RIVERWALK
SAN DIEGO







MOBILITY ASSESSMENT

May 2020

URBAN SYSTEMS ASSOCIATES, INC.
PLANNING & TRAFFIC ENGINEERING

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LINSCOTT LAW & GREENSPAN
engineers

EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) and Urban Systems Associates (USA) have been retained to prepare the following Mobility Assessment (MA) associated with the *Riverwalk Master Plan*. This Project-Specific MA LOS analysis was conducted to identify the project traffic's effect in the project study area and recommend project improvements to ensure that the Riverwalk project is overall consistent with the Mission Valley Community Plan transportation improvements and that improvements will be implemented consistent with the Transportation Improvement Plan (TIP). This analysis uses automobile delay/Level of Service (LOS) to analyze the roadways and intersections within the Mission Valley Community Plan Area. In conformance with Senate Bill 743 (SB 743), a Transportation Impact Analysis was prepared under a separate cover that evaluates Riverwalk's potential vehicular impacts under the California Environmental Quality Act (CEQA) using a Vehicle Miles Traveled (VMT) metric, pursuant to the latest direction from the Governor's Office of Planning and Research (OPR) in December 2018. Consistent with SB 743 and CEQA Guidelines 15064.3, the CEQA significance determination for the Riverwalk project is based only on VMT and not on LOS.

The Riverwalk Master Plan project (the Riverwalk Project) is located at 1150 Fashion Valley Road, in the area that abuts Friars Road on the north; Fashion Valley Road on the east; a portion of Hotel Circle North on south; and privately-owned residential property to the west. The San Diego River and the Green Line Trolley traverse the project site in an east-west direction. The Green Line Trolley provides transit connections through Mission Valley to the Old Town multi-modal transit facility located in Old Town (west of the project site) and to San Diego State University, SDCCU Stadium, and the cities of La Mesa, El Cajon, and Santee located east of the project site.

The 195-acre project site is currently occupied by a 27-hole Riverwalk Golf Course and clubhouse building. The golf course operates under an existing Conditional Use Permit (CUP No. 94-0563).

The Riverwalk project proposes to redevelop the existing golf course as a modern live-work-play mixed-use neighborhood with a local and natural focus that showcases a large riverfront park. The intent is to create a sense of place both within the site boundaries and the surrounding community. Emphasis would be placed on mobility including a pedestrian focus, bicycle connectivity within and external to the project site, direct access to transit, and additional community roadways. The mix and quantity of land uses would change from what is approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of neighborhood retail space; 1,000,000 square feet of office; 97 acres of park and open space that would serve the project and surrounding community and would implement the San Diego River Park Master Plan; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop/transit center within the development. The proposed project requires a Community Plan Amendment, Rezone, Specific Plan Amendment, Vesting Tentative Map, Planned Development Permit, and Site Development Permit plus other discretionary approvals. ***Figure A*** illustrates the project land use plan.

Given the intensity and density of uses proposed, the project phasing includes a total of three (3) phases spread out over a period of 15 years with the project's complete buildout anticipated in Year 2035. These phases include Opening Day (Phase I) completed in Year 2025, Phase II in Year 2030 and Phase III in Year 2035. A Community Plan buildout analysis at Year 2050 is also included as the project requires a General Plan Amendment (GPA)/Community Plan Amendment (CPA). ***Table A*** summarizes the project phasing. ***Figure B*** illustrates the project phasing plan. ***Figure C*** shows the internal project street layout.

TABLE A
PROJECT PHASING

Phase	Year	Development Activity
I	*2025*	1,910 multi-family dwelling units; 110,300 SF Retail; 65,000 SF multi-tenant office; 1.6-acre Developed Park; 3.11-acre Undeveloped Park.
II	*2030*	2,390 multi-family dwelling units; 13,100 SF Retail; construction of the Riverwalk trolley station; 26.27-acre Developed Park; 53.48-acre Undeveloped Park (including the River Park).
III	*2035*	28,600 SF Retail; 935,000 SF multi-tenant office; 2.2-acre Undeveloped Park.
Project Buildout[a]		▪ 4,300 multi-family dwelling units ▪ 152,000 SF Retail ▪ 1,000,000 SF Office ▪ 27.87-acres Developed Park[b] ▪ 58.79-acres Undeveloped Park[c] ▪ 28-acres Open Space[d]

Footnotes:

a. Park acreage changes are due to changes in the project description and site plan that were made to ensure consistency with the 2019 Mission Valley Community Plan (MVCP) Preferred Roadway Network, including Irrevocable Offer of Dedications (IOD's) for Streets J and U. Additionally, a 50' no-use buffer surrounding the SD River and Multi-Habitat Planning Area (MHPA) has been subtracted from previous Undeveloped Park acreage.

b. The total acreage for Developed Parks used in the trip generation calculations from an earlier project description equals 27.87 Per the current project description, the total Developed Parks acreage is 20 acres (Phase I: 0.9 acres and Phase II: 19.1 acres) including a recreation center identified in the 2019 Mission Valley Community Plan. However, to be conservative, the 27.87 acres was used in the trip generation calculations.

c. The total acreage for Undeveloped Parks used in the trip generation calculations from an earlier project description equals 58.79 acres. Per the current project description, the total Undeveloped Parks acreage is 42.3 acres (Phase I: 2.4 acres and Phase II: 39.9 acres). However, to be conservative, the 58.79 acres was used in the trip generation calculations.

d. The total acreage for Open Space from an earlier project description totals 28 acres. Per the current project description, the total Open Space acreage is 35 acres.

The Phase I Project is calculated to generate 14,932 net new cumulative ADT with 1,024 total AM peak hour trips (329 inbound/ 695 outbound) and 1,448 total PM peak hour trips (871 inbound/ 577 outbound). The Phase I Project is calculated to generate 17,248 driveway ADT with 1,094 total AM peak hour trips (371 inbound/ 723 outbound) and 1,680 total PM peak hour trips (987 inbound/ 693 outbound).

