	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	198	494	-	-	914	-
Stage 1	542	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	188	494	-	-	914	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	513	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	326	494	914	-
HCM Lane V/C Ratio	-	-	0.247	0.025	0.05	-
HCM Control Delay (s)	-	-	19.6	12.5	9.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0.1	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	1156	342	138	674	27	163	457	169	36	414	71
Future Volume (veh/h)	146	1156	342	138	674	27	163	457	169	36	414	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	1243	368	148	725	29	175	491	182	39	445	76
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	1271	567	196	1091	487	209	508	430	62	574	97
Arrive On Green	0.11	0.36	0.36	0.06	0.31	0.31	0.12	0.27	0.27	0.03	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	1870	1585	1781	3039	516
Grp Volume(v), veh/h	157	1243	368	148	725	29	175	491	182	39	259	262
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1870	1585	1781	1777	1778
Q Serve(g_s), s	7.6	30.4	17.1	3.7	15.6	1.1	8.5	22.8	8.3	1.9	12.2	12.3
Cycle Q Clear(g_c), s	7.6	30.4	17.1	3.7	15.6	1.1	8.5	22.8	8.3	1.9	12.2	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	191	1271	567	196	1091	487	209	508	430	62	336	336
V/C Ratio(X)	0.82	0.98	0.65	0.75	0.66	0.06	0.84	0.97	0.42	0.63	0.77	0.78
Avail Cap(c_a), veh/h	231	1271	567	196	1091	487	210	508	430	101	373	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	27.9	23.7	40.9	26.6	21.5	38.1	31.7	26.4	41.9	33.9	34.0
Incr Delay (d2), s/veh	17.7	20.1	2.6	15.2	1.5	0.1	24.6	31.6	0.7	9.9	8.7	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	14.7	6.0	1.9	6.1	0.4	4.8	13.7	2.9	1.0	5.6	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	48.0	26.3	56.2	28.1	21.6	62.6	63.3	27.1	51.9	42.6	43.2
LnGrp LOS	E	D	C	E	C	C	E	E	C	D	D	D
Approach Vol, veh/h		1768			902			848			560	
Approach Delay, s/veh		44.2			32.5			55.4			43.5	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	30.4	10.8	38.0	16.1	23.1	15.3	33.5
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	23.9	5.0	31.5	10.4	18.5	11.4	25.1
Max Q Clear Time (g_c+I1), s	3.9	24.8	5.7	32.4	10.5	14.3	9.6	17.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.0	0.1	2.6

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	479	210	770	719	33
Future Volume (veh/h)	30	479	210	770	719	33
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	0	221	811	757	35
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	75		272	1384	859	40
Arrive On Green	0.04	0.00	0.15	0.74	0.48	0.48
Sat Flow, veh/h	1781	1585	1781	1870	1774	82
Grp Volume(v), veh/h	32	0	221	811	0	792
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1856
Q Serve(g_s), s	1.0	0.0	6.8	11.2	0.0	21.7
Cycle Q Clear(g_c), s	1.0	0.0	6.8	11.2	0.0	21.7
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	75		272	1384	0	899
V/C Ratio(X)	0.43		0.81	0.59	0.00	0.88
Avail Cap(c_a), veh/h	189		354	1714	0	1141
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	23.1	3.4	0.0	13.1
Incr Delay (d2), s/veh	3.8	0.0	10.4	0.4	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.1	0.2	0.0	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.2	0.0	33.5	3.8	0.0	19.9
LnGrp LOS	C		C	A	A	B
Approach Vol, veh/h	32	A		1032	792	
Approach Delay, s/veh	30.2			10.1	19.9	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.3		8.2	14.4	33.8
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		51.7		6.0	11.2	34.7
Max Q Clear Time (g_c+I1), s		13.2		3.0	8.8	23.7
Green Ext Time (p_c), s		5.8		0.0	0.1	3.7

Intersection Summary						
HCM 6th Ctrl Delay			14.7			
HCM 6th LOS			B			

Notes

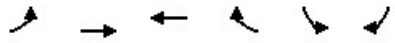
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	201	134	782	188	132	1263
Future Volume (veh/h)	201	134	782	188	132	1263
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	218	146	850	204	143	1373
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	229	204	1114	944	176	1405
Arrive On Green	0.13	0.13	0.60	0.60	0.10	0.75
Sat Flow, veh/h	1781	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	218	146	850	204	143	1373
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	10.8	7.9	30.1	5.3	7.0	61.3
Cycle Q Clear(g_c), s	10.8	7.9	30.1	5.3	7.0	61.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	229	204	1114	944	176	1405
V/C Ratio(X)	0.95	0.72	0.76	0.22	0.81	0.98
Avail Cap(c_a), veh/h	229	204	1114	944	214	1421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	37.3	13.4	8.4	39.4	10.4
Incr Delay (d2), s/veh	45.5	11.2	3.2	0.1	17.7	18.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	3.6	11.8	1.7	3.9	23.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	84.1	48.6	16.6	8.5	57.1	28.9
LnGrp LOS	F	D	B	A	E	C
Approach Vol, veh/h	364		1054			1516
Approach Delay, s/veh	69.8		15.0			31.6
Approach LOS	E		B			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.9	59.0			72.9	16.4
Change Period (Y+Rc), s	5.1	5.8			5.8	4.9
Max Green Setting (Gmax), s	10.7	52.0			67.8	11.5
Max Q Clear Time (g_c+I1), s	9.0	32.1			63.3	12.8
Green Ext Time (p_c), s	0.1	7.0			3.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	397	858	549	253	264	403
Future Volume (veh/h)	397	858	549	253	264	403
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	432	933	597	275	287	438
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	478	1124	649	299	403	784
Arrive On Green	0.27	0.63	0.29	0.29	0.23	0.23
Sat Flow, veh/h	1781	1796	2360	1045	1781	1585
Grp Volume(v), veh/h	432	933	449	423	287	438
Grp Sat Flow(s),veh/h/ln	1781	1796	1706	1608	1781	1585
Q Serve(g_s), s	17.6	30.4	19.2	19.2	11.2	14.5
Cycle Q Clear(g_c), s	17.6	30.4	19.2	19.2	11.2	14.5
Prop In Lane	1.00			0.65	1.00	1.00
Lane Grp Cap(c), veh/h	478	1124	488	460	403	784
V/C Ratio(X)	0.90	0.83	0.92	0.92	0.71	0.56
Avail Cap(c_a), veh/h	559	1213	495	466	429	806
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	10.9	26.0	26.0	26.8	13.3
Incr Delay (d2), s/veh	16.6	4.7	22.2	23.4	5.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	9.3	9.8	9.4	5.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.2	15.6	48.2	49.4	31.9	14.1
LnGrp LOS	D	B	D	D	C	B
Approach Vol, veh/h		1365	872		725	
Approach Delay, s/veh		24.4	48.8		21.2	
Approach LOS		C	D		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	53.3	21.9	25.6	27.7
Change Period (Y+Rc), s	6.2	4.9	5.4	6.2
Max Green Setting (Gmax), s	50.8	18.1	23.6	21.8
Max Q Clear Time (g_c+I1), s	32.4	16.5	19.6	21.2
Green Ext Time (p_c), s	6.2	0.5	0.5	0.3

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	1243	934	18	12	53
Future Vol, veh/h	88	1243	934	18	12	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	1351	1015	20	13	58

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1035	0	-	0	2568	1025
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1543	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	672	-	-	-	29	285
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	194	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	672	-	-	-	25	285
Mov Cap-2 Maneuver	-	-	-	-	153	-
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	194	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	672	-	-	-	246
HCM Lane V/C Ratio	0.142	-	-	-	0.287
HCM Control Delay (s)	11.2	-	-	-	25.4
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.5	-	-	-	1.1

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	4.0	0.0	0.0	1.4
Total Del/Veh (s)	35.3	97.2	27.3	25.3	52.7
Vehicles Entered	392	972	383	976	2723
Vehicles Exited	392	956	382	979	2709
Hourly Exit Rate	392	956	382	979	2709
Input Volume	394	984	376	973	2726
% of Volume	100	97	102	101	99
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	3	0	0	3

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0
Total Del/Veh (s)	10.9	40.0	3.7	29.4
Vehicles Entered	445	1339	229	2013
Vehicles Exited	446	1323	230	1999
Hourly Exit Rate	446	1323	230	1999
Input Volume	438	1334	222	1995
% of Volume	102	99	103	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.3	9.2	39.5	14.6
Vehicles Entered	629	531	322	1482
Vehicles Exited	628	526	324	1478
Hourly Exit Rate	628	526	324	1478
Input Volume	614	531	325	1470
% of Volume	102	99	100	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

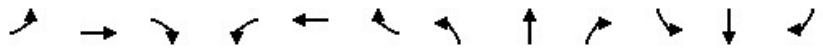
Total Zone Performance

Denied Del/Veh (s)	19.2
Total Del/Veh (s)	889.9
Vehicles Entered	209
Vehicles Exited	166
Hourly Exit Rate	166
Input Volume	6192
% of Volume	3
Denied Entry Before	0
Denied Entry After	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	83	179	156	167	21	265	486	68	14	533	29
Future Volume (veh/h)	22	83	179	156	167	21	265	486	68	14	533	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	90	32	170	182	23	288	528	74	15	579	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	222	483	211	383	325	331	1226	171	39	779	43
Arrive On Green	0.03	0.12	0.12	0.12	0.20	0.20	0.19	0.39	0.39	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3131	437	1781	3424	189
Grp Volume(v), veh/h	24	90	32	170	182	23	288	299	303	15	300	311
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1792	1781	1777	1836
Q Serve(g_s), s	0.9	3.0	1.0	6.3	5.8	0.8	10.6	8.3	8.3	0.6	10.6	10.6
Cycle Q Clear(g_c), s	0.9	3.0	1.0	6.3	5.8	0.8	10.6	8.3	8.3	0.6	10.6	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.10
Lane Grp Cap(c), veh/h	57	222	483	211	383	325	331	696	702	39	404	418
V/C Ratio(X)	0.42	0.41	0.07	0.81	0.47	0.07	0.87	0.43	0.43	0.39	0.74	0.74
Avail Cap(c_a), veh/h	159	223	483	254	383	325	334	869	877	159	695	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	27.4	16.6	28.9	23.5	21.6	26.6	15.0	15.0	32.4	24.1	24.2
Incr Delay (d2), s/veh	4.8	1.2	0.1	14.6	0.9	0.1	21.0	0.4	0.4	6.2	2.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.2	0.3	3.2	2.3	0.3	5.8	2.8	2.8	0.3	4.1	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	28.6	16.6	43.5	24.5	21.7	47.5	15.4	15.4	38.6	26.9	26.8
LnGrp LOS	D	C	B	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		146			375			890			626	
Approach Delay, s/veh		27.3			32.9			25.8			27.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	32.5	13.4	14.5	17.9	21.5	7.6	20.3
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	32.9	9.6	8.0	12.6	26.3	6.0	11.6
Max Q Clear Time (g_c+I1), s	2.6	10.3	8.3	5.0	12.6	12.6	2.9	7.8
Green Ext Time (p_c), s	0.0	3.2	0.1	0.1	0.0	2.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	38	0	0	0	28	826	0	0	935	15
Future Volume (veh/h)	20	0	38	0	0	0	28	826	0	0	935	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	0	42	0	0	0	31	918	0	0	1039	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	0	66	0	123	0	66	1200	0	5	1649	27
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.04	0.64	0.00	0.00	0.46	0.46
Sat Flow, veh/h	524	0	1000	0	1870	0	1781	1870	0	1781	3578	59
Grp Volume(v), veh/h	64	0	0	0	0	0	31	918	0	0	516	540
Grp Sat Flow(s),veh/h/ln	1523	0	0	0	1870	0	1781	1870	0	1781	1777	1860
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	12.3	0.0	0.0	7.8	7.8
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.0	0.0	0.0	0.6	12.3	0.0	0.0	7.8	7.8
Prop In Lane	0.34		0.66	0.00		0.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	236	0	0	0	123	0	66	1200	0	5	819	857
V/C Ratio(X)	0.27	0.00	0.00	0.00	0.00	0.00	0.47	0.77	0.00	0.00	0.63	0.63
Avail Cap(c_a), veh/h	419	0	0	0	347	0	271	1731	0	251	1625	1700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	0.0	0.0	0.0	16.8	4.5	0.0	0.0	7.3	7.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	0.0	5.1	1.3	0.0	0.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	0.0	0.0	0.0	0.0	21.9	5.8	0.0	0.0	8.1	8.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	A	A	A
Approach Vol, veh/h		64			0			949			1056	
Approach Delay, s/veh		16.8			0.0			6.3			8.1	
Approach LOS		B						A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	28.6		6.9	6.4	22.2		6.9				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.0	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	10.0	14.3		3.5	2.6	9.8		0.0				
Green Ext Time (p_c), s	0.0	6.3		0.1	0.0	6.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	7	590	11	3	848
Future Vol, veh/h	30	7	590	11	3	848
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	33	8	656	12	3	942

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1610	662	0	0	668	0
Stage 1	662	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	115	462	-	-	922	-
Stage 1	513	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	115	462	-	-	922	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	376	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	922	-
HCM Lane V/C Ratio	-	-	0.151	0.004	-
HCM Control Delay (s)	-	-	20.5	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	0	166	523	0	139	138	352	180	99	637	156
Future Volume (veh/h)	149	0	166	523	0	139	138	352	180	99	637	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	162	0	180	568	0	151	150	383	0	108	692	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	318	0	0	773	0	0	191	1060		142	1010	
Arrive On Green	0.10	0.00	0.00	0.22	0.00	0.00	0.11	0.31	0.00	0.08	0.30	0.00
Sat Flow, veh/h	3264	162		3456	568		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	162	20.3		568	17.4		150	383	0	108	692	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	B		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.1			6.8			3.9	3.9	0.0	2.7	8.0	0.0
Cycle Q Clear(g_c), s	2.1			6.8			3.9	3.9	0.0	2.7	8.0	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318			773			191	1060		142	1010	
V/C Ratio(X)	0.51			0.73			0.79	0.36		0.76	0.69	
Avail Cap(c_a), veh/h	632			1183			352	1468		420	1591	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.0			16.0			19.2	11.9	0.0	19.9	13.8	0.0
Incr Delay (d2), s/veh	1.3			1.4			7.0	0.2	0.0	8.1	0.8	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7			2.0			1.7	1.2	0.0	1.2	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3			17.4			26.2	12.1	0.0	28.1	14.6	0.0
LnGrp LOS	C			B			C	B		C	B	
Approach Vol, veh/h								533	A		800	A
Approach Delay, s/veh								16.1			16.5	
Approach LOS								B			B	

Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	9.1	19.6	15.7	9.7	18.9	10.1
Change Period (Y+Rc), s	5.4	* 5.8	5.8	* 4.7	5.8	5.8
Max Green Setting (Gmax), s	10.9	* 19	15.2	* 9.3	20.7	8.6
Max Q Clear Time (g_c+I1), s	4.7	5.9	8.8	5.9	10.0	4.1
Green Ext Time (p_c), s	0.1	1.9	1.2	0.1	3.2	0.2

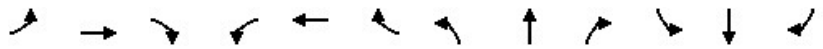
Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	203	7	161	508	9	52	34	102	23	67	38
Future Volume (veh/h)	20	203	7	161	508	9	52	34	102	23	67	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	251	9	199	627	11	64	42	126	28	83	47
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	539	19	253	757	13	161	77	167	124	199	99
Arrive On Green	0.03	0.30	0.30	0.14	0.41	0.41	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	1794	64	1781	1832	32	335	406	880	182	1049	521
Grp Volume(v), veh/h	25	0	260	199	0	638	232	0	0	158	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1859	1781	0	1865	1621	0	0	1752	0	0
Q Serve(g_s), s	0.7	0.0	5.4	5.1	0.0	14.4	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	0.0	5.4	5.1	0.0	14.4	6.2	0.0	0.0	3.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.28		0.54	0.18		0.30
Lane Grp Cap(c), veh/h	53	0	558	253	0	770	404	0	0	422	0	0
V/C Ratio(X)	0.47	0.00	0.47	0.79	0.00	0.83	0.57	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	196	0	786	591	0	1202	659	0	0	695	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.6	0.0	13.5	19.6	0.0	12.4	18.0	0.0	0.0	17.1	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.6	2.0	0.0	2.9	1.3	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.7	1.8	0.0	4.2	2.2	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	14.1	21.6	0.0	15.3	19.3	0.0	0.0	17.6	0.0	0.0
LnGrp LOS	C	A	B	C	A	B	B	A	A	B	A	A
Approach Vol, veh/h		285			837			232			158	
Approach Delay, s/veh		15.0			16.8			19.3			17.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	14.1	12.5	20.7	14.1	7.2	26.0
Change Period (Y+Rc), s	5.1	5.8	6.5	5.1	5.8	6.5
Max Green Setting (Gmax), s	16.9	15.7	20.0	16.9	5.2	30.5
Max Q Clear Time (g_c+I1), s	8.2	7.1	7.4	5.7	2.7	16.4
Green Ext Time (p_c), s	0.8	0.2	0.9	0.6	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	640	2	10	1278	4	8
Future Vol, veh/h	640	2	10	1278	4	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	736	2	11	1469	5	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	738	0	2228	737
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	1491	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	868	-	47	418
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	206	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	868	-	46	418
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	203	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	259	-	-	868	-
HCM Lane V/C Ratio	0.053	-	-	0.013	-
HCM Control Delay (s)	19.7	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	272	112	199	797	223	194	202	128	211	231	295
Future Volume (veh/h)	261	272	112	199	797	223	194	202	128	211	231	295
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	284	313	129	229	916	242	223	220	147	229	251	321
Peak Hour Factor	0.92	0.87	0.87	0.87	0.87	0.92	0.87	0.92	0.87	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	321	706	285	266	908	422	256	343	527	261	336	571
Arrive On Green	0.18	0.30	0.30	0.15	0.27	0.27	0.14	0.18	0.18	0.15	0.18	0.18
Sat Flow, veh/h	1781	2373	958	1781	3413	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	284	223	219	229	916	242	223	220	147	229	251	321
Grp Sat Flow(s),veh/h/ln	1781	1706	1624	1781	1706	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	15.7	10.7	11.0	12.6	26.8	13.3	12.3	11.0	6.9	12.7	12.8	16.4
Cycle Q Clear(g_c), s	15.7	10.7	11.0	12.6	26.8	13.3	12.3	11.0	6.9	12.7	12.8	16.4
Prop In Lane	1.00		0.59	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	508	483	266	908	422	256	343	527	261	336	571
V/C Ratio(X)	0.88	0.44	0.45	0.86	1.01	0.57	0.87	0.64	0.28	0.88	0.75	0.56
Avail Cap(c_a), veh/h	470	508	483	419	908	422	294	343	527	288	336	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	28.6	28.7	41.8	37.0	32.0	42.2	38.1	24.7	42.1	39.1	25.9
Incr Delay (d2), s/veh	12.9	0.6	0.7	10.5	32.0	1.9	21.8	4.0	0.3	23.4	8.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	4.2	4.1	6.0	14.4	5.0	6.7	5.1	2.4	7.2	6.6	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	29.2	29.4	52.3	69.0	33.9	64.0	42.0	25.0	65.5	48.0	27.1
LnGrp LOS	D	C	C	D	F	C	E	D	C	E	D	C
Approach Vol, veh/h		726			1387			590			801	
Approach Delay, s/veh		38.6			60.1			46.1			44.6	
Approach LOS		D			E			D			D	

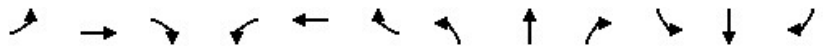
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	24.7	20.4	36.2	19.9	24.3	23.6	33.0
Change Period (Y+Rc), s	* 4.7	6.2	5.4	6.2	5.4	* 6.2	5.4	6.2
Max Green Setting (Gmax), s	* 16	17.8	23.7	29.7	16.6	* 18	26.6	26.8
Max Q Clear Time (g_c+I1), s	14.7	13.0	14.6	13.0	14.3	18.4	17.7	28.8
Green Ext Time (p_c), s	0.1	0.7	0.4	2.1	0.1	0.0	0.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	420	106	330	635	49	248	109	166	63	119	131
Future Volume (veh/h)	83	420	106	330	635	49	248	109	166	63	119	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	447	113	351	676	52	264	116	177	67	127	139
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	114	594	149	473	940	72	321	480	406	97	233	197
Arrive On Green	0.06	0.22	0.22	0.14	0.29	0.29	0.18	0.26	0.26	0.05	0.12	0.12
Sat Flow, veh/h	1781	2703	678	3456	3211	247	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	88	281	279	351	359	369	264	116	177	67	127	139
Grp Sat Flow(s),veh/h/ln	1781	1706	1674	1728	1706	1752	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.1	9.9	10.0	6.3	12.1	12.1	9.2	3.2	6.0	2.4	4.1	5.4
Cycle Q Clear(g_c), s	3.1	9.9	10.0	6.3	12.1	12.1	9.2	3.2	6.0	2.4	4.1	5.4
Prop In Lane	1.00		0.40	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	375	368	473	499	513	321	480	406	97	233	197
V/C Ratio(X)	0.77	0.75	0.76	0.74	0.72	0.72	0.82	0.24	0.44	0.69	0.55	0.71
Avail Cap(c_a), veh/h	274	562	552	693	661	678	579	739	626	252	404	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	23.4	23.5	26.7	20.4	20.4	25.4	19.0	20.0	29.9	26.5	27.0
Incr Delay (d2), s/veh	10.5	3.0	3.3	2.4	2.6	2.5	5.3	0.3	0.7	8.6	2.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.8	3.8	2.6	4.7	4.8	3.9	1.2	2.1	1.2	1.8	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	26.4	26.8	29.1	22.9	22.9	30.7	19.2	20.8	38.5	28.4	31.6
LnGrp LOS	D	C	C	C	C	C	C	B	C	D	C	C
Approach Vol, veh/h		648			1079			557			333	
Approach Delay, s/veh		28.5			24.9			25.1			31.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	22.3	13.9	19.9	16.7	13.8	9.2	24.6
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.5	25.4	12.9	21.2	20.9	* 14	9.9	* 25
Max Q Clear Time (g_c+I1), s	4.4	8.0	8.3	12.0	11.2	7.4	5.1	14.1
Green Ext Time (p_c), s	0.0	1.0	0.5	2.1	0.5	0.6	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	258	134	379	73	57	503
Future Volume (veh/h)	258	134	379	73	57	503
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	315	163	462	89	70	613
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	330	171	514	99	126	957
Arrive On Green	0.29	0.29	0.34	0.34	0.07	0.51
Sat Flow, veh/h	1124	582	1524	294	1781	1870
Grp Volume(v), veh/h	479	0	0	551	70	613
Grp Sat Flow(s),veh/h/ln	1709	0	0	1818	1781	1870
Q Serve(g_s), s	15.5	0.0	0.0	16.2	2.1	13.4
Cycle Q Clear(g_c), s	15.5	0.0	0.0	16.2	2.1	13.4
Prop In Lane	0.66	0.34		0.16	1.00	
Lane Grp Cap(c), veh/h	501	0	0	613	126	957
V/C Ratio(X)	0.96	0.00	0.00	0.90	0.55	0.64
Avail Cap(c_a), veh/h	501	0	0	668	190	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	0.0	0.0	17.7	25.3	10.0
Incr Delay (d2), s/veh	29.3	0.0	0.0	14.3	3.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	0.0	7.4	0.9	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.8	0.0	0.0	32.0	29.0	11.1
LnGrp LOS	D	A	A	C	C	B
Approach Vol, veh/h	479		551			683
Approach Delay, s/veh	48.8		32.0			12.9
Approach LOS	D		C			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.8	25.5			35.3	21.0
Change Period (Y+Rc), s	5.8	6.5			6.5	4.5
Max Green Setting (Gmax), s	6.0	20.7			32.5	16.5
Max Q Clear Time (g_c+I1), s	4.1	18.2			15.4	17.5
Green Ext Time (p_c), s	0.0	0.8			3.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	5	448	7	1	759
Future Vol, veh/h	33	5	448	7	1	759
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	6	521	8	1	883

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1410	525	0	0	529	0
Stage 1	525	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	153	552	-	-	1038	-
Stage 1	593	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	552	-	-	1038	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	169	1038	-
HCM Lane V/C Ratio	-	-	0.261	0.001	-
HCM Control Delay (s)	-	-	33.7	8.5	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1	0	-



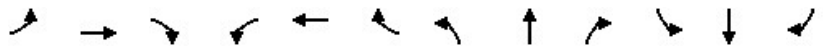
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	583	128	236	1391	45	199	328	184	44	451	276
Future Volume (veh/h)	95	583	128	236	1391	45	199	328	184	44	451	276
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	641	141	259	1529	49	219	360	202	48	496	303
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	1356	605	316	1462	652	214	1076	625	62	462	281
Arrive On Green	0.06	0.38	0.38	0.09	0.41	0.41	0.12	0.30	0.30	0.03	0.22	0.22
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	2122	1292
Grp Volume(v), veh/h	104	641	141	259	1529	49	219	360	202	48	415	384
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1638
Q Serve(g_s), s	7.6	17.7	7.8	9.6	53.5	2.4	15.6	10.2	11.5	3.5	28.3	28.3
Cycle Q Clear(g_c), s	7.6	17.7	7.8	9.6	53.5	2.4	15.6	10.2	11.5	3.5	28.3	28.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	110	1356	605	316	1462	652	214	1076	625	62	387	357
V/C Ratio(X)	0.95	0.47	0.23	0.82	1.05	0.08	1.02	0.33	0.32	0.77	1.07	1.08
Avail Cap(c_a), veh/h	110	1356	605	420	1462	652	214	1076	625	125	387	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.8	30.3	27.3	58.0	38.3	23.2	57.2	35.1	27.3	62.2	50.8	50.9
Incr Delay (d2), s/veh	69.6	0.3	0.2	9.3	36.4	0.0	68.1	0.2	0.3	18.3	66.5	69.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	7.2	2.9	4.4	28.8	0.9	10.8	4.3	4.2	1.8	19.1	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.4	30.6	27.5	67.3	74.6	23.3	125.3	35.3	27.6	80.5	117.4	120.6
LnGrp LOS	F	C	C	E	F	C	F	D	C	F	F	F
Approach Vol, veh/h		886			1837			781			847	
Approach Delay, s/veh		41.8			72.2			58.6			116.8	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	45.9	17.7	56.1	21.4	34.8	13.8	60.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	9.1	34.8	15.8	45.7	15.6	28.3	8.0	53.5
Max Q Clear Time (g_c+I1), s	5.5	13.5	11.6	19.7	17.6	30.3	9.6	55.5
Green Ext Time (p_c), s	0.0	2.6	0.3	4.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	72.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	396	113	235	759	137	246	400	127	192	550	422
Future Volume (veh/h)	211	396	113	235	759	137	246	400	127	192	550	422
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	445	127	264	853	0	276	449	143	216	618	474
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	758	338	300	855		281	761	340	252	686	306
Arrive On Green	0.14	0.21	0.21	0.17	0.24	0.00	0.16	0.21	0.21	0.14	0.19	0.19
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	237	445	127	264	853	0	276	449	143	216	618	474
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	12.0	10.2	6.2	13.1	21.7	0.0	14.0	10.3	7.1	10.7	15.4	17.5
Cycle Q Clear(g_c), s	12.0	10.2	6.2	13.1	21.7	0.0	14.0	10.3	7.1	10.7	15.4	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	244	758	338	300	855		281	761	340	252	686	306
V/C Ratio(X)	0.97	0.59	0.38	0.88	1.00		0.98	0.59	0.42	0.86	0.90	1.55
Avail Cap(c_a), veh/h	244	758	338	346	855		281	761	340	289	686	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	32.0	30.5	36.8	34.4	0.0	38.0	32.0	30.7	38.0	35.7	36.5
Incr Delay (d2), s/veh	49.7	1.2	0.7	20.0	30.1	0.0	48.4	1.2	0.8	20.0	15.0	262.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	4.1	2.3	7.0	12.2	0.0	9.4	4.2	2.6	5.8	7.6	28.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.6	33.2	31.2	56.8	64.5	0.0	86.5	33.2	31.6	58.0	50.7	298.9
LnGrp LOS	F	C	C	E	E		F	C	C	E	D	F
Approach Vol, veh/h		809			1117	A		868			1308	
Approach Delay, s/veh		49.1			62.7			49.9			141.8	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	25.9	20.7	25.8	20.1	24.0	18.2	28.3
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	14.3	17.2	17.6	16.7	14.3	* 18	12.4	* 22
Max Q Clear Time (g_c+I1), s	12.7	12.3	15.1	12.2	16.0	19.5	14.0	23.7
Green Ext Time (p_c), s	0.1	1.3	0.2	1.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	82.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	192	467	731	832	73
Future Volume (veh/h)	30	192	467	731	832	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	0	563	881	1002	88
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	56		542	1657	919	81
Arrive On Green	0.03	0.00	0.30	0.89	0.54	0.54
Sat Flow, veh/h	1781	1585	1781	1870	1695	149
Grp Volume(v), veh/h	36	0	563	881	0	1090
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	0	1844
Q Serve(g_s), s	3.0	0.0	45.2	15.1	0.0	80.5
Cycle Q Clear(g_c), s	3.0	0.0	45.2	15.1	0.0	80.5
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	56		542	1657	0	1000
V/C Ratio(X)	0.65		1.04	0.53	0.00	1.09
Avail Cap(c_a), veh/h	74		542	1657	0	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.1	0.0	51.6	1.8	0.0	34.0
Incr Delay (d2), s/veh	11.9	0.0	48.8	0.3	0.0	56.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	26.6	1.3	0.0	48.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	83.0	0.0	100.5	2.2	0.0	90.3
LnGrp LOS	F		F	A	A	F
Approach Vol, veh/h	36	A		1444	1090	
Approach Delay, s/veh	83.0			40.5	90.3	
Approach LOS	F			D	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		138.0		10.4	51.0	87.0
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		131.5		6.2	45.2	80.5
Max Q Clear Time (g_c+I1), s		17.1		5.0	47.2	82.5
Green Ext Time (p_c), s		6.9		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



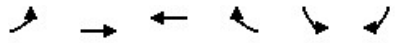
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	114	90	717	129	86	833
Future Volume (veh/h)	114	90	717	129	86	833
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	98	779	140	93	905
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	179	159	896	161	134	1373
Arrive On Green	0.10	0.10	0.58	0.58	0.08	0.73
Sat Flow, veh/h	1781	1585	1543	277	1781	1870
Grp Volume(v), veh/h	124	98	0	919	93	905
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1820	1781	1870
Q Serve(g_s), s	4.4	3.8	0.0	27.7	3.3	16.1
Cycle Q Clear(g_c), s	4.4	3.8	0.0	27.7	3.3	16.1
Prop In Lane	1.00	1.00		0.15	1.00	
Lane Grp Cap(c), veh/h	179	159	0	1056	134	1373
V/C Ratio(X)	0.69	0.62	0.00	0.87	0.69	0.66
Avail Cap(c_a), veh/h	305	272	0	1804	245	2258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	27.9	0.0	11.5	29.2	4.4
Incr Delay (d2), s/veh	4.7	3.8	0.0	2.5	6.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.6	0.0	8.1	1.5	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.9	31.8	0.0	14.0	35.5	5.0
LnGrp LOS	C	C	A	B	D	A
Approach Vol, veh/h	222		919			998
Approach Delay, s/veh	32.4		14.0			7.8
Approach LOS	C		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.0	43.4			53.4	11.4
Change Period (Y+Rc), s	5.1	5.8			5.8	4.9
Max Green Setting (Gmax), s	8.9	64.2			78.2	11.1
Max Q Clear Time (g_c+I1), s	5.3	29.7			18.1	6.4
Green Ext Time (p_c), s	0.1	7.9			7.9	0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B

Notes

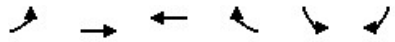
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	459	1077	137	122	178
Future Volume (veh/h)	182	459	1077	137	122	178
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	198	499	1171	149	133	193
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	245	1251	1443	183	244	435
Arrive On Green	0.14	0.70	0.47	0.47	0.14	0.14
Sat Flow, veh/h	1781	1796	3136	387	1781	1585
Grp Volume(v), veh/h	198	499	654	666	133	193
Grp Sat Flow(s),veh/h/ln	1781	1796	1706	1727	1781	1585
Q Serve(g_s), s	7.4	8.0	22.4	22.6	4.8	6.9
Cycle Q Clear(g_c), s	7.4	8.0	22.4	22.6	4.8	6.9
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	245	1251	808	818	244	435
V/C Ratio(X)	0.81	0.40	0.81	0.81	0.55	0.44
Avail Cap(c_a), veh/h	422	1695	1061	1074	367	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	4.4	15.4	15.4	27.5	20.5
Incr Delay (d2), s/veh	6.2	0.2	3.6	3.7	1.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	1.4	7.4	7.6	2.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.8	4.6	19.0	19.1	29.4	21.2
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		697	1320		326	
Approach Delay, s/veh		13.1	19.1		24.5	
Approach LOS		B	B		C	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		54.1		14.3	15.2	38.9
Change Period (Y+Rc), s		6.5		4.9	5.8	6.5
Max Green Setting (Gmax), s		64.5		14.1	16.2	42.5
Max Q Clear Time (g_c+I1), s		10.0		8.9	9.4	24.6
Green Ext Time (p_c), s		3.0		0.5	0.3	7.8

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	625	1249	6	16	78
Future Volume (veh/h)	27	625	1249	6	16	78
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	679	1358	7	17	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	71	1277	1915	10	24	121
Arrive On Green	0.04	0.68	0.53	0.53	0.09	0.09
Sat Flow, veh/h	1781	1870	3719	19	267	1334
Grp Volume(v), veh/h	29	679	666	699	103	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1867	1617	0
Q Serve(g_s), s	0.8	9.1	14.2	14.2	3.1	0.0
Cycle Q Clear(g_c), s	0.8	9.1	14.2	14.2	3.1	0.0
Prop In Lane	1.00			0.01	0.17	0.83
Lane Grp Cap(c), veh/h	71	1277	938	986	147	0
V/C Ratio(X)	0.41	0.53	0.71	0.71	0.70	0.00
Avail Cap(c_a), veh/h	254	2393	1815	1908	452	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.6	4.0	9.0	9.0	22.2	0.0
Incr Delay (d2), s/veh	3.8	0.3	1.0	1.0	5.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.8	3.3	3.4	1.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.4	4.3	10.0	9.9	28.2	0.0
LnGrp LOS	C	A	A	A	C	A
Approach Vol, veh/h		708	1365		103	
Approach Delay, s/veh		5.3	10.0		28.2	
Approach LOS		A	A		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	40.9	9.5	7.8	33.1
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	64.5	14.1	7.2	51.5
Max Q Clear Time (g_c+I1), s	11.1	5.1	2.8	16.2
Green Ext Time (p_c), s	4.6	0.2	0.0	10.4

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

MITIG8 EPAP plus Project AM
2 Lane Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	308	3.0	346	3.0	0.501	9.7	LOS A	3.4	87.5	0.61	0.60	0.75	31.7
8	T1	566	3.0	636	3.0	0.501	9.7	LOS A	3.4	87.5	0.61	0.60	0.75	34.7
18	R2	9	3.0	10	3.0	0.501	9.7	LOS A	3.4	87.5	0.61	0.60	0.75	34.2
Approach		883	3.0	992	3.0	0.501	9.7	LOS A	3.4	87.5	0.61	0.60	0.75	33.6
East: Claratina Rd														
1	L2	20	3.0	22	3.0	0.643	22.3	LOS C	4.0	103.6	0.82	0.99	1.55	29.7
6	T1	498	3.0	560	3.0	0.643	22.3	LOS C	4.0	103.6	0.82	0.99	1.55	30.4
16	R2	60	3.0	67	3.0	0.643	22.3	LOS C	4.0	103.6	0.82	0.99	1.55	30.9
Approach		578	3.0	649	3.0	0.643	22.3	LOS C	4.0	103.6	0.82	0.99	1.55	30.4
North: Coffee Rd														
7	L2	40	3.0	45	3.0	0.803	30.9	LOS D	8.0	205.2	0.89	1.20	2.23	28.0
4	T1	698	3.0	784	3.0	0.803	30.9	LOS D	8.0	205.2	0.89	1.20	2.23	26.7
14	R2	88	3.0	99	3.0	0.803	30.9	LOS D	8.0	205.2	0.89	1.20	2.23	26.6
Approach		826	3.0	928	3.0	0.803	30.9	LOS D	8.0	205.2	0.89	1.20	2.23	26.7
West: Claratina Rd														
5	L2	79	3.0	89	3.0	0.428	12.2	LOS B	2.1	55.0	0.71	0.79	0.99	34.0
2	T1	200	3.0	225	3.0	0.428	12.2	LOS B	2.1	55.0	0.71	0.79	0.99	34.3
12	R2	194	3.0	218	3.0	0.428	12.2	LOS B	2.1	55.0	0.71	0.79	0.99	31.6
Approach		473	3.0	531	3.0	0.428	12.2	LOS B	2.1	55.0	0.71	0.79	0.99	33.1
All Vehicles		2760	3.0	3101	3.0	0.803	19.1	LOS C	8.0	205.2	0.76	0.89	1.40	30.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


McHenry Ave
McHenry Ave
Patterson Rd
Patterson Rd Bypass
McHenry Ave
McHenry Ave
Mid Main Canal

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.0	0.0
Total Del/Veh (s)	49.5	35.4	66.7	49.0	49.2
Vehicles Entered	720	654	538	1515	3427
Vehicles Exited	711	654	535	1502	3402
Hourly Exit Rate	711	654	535	1502	3402
Input Volume	720	657	538	1532	3447
% of Volume	99	100	99	98	99
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.8	8.4	9.6	10.4
Vehicles Entered	934	953	379	2266
Vehicles Exited	934	953	380	2267
Hourly Exit Rate	934	953	380	2267
Input Volume	948	951	384	2282
% of Volume	99	100	99	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.9	13.0	35.7	12.8
Vehicles Entered	913	794	264	1971
Vehicles Exited	913	796	265	1974
Hourly Exit Rate	913	796	265	1974
Input Volume	919	806	262	1986
% of Volume	99	99	101	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

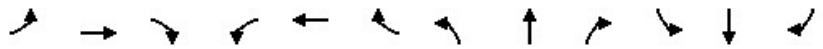
Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	940.3
Vehicles Entered	190
Vehicles Exited	133
Hourly Exit Rate	133
Input Volume	7716
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	185	521	132	108	12	198	626	144	57	708	34
Future Volume (veh/h)	24	185	521	132	108	12	198	626	144	57	708	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	201	403	143	117	13	215	680	157	62	770	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	370	508	173	490	415	218	998	230	101	974	47
Arrive On Green	0.03	0.20	0.20	0.10	0.26	0.26	0.12	0.35	0.35	0.06	0.28	0.28
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2867	661	1781	3452	166
Grp Volume(v), veh/h	26	201	403	143	117	13	215	421	416	62	396	411
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1751	1781	1777	1841
Q Serve(g_s), s	1.1	7.6	15.5	6.2	3.9	0.5	9.4	15.9	15.9	2.7	16.1	16.1
Cycle Q Clear(g_c), s	1.1	7.6	15.5	6.2	3.9	0.5	9.4	15.9	15.9	2.7	16.1	16.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.09
Lane Grp Cap(c), veh/h	59	370	508	173	490	415	218	619	610	101	501	519
V/C Ratio(X)	0.44	0.54	0.79	0.83	0.24	0.03	0.98	0.68	0.68	0.61	0.79	0.79
Avail Cap(c_a), veh/h	137	370	508	173	490	415	218	787	776	198	767	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	28.2	24.2	34.7	22.7	21.5	34.3	21.8	21.8	36.1	26.0	26.0
Incr Delay (d2), s/veh	5.1	1.6	8.4	27.0	0.2	0.0	56.3	1.7	1.7	5.9	3.2	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.2	7.0	3.7	1.5	0.2	7.2	6.0	6.0	1.2	6.5	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	29.8	32.6	61.7	23.0	21.5	90.6	23.5	23.5	42.0	29.1	29.0
LnGrp LOS	D	C	C	E	C	C	F	C	C	D	C	C
Approach Vol, veh/h		630			273			1052			869	
Approach Delay, s/veh		32.1			43.2			37.2			30.0	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	33.5	13.0	22.0	15.0	28.3	8.0	27.0
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	8.7	34.7	7.6	15.5	9.6	33.8	6.0	17.1
Max Q Clear Time (g_c+I1), s	4.7	17.9	8.2	17.5	11.4	18.1	3.1	5.9
Green Ext Time (p_c), s	0.0	4.3	0.0	0.0	0.0	4.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	0	59	0	0	0	52	968	0	0	1473	31
Future Volume (veh/h)	28	0	59	0	0	0	52	968	0	0	1473	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	0	62	0	0	0	55	1019	0	0	1551	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	2	76	0	136	0	96	1336	0	4	1979	42
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.05	0.71	0.00	0.00	0.56	0.56
Sat Flow, veh/h	460	30	1046	0	1870	0	1781	1870	0	1781	3558	76
Grp Volume(v), veh/h	91	0	0	0	0	0	55	1019	0	0	773	811
Grp Sat Flow(s),veh/h/ln	1535	0	0	0	1870	0	1781	1870	0	1781	1777	1857
Q Serve(g_s), s	2.7	0.0	0.0	0.0	0.0	0.0	1.5	16.7	0.0	0.0	16.7	16.8
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.0	0.0	0.0	1.5	16.7	0.0	0.0	16.7	16.8
Prop In Lane	0.32		0.68	0.00		0.00	1.00		0.00	1.00		0.04
Lane Grp Cap(c), veh/h	209	0	0	0	136	0	96	1336	0	4	988	1033
V/C Ratio(X)	0.44	0.00	0.00	0.00	0.00	0.00	0.57	0.76	0.00	0.00	0.78	0.78
Avail Cap(c_a), veh/h	304	0	0	0	253	0	197	1336	0	197	1182	1236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	0.0	0.0	0.0	0.0	22.6	4.4	0.0	0.0	8.5	8.5
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.0	5.3	2.6	0.0	0.0	2.9	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.0	0.7	1.7	0.0	0.0	4.2	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	0.0	0.0	0.0	0.0	0.0	27.9	7.0	0.0	0.0	11.4	11.4
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	B	B
Approach Vol, veh/h		91			0			1074			1584	
Approach Delay, s/veh		23.8			0.0			8.1			11.4	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	40.7		8.1	7.7	33.0		8.1				
Change Period (Y+Rc), s*	4.7	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.4	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	18.7		4.9	3.5	18.8		0.0				
Green Ext Time (p_c), s	0.0	6.4		0.1	0.0	8.4		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	2	905	35	6	1057
Future Vol, veh/h	25	2	905	35	6	1057
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	27	2	973	38	6	1137

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2141	992	0	0	1011	0
Stage 1	992	-	-	-	-	-
Stage 2	1149	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	54	298	-	-	686	-
Stage 1	359	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	298	-	-	686	-
Mov Cap-2 Maneuver	173	-	-	-	-	-
Stage 1	359	-	-	-	-	-
Stage 2	299	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	179	686	-
HCM Lane V/C Ratio	-	-	0.162	0.009	-
HCM Control Delay (s)	-	-	29	10.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	0	206	303	0	91	231	647	583	315	699	180
Future Volume (veh/h)	211	0	206	303	0	91	231	647	583	315	699	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	224	0	219	322	0	97	246	688	0	335	744	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	344	0	0	465	0	0	307	993		406	1228	
Arrive On Green	0.11	0.00	0.00	0.13	0.00	0.00	0.18	0.29	0.00	0.24	0.36	0.00
Sat Flow, veh/h	3264	224		3456	322		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	224	23.8		322	22.7		246	688	0	335	744	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	C		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	3.3			4.5			7.1	9.0	0.0	9.4	9.0	0.0
Cycle Q Clear(g_c), s	3.3			4.5			7.1	9.0	0.0	9.4	9.0	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344			465			307	993		406	1228	
V/C Ratio(X)	0.65			0.69			0.80	0.69		0.82	0.61	
Avail Cap(c_a), veh/h	576			698			583	1582		732	1859	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.7			20.8			19.8	15.9	0.0	18.2	13.2	0.0
Incr Delay (d2), s/veh	2.1			1.9			4.8	0.9	0.0	4.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1			1.6			2.8	3.1	0.0	3.4	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8			22.7			24.6	16.8	0.0	22.5	13.7	0.0
LnGrp LOS	C			C			C	B		C	B	
Approach Vol, veh/h								934	A		1079	A
Approach Delay, s/veh								18.8			16.4	
Approach LOS								B			B	

Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	17.4	20.5	12.6	13.9	24.0	11.1
Change Period (Y+Rc), s	5.4	* 5.8	5.8	* 4.7	5.8	5.8
Max Green Setting (Gmax), s	21.6	* 23	10.2	* 18	27.5	8.9
Max Q Clear Time (g_c+I1), s	11.4	11.0	6.5	9.1	11.0	5.3
Green Ext Time (p_c), s	0.7	3.7	0.4	0.5	4.3	0.2