The Phase II Project is calculated to generate 28,305 net new cumulative ADT with 1,988 total AM peak hour trips (528 inbound/ 1,460 outbound) and 2,627 total PM peak hour trips (1,682 inbound/ 945 outbound). The Phase II Project is calculated to generate 30,896 driveway ADT with 2,066 total AM peak hour trips (575 inbound/ 1,491 outbound) and 2,886 total PM peak hour trips (1,811 inbound/ 1,075 outbound).

The Project Buildout (Phases I, II and III) is calculated to generate 37,222 net new cumulative ADT with 3,105 total AM peak hour trips (1,519 inbound/ 1,586 outbound) and 3,906 total PM peak hour trips (1,973 inbound/ 1,933 outbound). The Project Buildout is calculated to generate 41,186 driveway ADT with 3,224 total AM peak hour trips (1,591 inbound/ 1,633 outbound) and 4,302 total PM peak hour trips (2,171 inbound/ 2,131 outbound).

With assistance from the City, LLG identified nineteen (19) reasonably foreseeable cumulative projects.

The following twelve (12) scenarios are analyzed in this Mobility Assessment:

- Existing
- Existing + Project Phase I
- Existing + Project Phase I and II
- Existing + Project Phase I through III
- Near-Term (Opening Day Year 2025)
- Near-Term (Opening Day Year 2025) + Project Phase I
- Year 2030
- Year 2030 + Project Phases I and II
- Year 2035
- Year 2035 + Project Phases I through III
- Horizon Year 2050
- Horizon Year 2050 + Project Phases I through III

Project Improvements

The following is a description of the project improvements.

Project Phase I

For the Near-Term (Opening Day 2025) Phase I, the project would construct the following improvements. These improvements are needed for internal circulation and to provide access to the existing street network.

- Construct a right-in/right-out driveway (Street A) on Friars Road, west of Via Las Cumbres. Street A would include two lanes with one lane inbound and one lane outbound.
- Construct the south leg of the Friars Road / Via Las Cumbres / Street F intersection and associated traffic signal modifications. The south leg (Street F) would include two inbound lanes and two outbound lanes with buffered bike lanes on both sides.

- Construct a new signalized intersection on Friars Road at Street I / Street J1 that would serve the Riverwalk Transit Center. Street I would include four lanes with two inbound lanes and two outbound lanes separated by a 6 ft wide raised landscaped median. Buffered bike lanes are also proposed on the both sides of Street I. Street J1, the portion of Street I south of the project's east-west collector street, would include one travel lane in each direction, a 6 ft wide raised landscaped median and buffered bike lane on both sides.
- Construct a right-in/right-out driveway (Street K) on Friars Road, east of Street I intersection. Street K would include two lanes with one lane inbound and one lane outbound.
- Construct the internal streets as needed to serve the Phase I development. The following internal streets would serve the Phase I development:

    - Street A
    - Street D1 (west of Street K)
    - Private Drive B1
    - Street F
    - Private Drive H
    - Street I
    - Street J1
    - Street E
    - Street K
    - Private Drive L

Project Phases I and II

Under the Phase II scenario in 2030, in addition to the Phase I public roads and private drives already constructed (in 2025), the project would construct the following.

- Construct a new Green Line trolley station (east of Street J) within the project site called Riverwalk Transit Station. The trolley stop/transit station within Riverwalk is proposed as a part of a Mobility Hub, which would accommodate parking, pedestrians, bicycles, autos, and commercial activity areas. The new trolley stop at Riverwalk combined with the existing transit center at Fashion Valley Mall will provide connectivity and access to transit for the site users and the surrounding community.
- Construct a new signalized intersection on Friars Road at Street M. Street M would include one inbound lane and two outbound lanes separated by a 7 ft wide raised landscaped median. Buffered Class II bike lanes are proposed on both sides of Street M.
- Construct a new right-in/right-out only driveway (Private Drive T) on Fashion Valley Road. Private Drive T would include two lanes with one lane inbound and one lane outbound. The project would also widen Fashion Valley Road and construct a dedicated northbound left-turn pocket on Fashion Valley Road at Private Drive T.
- Extend Riverwalk Drive westward from its current terminus at the golf clubhouse to connect to Street J1/J2 undercrossing of the trolley tracks. Riverwalk Drive is proposed to terminate as a cul-de-sac, west of Street J.
- Construct Street J1/J2 undercrossing of the trolley tracks.

- Construct the internal streets needed to serve the Phase II development. The following internal streets would serve the Phase II development:

    - Street D1 (between Street K and Street M)
    - Street D2
    - Street M
    - Street O
    - Private Drive N1
    - Private Drive N2
    - Street P1
    - Street J2
    - Street P2
    - Private Drive Q
    - Street P3
    - Street S
    - Private Drive R
    - Private Drive T

Project Phases I through III

Under the Phase III scenario in 2035, in addition to the improvements already constructed in Phase I (2025) and II (2030), the project would construct the following.

- Construct a new signalized intersection on Fashion Valley Road at Street U. Street U would include two inbound lanes and two outbound lanes separated by a 16 ft wide raised landscaped median, including a 12-foot-wide two-way Class IV cycle track with 4-foot-wide buffer on the north side of Street U.
- Construct a new north-south roadway (Street V) as the fourth leg of the I-8 WB Hook Ramps / Hotel Circle North intersection, subject to Caltrans approval and findings of the Circulation Study. Street V will provide access to the project's office uses and is intended to provide community access from Hotel Circle North to Fashion Valley Road when the one-way couplet is implemented on Hotel Circle North per the Mission Valley Community Plan. Street V would include two travel lanes in each direction with a 4 ft wide raised landscaped median and Class II buffered bike lanes on both sides.
- Construct a new office north-south drive (Private Drive W) between Street V and Private Drive X. Private Drive W will provide access to the Riverwalk office uses on the south side of Street U. Private Drive W would include two travel lanes in each direction with a center two-way left turn lane.
- Construct the internal streets needed to serve the Phase III development. The following internal streets would serve the Phase III development:

    - Street U
    - Street V
    - Private Drive X
    - Private Drive Y
    - Private Drive W

Transportation Improvement Plan (TIP)

The Riverwalk project proposes several transportation improvements which are consistent with the transportation improvements identified in the Mission Valley Community Plan and that improvements will be implemented consistent with the Transportation Improvement Plan (TIP). These improvements promote active transportation, transit mobility, and enhance safety for all modes. The list of transportation improvements are summarized in the TIP, which identifies the improvement location (i.e. intersection, street segment, freeway), describes the improvement, and identifies an Equivalent Dwelling Unit (EDU) threshold for when each transportation improvement must be completed in conjunction with project build-out.

Parking Requirements

The number of parking spaces for automobile, bicycle, and motorcycle parking shall comply with the Land Development Code (LDC) based on the zoning and land uses of each development area. The sharing of parking to reflect the collocation of uses is expected to address uses that complement each other.

Other Modes, ITS and TDM

As a part of this report, in addition to the LOS analyses, the multi-modal network in the influence area of the Riverwalk project study area was also reviewed. This included active transportation modes such as Pedestrian, Bicycle, as well as Transit mobility.

Intelligent Transportation Systems (ITS) and Transportation Demand Management (TDM) measures were also evaluated. The project proposes ITS improvements, which include Adaptive Traffic Signal on Friars Road and Fashion Valley Road. TDM measures were also evaluated, and several measures will be implemented to reduce reliance on automobile trips.

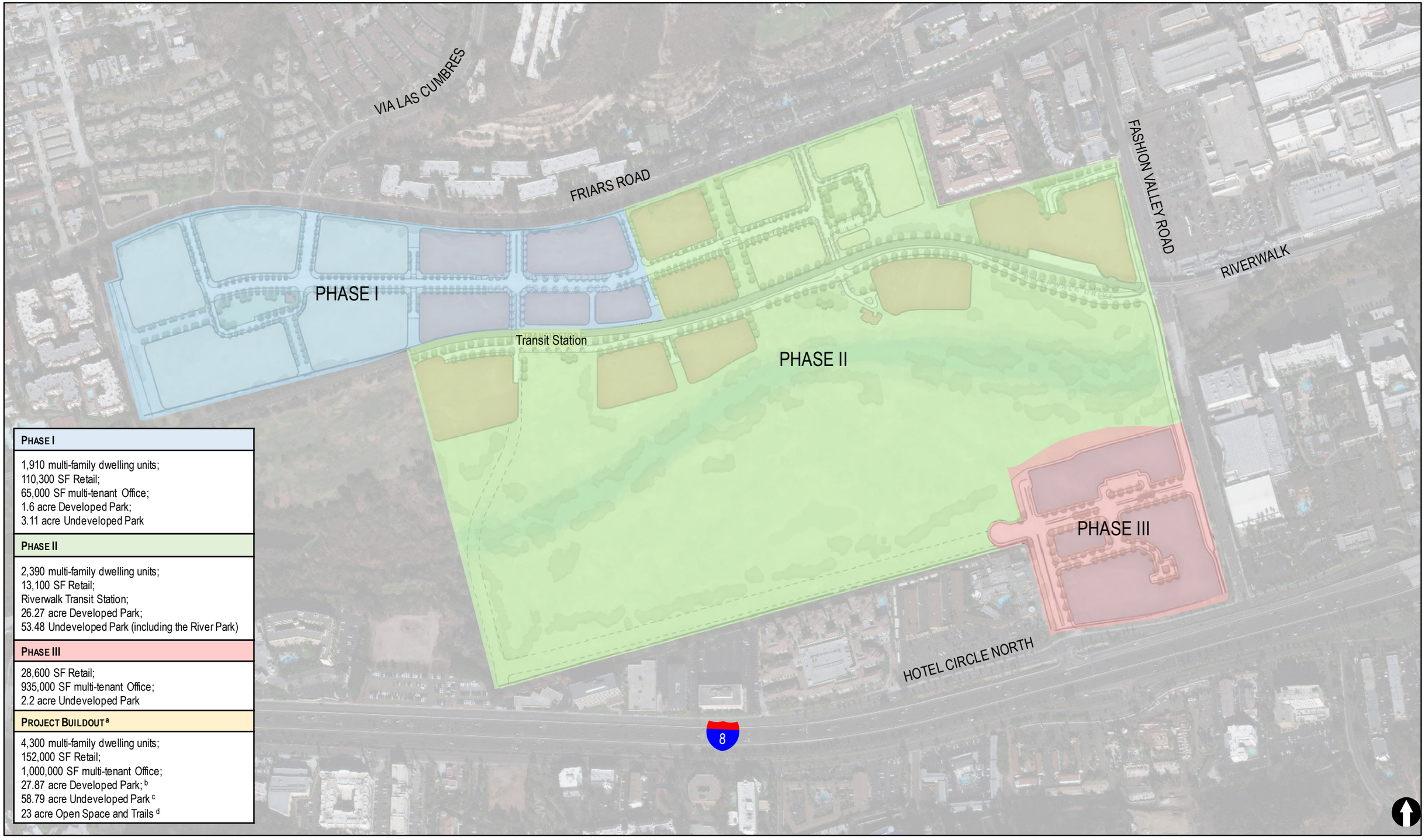


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Figure A
Project Land Use Map

RIVERWALK



PHASE I

1,910 multi-family dwelling units;
110,300 SF Retail;
65,000 SF multi-tenant Office;
1.6 acre Developed Park;
3.11 acre Undeveloped Park

PHASE II

2,390 multi-family dwelling units;
13,100 SF Retail;
Riverwalk Transit Station;
26.27 acre Developed Park;
53.48 Undeveloped Park (including the River Park)

PHASE III

28,600 SF Retail;
935,000 SF multi-tenant Office;
2.2 acre Undeveloped Park

PROJECT BUILDOUT[a]

4,300 multi-family dwelling units;
152,000 SF Retail;
1,000,000 SF multi-tenant Office;
27.87 acre Developed Park;[b]
58.79 acre Undeveloped Park[c]
23 acre Open Space and Trails[d]