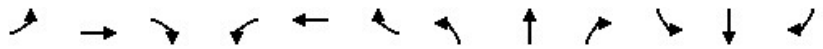
Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	467	11	130	330	13	7	57	134	22	34	20
Future Volume (veh/h)	21	467	11	130	330	13	7	57	134	22	34	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	486	11	135	344	14	7	59	140	23	35	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	613	14	193	746	30	87	86	191	152	166	78
Arrive On Green	0.03	0.34	0.34	0.11	0.42	0.42	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	1822	41	1781	1785	73	24	507	1127	287	979	459
Grp Volume(v), veh/h	22	0	497	135	0	358	206	0	0	79	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1863	1781	0	1857	1658	0	0	1725	0	0
Q Serve(g_s), s	0.5	0.0	10.9	3.3	0.0	6.3	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	10.9	3.3	0.0	6.3	5.3	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.04	0.03		0.68	0.29		0.27
Lane Grp Cap(c), veh/h	48	0	627	193	0	777	364	0	0	395	0	0
V/C Ratio(X)	0.46	0.00	0.79	0.70	0.00	0.46	0.57	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	201	0	1136	442	0	1383	592	0	0	608	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.6	0.0	13.6	19.4	0.0	9.5	17.8	0.0	0.0	16.3	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	2.3	1.7	0.0	0.4	1.4	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.3	1.1	0.0	1.5	1.9	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	15.9	21.1	0.0	9.9	19.1	0.0	0.0	16.5	0.0	0.0
LnGrp LOS	C	A	B	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		519			493			206			79	
Approach Delay, s/veh		16.2			13.0			19.1			16.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	12.7	10.7	21.7	12.7	7.0	25.4
Change Period (Y+Rc), s	5.1	5.8	6.5	5.1	5.8	6.5
Max Green Setting (Gmax), s	13.9	11.2	27.5	13.9	5.1	33.6
Max Q Clear Time (g_c+I1), s	7.3	5.3	12.9	3.7	2.5	8.3
Green Ext Time (p_c), s	0.6	0.1	2.3	0.2	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1316	6	15	924	3	18
Future Vol, veh/h	1316	6	15	924	3	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1385	6	16	973	3	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1391	0	2393	1388
Stage 1	-	-	-	-	1388	-
Stage 2	-	-	-	-	1005	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	492	-	37	175
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	354	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	492	-	36	175
Mov Cap-2 Maneuver	-	-	-	-	142	-
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	342	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	29.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	169	-	-	492	-
HCM Lane V/C Ratio	0.131	-	-	0.032	-
HCM Control Delay (s)	29.5	-	-	12.6	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	1005	201	206	719	83	106	178	275	87	179	110
Future Volume (veh/h)	117	1005	201	206	719	83	106	178	275	87	179	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	1081	216	222	773	90	114	193	296	95	195	120
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	160	1084	216	257	1491	692	140	286	471	121	251	355
Arrive On Green	0.09	0.38	0.38	0.14	0.44	0.44	0.08	0.15	0.15	0.07	0.13	0.13
Sat Flow, veh/h	1781	2836	565	1781	3413	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	127	649	648	222	773	90	114	193	296	95	195	120
Grp Sat Flow(s),veh/h/ln	1781	1706	1695	1781	1706	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.2	33.7	34.0	10.8	14.7	3.0	5.6	8.7	13.6	4.7	9.0	5.7
Cycle Q Clear(g_c), s	6.2	33.7	34.0	10.8	14.7	3.0	5.6	8.7	13.6	4.7	9.0	5.7
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	652	648	257	1491	692	140	286	471	121	251	355
V/C Ratio(X)	0.80	0.99	1.00	0.86	0.52	0.13	0.81	0.68	0.63	0.79	0.78	0.34
Avail Cap(c_a), veh/h	260	652	648	272	1491	692	140	286	471	126	284	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	27.4	27.5	37.2	18.2	15.0	40.3	35.6	27.0	40.8	37.2	29.0
Incr Delay (d2), s/veh	8.7	33.8	35.6	23.0	0.3	0.1	29.3	6.2	2.7	26.4	11.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	18.1	18.4	6.0	5.1	1.0	3.5	4.2	5.3	2.9	4.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	61.2	63.1	60.2	18.6	15.0	69.7	41.8	29.7	67.2	48.7	29.6
LnGrp LOS	D	E	F	E	B	B	E	D	C	E	D	C
Approach Vol, veh/h		1424			1085			603			410	
Approach Delay, s/veh		60.9			26.8			41.1			47.4	
Approach LOS		E			C			D			D	

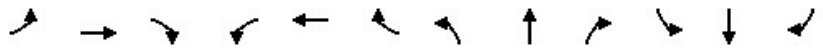
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	19.8	18.2	40.2	12.4	18.1	13.4	45.1
Change Period (Y+Rc), s	* 4.7	6.2	5.4	6.2	5.4	* 6.2	5.4	* 6.2
Max Green Setting (Gmax), s	* 6.3	13.6	13.6	34.0	7.0	* 14	13.0	* 35
Max Q Clear Time (g_c+I1), s	6.7	15.6	12.8	36.0	7.6	11.0	8.2	16.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.4	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	750	287	513	535	36	208	141	330	91	142	60
Future Volume (veh/h)	155	750	287	513	535	36	208	141	330	91	142	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	789	302	540	563	38	219	148	347	96	149	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	203	796	305	519	1189	80	194	306	259	123	222	188
Arrive On Green	0.11	0.33	0.33	0.15	0.37	0.37	0.11	0.16	0.16	0.07	0.12	0.12
Sat Flow, veh/h	1781	2414	923	3456	3245	219	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	163	558	533	540	296	305	219	148	347	96	149	63
Grp Sat Flow(s),veh/h/ln	1781	1706	1630	1728	1706	1757	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	6.7	24.2	24.3	11.2	9.9	9.9	8.1	5.4	12.2	4.0	5.7	2.7
Cycle Q Clear(g_c), s	6.7	24.2	24.3	11.2	9.9	9.9	8.1	5.4	12.2	4.0	5.7	2.7
Prop In Lane	1.00		0.57	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	563	538	519	625	644	194	306	259	123	222	188
V/C Ratio(X)	0.80	0.99	0.99	1.04	0.47	0.47	1.13	0.48	1.34	0.78	0.67	0.33
Avail Cap(c_a), veh/h	294	563	538	519	625	644	194	306	259	158	276	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	24.9	24.9	31.7	18.1	18.1	33.2	28.3	31.2	34.1	31.5	30.1
Incr Delay (d2), s/veh	9.9	35.3	36.5	50.3	0.6	0.5	104.5	1.2	175.7	17.1	4.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	14.1	13.6	8.1	3.7	3.8	8.8	2.3	17.1	2.2	2.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	60.2	61.4	82.0	18.7	18.7	137.7	29.5	206.9	51.3	35.9	31.2
LnGrp LOS	D	E	E	F	B	B	F	C	F	D	D	C
Approach Vol, veh/h		1254			1141			714			308	
Approach Delay, s/veh		58.3			48.6			148.9			39.7	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	18.0	16.3	30.4	13.2	14.6	13.6	33.1
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 6.6	12.2	11.2	24.6	8.1	* 11	12.3	* 24
Max Q Clear Time (g_c+I1), s	16.0	14.2	13.2	26.3	10.1	7.7	8.7	11.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.3	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	72.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	176	61	495	301	123	473
Future Volume (veh/h)	176	61	495	301	123	473
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	69	562	342	140	538
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	207	72	579	352	171	1295
Arrive On Green	0.16	0.16	0.53	0.53	0.10	0.69
Sat Flow, veh/h	1279	441	1089	662	1781	1870
Grp Volume(v), veh/h	270	0	0	904	140	538
Grp Sat Flow(s),veh/h/ln	1727	0	0	1751	1781	1870
Q Serve(g_s), s	13.9	0.0	0.0	44.7	6.9	11.1
Cycle Q Clear(g_c), s	13.9	0.0	0.0	44.7	6.9	11.1
Prop In Lane	0.74	0.26		0.38	1.00	
Lane Grp Cap(c), veh/h	280	0	0	931	171	1295
V/C Ratio(X)	0.96	0.00	0.00	0.97	0.82	0.42
Avail Cap(c_a), veh/h	280	0	0	942	171	1307
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	0.0	20.3	39.6	5.9
Incr Delay (d2), s/veh	43.9	0.0	0.0	22.4	25.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	0.0	20.1	4.0	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	81.1	0.0	0.0	42.7	65.2	6.1
LnGrp LOS	F	A	A	D	E	A
Approach Vol, veh/h	270		904			678
Approach Delay, s/veh	81.1		42.7			18.3
Approach LOS	F		D			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.4	54.0				68.4	21.0
Change Period (Y+Rc), s	5.8	6.5				6.5	6.5
Max Green Setting (Gmax), s	8.6	48.1				62.5	14.5
Max Q Clear Time (g_c+I1), s	8.9	46.7				13.1	15.9
Green Ext Time (p_c), s	0.0	0.8				3.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	4	794	15	10	643
Future Vol, veh/h	22	4	794	15	10	643
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	5	902	17	11	731

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1664	911	0	0	919	0
Stage 1	911	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	107	332	-	-	743	-
Stage 1	392	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	105	332	-	-	743	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	251	743	-
HCM Lane V/C Ratio	-	-	0.118	0.015	-
HCM Control Delay (s)	-	-	21.2	9.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

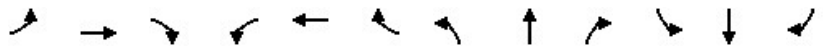
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	1634	352	278	1065	31	163	511	347	39	445	153
Future Volume (veh/h)	286	1634	352	278	1065	31	163	511	347	39	445	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	1757	378	299	1145	33	175	549	373	42	478	165
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	1670	745	304	1334	595	171	880	532	54	473	162
Arrive On Green	0.18	0.47	0.47	0.09	0.38	0.38	0.10	0.25	0.25	0.03	0.18	0.18
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1781	3554	1585	1781	2597	890
Grp Volume(v), veh/h	308	1757	378	299	1145	33	175	549	373	42	326	317
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1781	1777	1585	1781	1777	1710
Q Serve(g_s), s	25.6	70.5	24.9	13.0	44.5	2.0	14.4	20.6	30.7	3.5	27.3	27.3
Cycle Q Clear(g_c), s	25.6	70.5	24.9	13.0	44.5	2.0	14.4	20.6	30.7	3.5	27.3	27.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	325	1670	745	304	1334	595	171	880	532	54	323	311
V/C Ratio(X)	0.95	1.05	0.51	0.98	0.86	0.06	1.02	0.62	0.70	0.78	1.01	1.02
Avail Cap(c_a), veh/h	325	1670	745	304	1334	595	171	880	532	61	323	311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.6	39.8	27.7	68.3	43.2	29.9	67.8	50.2	43.3	72.2	61.3	61.4
Incr Delay (d2), s/veh	36.0	37.1	0.6	46.9	5.8	0.0	75.1	1.4	4.1	42.3	52.2	55.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	37.1	9.1	7.5	19.7	0.7	9.9	9.0	12.2	2.2	16.6	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.6	76.9	28.2	115.2	49.0	29.9	142.9	51.6	47.4	114.5	113.5	117.1
LnGrp LOS	F	F	C	F	D	C	F	D	D	F	F	F
Approach Vol, veh/h		2443			1477			1097			685	
Approach Delay, s/veh		71.8			62.0			64.7			115.2	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	43.6	19.0	77.0	20.2	33.8	33.2	62.8
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.1	36.6	13.2	70.5	14.4	27.3	27.4	56.3
Max Q Clear Time (g_c+I1), s	5.5	32.7	15.0	72.5	16.4	29.3	27.6	46.5
Green Ext Time (p_c), s	0.0	1.7	0.0	0.0	0.0	0.0	0.0	4.9

Intersection Summary	
HCM 6th Ctrl Delay	73.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	468	953	284	239	645	346	203	697	213	275	487	298
Future Volume (veh/h)	468	953	284	239	645	346	203	697	213	275	487	298
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	482	982	293	246	665	0	209	719	220	284	502	307
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1094	488	261	660		235	723	322	284	811	783
Arrive On Green	0.27	0.31	0.31	0.15	0.19	0.00	0.13	0.20	0.20	0.16	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	482	982	293	246	665	0	209	719	220	284	502	307
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	34.6	34.4	20.5	17.8	24.2	0.0	15.0	26.3	16.7	20.8	16.5	15.8
Cycle Q Clear(g_c), s	34.6	34.4	20.5	17.8	24.2	0.0	15.0	26.3	16.7	20.8	16.5	15.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	1094	488	261	660		235	723	322	284	811	783
V/C Ratio(X)	1.02	0.90	0.60	0.94	1.01		0.89	0.99	0.68	1.00	0.62	0.39
Avail Cap(c_a), veh/h	473	1094	488	261	660		271	723	322	284	811	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	43.1	38.3	55.1	53.0	0.0	55.6	51.8	48.0	54.7	45.2	20.7
Incr Delay (d2), s/veh	46.3	10.0	2.1	40.1	36.9	0.0	26.1	32.1	5.8	53.0	1.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.6	15.8	7.9	10.6	13.8	0.0	8.2	14.4	6.9	13.2	7.2	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.1	53.1	40.4	95.2	90.0	0.0	81.8	83.9	53.8	107.7	46.6	21.0
LnGrp LOS	F	D	D	F	F		F	F	D	F	D	C
Approach Vol, veh/h		1757			911	A		1148			1093	
Approach Delay, s/veh		62.2			91.4			77.8			55.3	
Approach LOS		E			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.2	33.0	24.5	46.6	23.0	36.2	40.4	30.7
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	30.8	26.5	19.1	39.8	19.8	* 27	34.6	* 24
Max Q Clear Time (g_c+I1), s	22.8	28.3	19.8	36.4	17.0	18.5	36.6	26.2
Green Ext Time (p_c), s	0.0	0.0	0.0	2.1	0.1	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	69.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	479	210	962	884	138
Future Volume (veh/h)	150	479	210	962	884	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	221	1013	931	145
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	201		273	1252	1274	198
Arrive On Green	0.11	0.00	0.15	0.67	0.41	0.41
Sat Flow, veh/h	1781	1585	1781	1870	3175	480
Grp Volume(v), veh/h	158	0	221	1013	537	539
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1870	1777	1784
Q Serve(g_s), s	4.9	0.0	6.8	22.1	14.3	14.4
Cycle Q Clear(g_c), s	4.9	0.0	6.8	22.1	14.3	14.4
Prop In Lane	1.00	1.00	1.00			0.27
Lane Grp Cap(c), veh/h	201		273	1252	735	737
V/C Ratio(X)	0.79		0.81	0.81	0.73	0.73
Avail Cap(c_a), veh/h	284		372	2275	1608	1614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	23.1	6.7	13.9	13.9
Incr Delay (d2), s/veh	9.2	0.0	9.2	1.3	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	3.0	3.0	4.3	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.6	0.0	32.3	8.0	15.3	15.3
LnGrp LOS	C		C	A	B	B
Approach Vol, veh/h	158	A		1234	1076	
Approach Delay, s/veh	33.6			12.4	15.3	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		44.3		12.2	14.5	29.8
Change Period (Y+Rc), s		6.5		5.8	5.8	6.5
Max Green Setting (Gmax), s		68.7		9.0	11.8	51.1
Max Q Clear Time (g_c+I1), s		24.1		6.9	8.8	16.4
Green Ext Time (p_c), s		8.9		0.1	0.2	7.0

Intersection Summary		
HCM 6th Ctrl Delay		15.0
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.

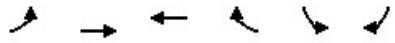
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	164	97	843	152	95	1341	
Future Volume (veh/h)	164	97	843	152	95	1341	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	178	105	916	165	103	1458	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	189	168	1025	185	127	1471	
Arrive On Green	0.11	0.11	0.66	0.66	0.07	0.79	
Sat Flow, veh/h	1781	1585	1542	278	1781	1870	
Grp Volume(v), veh/h	178	105	0	1081	103	1458	
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1820	1781	1870	
Q Serve(g_s), s	9.9	6.3	0.0	49.0	5.7	75.3	
Cycle Q Clear(g_c), s	9.9	6.3	0.0	49.0	5.7	75.3	
Prop In Lane	1.00	1.00		0.15	1.00		
Lane Grp Cap(c), veh/h	189	168	0	1210	127	1471	
V/C Ratio(X)	0.94	0.62	0.00	0.89	0.81	0.99	
Avail Cap(c_a), veh/h	189	168	0	1212	127	1474	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	44.3	42.7	0.0	13.8	45.7	10.3	
Incr Delay (d2), s/veh	48.8	7.0	0.0	8.8	31.8	21.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	6.9	2.8	0.0	19.4	3.6	27.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	93.1	49.7	0.0	22.6	77.5	31.5	
LnGrp LOS	F	D	A	C	E	C	
Approach Vol, veh/h	283		1081			1561	
Approach Delay, s/veh	77.0		22.6			34.5	
Approach LOS	E		C			C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	22.2	72.2				84.4	15.5
Change Period (Y+Rc), s	5.1	5.8				5.8	4.9
Max Green Setting (Gmax), s	17.1	66.5				78.7	10.6
Max Q Clear Time (g_c+I1), s	17.3	51.0				77.3	11.9
Green Ext Time (p_c), s	0.0	8.0				1.3	0.0

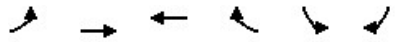
Intersection Summary	
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	308	1069	713	164	175	314
Future Volume (veh/h)	308	1069	713	164	175	314
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	335	1162	775	178	190	341
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	381	1249	1128	259	290	597
Arrive On Green	0.21	0.70	0.41	0.41	0.16	0.16
Sat Flow, veh/h	1781	1796	2846	633	1781	1585
Grp Volume(v), veh/h	335	1162	480	473	190	341
Grp Sat Flow(s),veh/h/ln	1781	1796	1706	1682	1781	1585
Q Serve(g_s), s	14.6	44.9	18.6	18.6	8.0	13.1
Cycle Q Clear(g_c), s	14.6	44.9	18.6	18.6	8.0	13.1
Prop In Lane	1.00			0.38	1.00	1.00
Lane Grp Cap(c), veh/h	381	1249	698	688	290	597
V/C Ratio(X)	0.88	0.93	0.69	0.69	0.65	0.57
Avail Cap(c_a), veh/h	514	1464	775	764	290	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	10.6	19.5	19.5	31.5	19.9
Incr Delay (d2), s/veh	12.7	9.9	2.2	2.3	5.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	13.4	6.7	6.6	3.8	12.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.3	20.5	21.8	21.8	36.7	21.2
LnGrp LOS	D	C	C	C	D	C
Approach Vol, veh/h		1497	953		531	
Approach Delay, s/veh		25.6	21.8		26.7	
Approach LOS		C	C		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	62.4	18.0	23.0	39.4
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	65.5	13.1	23.2	36.5
Max Q Clear Time (g_c+I1), s	46.9	15.1	16.6	20.6
Green Ext Time (p_c), s	9.0	0.0	0.5	5.0

Intersection Summary	
HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	1365	1009	18	12	53
Future Volume (veh/h)	88	1365	1009	18	12	53
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	1484	1097	20	13	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	123	1521	2420	44	17	74
Arrive On Green	0.07	0.81	0.68	0.68	0.06	0.06
Sat Flow, veh/h	1781	1870	3664	65	293	1306
Grp Volume(v), veh/h	96	1484	546	571	72	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1859	1621	0
Q Serve(g_s), s	4.6	62.8	12.5	12.5	3.8	0.0
Cycle Q Clear(g_c), s	4.6	62.8	12.5	12.5	3.8	0.0
Prop In Lane	1.00			0.04	0.18	0.81
Lane Grp Cap(c), veh/h	123	1521	1204	1260	92	0
V/C Ratio(X)	0.78	0.98	0.45	0.45	0.78	0.00
Avail Cap(c_a), veh/h	214	1549	1204	1260	113	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.1	7.4	6.6	6.6	40.8	0.0
Incr Delay (d2), s/veh	10.1	17.2	0.3	0.3	24.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	12.8	3.3	3.4	2.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.2	24.6	6.8	6.8	65.4	0.0
LnGrp LOS	D	C	A	A	E	A
Approach Vol, veh/h		1580	1117		72	
Approach Delay, s/veh		26.2	6.8		65.4	
Approach LOS		C	A		E	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	77.7	9.9	11.9	65.9
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	72.5	6.1	10.5	56.2
Max Q Clear Time (g_c+I1), s	64.8	5.8	6.6	14.5
Green Ext Time (p_c), s	6.4	0.0	0.1	7.8

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

MOVEMENT SUMMARY

Site: 16 [Coffee Rd / Claratina Rd (Site Folder: General)]

MITIG8 EPAP plus Project PM
2 Lane Roundabout
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Coffee Rd														
3	L2	228	3.0	235	3.0	0.854	33.1	LOS D	11.6	297.2	0.93	1.47	2.60	24.4
8	T1	849	3.0	875	3.0	0.854	33.1	LOS D	11.6	297.2	0.93	1.47	2.60	25.6
18	R2	22	3.0	23	3.0	0.854	33.1	LOS D	11.6	297.2	0.93	1.47	2.60	25.3
Approach		1099	3.0	1133	3.0	0.854	33.1	LOS D	11.6	297.2	0.93	1.47	2.60	25.3
East: Claratina Rd														
1	L2	25	3.0	26	3.0	0.450	17.9	LOS C	2.0	50.6	0.81	0.89	1.18	31.4
6	T1	313	3.0	323	3.0	0.450	17.9	LOS C	2.0	50.6	0.81	0.89	1.18	32.2
16	R2	24	3.0	25	3.0	0.450	17.9	LOS C	2.0	50.6	0.81	0.89	1.18	32.9
Approach		362	3.0	373	3.0	0.450	17.9	LOS C	2.0	50.6	0.81	0.89	1.18	32.2
North: Coffee Rd														
7	L2	82	3.0	85	3.0	0.687	17.3	LOS C	7.1	181.5	0.82	1.02	1.56	33.5
4	T1	849	3.0	875	3.0	0.687	17.3	LOS C	7.1	181.5	0.82	1.02	1.56	31.7
14	R2	133	3.0	137	3.0	0.687	17.3	LOS C	7.1	181.5	0.82	1.02	1.56	31.7
Approach		1064	3.0	1097	3.0	0.687	17.3	LOS C	7.1	181.5	0.82	1.02	1.56	31.8
West: Claratina Rd														
5	L2	167	3.0	172	3.0	0.851	37.7	LOS E	9.3	238.8	0.90	1.36	2.58	24.6
2	T1	508	3.0	524	3.0	0.851	37.7	LOS E	9.3	238.8	0.90	1.36	2.58	24.9
12	R2	229	3.0	236	3.0	0.851	37.7	LOS E	9.3	238.8	0.90	1.36	2.58	23.3
Approach		904	3.0	932	3.0	0.851	37.7	LOS E	9.3	238.8	0.90	1.36	2.58	24.4
All Vehicles		3429	3.0	3535	3.0	0.854	27.8	LOS D	11.6	297.2	0.88	1.24	2.12	27.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	49.5	75.7	26.4	27.5	46.5
Vehicles Entered	613	921	558	924	3016
Vehicles Exited	607	908	558	924	2997
Hourly Exit Rate	607	908	558	924	2997
Input Volume	605	925	550	930	3010
% of Volume	100	98	101	99	100
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	10.8	4.2	9.3
Vehicles Entered	456	1216	115	1787
Vehicles Exited	453	1216	114	1783
Hourly Exit Rate	453	1216	114	1783
Input Volume	455	1224	110	1788
% of Volume	100	99	104	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	1.0	0.0	0.0	0.4
Total Del/Veh (s)	7.2	9.2	20.9	10.3
Vehicles Entered	651	665	268	1584
Vehicles Exited	652	664	269	1585
Hourly Exit Rate	652	664	269	1585
Input Volume	640	672	270	1582
% of Volume	102	99	99	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

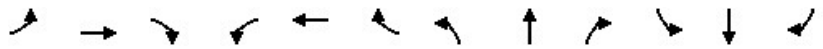
Denied Del/Veh (s)	1.3
Total Del/Veh (s)	1059.3
Vehicles Entered	974
Vehicles Exited	94
Hourly Exit Rate	94
Input Volume	6381
% of Volume	1
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Future Volume (veh/h)	20	85	135	185	165	25	205	420	55	15	500	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	89	-16	195	174	26	216	442	58	16	526	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	235	436	242	435	369	265	1084	141	41	748	37
Arrive On Green	0.03	0.13	0.00	0.14	0.23	0.23	0.15	0.34	0.34	0.02	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3160	413	1781	3446	170
Grp Volume(v), veh/h	21	89	-16	195	174	26	216	247	253	16	271	281
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1796	1781	1777	1840
Q Serve(g_s), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Cycle Q Clear(g_c), s	0.7	2.8	0.0	6.7	5.0	0.8	7.4	6.7	6.8	0.6	8.9	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		0.09
Lane Grp Cap(c), veh/h	52	235	436	242	435	369	265	609	616	41	386	399
V/C Ratio(X)	0.40	0.38	-0.04	0.80	0.40	0.07	0.81	0.41	0.41	0.39	0.70	0.70
Avail Cap(c_a), veh/h	169	237	437	355	435	369	383	1122	1134	169	908	941
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	25.3	0.0	26.5	20.5	18.9	26.0	15.8	15.9	30.4	22.8	22.9
Incr Delay (d2), s/veh	4.9	1.0	0.0	8.2	0.6	0.1	8.5	0.4	0.4	5.8	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.0	3.0	1.9	0.3	3.4	2.3	2.4	0.3	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	26.3	0.0	34.7	21.1	19.0	34.5	16.3	16.3	36.2	25.2	25.1
LnGrp LOS	D	C	A	C	C	B	C	B	B	D	C	C
Approach Vol, veh/h		94			395			716			568	
Approach Delay, s/veh		32.8			27.7			21.8			25.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	27.9	14.0	14.5	14.8	19.9	7.2	21.2
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	39.9	12.6	8.0	13.6	32.3	6.0	14.6
Max Q Clear Time (g_c+I1), s	2.6	8.8	8.7	4.8	9.4	10.9	2.7	7.0
Green Ext Time (p_c), s	0.0	2.7	0.2	0.1	0.2	2.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Future Volume (veh/h)	20	0	35	0	0	0	25	845	0	0	895	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	0	37	0	0	0	26	889	0	0	942	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	0	55	0	106	0	55	1350	0	4	1068	18
Arrive On Green	0.06	0.00	0.06	0.00	0.00	0.00	0.03	0.72	0.00	0.00	0.58	0.58
Sat Flow, veh/h	550	0	970	0	1870	0	1781	1870	0	1781	1834	31
Grp Volume(v), veh/h	58	0	0	0	0	0	26	889	0	0	0	958
Grp Sat Flow(s),veh/h/ln	1520	0	0	0	1870	0	1781	1870	0	1781	0	1865
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	0.0	0.7	11.8	0.0	0.0	0.0	20.7
Prop In Lane	0.36		0.64	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	190	0	0	0	106	0	55	1350	0	4	0	1086
V/C Ratio(X)	0.30	0.00	0.00	0.00	0.00	0.00	0.48	0.66	0.00	0.00	0.00	0.88
Avail Cap(c_a), veh/h	318	0	0	0	263	0	205	1350	0	190	0	1292
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	0.0	0.0	0.0	22.4	3.5	0.0	0.0	0.0	8.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.0	6.3	1.2	0.0	0.0	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	0.0	0.0	0.0	0.0	0.0	28.7	4.6	0.0	0.0	0.0	15.0
LnGrp LOS	C	A	A	A	A	A	C	A	A	A	A	B
Approach Vol, veh/h		58			0			915			958	
Approach Delay, s/veh		22.6			0.0			5.3			15.0	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	39.7		7.3	6.5	33.1		7.3				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	32.9		6.6	5.4	32.5		6.6				
Max Q Clear Time (g_c+I1), s	0.0	13.8		3.8	2.7	22.7		0.0				
Green Ext Time (p_c), s	0.0	6.0		0.0	0.0	4.6		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	10	670	865	10
Future Vol, veh/h	10	20	10	670	865	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	11	21	11	705	911	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1644	917	922	0	-	0
Stage 1	917	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	110	330	741	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	330	741	-	-	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	741	-	320	-	-
HCM Lane V/C Ratio	0.014	-	0.099	-	-
HCM Control Delay (s)	9.9	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	670	20	5	805
Future Vol, veh/h	40	10	670	20	5	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	42	11	705	21	5	847

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1573	716	0	0	726	0
Stage 1	716	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	121	430	-	-	877	-
Stage 1	484	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	120	430	-	-	877	-
Mov Cap-2 Maneuver	258	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	414	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	280	877	-
HCM Lane V/C Ratio	-	-	0.188	0.006	-
HCM Control Delay (s)	-	-	20.8	9.1	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	0	175	710	0	325	185	255	260	190	550	105
Future Volume (veh/h)	90	0	175	710	0	325	185	255	260	190	550	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	95	0	184	747	0	342	195	268	0	200	579	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	246	0	0	947	0	0	245	745		253	805	
Arrive On Green	0.08	0.00	0.00	0.27	0.00	0.00	0.15	0.22	0.00	0.15	0.24	0.00
Sat Flow, veh/h	3264	95		3456	747		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	95	21.8		747	18.4		195	268	0	200	579	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	B		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	1.3			9.5			5.3	3.1	0.0	5.3	7.4	0.0
Cycle Q Clear(g_c), s	1.3			9.5			5.3	3.1	0.0	5.3	7.4	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246			947			245	745		253	805	
V/C Ratio(X)	0.39			0.79			0.80	0.36		0.79	0.72	
Avail Cap(c_a), veh/h	345			1257			367	989		431	1104	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.8			15.9			19.5	15.7	0.0	19.4	16.6	0.0
Incr Delay (d2), s/veh	1.0			2.5			7.2	0.3	0.0	5.5	1.4	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4			3.0			2.3	1.1	0.0	2.1	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8			18.4			26.7	16.0	0.0	24.9	18.1	0.0
LnGrp LOS	C			B			C	B		C	B	
Approach Vol, veh/h								463	A		779	A
Approach Delay, s/veh								20.5			19.8	
Approach LOS								C			B	

Timer - Assigned Phs	1	2	3		5	6	7
Phs Duration (G+Y+Rc), s	12.4	16.1	18.8		11.6	16.9	9.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8		* 4.7	5.8	5.8
Max Green Setting (Gmax), s	11.9	* 14	17.2		* 10	15.3	5.0
Max Q Clear Time (g_c+I1), s	7.3	5.1	11.5		7.3	9.4	3.3
Green Ext Time (p_c), s	0.2	1.0	1.5		0.1	1.8	0.0

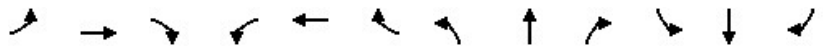
Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	155	60	300	460	10	270	45	135	30	70	40
Future Volume (veh/h)	25	155	60	300	460	10	270	45	135	30	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	163	63	316	484	11	284	47	142	32	74	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	203	79	369	613	14	333	99	300	71	106	60
Arrive On Green	0.03	0.16	0.16	0.21	0.34	0.34	0.19	0.24	0.24	0.04	0.09	0.09
Sat Flow, veh/h	1781	1285	496	1781	1822	41	1781	410	1238	1781	1120	636
Grp Volume(v), veh/h	26	0	226	316	0	495	284	0	189	32	0	116
Grp Sat Flow(s),veh/h/ln	1781	0	1781	1781	0	1863	1781	0	1648	1781	0	1756
Q Serve(g_s), s	1.0	0.0	8.5	11.9	0.0	16.7	10.7	0.0	6.8	1.2	0.0	4.5
Cycle Q Clear(g_c), s	1.0	0.0	8.5	11.9	0.0	16.7	10.7	0.0	6.8	1.2	0.0	4.5
Prop In Lane	1.00		0.28	1.00		0.02	1.00		0.75	1.00		0.36
Lane Grp Cap(c), veh/h	51	0	282	369	0	627	333	0	399	71	0	167
V/C Ratio(X)	0.51	0.00	0.80	0.86	0.00	0.79	0.85	0.00	0.47	0.45	0.00	0.70
Avail Cap(c_a), veh/h	128	0	422	542	0	874	440	0	513	153	0	264
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	28.3	26.7	0.0	20.9	27.4	0.0	22.6	32.7	0.0	30.6
Incr Delay (d2), s/veh	7.9	0.0	6.6	8.9	0.0	3.3	11.8	0.0	0.9	4.4	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	3.7	5.3	0.0	6.5	5.4	0.0	2.6	0.6	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	34.9	35.6	0.0	24.2	39.2	0.0	23.5	37.2	0.0	35.7
LnGrp LOS	D	A	C	D	A	C	D	A	C	D	A	D
Approach Vol, veh/h		252			811			473			148	
Approach Delay, s/veh		35.5			28.6			32.9			36.0	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	23.4	20.2	17.5	18.8	13.1	7.8	30.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.8	21.7	21.2	16.5	17.2	10.5	5.0	32.7
Max Q Clear Time (g_c+I1), s	3.2	8.8	13.9	10.5	12.7	6.5	3.0	18.7
Green Ext Time (p_c), s	0.0	0.8	0.5	0.5	0.3	0.2	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	720	5	5	1195	5	5
Future Vol, veh/h	720	5	5	1195	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	758	5	5	1258	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	763	0	2029	761
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	1268	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	850	-	63	405
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	265	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	850	-	63	405
Mov Cap-2 Maneuver	-	-	-	-	179	-
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	263	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	-	-	850	-
HCM Lane V/C Ratio	0.042	-	-	0.006	-
HCM Control Delay (s)	20.2	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

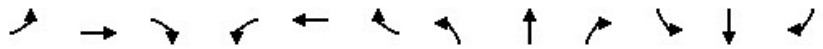
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	580	145	110	1030	170	105
Future Volume (veh/h)	580	145	110	1030	170	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1870	1870	1796	1870	1870
Adj Flow Rate, veh/h	611	153	116	1084	179	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	2	2	7	2	2
Cap, veh/h	684	171	147	1167	204	126
Arrive On Green	0.49	0.49	0.08	0.65	0.19	0.19
Sat Flow, veh/h	1387	347	1781	1796	1046	649
Grp Volume(v), veh/h	0	764	116	1084	291	0
Grp Sat Flow(s),veh/h/ln	0	1734	1781	1796	1701	0
Q Serve(g_s), s	0.0	31.5	5.0	42.1	13.1	0.0
Cycle Q Clear(g_c), s	0.0	31.5	5.0	42.1	13.1	0.0
Prop In Lane		0.20	1.00		0.62	0.38
Lane Grp Cap(c), veh/h	0	856	147	1167	331	0
V/C Ratio(X)	0.00	0.89	0.79	0.93	0.88	0.00
Avail Cap(c_a), veh/h	0	999	185	1354	392	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	18.1	35.5	12.2	30.9	0.0
Incr Delay (d2), s/veh	0.0	9.3	16.2	10.5	17.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.2	2.7	14.0	6.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	27.4	51.8	22.7	48.6	0.0
LnGrp LOS	A	C	D	C	D	A
Approach Vol, veh/h	764			1200	291	
Approach Delay, s/veh	27.4			25.5	48.6	
Approach LOS	C			C	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		21.2	12.3	45.5		57.8
Change Period (Y+Rc), s		5.8	5.8	6.5		6.5
Max Green Setting (Gmax), s		18.2	8.2	45.5		59.5
Max Q Clear Time (g_c+I1), s		15.1	7.0	33.5		44.1
Green Ext Time (p_c), s		0.3	0.0	3.9		7.2

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Future Volume (veh/h)	100	550	95	275	620	50	160	60	155	70	115	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	579	100	289	653	53	168	63	163	74	121	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	137	772	133	445	1015	82	218	375	318	104	243	206
Arrive On Green	0.08	0.27	0.27	0.13	0.32	0.32	0.12	0.20	0.20	0.06	0.13	0.13
Sat Flow, veh/h	1781	2911	501	3456	3197	259	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	105	339	340	289	348	358	168	63	163	74	121	111
Grp Sat Flow(s),veh/h/ln	1781	1706	1706	1728	1706	1750	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Cycle Q Clear(g_c), s	3.6	11.2	11.3	4.9	10.8	10.8	5.6	1.7	5.6	2.5	3.7	4.0
Prop In Lane	1.00		0.29	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	453	453	445	542	555	218	375	318	104	243	206
V/C Ratio(X)	0.77	0.75	0.75	0.65	0.64	0.64	0.77	0.17	0.51	0.71	0.50	0.54
Avail Cap(c_a), veh/h	347	711	711	729	758	778	471	622	527	272	422	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	20.8	20.8	25.5	18.0	18.1	26.2	20.4	22.0	28.5	25.0	25.1
Incr Delay (d2), s/veh	8.7	2.5	2.5	1.6	1.3	1.3	5.7	0.2	1.3	8.7	1.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.1	4.1	2.0	3.9	4.0	2.5	0.7	2.0	1.3	1.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	23.3	23.3	27.1	19.3	19.3	31.9	20.6	23.2	37.2	26.5	27.3
LnGrp LOS	D	C	C	C	B	B	C	C	C	D	C	C
Approach Vol, veh/h		784			995			394			306	
Approach Delay, s/veh		25.1			21.6			26.5			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	18.2	13.0	22.2	12.6	13.8	9.8	25.4
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 9.4	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.5	7.6	6.9	13.3	7.6	6.0	5.6	12.8
Green Ext Time (p_c), s	0.1	0.6	0.5	3.1	0.3	0.6	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	225	125	150	15	35	220
Future Vol, veh/h	225	125	150	15	35	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	132	158	16	37	232

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	472	166	0	0	174	0
Stage 1	166	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	551	878	-	-	1403	-
Stage 1	863	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	534	878	-	-	1403	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	621	1403	-
HCM Lane V/C Ratio	-	-	0.593	0.026	-
HCM Control Delay (s)	-	-	18.9	7.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.9	0.1	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	150	55	270	55	25	590
Future Vol, veh/h	150	55	270	55	25	590
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	58	284	58	26	621

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	986	313	0	0	342	0
Stage 1	313	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	275	727	-	-	1217	-
Stage 1	741	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	269	727	-	-	1217	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	441	1217	-
HCM Lane V/C Ratio	-	-	0.489	0.022	-
HCM Control Delay (s)	-	-	20.7	8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0.1	-

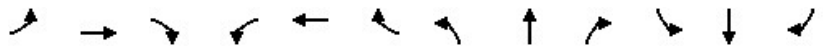
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Future Volume (veh/h)	40	180	230	100	90	50	160	380	30	20	445	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	189	242	105	95	53	168	400	32	21	468	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	370	314	135	262	146	221	506	40	44	673	37
Arrive On Green	0.04	0.20	0.20	0.08	0.23	0.23	0.12	0.30	0.30	0.02	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	1128	629	1781	1709	137	1781	3423	190
Grp Volume(v), veh/h	42	189	242	105	0	148	168	0	432	21	242	252
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1757	1781	0	1846	1781	1777	1836
Q Serve(g_s), s	1.4	5.5	8.8	3.5	0.0	4.3	5.5	0.0	13.0	0.7	7.7	7.7
Cycle Q Clear(g_c), s	1.4	5.5	8.8	3.5	0.0	4.3	5.5	0.0	13.0	0.7	7.7	7.7
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.07	1.00		0.10
Lane Grp Cap(c), veh/h	74	370	314	135	0	407	221	0	546	44	349	361
V/C Ratio(X)	0.56	0.51	0.77	0.78	0.00	0.36	0.76	0.00	0.79	0.48	0.69	0.70
Avail Cap(c_a), veh/h	176	373	316	212	0	407	300	0	947	147	759	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	21.7	23.0	27.5	0.0	19.5	25.7	0.0	19.6	29.2	22.7	22.7
Incr Delay (d2), s/veh	6.5	1.1	11.1	9.2	0.0	0.5	7.5	0.0	2.6	7.9	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.1	3.7	1.6	0.0	1.5	2.5	0.0	4.8	0.4	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	22.8	34.1	36.7	0.0	20.1	33.2	0.0	22.2	37.1	25.2	25.1
LnGrp LOS	D	C	C	D	A	C	C	A	C	D	C	C
Approach Vol, veh/h		473			253			600			515	
Approach Delay, s/veh		29.7			27.0			25.3			25.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	24.5	10.4	18.5	13.3	18.4	8.3	20.6
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	31.1	7.2	12.1	10.2	25.9	6.0	13.3
Max Q Clear Time (g_c+I1), s	2.7	15.0	5.5	10.8	7.5	9.7	3.4	6.3
Green Ext Time (p_c), s	0.0	2.0	0.0	0.3	0.1	2.2	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Future Volume (veh/h)	90	25	150	40	55	85	65	165	35	45	310	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	26	158	42	58	89	68	174	37	47	326	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	372	315	80	315	267	111	761	158	87	449	380
Arrive On Green	0.08	0.20	0.20	0.04	0.17	0.17	0.06	0.26	0.26	0.05	0.24	0.24
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2928	609	1781	1870	1585
Grp Volume(v), veh/h	95	26	158	42	58	89	68	104	107	47	326	74
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1761	1781	1870	1585
Q Serve(g_s), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Cycle Q Clear(g_c), s	2.5	0.5	4.2	1.1	1.3	2.3	1.8	2.2	2.3	1.2	7.6	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	134	372	315	80	315	267	111	462	458	87	449	380
V/C Ratio(X)	0.71	0.07	0.50	0.53	0.18	0.33	0.61	0.23	0.23	0.54	0.73	0.19
Avail Cap(c_a), veh/h	189	436	370	204	476	403	219	980	971	215	1031	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	15.3	16.8	22.0	16.8	17.3	21.5	13.7	13.7	21.9	16.5	14.3
Incr Delay (d2), s/veh	6.8	0.1	1.2	5.3	0.3	0.7	5.3	0.2	0.3	5.2	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.2	1.4	0.5	0.5	0.8	0.8	0.7	0.7	0.6	2.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	15.4	18.0	27.3	17.1	18.0	26.9	14.0	14.0	27.1	18.8	14.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		279			189			279			447	
Approach Delay, s/veh		21.2			19.8			17.1			18.9	
Approach LOS		C			B			B			B	

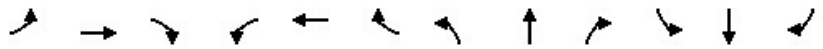
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.4	18.5	6.8	14.5	8.3	17.5	8.3	13.0
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	5.3	26.0	* 5.4	* 11	5.8	* 26	* 5	12.0
Max Q Clear Time (g_c+I1), s	3.3	4.3	3.1	6.2	3.8	9.6	4.5	4.3
Green Ext Time (p_c), s	0.0	0.9	0.0	0.3	0.0	1.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Future Volume (veh/h)	90	50	145	350	35	85	145	340	235	100	810	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	53	153	368	37	0	153	358	247	105	853	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	545	243	433	345		188	1211	540	135	974	120
Arrive On Green	0.09	0.15	0.15	0.13	0.18	0.00	0.11	0.34	0.34	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	1781	3554	1585	1781	3185	392
Grp Volume(v), veh/h	95	53	153	368	37	0	153	358	247	105	476	482
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1781	1777	1585	1781	1777	1800
Q Serve(g_s), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Cycle Q Clear(g_c), s	4.0	1.0	7.1	8.1	1.3	0.0	6.6	5.8	9.5	4.5	19.8	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	159	545	243	433	345		188	1211	540	135	543	550
V/C Ratio(X)	0.60	0.10	0.63	0.85	0.11		0.81	0.30	0.46	0.78	0.88	0.88
Avail Cap(c_a), veh/h	185	546	243	433	345		189	1211	540	235	591	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	28.4	31.0	33.4	26.5	0.0	34.2	18.9	20.1	35.5	25.7	25.7
Incr Delay (d2), s/veh	3.9	0.1	5.1	14.7	0.1	0.0	22.9	0.1	0.6	9.3	13.2	13.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.4	2.8	4.0	0.5	0.0	3.8	2.1	3.2	2.2	9.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	28.5	36.1	48.1	26.6	0.0	57.0	19.0	20.7	44.7	38.9	38.7
LnGrp LOS	D	C	D	D	C		E	B	C	D	D	D
Approach Vol, veh/h		301			405	A		758			1063	
Approach Delay, s/veh		35.4			46.1			27.2			39.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	33.1	15.2	18.5	14.1	30.4	12.8	20.9
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	24.1	9.8	12.0	8.3	* 26	8.1	* 14
Max Q Clear Time (g_c+I1), s	6.5	11.5	10.1	9.1	8.6	21.8	6.0	3.3
Green Ext Time (p_c), s	0.1	2.3	0.0	0.2	0.0	2.0	0.0	0.1