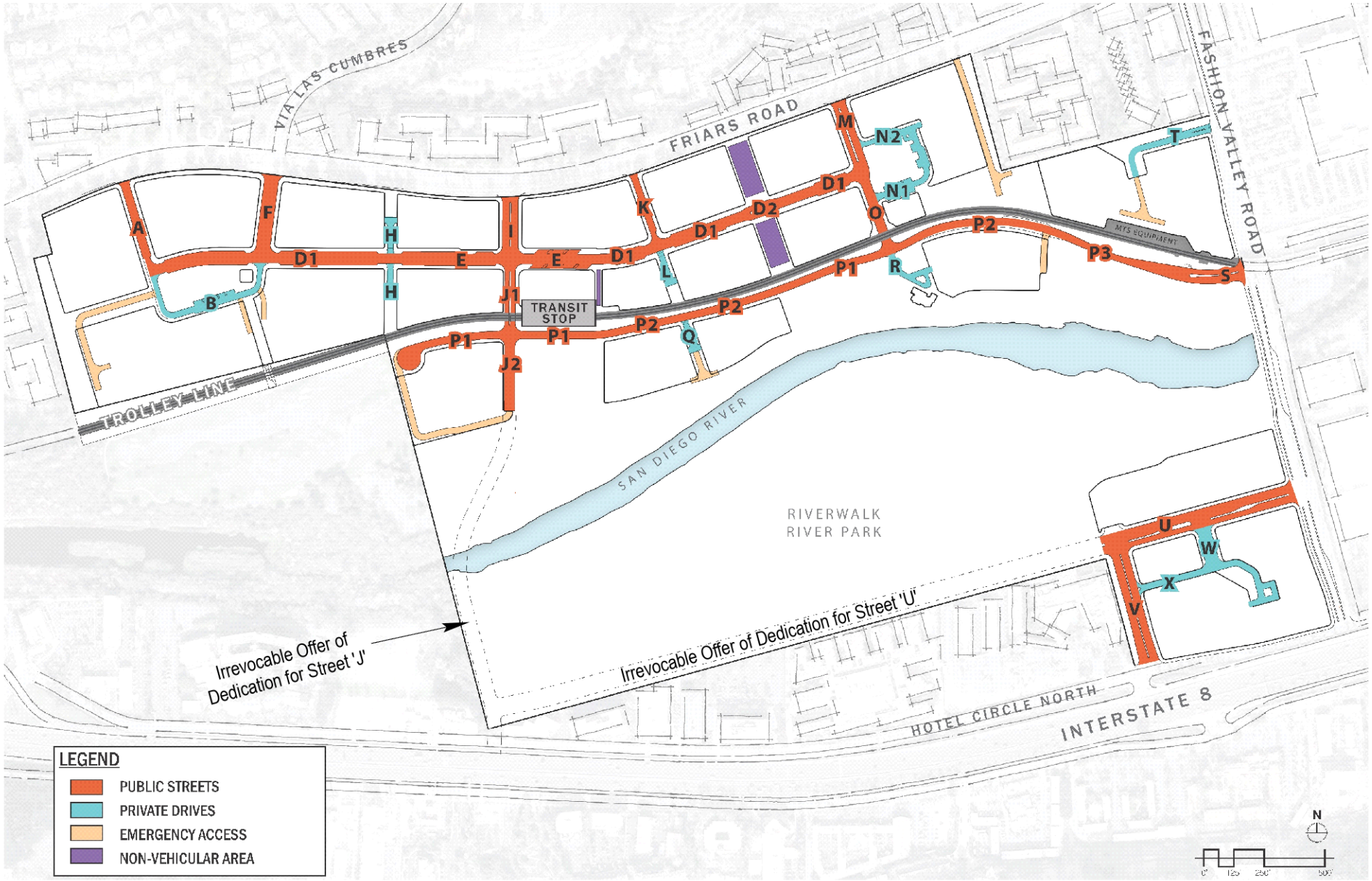
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Figure B
Project Phasing Plan

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Figure C
Project Street Layout