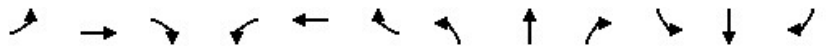
Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Future Volume (veh/h)	385	285	295	35	550	35	875	400	80	35	600	460
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
Arrive On Green	0.12	0.25	0.25	0.04	0.17	0.17	0.26	0.41	0.41	0.05	0.20	0.20
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	405	300	311	37	579	37	921	421	84	37	632	484
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Cycle Q Clear(g_c), s	11.6	6.9	11.9	1.0	16.3	2.0	26.4	7.9	3.3	1.0	17.3	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	429	890	815	133	586	262	912	1470	656	178	714	515
V/C Ratio(X)	0.95	0.34	0.38	0.28	0.99	0.14	1.01	0.29	0.13	0.21	0.88	0.94
Avail Cap(c_a), veh/h	429	890	815	207	586	262	912	1470	656	276	714	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	30.7	14.7	46.7	41.6	35.7	36.8	19.5	18.2	45.5	38.8	32.8
Incr Delay (d2), s/veh	29.9	0.2	0.3	1.1	33.9	0.2	32.2	0.1	0.1	0.6	12.7	25.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.8	3.7	0.4	9.4	0.7	14.2	3.0	1.1	0.4	8.2	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	30.9	15.0	47.8	75.5	35.9	69.0	19.6	18.2	46.1	51.6	58.2
LnGrp LOS	E	C	B	D	E	D	F	B	B	D	D	E
Approach Vol, veh/h		1016			653			1426			1153	
Approach Delay, s/veh		43.0			71.7			51.4			54.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	47.9	9.7	31.5	32.2	26.6	18.2	23.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.0	38.5	6.0	22.9	26.4	20.1	12.4	16.5
Max Q Clear Time (g_c+I1), s	3.0	9.9	3.0	13.9	28.4	22.1	13.6	18.3
Green Ext Time (p_c), s	0.0	2.7	0.0	1.9	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.


ry Ave
add Rd
Ladd Rd
108
Patterson
Patterson Rd Bypass

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.0	0.0	0.1
Total Del/Veh (s)	53.6	46.1	37.8	35.5	41.9
Vehicles Entered	758	638	735	1322	3453
Vehicles Exited	753	636	732	1317	3438
Hourly Exit Rate	753	636	732	1317	3438
Input Volume	749	640	730	1356	3476
% of Volume	101	99	100	97	99
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.0	7.4	8.3	11.4
Vehicles Entered	896	831	273	2000
Vehicles Exited	892	830	273	1995
Hourly Exit Rate	892	830	273	1995
Input Volume	905	826	270	2000
% of Volume	99	101	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	10.2	17.2	8.3
Vehicles Entered	987	737	131	1855
Vehicles Exited	987	737	132	1856
Hourly Exit Rate	987	737	132	1856
Input Volume	980	750	130	1860
% of Volume	101	98	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

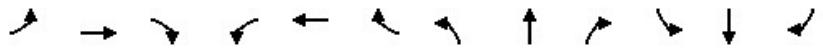
Total Zone Performance

Denied Del/Veh (s)	3.1
Total Del/Veh (s)	938.7
Vehicles Entered	120
Vehicles Exited	113
Hourly Exit Rate	113
Input Volume	7336
% of Volume	2
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	170	470	145	110	15	130	565	155	55	670	30
Future Volume (veh/h)	25	170	470	145	110	15	130	565	155	55	670	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	179	337	153	116	16	137	595	163	58	705	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	401	492	189	537	455	171	843	230	101	920	42
Arrive On Green	0.03	0.21	0.21	0.11	0.29	0.29	0.10	0.31	0.31	0.06	0.27	0.27
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2758	754	1781	3462	157
Grp Volume(v), veh/h	26	179	337	153	116	16	137	383	375	58	362	375
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1735	1781	1777	1842
Q Serve(g_s), s	1.1	6.2	13.8	6.2	3.5	0.5	5.6	14.1	14.2	2.4	13.9	13.9
Cycle Q Clear(g_c), s	1.1	6.2	13.8	6.2	3.5	0.5	5.6	14.1	14.2	2.4	13.9	13.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		0.09
Lane Grp Cap(c), veh/h	60	401	492	189	537	455	171	543	530	101	472	490
V/C Ratio(X)	0.43	0.45	0.68	0.81	0.22	0.04	0.80	0.71	0.71	0.58	0.77	0.77
Avail Cap(c_a), veh/h	144	407	497	202	537	455	183	835	815	173	826	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	25.3	22.4	32.3	20.1	19.0	32.8	22.8	22.8	34.1	25.1	25.1
Incr Delay (d2), s/veh	4.9	0.8	3.8	20.1	0.2	0.0	20.7	1.7	1.8	5.1	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.5	4.9	3.5	1.3	0.2	3.2	5.4	5.3	1.1	5.5	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	26.1	26.2	52.4	20.3	19.0	53.4	24.4	24.5	39.2	27.7	27.6
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		542			285			895			795	
Approach Delay, s/veh		26.8			37.5			28.9			28.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	28.8	13.3	22.4	12.5	25.9	7.9	27.8
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	7.2	34.8	8.4	16.1	7.6	34.4	6.0	18.5
Max Q Clear Time (g_c+I1), s	4.4	16.2	8.2	15.8	7.6	15.9	3.1	5.5
Green Ext Time (p_c), s	0.0	4.0	0.0	0.1	0.0	3.8	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	55	0	0	0	50	895	0	0	1300	30
Future Volume (veh/h)	25	0	55	0	0	0	50	895	0	0	1300	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	0	58	0	0	0	53	942	0	0	1368	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	3	56	0	99	0	69	1575	0	2	1368	32
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.04	0.84	0.00	0.00	0.75	0.75
Sat Flow, veh/h	419	59	1066	0	1870	0	1781	1870	0	1781	1820	43
Grp Volume(v), veh/h	84	0	0	0	0	0	53	942	0	0	0	1400
Grp Sat Flow(s),veh/h/ln	1544	0	0	0	1870	0	1781	1870	0	1781	0	1863
Q Serve(g_s), s	4.6	0.0	0.0	0.0	0.0	0.0	2.9	15.8	0.0	0.0	0.0	74.2
Cycle Q Clear(g_c), s	5.2	0.0	0.0	0.0	0.0	0.0	2.9	15.8	0.0	0.0	0.0	74.2
Prop In Lane	0.31		0.69	0.00		0.00	1.00		0.00	1.00		0.02
Lane Grp Cap(c), veh/h	129	0	0	0	99	0	69	1575	0	2	0	1400
V/C Ratio(X)	0.65	0.00	0.00	0.00	0.00	0.00	0.77	0.60	0.00	0.00	0.00	1.00
Avail Cap(c_a), veh/h	129	0	0	0	99	0	92	1575	0	90	0	1400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	0.0	0.0	0.0	0.0	47.0	2.5	0.0	0.0	0.0	12.3
Incr Delay (d2), s/veh	11.0	0.0	0.0	0.0	0.0	0.0	23.5	0.6	0.0	0.0	0.0	24.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	0.0	0.0	0.0	1.7	1.8	0.0	0.0	0.0	27.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	0.0	0.0	0.0	0.0	70.5	3.1	0.0	0.0	0.0	36.3
LnGrp LOS	E	A	A	A	A	A	E	A	A	A	A	F
Approach Vol, veh/h		84			0			995			1400	
Approach Delay, s/veh		57.8			0.0			6.7			36.3	
Approach LOS		E						A			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	88.9		9.8	8.9	80.0		9.8				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.0	74.3		5.2	5.1	74.2		5.2				
Max Q Clear Time (g_c+I1), s	10.0	17.8		7.2	4.9	76.2		0.0				
Green Ext Time (p_c), s	0.0	8.6		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	30	900	1000	10
Future Vol, veh/h	5	20	30	900	1000	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	500	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	7	7	2
Mvmt Flow	5	21	32	947	1053	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2070	1059	1064	0	-	0
Stage 1	1059	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	59	273	655	-	-	-
Stage 1	333	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	56	273	655	-	-	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	655	-	263	-	-
HCM Lane V/C Ratio	0.048	-	0.1	-	-
HCM Control Delay (s)	10.8	-	20.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	10	810	40	10	1195
Future Vol, veh/h	40	10	810	40	10	1195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	42	11	853	42	11	1258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2154	874	0	0	895	0
Stage 1	874	-	-	-	-	-
Stage 2	1280	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	53	349	-	-	758	-
Stage 1	408	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	52	349	-	-	758	-
Mov Cap-2 Maneuver	166	-	-	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	257	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	185	758	-
HCM Lane V/C Ratio	-	-	0.284	0.014	-
HCM Control Delay (s)	-	-	32	9.8	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	0	305	340	0	150	320	545	750	485	625	125
Future Volume (veh/h)	155	0	305	340	0	150	320	545	750	485	625	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	0	1767	1870	0	1796	1767	1796	1870	1796	1796	1767
Adj Flow Rate, veh/h	163	0	321	358	0	158	337	574	0	511	658	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	0	9	2	0	7	9	7	2	7	7	9
Cap, veh/h	265	0	0	484	0	0	400	762		579	1147	
Arrive On Green	0.08	0.00	0.00	0.14	0.00	0.00	0.24	0.22	0.00	0.34	0.34	0.00
Sat Flow, veh/h	3264	163		3456	358		1682	3413	1585	1711	3413	1497
Grp Volume(v), veh/h	163	27.7		358	26.8		337	574	0	511	658	0
Grp Sat Flow(s),veh/h/ln	1632	C		1728	C		1682	1706	1585	1711	1706	1497
Q Serve(g_s), s	2.8			5.7			10.9	9.0	0.0	16.1	9.0	0.0
Cycle Q Clear(g_c), s	2.8			5.7			10.9	9.0	0.0	16.1	9.0	0.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265			484			400	762		579	1147	
V/C Ratio(X)	0.62			0.74			0.84	0.75		0.88	0.57	
Avail Cap(c_a), veh/h	527			631			679	988		849	1305	
HCM Platoon Ratio	1.00			1.00			1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00			1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.3			23.5			20.7	20.7	0.0	17.8	15.6	0.0
Incr Delay (d2), s/veh	2.3			3.3			4.8	2.4	0.0	7.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0			2.1			4.3	3.4	0.0	6.3	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7			26.8			25.5	23.1	0.0	25.4	16.0	0.0
LnGrp LOS	C			C			C	C		C	B	
Approach Vol, veh/h								911	A		1169	A
Approach Delay, s/veh								24.0			20.1	
Approach LOS								C			C	

Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	24.7	18.5	13.8	18.3	25.0	10.4
Change Period (Y+Rc), s	5.4	* 5.8	5.8	* 4.7	5.8	5.8
Max Green Setting (Gmax), s	28.3	* 17	10.4	* 23	21.8	9.2
Max Q Clear Time (g_c+I1), s	18.1	11.0	7.7	12.9	11.0	4.8
Green Ext Time (p_c), s	1.2	1.8	0.3	0.8	3.0	0.2

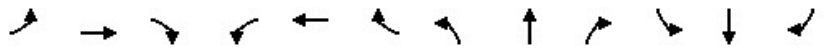
Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	415	135	180	270	15	105	85	210	25	55	25
Future Volume (veh/h)	25	415	135	180	270	15	105	85	210	25	55	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	437	142	189	284	16	111	89	221	26	58	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	466	151	225	778	44	141	98	244	58	195	88
Arrive On Green	0.03	0.34	0.34	0.13	0.44	0.44	0.08	0.21	0.21	0.03	0.16	0.16
Sat Flow, veh/h	1781	1352	439	1781	1754	99	1781	476	1182	1781	1223	548
Grp Volume(v), veh/h	26	0	579	189	0	300	111	0	310	26	0	84
Grp Sat Flow(s),veh/h/ln	1781	0	1791	1781	0	1853	1781	0	1658	1781	0	1772
Q Serve(g_s), s	1.2	0.0	26.5	8.8	0.0	9.1	5.2	0.0	15.5	1.2	0.0	3.5
Cycle Q Clear(g_c), s	1.2	0.0	26.5	8.8	0.0	9.1	5.2	0.0	15.5	1.2	0.0	3.5
Prop In Lane	1.00		0.25	1.00		0.05	1.00		0.71	1.00		0.31
Lane Grp Cap(c), veh/h	48	0	617	225	0	822	141	0	342	58	0	283
V/C Ratio(X)	0.54	0.00	0.94	0.84	0.00	0.36	0.79	0.00	0.91	0.45	0.00	0.30
Avail Cap(c_a), veh/h	118	0	645	240	0	822	189	0	343	126	0	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	26.9	36.2	0.0	15.6	38.3	0.0	32.8	40.2	0.0	31.4
Incr Delay (d2), s/veh	9.1	0.0	21.1	21.7	0.0	0.3	14.5	0.0	26.6	5.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	13.4	4.9	0.0	3.3	2.8	0.0	8.5	0.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	0.0	47.9	57.9	0.0	15.9	52.8	0.0	59.4	45.6	0.0	32.0
LnGrp LOS	D	A	D	E	A	B	D	A	E	D	A	C
Approach Vol, veh/h		605			489			421			110	
Approach Delay, s/veh		48.0			32.1			57.7			35.2	
Approach LOS		D			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	24.0	16.5	35.7	12.5	20.0	8.1	44.1
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	6.8	17.5	11.4	30.5	9.0	14.5	5.6	36.3
Max Q Clear Time (g_c+I1), s	3.2	17.5	10.8	28.5	7.2	5.5	3.2	11.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.2	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	44.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1000	10	15	815	10	15
Future Vol, veh/h	1000	10	15	815	10	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1053	11	16	858	11	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1064	0	1949	1059
Stage 1	-	-	-	-	1059	-
Stage 2	-	-	-	-	890	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	655	-	71	273
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	655	-	69	273
Mov Cap-2 Maneuver	-	-	-	-	195	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	22.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	235	-	-	655	-
HCM Lane V/C Ratio	0.112	-	-	0.024	-
HCM Control Delay (s)	22.2	-	-	10.6	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

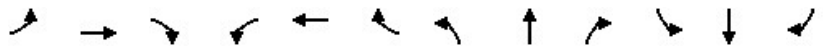
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	700	175	70	800	80	100
Future Volume (veh/h)	700	175	70	800	80	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1796	1870	1870	1796	1870	1870
Adj Flow Rate, veh/h	737	184	74	842	84	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	2	2	7	2	2
Cap, veh/h	795	199	109	1272	100	125
Arrive On Green	0.57	0.57	0.06	0.71	0.14	0.14
Sat Flow, veh/h	1388	346	1781	1796	737	922
Grp Volume(v), veh/h	0	921	74	842	190	0
Grp Sat Flow(s),veh/h/ln	0	1734	1781	1796	1668	0
Q Serve(g_s), s	0.0	38.1	3.2	20.3	8.8	0.0
Cycle Q Clear(g_c), s	0.0	38.1	3.2	20.3	8.8	0.0
Prop In Lane		0.20	1.00		0.44	0.55
Lane Grp Cap(c), veh/h	0	994	109	1272	227	0
V/C Ratio(X)	0.00	0.93	0.68	0.66	0.84	0.00
Avail Cap(c_a), veh/h	0	1156	142	1473	277	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	15.3	36.2	6.3	33.2	0.0
Incr Delay (d2), s/veh	0.0	11.5	8.2	0.9	17.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.1	1.5	4.5	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	26.8	44.4	7.2	50.2	0.0
LnGrp LOS	A	C	D	A	D	A
Approach Vol, veh/h	921			916	190	
Approach Delay, s/veh	26.8			10.2	50.2	
Approach LOS	C			B	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		16.5	10.6	51.7		62.3
Change Period (Y+Rc), s		5.8	5.8	6.5		6.5
Max Green Setting (Gmax), s		13.1	6.3	52.5		64.6
Max Q Clear Time (g_c+I1), s		10.8	5.2	40.1		22.3
Green Ext Time (p_c), s		0.1	0.0	5.1		6.5

Intersection Summary	
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	685	185	465	450	50	200	130	145	60	140	50
Future Volume (veh/h)	110	685	185	465	450	50	200	130	145	60	140	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	721	195	489	474	53	211	137	153	63	147	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	149	815	220	567	1200	134	254	387	328	85	200	170
Arrive On Green	0.08	0.31	0.31	0.16	0.39	0.39	0.14	0.21	0.21	0.05	0.11	0.11
Sat Flow, veh/h	1781	2655	718	3456	3096	345	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	116	463	453	489	260	267	211	137	153	63	147	53
Grp Sat Flow(s),veh/h/ln	1781	1706	1667	1728	1706	1734	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	5.0	20.2	20.2	10.7	8.6	8.7	9.0	4.9	6.6	2.7	5.9	2.4
Cycle Q Clear(g_c), s	5.0	20.2	20.2	10.7	8.6	8.7	9.0	4.9	6.6	2.7	5.9	2.4
Prop In Lane	1.00		0.43	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	523	511	567	661	672	254	387	328	85	200	170
V/C Ratio(X)	0.78	0.89	0.89	0.86	0.39	0.40	0.83	0.35	0.47	0.74	0.73	0.31
Avail Cap(c_a), veh/h	274	562	549	576	661	672	372	491	416	215	333	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	25.7	25.7	31.7	17.3	17.3	32.5	26.5	27.1	36.7	33.8	32.2
Incr Delay (d2), s/veh	8.6	14.9	15.2	12.6	0.4	0.4	9.9	0.5	1.0	11.9	5.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	9.4	9.3	5.3	3.2	3.3	4.3	2.1	2.5	1.4	2.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	40.6	40.9	44.3	17.7	17.7	42.4	27.0	28.2	48.6	38.9	33.2
LnGrp LOS	D	D	D	D	B	B	D	C	C	D	D	C
Approach Vol, veh/h		1032			1016			501			263	
Approach Delay, s/veh		41.1			30.5			33.9			40.1	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	22.0	17.9	29.7	16.2	14.2	11.6	36.0
Change Period (Y+Rc), s	* 4.7	5.8	5.1	5.8	5.1	* 5.8	5.1	* 5.8
Max Green Setting (Gmax), s	* 3.6	20.5	13.0	25.7	16.3	* 14	12.0	* 27
Max Q Clear Time (g_c+I1), s	4.7	8.6	12.7	22.2	11.0	7.9	7.0	10.7
Green Ext Time (p_c), s	0.0	0.9	0.1	1.8	0.3	0.4	0.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	45	135	265	75	170
Future Vol, veh/h	165	45	135	265	75	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	174	47	142	279	79	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	619	282	0	0	421	0
Stage 1	282	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	452	757	-	-	1138	-
Stage 1	766	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	417	757	-	-	1138	-
Mov Cap-2 Maneuver	417	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	2.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	461	1138	-
HCM Lane V/C Ratio	-	-	0.48	0.069	-
HCM Control Delay (s)	-	-	19.8	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.2	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	120	35	685	185	45	440
Future Vol, veh/h	120	35	685	185	45	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	37	721	195	47	463

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1376	819	0	0	916	0
Stage 1	819	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	160	375	-	-	745	-
Stage 1	433	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	150	375	-	-	745	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.1	0	0.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	302	745	-
HCM Lane V/C Ratio	-	-	0.54	0.064	-
HCM Control Delay (s)	-	-	30.1	10.2	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	3	0.2	-

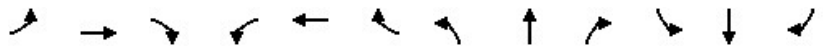
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	415	170	140	405	25	225	500	45	45	415	40
Future Volume (veh/h)	35	415	170	140	405	25	225	500	45	45	415	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	437	179	147	426	26	237	526	47	47	437	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	462	391	169	537	33	260	565	51	70	745	71
Arrive On Green	0.03	0.25	0.25	0.09	0.31	0.31	0.15	0.33	0.33	0.04	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1745	106	1781	1692	151	1781	3277	314
Grp Volume(v), veh/h	37	437	179	147	0	452	237	0	573	47	236	243
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1851	1781	0	1843	1781	1777	1814
Q Serve(g_s), s	1.8	19.8	8.3	7.0	0.0	19.3	11.3	0.0	25.9	2.2	10.2	10.3
Cycle Q Clear(g_c), s	1.8	19.8	8.3	7.0	0.0	19.3	11.3	0.0	25.9	2.2	10.2	10.3
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.08	1.00		0.17
Lane Grp Cap(c), veh/h	61	462	391	169	0	570	260	0	616	70	404	412
V/C Ratio(X)	0.61	0.95	0.46	0.87	0.00	0.79	0.91	0.00	0.93	0.67	0.58	0.59
Avail Cap(c_a), veh/h	105	462	391	169	0	570	260	0	658	105	480	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	32.0	27.6	38.5	0.0	27.4	36.3	0.0	27.8	40.9	29.7	29.8
Incr Delay (d2), s/veh	9.5	28.9	0.8	35.1	0.0	7.6	33.4	0.0	19.3	10.7	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	11.7	2.9	4.5	0.0	8.7	6.9	0.0	13.2	1.1	4.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	60.8	28.4	73.6	0.0	35.0	69.7	0.0	47.1	51.7	31.1	31.1
LnGrp LOS	D	E	C	E	A	C	E	A	D	D	C	C
Approach Vol, veh/h		653			599			810			526	
Approach Delay, s/veh		51.4			44.5			53.7			32.9	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	35.3	14.0	27.8	18.4	26.1	8.7	33.1
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.1	30.8	8.2	21.3	12.6	23.3	5.1	24.4
Max Q Clear Time (g_c+I1), s	4.2	27.9	9.0	21.8	13.3	12.3	3.8	21.3
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	1.8	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	90	120	75	85	95	175	395	115	110	495	115
Future Volume (veh/h)	85	90	120	75	85	95	175	395	115	110	495	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	95	126	79	89	100	184	416	121	116	521	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	251	213	107	244	207	229	1026	295	150	613	520
Arrive On Green	0.06	0.13	0.13	0.06	0.13	0.13	0.13	0.38	0.38	0.08	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2722	784	1781	1870	1585
Grp Volume(v), veh/h	89	95	126	79	89	100	184	270	267	116	521	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1729	1781	1870	1585
Q Serve(g_s), s	3.0	2.8	4.6	2.7	2.7	3.6	6.2	6.8	7.0	3.9	15.9	3.4
Cycle Q Clear(g_c), s	3.0	2.8	4.6	2.7	2.7	3.6	6.2	6.8	7.0	3.9	15.9	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	114	251	213	107	244	207	229	670	652	150	613	520
V/C Ratio(X)	0.78	0.38	0.59	0.74	0.36	0.48	0.81	0.40	0.41	0.77	0.85	0.23
Avail Cap(c_a), veh/h	154	251	213	169	244	207	279	740	720	294	797	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.3	24.2	24.9	28.3	24.3	24.7	26.0	14.0	14.1	27.5	19.2	15.0
Incr Delay (d2), s/veh	16.4	0.9	4.3	9.3	0.9	1.7	13.2	0.4	0.4	8.2	6.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.3	1.8	1.3	1.2	1.3	3.1	2.2	2.2	1.8	6.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	25.1	29.3	37.6	25.2	26.5	39.1	14.4	14.5	35.6	26.1	15.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	B
Approach Vol, veh/h		310			268			721			758	
Approach Delay, s/veh		32.4			29.3			20.7			25.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	29.3	8.4	13.3	13.3	26.3	8.6	13.1
Change Period (Y+Rc), s	5.1	6.2	* 4.7	* 5.1	5.4	* 6.2	* 4.7	5.1
Max Green Setting (Gmax), s	10.3	25.5	* 5.8	* 7.9	9.6	* 26	* 5.3	8.0
Max Q Clear Time (g_c+I1), s	5.9	9.0	4.7	6.6	8.2	17.9	5.0	5.6
Green Ext Time (p_c), s	0.1	2.6	0.0	0.1	0.1	2.2	0.0	0.2

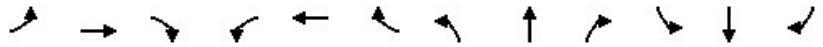
Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Min green cannot be greater than Max Green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	825	1000	55	565	45	595	790	105	45	625	385
Future Volume (veh/h)	400	825	1000	55	565	45	595	790	105	45	625	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	868	1053	58	595	47	626	832	111	47	658	405
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	1040	800	157	706	315	733	1356	605	192	799	578
Arrive On Green	0.14	0.29	0.29	0.05	0.20	0.20	0.21	0.38	0.38	0.06	0.22	0.22
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	421	868	1053	58	595	47	626	832	111	47	658	405
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.1	25.0	32.0	1.8	17.6	2.7	19.1	20.7	5.1	1.4	19.3	23.9
Cycle Q Clear(g_c), s	13.1	25.0	32.0	1.8	17.6	2.7	19.1	20.7	5.1	1.4	19.3	23.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	1040	800	157	706	315	733	1356	605	192	799	578
V/C Ratio(X)	0.87	0.83	1.32	0.37	0.84	0.15	0.85	0.61	0.18	0.24	0.82	0.70
Avail Cap(c_a), veh/h	512	1040	800	190	708	316	1352	1930	861	253	799	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	36.2	27.1	50.7	42.2	36.2	41.5	27.3	22.5	49.4	40.3	29.7
Incr Delay (d2), s/veh	14.8	6.0	151.1	1.4	9.1	0.2	3.0	0.5	0.1	0.7	7.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	10.9	51.4	0.8	8.2	1.0	7.9	8.1	1.8	0.6	8.7	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	42.2	178.2	52.1	51.3	36.4	44.4	27.8	22.6	50.1	47.3	33.5
LnGrp LOS	E	D	F	D	D	D	D	C	C	D	D	C
Approach Vol, veh/h		2342			700			1569			1110	
Approach Delay, s/veh		106.7			50.4			34.1			42.4	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	48.2	10.8	38.5	29.0	31.1	21.1	28.2
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	6.0	59.4	6.0	32.0	42.8	24.6	16.2	21.8
Max Q Clear Time (g_c+I1), s	3.8	22.7	3.8	34.0	21.1	25.9	15.1	19.6
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	2.1	0.0	0.2	0.8

Intersection Summary	
HCM 6th Ctrl Delay	67.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	34.3	49.5	23.1	24.8	34.3
Vehicles Entered	700	1111	610	1047	3468
Vehicles Exited	690	1093	611	1057	3451
Hourly Exit Rate	690	1093	611	1057	3451
Input Volume	698	1138	607	1087	3530
% of Volume	99	96	101	97	98
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.6	13.9	6.6	13.0
Vehicles Entered	605	1530	198	2333
Vehicles Exited	606	1526	198	2330
Hourly Exit Rate	606	1526	198	2330
Input Volume	615	1568	206	2389
% of Volume	99	97	96	98
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	8.9	11.1	37.9	15.5
Vehicles Entered	828	714	383	1925
Vehicles Exited	829	711	383	1923
Hourly Exit Rate	829	711	383	1923
Input Volume	832	731	392	1956
% of Volume	100	97	98	98
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Zone Performance

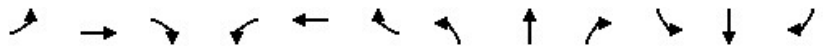
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	797.9
Vehicles Entered	331
Vehicles Exited	138
Hourly Exit Rate	138
Input Volume	10021
% of Volume	1
Denied Entry Before	0
Denied Entry After	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	182	196	165	25	265	496	71	15	572	25
Future Volume (veh/h)	20	85	182	196	165	25	265	496	71	15	572	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	89	34	206	174	26	279	522	75	16	602	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	211	466	250	420	356	322	1222	175	41	811	35
Arrive On Green	0.03	0.11	0.11	0.14	0.22	0.22	0.18	0.39	0.39	0.02	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3120	447	1781	3470	150
Grp Volume(v), veh/h	21	89	34	206	174	26	279	296	301	16	308	320
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1790	1781	1777	1843
Q Serve(g_s), s	0.8	3.1	1.1	7.9	5.6	0.9	10.8	8.6	8.7	0.6	11.4	11.4
Cycle Q Clear(g_c), s	0.8	3.1	1.1	7.9	5.6	0.9	10.8	8.6	8.7	0.6	11.4	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.08
Lane Grp Cap(c), veh/h	51	211	466	250	420	356	322	696	701	41	415	431
V/C Ratio(X)	0.41	0.42	0.07	0.83	0.41	0.07	0.87	0.43	0.43	0.39	0.74	0.74
Avail Cap(c_a), veh/h	151	212	466	317	420	356	343	1003	1010	151	812	842
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	29.2	18.0	29.6	23.4	21.6	28.1	15.7	15.7	34.1	25.1	25.1
Incr Delay (d2), s/veh	5.2	1.3	0.1	13.1	0.7	0.1	19.4	0.4	0.4	6.0	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	0.4	3.9	2.2	0.3	5.8	3.0	3.0	0.3	4.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	30.5	18.1	42.7	24.1	21.7	47.6	16.1	16.1	40.1	27.7	27.7
LnGrp LOS	D	C	B	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		144			406			876			644	
Approach Delay, s/veh		28.8			33.4			26.1			28.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	33.9	15.3	14.5	18.2	22.7	7.4	22.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	6.0	39.9	12.6	8.0	13.6	32.3	6.0	14.6
Max Q Clear Time (g_c+I1), s	2.6	10.7	9.9	5.1	12.8	13.4	2.8	7.6
Green Ext Time (p_c), s	0.0	3.3	0.1	0.1	0.1	3.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	0	40	0	0	0	31	1029	0	0	1047	19
Future Volume (veh/h)	24	0	40	0	0	0	31	1029	0	0	1047	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	0	42	0	0	0	33	1083	0	0	1102	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	108	0	127	0	70	2278	0	5	1639	30
Arrive On Green	0.00	0.00	0.07	0.00	0.00	0.00	0.04	0.64	0.00	0.00	0.46	0.46
Sat Flow, veh/h	0	0	1585	0	1870	0	1781	3647	0	1781	3571	65
Grp Volume(v), veh/h	0	0	42	0	0	0	33	1083	0	0	548	574
Grp Sat Flow(s),veh/h/ln	0	0	1585	0	1870	0	1781	1777	0	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.9	0.0	0.0	0.0	0.6	5.6	0.0	0.0	8.6	8.6
Cycle Q Clear(g_c), s	0.0	0.0	0.9	0.0	0.0	0.0	0.6	5.6	0.0	0.0	8.6	8.6
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	0	0	108	0	127	0	70	2278	0	5	816	853
V/C Ratio(X)	0.00	0.00	0.39	0.00	0.00	0.00	0.47	0.48	0.00	0.00	0.67	0.67
Avail Cap(c_a), veh/h	0	0	643	0	262	0	254	2487	0	249	1238	1295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	15.9	0.0	0.0	0.0	16.8	3.3	0.0	0.0	7.6	7.6
Incr Delay (d2), s/veh	0.0	0.0	2.3	0.0	0.0	0.0	4.9	0.2	0.0	0.0	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	18.2	0.0	0.0	0.0	21.7	3.5	0.0	0.0	8.5	8.5
LnGrp LOS	A	A	B	A	A	A	C	A	A	A	A	A
Approach Vol, veh/h		42			0			1116			1122	
Approach Delay, s/veh		18.2			0.0			4.0			8.5	
Approach LOS		B						A			A	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	28.7		7.0	6.5	22.2	0.0	7.0
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8	4.5	4.6
Max Green Setting (Gmax), s	5.9	25.0		14.5	5.1	24.9	5.0	5.0
Max Q Clear Time (g_c+I1), s	0.0	7.6		2.9	2.6	10.6	0.0	0.0
Green Ext Time (p_c), s	0.0	6.7		0.1	0.0	5.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	10	813	25	5	978
Future Vol, veh/h	46	10	813	25	5	978
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	100	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	48	11	856	26	5	1029

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1908	869	0	0	882	0
Stage 1	869	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	75	351	-	-	767	-
Stage 1	410	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	351	-	-	767	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	339	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	257	351	767	-
HCM Lane V/C Ratio	-	-	0.188	0.03	0.007	-
HCM Control Delay (s)	-	-	22.2	15.6	9.7	-
HCM Lane LOS	-	-	C	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	227	60	326	542	10	270	45	156	30	70	40
Future Volume (veh/h)	25	227	60	326	542	10	270	45	156	30	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	239	63	343	571	11	284	47	164	32	74	42
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	274	72	388	698	13	327	443	720	69	103	58
Arrive On Green	0.03	0.19	0.19	0.22	0.38	0.38	0.18	0.24	0.24	0.04	0.09	0.09
Sat Flow, veh/h	1781	1427	376	1781	1829	35	1781	1870	1585	1781	1120	636
Grp Volume(v), veh/h	26	0	302	343	0	582	284	47	164	32	0	116
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1781	0	1864	1781	1870	1585	1781	0	1756
Q Serve(g_s), s	1.1	0.0	12.7	14.6	0.0	21.9	12.1	1.5	4.9	1.4	0.0	5.0
Cycle Q Clear(g_c), s	1.1	0.0	12.7	14.6	0.0	21.9	12.1	1.5	4.9	1.4	0.0	5.0
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	49	0	346	388	0	712	327	443	720	69	0	161
V/C Ratio(X)	0.53	0.00	0.87	0.88	0.00	0.82	0.87	0.11	0.23	0.47	0.00	0.72
Avail Cap(c_a), veh/h	114	0	381	484	0	781	393	520	786	137	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	30.6	29.6	0.0	21.7	30.9	23.3	12.9	36.7	0.0	34.5
Incr Delay (d2), s/veh	8.5	0.0	18.3	15.0	0.0	6.3	16.2	0.1	0.2	4.9	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	6.7	7.1	0.0	9.2	6.4	0.7	1.5	0.7	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	49.0	44.5	0.0	28.0	47.1	23.4	13.1	41.6	0.0	40.4
LnGrp LOS	D	A	D	D	A	C	D	C	B	D	A	D
Approach Vol, veh/h		328			925			495			148	
Approach Delay, s/veh		48.7			34.1			33.6			40.7	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	25.0	22.8	21.5	20.1	13.7	8.0	36.3
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	6.0	21.7	21.2	16.5	17.2	10.5	5.0	32.7
Max Q Clear Time (g_c+I1), s	3.4	6.9	16.6	14.7	14.1	7.0	3.1	23.9
Green Ext Time (p_c), s	0.0	0.6	0.4	0.3	0.3	0.1	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	976	5	11	1530	5	10
Future Vol, veh/h	976	5	11	1530	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1027	5	12	1611	5	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1032	0	2665	1030
Stage 1	-	-	-	-	1030	-
Stage 2	-	-	-	-	1635	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	673	-	25	283
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	175	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	673	-	25	283
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	172	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	23
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	216	-	-	673	-
HCM Lane V/C Ratio	0.073	-	-	0.017	-
HCM Control Delay (s)	23	-	-	10.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	627	149	172	1115	173	182	207	148	160	240	244
Future Volume (veh/h)	210	627	149	172	1115	173	182	207	148	160	240	244
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	221	660	157	181	1174	182	192	218	156	168	253	257
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	228	1208	561	218	1189	552	207	324	468	185	287	446
Arrive On Green	0.13	0.35	0.35	0.12	0.35	0.35	0.12	0.17	0.17	0.10	0.15	0.15
Sat Flow, veh/h	1781	3413	1585	1781	3413	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	221	660	157	181	1174	182	192	218	156	168	253	257
Grp Sat Flow(s),veh/h/ln	1781	1706	1585	1781	1706	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	11.3	14.1	6.5	9.1	31.2	7.7	9.7	10.0	7.0	8.5	12.1	12.7
Cycle Q Clear(g_c), s	11.3	14.1	6.5	9.1	31.2	7.7	9.7	10.0	7.0	8.5	12.1	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	1208	561	218	1189	552	207	324	468	185	287	446
V/C Ratio(X)	0.97	0.55	0.28	0.83	0.99	0.33	0.93	0.67	0.33	0.91	0.88	0.58
Avail Cap(c_a), veh/h	228	1208	561	339	1189	552	207	324	468	185	287	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	23.6	21.1	39.1	29.6	21.9	40.0	35.3	25.1	40.5	37.8	28.1
Incr Delay (d2), s/veh	50.4	0.5	0.3	9.6	23.1	0.3	42.9	5.4	0.4	40.8	25.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	5.2	2.2	4.3	15.2	2.7	6.5	4.7	2.5	5.8	7.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.0	24.1	21.4	48.7	52.6	22.2	82.9	40.7	25.5	81.2	63.6	29.9
LnGrp LOS	F	C	C	D	D	C	F	D	C	F	E	C
Approach Vol, veh/h		1038			1537			566			678	
Approach Delay, s/veh		37.7			48.6			50.9			55.2	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.2	22.0	16.6	38.5	16.0	20.2	17.1	38.0
Change Period (Y+Rc), s	* 4.7	6.2	5.4	6.2	5.4	* 6.2	5.4	6.2
Max Green Setting (Gmax), s	* 9.5	14.5	17.4	26.1	10.6	* 14	11.7	31.8
Max Q Clear Time (g_c+I1), s	10.5	12.0	11.1	16.1	11.7	14.7	13.3	33.2
Green Ext Time (p_c), s	0.0	0.4	0.2	3.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	225	135	402	15	45	516
Future Volume (veh/h)	225	135	402	15	45	516
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	142	423	16	47	543
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	278	167	515	19	104	873
Arrive On Green	0.26	0.26	0.29	0.29	0.06	0.47
Sat Flow, veh/h	1062	636	1790	68	1781	1870
Grp Volume(v), veh/h	380	0	0	439	47	543
Grp Sat Flow(s),veh/h/ln	1703	0	0	1858	1781	1870
Q Serve(g_s), s	10.2	0.0	0.0	10.6	1.2	10.5
Cycle Q Clear(g_c), s	10.2	0.0	0.0	10.6	1.2	10.5
Prop In Lane	0.62	0.37		0.04	1.00	
Lane Grp Cap(c), veh/h	446	0	0	534	104	873
V/C Ratio(X)	0.85	0.00	0.00	0.82	0.45	0.62
Avail Cap(c_a), veh/h	576	0	0	733	227	1202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	0.0	15.9	21.8	9.6
Incr Delay (d2), s/veh	9.5	0.0	0.0	5.4	3.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0	3.9	0.5	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.3	0.0	0.0	21.3	24.9	10.3
LnGrp LOS	C	A	A	C	C	B
Approach Vol, veh/h	380		439			590
Approach Delay, s/veh	26.3		21.3			11.5
Approach LOS	C		C			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	20.3			28.9	19.1
Change Period (Y+Rc), s	5.8	6.5			6.5	6.5
Max Green Setting (Gmax), s	6.1	18.9			30.8	16.2
Max Q Clear Time (g_c+I1), s	3.2	12.6			12.5	12.2
Green Ext Time (p_c), s	0.0	1.2			2.8	0.5

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



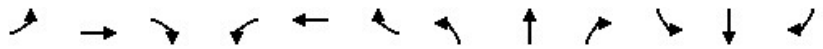
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	150	60	517	55	36	876
Future Volume (veh/h)	150	60	517	55	36	876
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	63	544	58	38	922
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	204	81	665	71	90	1084
Arrive On Green	0.17	0.17	0.40	0.40	0.05	0.58
Sat Flow, veh/h	1225	488	1661	177	1781	1870
Grp Volume(v), veh/h	222	0	0	602	38	922
Grp Sat Flow(s),veh/h/ln	1721	0	0	1838	1781	1870
Q Serve(g_s), s	5.5	0.0	0.0	13.1	0.9	18.4
Cycle Q Clear(g_c), s	5.5	0.0	0.0	13.1	0.9	18.4
Prop In Lane	0.71	0.28		0.10	1.00	
Lane Grp Cap(c), veh/h	287	0	0	736	90	1084
V/C Ratio(X)	0.77	0.00	0.00	0.82	0.42	0.85
Avail Cap(c_a), veh/h	425	0	0	1051	238	1560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	0.0	12.0	20.7	7.8
Incr Delay (d2), s/veh	5.1	0.0	0.0	3.5	3.1	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	3.8	0.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.0	0.0	0.0	15.5	23.8	11.1
LnGrp LOS	C	A	A	B	C	B
Approach Vol, veh/h	222		602			960
Approach Delay, s/veh	23.0		15.5			11.6
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.1	24.5			32.6	12.4
Change Period (Y+Rc), s	5.8	6.5			6.5	4.9
Max Green Setting (Gmax), s	6.3	25.7			37.5	11.1
Max Q Clear Time (g_c+I1), s	7.5	15.1			20.4	7.5
Green Ext Time (p_c), s	0.0	2.5			5.7	0.2

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



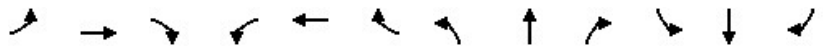
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	180	230	100	91	74	160	572	30	45	669	54
Future Volume (veh/h)	64	180	230	100	91	74	160	572	30	45	669	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	189	242	105	96	78	168	602	32	47	704	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	341	289	134	195	158	208	1116	59	78	840	68
Arrive On Green	0.05	0.18	0.18	0.08	0.20	0.20	0.12	0.33	0.33	0.04	0.25	0.25
Sat Flow, veh/h	1781	1870	1585	1781	955	776	1781	3432	182	1781	3329	269
Grp Volume(v), veh/h	67	189	242	105	0	174	168	311	323	47	376	385
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1731	1781	1777	1838	1781	1777	1822
Q Serve(g_s), s	2.4	6.1	9.7	3.8	0.0	5.9	6.1	9.4	9.5	1.7	13.2	13.2
Cycle Q Clear(g_c), s	2.4	6.1	9.7	3.8	0.0	5.9	6.1	9.4	9.5	1.7	13.2	13.2
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	96	341	289	134	0	353	208	578	598	78	448	459
V/C Ratio(X)	0.70	0.55	0.84	0.78	0.00	0.49	0.81	0.54	0.54	0.60	0.84	0.84
Avail Cap(c_a), veh/h	138	344	291	168	0	353	224	588	608	143	507	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	24.5	26.0	29.9	0.0	23.2	28.4	18.2	18.2	30.9	23.4	23.4
Incr Delay (d2), s/veh	9.0	1.9	18.9	16.9	0.0	1.1	18.2	1.0	0.9	7.3	10.7	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.5	4.6	2.1	0.0	2.1	3.3	3.3	3.4	0.8	5.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	26.4	44.9	46.8	0.0	24.3	46.5	19.1	19.1	38.2	34.1	34.0
LnGrp LOS	D	C	D	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		498			279			802			808	
Approach Delay, s/veh		37.2			32.8			24.9			34.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	27.9	10.8	18.5	13.5	23.1	9.3	19.9
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.3	21.8	6.2	12.1	8.3	18.8	5.1	13.2
Max Q Clear Time (g_c+I1), s	3.7	11.5	5.8	11.7	8.1	15.2	4.4	7.9
Green Ext Time (p_c), s	0.0	2.4	0.0	0.1	0.0	1.4	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	63	149	350	49	95	149	360	235	109	831	100
Future Volume (veh/h)	90	63	149	350	49	95	149	360	235	109	831	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	66	157	368	52	0	157	379	247	115	875	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	547	401	435	346		343	1181	527	147	991	119
Arrive On Green	0.09	0.15	0.15	0.13	0.19	0.00	0.10	0.33	0.33	0.08	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	3456	3554	1585	1781	3195	383
Grp Volume(v), veh/h	95	66	157	368	52	0	157	379	247	115	487	493
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1728	1777	1585	1781	1777	1801
Q Serve(g_s), s	4.0	1.2	6.4	8.1	1.8	0.0	3.3	6.2	9.6	4.9	20.3	20.3
Cycle Q Clear(g_c), s	4.0	1.2	6.4	8.1	1.8	0.0	3.3	6.2	9.6	4.9	20.3	20.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	160	547	401	435	346		343	1181	527	147	551	559
V/C Ratio(X)	0.60	0.12	0.39	0.85	0.15		0.46	0.32	0.47	0.78	0.88	0.88
Avail Cap(c_a), veh/h	185	547	401	435	346		368	1181	527	236	593	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	28.4	24.1	33.3	26.6	0.0	33.1	19.4	20.6	35.1	25.5	25.5
Incr Delay (d2), s/veh	3.8	0.1	0.6	14.4	0.2	0.0	1.0	0.2	0.7	8.8	14.0	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.5	2.2	4.0	0.8	0.0	1.3	2.2	3.2	2.3	9.6	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	28.5	24.7	47.7	26.8	0.0	34.1	19.6	21.2	43.8	39.5	39.3
LnGrp LOS	D	C	C	D	C		C	B	C	D	D	D
Approach Vol, veh/h		318			420	A		783			1095	
Approach Delay, s/veh		29.5			45.1			23.0			39.9	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	32.4	15.2	18.5	13.5	30.7	12.8	20.9
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	10.3	24.1	9.8	12.0	8.3	* 26	8.1	* 14
Max Q Clear Time (g_c+I1), s	6.0	11.6	10.1	8.4	5.3	22.3	6.0	3.8
Green Ext Time (p_c), s	0.1	2.4	0.0	0.3	0.1	1.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Min green cannot be greater than Max Green.



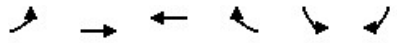
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	111	90	742	127	86	865	
Future Volume (veh/h)	111	90	742	127	86	865	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	117	95	781	134	91	911	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	229	204	1146	197	165	2152	
Arrive On Green	0.13	0.13	0.38	0.38	0.09	0.61	
Sat Flow, veh/h	1781	1585	3127	520	1781	3647	
Grp Volume(v), veh/h	117	95	457	458	91	911	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1777	1781	1777	
Q Serve(g_s), s	2.6	2.4	9.3	9.3	2.1	5.8	
Cycle Q Clear(g_c), s	2.6	2.4	9.3	9.3	2.1	5.8	
Prop In Lane	1.00	1.00		0.29	1.00		
Lane Grp Cap(c), veh/h	229	204	672	672	165	2152	
V/C Ratio(X)	0.51	0.47	0.68	0.68	0.55	0.42	
Avail Cap(c_a), veh/h	461	410	1304	1304	423	3934	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	17.4	17.3	11.2	11.2	18.6	4.5	
Incr Delay (d2), s/veh	1.8	1.7	1.2	1.2	2.9	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.0	0.8	2.3	2.3	0.8	0.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.2	19.0	12.4	12.4	21.5	4.6	
LnGrp LOS	B	B	B	B	C	A	
Approach Vol, veh/h	212		915			1002	
Approach Delay, s/veh	19.1		12.4			6.2	
Approach LOS	B		B			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.8	22.7			32.5	10.4
Change Period (Y+Rc), s	5.8	6.5			6.5	4.9
Max Green Setting (Gmax), s	10.2	31.5			47.5	11.1
Max Q Clear Time (g_c+I1), s	4.1	11.3			7.8	4.6
Green Ext Time (p_c), s	0.1	5.0			6.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

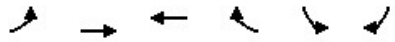
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	808	1276	69	55	110
Future Volume (veh/h)	115	808	1276	69	55	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	121	851	1343	73	58	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	325	2323	1629	757	186	165
Arrive On Green	0.09	0.68	0.48	0.48	0.10	0.10
Sat Flow, veh/h	3456	3503	3503	1585	1781	1585
Grp Volume(v), veh/h	121	851	1343	73	58	116
Grp Sat Flow(s),veh/h/ln	1728	1706	1706	1585	1781	1585
Q Serve(g_s), s	1.7	5.6	18.0	1.3	1.6	3.8
Cycle Q Clear(g_c), s	1.7	5.6	18.0	1.3	1.6	3.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	325	2323	1629	757	186	165
V/C Ratio(X)	0.37	0.37	0.82	0.10	0.31	0.70
Avail Cap(c_a), veh/h	469	2670	1833	852	238	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	3.6	11.9	7.6	22.0	23.0
Incr Delay (d2), s/veh	0.7	0.1	2.9	0.1	0.9	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	5.0	0.3	0.7	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.3	3.7	14.9	7.7	22.9	30.0
LnGrp LOS	C	A	B	A	C	C
Approach Vol, veh/h		972	1416		174	
Approach Delay, s/veh		6.1	14.5		27.6	
Approach LOS		A	B		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	42.6	10.4	10.8	31.8
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	41.5	7.1	7.2	28.5
Max Q Clear Time (g_c+I1), s	7.6	5.8	3.7	20.0
Green Ext Time (p_c), s	6.0	0.1	0.1	5.3

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	908	1381	5	15	80
Future Volume (veh/h)	28	908	1381	5	15	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	956	1454	5	16	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	71	2373	1838	6	24	125
Arrive On Green	0.04	0.67	0.51	0.51	0.09	0.09
Sat Flow, veh/h	1781	3647	3726	12	256	1344
Grp Volume(v), veh/h	29	956	711	748	101	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1868	1616	0
Q Serve(g_s), s	0.8	5.8	15.7	15.7	2.9	0.0
Cycle Q Clear(g_c), s	0.8	5.8	15.7	15.7	2.9	0.0
Prop In Lane	1.00			0.01	0.16	0.83
Lane Grp Cap(c), veh/h	71	2373	899	945	150	0
V/C Ratio(X)	0.41	0.40	0.79	0.79	0.67	0.00
Avail Cap(c_a), veh/h	228	3028	1070	1125	271	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	3.6	9.7	9.7	20.9	0.0
Incr Delay (d2), s/veh	3.7	0.1	3.5	3.3	5.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	4.1	4.3	1.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.0	3.7	13.2	13.0	26.1	0.0
LnGrp LOS	C	A	B	B	C	A
Approach Vol, veh/h		985	1459		101	
Approach Delay, s/veh		4.4	13.1		26.1	
Approach LOS		A	B		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	38.3	9.3	7.7	30.6
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	40.6	8.0	6.1	28.7
Max Q Clear Time (g_c+I1), s	7.8	4.9	2.8	17.7
Green Ext Time (p_c), s	6.9	0.1	0.0	6.4

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

3: Patterson Rd & McHenry Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Del/Veh (s)	41.0	42.8	30.5	34.9	37.0
Vehicles Entered	883	860	808	1567	4118
Vehicles Exited	883	862	811	1558	4114
Hourly Exit Rate	883	862	811	1558	4114
Input Volume	883	868	815	1608	4174
% of Volume	100	99	99	97	99
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Patterson Rd Bypass & Patterson Rd Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.1	14.1	23.7	17.2
Vehicles Entered	1130	1172	411	2713
Vehicles Exited	1130	1174	412	2716
Hourly Exit Rate	1130	1174	412	2716
Input Volume	1152	1187	414	2754
% of Volume	98	99	99	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: McHenry Ave & Patterson Rd Bypass Performance by approach

Approach	NB	SB	SW	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.9	8.3	39.8	12.2
Vehicles Entered	1201	811	261	2273
Vehicles Exited	1200	815	261	2276
Hourly Exit Rate	1200	815	261	2276
Input Volume	1209	838	264	2312
% of Volume	99	97	99	98
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

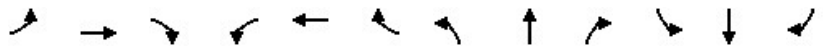
Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	1107.6
Vehicles Entered	122
Vehicles Exited	109
Hourly Exit Rate	109
Input Volume	12027
% of Volume	1
Denied Entry Before	0
Denied Entry After	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	170	542	164	110	15	199	661	173	55	766	30
Future Volume (veh/h)	25	170	542	164	110	15	199	661	173	55	766	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	179	413	173	116	16	209	696	182	58	806	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	384	479	191	522	442	173	929	243	98	1015	40
Arrive On Green	0.03	0.21	0.21	0.11	0.28	0.28	0.10	0.33	0.33	0.05	0.29	0.29
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2787	729	1781	3484	138
Grp Volume(v), veh/h	26	179	413	173	116	16	209	444	434	58	411	427
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1739	1781	1777	1845
Q Serve(g_s), s	1.1	6.6	16.1	7.5	3.7	0.6	7.6	17.4	17.4	2.5	16.7	16.7
Cycle Q Clear(g_c), s	1.1	6.6	16.1	7.5	3.7	0.6	7.6	17.4	17.4	2.5	16.7	16.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.07
Lane Grp Cap(c), veh/h	59	384	479	191	522	442	173	592	580	98	518	538
V/C Ratio(X)	0.44	0.47	0.86	0.91	0.22	0.04	1.21	0.75	0.75	0.59	0.79	0.79
Avail Cap(c_a), veh/h	136	384	479	191	522	442	173	788	771	163	779	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	27.4	25.8	34.6	21.7	20.6	35.4	23.2	23.2	36.2	25.6	25.6
Incr Delay (d2), s/veh	5.1	0.9	14.9	40.2	0.2	0.0	136.7	2.8	2.9	5.6	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.7	8.2	5.1	1.5	0.2	9.6	6.8	6.7	1.2	6.7	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	28.3	40.8	74.9	21.9	20.6	172.2	26.0	26.1	41.9	29.0	28.9
LnGrp LOS	D	C	D	E	C	C	F	C	C	D	C	C
Approach Vol, veh/h		618			305			1087			896	
Approach Delay, s/veh		37.2			51.9			54.1			29.8	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	32.4	13.8	22.6	13.0	29.1	8.0	28.4
Change Period (Y+Rc), s	5.4	6.2	5.4	6.5	5.4	6.2	5.4	6.5
Max Green Setting (Gmax), s	7.2	34.8	8.4	16.1	7.6	34.4	6.0	18.5
Max Q Clear Time (g_c+I1), s	4.5	19.4	9.5	18.1	9.6	18.7	3.1	5.7
Green Ext Time (p_c), s	0.0	4.4	0.0	0.0	0.0	4.1	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	62	0	0	0	56	1122	0	0	1545	36
Future Volume (veh/h)	31	0	62	0	0	0	56	1122	0	0	1545	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	0	65	0	0	0	59	1181	0	0	1626	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	115	0	136	0	98	2584	0	3	2036	47
Arrive On Green	0.00	0.00	0.07	0.00	0.00	0.00	0.06	0.73	0.00	0.00	0.57	0.57
Sat Flow, veh/h	0	0	1585	0	1870	0	1781	3647	0	1781	3550	83
Grp Volume(v), veh/h	0	0	65	0	0	0	59	1181	0	0	812	852
Grp Sat Flow(s),veh/h/ln	0	0	1585	0	1870	0	1781	1777	0	1781	1777	1855
Q Serve(g_s), s	0.0	0.0	2.1	0.0	0.0	0.0	1.7	7.1	0.0	0.0	18.7	18.8
Cycle Q Clear(g_c), s	0.0	0.0	2.1	0.0	0.0	0.0	1.7	7.1	0.0	0.0	18.7	18.8
Prop In Lane	0.00		1.00	0.00		0.00	1.00		0.00	1.00		0.04
Lane Grp Cap(c), veh/h	0	0	115	0	136	0	98	2584	0	3	1019	1064
V/C Ratio(X)	0.00	0.00	0.56	0.00	0.00	0.00	0.60	0.46	0.00	0.00	0.80	0.80
Avail Cap(c_a), veh/h	0	0	442	0	180	0	175	2584	0	171	1193	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	23.3	0.0	0.0	0.0	24.0	2.9	0.0	0.0	8.7	8.7
Incr Delay (d2), s/veh	0.0	0.0	4.2	0.0	0.0	0.0	5.8	0.1	0.0	0.0	3.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.9	0.0	0.0	0.0	0.8	0.4	0.0	0.0	4.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	27.5	0.0	0.0	0.0	29.8	3.0	0.0	0.0	12.0	12.0
LnGrp LOS	A	A	C	A	A	A	C	A	A	A	B	B
Approach Vol, veh/h		65			0			1240			1664	
Approach Delay, s/veh		27.5			0.0			4.3			12.0	
Approach LOS		C						A			B	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	43.6		8.4	8.0	35.6	0.0	8.4
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8	4.5	4.6
Max Green Setting (Gmax), s	5.0	35.0		14.5	5.1	34.9	5.0	5.0
Max Q Clear Time (g_c+I1), s	0.0	9.1		4.1	3.7	20.8	0.0	0.0
Green Ext Time (p_c), s	0.0	8.9		0.2	0.0	9.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	10	1027	47	10	1406
Future Vol, veh/h	47	10	1027	47	10	1406
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	7	2	2	7
Mvmt Flow	49	11	1081	49	11	1480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2608	1106	0	0	1130	0
Stage 1	1106	-	-	-	-	-
Stage 2	1502	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 27	256	-	-	618	-
Stage 1	317	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 27	256	-	-	618	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	199	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.5	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	159	256	618	-
HCM Lane V/C Ratio	-	-	0.311	0.041	0.017	-
HCM Control Delay (s)	-	-	37.6	19.7	10.9	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	516	135	210	370	15	105	85	241	25	55	25
Future Volume (veh/h)	25	516	135	210	370	15	105	85	241	25	55	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	543	142	221	389	16	111	89	254	26	58	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	576	151	258	929	38	140	238	431	58	99	44
Arrive On Green	0.03	0.40	0.40	0.14	0.52	0.52	0.08	0.13	0.13	0.03	0.08	0.08
Sat Flow, veh/h	1781	1429	374	1781	1784	73	1781	1870	1585	1781	1223	548
Grp Volume(v), veh/h	26	0	685	221	0	405	111	89	254	26	0	84
Grp Sat Flow(s),veh/h/ln	1781	0	1803	1781	0	1857	1781	1870	1585	1781	0	1772
Q Serve(g_s), s	1.2	0.0	30.8	10.2	0.0	11.2	5.1	3.7	10.7	1.2	0.0	3.8
Cycle Q Clear(g_c), s	1.2	0.0	30.8	10.2	0.0	11.2	5.1	3.7	10.7	1.2	0.0	3.8
Prop In Lane	1.00		0.21	1.00		0.04	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	48	0	726	258	0	967	140	238	431	58	0	144
V/C Ratio(X)	0.54	0.00	0.94	0.86	0.00	0.42	0.79	0.37	0.59	0.45	0.00	0.58
Avail Cap(c_a), veh/h	119	0	761	280	0	967	153	238	431	127	0	200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.4	0.0	24.2	35.1	0.0	12.4	38.0	33.6	26.5	39.9	0.0	37.3
Incr Delay (d2), s/veh	9.0	0.0	19.6	21.1	0.0	0.3	22.6	1.0	2.1	5.4	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	14.9	5.5	0.0	3.8	3.1	1.7	4.2	0.6	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	0.0	43.8	56.2	0.0	12.6	60.6	34.6	28.6	45.3	0.0	41.0
LnGrp LOS	D	A	D	E	A	B	E	C	C	D	A	D
Approach Vol, veh/h		711			626			454			110	
Approach Delay, s/veh		44.0			28.0			37.6			42.0	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	17.2	18.0	40.4	12.4	13.3	8.1	50.3
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	6.0	10.7	13.2	35.5	7.2	9.5	5.6	43.1
Max Q Clear Time (g_c+I1), s	3.2	12.7	12.2	32.8	7.1	5.8	3.2	13.2
Green Ext Time (p_c), s	0.0	0.0	0.1	1.1	0.0	0.1	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1390	10	22	1177	10	22
Future Vol, veh/h	1390	10	22	1177	10	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	2	2	7	2	2
Mvmt Flow	1463	11	23	1239	11	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1474	0	2754	1469
Stage 1	-	-	-	-	1469	-
Stage 2	-	-	-	-	1285	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	457	-	22	156
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	260	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	457	-	21	156
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	247	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	34.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	154	-	-	457	-
HCM Lane V/C Ratio	0.219	-	-	0.051	-
HCM Control Delay (s)	34.8	-	-	13.3	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.8	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	887	190	203	968	162	93	188	244	167	188	188
Future Volume (veh/h)	195	887	190	203	968	162	93	188	244	167	188	188
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1796	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	205	934	200	214	1019	171	98	198	257	176	198	198
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	7	2	2	2	2	2	2	2
Cap, veh/h	238	1137	528	248	1157	537	125	288	464	209	361	518
Arrive On Green	0.13	0.33	0.33	0.14	0.34	0.34	0.07	0.15	0.15	0.12	0.19	0.19
Sat Flow, veh/h	1781	3413	1585	1781	3413	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	205	934	200	214	1019	171	98	198	257	176	198	198
Grp Sat Flow(s),veh/h/ln	1781	1706	1585	1781	1706	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	9.9	22.0	8.4	10.3	24.7	7.0	4.8	8.8	12.0	8.5	8.4	8.4
Cycle Q Clear(g_c), s	9.9	22.0	8.4	10.3	24.7	7.0	4.8	8.8	12.0	8.5	8.4	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	1137	528	248	1157	537	125	288	464	209	361	518
V/C Ratio(X)	0.86	0.82	0.38	0.86	0.88	0.32	0.79	0.69	0.55	0.84	0.55	0.38
Avail Cap(c_a), veh/h	238	1225	569	248	1245	578	158	288	464	209	361	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	26.9	22.3	37.0	27.3	21.5	40.1	35.1	26.2	37.9	31.9	22.7
Incr Delay (d2), s/veh	26.3	4.3	0.4	25.6	7.3	0.3	17.9	6.7	1.4	25.4	1.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	8.7	2.9	5.9	10.1	2.4	2.6	4.3	4.3	5.1	3.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	31.2	22.8	62.6	34.6	21.8	58.0	41.8	27.6	63.3	33.7	23.2
LnGrp LOS	E	C	C	E	C	C	E	D	C	E	C	C
Approach Vol, veh/h		1339			1404			553			572	
Approach Delay, s/veh		34.9			37.3			38.1			39.2	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	19.7	17.6	35.4	11.5	23.2	17.1	35.9
Change Period (Y+Rc), s	* 4.7	6.2	5.4	6.2	5.4	* 6.2	5.4	6.2
Max Green Setting (Gmax), s	* 10	13.5	12.2	31.5	7.8	* 17	11.7	32.0
Max Q Clear Time (g_c+I1), s	10.5	14.0	12.3	24.0	6.8	10.4	11.9	26.7
Green Ext Time (p_c), s	0.0	0.0	0.0	3.7	0.0	1.0	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	165	52	473	265	82	498
Future Volume (veh/h)	165	52	473	265	82	498
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	55	498	279	86	524
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	208	66	547	306	128	1206
Arrive On Green	0.16	0.16	0.49	0.49	0.07	0.64
Sat Flow, veh/h	1309	414	1126	631	1781	1870
Grp Volume(v), veh/h	230	0	0	777	86	524
Grp Sat Flow(s),veh/h/ln	1730	0	0	1757	1781	1870
Q Serve(g_s), s	8.5	0.0	0.0	27.0	3.1	9.2
Cycle Q Clear(g_c), s	8.5	0.0	0.0	27.0	3.1	9.2
Prop In Lane	0.76	0.24		0.36	1.00	
Lane Grp Cap(c), veh/h	275	0	0	853	128	1206
V/C Ratio(X)	0.84	0.00	0.00	0.91	0.67	0.43
Avail Cap(c_a), veh/h	327	0	0	992	169	1398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	0.0	15.7	30.0	5.8
Incr Delay (d2), s/veh	15.0	0.0	0.0	11.2	6.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.0	10.2	1.4	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	0.0	0.0	26.9	36.2	6.0
LnGrp LOS	D	A	A	C	D	A
Approach Vol, veh/h	230		777			610
Approach Delay, s/veh	42.0		26.9			10.3
Approach LOS	D		C			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.6	38.6			49.2	17.0
Change Period (Y+Rc), s	5.8	6.5			6.5	6.5
Max Green Setting (Gmax), s	6.3	37.4			49.5	12.5
Max Q Clear Time (g_c+I1), s	5.1	29.0			11.2	10.5
Green Ext Time (p_c), s	0.0	3.1			3.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



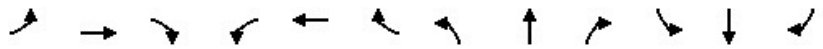
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	120	47	1011	185	55	757
Future Volume (veh/h)	120	47	1011	185	55	757
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	49	1064	195	58	797
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	127	49	1066	195	81	1481
Arrive On Green	0.10	0.10	0.69	0.69	0.05	0.79
Sat Flow, veh/h	1233	480	1538	282	1781	1870
Grp Volume(v), veh/h	176	0	0	1259	58	797
Grp Sat Flow(s),veh/h/ln	1722	0	0	1820	1781	1870
Q Serve(g_s), s	11.1	0.0	0.0	74.9	3.5	16.8
Cycle Q Clear(g_c), s	11.1	0.0	0.0	74.9	3.5	16.8
Prop In Lane	0.72	0.28		0.15	1.00	
Lane Grp Cap(c), veh/h	178	0	0	1261	81	1481
V/C Ratio(X)	0.99	0.00	0.00	1.00	0.71	0.54
Avail Cap(c_a), veh/h	178	0	0	1261	103	1504
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	0.0	0.0	16.6	51.1	4.1
Incr Delay (d2), s/veh	64.9	0.0	0.0	24.9	15.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.0	30.2	1.8	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	113.6	0.0	0.0	41.6	66.6	4.5
LnGrp LOS	F	A	A	D	E	A
Approach Vol, veh/h	176		1259			855
Approach Delay, s/veh	113.6		41.6			8.7
Approach LOS	F		D			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.8	81.8			92.6	16.1
Change Period (Y+Rc), s	5.8	6.5			6.5	4.9
Max Green Setting (Gmax), s	5.3	75.3			87.4	11.2
Max Q Clear Time (g_c+I1), s	15.5	76.9			18.8	13.1
Green Ext Time (p_c), s	0.0	0.0			5.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



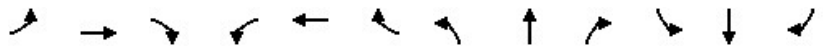
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	417	170	140	406	49	225	769	45	68	678	71
Future Volume (veh/h)	67	417	170	140	406	49	225	769	45	68	678	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	439	179	147	427	52	237	809	47	72	714	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	91	468	396	170	481	59	261	1123	65	93	761	80
Arrive On Green	0.05	0.25	0.25	0.10	0.29	0.29	0.15	0.33	0.33	0.05	0.23	0.23
Sat Flow, veh/h	1781	1870	1585	1781	1635	199	1781	3413	198	1781	3245	341
Grp Volume(v), veh/h	71	439	179	147	0	479	237	421	435	72	391	398
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1835	1781	1777	1835	1781	1777	1809
Q Serve(g_s), s	3.5	20.7	8.6	7.3	0.0	22.4	11.8	18.8	18.8	3.6	19.4	19.5
Cycle Q Clear(g_c), s	3.5	20.7	8.6	7.3	0.0	22.4	11.8	18.8	18.8	3.6	19.4	19.5
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.11	1.00		0.19
Lane Grp Cap(c), veh/h	91	468	396	170	0	540	261	585	604	93	417	424
V/C Ratio(X)	0.78	0.94	0.45	0.86	0.00	0.89	0.91	0.72	0.72	0.78	0.94	0.94
Avail Cap(c_a), veh/h	103	468	396	170	0	540	261	585	604	131	417	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	33.1	28.5	40.1	0.0	30.3	37.8	26.5	26.5	42.1	33.8	33.8
Incr Delay (d2), s/veh	27.9	27.0	0.8	33.9	0.0	16.3	32.4	4.3	4.2	17.2	29.0	28.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.0	3.1	4.6	0.0	11.3	7.1	7.7	8.0	1.9	10.9	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	60.1	29.3	74.0	0.0	46.6	70.2	30.8	30.7	59.3	62.8	62.7
LnGrp LOS	E	E	C	E	A	D	E	C	C	E	E	E
Approach Vol, veh/h		689			626			1093			861	
Approach Delay, s/veh		53.1			53.1			39.3			62.4	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	36.1	14.4	29.0	19.0	27.6	10.4	33.0
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	5.6	27.7	8.6	22.5	13.2	21.1	5.2	25.9
Max Q Clear Time (g_c+I1), s	5.5	20.8	9.3	22.7	13.8	21.5	5.5	24.4
Green Ext Time (p_c), s	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	160	298	435	109	184	408	921	450	145	831	50
Future Volume (veh/h)	90	160	298	435	109	184	408	921	450	145	831	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	168	314	458	115	0	429	969	474	153	875	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	482	447	539	384		506	1189	530	186	980	59
Arrive On Green	0.08	0.14	0.14	0.16	0.21	0.00	0.15	0.33	0.33	0.10	0.29	0.29
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	3456	3554	1585	1781	3404	206
Grp Volume(v), veh/h	95	168	314	458	115	0	429	969	474	153	457	471
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1728	1777	1585	1781	1777	1833
Q Serve(g_s), s	4.6	3.8	12.0	11.4	4.6	0.0	10.7	22.1	25.1	7.4	21.8	21.8
Cycle Q Clear(g_c), s	4.6	3.8	12.0	11.4	4.6	0.0	10.7	22.1	25.1	7.4	21.8	21.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	146	482	447	539	384		506	1189	530	186	512	528
V/C Ratio(X)	0.65	0.35	0.70	0.85	0.30		0.85	0.81	0.89	0.82	0.89	0.89
Avail Cap(c_a), veh/h	210	482	447	610	384		555	1242	554	193	527	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	34.7	28.4	36.3	29.7	0.0	36.8	26.9	27.9	38.8	30.2	30.2
Incr Delay (d2), s/veh	4.9	0.4	4.9	10.0	0.4	0.0	11.0	4.2	16.4	23.4	17.1	16.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.5	6.0	5.2	2.0	0.0	4.9	8.9	10.9	4.3	10.8	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	35.1	33.3	46.3	30.2	0.0	47.7	31.1	44.3	62.2	47.3	46.9
LnGrp LOS	D	D	C	D	C		D	C	D	E	D	D
Approach Vol, veh/h		577			573	A		1872			1081	
Approach Delay, s/veh		35.6			43.0			38.2			49.2	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	36.1	19.2	18.5	18.8	32.0	13.0	24.7
Change Period (Y+Rc), s	5.4	6.5	5.4	6.5	5.8	* 6.5	5.8	* 6.5
Max Green Setting (Gmax), s	9.6	30.9	15.6	12.0	14.2	* 26	10.4	* 15
Max Q Clear Time (g_c+I1), s	19.4	27.1	13.4	14.0	12.7	23.8	6.6	6.6
Green Ext Time (p_c), s	0.0	2.5	0.4	0.0	0.3	1.2	0.1	0.3

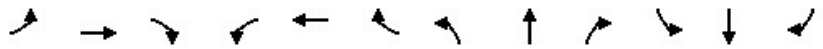
Intersection Summary	
HCM 6th Ctrl Delay	41.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	828	1007	55	568	49	602	814	105	50	648	385
Future Volume (veh/h)	400	828	1007	55	568	49	602	814	105	50	648	385
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	872	955	58	598	52	634	857	111	53	682	405
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	1226	903	208	890	397	755	1355	604	252	838	628
Arrive On Green	0.15	0.34	0.34	0.06	0.25	0.25	0.22	0.38	0.38	0.07	0.24	0.24
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	421	872	955	58	598	52	634	857	111	53	682	405
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.3	24.2	39.2	1.8	17.2	2.9	20.0	22.4	5.3	1.6	20.6	23.5
Cycle Q Clear(g_c), s	13.3	24.2	39.2	1.8	17.2	2.9	20.0	22.4	5.3	1.6	20.6	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	534	1226	903	208	890	397	755	1355	604	252	838	628
V/C Ratio(X)	0.79	0.71	1.06	0.28	0.67	0.13	0.84	0.63	0.18	0.21	0.81	0.64
Avail Cap(c_a), veh/h	696	1226	903	243	890	397	1216	1782	795	298	838	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	32.3	24.5	51.1	38.4	33.0	42.5	28.7	23.4	49.6	41.1	27.8
Incr Delay (d2), s/veh	3.3	2.1	46.5	0.3	2.2	0.2	1.5	0.7	0.2	0.2	6.5	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	10.0	31.8	0.8	7.3	1.1	8.2	8.9	1.9	0.7	9.2	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	34.5	71.0	51.3	40.6	33.2	44.0	29.4	23.6	49.7	47.5	30.4
LnGrp LOS	D	C	F	D	D	C	D	C	C	D	D	C
Approach Vol, veh/h		2248			708			1602			1140	
Approach Delay, s/veh		52.8			40.9			34.8			41.6	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	47.3	10.8	43.2	28.8	30.8	21.6	32.5
Change Period (Y+Rc), s	5.8	6.5	5.8	6.5	5.8	6.5	5.8	6.5
Max Green Setting (Gmax), s	8.0	54.5	6.2	36.7	38.2	24.3	21.1	21.8
Max Q Clear Time (g_c+I1), s	3.6	24.4	3.8	41.2	22.0	25.5	15.3	19.2
Green Ext Time (p_c), s	0.0	9.0	0.0	0.0	1.1	0.0	0.4	1.2

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.



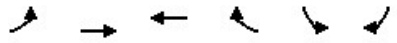
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	197	134	899	184	132	1285	
Future Volume (veh/h)	197	134	899	184	132	1285	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	207	141	946	194	139	1353	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	284	253	1171	240	181	2186	
Arrive On Green	0.16	0.16	0.40	0.40	0.10	0.62	
Sat Flow, veh/h	1781	1585	3031	602	1781	3647	
Grp Volume(v), veh/h	207	141	572	568	139	1353	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1762	1781	1777	
Q Serve(g_s), s	5.6	4.2	14.4	14.5	3.8	12.0	
Cycle Q Clear(g_c), s	5.6	4.2	14.4	14.5	3.8	12.0	
Prop In Lane	1.00	1.00		0.34	1.00		
Lane Grp Cap(c), veh/h	284	253	709	703	181	2186	
V/C Ratio(X)	0.73	0.56	0.81	0.81	0.77	0.62	
Avail Cap(c_a), veh/h	461	410	821	814	222	2492	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	20.2	19.6	13.5	13.5	22.2	6.1	
Incr Delay (d2), s/veh	3.6	1.9	5.2	5.3	12.2	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.4	1.5	5.2	5.1	2.0	2.1	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	23.8	21.5	18.7	18.9	34.3	6.4	
LnGrp LOS	C	C	B	B	C	A	
Approach Vol, veh/h	348		1140			1492	
Approach Delay, s/veh	22.9		18.8			9.0	
Approach LOS	C		B			A	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.0	26.7			37.6	13.0
Change Period (Y+Rc), s	5.8	6.5			6.5	4.9
Max Green Setting (Gmax), s	5.3	23.4			35.5	13.1
Max Q Clear Time (g_c+I1), s	5.8	16.5			14.0	7.6
Green Ext Time (p_c), s	0.0	3.7			9.8	0.6

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.



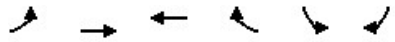
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	397	823	892	253	264	403
Future Volume (veh/h)	397	823	892	253	264	403
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1796	1870	1870	1870
Adj Flow Rate, veh/h	418	866	939	266	278	424
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	7	2	2	2
Cap, veh/h	577	1924	1040	483	455	405
Arrive On Green	0.17	0.56	0.30	0.30	0.26	0.26
Sat Flow, veh/h	3456	3503	3503	1585	1781	1585
Grp Volume(v), veh/h	418	866	939	266	278	424
Grp Sat Flow(s),veh/h/ln	1728	1706	1706	1585	1781	1585
Q Serve(g_s), s	7.2	9.4	16.6	8.8	8.7	16.1
Cycle Q Clear(g_c), s	7.2	9.4	16.6	8.8	8.7	16.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	577	1924	1040	483	455	405
V/C Ratio(X)	0.72	0.45	0.90	0.55	0.61	1.05
Avail Cap(c_a), veh/h	1491	2842	1056	490	455	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	8.0	21.0	18.3	20.7	23.5
Incr Delay (d2), s/veh	1.7	0.2	10.7	1.3	2.4	57.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.3	7.0	2.9	3.6	6.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.6	8.2	31.7	19.6	23.1	81.2
LnGrp LOS	C	A	C	B	C	F
Approach Vol, veh/h		1284	1205		702	
Approach Delay, s/veh		14.2	29.0		58.2	
Approach LOS		B	C		E	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	42.0	21.0	16.3	25.7
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	52.5	16.1	27.2	19.5
Max Q Clear Time (g_c+I1), s	11.4	18.1	9.2	18.6
Green Ext Time (p_c), s	6.3	0.0	1.3	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	1208	1279	16	11	54
Future Volume (veh/h)	90	1208	1279	16	11	54
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	1272	1346	17	12	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	160	2439	1710	22	21	100
Arrive On Green	0.09	0.69	0.48	0.48	0.08	0.08
Sat Flow, veh/h	1781	3647	3687	45	278	1318
Grp Volume(v), veh/h	95	1272	665	698	70	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1862	1619	0
Q Serve(g_s), s	2.5	8.4	15.1	15.1	2.0	0.0
Cycle Q Clear(g_c), s	2.5	8.4	15.1	15.1	2.0	0.0
Prop In Lane	1.00			0.02	0.17	0.81
Lane Grp Cap(c), veh/h	160	2439	845	886	123	0
V/C Ratio(X)	0.59	0.52	0.79	0.79	0.57	0.00
Avail Cap(c_a), veh/h	267	3001	1019	1068	273	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.0	3.7	10.5	10.5	21.4	0.0
Incr Delay (d2), s/veh	3.5	0.2	3.5	3.3	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	4.2	4.4	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.5	3.8	14.0	13.9	25.5	0.0
LnGrp LOS	C	A	B	B	C	A
Approach Vol, veh/h		1367	1363		70	
Approach Delay, s/veh		5.3	13.9		25.5	
Approach LOS		A	B		C	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	39.4	8.5	10.1	29.3
Change Period (Y+Rc), s	6.5	4.9	5.8	6.5
Max Green Setting (Gmax), s	40.5	8.1	7.2	27.5
Max Q Clear Time (g_c+I1), s	10.4	4.0	4.5	17.1
Green Ext Time (p_c), s	10.0	0.0	0.0	5.8

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

TECHNICAL APPENDIX 3 of 3

FOR

RIVERWALK SPECIFIC PLAN EIR
TRANSPORTATION IMPACT ANALYSIS FOR
Riverbank, CA

Prepared For:

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2290-02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	90	136	154	182	23	212	466	15	523
v/c Ratio	0.14	0.38	0.32	0.58	0.42	0.04	0.66	0.28	0.09	0.62
Control Delay	33.1	35.1	1.9	40.2	28.1	0.1	39.3	12.2	32.3	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	35.1	1.9	40.2	28.1	0.1	39.3	12.2	32.3	26.4
Queue Length 50th (ft)	10	36	0	62	56	0	84	55	6	105
Queue Length 95th (ft)	33	83	0	#149	#154	0	#187	114	24	152
Internal Link Dist (ft)		1573			1252			890		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	167	235	431	267	466	595	352	1849	167	1460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.38	0.32	0.58	0.39	0.04	0.60	0.25	0.09	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	55	24	649	853
v/c Ratio	0.12	0.08	0.46	0.62
Control Delay	0.5	27.4	7.8	14.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.5	27.4	7.8	14.3
Queue Length 50th (ft)	0	5	69	108
Queue Length 95th (ft)	0	35	341	#744
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	510	313	1503	1446
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.43	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	123	180	1	427	274	38	303	110	729
v/c Ratio	0.56	0.23	0.01	0.75	0.41	0.29	0.39	0.46	0.65
Control Delay	51.5	16.7	47.0	37.7	5.6	50.5	31.7	44.9	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	16.7	47.0	37.7	5.6	50.5	31.7	44.9	22.8
Queue Length 50th (ft)	63	47	1	204	0	20	75	55	145
Queue Length 95th (ft)	#183	137	6	385	56	#66	125	129	218
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	252	979	131	803	838	131	887	362	1364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.18	0.01	0.53	0.33	0.29	0.34	0.30	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	264	213	724	129
v/c Ratio	0.34	0.43	0.55	0.16
Control Delay	15.1	17.5	6.5	0.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.1	17.5	6.5	0.4
Queue Length 50th (ft)	56	45	88	0
Queue Length 95th (ft)	109	96	139	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1355	735	1843	1087
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.29	0.39	0.12

Intersection Summary

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	345	133	511	205	1
v/c Ratio	0.37	0.09	0.29	0.37	0.00
Control Delay	9.3	0.1	7.7	12.1	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	0.1	7.7	12.1	8.0
Queue Length 50th (ft)	41	0	30	26	0
Queue Length 95th (ft)	104	0	66	77	2
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1743	1507	3311	1067	1002
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.09	0.15	0.19	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	438	147	397	943	150	138	274	128	108	559	91
v/c Ratio	0.55	0.40	0.29	0.73	0.78	0.23	0.69	0.28	0.21	0.58	0.68	0.17
Control Delay	62.7	34.4	2.5	50.5	35.2	6.0	64.3	30.5	0.8	60.0	38.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	34.4	2.5	50.5	35.2	6.0	64.3	30.5	0.8	60.0	38.6	0.7
Queue Length 50th (ft)	32	84	0	121	276	2	82	74	0	64	171	0
Queue Length 95th (ft)	#103	152	10	#278	487	50	#253	131	0	#183	268	0
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	185	1251	543	676	1321	689	239	1018	628	242	1000	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.35	0.27	0.59	0.71	0.22	0.58	0.27	0.20	0.45	0.56	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	366	294	537	203	103	167	67	120	127
v/c Ratio	0.38	0.53	0.58	0.55	0.64	0.17	0.27	0.36	0.38	0.28
Control Delay	45.4	29.2	39.9	27.4	43.2	24.1	5.5	45.8	34.3	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	29.2	39.9	27.4	43.2	24.1	5.5	45.8	34.3	1.6
Queue Length 50th (ft)	30	69	60	105	80	37	0	27	48	0
Queue Length 95th (ft)	110	161	#190	237	239	97	46	102	127	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	246	1078	622	1250	520	725	718	226	424	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.34	0.47	0.43	0.39	0.14	0.23	0.30	0.28	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	484	141	164	1212	14	219	143	121	11	237	129
v/c Ratio	0.29	0.48	0.23	0.51	0.90	0.02	0.78	0.20	0.17	0.11	0.74	0.27
Control Delay	50.8	27.7	0.8	45.7	38.0	0.1	56.9	21.6	2.0	45.8	50.2	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	27.7	0.8	45.7	38.0	0.1	56.9	21.6	2.0	45.8	50.2	1.4
Queue Length 50th (ft)	18	122	0	50	379	0	130	55	0	7	136	0
Queue Length 95th (ft)	47	169	0	82	#529	0	#243	118	16	24	#233	0
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	103	1236	707	345	1384	764	314	711	711	103	381	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.39	0.20	0.48	0.88	0.02	0.70	0.20	0.17	0.11	0.62	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	8	23	2	92	111	157	1	409	68	437	39
v/c Ratio	0.03	0.05	0.00	0.28	0.18	0.23	0.00	0.28	0.22	0.45	0.04
Control Delay	30.4	18.6	0.0	31.3	15.9	2.5	31.0	16.0	30.2	16.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	18.6	0.0	31.3	15.9	2.5	31.0	16.0	30.2	16.6	0.1
Queue Length 50th (ft)	2	5	0	17	21	0	0	39	14	51	0
Queue Length 95th (ft)	18	24	0	#136	77	18	6	131	#93	#358	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	281	794	791	330	825	814	326	2343	320	1245	1120
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03	0.00	0.28	0.13	0.19	0.00	0.17	0.21	0.35	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	184	476	252	780	67	235	498	38	427	366
v/c Ratio	0.88	0.61	0.88	0.83	0.04	0.96	0.38	0.32	0.90	0.55
Control Delay	86.5	39.9	76.8	46.9	0.1	96.6	24.9	59.9	62.5	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	39.9	76.8	46.9	0.1	96.6	24.9	59.9	62.5	8.4
Queue Length 50th (ft)	129	151	174	273	0	167	128	26	291	13
Queue Length 95th (ft)	#302	216	#371	365	0	#379	196	67	#483	93
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	216	832	303	1006	1583	245	1310	130	506	679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.57	0.83	0.78	0.04	0.96	0.38	0.29	0.84	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	12	220	552	760	838
v/c Ratio	0.11	0.14	0.89	0.42	0.90
Control Delay	49.1	0.2	49.3	1.5	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	0.2	49.3	1.5	37.5
Queue Length 50th (ft)	7	0	318	0	440
Queue Length 95th (ft)	26	0	#529	133	#728
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	108	1583	632	1801	953
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.14	0.87	0.42	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	137	140	23	334	259	74	157	120	126	196	211
Average Queue (ft)	67	50	1	163	76	26	84	48	56	106	102
95th Queue (ft)	119	105	16	276	179	60	137	101	105	172	178
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				0							
Queuing Penalty (veh)				0							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)				26	0		0				
Queuing Penalty (veh)				64	0		0				

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	171	157	159	84
Average Queue (ft)	82	74	75	35
95th Queue (ft)	143	130	129	65
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	14			
Queuing Penalty (veh)	0			

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	118	48	184	134	169
Average Queue (ft)	49	12	62	24	82
95th Queue (ft)	100	37	142	85	144
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					7
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 64

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	201	471	117	117	13	129	696	62	680
v/c Ratio	0.18	0.57	0.88	0.65	0.20	0.02	0.60	0.55	0.34	0.72
Control Delay	38.2	36.0	31.1	53.4	24.5	0.1	46.2	21.6	38.9	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	36.0	31.1	53.4	24.5	0.1	46.2	21.6	38.9	29.2
Queue Length 50th (ft)	12	86	78	55	37	0	59	145	28	153
Queue Length 95th (ft)	38	166	#269	#144	100	0	#138	203	68	209
Internal Link Dist (ft)		1573			1252			740		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	143	391	566	182	573	604	230	1637	208	1612
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.51	0.83	0.64	0.20	0.02	0.56	0.43	0.30	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	78	48	748	1271
v/c Ratio	0.22	0.26	0.50	0.98
Control Delay	2.2	33.4	8.1	41.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.2	33.4	8.1	41.4
Queue Length 50th (ft)	0	16	86	~585
Queue Length 95th (ft)	7	58	429	#1228
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	387	188	1381	1302
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.26	0.54	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	243	299	6	213	135	18	446	340	906
v/c Ratio	0.79	0.42	0.07	0.66	0.29	0.19	0.69	0.82	0.60
Control Delay	64.3	28.2	61.7	53.1	1.6	62.7	48.5	56.9	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	28.2	61.7	53.1	1.6	62.7	48.5	56.9	25.2
Queue Length 50th (ft)	155	139	4	138	0	12	151	217	215
Queue Length 95th (ft)	#398	307	21	257	0	45	255	#444	402
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	364	761	88	420	531	97	785	604	1759
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.39	0.07	0.51	0.25	0.19	0.57	0.56	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	616	125	384	240
v/c Ratio	0.74	0.39	0.32	0.41
Control Delay	19.1	25.7	4.0	2.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.1	25.7	4.0	2.1
Queue Length 50th (ft)	159	38	36	0
Queue Length 95th (ft)	299	86	60	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1149	514	1633	825
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.24	0.24	0.29

Intersection Summary

Lane Group	NBT	NBR	SBT	SWL
Lane Group Flow (vph)	459	220	747	126
v/c Ratio	0.45	0.15	0.39	0.27
Control Delay	8.9	0.2	7.2	13.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.9	0.2	7.2	13.0
Queue Length 50th (ft)	54	0	44	17
Queue Length 95th (ft)	129	0	88	57
Internal Link Dist (ft)	600		504	747
Turn Bay Length (ft)		550		
Base Capacity (vph)	1728	1509	3283	1052
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.23	0.12

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	129	929	198	171	649	96	210	527	418	333	587	101
v/c Ratio	0.52	0.79	0.38	0.69	0.82	0.19	0.84	0.65	0.75	0.93	0.58	0.18
Control Delay	57.7	42.6	6.6	64.6	47.2	0.8	73.2	39.3	25.3	75.3	33.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	42.6	6.6	64.6	47.2	0.8	73.2	39.3	25.3	75.3	33.1	1.5
Queue Length 50th (ft)	40	203	0	54	207	0	125	157	110	200	164	0
Queue Length 95th (ft)	#109	325	54	#164	348	0	#386	263	266	#586	277	8
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	265	1220	531	248	816	525	280	949	610	383	1146	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.76	0.37	0.69	0.80	0.18	0.75	0.56	0.69	0.87	0.51	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	146	765	408	404	118	108	259	96	100	46
v/c Ratio	0.59	0.76	0.78	0.33	0.57	0.30	0.50	0.58	0.29	0.10
Control Delay	46.3	28.5	45.8	21.6	50.3	29.6	7.3	54.8	30.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	28.5	45.8	21.6	50.3	29.6	7.3	54.8	30.5	0.5
Queue Length 50th (ft)	60	143	90	68	50	44	0	42	41	0
Queue Length 95th (ft)	#209	314	#290	164	#204	97	55	#177	92	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	318	1281	561	1283	209	422	559	170	390	474
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.60	0.73	0.31	0.56	0.26	0.46	0.56	0.26	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	122	1241	368	148	724	6	175	202	182	15	162	43
v/c Ratio	1.21	1.05	0.48	0.47	0.56	0.01	0.68	0.32	0.28	0.15	0.60	0.10
Control Delay	193.8	72.6	5.1	44.1	24.8	0.0	50.1	24.0	5.0	45.4	45.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	193.8	72.6	5.1	44.1	24.8	0.0	50.1	24.0	5.0	45.4	45.0	0.5
Queue Length 50th (ft)	~86	~415	0	41	168	0	93	79	0	8	86	0
Queue Length 95th (ft)	#207	#596	63	75	247	0	169	158	48	29	151	0
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	101	1218	786	340	1365	756	309	651	672	101	375	509
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	1.02	0.47	0.44	0.53	0.01	0.57	0.31	0.27	0.15	0.43	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	32	119	11	60	40	98	18	646	122	486	23
v/c Ratio	0.16	0.29	0.02	0.29	0.08	0.17	0.08	0.62	0.55	0.47	0.02
Control Delay	34.6	22.4	0.1	36.1	18.9	0.6	33.1	21.0	43.6	18.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	22.4	0.1	36.1	18.9	0.6	33.1	21.0	43.6	18.1	0.0
Queue Length 50th (ft)	10	37	0	20	9	0	6	94	41	108	0
Queue Length 95th (ft)	47	85	0	#88	36	0	31	216	#187	#446	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	194	572	627	209	616	659	224	1955	221	1075	992
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.02	0.29	0.06	0.15	0.08	0.33	0.55	0.45	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	326	1048	239	538	66	119	675	68	298	188
v/c Ratio	0.88	0.90	1.07	0.61	0.04	0.82	0.72	0.60	0.74	0.37
Control Delay	65.7	42.8	123.5	38.0	0.0	86.9	36.5	71.1	48.8	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	42.8	123.5	38.0	0.0	86.9	36.5	71.1	48.8	4.7
Queue Length 50th (ft)	197	323	~170	165	0	76	193	43	177	0
Queue Length 95th (ft)	#449	484	#411	255	0	#224	289	#132	297	36
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	413	1229	224	886	1583	146	949	117	451	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.85	1.07	0.61	0.04	0.82	0.71	0.58	0.66	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	496	213	779	761
v/c Ratio	0.15	0.31	0.60	0.47	0.84
Control Delay	29.6	0.5	33.2	3.5	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	0.5	33.2	3.5	23.2
Queue Length 50th (ft)	9	0	54	0	156
Queue Length 95th (ft)	38	0	#188	183	#474
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	210	1583	392	1668	1273
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.31	0.54	0.47	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	257	249	90	251	178	82	246	210	324	280	250
Average Queue (ft)	145	124	9	124	48	18	140	99	181	150	121
95th Queue (ft)	234	213	49	213	107	59	219	173	286	233	207
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	1	0		23			4		1	0	
Queuing Penalty (veh)	2	0		31			1		3	0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	379	140	134	168
Average Queue (ft)	184	65	49	73
95th Queue (ft)	313	118	102	131
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	28			
Queuing Penalty (veh)	0			