RIVERWALK

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MOBILITY ASSESSMENT

RIVERWALK

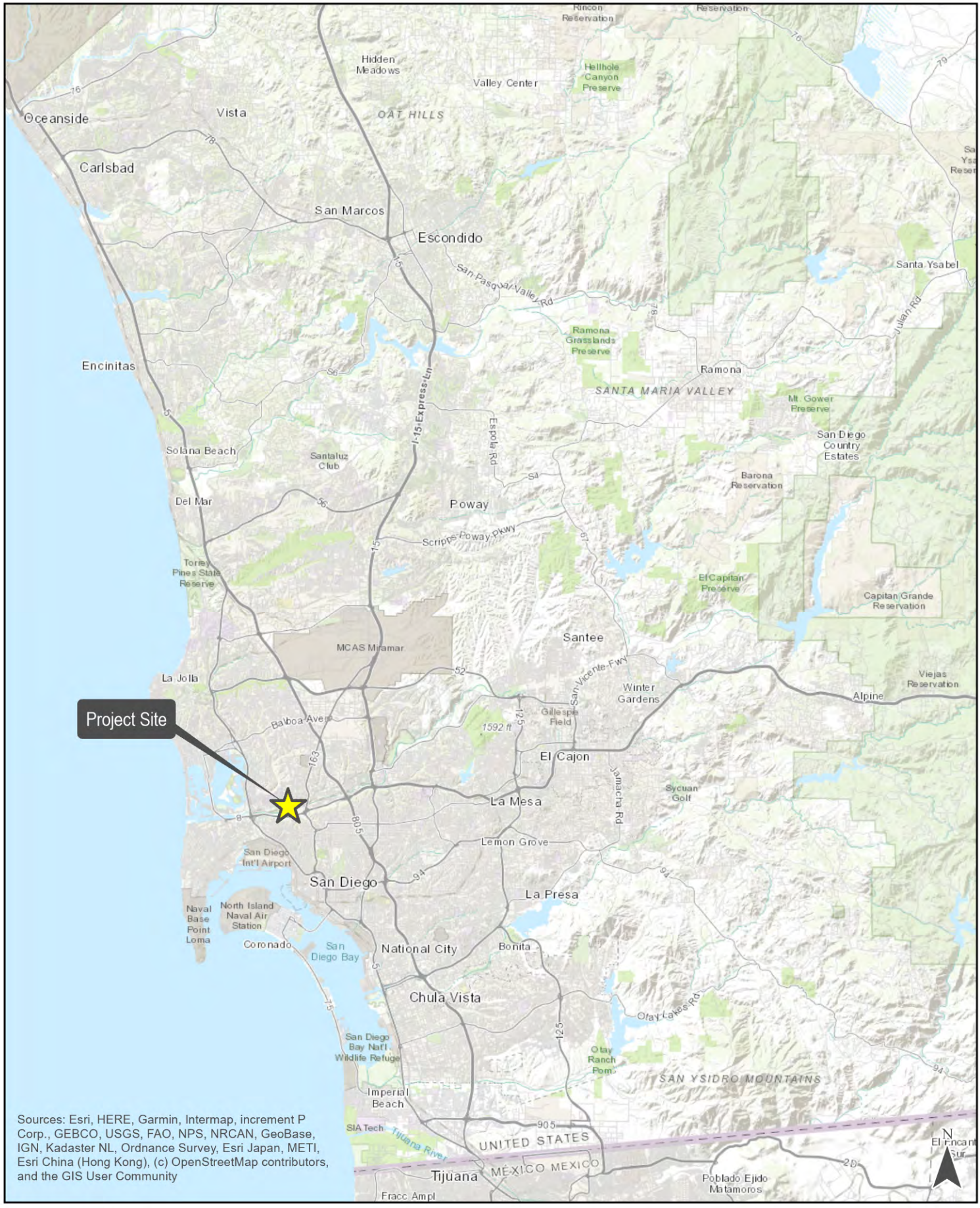
San Diego, California
May 2020

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) and Urban Systems Associates (USA) have been retained to prepare the following Mobility Assessment (MA) associated with the *Riverwalk Master Plan*. The Riverwalk Master Plan project (the Riverwalk Project) is located at 1150 Fashion Valley Road, in the area that abuts Friars Road on the north; Fashion Valley Road on the east; a portion of Hotel Circle North on south; and privately-owned residential property to the west. The San Diego River and the Metropolitan Transit System (MTS) Green Line Trolley traverse the project site in an east-west direction. The Green Line Trolley provides transit connections through Mission Valley to the Old Town multi-modal transit facility located in Old Town (west of the project site) and to San Diego State University, SDCCU Stadium, and the cities of La Mesa, El Cajon, and Santee located east of the project site.

The Riverwalk project proposes a Community Plan Amendment to the Mission Valley Community Plan to rescind the existing Levi-Cushman Specific Plan and replace the 195-acre Riverwalk property with the Riverwalk Specific Plan and redevelop the existing golf course as a walkable, transit-centric, and modern live-work-play mixed-use neighborhood that features an expansive River Park along the San Diego River. The mix and quantity of land uses would change from what is approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of commercial retail space; 1,000,000 square feet of office and non-retail commercial; approximately 97 acres of parks and open space; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop within the development. Improvements to surrounding public infrastructure and roadways would be implemented as part of the Riverwalk project. A detailed project description is included in Section 2.0. ***Figure 1–1*** includes a project vicinity map.

This Project-Specific Mobility Assessment (MA) focuses on automobile delay and Level of Service (LOS) within the project's study area in the Mission Valley Community Plan Area. The LOS analysis was conducted to identify the project traffic's effect in the project study area and recommends project improvements to ensure that the Riverwalk project is overall consistent with the Mission Valley Community Plan transportation improvements and that improvements will be implemented consistent with the Transportation Improvement Plan (TIP), provided in Chapter 14 of this document. In conformance with Senate Bill 743 (SB 743), a Transportation Impact Analysis was prepared under a separate cover that evaluates Riverwalk's potential vehicular impacts using a Vehicle Miles Traveled (VMT) metric, pursuant to the latest direction from the Governor's Office of Planning and Research (OPR) in December 2018. Consistent with SB 743 and CEQA Guidelines 15064.3, the California Environmental Quality Act (CEQA) significance determination for the Riverwalk project is based only on VMT and not on LOS.



LINSCOTT LAW & GREENSPAN engineers

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Figure 1-1
Vicinity Map

RIVERWALK

2.0 PROJECT DESCRIPTION

2.1 Existing Setting

The project site encompasses approximately 195-acres and is currently developed with the 27-hole Riverwalk Golf Course and clubhouse building. The golf course operates under an existing Conditional Use Permit (CUP No. 94-0563). Situated in the western portion of central Mission Valley, the project site abuts Friars Road on the north; Fashion Valley Road on the east; a portion of Hotel Circle North on south; and privately-owned residential property to the west. The San Diego River and the MTS Green Line Trolley traverse the project site in an east-west direction. The Green Line Trolley provides transit connections through Mission Valley to the Old Town multi-modal transit facility located in Old Town (west of the project site) and to San Diego State University, SDCCU Stadium, and the cities of La Mesa, El Cajon, and Santee located east of the project site.

Surrounding uses include commercial retail (Fashion Valley Mall) and hotel/convention center (Town & Country Resort) east of Fashion Valley Road. Single- and multi-family residential and commercial office developments are located on the north side of Friars Road within the Linda Vista Community Plan area. The properties west of the site include residential development in the form of condominium complexes and the Mission Valley YMCA. A mix of office, residential, hotel, and Interstate 8 (I-8) are located south of the project site.

Regional access to the site is provided by I-8, located immediately south of the project site; State Route 163 (SR-163), located approximately one mile east of the project site; and Interstate 5 (I-5), located less than two miles west of the project site. Primary vehicle access to the project would occur at Fashion Valley Road from the east, Hotel Circle North from the south, and Friars Road from the north.

The site is in the Mission Valley Community Planning Area and is zoned MVPD-MV-M/SP, indicating that there is a Specific Plan (SP) in effect on the project site. The project site is designated largely Multi-Use and a portion Open Space in the Mission Valley Community Plan; and Multiple Use; Commercial Employment, Retail, and Services; and Parks, Open Space, and Recreation in the City of San Diego General Plan. The approved Levi-Cushman Specific Plan identifies the site for a mix of residential, retail, office, hotel, and recreational use.