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	145	63	247	192	146
Average Queue (ft)	60	21	84	42	67
95th Queue (ft)	117	51	189	127	122
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					5
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 38



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	263	166	182	23	277	566	15	602
v/c Ratio	0.16	0.51	0.72	0.38	0.04	0.88	0.34	0.10	0.69
Control Delay	35.0	15.8	50.3	28.7	0.1	61.3	12.7	34.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	15.8	50.3	28.7	0.1	61.3	12.7	34.1	28.2
Queue Length 50th (ft)	10	19	71	60	0	121	70	6	124
Queue Length 95th (ft)	34	56	#175	#166	0	#281	138	25	175
Internal Link Dist (ft)		1573		1252			2520		1474
Turn Bay Length (ft)	200		360		150	250		525	
Base Capacity (vph)	149	512	239	483	607	313	1700	149	1304
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.51	0.69	0.38	0.04	0.88	0.33	0.10	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	64	31	856	1031
v/c Ratio	0.17	0.16	0.58	0.77
Control Delay	1.0	31.2	10.1	20.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.0	31.2	10.1	20.1
Queue Length 50th (ft)	0	8	110	159
Queue Length 95th (ft)	0	42	#609	#951
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	398	195	1362	1347
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.63	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	151	257	14	522	410	38	369	205	817
v/c Ratio	0.81	0.31	0.14	0.91	0.56	0.38	0.59	0.80	0.70
Control Delay	73.4	18.6	49.1	53.3	8.2	56.9	38.0	63.7	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	18.6	49.1	53.3	8.2	56.9	38.0	63.7	26.5
Queue Length 50th (ft)	85	80	8	280	20	21	103	113	190
Queue Length 95th (ft)	#234	201	31	#551	104	#66	150	#279	263
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	192	833	100	615	763	100	688	276	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.31	0.14	0.85	0.54	0.38	0.54	0.74	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	458	361	975	245
v/c Ratio	0.73	0.80	0.76	0.39
Control Delay	22.7	37.4	10.1	1.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.7	37.4	10.1	1.8
Queue Length 50th (ft)	124	105	153	0
Queue Length 95th (ft)	189	#254	229	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1043	450	1682	826
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.80	0.58	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	408	241	582	344	1
v/c Ratio	0.60	0.16	0.45	0.60	0.00
Control Delay	14.5	0.2	10.7	16.5	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	0.2	10.7	16.5	8.0
Queue Length 50th (ft)	65	0	45	57	0
Queue Length 95th (ft)	148	0	90	147	2
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1555	1486	2955	823	773
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.16	0.20	0.42	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	155	450	147	411	958	151	138	383	142	108	692	161
v/c Ratio	0.90	0.40	0.29	0.76	0.86	0.25	0.72	0.38	0.23	0.60	0.78	0.29
Control Delay	97.8	35.5	2.4	53.4	41.1	6.1	67.8	31.4	1.0	62.3	42.5	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.8	35.5	2.4	53.4	41.1	6.1	67.8	31.4	1.0	62.3	42.5	2.4
Queue Length 50th (ft)	51	90	0	128	293	3	84	107	0	66	222	0
Queue Length 95th (ft)	#168	156	10	#292	497	51	#253	181	1	#183	341	15
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	172	1166	520	629	1235	653	223	1021	629	225	939	568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.39	0.28	0.65	0.78	0.23	0.62	0.38	0.23	0.48	0.74	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	544	294	698	250	103	167	67	120	139
v/c Ratio	0.48	0.67	0.62	0.65	0.74	0.19	0.29	0.39	0.40	0.32
Control Delay	51.0	32.9	44.0	30.3	49.0	26.5	5.6	49.8	37.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	32.9	44.0	30.3	49.0	26.5	5.6	49.8	37.5	2.2
Queue Length 50th (ft)	42	122	71	162	117	42	0	32	57	0
Queue Length 95th (ft)	#139	245	#190	320	#336	97	46	102	127	3
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	223	989	565	1146	472	664	672	205	391	502
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.55	0.52	0.61	0.53	0.16	0.25	0.33	0.31	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	56	484	141	164	1213	47	219	352	121	45	481	162
v/c Ratio	0.58	0.46	0.22	0.54	0.95	0.07	0.81	0.56	0.19	0.47	1.36	0.33
Control Delay	69.6	27.9	0.8	48.2	46.3	0.2	61.6	31.3	2.1	60.7	210.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	27.9	0.8	48.2	46.3	0.2	61.6	31.3	2.1	60.7	210.8	2.7
Queue Length 50th (ft)	34	122	0	50	380	0	130	187	0	27	~397	0
Queue Length 95th (ft)	#92	169	0	82	#530	0	#243	285	16	#71	#589	12
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	96	1151	675	321	1289	728	292	632	651	96	354	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.42	0.21	0.51	0.94	0.06	0.75	0.56	0.19	0.47	1.36	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	8	32	6	92	121	163	3	452	75	478	39
v/c Ratio	0.03	0.07	0.01	0.26	0.19	0.25	0.01	0.30	0.24	0.48	0.04
Control Delay	30.9	18.8	0.0	31.0	16.3	2.8	30.3	16.2	31.0	17.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	18.8	0.0	31.0	16.3	2.8	30.3	16.2	31.0	17.3	0.1
Queue Length 50th (ft)	2	6	0	18	24	0	1	44	16	58	0
Queue Length 95th (ft)	18	30	0	#136	83	20	10	145	#105	#411	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	274	776	778	357	809	802	318	2313	313	1229	1107
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.01	0.26	0.15	0.20	0.01	0.20	0.24	0.39	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	184	510	252	810	90	240	513	60	445	366
v/c Ratio	0.88	0.64	0.89	0.85	0.06	0.99	0.42	0.50	0.92	0.55
Control Delay	88.2	41.1	78.2	48.5	0.1	105.1	27.1	67.2	66.9	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	41.1	78.2	48.5	0.1	105.1	27.1	67.2	66.9	8.6
Queue Length 50th (ft)	129	165	174	287	0	171	134	41	307	14
Queue Length 95th (ft)	#302	233	#371	382	0	#391	204	#97	#517	95
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	213	822	299	994	1583	242	1230	128	499	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.62	0.84	0.81	0.06	0.99	0.42	0.47	0.89	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	12	231	563	782	863
v/c Ratio	0.11	0.15	0.91	0.43	0.92
Control Delay	49.2	0.2	52.1	1.6	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	0.2	52.1	1.6	40.4
Queue Length 50th (ft)	7	0	327	0	464
Queue Length 95th (ft)	26	0	#543	139	#764
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	106	1583	620	1801	936
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.91	0.43	0.92

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	184	189	139	497	260	78	187	150	219	234	248
Average Queue (ft)	91	75	18	262	151	31	111	75	111	130	131
95th Queue (ft)	158	145	77	450	300	69	170	131	188	204	217
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				1							
Queuing Penalty (veh)				5							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	0	0		42	1		0			0	
Queuing Penalty (veh)	0	0		156	3		0			0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	236	330	383	144
Average Queue (ft)	131	132	117	61
95th Queue (ft)	212	254	278	111
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	24		0	
Queuing Penalty (veh)	0		1	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	144	59	241	190	226	21
Average Queue (ft)	70	19	92	45	127	1
95th Queue (ft)	123	49	195	131	206	19
Link Distance (ft)	636		507	507	726	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					17	
Queuing Penalty (veh)					0	

Zone Summary

Zone wide Queuing Penalty: 165



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	201	549	138	117	13	204	819	62	785
v/c Ratio	0.20	0.56	1.06	0.82	0.21	0.02	0.96	0.66	0.37	0.75
Control Delay	40.9	37.3	74.4	74.8	26.3	0.1	92.2	24.7	42.0	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	37.3	74.4	74.8	26.3	0.1	92.2	24.7	42.0	30.1
Queue Length 50th (ft)	13	92	~189	69	40	0	104	182	30	184
Queue Length 95th (ft)	40	176	#420	#186	106	0	#261	246	72	244
Internal Link Dist (ft)		1573			1252			830		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	133	361	520	168	565	598	212	1514	192	1489
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.56	1.06	0.82	0.21	0.02	0.96	0.54	0.32	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	91	55	992	1540
v/c Ratio	0.25	0.29	0.67	1.18
Control Delay	3.2	34.0	12.0	111.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.2	34.0	12.0	111.2
Queue Length 50th (ft)	0	19	146	~797
Queue Length 95th (ft)	14	#68	#765	#1534
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	386	187	1433	1302
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.29	0.69	1.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	281	399	20	307	266	18	540	483	1030
v/c Ratio	0.96	0.59	0.28	0.88	0.54	0.23	0.85	0.99	0.64
Control Delay	94.7	37.4	70.8	75.6	11.3	67.4	62.5	84.5	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.7	37.4	70.8	75.6	11.3	67.4	62.5	84.5	27.4
Queue Length 50th (ft)	217	236	15	238	13	14	216	368	275
Queue Length 95th (ft)	#480	425	48	374	94	45	311	#742	476
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	298	676	72	350	497	79	651	495	1610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.59	0.28	0.88	0.54	0.23	0.83	0.98	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	877	271	625	397
v/c Ratio	1.06	0.79	0.47	0.74
Control Delay	71.7	45.9	6.4	12.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	71.7	45.9	6.4	12.0
Queue Length 50th (ft)	~356	101	70	0
Queue Length 95th (ft)	#723	#253	215	68
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	826	356	1341	669
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.06	0.76	0.47	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL
Lane Group Flow (vph)	553	377	844	272
v/c Ratio	0.69	0.25	0.55	0.56
Control Delay	14.8	0.4	10.4	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.8	0.4	10.4	19.1
Queue Length 50th (ft)	90	0	66	50
Queue Length 95th (ft)	209	0	133	144
Internal Link Dist (ft)	600		504	747
Turn Bay Length (ft)		550		
Base Capacity (vph)	1465	1494	2784	772
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.25	0.30	0.35

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	214	944	198	190	663	97	210	688	438	334	744	183
v/c Ratio	0.84	0.82	0.39	0.79	0.86	0.19	0.86	0.78	0.75	0.96	0.69	0.31
Control Delay	77.6	44.8	6.6	74.3	51.6	0.8	76.8	43.8	25.9	82.1	35.8	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.6	44.8	6.6	74.3	51.6	0.8	76.8	43.8	25.9	82.1	35.8	5.5
Queue Length 50th (ft)	70	213	0	62	219	0	129	218	125	207	221	0
Queue Length 95th (ft)	#209	331	54	#188	357	0	#386	355	293	#590	364	51
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	254	1176	520	239	787	514	268	915	596	368	1111	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.80	0.38	0.79	0.84	0.19	0.78	0.75	0.73	0.91	0.67	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	163	1054	408	582	216	108	259	96	100	63
v/c Ratio	0.66	0.91	0.82	0.49	1.10	0.32	0.52	0.63	0.31	0.15
Control Delay	50.1	38.1	50.5	24.1	133.5	30.6	7.5	59.3	31.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	38.1	50.5	24.1	133.5	30.6	7.5	59.3	31.6	0.8
Queue Length 50th (ft)	70	226	94	110	~117	46	0	44	43	0
Queue Length 95th (ft)	#241	#534	#290	245	#389	97	55	#177	92	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	292	1193	515	1181	196	395	540	157	365	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.88	0.79	0.49	1.10	0.27	0.48	0.61	0.27	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	157	1243	368	148	725	29	175	491	182	39	445	76
v/c Ratio	1.65	1.12	0.49	0.49	0.59	0.04	0.70	0.81	0.29	0.41	1.25	0.15
Control Delay	363.6	99.1	5.5	46.5	27.5	0.1	53.3	42.1	5.5	56.4	169.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	363.6	99.1	5.5	46.5	27.5	0.1	53.3	42.1	5.5	56.4	169.4	0.7
Queue Length 50th (ft)	~139	~467	2	44	187	0	100	283	1	23	~336	0
Queue Length 95th (ft)	#264	#597	65	75	247	0	169	#469	49	57	#531	0
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	95	1146	757	319	1283	725	291	609	638	95	355	495
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.65	1.08	0.49	0.46	0.57	0.04	0.60	0.81	0.29	0.41	1.25	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	32	125	13	60	45	112	20	733	135	574	23
v/c Ratio	0.17	0.30	0.03	0.30	0.09	0.20	0.09	0.66	0.63	0.54	0.02
Control Delay	35.5	23.3	0.1	37.2	19.5	0.8	34.1	21.8	49.6	19.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	23.3	0.1	37.2	19.5	0.8	34.1	21.8	49.6	19.3	0.0
Queue Length 50th (ft)	11	41	0	20	11	0	7	113	48	137	0
Queue Length 95th (ft)	47	88	0	#88	40	0	34	253	#207	#563	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	187	557	615	202	600	648	218	1909	214	1075	992
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.22	0.02	0.30	0.07	0.17	0.09	0.38	0.63	0.53	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	326	1072	239	558	106	123	702	109	324	188
v/c Ratio	0.89	0.91	1.09	0.63	0.07	0.86	0.82	0.95	0.78	0.36
Control Delay	66.8	44.7	129.6	38.7	0.1	94.6	42.4	122.7	51.6	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	44.7	129.6	38.7	0.1	94.6	42.4	122.7	51.6	4.6
Queue Length 50th (ft)	197	334	~170	172	0	79	206	71	196	0
Queue Length 95th (ft)	#449	500	#411	265	0	#234	305	#223	326	36
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	405	1209	220	889	1583	143	907	115	444	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.89	1.09	0.63	0.07	0.86	0.77	0.95	0.73	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	504	221	811	792
v/c Ratio	0.16	0.32	0.63	0.49	0.86
Control Delay	29.9	0.5	34.7	3.6	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	0.5	34.7	3.6	24.5
Queue Length 50th (ft)	9	0	61	0	167
Queue Length 95th (ft)	38	0	#197	198	#507
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	203	1583	379	1668	1230
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.58	0.49	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B73
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR	T
Maximum Queue (ft)	339	587	147	494	260	175	395	340	389	822	677	85
Average Queue (ft)	241	267	31	276	152	24	218	174	303	366	235	7
95th Queue (ft)	365	502	110	489	307	103	348	298	452	849	590	133
Link Distance (ft)		8052		501			507	507		1172	1172	2213
Upstream Blk Time (%)				3			0			1		
Queuing Penalty (veh)				17			1			6		
Storage Bay Dist (ft)	250		100		170	180			300			
Storage Blk Time (%)	17	7	0	56	1		24		34	0		
Queuing Penalty (veh)	64	18	0	153	2		4		129	0		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	512	267	274	268
Average Queue (ft)	420	144	113	140
95th Queue (ft)	586	234	263	234
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)	4			
Queuing Penalty (veh)	34			
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	55		0	
Queuing Penalty (veh)	0		0	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	191	70	273	231	197
Average Queue (ft)	92	28	104	57	123
95th Queue (ft)	161	59	216	158	208
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					16
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 429

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	90	143	158	182	23	223	503	15	533
v/c Ratio	0.15	0.41	0.34	0.66	0.36	0.04	0.72	0.32	0.10	0.66
Control Delay	33.6	36.2	2.2	45.0	27.1	0.1	43.1	12.8	32.6	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	36.2	2.2	45.0	27.1	0.1	43.1	12.8	32.6	27.9
Queue Length 50th (ft)	10	36	0	64	56	0	90	60	6	107
Queue Length 95th (ft)	33	83	0	#155	#155	0	#202	123	24	154
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	155	218	419	249	501	619	327	1726	155	1358
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.41	0.34	0.63	0.36	0.04	0.68	0.29	0.10	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	55	24	711	878
v/c Ratio	0.12	0.08	0.50	0.64
Control Delay	0.6	28.0	8.3	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.6	28.0	8.3	14.5
Queue Length 50th (ft)	0	5	80	114
Queue Length 95th (ft)	0	35	395	#773
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	491	293	1480	1423
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.08	0.48	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	124	218	1	532	332	38	308	132	730
v/c Ratio	0.65	0.25	0.01	0.88	0.47	0.35	0.46	0.57	0.70
Control Delay	58.1	16.9	47.0	47.0	7.9	54.5	34.6	49.4	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	16.9	47.0	47.0	7.9	54.5	34.6	49.4	25.3
Queue Length 50th (ft)	67	61	1	277	18	21	83	70	155
Queue Length 95th (ft)	#185	168	6	#566	93	#66	126	152	219
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	208	885	108	666	749	108	738	299	1189
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.01	0.80	0.44	0.35	0.42	0.44	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	326	221	892	132
v/c Ratio	0.58	0.50	0.66	0.18
Control Delay	18.8	20.0	8.1	0.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.8	20.0	8.1	0.5
Queue Length 50th (ft)	74	51	127	0
Queue Length 95th (ft)	133	107	199	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1304	587	1810	973
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.38	0.49	0.14

Intersection Summary

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	349	135	512	213	1
v/c Ratio	0.37	0.09	0.29	0.38	0.00
Control Delay	9.4	0.1	7.8	12.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	0.1	7.8	12.2	8.0
Queue Length 50th (ft)	42	0	31	27	0
Queue Length 95th (ft)	107	0	67	80	2
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1734	1505	3294	1059	994
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.09	0.16	0.20	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	108	589	180	551	1241	150	150	274	182	108	559	100
v/c Ratio	0.64	0.51	0.35	0.93	1.02	0.23	0.77	0.29	0.30	0.61	0.70	0.19
Control Delay	68.9	36.7	5.0	66.2	66.4	5.9	72.0	31.4	3.5	63.0	40.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	36.7	5.0	66.2	66.4	5.9	72.0	31.4	3.5	63.0	40.7	0.8
Queue Length 50th (ft)	34	120	0	173	~451	2	90	74	0	64	171	0
Queue Length 95th (ft)	#112	205	38	#439	#778	50	#281	131	30	#183	268	0
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	169	1165	520	616	1211	643	218	961	605	220	922	561
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.51	0.35	0.89	1.02	0.23	0.69	0.29	0.30	0.49	0.61	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	381	351	567	217	116	177	67	127	127
v/c Ratio	0.39	0.55	0.66	0.56	0.67	0.19	0.28	0.37	0.40	0.28
Control Delay	46.5	30.2	42.1	28.0	44.8	24.3	5.3	46.9	35.3	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	30.2	42.1	28.0	44.8	24.3	5.3	46.9	35.3	1.6
Queue Length 50th (ft)	31	76	74	116	89	43	0	28	52	0
Queue Length 95th (ft)	110	167	#245	251	#273	107	47	102	134	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	239	1050	604	1217	504	706	710	219	413	518
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.36	0.58	0.47	0.43	0.16	0.25	0.31	0.31	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	78	641	141	259	1527	16	219	152	202	14	252	270
v/c Ratio	0.82	0.57	0.21	0.82	1.20	0.02	0.81	0.23	0.29	0.15	0.79	0.58
Control Delay	100.9	29.2	0.7	63.9	127.7	0.1	62.5	22.6	4.8	47.1	56.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	29.2	0.7	63.9	127.7	0.1	62.5	22.6	4.8	47.1	56.5	12.5
Queue Length 50th (ft)	48	171	0	81	~610	0	130	59	0	8	146	16
Queue Length 95th (ft)	#132	228	0	#147	#745	0	#243	123	51	28	#256	90
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	95	1134	669	316	1271	721	288	675	702	95	349	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.57	0.21	0.82	1.20	0.02	0.76	0.23	0.29	0.15	0.72	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	94	30	145	97	114	157	51	475	68	480	69
v/c Ratio	0.40	0.07	0.27	0.38	0.22	0.27	0.19	0.29	0.26	0.55	0.08
Control Delay	41.7	21.9	2.4	40.2	23.4	2.7	35.0	16.9	36.8	23.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	21.9	2.4	40.2	23.4	2.7	35.0	16.9	36.8	23.6	0.2
Queue Length 50th (ft)	35	10	0	36	39	0	18	67	25	157	0
Queue Length 95th (ft)	#144	29	12	#144	79	18	63	152	#93	#413	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	233	673	702	252	673	702	271	1897	266	1007	941
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.04	0.21	0.38	0.17	0.22	0.19	0.25	0.26	0.48	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	237	537	264	822	131	271	577	194	600	474
v/c Ratio	1.13	0.67	0.93	0.87	0.08	1.14	0.50	1.54	1.22	0.72
Control Delay	146.6	42.0	85.3	50.0	0.1	145.3	30.1	315.2	153.7	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	146.6	42.0	85.3	50.0	0.1	145.3	30.1	315.2	153.7	18.1
Queue Length 50th (ft)	~192	174	184	292	0	~220	159	~191	~530	86
Queue Length 95th (ft)	#405	245	#395	389	0	#449	236	#383	#796	224
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	210	810	294	978	1583	238	1148	126	491	662
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.66	0.90	0.84	0.08	1.14	0.50	1.54	1.22	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	36	220	552	859	1065
v/c Ratio	0.49	0.14	1.02	0.51	1.06
Control Delay	92.4	0.2	93.4	3.0	77.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	92.4	0.2	93.4	3.0	77.8
Queue Length 50th (ft)	35	0	~579	139	~1155
Queue Length 95th (ft)	70	0	#707	155	#1231
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	74	1583	542	1679	1007
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.14	1.02	0.51	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	152	144	30	466	260	75	169	134	156	217	220
Average Queue (ft)	70	56	2	227	119	29	93	57	70	117	110
95th Queue (ft)	127	115	24	406	266	63	150	111	127	189	187
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				0							
Queuing Penalty (veh)				2							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)				38	0		0				
Queuing Penalty (veh)				112	0		0				

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	205	154	249	82
Average Queue (ft)	96	77	100	35
95th Queue (ft)	168	134	193	64
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	17			
Queuing Penalty (veh)	0			

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	128	49	190	144	175
Average Queue (ft)	49	12	61	25	83
95th Queue (ft)	100	37	148	91	146
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					7
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 114

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	201	488	123	117	13	140	713	62	702
v/c Ratio	0.19	0.55	0.90	0.69	0.20	0.02	0.66	0.56	0.35	0.73
Control Delay	38.9	35.5	35.6	57.9	24.8	0.1	50.1	21.8	39.7	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	35.5	35.6	57.9	24.8	0.1	50.1	21.8	39.7	29.6
Queue Length 50th (ft)	12	87	95	58	37	0	65	150	28	159
Queue Length 95th (ft)	38	167	#301	#154	101	0	#155	210	69	216
Internal Link Dist (ft)		1573			1252			830		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	139	379	552	177	580	610	223	1589	202	1565
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.53	0.88	0.69	0.20	0.02	0.63	0.45	0.31	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	78	48	776	1314
v/c Ratio	0.22	0.26	0.52	1.01
Control Delay	2.2	33.4	8.5	49.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.2	33.4	8.5	49.1
Queue Length 50th (ft)	0	16	92	~619
Queue Length 95th (ft)	7	58	458	#1278
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	387	188	1381	1302
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.26	0.56	1.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	244	368	6	255	158	18	449	379	912
v/c Ratio	0.83	0.51	0.07	0.74	0.33	0.20	0.71	0.86	0.59
Control Delay	70.3	31.2	62.8	58.4	2.7	64.6	51.4	61.3	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	31.2	62.8	58.4	2.7	64.6	51.4	61.3	25.5
Queue Length 50th (ft)	172	194	4	179	0	13	166	263	232
Queue Length 95th (ft)	#399	386	21	307	8	45	257	#525	405
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	343	747	83	398	515	91	743	570	1692
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.49	0.07	0.64	0.31	0.20	0.60	0.66	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	722	129	451	247
v/c Ratio	0.77	0.44	0.35	0.46
Control Delay	20.8	28.0	4.0	2.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.8	28.0	4.0	2.8
Queue Length 50th (ft)	205	44	44	0
Queue Length 95th (ft)	#438	88	73	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1023	442	1544	752
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.29	0.29	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL
Lane Group Flow (vph)	462	227	752	131
v/c Ratio	0.46	0.15	0.39	0.28
Control Delay	8.9	0.2	7.3	13.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.9	0.2	7.3	13.2
Queue Length 50th (ft)	55	0	44	18
Queue Length 95th (ft)	131	0	90	59
Internal Link Dist (ft)	600		504	747
Turn Bay Length (ft)		550		
Base Capacity (vph)	1721	1509	3270	1046
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.23	0.13

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	139	1405	219	303	1021	96	246	527	600	333	587	110
v/c Ratio	0.58	1.21	0.42	1.29	1.30	0.19	0.96	0.58	1.02	0.97	0.55	0.19
Control Delay	60.8	140.6	7.1	200.1	180.1	0.8	93.7	37.5	66.5	83.9	32.8	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	140.6	7.1	200.1	180.1	0.8	93.7	37.5	66.5	83.9	32.8	2.1
Queue Length 50th (ft)	44	~424	0	~123	~466	0	155	157	~304	206	164	0
Queue Length 95th (ft)	#120	#578	61	#314	#673	0	#468	263	#596	#586	277	14
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	250	1158	526	234	784	513	264	901	590	361	1086	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.21	0.42	1.29	1.30	0.19	0.93	0.58	1.02	0.92	0.54	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	146	803	540	423	121	148	347	96	149	46
v/c Ratio	0.60	0.78	1.00	0.33	0.60	0.40	0.59	0.60	0.43	0.10
Control Delay	47.4	30.0	77.0	21.9	53.2	31.3	7.6	57.3	32.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	30.0	77.0	21.9	53.2	31.3	7.6	57.3	32.8	0.5
Queue Length 50th (ft)	64	160	~143	76	55	63	0	44	65	0
Queue Length 95th (ft)	#209	336	#403	173	#212	127	62	#177	130	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	305	1233	538	1286	200	409	618	163	377	465
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.65	1.00	0.33	0.60	0.36	0.56	0.59	0.40	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	272	1755	378	299	1144	11	175	260	373	18	196	131
v/c Ratio	2.78	1.50	0.49	0.91	0.87	0.01	0.69	0.44	0.57	0.18	0.68	0.29
Control Delay	843.5	256.0	5.1	74.4	36.2	0.0	52.4	28.1	14.3	47.5	48.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	843.5	256.0	5.1	74.4	36.2	0.0	52.4	28.1	14.3	47.5	48.4	1.7
Queue Length 50th (ft)	~275	~763	0	91	326	0	97	108	58	10	109	0
Queue Length 95th (ft)	#444	#944	63	#178	#482	0	170	207	168	33	182	0
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	98	1179	779	329	1321	740	299	614	672	98	363	500
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.78	1.49	0.49	0.91	0.87	0.01	0.59	0.42	0.56	0.18	0.54	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	125	102	81	48	98	171	743	122	580	119
v/c Ratio	0.55	0.34	0.21	0.47	0.12	0.20	0.91	0.58	0.66	0.86	0.17
Control Delay	50.7	26.8	1.0	45.6	23.4	0.9	87.2	20.1	55.8	36.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	26.8	1.0	45.6	23.4	0.9	87.2	20.1	55.8	36.7	1.4
Queue Length 50th (ft)	37	48	0	33	18	0	~84	115	51	208	0
Queue Length 95th (ft)	#142	88	0	#125	41	0	#261	254	#187	#570	10
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	161	492	567	174	492	567	187	1662	184	886	850
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.25	0.18	0.47	0.10	0.17	0.91	0.45	0.66	0.65	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	482	1251	246	645	316	205	912	242	476	307
v/c Ratio	1.22	1.06	1.15	0.78	0.20	1.47	1.04	2.16	1.10	0.51
Control Delay	157.0	77.3	149.3	45.1	0.3	281.9	77.7	579.4	111.7	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	157.0	77.3	149.3	45.1	0.3	281.9	77.7	579.4	111.7	7.0
Queue Length 50th (ft)	~369	~460	~179	205	0	~177	~335	~245	~362	0
Queue Length 95th (ft)	#734	#680	#426	310	0	#399	#459	#489	#562	68
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	394	1179	214	828	1583	139	880	112	433	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	1.06	1.15	0.78	0.20	1.47	1.04	2.16	1.10	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	158	496	213	981	1045
v/c Ratio	0.89	0.31	0.92	0.69	1.00
Control Delay	86.8	0.5	82.1	8.5	49.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	86.8	0.5	82.1	8.5	49.2
Queue Length 50th (ft)	90	0	121	220	~551
Queue Length 95th (ft)	#205	0	#255	340	#863
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	177	1583	232	1422	1043
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.31	0.92	0.69	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	295	320	116	346	239	84	282	215	338	290	226
Average Queue (ft)	166	164	11	166	70	19	161	117	204	158	127
95th Queue (ft)	265	280	59	296	177	64	249	190	305	246	206
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				0							
Queuing Penalty (veh)				0							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	2	1		34	0		8		1	0	
Queuing Penalty (veh)	8	3		54	0		1		4	0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	411	135	136	160
Average Queue (ft)	217	63	53	80
95th Queue (ft)	370	114	110	139
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	30			
Queuing Penalty (veh)	0			

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	135	54	240	206	142
Average Queue (ft)	61	20	88	40	66
95th Queue (ft)	114	49	189	129	122
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					5
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 70

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	90	195	170	182	23	288	602	15	611
v/c Ratio	0.16	0.43	0.47	0.73	0.38	0.04	0.92	0.36	0.10	0.69
Control Delay	35.2	38.4	5.6	51.7	28.8	0.1	68.0	12.9	34.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	38.4	5.6	51.7	28.8	0.1	68.0	12.9	34.2	28.3
Queue Length 50th (ft)	10	38	0	74	60	0	127	75	6	127
Queue Length 95th (ft)	34	87	24	#181	#167	0	#295	148	25	178
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	148	208	412	238	483	606	312	1700	148	1298
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.43	0.47	0.71	0.38	0.04	0.92	0.35	0.10	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	64	31	918	1056
v/c Ratio	0.17	0.16	0.63	0.78
Control Delay	1.0	31.2	11.1	20.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.0	31.2	11.1	20.8
Queue Length 50th (ft)	0	8	125	168
Queue Length 95th (ft)	0	42	#680	#980
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	398	195	1362	1347
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.67	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	152	295	14	626	468	38	374	226	818
v/c Ratio	0.83	0.35	0.15	1.05	0.64	0.40	0.61	0.88	0.71
Control Delay	77.6	19.2	49.3	84.5	12.4	57.9	38.9	73.4	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.6	19.2	49.3	84.5	12.4	57.9	38.9	73.4	27.1
Queue Length 50th (ft)	86	95	8	~396	53	21	105	126	191
Queue Length 95th (ft)	#237	233	31	#713	176	#66	152	#316	264
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	185	850	96	595	737	96	669	266	1150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.35	0.15	1.05	0.64	0.40	0.56	0.85	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	515	369	1144	247
v/c Ratio	0.76	0.86	0.88	0.41
Control Delay	23.1	44.7	16.0	2.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.1	44.7	16.0	2.1
Queue Length 50th (ft)	145	118	221	0
Queue Length 95th (ft)	215	#280	341	0
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	1000	431	1623	793
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.86	0.70	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	412	243	584	352	1
v/c Ratio	0.60	0.16	0.45	0.61	0.00
Control Delay	14.7	0.2	10.8	16.7	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	0.2	10.8	16.7	8.0
Queue Length 50th (ft)	67	0	46	59	0
Queue Length 95th (ft)	149	0	90	152	2
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1541	1483	2929	813	763
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.16	0.20	0.43	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	601	180	568	1255	151	150	383	196	108	692	170
v/c Ratio	0.99	0.54	0.36	0.96	1.06	0.24	0.78	0.38	0.32	0.62	0.80	0.31
Control Delay	119.7	38.2	5.0	73.8	79.5	6.0	74.3	32.2	4.4	64.2	44.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.7	38.2	5.0	73.8	79.5	6.0	74.3	32.2	4.4	64.2	44.4	3.0
Queue Length 50th (ft)	54	126	0	185	~480	3	92	107	0	66	222	0
Queue Length 95th (ft)	#175	209	38	#456	#791	51	#281	181	41	#183	341	22
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	164	1120	507	599	1179	630	212	1000	621	214	899	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.54	0.36	0.95	1.06	0.24	0.71	0.38	0.32	0.50	0.77	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	560	351	728	264	116	177	67	127	139
v/c Ratio	0.48	0.70	0.71	0.67	0.76	0.21	0.30	0.40	0.42	0.32
Control Delay	52.0	34.2	47.1	31.2	50.9	26.5	5.5	50.8	38.4	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	34.2	47.1	31.2	50.9	26.5	5.5	50.8	38.4	2.2
Queue Length 50th (ft)	43	130	89	175	128	49	0	33	63	0
Queue Length 95th (ft)	#139	252	#245	336	#363	107	47	102	134	3
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	218	969	552	1135	461	650	667	200	383	496
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.58	0.64	0.64	0.57	0.18	0.27	0.34	0.33	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	104	641	141	259	1529	49	219	360	202	48	496	303
v/c Ratio	1.12	0.58	0.21	0.84	1.23	0.07	0.82	0.63	0.32	0.52	1.45	0.62
Control Delay	173.7	29.9	0.7	66.2	138.5	0.2	63.6	35.1	5.4	64.5	248.3	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.7	29.9	0.7	66.2	138.5	0.2	63.6	35.1	5.4	64.5	248.3	15.4
Queue Length 50th (ft)	~74	171	0	81	~611	0	130	193	0	29	~416	34
Queue Length 95th (ft)	#178	228	0	#147	#746	0	#243	292	51	#76	#611	120
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	93	1113	661	310	1247	712	282	571	625	93	343	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.58	0.21	0.84	1.23	0.07	0.78	0.63	0.32	0.52	1.45	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	94	39	148	97	123	166	53	517	75	522	69
v/c Ratio	0.42	0.09	0.28	0.40	0.25	0.29	0.21	0.31	0.30	0.59	0.08
Control Delay	42.9	22.4	2.6	41.4	24.0	3.4	35.8	17.0	38.2	24.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	22.4	2.6	41.4	24.0	3.4	35.8	17.0	38.2	24.4	0.2
Queue Length 50th (ft)	38	14	0	39	46	0	20	75	29	179	0
Queue Length 95th (ft)	#144	34	13	#144	84	22	65	166	#105	#467	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	223	646	681	240	646	681	258	1863	254	988	927
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.06	0.22	0.40	0.19	0.24	0.21	0.28	0.30	0.53	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	237	572	264	853	154	276	592	216	618	474
v/c Ratio	1.13	0.71	0.93	0.89	0.10	1.16	0.52	1.73	1.26	0.72
Control Delay	148.1	43.3	85.6	52.2	0.1	153.5	30.7	388.6	169.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.1	43.3	85.6	52.2	0.1	153.5	30.7	388.6	169.7	18.3
Queue Length 50th (ft)	~192	189	184	307	0	~228	165	~223	~556	87
Queue Length 95th (ft)	#405	263	#395	407	0	#461	243	#428	#829	226
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	209	808	293	975	1583	237	1143	125	490	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.71	0.90	0.87	0.10	1.16	0.52	1.73	1.26	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	36	231	563	881	1090
v/c Ratio	0.49	0.15	1.04	0.52	1.08
Control Delay	92.4	0.2	98.3	3.1	86.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	92.4	0.2	98.3	3.1	86.1
Queue Length 50th (ft)	35	0	~601	145	~1206
Queue Length 95th (ft)	70	0	#729	162	#1278
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	74	1583	542	1679	1007
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.15	1.04	0.52	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	198	196	132	513	260	113	222	163	244	232	244
Average Queue (ft)	94	84	18	391	219	30	115	79	123	134	132
95th Queue (ft)	167	156	79	598	338	76	185	140	205	207	214
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				4							
Queuing Penalty (veh)				43							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	0	0		52	1	0	1		0		
Queuing Penalty (veh)	0	0		222	8	0	0		0		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	281	534	1223	136
Average Queue (ft)	148	215	446	62
95th Queue (ft)	236	541	1356	108
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			1	
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	27		12	
Queuing Penalty (veh)	0		37	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	153	62	228	176	221	11
Average Queue (ft)	71	21	88	44	131	0
95th Queue (ft)	125	51	188	129	208	14
Link Distance (ft)	636		507	507	726	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					17	
Queuing Penalty (veh)					0	

Zone Summary

Zone wide Queuing Penalty: 312

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	201	566	143	117	13	215	837	62	807
v/c Ratio	0.20	0.56	1.11	0.86	0.21	0.02	1.02	0.67	0.37	0.75
Control Delay	41.4	38.0	91.6	81.5	26.7	0.1	108.3	24.7	42.5	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	38.0	91.6	81.5	26.7	0.1	108.3	24.7	42.5	29.9
Queue Length 50th (ft)	13	93	~215	73	40	0	~114	187	30	190
Queue Length 95th (ft)	40	177	#453	#196	107	0	#279	253	73	253
Internal Link Dist (ft)		1573			1252			830		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	131	357	512	166	559	594	210	1498	190	1473
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.56	1.11	0.86	0.21	0.02	1.02	0.56	0.33	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	91	55	1019	1584
v/c Ratio	0.25	0.29	0.69	1.22
Control Delay	3.2	34.0	12.4	125.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.2	34.0	12.4	125.2
Queue Length 50th (ft)	0	19	155	~832
Queue Length 95th (ft)	14	#68	#795	#1583
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	386	187	1433	1302
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.29	0.71	1.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	282	468	20	350	289	18	543	523	1037
v/c Ratio	0.97	0.69	0.28	1.01	0.60	0.23	0.86	1.07	0.64
Control Delay	96.4	41.4	71.0	100.7	15.8	67.5	63.4	102.1	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.4	41.4	71.0	100.7	15.8	67.5	63.4	102.1	27.5
Queue Length 50th (ft)	218	291	15	~303	37	14	217	~436	278
Queue Length 95th (ft)	#482	515	48	#459	132	45	312	#823	481
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	295	674	71	347	485	79	646	491	1617
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.69	0.28	1.01	0.60	0.23	0.84	1.07	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NET
Lane Group Flow (vph)	983	275	692	404
v/c Ratio	1.20	0.81	0.53	0.76
Control Delay	123.5	47.4	7.2	13.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	123.5	47.4	7.2	13.7
Queue Length 50th (ft)	~485	105	88	6
Queue Length 95th (ft)	#835	#258	252	81
Internal Link Dist (ft)	518		2330	747
Turn Bay Length (ft)		530		
Base Capacity (vph)	820	354	1332	658
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.20	0.78	0.52	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL
Lane Group Flow (vph)	556	384	848	276
v/c Ratio	0.69	0.25	0.55	0.56
Control Delay	14.8	0.4	10.4	19.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.8	0.4	10.4	19.3
Queue Length 50th (ft)	92	0	67	51
Queue Length 95th (ft)	210	0	133	147
Internal Link Dist (ft)	600		504	747
Turn Bay Length (ft)		550		
Base Capacity (vph)	1459	1494	2771	768
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.26	0.31	0.36

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	224	1420	219	322	1035	97	246	688	620	335	744	191
v/c Ratio	0.90	1.23	0.42	1.38	1.34	0.19	0.96	0.76	1.05	0.97	0.70	0.32
Control Delay	86.3	146.1	7.1	231.5	194.8	0.8	93.5	42.9	77.0	84.7	36.4	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	146.1	7.1	231.5	194.8	0.8	93.5	42.9	77.0	84.7	36.4	5.5
Queue Length 50th (ft)	74	~432	0	~136	~476	0	155	218	~333	207	221	0
Queue Length 95th (ft)	#220	#588	61	#337	#688	0	#468	355	#639	#590	364	52
Internal Link Dist (ft)		1053			5193			2635			654	
Turn Bay Length (ft)	775		650	960		150	300		300	420		540
Base Capacity (vph)	249	1158	526	234	774	509	264	900	589	361	1086	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	1.23	0.42	1.38	1.34	0.19	0.93	0.76	1.05	0.93	0.69	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	163	1091	540	601	219	148	347	96	149	63
v/c Ratio	0.69	0.98	1.13	0.53	1.23	0.36	0.56	0.67	0.46	0.15
Control Delay	52.7	50.0	117.1	25.4	178.6	30.7	6.9	64.1	34.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	50.0	117.1	25.4	178.6	30.7	6.9	64.1	34.5	0.8
Queue Length 50th (ft)	72	249	~147	120	~125	65	0	45	66	0
Queue Length 95th (ft)	#241	#566	#403	254	#394	127	62	#177	130	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	270	1114	478	1141	178	416	622	145	345	441
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.98	1.13	0.53	1.23	0.36	0.56	0.66	0.43	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	308	1757	378	299	1145	33	175	549	373	42	478	165
v/c Ratio	3.28	1.57	0.51	0.95	0.91	0.05	0.71	0.92	0.59	0.45	1.37	0.34
Control Delay	1065.0	286.1	7.0	83.7	41.2	0.1	54.5	54.3	18.2	59.2	214.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1065.0	286.1	7.0	83.7	41.2	0.1	54.5	54.3	18.2	59.2	214.4	3.0
Queue Length 50th (ft)	~334	~808	16	95	348	0	102	~345	96	25	~385	0
Queue Length 95th (ft)	#499	#946	88	#178	#482	0	170	#558	197	#64	#584	14
Internal Link Dist (ft)		5193			5219			3991			1226	
Turn Bay Length (ft)	375		500	375		195	230		205	100		200
Base Capacity (vph)	94	1130	737	315	1266	719	287	600	636	94	350	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.28	1.55	0.51	0.95	0.90	0.05	0.61	0.92	0.59	0.45	1.37	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	130	104	81	54	112	173	831	135	668	119
v/c Ratio	0.60	0.36	0.22	0.51	0.14	0.23	1.01	0.60	0.80	0.92	0.16
Control Delay	54.8	27.4	1.1	48.1	23.9	1.1	110.8	20.9	70.9	43.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	27.4	1.1	48.1	23.9	1.1	110.8	20.9	70.9	43.4	1.4
Queue Length 50th (ft)	37	50	0	33	20	0	~86	136	57	259	0
Queue Length 95th (ft)	#142	92	0	#125	45	0	#265	294	#207	#684	10
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	148	458	543	160	458	543	172	1531	169	814	796
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.28	0.19	0.51	0.12	0.21	1.01	0.54	0.80	0.82	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	482	1275	246	665	357	209	939	284	502	307
v/c Ratio	1.22	1.08	1.15	0.80	0.23	1.50	1.07	2.54	1.16	0.51
Control Delay	157.0	83.8	149.3	46.4	0.3	293.3	87.2	742.6	132.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	157.0	83.8	149.3	46.4	0.3	293.3	87.2	742.6	132.1	7.0
Queue Length 50th (ft)	~369	~476	~179	213	0	~182	~355	~301	~396	0
Queue Length 95th (ft)	#734	#701	#426	321	0	#405	#485	#570	#609	68
Internal Link Dist (ft)		5219		1729			177		686	
Turn Bay Length (ft)	400		310		465	150		320		
Base Capacity (vph)	394	1180	214	828	1583	139	879	112	433	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	1.08	1.15	0.80	0.23	1.50	1.07	2.54	1.16	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	158	504	221	1013	1076
v/c Ratio	0.89	0.32	0.95	0.71	1.03
Control Delay	86.8	0.5	89.3	9.1	57.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	86.8	0.5	89.3	9.1	57.1
Queue Length 50th (ft)	90	0	127	236	~659
Queue Length 95th (ft)	#205	0	#265	369	#902
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	177	1583	232	1422	1044
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.32	0.95	0.71	1.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	340	707	154	491	260	189	366	334	384	504	399
Average Queue (ft)	243	337	34	321	179	31	223	177	266	221	167
95th Queue (ft)	379	705	112	552	331	126	338	284	390	463	348
Link Distance (ft)		8052		501			507	507		1172	1172
Upstream Blk Time (%)				7							
Queuing Penalty (veh)				45							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	18	12		60	0		26		12	0	
Queuing Penalty (veh)	82	31		177	1		4		45	1	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	WB	WB	NE
Directions Served	T	L	T	R
Maximum Queue (ft)	507	391	455	549
Average Queue (ft)	335	184	143	282
95th Queue (ft)	528	349	409	535
Link Distance (ft)	501		2366	726
Upstream Blk Time (%)	1			0
Queuing Penalty (veh)	9			0
Storage Bay Dist (ft)		530		
Storage Blk Time (%)	36		1	
Queuing Penalty (veh)	0		4	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	174	73	302	256	235
Average Queue (ft)	90	31	105	61	136
95th Queue (ft)	149	62	238	176	235
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					15
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 400

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	89	142	195	174	26	216	500	16	552
v/c Ratio	0.14	0.43	0.32	0.68	0.32	0.04	0.70	0.32	0.11	0.68
Control Delay	36.1	39.7	1.9	43.9	26.2	0.1	43.4	13.7	35.5	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	39.7	1.9	43.9	26.2	0.1	43.4	13.7	35.5	30.2
Queue Length 50th (ft)	9	39	0	85	56	0	93	66	7	122
Queue Length 95th (ft)	32	88	0	#185	140	0	#201	130	26	172
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	146	205	442	307	537	623	331	1923	146	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.43	0.32	0.64	0.32	0.04	0.65	0.26	0.11	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	58	26	889	958
v/c Ratio	0.14	0.11	0.61	0.71
Control Delay	0.7	30.5	10.6	18.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.7	30.5	10.6	18.1
Queue Length 50th (ft)	0	7	118	136
Queue Length 95th (ft)	0	38	#648	#867
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	438	239	1467	1346
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.61	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	211	427	21	742	211	42	516	105	864
v/c Ratio	0.94	0.45	0.27	0.99	0.23	0.61	0.72	0.72	0.93
Control Delay	102.7	22.5	69.5	68.7	8.0	96.3	53.3	85.5	60.7
Queue Delay	0.0	0.0	0.0	37.4	0.0	0.0	0.0	0.0	0.0
Total Delay	102.7	22.5	69.5	106.2	8.0	96.3	53.3	85.5	60.7
Queue Length 50th (ft)	179	234	17	~627	38	36	211	88	360
Queue Length 95th (ft)	#349	345	47	#931	86	#97	273	#180	#472
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	224	950	80	751	910	69	782	154	946
Starvation Cap Reductn	0	0	0	104	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.45	0.26	1.15	0.23	0.61	0.66	0.68	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NET
Lane Group Flow (vph)	458	11	263	974	116
v/c Ratio	0.72	0.01	0.58	0.69	0.15
Control Delay	23.2	0.0	22.9	8.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	0.0	22.9	8.0	0.4
Queue Length 50th (ft)	122	0	72	152	0
Queue Length 95th (ft)	248	0	144	264	0
Internal Link Dist (ft)	518			2330	747
Turn Bay Length (ft)		60	530		
Base Capacity (vph)	856	1583	815	1658	779
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.01	0.32	0.59	0.15

Intersection Summary

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	558	116	705	263	21
v/c Ratio	0.69	0.08	0.46	0.54	0.04
Control Delay	15.0	0.1	9.6	18.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	0.1	9.6	18.8	7.2
Queue Length 50th (ft)	92	0	53	48	0
Queue Length 95th (ft)	228	0	116	142	13
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1518	1509	2884	864	821
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.08	0.24	0.30	0.03

Intersection Summary



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	184	747	342	195	268	274	200	579	111
v/c Ratio	0.44	0.48	0.95	0.53	0.86	0.32	0.17	0.78	0.65	0.07
Control Delay	44.3	4.4	53.5	7.3	69.1	23.1	0.2	56.0	27.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	4.4	53.5	7.3	69.1	23.1	0.2	56.0	27.3	0.1
Queue Length 50th (ft)	20	0	160	0	82	53	0	82	124	0
Queue Length 95th (ft)	#66	0	#444	83	#297	79	0	#284	166	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	218	380	804	650	232	848	1583	273	920	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.48	0.93	0.53	0.84	0.32	0.17	0.73	0.63	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	105	679	289	706	168	63	163	74	121	111
v/c Ratio	0.50	0.74	0.61	0.62	0.62	0.14	0.31	0.42	0.39	0.25
Control Delay	48.4	33.2	42.9	28.2	47.6	28.1	6.4	49.0	36.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	33.2	42.9	28.2	47.6	28.1	6.4	49.0	36.3	1.4
Queue Length 50th (ft)	48	151	67	153	76	26	0	34	55	0
Queue Length 95th (ft)	#140	304	#175	315	#218	66	47	107	122	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	273	1166	574	1240	371	554	585	214	396	506
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.58	0.50	0.57	0.45	0.11	0.28	0.35	0.31	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	189	242	105	148	168	432	21	494
v/c Ratio	0.29	0.61	0.52	0.62	0.38	0.71	0.50	0.17	0.86
Control Delay	40.6	41.1	9.2	52.8	26.4	52.0	18.2	39.0	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	41.1	9.2	52.8	26.4	52.0	18.2	39.0	41.6
Queue Length 50th (ft)	20	90	0	52	53	82	124	10	223
Queue Length 95th (ft)	52	#175	62	#123	109	#177	259	32	#385
Internal Link Dist (ft)		3946			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	146	312	466	176	401	249	883	122	665
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.61	0.52	0.60	0.37	0.67	0.49	0.17	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	95	26	158	42	58	89	68	211	47	326	74
v/c Ratio	0.40	0.04	0.24	0.17	0.12	0.16	0.25	0.17	0.18	0.54	0.12
Control Delay	38.6	18.7	2.6	32.5	20.6	0.6	33.7	13.8	32.2	23.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	18.7	2.6	32.5	20.6	0.6	33.7	13.8	32.2	23.1	0.4
Queue Length 50th (ft)	30	6	0	13	17	0	21	15	14	93	0
Queue Length 95th (ft)	#152	27	21	57	47	0	#98	66	61	247	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	235	778	779	254	678	705	273	2011	268	1078	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.03	0.20	0.17	0.09	0.13	0.25	0.10	0.18	0.30	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	53	153	368	37	89	153	358	247	105	958
v/c Ratio	0.37	0.08	0.33	0.91	0.08	0.06	0.87	0.30	0.35	0.56	0.87
Control Delay	43.0	28.9	3.3	67.4	28.1	0.1	82.8	23.8	5.2	50.6	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	28.9	3.3	67.4	28.1	0.1	82.8	23.8	5.2	50.6	37.3
Queue Length 50th (ft)	46	12	0	94	16	0	76	72	0	50	226
Queue Length 95th (ft)	#152	28	18	#261	43	0	#261	146	58	#147	#424
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	259	649	458	403	446	1583	175	1195	698	218	1153
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.08	0.33	0.91	0.08	0.06	0.87	0.30	0.35	0.48	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	405	300	311	37	579	37	921	421	84	37	632	484
v/c Ratio	0.95	0.31	0.31	0.18	0.99	0.07	1.01	0.27	0.10	0.13	0.90	0.68
Control Delay	77.1	31.0	7.2	46.9	77.3	0.3	70.5	19.7	0.2	44.1	56.7	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.1	31.0	7.2	46.9	77.3	0.3	70.5	19.7	0.2	44.1	56.7	21.7
Queue Length 50th (ft)	134	85	56	11	196	0	~311	96	0	11	207	166
Queue Length 95th (ft)	#227	125	107	28	#310	0	#444	135	0	27	#306	285
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	427	982	1010	206	585	505	909	1551	821	275	714	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.31	0.31	0.18	0.99	0.07	1.01	0.27	0.10	0.13	0.89	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	310	452	159	538	260	172	327	276	312	416	435
Average Queue (ft)	201	200	33	504	174	41	193	144	99	260	254
95th Queue (ft)	328	401	108	616	354	104	287	234	229	393	402
Link Distance (ft)		8052		494			507	507		1172	1172
Upstream Blk Time (%)				30							
Queuing Penalty (veh)				274							
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	12	2	0	53			14		0	7	
Queuing Penalty (veh)	50	3	2	117			5		0	7	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	300	81	680	2088	111
Average Queue (ft)	135	7	391	1075	40
95th Queue (ft)	260	48	886	2492	77
Link Distance (ft)	494			2322	726
Upstream Blk Time (%)				1	
Queuing Penalty (veh)				7	
Storage Bay Dist (ft)		60	530		
Storage Blk Time (%)	18	0		36	
Queuing Penalty (veh)	2	0		90	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	186	46	324	284	228	42
Average Queue (ft)	89	9	103	56	113	2
95th Queue (ft)	156	32	241	173	195	34
Link Distance (ft)	636		507	507	726	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					13	
Queuing Penalty (veh)					3	

Zone Summary

Zone wide Queuing Penalty: 559

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	179	495	153	116	16	137	758	58	737
v/c Ratio	0.19	0.46	0.94	0.80	0.19	0.03	0.79	0.60	0.37	0.74
Control Delay	39.4	33.0	45.4	66.7	23.8	0.1	68.9	22.6	42.5	29.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	33.0	45.4	66.7	23.8	0.1	68.9	22.6	42.5	29.7
Queue Length 50th (ft)	12	76	122	73	36	0	66	163	27	167
Queue Length 95th (ft)	38	152	#349	#193	100	0	#179	222	68	225
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	136	386	525	191	615	636	173	1560	163	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.46	0.94	0.80	0.19	0.03	0.79	0.49	0.36	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	84	53	942	1400
v/c Ratio	0.39	0.58	0.60	0.98
Control Delay	14.2	75.8	7.1	37.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.2	75.8	7.1	37.4
Queue Length 50th (ft)	0	34	127	~843
Queue Length 95th (ft)	41	#114	597	#1659
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	214	91	1547	1398
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.58	0.61	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	221	568	21	511	132	84	663	384	1042
v/c Ratio	0.99	0.79	0.31	1.01	0.15	0.82	0.92	0.99	0.82
Control Delay	113.4	45.2	74.2	90.7	3.9	109.1	69.9	95.5	42.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.4	45.2	74.2	90.7	3.9	109.1	69.9	95.5	42.0
Queue Length 50th (ft)	188	436	18	~436	6	71	292	325	399
Queue Length 95th (ft)	#371	#676	48	#708	39	#174	366	#561	487
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	224	723	67	504	907	103	722	386	1269
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.79	0.31	1.01	0.15	0.82	0.92	0.99	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NET
Lane Group Flow (vph)	932	21	116	674	284
v/c Ratio	0.87	0.01	0.47	0.50	0.63
Control Delay	25.2	0.0	40.1	5.2	9.7
Queue Delay	0.6	0.0	0.0	0.0	0.0
Total Delay	25.8	0.0	40.1	5.2	9.7
Queue Length 50th (ft)	336	0	55	79	0
Queue Length 95th (ft)	#740	0	115	190	46
Internal Link Dist (ft)	518			2330	747
Turn Bay Length (ft)		60	530		
Base Capacity (vph)	1280	1583	342	1606	554
Starvation Cap Reductn	105	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.01	0.34	0.42	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	747	284	789	116	21
v/c Ratio	0.75	0.19	0.42	0.35	0.06
Control Delay	13.1	0.3	6.4	21.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	0.3	6.4	21.0	10.1
Queue Length 50th (ft)	113	0	48	23	0
Queue Length 95th (ft)	237	0	86	78	15
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1709	1474	3247	473	459
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.19	0.24	0.25	0.05

Intersection Summary



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	163	321	358	158	337	574	789	511	658	132
v/c Ratio	0.53	0.77	0.89	0.44	0.88	0.72	0.50	0.97	0.61	0.09
Control Delay	48.3	18.5	66.1	5.0	60.4	37.0	1.1	64.7	28.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	18.5	66.1	5.0	60.4	37.0	1.1	64.7	28.9	0.1
Queue Length 50th (ft)	41	0	94	0	160	152	0	247	162	0
Queue Length 95th (ft)	#104	94	#272	12	#476	221	0	#720	238	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	333	487	402	427	429	798	1583	538	1079	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.66	0.89	0.37	0.79	0.72	0.50	0.95	0.61	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	116	916	489	527	211	137	153	63	147	53
v/c Ratio	0.59	0.91	0.97	0.42	0.76	0.29	0.30	0.41	0.49	0.12
Control Delay	54.2	44.6	75.1	25.3	57.7	30.3	6.3	51.5	40.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	44.6	75.1	25.3	57.7	30.3	6.3	51.5	40.4	0.6
Queue Length 50th (ft)	61	247	140	117	110	64	0	33	77	0
Queue Length 95th (ft)	#165	#473	#357	225	#300	125	46	95	145	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	239	1034	503	1251	325	500	537	187	354	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.89	0.97	0.42	0.65	0.27	0.28	0.34	0.42	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	437	179	147	452	237	573	47	479
v/c Ratio	0.37	0.99	0.32	0.91	0.76	0.96	0.79	0.47	1.00
Control Delay	51.7	77.5	2.5	94.3	39.5	88.6	35.7	57.0	76.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	77.5	2.5	94.3	39.5	88.6	35.7	57.0	76.1
Queue Length 50th (ft)	21	249	0	85	246	136	305	27	270
Queue Length 95th (ft)	52	#440	15	#198	#425	#279	#507	#67	#475
Internal Link Dist (ft)		3706			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	100	440	567	161	591	247	721	100	479
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.99	0.32	0.91	0.76	0.96	0.79	0.47	1.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	95	126	79	89	100	184	537	116	521	121
v/c Ratio	0.53	0.29	0.28	0.43	0.25	0.21	0.67	0.33	0.45	0.83	0.18
Control Delay	49.8	28.4	1.8	44.7	27.6	1.0	46.9	17.6	38.8	36.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	28.4	1.8	44.7	27.6	1.0	46.9	17.6	38.8	36.7	1.4
Queue Length 50th (ft)	37	38	0	33	36	0	76	77	46	191	0
Queue Length 95th (ft)	#147	75	4	#122	71	0	#250	181	#135	#525	9
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	168	359	472	184	363	475	305	1598	320	873	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.26	0.27	0.43	0.25	0.21	0.60	0.34	0.36	0.60	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	158	311	458	105	174	426	926	474	132	885
v/c Ratio	0.55	0.30	0.62	1.00	0.27	0.11	1.04	0.67	0.52	0.75	0.97
Control Delay	60.3	41.3	10.3	89.0	39.1	0.1	97.6	30.2	4.6	74.4	62.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	41.3	10.3	89.0	39.1	0.1	97.6	30.2	4.6	74.4	62.0
Queue Length 50th (ft)	58	49	0	151	61	0	271	251	0	82	292
Queue Length 95th (ft)	#140	85	74	#359	119	0	#672	429	73	#237	#516
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	200	526	500	458	392	1583	408	1390	910	184	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.30	0.62	1.00	0.27	0.11	1.04	0.67	0.52	0.72	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	421	868	1053	58	595	47	626	832	111	47	658	405
v/c Ratio	0.99	0.93	1.01	0.37	1.00	0.10	0.55	0.49	0.13	0.22	0.98	0.62
Control Delay	96.8	63.7	52.2	67.0	91.5	0.5	38.0	25.1	0.6	60.8	83.4	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.8	63.7	52.2	67.0	91.5	0.5	38.0	25.1	0.6	60.8	83.4	27.4
Queue Length 50th (ft)	185	386	~926	24	~267	0	222	256	0	19	293	192
Queue Length 95th (ft)	#293	#530	#1189	48	#394	0	283	317	3	40	#421	305
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	427	935	1046	158	593	451	1130	1692	848	211	669	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.93	1.01	0.37	1.00	0.10	0.55	0.49	0.13	0.22	0.98	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B73
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR	T
Maximum Queue (ft)	340	580	146	537	260	270	492	432	390	944	831	330
Average Queue (ft)	227	329	33	482	143	144	310	263	325	514	391	22
95th Queue (ft)	371	579	112	616	343	295	474	431	452	1052	828	313
Link Distance (ft)		8052		494			507	507		1172	1172	2213
Upstream Blk Time (%)				31			1			2		
Queuing Penalty (veh)				200			2			14		
Storage Bay Dist (ft)	250		100		170	180			300			
Storage Blk Time (%)	13	13	0	66		1	47		42	2		
Queuing Penalty (veh)	71	27	1	96		3	38		143	7		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	497	119	542	1074	249
Average Queue (ft)	291	9	185	467	135
95th Queue (ft)	484	62	613	1225	222
Link Distance (ft)	494			2322	726
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	5				
Storage Bay Dist (ft)		60	530		
Storage Blk Time (%)	29			23	
Queuing Penalty (veh)	6			25	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	199	69	235	192	145
Average Queue (ft)	92	23	76	36	66
95th Queue (ft)	169	55	187	118	123
Link Distance (ft)	636		507	507	726
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					5
Queuing Penalty (veh)					1

Zone Summary

Zone wide Queuing Penalty: 639

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	89	192	206	174	26	279	597	16	628
v/c Ratio	0.15	0.46	0.44	0.74	0.34	0.04	0.89	0.36	0.12	0.71
Control Delay	37.9	42.2	3.5	49.3	27.8	0.1	63.0	13.7	37.2	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	42.2	3.5	49.3	27.8	0.1	63.0	13.7	37.2	30.7
Queue Length 50th (ft)	10	41	0	95	60	0	132	82	7	143
Queue Length 95th (ft)	33	92	3	#212	147	0	#298	155	27	196
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	139	195	435	292	517	609	315	1834	139	1493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.46	0.44	0.71	0.34	0.04	0.89	0.33	0.12	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	67	33	1083	1122
v/c Ratio	0.18	0.17	0.74	0.83
Control Delay	1.1	31.4	14.0	23.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.1	31.4	14.0	23.2
Queue Length 50th (ft)	0	9	178	196
Queue Length 95th (ft)	0	44	#868	#1057
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	395	193	1465	1347
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.74	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	237	498	33	829	336	42	574	193	941
v/c Ratio	1.07	0.53	0.42	1.11	0.37	0.62	0.79	1.27	0.99
Control Delay	132.3	24.6	77.7	105.6	12.6	97.2	56.8	208.9	71.8
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Total Delay	132.3	24.6	77.7	106.5	12.6	97.2	56.8	208.9	71.8
Queue Length 50th (ft)	~222	290	28	~805	100	36	239	~206	~428
Queue Length 95th (ft)	#403	420	65	#1093	177	#97	306	#372	#547
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	222	944	79	744	903	68	775	152	950
Starvation Cap Reductn	0	0	0	95	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.53	0.42	1.28	0.37	0.62	0.74	1.27	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NET
Lane Group Flow (vph)	626	11	392	1198	217
v/c Ratio	0.95	0.01	0.78	0.89	0.31
Control Delay	49.2	0.0	31.1	17.1	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	0.0	31.1	17.1	1.1
Queue Length 50th (ft)	229	0	136	251	0
Queue Length 95th (ft)	#450	0	217	#647	0
Internal Link Dist (ft)	518			2330	747
Turn Bay Length (ft)		60	530		
Base Capacity (vph)	657	1583	619	1463	714
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.01	0.63	0.82	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	617	217	769	392	21
v/c Ratio	0.75	0.14	0.49	0.72	0.04
Control Delay	18.0	0.2	10.9	25.8	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	0.2	10.9	25.8	8.5
Queue Length 50th (ft)	142	0	79	99	1
Queue Length 95th (ft)	262	0	127	#261	14
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1330	1499	2528	729	695
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.30	0.54	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	147	184	763	343	195	369	287	200	699	178
v/c Ratio	0.68	0.49	0.97	0.56	0.87	0.43	0.18	0.79	0.77	0.12
Control Delay	54.9	4.4	57.5	8.0	70.7	24.5	0.3	56.9	31.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	4.4	57.5	8.0	70.7	24.5	0.3	56.9	31.3	0.2
Queue Length 50th (ft)	32	0	164	0	82	76	0	82	156	0
Queue Length 95th (ft)	#114	0	#456	83	#297	107	0	#284	205	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	215	379	793	614	229	862	1583	269	911	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.49	0.96	0.56	0.85	0.43	0.18	0.74	0.77	0.12

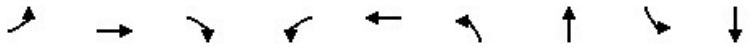
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	853	289	865	212	63	163	74	121	123
v/c Ratio	0.58	0.85	0.63	0.72	0.75	0.13	0.31	0.45	0.41	0.29
Control Delay	52.8	38.7	45.7	31.3	55.2	28.6	6.3	51.8	38.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	38.7	45.7	31.3	55.2	28.6	6.3	51.8	38.4	1.7
Queue Length 50th (ft)	61	219	75	218	107	28	0	38	62	0
Queue Length 95th (ft)	#172	#412	#175	406	#303	66	47	107	122	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	251	1079	529	1208	342	521	560	197	369	486
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.79	0.55	0.72	0.62	0.12	0.29	0.38	0.33	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	189	242	105	174	168	634	47	761
v/c Ratio	0.49	0.65	0.55	0.65	0.53	0.75	0.74	0.41	1.21
Control Delay	48.9	43.3	10.9	55.5	29.0	55.7	27.0	47.1	137.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	43.3	10.9	55.5	29.0	55.7	27.0	47.1	137.5
Queue Length 50th (ft)	33	90	6	52	59	82	286	23	~490
Queue Length 95th (ft)	#79	#175	69	#123	121	#177	#488	#57	#704
Internal Link Dist (ft)		4016			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	138	294	442	166	338	236	853	115	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.64	0.55	0.63	0.51	0.71	0.74	0.41	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	95	35	160	42	66	97	71	246	54	360	74
v/c Ratio	0.39	0.06	0.25	0.16	0.13	0.17	0.26	0.20	0.20	0.55	0.11
Control Delay	38.9	18.8	2.7	33.0	21.1	0.6	34.3	15.5	33.0	23.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	18.8	2.7	33.0	21.1	0.6	34.3	15.5	33.0	23.0	0.3
Queue Length 50th (ft)	31	8	0	13	20	0	22	27	17	105	0
Queue Length 95th (ft)	#152	33	22	57	53	0	#102	78	#74	276	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	241	787	786	260	692	716	279	1967	275	1052	974
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.04	0.20	0.16	0.10	0.14	0.25	0.13	0.20	0.34	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	66	157	368	52	100	157	379	247	115	980
v/c Ratio	0.37	0.10	0.34	0.92	0.12	0.06	0.90	0.32	0.35	0.60	0.88
Control Delay	43.0	29.1	3.6	67.9	28.6	0.1	87.4	24.1	5.2	52.4	38.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	29.1	3.6	67.9	28.6	0.1	87.4	24.1	5.2	52.4	38.7
Queue Length 50th (ft)	46	15	0	94	22	0	79	77	0	54	234
Queue Length 95th (ft)	#152	34	21	#261	55	0	#269	154	58	#166	#458
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	259	647	458	402	445	1583	175	1194	697	217	1150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.10	0.34	0.92	0.12	0.06	0.90	0.32	0.35	0.53	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	405	304	319	37	584	38	928	436	84	38	651	484
v/c Ratio	0.95	0.31	0.32	0.18	1.00	0.08	1.02	0.28	0.10	0.14	0.92	0.68
Control Delay	77.5	31.1	7.4	46.9	80.0	0.3	73.0	19.8	0.2	44.1	59.3	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.5	31.1	7.4	46.9	80.0	0.3	73.0	19.8	0.2	44.1	59.3	21.7
Queue Length 50th (ft)	134	86	59	11	~198	0	~326	101	0	11	215	166
Queue Length 95th (ft)	#227	126	112	28	#315	0	#448	140	0	28	#321	285
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	426	979	1007	205	584	504	907	1555	823	274	712	717
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.31	0.32	0.18	1.00	0.08	1.02	0.28	0.10	0.14	0.91	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	327	855	159	537	260	265	402	357	390	729	674
Average Queue (ft)	242	369	40	524	199	48	220	176	297	415	376
95th Queue (ft)	382	954	117	562	353	141	327	274	458	720	667
Link Distance (ft)		8052		494			507	507		1172	1172
Upstream Blk Time (%)				30			0				
Queuing Penalty (veh)				337			0				
Storage Bay Dist (ft)	250		100		170	180			300		
Storage Blk Time (%)	28	5	0	53	0	0	22		37	17	
Queuing Penalty (veh)	130	11	2	186	2	0	9		114	31	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	446	119	680	2323	157
Average Queue (ft)	226	7	573	1752	68
95th Queue (ft)	401	53	931	2945	121
Link Distance (ft)	494			2322	726
Upstream Blk Time (%)	0			1	
Queuing Penalty (veh)	1			16	
Storage Bay Dist (ft)		60	530		
Storage Blk Time (%)	34			51	
Queuing Penalty (veh)	4			189	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	205	64	317	284	277	147
Average Queue (ft)	110	16	137	83	146	10
95th Queue (ft)	176	45	285	217	249	74
Link Distance (ft)	636		507	507	726	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					20	
Queuing Penalty (veh)					4	

Zone Summary

Zone wide Queuing Penalty: 1036



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	179	571	173	116	16	209	878	58	838
v/c Ratio	0.20	0.49	1.16	0.95	0.20	0.03	1.27	0.65	0.39	0.75
Control Delay	41.9	35.8	113.8	95.8	25.9	0.1	194.6	23.0	45.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	35.8	113.8	95.8	25.9	0.1	194.6	23.0	45.4	29.3
Queue Length 50th (ft)	13	82	~251	90	39	0	~137	201	29	198
Queue Length 95th (ft)	40	159	#495	#235	105	0	#297	266	71	261
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	130	368	493	182	587	615	165	1491	156	1490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.49	1.16	0.95	0.20	0.03	1.27	0.59	0.37	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	98	59	1181	1664
v/c Ratio	0.46	0.65	0.75	1.17
Control Delay	19.0	82.1	11.1	103.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.0	82.1	11.1	103.0
Queue Length 50th (ft)	7	38	216	~1308
Queue Length 95th (ft)	53	#128	#1152	#2102
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	213	91	1545	1423
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.65	0.76	1.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	669	34	606	263	84	753	528	1163
v/c Ratio	1.16	0.92	0.51	1.20	0.29	0.82	1.04	1.37	0.92
Control Delay	159.5	58.4	87.2	150.0	9.9	109.4	95.6	220.5	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	159.5	58.4	87.2	150.0	9.9	109.4	95.6	220.5	49.9
Queue Length 50th (ft)	~257	558	29	~616	60	71	~371	~584	473
Queue Length 95th (ft)	#453	#873	#77	#892	122	#174	#463	#845	572
Internal Link Dist (ft)		8048		518			504		1166
Turn Bay Length (ft)	250		100		170	180		300	
Base Capacity (vph)	224	724	67	504	907	103	721	386	1267
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.92	0.51	1.20	0.29	0.82	1.04	1.37	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NET
Lane Group Flow (vph)	1191	21	257	914	436
v/c Ratio	1.18	0.01	1.04	0.66	0.96
Control Delay	112.8	0.0	108.1	9.0	49.1
Queue Delay	0.3	0.0	0.0	0.0	0.0
Total Delay	113.2	0.0	108.1	9.0	49.1
Queue Length 50th (ft)	~819	0	~159	219	90
Queue Length 95th (ft)	#1062	0	#309	331	#282
Internal Link Dist (ft)	518			2330	747
Turn Bay Length (ft)		60	530		
Base Capacity (vph)	1012	1583	247	1376	454
Starvation Cap Reductn	66	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.26	0.01	1.04	0.66	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NBT	NBR	SBT	SWL	SWR
Lane Group Flow (vph)	837	436	882	257	21
v/c Ratio	0.81	0.29	0.45	0.68	0.06
Control Delay	16.0	0.5	7.1	33.7	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	0.5	7.1	33.7	11.0
Queue Length 50th (ft)	172	0	69	68	0
Queue Length 95th (ft)	285	0	96	#222	16
Internal Link Dist (ft)	600		504	747	
Turn Bay Length (ft)		550			80
Base Capacity (vph)	1580	1484	3001	392	384
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.29	0.29	0.66	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	247	321	376	159	337	723	808	513	804	213
v/c Ratio	0.76	0.77	0.94	0.45	0.89	0.91	0.51	0.97	0.75	0.14
Control Delay	57.6	18.8	75.7	5.5	61.3	51.2	1.2	66.7	33.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	18.8	75.7	5.5	61.3	51.2	1.2	66.7	33.2	0.2
Queue Length 50th (ft)	65	0	101	0	161	~226	0	252	213	0
Queue Length 95th (ft)	#188	95	#289	13	#476	288	0	#723	302	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	330	476	398	415	425	792	1583	532	1073	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.67	0.94	0.38	0.79	0.91	0.51	0.96	0.75	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	1201	489	705	304	137	153	63	147	69
v/c Ratio	0.66	1.20	1.01	0.64	0.97	0.27	0.28	0.42	0.50	0.16
Control Delay	58.3	129.2	85.4	30.7	85.3	29.8	6.1	52.3	41.3	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	129.2	85.4	30.7	85.3	29.8	6.1	52.3	41.3	0.8
Queue Length 50th (ft)	70	~426	141	175	168	64	0	34	78	0
Queue Length 95th (ft)	#199	#719	#357	315	#472	125	46	95	145	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	230	1003	484	1110	313	513	547	180	343	467
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.20	1.01	0.64	0.97	0.27	0.28	0.35	0.43	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	439	179	147	479	237	856	72	789
v/c Ratio	0.71	1.00	0.32	0.91	0.88	0.96	1.26	0.72	1.64
Control Delay	78.8	78.7	2.5	94.3	50.3	88.6	157.0	80.1	325.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	78.7	2.5	94.3	50.3	88.6	157.0	80.1	325.4
Queue Length 50th (ft)	41	250	0	85	264	136	~648	41	~662
Queue Length 95th (ft)	#111	#443	15	#198	#461	#279	#878	#112	#887
Internal Link Dist (ft)		5193			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	100	440	567	161	546	247	680	100	480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	1.00	0.32	0.91	0.88	0.96	1.26	0.72	1.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	100	128	79	95	114	186	618	129	603	121
v/c Ratio	0.56	0.31	0.29	0.46	0.27	0.25	0.70	0.37	0.52	0.89	0.17
Control Delay	52.3	29.4	2.0	46.3	28.5	1.3	50.1	18.5	41.4	42.1	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	29.4	2.0	46.3	28.5	1.3	50.1	18.5	41.4	42.1	1.3
Queue Length 50th (ft)	38	41	0	33	39	0	79	96	52	235	0
Queue Length 95th (ft)	#147	79	5	#122	75	0	#254	216	#158	#638	9
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	159	345	461	174	348	464	288	1663	303	892	857
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.29	0.28	0.45	0.27	0.25	0.65	0.37	0.43	0.68	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	168	314	458	115	194	429	969	474	153	928
v/c Ratio	0.55	0.32	0.63	1.00	0.29	0.12	1.05	0.70	0.52	0.85	1.01
Control Delay	60.3	41.6	10.3	89.0	39.5	0.2	99.5	31.3	4.6	85.8	72.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	41.6	10.3	89.0	39.5	0.2	99.5	31.3	4.6	85.8	72.5
Queue Length 50th (ft)	58	52	0	151	67	0	~274	266	0	97	~321
Queue Length 95th (ft)	#140	90	74	#359	128	0	#677	455	73	#283	#558
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	200	526	502	458	392	1583	408	1380	906	184	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.32	0.63	1.00	0.29	0.12	1.05	0.70	0.52	0.83	1.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	421	872	1060	58	598	52	634	857	111	53	682	405
v/c Ratio	0.99	0.93	1.01	0.37	1.01	0.12	0.56	0.51	0.13	0.25	1.02	0.62
Control Delay	96.8	64.3	54.0	67.0	92.6	0.5	38.2	25.4	0.6	61.3	91.4	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.8	64.3	54.0	67.0	92.6	0.5	38.2	25.4	0.6	61.3	91.4	27.4
Queue Length 50th (ft)	185	~389	~938	24	~271	0	226	266	0	22	~320	192
Queue Length 95th (ft)	#293	#533	#1201	48	#398	0	287	328	3	44	#444	305
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	427	935	1046	158	593	451	1130	1692	848	211	669	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.93	1.01	0.37	1.01	0.12	0.56	0.51	0.13	0.25	1.02	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B73
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR	T
Maximum Queue (ft)	340	822	159	537	260	270	524	453	390	1251	1186	2220
Average Queue (ft)	265	443	45	522	200	177	468	405	382	1020	491	952
95th Queue (ft)	398	810	134	575	364	346	603	523	432	1539	1125	2568
Link Distance (ft)		8052		494			507	507		1172	1172	2213
Upstream Blk Time (%)				41			15			34		2
Queuing Penalty (veh)				359			62			274		32
Storage Bay Dist (ft)	250		100		170	180			300			
Storage Blk Time (%)	14	28	1	67	0	2	75		81	1		
Queuing Penalty (veh)	92	68	9	189	0	8	60		311	6		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	R	L	T	TR
Maximum Queue (ft)	506	120	680	2332	727
Average Queue (ft)	389	11	552	1851	483
95th Queue (ft)	562	68	941	3099	840
Link Distance (ft)	494			2322	726
Upstream Blk Time (%)	2			6	10
Queuing Penalty (veh)	23			72	41
Storage Bay Dist (ft)		60	530		
Storage Blk Time (%)	38			61	
Queuing Penalty (veh)	8			150	

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	B77	B66	SB	SB	SW	SW
Directions Served	T	R	T	T	T	T	L	R
Maximum Queue (ft)	697	594	1027	371	318	248	200	121
Average Queue (ft)	440	287	329	62	119	60	116	5
95th Queue (ft)	887	761	1189	391	254	167	192	51
Link Distance (ft)	636		1323	1279	507	507	726	
Upstream Blk Time (%)	15	1	7					
Queuing Penalty (veh)	172	0	78					
Storage Bay Dist (ft)		550						80
Storage Blk Time (%)	22	2					21	0
Queuing Penalty (veh)	92	15					4	0

Zone Summary

Zone wide Queuing Penalty: 2126



Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	64	31	856	1031
v/c Ratio	0.14	0.10	0.60	0.40
Control Delay	0.7	27.0	10.5	8.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.7	27.0	10.5	8.1
Queue Length 50th (ft)	0	6	104	50
Queue Length 95th (ft)	0	43	#610	298
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	449	318	1560	2860
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.10	0.55	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	230	434	214	1129	84	220	143	176	251	268
v/c Ratio	0.89	0.41	0.70	0.99	0.70	0.81	0.33	0.88	0.59	0.47
Control Delay	74.4	24.9	47.4	53.1	71.9	59.9	2.3	78.9	38.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	24.9	47.4	53.1	71.9	59.9	2.3	78.9	38.6	7.1
Queue Length 50th (ft)	130	95	115	326	48	122	0	100	132	0
Queue Length 95th (ft)	#264	141	175	#447	#115	#232	0	#218	213	62
Internal Link Dist (ft)		393		477		2570			1149	
Turn Bay Length (ft)	300		300		150		200	300		200
Base Capacity (vph)	257	1057	378	1146	120	287	443	201	423	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.41	0.57	0.99	0.70	0.77	0.32	0.88	0.59	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	56	484	141	164	1213	47	219	352	121	45	643
v/c Ratio	0.55	0.48	0.22	0.51	0.97	0.07	0.91	0.57	0.19	0.45	0.90
Control Delay	63.0	27.5	0.8	44.2	49.9	0.2	79.7	30.9	1.7	55.3	49.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	27.5	0.8	44.2	49.9	0.2	79.7	30.9	1.7	55.3	49.1
Queue Length 50th (ft)	32	116	0	46	~364	0	125	178	0	25	176
Queue Length 95th (ft)	#86	163	0	77	#513	0	#263	275	12	#66	#276
Internal Link Dist (ft)		5193			5219			407			1226
Turn Bay Length (ft)	375		500	375		195	230		205	100	
Base Capacity (vph)	101	1096	665	343	1245	721	240	615	645	101	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.44	0.21	0.48	0.97	0.07	0.91	0.57	0.19	0.45	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	12	231	563	782	863
v/c Ratio	0.12	0.15	0.92	0.45	0.93
Control Delay	56.5	0.2	57.4	2.1	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	0.2	57.4	2.1	44.0
Queue Length 50th (ft)	8	0	361	0	509
Queue Length 95th (ft)	28	0	#574	137	#803
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)	200	180	300		
Base Capacity (vph)	96	1583	627	1749	949
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.15	0.90	0.45	0.91

Intersection Summary

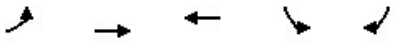
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	98	720	140	93	884
v/c Ratio	0.41	0.28	0.65	0.14	0.33	0.63
Control Delay	30.1	8.9	14.8	2.1	29.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	8.9	14.8	2.1	29.5	7.5
Queue Length 50th (ft)	40	0	187	0	30	138
Queue Length 95th (ft)	#105	36	313	21	#82	240
Internal Link Dist (ft)	1487		3990			2520
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	329	374	1192	1063	279	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.26	0.60	0.13	0.33	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	125	512	1158	60	120
v/c Ratio	0.36	0.36	0.61	0.18	0.22
Control Delay	26.0	4.2	13.0	24.4	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	4.2	13.0	24.4	10.5
Queue Length 50th (ft)	42	62	168	20	19
Queue Length 95th (ft)	88	111	246	50	49
Internal Link Dist (ft)		850	876	1361	
Turn Bay Length (ft)	300				
Base Capacity (vph)	417	1437	2065	393	603
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.36	0.56	0.15	0.20

Intersection Summary

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	185	182	116	457	260	85	205	138	128	103	218	230
Average Queue (ft)	92	76	17	216	125	28	105	70	69	43	129	125
95th Queue (ft)	164	144	69	382	263	65	173	125	110	86	201	207
Link Distance (ft)		8046		483			495	495			1172	1172
Upstream Blk Time (%)				0								
Queuing Penalty (veh)				3								
Storage Bay Dist (ft)	250		100		170	180			300	300		
Storage Blk Time (%)		0		35	0		1				0	
Queuing Penalty (veh)		0		132	2		0				0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	TR	L	T	R
Maximum Queue (ft)	193	153	216	214	81
Average Queue (ft)	103	47	110	82	37
95th Queue (ft)	167	121	186	177	67
Link Distance (ft)	483	483		966	702
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			530		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	158	56	226	184	245	30
Average Queue (ft)	73	18	95	47	127	1
95th Queue (ft)	134	46	197	129	207	26
Link Distance (ft)	636		495	495	702	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					18	
Queuing Penalty (veh)					0	

Zone Summary

Zone wide Queuing Penalty: 137



Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	91	55	992	1540
v/c Ratio	0.24	0.27	0.67	0.62
Control Delay	3.0	33.2	12.0	14.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.0	33.2	12.0	14.1
Queue Length 50th (ft)	0	19	146	203
Queue Length 95th (ft)	14	#68	#765	#607
Internal Link Dist (ft)	2279		330	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	404	207	1486	2474
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.27	0.67	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	447	122	327	186	79
v/c Ratio	0.07	0.51	0.35	0.28	0.42	0.23
Control Delay	23.8	17.8	25.5	9.0	12.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	17.8	25.5	9.0	12.2	17.7
Queue Length 50th (ft)	6	116	34	40	18	16
Queue Length 95th (ft)	25	#235	87	152	67	49
Internal Link Dist (ft)		6653		8048	2524	2104
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	337	941	407	1172	663	563
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.48	0.30	0.28	0.28	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	216	1093	213	850	56	193	281	184	195	208
v/c Ratio	0.79	0.96	0.86	0.78	0.46	0.70	0.60	0.90	0.46	0.40
Control Delay	56.8	48.0	69.4	32.3	52.9	50.3	10.2	82.5	34.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	48.0	69.4	32.3	52.9	50.3	10.2	82.5	34.4	7.0
Queue Length 50th (ft)	118	314	119	222	31	103	0	105	97	0
Queue Length 95th (ft)	#223	#461	#245	299	#71	175	68	#230	164	55
Internal Link Dist (ft)		393		487		2570			1052	
Turn Bay Length (ft)	300		300		150		200	300		200
Base Capacity (vph)	298	1141	253	1094	122	313	500	205	440	533
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.96	0.84	0.78	0.46	0.62	0.56	0.90	0.44	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	157	1243	368	148	725	29	175	491	182	39	521
v/c Ratio	0.73	0.98	0.51	0.76	0.70	0.05	0.85	0.88	0.28	0.39	0.77
Control Delay	58.2	51.7	11.0	67.5	32.8	0.1	73.2	49.7	2.1	52.7	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	51.7	11.0	67.5	32.8	0.1	73.2	49.7	2.1	52.7	41.2
Queue Length 50th (ft)	87	~370	53	43	196	0	99	278	0	22	141
Queue Length 95th (ft)	#174	#522	134	#93	261	0	#215	#481	16	55	196
Internal Link Dist (ft)		5193			5219			407			1226
Turn Bay Length (ft)	375		500	375		195	230		205	100	
Base Capacity (vph)	228	1262	716	194	1031	640	208	561	654	100	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.98	0.51	0.76	0.70	0.05	0.84	0.88	0.28	0.39	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	32	504	221	811	792
v/c Ratio	0.16	0.32	0.63	0.49	0.86
Control Delay	29.9	0.5	34.7	3.6	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	0.5	34.7	3.6	24.5
Queue Length 50th (ft)	9	0	61	0	167
Queue Length 95th (ft)	38	0	#197	198	#507
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)	200	180	300		
Base Capacity (vph)	203	1583	379	1668	1230
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.58	0.49	0.64

Intersection Summary

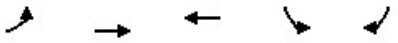
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	218	146	850	204	143	1373
v/c Ratio	0.96	0.44	0.79	0.20	0.71	0.98
Control Delay	90.5	11.1	21.3	1.8	58.6	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.5	11.1	21.3	1.8	58.6	32.5
Queue Length 50th (ft)	125	0	347	0	79	590
Queue Length 95th (ft)	#265	53	522	27	#161	#1053
Internal Link Dist (ft)	1487		3990			1610
Turn Bay Length (ft)					200	
Base Capacity (vph)	228	331	1087	1008	212	1417
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.44	0.78	0.20	0.67	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	432	933	872	287	438
v/c Ratio	0.85	0.82	0.89	0.77	0.48
Control Delay	43.9	18.8	37.1	43.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	18.8	37.1	43.5	10.3
Queue Length 50th (ft)	200	317	200	133	97
Queue Length 95th (ft)	#353	#538	#315	#240	163
Internal Link Dist (ft)		860	876	1361	
Turn Bay Length (ft)	300				
Base Capacity (vph)	563	1215	1023	431	966
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.77	0.85	0.67	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	L	T	TR
Maximum Queue (ft)	322	362	141	425	260	69	274	205	200	182	252	223
Average Queue (ft)	181	158	31	211	115	16	160	114	122	96	144	116
95th Queue (ft)	301	315	103	389	250	50	243	183	179	155	220	194
Link Distance (ft)		8046		483			495	495			1172	1172
Upstream Blk Time (%)				1								
Queuing Penalty (veh)				6								
Storage Bay Dist (ft)	300		100		170	180			300	300		
Storage Blk Time (%)	3	0		45	0		7				0	
Queuing Penalty (veh)	11	1		124	1		1				0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	NE
Directions Served	T	TR	L	T	R
Maximum Queue (ft)	318	282	246	218	191
Average Queue (ft)	180	124	124	85	77
95th Queue (ft)	272	235	210	172	146
Link Distance (ft)	483	483		876	702
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			530		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	R	T	T	L
Maximum Queue (ft)	193	67	266	224	214
Average Queue (ft)	89	30	113	68	116
95th Queue (ft)	158	59	231	174	194
Link Distance (ft)	636		495	495	702
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		550			
Storage Blk Time (%)					16
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 144

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	90	195	170	182	23	288	602	15	611
v/c Ratio	0.15	0.40	0.31	0.68	0.44	0.04	0.86	0.35	0.09	0.68
Control Delay	34.9	37.3	9.1	47.0	30.2	0.1	57.4	12.3	34.0	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	37.3	9.1	47.0	30.2	0.1	57.4	12.3	34.0	27.2
Queue Length 50th (ft)	10	38	22	74	60	0	127	75	6	127
Queue Length 95th (ft)	34	87	71	#181	#167	0	#295	148	25	178
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	159	223	627	254	444	579	334	1811	159	1388
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.40	0.31	0.67	0.41	0.04	0.86	0.33	0.09	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	64	31	918	1056
v/c Ratio	0.15	0.11	0.64	0.40
Control Delay	0.7	28.2	11.5	8.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.7	28.2	11.5	8.3
Queue Length 50th (ft)	0	8	125	54
Queue Length 95th (ft)	0	42	#680	310
Internal Link Dist (ft)	2279		2190	670
Turn Bay Length (ft)		100		
Base Capacity (vph)	474	276	1461	2673
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.11	0.63	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	180	568	151	150	383	196	108	692	170
v/c Ratio	0.30	0.38	0.95	0.30	0.85	0.38	0.12	0.59	0.76	0.11
Control Delay	42.8	2.6	63.6	4.2	79.7	27.5	0.2	55.6	35.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	2.6	63.6	4.2	79.7	27.5	0.2	55.6	35.8	0.2
Queue Length 50th (ft)	39	0	143	0	74	85	0	51	170	0
Queue Length 95th (ft)	#130	3	#464	29	#310	171	0	#196	316	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775		300	200	200		200	300		200
Base Capacity (vph)	535	480	614	524	181	1011	1583	216	963	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.38	0.93	0.29	0.83	0.38	0.12	0.50	0.72	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	25	260	199	638	232	158
v/c Ratio	0.13	0.47	0.55	0.72	0.60	0.43
Control Delay	30.2	21.1	28.2	18.6	21.7	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	21.1	28.2	18.6	21.7	21.4
Queue Length 50th (ft)	7	67	54	110	40	33
Queue Length 95th (ft)	29	138	119	297	102	83
Internal Link Dist (ft)		6653		8048	2524	2104
Turn Bay Length (ft)	150		200			
Base Capacity (vph)	194	793	585	1181	589	597
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.33	0.34	0.54	0.39	0.26