2.2 Proposed Project

The Riverwalk project proposes a Community Plan Amendment to the Mission Valley Community plan to rescind the existing Levi-Cushman Specific Plan and replace the 195-acre Riverwalk property with the Riverwalk Specific Plan and redevelop the existing golf course as a walkable, transit-centric, and modern live-work-play mixed-use neighborhood that features an expansive River Park along the San Diego River. The mix and quantity of land uses would change from what is approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of commercial retail space; 1,000,000 square feet of office and non-retail commercial; approximately 97 acres of parks and open space; adaptive reuse of the existing golf clubhouse into a community amenity; and a new MTS Green Line Trolley stop within the development. Improvements to surrounding public infrastructure and roadways would be

implemented as part of the Riverwalk project, including improvements to the Fashion Valley Road crossing of the San Diego River by replacing it with a facility with a soft-bottom condition for the San Diego River that provides expanded storm water flow volume to accommodate a 10- to 15-year storm event. The project would also include a habitat restoration effort on-site to create and/or enhance 25.16 acres of native habitats along the San Diego River, within and adjacent to the Multi-Habitat Planning Area (MHPA), and setting aside area for establishing a future wetland habitat mitigation bank.

The project would establish Irrevocable Offers of Dedication (IOD) for two Community Plan Circulation Element roadways envisioned in the Mission Valley Community Plan Update: future Street "J," which would cross the San Diego River in a north-south direction and planned to span I-8 to the south, ultimately connecting to Hotel Circle South; and future Street "U," which would travel approximately east-west along the southern project site boundary and connect from Street "V" to future Street "J." Street "J" would include an elevated roadway crossing the river valley. Per the City's Planning Department, these roads are regional facilities with uncertain funding, design, and construction timing. While these improvements would not be constructed as part of the project, the project would grant the City IODs for the required rights-of-way for construction of these roads in the future.

The project would require the following discretionary actions: General Plan/Mission Valley Community Plan Amendment; Rescission of the Levi-Cushman Specific Plan; Rezone; Vesting Tentative Map; Planned Development Permit and Site Development Permit; Conditional Use Permit Amendment; Amendment to the Mission Valley Public Facilities Financing Plan; General Development Plan for the future Regional Park; and Public Right-of-Way and Easement Vacations. ***Figure 2–1*** shows the project land use plan. ***Figure 2–2*** shows the project street layout plan and ***Figure 2–3*** shows the project lot plan.

2.3 Project Phasing

The project site encompasses approximately 195-acres and is currently developed with the 27-hole Riverwalk Golf Course and clubhouse building. The golf course will continue to be in operation to the extent feasible as development begins in a phased manner.

The Riverwalk project will be developed as an integrated community of land uses tied together by a network of parks, vehicular, bicycle, and pedestrian circulation. To ensure consistency with the Community Plan and provide improvements necessitated by the project, implementation of the Riverwalk project will require construction of new infrastructure and facilities, as well as improvements to existing infrastructure and facilities. Improvements will be necessary to the circulation network, drainage facilities, utilities (e.g. water, sewer, etc.), and other infrastructure. In addition, streetscape enhancement and pedestrian elements will occur as part of the overall design.

To ensure consistency with the Community Plan and provide improvements, public streets and private drives associated with each phase of development will be constructed as discussed in the Transportation Improvement Plan (TIP) as included in *Section 14.0*. This will ensure that the appropriate transportation improvements will be provided as the project develops over an extended

period of time. Infrastructure improvements, including water, sewer, drainage, and dry utilities, will also be phased in logical progression to meet the development needs associated with each phase.

Given the intensity and density of uses proposed, the project phasing includes a total of three (3) phases spread out over a period of 15 years with the project's complete buildout anticipated in Year 2035. These phases include Opening Day (Phase I) in Year 2025, Phase II in Year 2030 and Phase III in Year 2035. A Community Plan buildout analysis at Year 2050 is also included as the project requires a General Plan Amendment (GPA)/Community Plan Amendment (CPA). ***Table 2–1*** summarizes the project phasing. ***Figure 2–4*** illustrates the project phasing plan. ***Figure 2–5*** illustrates the project Parks plan.

TABLE 2–1
PROJECT PHASING

Phase	Year	Development Activity
I	*2025*	1,910 multi-family dwelling units; 110,300 SF Retail; 65,000 SF multi-tenant office; 1.6-acre Developed Park; 3.11-acre Undeveloped Park.
II	*2030*	2,390 multi-family dwelling units; 13,100 SF Retail; construction of the Riverwalk trolley station; 26.27-acre Developed Park; 53.48-acre Undeveloped Park (including the River Park).
III	*2035*	28,600 SF Retail; 935,000 SF multi-tenant office; 2.2-acre Undeveloped Park.
Project Buildout[a]		▪ 4,300 multi-family dwelling units ▪ 152,000 SF Retail ▪ 1,000,000 SF Office ▪ 27.87-acres Developed Park[b] ▪ 58.79-acres Undeveloped Park[c] ▪ 28-acres Open Space[d]

Footnotes:

a. Park acreage changes are due to changes in the project description and site plan that were made to ensure consistency with the 2019 Mission Valley Community Plan (MVCP) Preferred Roadway Network, including Irrevocable Offer of Dedications (IOD's) for Streets J and U. Additionally, a 50' no-use buffer surrounding the SD River and Multi-Habitat Planning Area (MHPA) has been subtracted from previous Undeveloped Park acreage.

b. The total acreage for Developed Parks used in the trip generation calculations from an earlier project description equals 27.87 Per the current project description, the total Developed Parks acreage is 20 acres (Phase I: 0.9 acres and Phase II: 19.1 acres) including a recreation center identified in the 2019 Mission Valley Community Plan. However, to be conservative, the 27.87 acres was used in the trip generation calculations.

c. The total acreage for Undeveloped Parks used in the trip generation calculations from an earlier project description equals 58.79 acres. Per the current project description, the total Undeveloped Parks acreage is 42.3 acres (Phase I: 2.4 acres and Phase II: 39.9 acres). However, to be conservative, the 58.79 acres was used in the trip generation calculations.