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	284	442	229	916	242	223	220	147	229	251	321
v/c Ratio	0.80	0.45	0.75	1.05	0.44	0.84	0.70	0.20	0.86	0.77	0.45
Control Delay	57.1	29.5	57.7	82.3	11.5	70.9	53.8	3.7	74.7	58.3	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	29.5	57.7	82.3	11.5	70.9	53.8	3.7	74.7	58.3	17.5
Queue Length 50th (ft)	182	111	147	~360	24	147	141	0	152	164	111
Queue Length 95th (ft)	300	178	238	#545	103	#298	232	32	#328	263	182
Internal Link Dist (ft)		849		837			2570			1149	
Turn Bay Length (ft)	300		300		200	200		200	300		300
Base Capacity (vph)	456	991	406	876	556	284	347	807	279	352	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.45	0.56	1.05	0.44	0.79	0.63	0.18	0.82	0.71	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	560	351	728	264	116	177	67	127	139
v/c Ratio	0.48	0.70	0.71	0.67	0.76	0.21	0.30	0.40	0.42	0.32
Control Delay	52.0	34.2	47.1	31.2	50.9	26.5	5.5	50.8	38.4	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	34.2	47.1	31.2	50.9	26.5	5.5	50.8	38.4	2.2
Queue Length 50th (ft)	43	130	89	175	128	49	0	33	63	0
Queue Length 95th (ft)	#139	252	#245	336	#363	107	47	102	134	3
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	218	969	552	1135	461	650	667	200	383	496
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.58	0.64	0.64	0.57	0.18	0.27	0.34	0.33	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	478	551	70	613
v/c Ratio	0.84	0.84	0.34	0.70
Control Delay	35.4	31.1	29.6	15.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	35.4	31.1	29.6	15.3
Queue Length 50th (ft)	154	176	24	136
Queue Length 95th (ft)	#277	#290	53	192
Internal Link Dist (ft)	4991	1327		2570
Turn Bay Length (ft)			150	
Base Capacity (vph)	585	750	208	1187
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.73	0.34	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	104	641	141	259	1529	49	219	360	202	48	799
v/c Ratio	0.96	0.50	0.20	0.69	1.05	0.06	1.03	0.35	0.25	0.44	1.00
Control Delay	137.5	34.1	0.6	65.7	75.3	0.2	125.9	38.4	7.0	71.2	77.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.5	34.1	0.6	65.7	75.3	0.2	125.9	38.4	7.0	71.2	77.3
Queue Length 50th (ft)	89	221	0	109	~737	0	~197	130	23	39	~324
Queue Length 95th (ft)	#208	283	0	154	#876	0	#360	177	71	82	#466
Internal Link Dist (ft)		4346			5219			3991			1226
Turn Bay Length (ft)	375		500	375		195	230		205	100	
Base Capacity (vph)	108	1287	718	417	1456	754	212	1038	818	123	797
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.50	0.20	0.62	1.05	0.06	1.03	0.35	0.25	0.39	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	237	445	127	264	853	154	276	449	143	216	618	474
v/c Ratio	1.03	0.58	0.26	0.87	0.94	0.10	1.04	0.58	0.29	0.84	0.83	0.78
Control Delay	111.6	37.9	2.5	68.7	54.4	0.1	108.3	37.7	3.5	69.8	46.8	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.6	37.9	2.5	68.7	54.4	0.1	108.3	37.7	3.5	69.8	46.8	19.4
Queue Length 50th (ft)	136	125	0	143	255	0	158	125	0	118	182	62
Queue Length 95th (ft)	#410	207	11	#400	400	0	#461	207	23	#342	289	202
Internal Link Dist (ft)		5219			1729			177			686	
Turn Bay Length (ft)	400		300	310		465	150		200	320		200
Base Capacity (vph)	229	766	486	327	907	1583	265	771	488	273	749	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.58	0.26	0.81	0.94	0.10	1.04	0.58	0.29	0.79	0.83	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	36	231	563	881	1090
v/c Ratio	0.49	0.15	1.04	0.52	1.08
Control Delay	92.4	0.2	98.3	3.1	86.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	92.4	0.2	98.3	3.1	86.1
Queue Length 50th (ft)	35	0	~601	145	~1206
Queue Length 95th (ft)	70	0	#729	162	#1278
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	74	1583	542	1679	1007
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.15	1.04	0.52	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	124	98	919	84	914
v/c Ratio	0.68	0.39	0.74	0.60	7.95
Control Delay	61.9	13.5	16.2	61.9	3139.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	13.5	16.2	61.9	3139.2
Queue Length 50th (ft)	77	0	375	54	~1182
Queue Length 95th (ft)	#150	47	558	#115	#1430
Internal Link Dist (ft)	1487		3240		2520
Turn Bay Length (ft)				200	
Base Capacity (vph)	198	263	1240	150	115
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.37	0.74	0.56	7.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	198	499	1320	133	193
v/c Ratio	0.63	0.36	0.81	0.51	0.34
Control Delay	42.4	5.2	22.6	41.7	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	5.2	22.6	41.7	16.6
Queue Length 50th (ft)	99	83	295	67	56
Queue Length 95th (ft)	177	142	421	127	109
Internal Link Dist (ft)		850	876	1361	
Turn Bay Length (ft)	300				
Base Capacity (vph)	402	1457	2000	350	642
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.66	0.38	0.30

Intersection Summary

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	29	679	1365	102
v/c Ratio	0.10	0.51	0.59	0.29
Control Delay	30.3	6.1	9.9	13.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.3	6.1	9.9	13.1
Queue Length 50th (ft)	6	85	93	4
Queue Length 95th (ft)	40	181	306	52
Internal Link Dist (ft)		837	850	1181
Turn Bay Length (ft)	150			
Base Capacity (vph)	326	1750	3079	646
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.39	0.44	0.16

Intersection Summary

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	L	T
Maximum Queue (ft)	216	200	155	158	499	517	85	189	160	185	174	268
Average Queue (ft)	104	80	43	20	389	424	31	86	58	90	64	128
95th Queue (ft)	191	158	111	87	608	612	70	153	124	153	131	224
Link Distance (ft)		421	421		483	483		457	457			1170
Upstream Blk Time (%)					18	26						
Queuing Penalty (veh)					90	127						
Storage Bay Dist (ft)	300			100			180			500	500	
Storage Blk Time (%)	0			0	66			0				
Queuing Penalty (veh)	0			0	8			0				

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	283
Average Queue (ft)	117
95th Queue (ft)	225
Link Distance (ft)	1170
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	WB	B8	NE
Directions Served	T	TR	L	T	T	T	R
Maximum Queue (ft)	214	185	383	625	636	59	94
Average Queue (ft)	79	38	167	203	239	2	34
95th Queue (ft)	161	118	340	623	662	67	69
Link Distance (ft)	483	483		949	949	1361	656
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			0	1			
Storage Bay Dist (ft)			800				
Storage Blk Time (%)				1			
Queuing Penalty (veh)				3			

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	TR	T	T	L	R
Maximum Queue (ft)	139	159	208	144	445	50
Average Queue (ft)	60	60	46	20	192	2
95th Queue (ft)	121	126	132	88	379	25
Link Distance (ft)	636	636	457	457	656	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						80
Storage Blk Time (%)					34	
Queuing Penalty (veh)					0	

Zone Summary

Zone wide Queuing Penalty: 231

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	201	566	143	117	13	215	837	62	807
v/c Ratio	0.19	0.66	0.87	0.82	0.23	0.02	0.98	0.59	0.36	0.74
Control Delay	40.8	43.0	35.1	73.8	27.1	0.1	94.9	21.2	41.5	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	43.0	35.1	73.8	27.1	0.1	94.9	21.2	41.5	28.5
Queue Length 50th (ft)	12	93	209	71	40	0	108	180	29	183
Queue Length 95th (ft)	40	177	#458	#196	107	0	#279	253	73	253
Internal Link Dist (ft)		1573			1252			830		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	137	374	653	174	519	564	220	1574	199	1543
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.54	0.87	0.82	0.23	0.02	0.98	0.53	0.31	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	91	55	1019	1584
v/c Ratio	0.25	0.28	0.69	0.64
Control Delay	3.1	33.7	12.4	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.1	33.7	12.4	14.5
Queue Length 50th (ft)	0	19	155	214
Queue Length 95th (ft)	14	#68	#795	#634
Internal Link Dist (ft)	2279		2190	650
Turn Bay Length (ft)		100		
Base Capacity (vph)	392	194	1476	2446
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.23	0.28	0.69	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	224	219	322	97	246	688	620	335	744	191
v/c Ratio	0.48	0.51	0.87	0.24	0.88	0.76	0.70	0.94	0.70	0.32
Control Delay	48.3	9.3	68.3	1.4	73.1	39.2	7.5	75.1	34.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	9.3	68.3	1.4	73.1	39.2	7.5	75.1	34.4	5.6
Queue Length 50th (ft)	64	0	93	0	134	191	0	181	196	0
Queue Length 95th (ft)	#211	62	#300	0	#458	354	98	#600	370	53
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	300	200	200		200	300		200
Base Capacity (vph)	463	432	371	407	307	948	890	386	1098	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.51	0.87	0.24	0.80	0.73	0.70	0.87	0.68	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	22	497	135	358	206	79
v/c Ratio	0.09	0.54	0.37	0.29	0.46	0.28
Control Delay	29.1	17.6	27.0	7.4	13.3	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	17.6	27.0	7.4	13.3	20.8
Queue Length 50th (ft)	6	131	39	41	20	17
Queue Length 95th (ft)	29	274	104	153	81	57
Internal Link Dist (ft)		6653		8048	2524	2104
Turn Bay Length (ft)	150		200			
Base Capacity (vph)	242	1096	533	1297	707	501
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.45	0.25	0.28	0.29	0.16

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	127	1297	222	773	90	114	193	296	95	195	120
v/c Ratio	0.60	1.03	0.87	0.57	0.12	0.84	0.64	0.45	0.78	0.65	0.20
Control Delay	51.4	62.1	71.1	24.4	0.4	88.1	45.3	16.0	82.5	45.9	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	62.1	71.1	24.4	0.4	88.1	45.3	16.0	82.5	45.9	6.9
Queue Length 50th (ft)	69	~393	124	175	0	65	105	82	54	107	9
Queue Length 95th (ft)	140	#662	#291	293	1	#186	171	149	#160	174	42
Internal Link Dist (ft)		849		827			2570			1052	
Turn Bay Length (ft)	300		300		200	200		200	300		300
Base Capacity (vph)	253	1261	265	1358	733	136	324	662	122	322	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	1.03	0.84	0.57	0.12	0.84	0.60	0.45	0.78	0.61	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	163	1091	540	601	219	148	347	96	149	63
v/c Ratio	0.69	0.98	1.13	0.53	1.23	0.36	0.56	0.67	0.46	0.15
Control Delay	52.7	50.0	117.1	25.4	178.6	30.7	6.9	64.1	34.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	50.0	117.1	25.4	178.6	30.7	6.9	64.1	34.5	0.8
Queue Length 50th (ft)	72	249	~147	120	~125	65	0	45	66	0
Queue Length 95th (ft)	#241	#566	#403	254	#394	127	62	#177	130	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	270	1114	478	1141	178	416	622	145	345	441
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.98	1.13	0.53	1.23	0.36	0.56	0.66	0.43	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	269	905	140	538
v/c Ratio	0.91	0.95	0.80	0.42
Control Delay	69.3	40.2	73.3	7.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	69.3	40.2	73.3	7.2
Queue Length 50th (ft)	144	432	80	113
Queue Length 95th (ft)	#282	#690	#175	162
Internal Link Dist (ft)	4991	1327		2570
Turn Bay Length (ft)			150	
Base Capacity (vph)	300	996	174	1332
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.90	0.91	0.80	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	308	1757	378	299	1145	33	175	549	373	42	643
v/c Ratio	0.96	1.06	0.44	0.99	0.86	0.05	1.04	0.60	0.55	0.70	1.00
Control Delay	101.0	77.2	12.7	116.4	51.0	0.1	142.7	52.7	28.4	121.5	93.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.0	77.2	12.7	116.4	51.0	0.1	142.7	52.7	28.4	121.5	93.6
Queue Length 50th (ft)	302	~987	101	153	543	0	~183	255	204	42	~323
Queue Length 95th (ft)	#492	#1125	186	#254	640	0	#343	320	312	#111	#459
Internal Link Dist (ft)		5193			5219			3991			1226
Turn Bay Length (ft)	375		500	375		195	230		205	100	
Base Capacity (vph)	323	1663	855	302	1332	716	169	914	683	60	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.06	0.44	0.99	0.86	0.05	1.04	0.60	0.55	0.70	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	482	982	293	246	665	357	209	719	220	284	502	307
v/c Ratio	1.05	0.89	0.42	0.97	0.97	0.23	0.86	0.97	0.46	1.03	0.62	0.35
Control Delay	102.2	55.2	5.6	105.5	81.1	0.3	86.7	78.7	13.6	115.7	50.8	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.2	55.2	5.6	105.5	81.1	0.3	86.7	78.7	13.6	115.7	50.8	14.1
Queue Length 50th (ft)	~432	418	0	208	~302	0	171	321	26	~243	206	102
Queue Length 95th (ft)	#763	545	66	#438	397	0	#345	#449	105	#501	287	187
Internal Link Dist (ft)		5219			1729			177			686	
Turn Bay Length (ft)	400		300	310		465	150		200	320		200
Base Capacity (vph)	460	1101	694	254	686	1583	263	742	475	277	805	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.89	0.42	0.97	0.97	0.23	0.79	0.97	0.46	1.03	0.62	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	158	504	221	1013	1076
v/c Ratio	0.66	0.32	0.70	0.80	0.74
Control Delay	45.9	0.5	42.9	13.2	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	0.5	42.9	13.2	19.1
Queue Length 50th (ft)	61	0	84	236	181
Queue Length 95th (ft)	#182	0	#235	380	240
Internal Link Dist (ft)	307			1224	3761
Turn Bay Length (ft)		180	300		
Base Capacity (vph)	239	1583	314	1800	2673
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.32	0.70	0.56	0.40

Intersection Summary

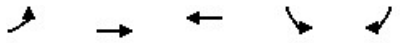
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	178	105	1081	103	1458
v/c Ratio	0.95	0.40	0.89	0.82	0.99
Control Delay	100.6	13.4	24.4	91.2	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	100.6	13.4	24.4	91.2	34.3
Queue Length 50th (ft)	115	0	496	66	713
Queue Length 95th (ft)	#247	49	#871	#160	#1226
Internal Link Dist (ft)	1487		3260		1610
Turn Bay Length (ft)				200	
Base Capacity (vph)	187	261	1219	125	1466
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.40	0.89	0.82	0.99

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	335	1162	953	190	341
v/c Ratio	0.79	0.93	0.73	0.72	0.45
Control Delay	44.5	25.0	24.2	52.0	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	25.0	24.2	52.0	13.9
Queue Length 50th (ft)	177	432	217	105	94
Queue Length 95th (ft)	#293	#859	294	#205	163
Internal Link Dist (ft)		860	876	1361	
Turn Bay Length (ft)	300				
Base Capacity (vph)	530	1436	1584	299	853
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.63	0.81	0.60	0.64	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	96	1484	1117	71
v/c Ratio	0.51	0.94	0.45	0.41
Control Delay	47.5	22.4	8.6	22.8
Queue Delay	0.0	1.4	0.0	0.0
Total Delay	47.5	23.8	8.6	22.8
Queue Length 50th (ft)	52	585	163	7
Queue Length 95th (ft)	101	#1131	213	48
Internal Link Dist (ft)		827	860	1122
Turn Bay Length (ft)	150			
Base Capacity (vph)	222	1573	2488	173
Starvation Cap Reductn	0	27	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.96	0.45	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	B8	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	T	L	T	TR	L	T	TR	L	L
Maximum Queue (ft)	380	444	369	120	140	254	336	190	390	360	391	469
Average Queue (ft)	228	183	112	17	23	130	186	25	217	186	223	192
95th Queue (ft)	383	413	320	158	79	222	298	105	342	314	370	388
Link Distance (ft)		502	502	7489		483	483		457	457		
Upstream Blk Time (%)		4	0						0	0		
Queuing Penalty (veh)		12	1						1	0		
Storage Bay Dist (ft)	300				100			180			500	500
Storage Blk Time (%)	15	2				20			27		0	1
Queuing Penalty (veh)	31	5				4			5		2	2

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB	SB	B11	B11	B7	B7
Directions Served	T	TR	T	T	T	
Maximum Queue (ft)	587	557	77	38	610	553
Average Queue (ft)	270	236	5	2	246	85
95th Queue (ft)	494	459	65	35	713	414
Link Distance (ft)	612	612	504	504	573	573
Upstream Blk Time (%)	1	1			2	0
Queuing Penalty (veh)	8	6			15	2
Storage Bay Dist (ft)						
Storage Blk Time (%)	2					
Queuing Penalty (veh)	11					

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	NE
Directions Served	T	TR	L	R
Maximum Queue (ft)	376	348	250	215
Average Queue (ft)	108	66	133	88
95th Queue (ft)	272	225	220	167
Link Distance (ft)	483	483		656
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			530	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW
Directions Served	T	TR	T	T	L
Maximum Queue (ft)	116	134	327	302	304
Average Queue (ft)	58	66	109	74	157
95th Queue (ft)	104	117	285	224	264
Link Distance (ft)	636	636	457	457	656
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					29
Queuing Penalty (veh)					0

Zone Summary

Zone wide Queuing Penalty: 104

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	89	142	195	174	26	216	500	16	552
v/c Ratio	0.13	0.40	0.22	0.64	0.37	0.05	0.67	0.30	0.10	0.66
Control Delay	35.8	38.4	3.1	41.2	27.3	0.2	41.2	13.2	35.3	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	38.4	3.1	41.2	27.3	0.2	41.2	13.2	35.3	28.9
Queue Length 50th (ft)	9	39	0	85	56	0	93	66	7	122
Queue Length 95th (ft)	32	88	26	#185	140	0	#201	130	26	172
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	159	223	675	334	522	612	360	2089	159	1705
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.40	0.21	0.58	0.33	0.04	0.60	0.24	0.10	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	58	26	889	958
v/c Ratio	0.14	0.11	0.61	0.71
Control Delay	0.7	30.5	10.6	18.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.7	30.5	10.6	18.1
Queue Length 50th (ft)	0	7	118	136
Queue Length 95th (ft)	0	38	#648	#867
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	438	239	1467	1346
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.61	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	184	747	342	195	268	274	200	579	111
v/c Ratio	0.44	0.48	0.95	0.53	0.86	0.32	0.17	0.78	0.65	0.07
Control Delay	44.3	4.4	53.5	7.3	69.1	23.1	0.2	56.0	27.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	4.4	53.5	7.3	69.1	23.1	0.2	56.0	27.3	0.1
Queue Length 50th (ft)	20	0	160	0	82	53	0	82	124	0
Queue Length 95th (ft)	#66	0	#444	83	#297	79	0	#284	166	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	218	380	804	650	232	848	1583	273	920	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.48	0.93	0.53	0.84	0.32	0.17	0.73	0.63	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	226	316	495	284	189	32	116
v/c Ratio	0.23	0.68	0.80	0.62	0.81	0.34	0.23	0.46
Control Delay	49.3	43.0	50.1	26.0	55.2	10.6	47.6	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	43.0	50.1	26.0	55.2	10.6	47.6	35.6
Queue Length 50th (ft)	14	109	164	187	153	21	17	48
Queue Length 95th (ft)	47	210	#375	421	#370	76	53	104
Internal Link Dist (ft)		6653		8048		2524		2104
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	115	417	489	866	397	636	138	301
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.54	0.65	0.57	0.72	0.30	0.23	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	764	116	1084	290
v/c Ratio	0.90	0.67	0.94	0.81
Control Delay	34.4	59.7	29.7	48.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.4	59.7	29.7	48.0
Queue Length 50th (ft)	353	65	474	141
Queue Length 95th (ft)	#594	#149	#833	#266
Internal Link Dist (ft)	849		837	2570
Turn Bay Length (ft)		80		
Base Capacity (vph)	993	180	1312	411
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.64	0.83	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	105	679	289	706	168	63	163	74	121	111
v/c Ratio	0.50	0.74	0.61	0.62	0.62	0.14	0.31	0.42	0.39	0.25
Control Delay	48.4	33.2	42.9	28.2	47.6	28.1	6.4	49.0	36.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	33.2	42.9	28.2	47.6	28.1	6.4	49.0	36.3	1.4
Queue Length 50th (ft)	48	151	67	153	76	26	0	34	55	0
Queue Length 95th (ft)	#140	304	#175	315	#218	66	47	107	122	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	273	1166	574	1240	371	554	585	214	396	506
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.58	0.50	0.57	0.45	0.11	0.28	0.35	0.31	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	189	242	105	148	168	432	21	494
v/c Ratio	0.27	0.55	0.50	0.56	0.34	0.65	0.56	0.16	0.59
Control Delay	37.1	35.8	8.5	45.8	23.8	44.0	20.3	36.4	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	35.8	8.5	45.8	23.8	44.0	20.3	36.4	25.8
Queue Length 50th (ft)	17	74	0	43	43	68	124	9	99
Queue Length 95th (ft)	52	#175	62	#123	109	#177	259	32	142
Internal Link Dist (ft)		3946			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	162	344	489	194	442	275	878	135	1393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.55	0.49	0.54	0.33	0.61	0.49	0.16	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	95	26	158	42	58	89	68	211	47	326	74
v/c Ratio	0.40	0.04	0.24	0.17	0.12	0.16	0.25	0.17	0.18	0.54	0.12
Control Delay	38.6	18.7	2.6	32.5	20.6	0.6	33.7	13.8	32.2	23.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	18.7	2.6	32.5	20.6	0.6	33.7	13.8	32.2	23.1	0.4
Queue Length 50th (ft)	30	6	0	13	17	0	21	15	14	93	0
Queue Length 95th (ft)	#152	27	21	57	47	0	#98	66	61	247	0
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	235	778	779	254	678	705	273	2011	268	1078	994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.03	0.20	0.17	0.09	0.13	0.25	0.10	0.18	0.30	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	53	153	368	37	89	153	358	247	105	958
v/c Ratio	0.37	0.08	0.33	0.91	0.08	0.06	0.87	0.30	0.35	0.56	0.87
Control Delay	43.0	28.9	3.3	67.4	28.1	0.1	82.8	23.8	5.2	50.6	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	28.9	3.3	67.4	28.1	0.1	82.8	23.8	5.2	50.6	37.3
Queue Length 50th (ft)	46	12	0	94	16	0	76	72	0	50	226
Queue Length 95th (ft)	#152	28	18	#261	43	0	#261	146	58	#147	#424
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	259	649	458	403	446	1583	175	1195	698	218	1153
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.08	0.33	0.91	0.08	0.06	0.87	0.30	0.35	0.48	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	405	300	311	37	579	37	921	421	84	37	632	484
v/c Ratio	0.95	0.31	0.31	0.18	0.99	0.07	1.01	0.27	0.10	0.13	0.90	0.68
Control Delay	77.1	31.0	7.2	46.9	77.3	0.3	70.5	19.7	0.2	44.1	56.7	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.1	31.0	7.2	46.9	77.3	0.3	70.5	19.7	0.2	44.1	56.7	21.7
Queue Length 50th (ft)	134	85	56	11	196	0	~311	96	0	11	207	166
Queue Length 95th (ft)	#227	125	107	28	#310	0	#444	135	0	27	#306	285
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	427	982	1010	206	585	505	909	1551	821	275	714	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.31	0.31	0.18	0.99	0.07	1.01	0.27	0.10	0.13	0.89	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	L
Maximum Queue (ft)	327	364	305	148	443	450	451	115	229	206	109	95
Average Queue (ft)	173	169	113	33	262	271	234	36	122	98	52	27
95th Queue (ft)	307	328	256	108	448	457	461	81	196	177	94	72
Link Distance (ft)		751	751		483	483	483		457	457		
Upstream Blk Time (%)					3	3	4					
Queuing Penalty (veh)					10	8	13					
Storage Bay Dist (ft)	300			100				180			500	500
Storage Blk Time (%)	5	3		0	57				1			
Queuing Penalty (veh)	8	6		0	12				0			

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	262	318
Average Queue (ft)	127	171
95th Queue (ft)	219	275
Link Distance (ft)	1160	1160
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	WB	NE
Directions Served	T	TR	L	T	T	R
Maximum Queue (ft)	156	91	319	155	158	60
Average Queue (ft)	35	6	146	20	25	24
95th Queue (ft)	101	42	254	123	135	49
Link Distance (ft)	483	483		706	706	656
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			530			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	R	T	T	L	R
Maximum Queue (ft)	165	45	161	162	258	138
Average Queue (ft)	75	10	50	64	125	17
95th Queue (ft)	134	34	124	134	230	73
Link Distance (ft)	1828		457	457	656	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		550				80
Storage Blk Time (%)					15	
Queuing Penalty (veh)					3	

Zone Summary

Zone wide Queuing Penalty: 61

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	179	495	153	116	16	137	758	58	737
v/c Ratio	0.18	0.59	0.78	0.75	0.21	0.03	0.74	0.58	0.35	0.72
Control Delay	38.2	37.9	27.6	58.6	24.6	0.1	60.7	20.9	40.5	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	37.9	27.6	58.6	24.6	0.1	60.7	20.9	40.5	27.5
Queue Length 50th (ft)	11	75	154	68	35	0	61	150	25	154
Queue Length 95th (ft)	38	152	#354	#193	100	0	#179	222	68	225
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	146	413	633	205	563	597	185	1667	175	1670
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.43	0.78	0.75	0.21	0.03	0.74	0.45	0.33	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	84	53	942	1400
v/c Ratio	0.39	0.58	0.60	0.98
Control Delay	14.2	75.8	7.1	37.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.2	75.8	7.1	37.4
Queue Length 50th (ft)	0	34	127	~843
Queue Length 95th (ft)	41	#114	597	#1659
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	214	91	1547	1398
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.58	0.61	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	163	321	358	158	337	574	789	511	658	132
v/c Ratio	0.53	0.77	0.89	0.44	0.88	0.72	0.50	0.97	0.61	0.09
Control Delay	48.3	18.5	66.1	5.0	60.4	37.0	1.1	64.7	28.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	18.5	66.1	5.0	60.4	37.0	1.1	64.7	28.9	0.1
Queue Length 50th (ft)	41	0	94	0	160	152	0	247	162	0
Queue Length 95th (ft)	#104	94	#272	12	#476	221	0	#720	238	0
Internal Link Dist (ft)						2635			654	
Turn Bay Length (ft)	775	650	960	150	300		300	420		540
Base Capacity (vph)	333	487	402	427	429	798	1583	538	1079	1482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.66	0.89	0.37	0.79	0.72	0.50	0.95	0.61	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	579	189	300	111	310	26	84
v/c Ratio	0.21	0.89	0.78	0.31	0.60	0.66	0.20	0.31
Control Delay	45.6	44.9	61.4	16.6	54.3	25.5	44.7	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	44.9	61.4	16.6	54.3	25.5	44.7	29.4
Queue Length 50th (ft)	13	271	98	74	57	81	13	32
Queue Length 95th (ft)	43	#581	#246	210	#146	190	43	72
Internal Link Dist (ft)		6653		8048		2524		2104
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	123	691	250	953	197	517	131	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.84	0.76	0.31	0.56	0.60	0.20	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	921	74	842	189
v/c Ratio	0.91	0.48	0.69	0.66
Control Delay	30.0	51.8	10.3	37.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.0	51.8	10.3	37.4
Queue Length 50th (ft)	405	41	208	69
Queue Length 95th (ft)	#712	#102	331	#143
Internal Link Dist (ft)	849		837	2570
Turn Bay Length (ft)		80		
Base Capacity (vph)	1205	156	1418	358
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.76	0.47	0.59	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	116	916	489	527	211	137	153	63	147	53
v/c Ratio	0.59	0.91	0.97	0.42	0.76	0.29	0.30	0.41	0.49	0.12
Control Delay	54.2	44.6	75.1	25.3	57.7	30.3	6.3	51.5	40.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	44.6	75.1	25.3	57.7	30.3	6.3	51.5	40.4	0.6
Queue Length 50th (ft)	61	247	140	117	110	64	0	33	77	0
Queue Length 95th (ft)	#165	#473	#357	225	#300	125	46	95	145	0
Internal Link Dist (ft)		646		747		2042			2355	
Turn Bay Length (ft)	535		500		250			80		80
Base Capacity (vph)	239	1034	503	1251	325	500	537	187	354	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.89	0.97	0.42	0.65	0.27	0.28	0.34	0.42	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	437	179	147	452	237	573	47	479
v/c Ratio	0.35	0.94	0.31	0.87	0.72	0.91	0.86	0.45	0.61
Control Delay	50.2	64.7	2.4	83.7	36.0	76.6	40.8	54.7	32.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	64.7	2.4	83.7	36.0	76.6	40.8	54.7	32.8
Queue Length 50th (ft)	21	249	0	85	246	136	305	27	120
Queue Length 95th (ft)	52	#440	15	#198	#425	#279	#507	#67	169
Internal Link Dist (ft)		3706			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	105	463	583	169	629	260	673	105	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.94	0.31	0.87	0.72	0.91	0.85	0.45	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	95	126	79	89	100	184	537	116	521	121
v/c Ratio	0.53	0.29	0.28	0.43	0.25	0.21	0.67	0.33	0.45	0.83	0.18
Control Delay	49.8	28.4	1.8	44.7	27.6	1.0	46.9	17.6	38.8	36.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	28.4	1.8	44.7	27.6	1.0	46.9	17.6	38.8	36.7	1.4
Queue Length 50th (ft)	37	38	0	33	36	0	76	77	46	191	0
Queue Length 95th (ft)	#147	75	4	#122	71	0	#250	181	#135	#525	9
Internal Link Dist (ft)		164			494			274		478	
Turn Bay Length (ft)	75		75	110		110	220		200		
Base Capacity (vph)	168	359	472	184	363	475	305	1598	320	873	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.26	0.27	0.43	0.25	0.21	0.60	0.34	0.36	0.60	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	158	311	458	105	174	426	926	474	132	885
v/c Ratio	0.53	0.30	0.48	0.83	0.23	0.11	0.84	0.78	0.56	0.75	0.88
Control Delay	55.0	37.3	16.9	54.2	32.9	0.1	56.8	34.7	5.4	70.6	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	37.3	16.9	54.2	32.9	0.1	56.8	34.7	5.4	70.6	44.1
Queue Length 50th (ft)	52	44	85	129	53	0	121	243	0	74	247
Queue Length 95th (ft)	#147	78	175	#310	105	0	#297	435	78	#234	#460
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	199	525	661	580	448	1583	528	1236	861	184	1051
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.30	0.47	0.79	0.23	0.11	0.81	0.75	0.55	0.72	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	421	868	1053	58	595	47	626	832	111	47	658	405
v/c Ratio	0.99	0.93	1.01	0.37	1.00	0.10	0.55	0.49	0.13	0.22	0.98	0.62
Control Delay	96.8	63.7	52.2	67.0	91.5	0.5	38.0	25.1	0.6	60.8	83.4	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.8	63.7	52.2	67.0	91.5	0.5	38.0	25.1	0.6	60.8	83.4	27.4
Queue Length 50th (ft)	185	386	~926	24	~267	0	222	256	0	19	293	192
Queue Length 95th (ft)	#293	#530	#1189	48	#394	0	283	317	3	40	#421	305
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	427	935	1046	158	593	451	1130	1692	848	211	669	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.93	1.01	0.37	1.00	0.10	0.55	0.49	0.13	0.22	0.98	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	T	TR	L	L
Maximum Queue (ft)	351	477	384	147	308	314	88	239	332	297	268	282
Average Queue (ft)	193	205	149	26	154	160	36	79	180	145	147	118
95th Queue (ft)	348	418	323	91	272	279	69	166	286	247	237	224
Link Distance (ft)		771	771		483	483	483		457	457		
Upstream Blk Time (%)						0			0			
Queuing Penalty (veh)						0			0			
Storage Bay Dist (ft)	300			100				180			500	500
Storage Blk Time (%)	9	2		0	36			1	11			
Queuing Penalty (veh)	23	5		0	7			2	8			

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	396	429
Average Queue (ft)	183	189
95th Queue (ft)	319	336
Link Distance (ft)	1160	1160
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	WB	NE
Directions Served	T	TR	L	T	T	R
Maximum Queue (ft)	395	364	163	75	96	159
Average Queue (ft)	154	90	74	25	33	61
95th Queue (ft)	315	255	135	61	77	123
Link Distance (ft)	483	483		706	706	656
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	0	0				
Storage Bay Dist (ft)			530			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	TR	T	T	L	R
Maximum Queue (ft)	118	113	191	171	145	46
Average Queue (ft)	52	52	66	38	50	12
95th Queue (ft)	98	92	148	113	110	35
Link Distance (ft)	1026	1026	457	457	656	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						80
Storage Blk Time (%)					3	0
Queuing Penalty (veh)					1	0

Zone Summary

Zone wide Queuing Penalty: 47

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	89	192	206	174	26	279	597	16	628
v/c Ratio	0.14	0.42	0.30	0.71	0.39	0.05	0.82	0.34	0.11	0.70
Control Delay	37.5	40.9	5.9	46.6	28.9	0.2	54.1	13.1	37.0	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	40.9	5.9	46.6	28.9	0.2	54.1	13.1	37.0	29.4
Queue Length 50th (ft)	10	41	7	95	60	0	132	82	7	143
Queue Length 95th (ft)	33	92	52	#212	147	0	#298	155	27	196
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	149	210	649	314	495	593	339	1967	149	1603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.42	0.30	0.66	0.35	0.04	0.82	0.30	0.11	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	67	33	1083	1122
v/c Ratio	0.30	0.10	0.41	0.47
Control Delay	3.3	25.6	6.7	11.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.3	25.6	6.7	11.9
Queue Length 50th (ft)	0	5	56	58
Queue Length 95th (ft)	0	41	248	#386
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	227	328	2762	2515
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.10	0.39	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	302	343	582	284	47	164	32	116
v/c Ratio	0.24	0.82	0.86	0.69	0.84	0.09	0.17	0.25	0.47
Control Delay	50.2	53.8	55.9	28.4	59.2	26.3	2.2	48.5	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	53.8	55.9	28.4	59.2	26.3	2.2	48.5	36.3
Queue Length 50th (ft)	14	161	184	235	156	21	0	18	48
Queue Length 95th (ft)	47	#323	#419	#573	#370	50	28	53	104
Internal Link Dist (ft)		6653		8048		2524			2104
Turn Bay Length (ft)	150		300		200		150	150	
Base Capacity (vph)	108	395	461	852	374	578	1030	130	287
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.76	0.74	0.68	0.76	0.08	0.16	0.25	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	221	660	157	181	1174	182	192	218	156	168	253	257
v/c Ratio	0.98	0.61	0.24	0.68	1.01	0.28	0.95	0.65	0.23	0.92	0.78	0.39
Control Delay	98.5	30.6	1.8	50.7	59.5	6.6	93.3	44.8	7.7	92.9	53.9	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.5	30.6	1.8	50.7	59.5	6.6	93.3	44.8	7.7	92.9	53.9	10.0
Queue Length 50th (ft)	127	164	0	97	343	8	110	119	21	96	142	38
Queue Length 95th (ft)	#310	276	12	182	#596	59	#275	191	54	#250	222	94
Internal Link Dist (ft)		849			837			2570			1149	
Turn Bay Length (ft)	300		150	300		150	300		150	300		150
Base Capacity (vph)	225	1088	664	335	1166	652	203	337	743	182	327	664
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.61	0.24	0.54	1.01	0.28	0.95	0.65	0.21	0.92	0.77	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	379	439	47	543
v/c Ratio	0.75	0.72	0.21	0.65
Control Delay	27.6	25.2	27.0	14.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.6	25.2	27.0	14.6
Queue Length 50th (ft)	109	139	16	124
Queue Length 95th (ft)	#232	#267	43	206
Internal Link Dist (ft)	4991	1327		2570
Turn Bay Length (ft)			100	
Base Capacity (vph)	621	744	228	1217
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.59	0.21	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	221	602	38	922
v/c Ratio	0.61	0.66	0.18	0.86
Control Delay	27.2	15.9	26.4	19.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.2	15.9	26.4	19.0
Queue Length 50th (ft)	58	100	12	210
Queue Length 95th (ft)	#144	#331	37	#380
Internal Link Dist (ft)	5233	1262		1191
Turn Bay Length (ft)			100	
Base Capacity (vph)	406	997	212	1396
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.60	0.18	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	189	242	105	174	168	634	47	761
v/c Ratio	0.49	0.55	0.49	0.63	0.45	0.76	0.47	0.33	0.82
Control Delay	44.8	33.2	8.0	50.2	22.4	54.1	18.7	37.3	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	33.2	8.0	50.2	22.4	54.1	18.7	37.3	31.5
Queue Length 50th (ft)	29	76	0	45	47	72	117	20	157
Queue Length 95th (ft)	#77	137	56	#114	102	#169	167	50	#231
Internal Link Dist (ft)		4016			5219		3991		1226
Turn Bay Length (ft)	375		500	375		230		100	
Base Capacity (vph)	138	345	490	167	392	224	1352	144	1016
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.55	0.49	0.63	0.44	0.75	0.47	0.33	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	66	157	368	52	100	157	379	247	115	980
v/c Ratio	0.35	0.10	0.27	0.78	0.14	0.06	0.43	0.30	0.34	0.57	0.87
Control Delay	42.6	29.0	6.8	50.9	28.8	0.1	42.8	23.7	5.1	50.7	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	29.0	6.8	50.9	28.8	0.1	42.8	23.7	5.1	50.7	36.3
Queue Length 50th (ft)	46	15	10	94	22	0	38	77	0	54	234
Queue Length 95th (ft)	#152	34	51	#261	55	0	92	154	58	#166	#458
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	273	688	591	471	400	1583	367	1255	721	235	1236
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.10	0.27	0.78	0.13	0.06	0.43	0.30	0.34	0.49	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	405	304	319	37	584	38	928	436	84	38	651	484
v/c Ratio	0.89	0.29	0.31	0.15	0.86	0.07	0.95	0.26	0.10	0.11	0.80	0.65
Control Delay	65.2	29.2	6.5	45.3	53.4	0.2	55.2	17.5	0.2	42.1	44.4	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	29.2	6.5	45.3	53.4	0.2	55.2	17.5	0.2	42.1	44.4	19.6
Queue Length 50th (ft)	132	83	54	11	191	0	299	94	0	11	205	158
Queue Length 95th (ft)	#218	122	102	27	#284	0	#427	131	0	27	271	272
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	456	1056	1045	242	677	538	975	1670	867	338	841	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.29	0.31	0.15	0.86	0.07	0.95	0.26	0.10	0.11	0.77	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	117	95	915	91	911
v/c Ratio	0.30	0.22	0.49	0.25	0.38
Control Delay	25.1	8.2	12.6	25.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	8.2	12.6	25.4	5.4
Queue Length 50th (ft)	35	0	123	27	64
Queue Length 95th (ft)	91	36	196	75	102
Internal Link Dist (ft)	1487		3990		2520
Turn Bay Length (ft)				200	
Base Capacity (vph)	561	566	2375	516	3046
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.17	0.39	0.18	0.30

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	121	851	1343	73	58	116
v/c Ratio	0.23	0.33	0.68	0.08	0.21	0.34
Control Delay	25.4	3.8	15.0	2.9	26.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	3.8	15.0	2.9	26.5	9.3
Queue Length 50th (ft)	21	52	208	0	20	0
Queue Length 95th (ft)	42	75	#303	17	50	39
Internal Link Dist (ft)		850	876		1361	
Turn Bay Length (ft)	300					
Base Capacity (vph)	582	2552	1964	952	296	361
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.33	0.68	0.08	0.20	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	29	956	1459	100
v/c Ratio	0.10	0.34	0.58	0.28
Control Delay	24.1	3.6	10.3	10.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.1	3.6	10.3	10.9
Queue Length 50th (ft)	7	54	103	4
Queue Length 95th (ft)	31	91	#371	41
Internal Link Dist (ft)		837	850	1181
Turn Bay Length (ft)	150			
Base Capacity (vph)	300	3017	2524	430
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.32	0.58	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	TR	L	L	T
Maximum Queue (ft)	297	263	213	160	429	420	88	193	198	95	119	291
Average Queue (ft)	163	103	86	51	257	261	34	86	97	45	61	167
95th Queue (ft)	284	213	168	150	429	430	73	155	165	82	100	258
Link Distance (ft)		765	765		483	483		457	457			531
Upstream Blk Time (%)					2	2						
Queuing Penalty (veh)					8	7						
Storage Bay Dist (ft)	400			100			180			600	600	
Storage Blk Time (%)	0	0		0	58			0				
Queuing Penalty (veh)	0	0		1	18			0				

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB	B103
Directions Served	TR	T
Maximum Queue (ft)	287	1
Average Queue (ft)	155	0
95th Queue (ft)	252	1
Link Distance (ft)	531	2852
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	WB	NE
Directions Served	T	TR	L	T	T	R
Maximum Queue (ft)	157	144	341	76	76	122
Average Queue (ft)	62	65	179	23	24	40
95th Queue (ft)	125	124	289	225	239	88
Link Distance (ft)	483	483		2366	2366	656
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			800			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				2		

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	TR	T	T	L	R
Maximum Queue (ft)	162	205	157	124	511	161
Average Queue (ft)	70	97	63	36	209	17
95th Queue (ft)	138	177	138	97	428	88
Link Distance (ft)	636	636	457	457	656	
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)						80
Storage Blk Time (%)					34	
Queuing Penalty (veh)					7	

Zone Summary

Zone wide Queuing Penalty: 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	179	571	173	116	16	209	878	58	838
v/c Ratio	0.19	0.60	0.93	0.89	0.22	0.03	1.19	0.62	0.37	0.74
Control Delay	40.8	40.7	45.7	80.7	26.5	0.1	162.9	21.4	43.5	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	40.7	45.7	80.7	26.5	0.1	162.9	21.4	43.5	27.4
Queue Length 50th (ft)	12	81	219	84	38	0	~124	186	27	184
Queue Length 95th (ft)	40	159	#484	#235	105	0	#297	266	71	261
Internal Link Dist (ft)		1573			1252			2520		1474
Turn Bay Length (ft)	200		300	360		150	250		525	
Base Capacity (vph)	139	393	613	195	540	579	176	1588	167	1590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.46	0.93	0.89	0.21	0.03	1.19	0.55	0.35	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBL	NBT	SBT
Lane Group Flow (vph)	98	59	1181	1664
v/c Ratio	0.50	0.31	0.45	0.73
Control Delay	9.0	36.7	6.5	16.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.0	36.7	6.5	16.0
Queue Length 50th (ft)	0	21	64	231
Queue Length 95th (ft)	0	#82	273	#677
Internal Link Dist (ft)	2279		2190	3990
Turn Bay Length (ft)		100		
Base Capacity (vph)	195	190	2661	2332
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.31	0.44	0.71

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	685	221	405	111	89	254	26	84
v/c Ratio	0.22	0.96	0.84	0.39	0.70	0.25	0.32	0.21	0.37
Control Delay	47.8	52.9	66.4	15.3	66.8	34.0	4.0	46.8	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	52.9	66.4	15.3	66.8	34.0	4.0	46.8	33.7
Queue Length 50th (ft)	14	354	123	102	62	40	1	14	34
Queue Length 95th (ft)	45	#720	#294	281	#179	91	48	45	76
Internal Link Dist (ft)		6653		8048		2524			2104
Turn Bay Length (ft)	150		300		200		150	150	
Base Capacity (vph)	117	769	276	1042	159	367	812	126	260
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.89	0.80	0.39	0.70	0.24	0.31	0.21	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	205	934	200	214	1019	171	98	198	257	176	198	198
v/c Ratio	0.89	0.83	0.31	0.89	0.89	0.26	0.66	0.65	0.40	0.86	0.46	0.27
Control Delay	77.5	36.1	6.9	77.3	40.2	5.1	64.2	45.8	14.0	78.3	35.2	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.5	36.1	6.9	77.3	40.2	5.1	64.2	45.8	14.0	78.3	35.2	10.3
Queue Length 50th (ft)	116	247	9	121	277	0	55	108	61	100	104	35
Queue Length 95th (ft)	#287	#425	63	#295	#483	47	#149	177	121	#255	169	81
Internal Link Dist (ft)		849			837			2570			1149	
Turn Bay Length (ft)	300		150	300		150	300		150	300		150
Base Capacity (vph)	232	1190	671	241	1209	676	154	327	650	204	434	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.78	0.30	0.89	0.84	0.25	0.64	0.61	0.40	0.86	0.46	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	229	777	86	524
v/c Ratio	0.71	0.89	0.48	0.46
Control Delay	41.0	29.2	43.5	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	41.0	29.2	43.5	7.8
Queue Length 50th (ft)	95	279	39	99
Queue Length 95th (ft)	#200	#511	#97	154
Internal Link Dist (ft)	4991	1327		2570
Turn Bay Length (ft)			100	
Base Capacity (vph)	367	1099	181	1380
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	0.71	0.48	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	175	1259	58	797
v/c Ratio	0.91	0.98	0.57	0.54
Control Delay	90.6	38.2	72.3	5.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	90.6	38.2	72.3	5.7
Queue Length 50th (ft)	115	~809	41	161
Queue Length 95th (ft)	#250	#1189	#98	228
Internal Link Dist (ft)	5233	1262		1191
Turn Bay Length (ft)			100	
Base Capacity (vph)	192	1285	103	1517
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.91	0.98	0.56	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	439	179	147	479	237	856	72	789
v/c Ratio	0.70	0.95	0.31	0.87	0.83	0.92	0.72	0.57	0.95
Control Delay	76.3	65.8	2.3	84.0	44.2	77.4	31.1	59.1	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.3	65.8	2.3	84.0	44.2	77.4	31.1	59.1	56.3
Queue Length 50th (ft)	41	246	0	84	258	135	231	40	230
Queue Length 95th (ft)	#110	#428	14	#193	#442	#272	303	#95	#351
Internal Link Dist (ft)		3816			5219		3991		1226
Turn Bay Length (ft)	375		500	375		300		100	
Base Capacity (vph)	102	466	586	169	575	259	1184	129	828
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.94	0.31	0.87	0.83	0.92	0.72	0.56	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	168	314	458	115	194	429	969	474	153	928
v/c Ratio	0.53	0.34	0.49	0.83	0.27	0.12	0.84	0.81	0.56	0.84	0.91
Control Delay	54.8	38.0	17.5	53.7	33.4	0.2	56.4	35.9	5.4	79.7	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	38.0	17.5	53.7	33.4	0.2	56.4	35.9	5.4	79.7	46.2
Queue Length 50th (ft)	51	47	88	128	58	0	121	256	0	86	262
Queue Length 95th (ft)	#147	83	179	#310	114	0	#301	461	78	#277	#498
Internal Link Dist (ft)		5219			1729			4018			686
Turn Bay Length (ft)	400		300	310		465	150		300	320	
Base Capacity (vph)	200	588	647	582	455	1583	530	1239	862	184	1054
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.29	0.49	0.79	0.25	0.12	0.81	0.78	0.55	0.83	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	421	872	1060	58	598	52	634	857	111	53	682	405
v/c Ratio	0.76	0.79	0.99	0.27	0.87	0.11	0.59	0.52	0.13	0.20	0.93	0.56
Control Delay	61.2	46.9	46.0	61.7	64.6	0.4	40.5	26.7	0.6	58.5	69.5	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	46.9	46.0	61.7	64.6	0.4	40.5	26.7	0.6	58.5	69.5	22.8
Queue Length 50th (ft)	175	358	~849	24	260	0	234	276	0	22	300	176
Queue Length 95th (ft)	231	441	#1176	47	#366	0	296	341	3	43	#416	276
Internal Link Dist (ft)		5203			2516			1224			4018	
Turn Bay Length (ft)	300		300	300		300	300		300	300		300
Base Capacity (vph)	611	1110	1073	213	689	488	1067	1647	830	261	737	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.79	0.99	0.27	0.87	0.11	0.59	0.52	0.13	0.20	0.93	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	207	141	1140	139	1353
v/c Ratio	0.58	0.33	0.78	0.65	0.66
Control Delay	28.1	6.8	19.6	44.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	6.8	19.6	44.3	9.6
Queue Length 50th (ft)	67	0	174	49	139
Queue Length 95th (ft)	124	38	#272	#130	207
Internal Link Dist (ft)	1487		3990		2520
Turn Bay Length (ft)				200	
Base Capacity (vph)	443	502	1569	213	2403
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.28	0.73	0.65	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	418	866	939	266	278	424
v/c Ratio	0.60	0.43	0.91	0.40	0.71	0.62
Control Delay	27.4	8.0	38.2	5.0	34.6	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	8.0	38.2	5.0	34.6	7.3
Queue Length 50th (ft)	79	91	192	0	100	0
Queue Length 95th (ft)	120	127	#336	50	#205	66
Internal Link Dist (ft)		850	876		1361	
Turn Bay Length (ft)	300					
Base Capacity (vph)	1461	2772	1029	667	446	716
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.31	0.91	0.40	0.62	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	95	1272	1363	69
v/c Ratio	0.29	0.44	0.57	0.21
Control Delay	25.6	3.9	11.8	11.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.6	3.9	11.8	11.7
Queue Length 50th (ft)	31	83	197	4
Queue Length 95th (ft)	72	136	#311	34
Internal Link Dist (ft)		837	850	1181
Turn Bay Length (ft)	150			
Base Capacity (vph)	351	2874	2387	410
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.44	0.57	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection: 3: Patterson Rd & McHenry Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	TR	L	L	T
Maximum Queue (ft)	360	290	257	154	340	343	165	248	256	268	287	341
Average Queue (ft)	202	127	139	44	175	175	67	133	141	154	164	214
95th Queue (ft)	356	238	220	122	316	315	127	219	224	235	249	314
Link Distance (ft)		831	831		483	483		457	457			531
Upstream Blk Time (%)					0	0						
Queuing Penalty (veh)					0	0						
Storage Bay Dist (ft)	400			100			180			600	600	
Storage Blk Time (%)	2	0		0	45		0	3				
Queuing Penalty (veh)	6	0		1	14		1	2				

Intersection: 3: Patterson Rd & McHenry Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	358
Average Queue (ft)	214
95th Queue (ft)	322
Link Distance (ft)	531
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Patterson Rd Bypass & Patterson Rd

Movement	EB	EB	WB	WB	WB	NE
Directions Served	T	TR	L	T	T	R
Maximum Queue (ft)	264	262	307	109	144	312
Average Queue (ft)	133	121	156	42	66	151
95th Queue (ft)	228	223	259	86	122	260
Link Distance (ft)	483	483		2366	2366	656
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			800			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: McHenry Ave & Patterson Rd Bypass

Movement	NB	NB	SB	SB	SW	SW
Directions Served	T	TR	T	T	L	R
Maximum Queue (ft)	193	272	72	55	271	136
Average Queue (ft)	81	117	25	12	124	13
95th Queue (ft)	164	228	60	41	231	64
Link Distance (ft)	876	876	457	457	656	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						80
Storage Blk Time (%)					32	
Queuing Penalty (veh)					6	

Zone Summary

Zone wide Queuing Penalty: 31

APPENDIX H

Water Supply Assessment

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Water Supply Assessment
River Walk Specific Plan

PREPARED FOR

City of Riverbank

PREPARED BY

WEST YOST
Water. Engineered.

Water Supply Assessment
River Walk Specific Plan

Prepared for

City of Riverbank

Project No. 487-60-19-18

DRAFT

Project Manager: Monique Day	Date
QA/QC Review: Elizabeth Drayer	Date

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LIST OF ACRONYMS AND ABBREVIATIONS

AF	Acre-Feet
AFY	Acre-Feet Per Year
City	City of Riverbank
County	Stanislaus County
DU	Dwelling Units
EIR	Environmental Impact Report
gpm	Gallons Per Minute
GSA	Groundwater Sustainability Agency
HDR	High Density Residential
LDR	Low Density Residential
MDR	Medium Density Residential
Project	Proposed Project
ROW	Right-of-Way
RWSP	River Walk Specific Plan
SB 221	Senate Bill 221
SB 610	Senate Bill 610
SOI	Sphere of Influence
SR	State Route
STRGBA	Stanislaus and Tuolumne Rivers Groundwater Basin Association
UWMP	Urban Water Management Plan
WMP	Water Master Plan
WSA	Water Supply Assessment
WSCP	Water Shortage Contingency Plan

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EXECUTIVE SUMMARY

The proposed Project (Project), also referred to as the River Walk Specific Plan (RWSP), if approved, consists of up to 1,550 Low Density Residential (LDR) units, up to 702 Medium Density Residential (MDR) units, and up to 180 High Density Residential (HDR) units. The Project also includes up to 71.7 acres of Mixed-Use uses, up to 44.2 acres of Park uses, and up to 41.0 acres of Park Ponding Basin. The purpose of this Water Supply Assessment (WSA) is to support the Environmental Impact Report (EIR) that is being prepared for the Project and to perform the evaluation required by Water Code Sections 10910 through 10915 in connection with the availability of water supply for the Project. This WSA is not intended to reserve water, or to function as a "will serve" letter or any other form of commitment to supply water (see Water Code Section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable City policies and procedures, consistent with existing law.

This WSA includes a discussion of the projected potable water demands of the Project (Section 2.0), determinations required under applicable regulations (Section 3.0), the City's water service area (Section 4.0), the City's projected potable and recycled demands through the year 2040 (Section 5.0), and the City's projected water supply sources and reliability through the year 2040 (Section 6.0). This WSA also documents the plan to ensure that sufficient water supplies will be available to serve the Project and the other planned development in the City's water service area through the planning period (Section 7.0).

The projected potable water demand and supplies documented in this WSA are based on the City's 2007 Water Supply Study and Water Master Plan (WMP), the City's 2020 Urban Water Management Plan (UWMP), which was adopted in October 2021, and additional documents provided by the City. Water Code Section 10910(c)(4) states that:

> "*…the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.*"

Based on the technical analyses described in this WSA, the total projected water supplies documented to be available for the Project during Normal, Single Dry and Multiple Dry water years, during a 20-year projection, are more than sufficient to meet the projected water demands associated with the Project, in addition to existing and planned future uses. Documentation of the availability of this water to be allocated to this Project is provided in this WSA. The City has determined that its total projected water supplies will meet the above requirement of Water Code Section 10910(c)(4), as documented in this WSA.

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1.0 INTRODUCTION

The proposed Project (Project), also referred to as the River Walk Specific Plan (RWSP), is an approximately 993-acre development of residential, open space, park, and commercial land uses to the west of the City's current City limits. The Project consists of up to 1,550 Low Density Residential (LDR) units, up to 702 Medium Density Residential (MDR) units, and up to 180 High Density Residential (HDR) units. The Project also includes up to 71.7 acres of Mixed Use uses, 44.2 acres of Park uses, and up to 41.0 acres of Park Ponding Basin uses. The purpose of this WSA is to support the Environmental Impact Report (EIR) for the Project. Key topics covered in this introduction include:

- Legal Requirements for the Water Supply Assessment
- Need for and Purpose of Water Supply Assessment
- Water Supply Assessment Preparation, Format and Organization

1.1 Legal Requirements for the Water Supply Assessment

California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures that sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require that detailed information regarding water availability be provided to city and county decision-makers prior to the approval of large development projects. The purpose of providing such information is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects, and the demands of proposed projects.

SB 610 amended California Water Code Sections 10910 through 10915 to require agencies responsible for land use decisions:

- To identify the public water purveyor(s) that may supply water for a proposed development project; and
- To request a WSA from the identified water purveyor(s).

The City is the identified water purveyor for the Project. The purpose of the WSA is to demonstrate the sufficiency of the purveyor's water supplies to satisfy the water demands of the Project, while still meeting the water purveyor's obligations with regard to existing and planned future uses. Water Code Sections 10910 through 10915 delineate the specific information that must be included in the WSA.

SB 221 amended State law (California Government Code Section 66473.7) to require that approval by a city or county of certain residential subdivisions[1] requires an affirmative written verification of sufficient water supply. SB 221 was intended as a fail-safe mechanism to ensure that collaboration on finding the needed water supplies to serve a new large residential subdivision occurs before construction begins.

[1] Per Government Code Section 66473.7(a)(1) subdivision means a proposed residential development of more than 500 dwelling units.

1.2 Need for and Purpose of Water Supply Assessment

The purpose of this WSA is to perform the evaluation required by Water Code Sections 10910 through 10915 in connection with the City's Project. This WSA is not intended to reserve water, or to function as a "will serve" letter or any other form of commitment to supply water (see Water Code Section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable City policies and procedures, consistent with existing law.

1.3 Water Supply Assessment Preparation, Format and Organization

The format of this WSA is intended to clearly delineate compliance with the specific requirements for a WSA, per Water Code Sections 10910 through 10915. This WSA includes the following sections:

- Section 1.0: Introduction
- Section 2.0: Description of Project
- Section 3.0: Required SB 610 Determinations
- Section 4.0: City Water Service Area
- Section 5.0: City Water Demands
- Section 6.0: City Water Supplies
- Section 7.0: Determination of Water Supply Sufficiency Based on the Requirements of SB 610
- Section 8.0: Water Supply Assessment Approval Process
- Section 9.0: References

Relevant citations of Water Code Sections 10910 through 10915 are included throughout this WSA to demonstrate compliance with the specific requirements of SB 610.

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2.0 DESCRIPTION OF PROJECT

A general description of the Project location, proposed land uses, projected water demand, and proposed water supply is provided below.

2.1 Project Location

The location of the proposed Project, in relation to the current City limits, is shown on Figure 2-1. The Project is located in the unincorporated area of Stanislaus County (County) and adjacent to the City of Riverbank (City) north of Patterson Road/State Route (SR) 108, east of McHenry Avenue, and approximately two miles northwest of downtown Riverbank.

The Project Vicinity shown on Figure 2-1 includes a proposed Specific Plan (the RWSP), as well as a Sphere of Influence (SOI) Amendment. The entire Project Vicinity includes approximately 1,522 acres within the unincorporated county adjacent to the City of Riverbank. The Specific Plan Project area (i.e., the RWSP or Project) includes a 993-acre area proposed to be annexed and subsequently developed . The remaining land within the Project Vicinity is part of the SOI Amendment and would be held as Reserve land for possible long-range planning at some future time. A large portion of the Specific Plan area is intended to be age restricted and tailored to function as an active adult community.

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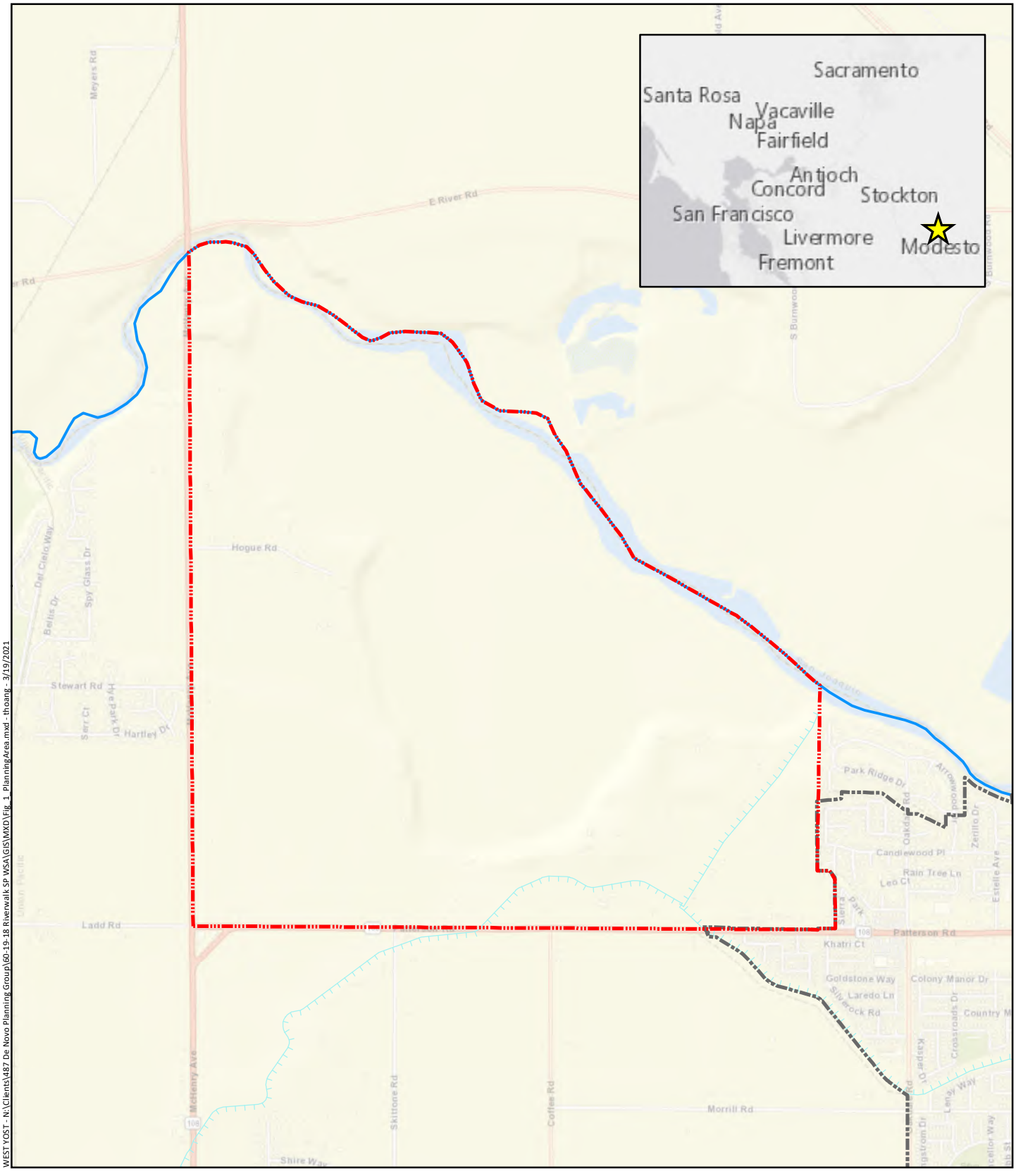

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Project Area

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Figure 2-1

Project Vicinity

De Novo Planning Group
Riverwalk Specific Plan WSA

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0 0.25 0.5

Scale in Miles

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2.2 Proposed Land Uses

The Project Area is approximately 993 acres. The Project consists of a variety of residential, open space, parks, and commercial uses. The proposed land uses of the Project are shown on Figure 2-2 and summarized in Table 2-1. Some of the primary goals of the Project include:

- Develop a mix of residential housing products to accommodate a variety of desires in the market.
- Prioritize the age-restricted development as a vibrant community with diverse housing types and densities allowing residents to age-in-place.
- Promote health and wellness through extensive pedestrian and bicycle trails, outdoor recreation areas, and opportunities for social interaction.
- Respect the natural resources (i.e., Stanislaus River), terrain, and character of land by designing a residential community that highlights the scenic views of the Plan Area.
- Achieve a safe and efficient circulation system for all users and modes of transportation.
- Highlight village identity while promoting community amenities.

Table 2-1. Proposed General Plan Land Use Designations for the Proposed Project[(a)]

Proposed Land Use	Approximate Area, acres	Density Range	Number of Dwelling Units/Square Footage
Buffer/Greenway/Open Space - Bluff	66.8		
Buffer/Greenway/Open Space - Canal	23.1		
Buffer/Greenway/Open Space - River Park	69.8		
High Density Residential	10.0	16+ du/ac	180
Low Density Residential	365.5	0 – 8 du/ac	1,550
Medium Density Residential	54.4	8 – 16 du/ac	702
Mixed Use	71.7	varies	varies
Park	44.2		
Park - Ponding Basin	41.0		
Reserve	60.2		
Right-of-Way (ROW)	186.6		
Total	**993.30**		

Source: De Novo Planning. Draft Environmental Impact Report. River Walk Specific Plan, Table 2.0-6. April 2022.

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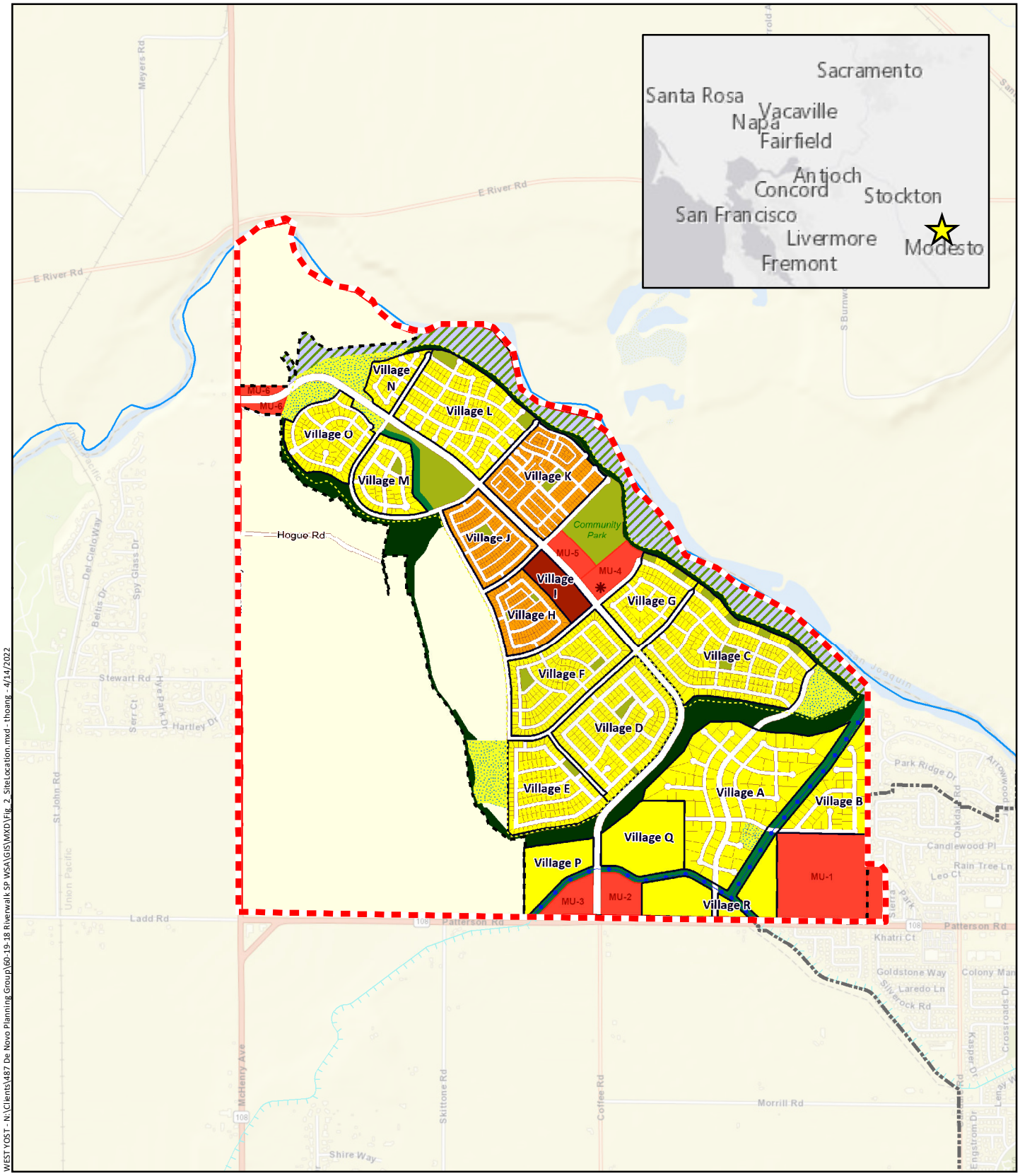

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Figure 2-2

Conceptual Land Use Plan

De Novo Planning Group
Riverwalk Specific Plan WSA

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2.3 Project Projected Water Demand

Residential water use factors are based on the City's 2007 WMP. The residential land use-based water use factors shown in Table 2-2 were applied to the proposed land uses shown in Table 2-2 to project total water demands for the Project.

Table 2-2. Water Use Factors by Land Use Type

Land Use Designation	Water Use Factor, Gallons Per Day Per Dwelling Unit or Per Acre (gpd/du or gpd/acre)
Buffer/Greenway/Open Space - Bluff	0
Buffer/Greenway/Open Space - Canal	0
Buffer/Greenway/Open Space - River Park	0
High Density Residential	435
Low Density Residential	625
Medium Density Residential	600
Mixed Use	2,000
Park	2,500
Park - Ponding Basin	2,500
Reserve	0
ROW	0

Source: City of Riverbank Water Supply Study and Water Master Plan (November 2007).

The Project total water demand projection is shown in Table 2-3. As shown in that table, the total gross water demand is 1,079 acre-feet per year (AFY). The water demand projection includes a 12.3 percent factor for unaccounted-for water to match the system water loss reported in the City's 2020 American Water Works Association Water Audit Worksheet, included in the City's 2020 UWMP as Appendix N.

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Table 2-3. Projected Water Demand for Buildout of the Proposed Project

Land Use Designation	Gross Area, acres	Dwelling Units, DU	Water Use Factor		Potable Water Demand, AFY
Buffer/Greenway/Open Space - Bluff	66.8		0	gpd/acre	0.0
Buffer/Greenway/Open Space - Canal	23.1		0	gpd/acre	0.0
Buffer/Greenway/Open Space - River Park	69.8		0	gpd/acre	0.0
High Density Residential	10.0	180	435	gpd/DU	2.0
Low Density Residential	365.5	1,550	625	gpd/DU	634.6
Medium Density Residential	54.4	702	600	gpd/DU	42.8
Mixed Use	71.7		2,000	gpd/acre	160.6
Park	44.2		2,500	gpd/acre	123.8
Park - Ponding Basin	41.0		2,500	gpd/acre	114.8
Reserve	60.2		0	gpd/acre	0.0
ROW	186.6		0	gpd/acre	0.0
Subtotal	159.7	2,432			945.9
UAFW[(a)]					132.7
Total Demand					**1,078.6**

(a) Based on 12.3 percent of total water production (City's 2020 American Water Works Association Water Audit Worksheet and City's 2020 UWMP, October 2021).

2.4 Projected Water Supply for Project

The water demands for the Project will be served using the City's existing potable water supplies.

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3.0 REQUIRED SB 610 DETERMINATIONS

The following determinations must be made, pursuant to Senate Bill (SB) 610.

3.1 Does SB 610 apply to the Project?

Water Code Sections 10910 and 10912 state:

> *10910 (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.*
>
> *10912 (a) "Project" means any of the following:*
>
> *(1) A proposed residential development of more than 500 dwelling units.*
>
> *(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
>
> *(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
>
> *(4) A proposed hotel or motel, or both, having more than 500 rooms.*
>
> *(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
>
> *(6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
>
> *(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.*

Since the Project includes more than 500 dwelling units, SB 610 applies to the Project.

3.2 Does SB 221 apply to the Project?

In 2001, SB 221 amended State law to require that approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. Per California Government Code Section 66473.7(a)(1), a subdivision means a proposed residential development of more than 500 dwelling units (DU). The Project, with its proposed up to 2,432 residential dwelling units, is subject to the requirements of SB 221.

3.3 Who is the identified public water system?

Water Code Sections 10910 and 10912 state:

> *10910(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined by Section 10912, that may supply water for the project*
>
> *10912 (c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections…*

The City is the identified public water system for the Project.

3.4 Does the City have an adopted Urban Water Management Plan (UWMP) and does the UWMP include the projected water demand for the Project?

Water Code Section 10910 states:

> *10910(c)(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).*

The City's most recently adopted UWMP is the City's 2020 UWMP, which was adopted on October 26, 2021. The 2020 UWMP includes existing and projected water demands for existing and projected future land uses to be developed in the City's water service area through the year 2040. The proposed Project area is not included within the City's 2020 UWMP as the Project area was not part of the City's service area.

The City's ability to meet the projected water demands for the Project is described in Section 7.0 of this WSA.

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4.0 CITY WATER SERVICE AREA

A general description of the City's current service area and projected growth rates are provided below.

4.1 General Description

The City is located within the Stanislaus and San Joaquin Basins of the Great Central Valley, adjacent and south of the Stanislaus River. The City is approximately four miles to the southwest of the City of Oakdale and is just northeast of the City of Modesto. The Riverbank area is considered semi-arid and is characterized by hot, dry summers and mild, wet winters. In 2020, the City's population was 25,133.

The City supplies potable water to all the residential, commercial, and institutional/governmental water users within City limits. The City also supplies water to several residential locations and complexes outside the City limits, but within the SOI.

4.2 City Growth Rates

From 2005 to 2020, the City's population increased by approximately 5,055 residents per the State of California, Department of Finance. Growth rates have been as high as 5.9% between 2014-2015 and as low as 0.4% between 2019-2020. The 2020 UWMP projects an average population growth rate of 1.0% based on the historical average growth data from 2010 through 2020. Therefore, the population projection for the year 2040 is 30,549.

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5.0 CITY WATER DEMANDS

Water Code Section 10910 states:

> *10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).*

The descriptions provided below for the City's water demands have been taken primarily from the City's 2020 UWMP, which was adopted in October 2021. The Project is located just outside of the City's current service area. Supplemental information from other available reports has been included to provide the most recent data available and to meet the specific requirements of SB 610.

The following topics are covered in this section:

- City's Existing and Projected Water Demand
- Dry Year Water Demand

5.1 City Existing and Projected Water Demand

The City's water demand has fluctuated over time with a peak of 5,187 AF water use occurring in 2007 followed by a noticeable decrease in annual water use despite a steady population increase within the City's SOI. City staff believes the reduction in water use after 2007 was due to conservation efforts and the effect of the economic downturn, also referred to as the Great Recession, between December 2007 and June 2009. In the future, water demand is expected to increase as approved projects build out and new developments are approved and constructed in the City's water service area. The existing and projected total water demand, assuming normal year conditions, for the City in 5-year increments through 2040, based on the City's 2020 UWMP, is shown in Table 5-1, also shows projected total water demand, assuming normal year conditions, for the City in 2045, based on extrapolations of the 2040 demands from the 2020 UWMP.

Table 5-1. Existing and Projected Future Water Demand for the City of Riverbank

Year	2020[a]	2025[b]	2030[b]	2035[b]	2040[b]	2045[c]
Total Water Demand, AFY	**4,425**	**4,646**	**4,867**	**5,088**	**5,309**	**5,530**

(a) Based on the City's 2020 Urban Water Management Plan, Table 4-2.

(b) Based on the City's 2020 Urban Water Management Plan, Table 4-3.

(c) The City's 2020 Urban Water Management Plan did not include a projection for projected water demand in 2045. The value shown here is based on increasing demands by 221 AF from 2040 projections. This same method of adding 221 AF to the previous 5-year increment's demand projection is the method used in the 2015 UWMP for projecting the water demand in years 2020 through 2040. This projected water demand increase assumes an approximate 4 percent growth in water demands, to be consistent with the 5.9 to 0.4 percent increase in historical average population growth from 2015 through 2020, according to the 2020 UWMP.

5.2 Dry Year Water Demand

The City has a Water Shortage Contingency Plan (WSCP) included in the 2020 UWMP to address situations when catastrophic water supply interruptions occur due to regional power outage, earthquake, or other disasters; and when drought occurs. The City's WSCP describes six stages of short-term water demand reduction measures that would be required during times when potable water supply is reduced. As discussed below, the City does not anticipate any reduction in potable supply due to dry year conditions through 2045. Therefore, the water shortage stages will most likely be implemented in response to power outages, earthquakes, or other disasters rather than drought-related supply issues. The water shortage stages, and their respective anticipated reduction in potable water demand, are shown in Table 5-2.

Table 5-2. Water Shortage Contingency Plan Projected Demand Reduction

Water Shortage Stage Description	Projected Demand Reduction, percent
Baseline Water Conservation	0
Stage 1 Minimal Action	10
Stage 2 Moderate Action	20
Stage 3 Severe Action	30
Stage 4 Severe Action	40
Stage 5 Critical Action	50
Stage 6 Critical Action	Greater than 50

Source: City's 2020 Urban Water Management Plan, Figure 8-1.

The projected future water demand shown above in is based on future normal hydrologic years. However, as indicated in the 2020 UWMP, the City does not anticipate a reduction in available water supplies under any hydrologic condition as described in the following sections.

5.2.1 Single Dry Year Demand Conditions

As indicated in the 2020 UWMP, the City does not anticipate a change in available water supplies or water demands during single-dry year hydrologic conditions. Therefore, the City would not expect the Project water demand to vary in single-dry years compared to normal hydrologic circumstances. Table 5-3 presents the projected future dry year potable water demand.

Table 5-3. Projected Future Single Dry Year Potable Water Demand

Hydrologic Condition	Demand Reduction[(a)]	2025	2030	2035	2040	2045[(c)]
Single Dry Year[(b)], AFY	0%	4,646	4,867	5,088	5,309	5,530

(a) Conservatively assumes no demand reduction in dry years. Demands may be reduced in dry years as a result of the City's implementation of its Water Shortage Contingency Plan; however, such a demand reduction is not assumed or relied upon for the purposes of the Single Dry Year and Multiple Dry Year evaluations for this WSA.

(b) See Table 7-3 Single Dry Year Supply and Demand Comparison in the City's 2020 UWMP.

(c) While the City's 2020 Urban Water Management Plan did not include a projection for projected single dry year potable water demand in 2045, the value shown here is based on an extrapolation from the 2040 projections.

5.2.2 Multi-Dry Year Demand Condition

As indicated in the 2020 UWMP, during a multiple dry year event, the City does not anticipate a change in available water supplies, however the City does anticipate a change in water demands.

Table 5-4 presents the projected future multiple dry year potable water demands.

Table 5-4. Projected Future Multiple Dry Years Potable Water Demand [a,b]

Hydrologic Condition	2025	2030	2035	2040	2045
First Year	4,513	4,739	4,964	5,190	5,416
Second Year	4,513	4,739	4,964	5,190	5,416
Third Year	4,558	4,786	5,014	5,242	5,470
Fourth Year	4,604	4,834	5,064	5,295	5,525
Fifth Year	4,650	4,883	5,115	5,348	5,581

(a) See Table 7-4 Multiple Dry Years Supply and Demand Comparison in the City's 2020 UWMP.

(b) The City's 2020 Urban Water Management Plan did not include a projection for projected water demand in 2045. The value shown here is based on increasing demands by 226 to 233 AF from 2040 projections. This same method of adding 226 to 233 AF to the previous 5-year increment's demand projection is the method used in the 2015 UWMP for projecting the water demand in years 2020 through 2040. This projected water demand increase assumes an approximate 4 percent growth in water demands, to be consistent with the 5.9 to 0.4 percent increase in historical average population growth from 2015 through 2020, according to the 2020 UWMP.

In the City's 2020 UWMP, and this WSA, the additional water conservation which may occur in single dry year is not assumed to happen. This is a conservative assumption as additional water conservation may indeed occur. However, it is assumed that a modest level of demand reduction will occur as a result of the City's implementation of additional water conservation measures as outlined in the City's WSCP in response to multiple-dry years or other water supply shortages.

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6.0 CITY WATER SUPPLIES

Key topics addressed in this section include:

- Regulatory Background
- City Existing and Projected Potable Water Supplies

6.1 Regulatory Background

Water Code Section 10910 states:

> *10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f) and (g).*
>
> *10910(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts*
>
> *10910(d)(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:*
>
> *(A) Written contracts or other proof of entitlement to an identified water supply.*
>
> *(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.*
>
> *(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.*
>
> *(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.*
>
> *10910(e) If no water has been received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts, the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall also include in its water supply assessment pursuant to subdivision (c), an identification of the other public water systems or water service contract-holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has identified as a source of water supply within its water supply assessments.*

As the City relies exclusively on groundwater as a potable water supply, water supply for the Project would be groundwater.

The water supply for the Project will have the same water supply reliability and water quality as the water supply available to the City's other existing and future water customers. Proponents of the Project will provide their proportionate share of required funding to the City for the acquisition and delivery of potable groundwater to the Project area.

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The water supplies needed to serve the Project (together with existing water demands and planned future uses) are described in the City's 2020 UWMP. Therefore, the summary description of the City's groundwater supplies, provided below, have been taken for the most part, from the City's 2020 UWMP.

6.2 City Existing and Projected Potable Water Supplies

The City's sole source of water supply is groundwater. The City's potable groundwater is delivered through a pressurized distribution system. According to the City's 2020 UWMP, the City's water supply and distribution system includes nine functional wells with pumps, two 1 MG storage tanks with booster pump stations, and over 68 miles of pipeline 8 inches to 12 inches in diameter. There are also several miles of 4-inch and 6-inch diameter pipelines. The City's wells range in depth from 240 feet to 830 feet with an average depth of 470 feet. Yields from the wells range from 625 gallons per minute (gpm) at Well No. 3 to 1,500 gpm at Wells No. 10 and 12. The average yield is about 1,100 gpm, while the total available yield from all wells is 9,885 gpm (15,945 AFY if operated continuously). The average specific capacity of the City's wells between 1999 and 2015 was approximately 71 gpm/ft of drawdown. A summary of the well capacities and other well data is shown in Table 6-1.

Table 6-1. City of Riverbank Well Data[a]

Well Number	Construction Date	Completed Depth, feet	Well Capacity, gpm	Specific Capacity Range, gpm/ft drawdown	Estimated Pumping Level, feet bgs, at Max Production and Max Static DTW
2	1956	240	660	86	104
3	1965	420	625	81	90
4	1972	436	900	44	106
6	1981	560	1,000	88	99
7	1990	NA	1,200	110	91
8	2001	260	1,200	57	102
9	2004	392	1,300	76	127
10	2010	830	1,500	64	102
12	2010	602	1,500	115	115
Total Well Capacity, gpm			**9,885**	—	—
Firm Well Capacity, gpm[b]			8,385	—	—

(a) Source: 2020 UWMP, Table 6-1 and Appendix G.
(b) Firm well capacity is the total well capacity with the largest well out of service.

In addition to the wells shown in Table 6-1, the Proposed Project would be required to build new municipal water wells so the available capacity would be even greater than what is shown in the table. The new wells associated with the Proposed Project are not included in Table 6-1 as it is only conceptual in April 2022 as this WSA was being prepared. The proposed wells to be constructed with the RWSP will be sufficient to supply the needs of the Proposed Project. The connection to the City system is intended to provide some initial development in advance of constructing a well site, as well as to provide some system redundancy and reliability. However, this does not mean that the RWSP wells will only supply the

proposed RWSP project. There will be some flow from the Proposed Project wells that is distributed to the rest of the City system.

As detailed in the 2020 UWMP, the City's groundwater wells are located in the Modesto groundwater subbasin and the City is part of the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency (GSA).The STRGBA GSA partnered with the County of Tuolumne GSA to develop and adopt the Modesto Subbasin Groundwater Sustainability Plan (GSP). The Modesto Subbasin GSP was adopted by the STRGBA GSA on January 31, 2022. The Modesto Subbasin GSP accounted for expected population growth in the City of Riverbank to approximately 52,500 by 2025, based on the 2005-2025 General Plan adopted in 2009, which is much higher than the more recent population projections which project a population of only 30,549 by 2040. Even with the large population growth assumed in the GSP, the City's groundwater supplies are expected to be highly reliable for serving a future development such as the Proposed Project. The GSP identifies that the subbasin declining water levels are occurring primarily in the eastern Subbasin – not the central Subbasin where the City is located. Furthermore, many mitigation measures are presented in the GSP to ensure long-term sustainability of the Modesto Subbasin and will be implemented over the coming years. One of the specific policies mentioned in the GSP that the City of Riverbank will implement, to achieve its goal of adequately supplying quality water to serve existing and future project development needs, is: "new developments shall incorporate water conservation techniques to reduce water demand in new growth areas, including the use of reclaimed water for landscaping and irrigation". While water conservation measures and use of reclaimed water for landscaping and irrigation use, where possible, will help reduce overall demand, even without these measures, the groundwater availability in Riverbank is expected to be adequate to serve the expected demand from the Proposed Project.

6.2.1 Groundwater Supply Reliability

As stated in Section 5.0, the City does not anticipate a quantitative reduction in available water supplies under any hydrologic condition. Furthermore, historical water quality at the City's wells has been excellent, with no Safe Drinking Water Act violations to-date. The City expects this water quality to continue and, therefore, does not project any water supply changes due to water quality.

The anticipated reliability of potable groundwater supplies in Normal, Single Dry, and Multiple Dry Year hydrologic conditions is shown in Table 6-2.

Table 6-2. City of Riverbank Groundwater Supply Reliability, AFY[(a)]

Water Supply	Normal Year	Single Dry Year	Multiple Dry Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
Groundwater	15,944	15,944	15,944	15,944	15,944	15,944	15,944
Total Water Supply Available	**15,944**	**15,944**	**15,944**	**15,944**	**15,944**	**15,944**	**15,944**
Percent of Normal Year	100%	100%	100%	100%	200%	300%	100%

(a) Source: 2020 UWMP, adopted by City Council October 26, 2021, Table 7-1.

6.2.2 Additional Planned Future Potable Water Supplies

As of February 2018, Well No. 11 was designed and planned for the south side of Santa Fe Street, east of Central Avenue in rural northeastern Riverbank. The City's 2007 WMP suggested the addition of 11 new groundwater wells (including Well No. 11), with a capacity of 1,500 gpm each, to meet 20 percent reserve capacity provisions and maximum day demands, as well as emergency storage requirements at buildout conditions. Eight of these new wells would be in the area west of the current City limits, some of which would be in the Project area. With the exception of Well No. 11, all other additional wells are currently only conceptual.

Aside from plans to gradually add wells to the City's groundwater network, the City does not have other planned future potable water supplies. At present, conjunctive (surface water) uses are limited to natural groundwater recharge from surface water. Should Oakdale Irrigation District embark on a program of supplying treated surface water for municipal uses, opportunities to purchase water may become available.

6.2.3 Future Potable Water Supply Reliability

The City's 2020 UWMP concluded that only a small percentage of the storage capacity in the upper 300 feet of the aquifer is tapped, and it appears that properly spaced wells will be able to provide the required capacity at full buildout.

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7.0 DETERMINATION OF WATER SUPPLY SUFFICIENCY BASED ON THE REQUIREMENTS OF SB 610

Water Code Section 10910 states:

> *10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.*

According to the City's 2020 UWMP, the total water supplies available in 2020 (15,944 AF), satisfied the actual water demand in 2020 (4,425 AF). Therefore, the City had approximately 11,519 AF of unallocated water supply in 2020. The 2020 unallocated water supply significantly exceeds the 1,079 AFY total water demand of the Project.

A comparison of the City's projected potable and raw water supplies and demands is shown in Table 7-1 for Normal, Single Dry, and Multiple Dry Years.

The total water supplies projected to be available in 2040 in all year types (15,944 AF, see Table 6-2), satisfies the projected potential water demand in 2040 in all year types. With the projection of supply and demand presented in Section 5.0 for 2045, the total water supplies projected to be available in 2045 in all year types (15,944 AF), satisfies the projected potential water demand in 2045 in all year types. Therefore, the City is projected to have a range of approximately 9,316 to 9,481 AF of unallocated water supply in 2045 under all water year types. The future anticipated unallocated water supply significantly exceeds the 1,079 AFY total water demand of the Project.

The comparison of projected potable water demand and supplies for the 20-year planning period is shown in Table 7-1.

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Table 7-1. Summary of Potable Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years for the City of Riverbank, AFY[a]

Hydrologic Condition		Supply and Demand Comparison				
		2025	2030	2035	2040	2045
Normal Year						
Available Water Supply		15,944	15,944	15,944	15,944	15,944
Total Water Demand (with Project)[b]		5,725	5,946	6,167	6,388	6,609
Potential Surplus (Deficit)		10,219	9,998	9,777	9,556	9,335
Single Dry Year						
Available Water Supply		15,944	15,944	15,944	15,944	15,944
Total Water Demand (with Project)[b]		5,725	5,946	6,167	6,388	6,609
Potential Surplus (Deficit)		10,219	9,998	9,777	9,556	9,335
Multiple Dry Years						
Multiple-Dry Year First Year Supply	Available Water Supply	15,944	15,944	15,944	15,944	15,944
	Total Water Demand (with Project)[b]	5,592	5,818	6,043	6,269	6,494
	Potential Surplus (Deficit)	10,352	10,126	9,901	9,675	9,450
Multiple-Dry Year Second Year Supply	Available Water Supply	15,944	15,944	15,944	15,944	15,944
	Total Water Demand (with Project)[b]	5,592	5,818	6,043	6,269	6,494
	Potential Surplus (Deficit)	10,352	10,126	9,901	9,675	9,450
Multiple-Dry Year Third Year Supply	Available Water Supply	15,944	15,944	15,944	15,944	15,944
	Total Water Demand (with Project)[b]	5,637	5,865	6,093	6,321	6,549
	Potential Surplus (Deficit)	10,307	10,079	9,851	9,623	9,395
	Available Water Supply	15,944	15,944	15,944	15,944	15,944

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Table 7-1. Summary of Potable Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years for the City of Riverbank, AFY[a]

Hydrologic Condition		Supply and Demand Comparison				
		2025	2030	2035	2040	2045
Multiple-Dry Year Fourth Year Supply	Total Water Demand (with Project)[b]	5,683	5,913	6,143	6,374	6,604
	Potential Surplus (Deficit)	10,261	10,031	9,801	9,570	9,340
Multiple-Dry Year Fifth Year Supply	Available Water Supply	15,944	15,944	15,944	15,944	15,944
	Total Water Demand (with Project)[b]	5,729	5,962	6,194	6,427	6,659
	Potential Surplus (Deficit)	10,215	9,982	9,750	9,517	9,285

(a) Normal year demands are from Table 5-1 and dry year demands are based off the demand assumptions stated in Table 5-3 and Table 5-4. Available water supplies are from Table 6-2.

(b) Total water demand is the sum of Table 2-3 and Table 5-1, Table 5-3, or Table 5-4.

Using the Dry Year demand assumptions stated in Section 5.2, no potential deficits in potable water supply occur. In other words, the City's available supplies and demand reduction plans are sufficient to meet projected demands through 2045. Therefore, the City's total projected water supplies can easily satisfy the Project demands during Normal, Single Dry, and Multiple Dry water years over a 20-year projection.

Pursuant to Water Code Section 10910(c)(4) and based on the technical analyses described in this Water Supply Assessment, the total projected water supplies documented to be available for the Project during Normal, Single Dry, and Multiple Dry water years during a 20-year projection are more than sufficient to meet the projected water demand associated with the Project, in addition to existing and planned future uses.

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8.0 WATER SUPPLY ASSESSMENT APPROVAL PROCESS

Water Code Sections 10910 and 10911 state:

> *10910 (g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.*
>
> *10911 (b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.*

SB 610 applies to the Project and, therefore, the City has prepared this WSA documenting that available water supplies are sufficient to meet the demands of the Project under normal, single-dry, and multiple-dry year conditions. As indicated in the Water Code, the Riverbank City Council must approve this WSA at a regular or special meeting. Furthermore, the City must include this WSA in the Draft EIR being prepared for the Project.

In addition, SB 221 applies to residential subdivisions of over 500 dwelling units and requires that the water supplier provide a written verification that the water supply for the project is sufficient, prior to issuance of the final permits. Because the Project includes 2,432 residential units, it may be subject to the requirements of SB 221 (Government Code section 66473.7) and a verification of sufficient water supply (SB 221) report may be required prior to final approvals.

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9.0 REFERENCES

City of Riverbank. 2009. *General Plan 2005* – 2025.

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City of Riverbank. Adopted by City Council on October 26, 2021. *2020 Urban Water Management Plan.*

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Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency & County of Tuolumne Groundwater Sustainability Agency, Modesto Subbasin. Adopted by STRGBA on January 31, 2022. *Groundwater Sustainability Plan.*

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