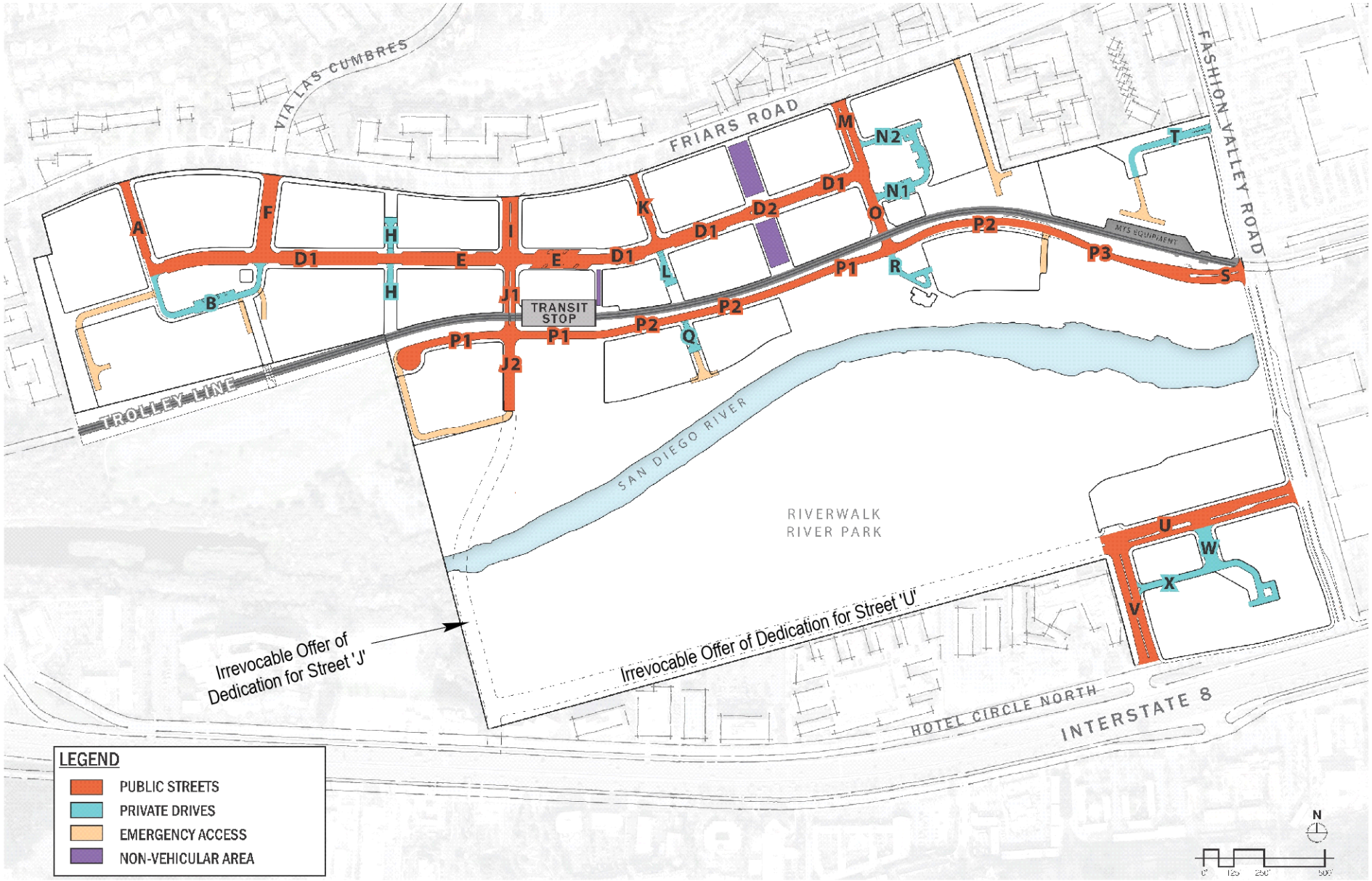
d. The total acreage for Open Space from an earlier project description totals 28 acres. Per the current project description, the total Open Space acreage is 35 acres.



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Figure 2-1
Project Land Use Map



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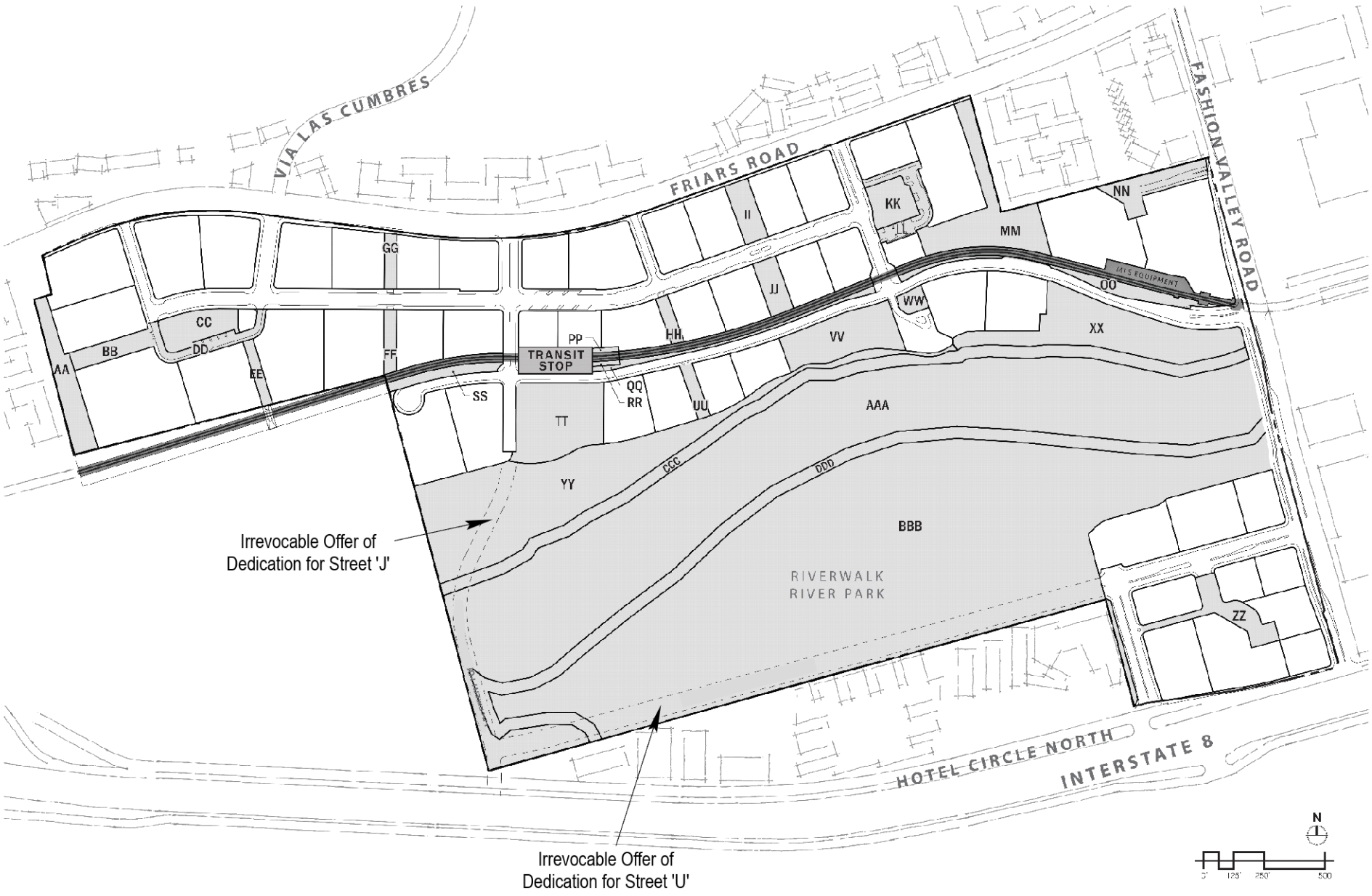
Figure 2-2
Project Street Layout

RIVERWALK

Project Numbered Lot



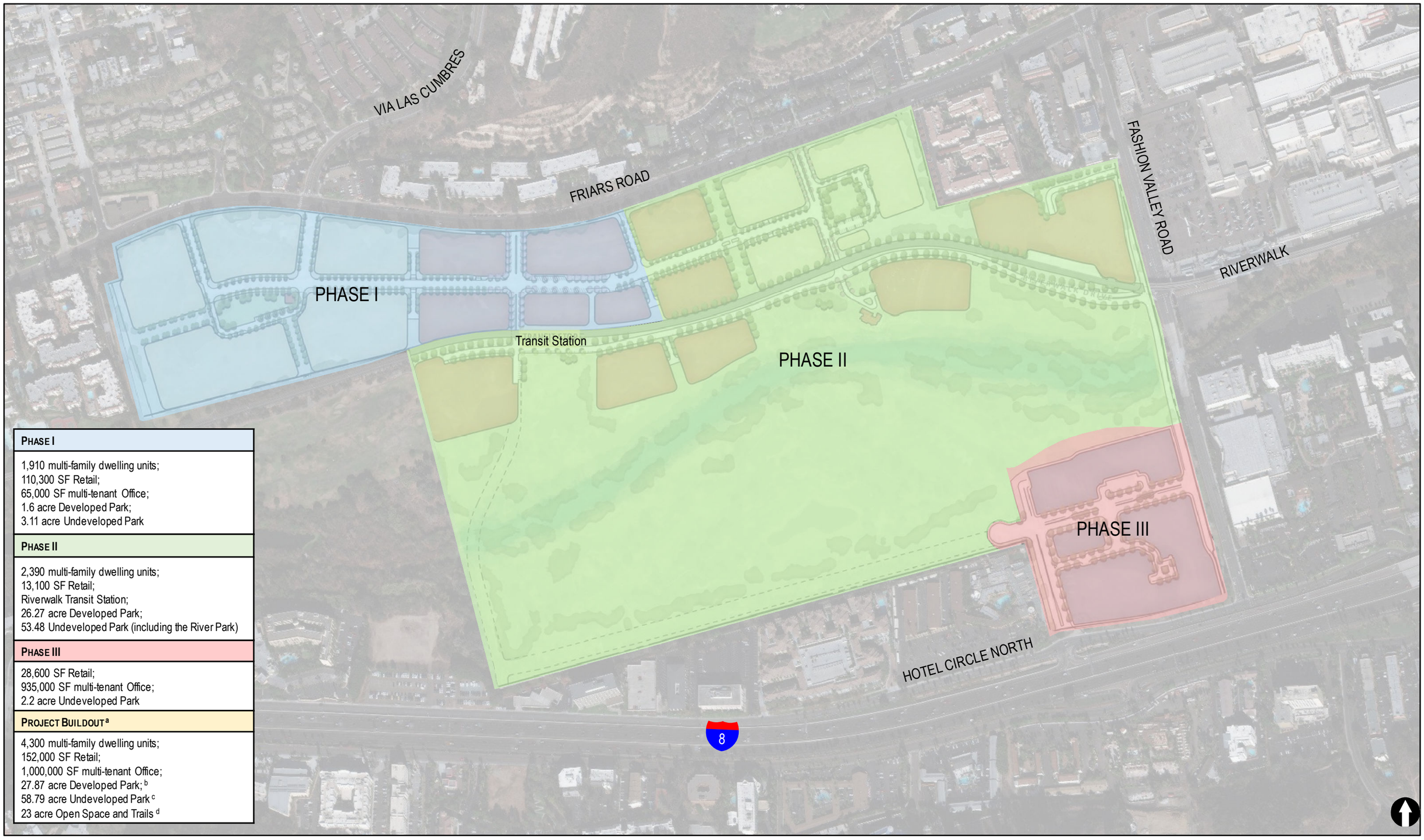
Project Lettered Lot



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Figure 2-3
Project Lot Layout



PHASE I

1,910 multi-family dwelling units;
110,300 SF Retail;
65,000 SF multi-tenant Office;
1.6 acre Developed Park;
3.11 acre Undeveloped Park

PHASE II

2,390 multi-family dwelling units;
13,100 SF Retail;
Riverwalk Transit Station;
26.27 acre Developed Park;
53.48 Undeveloped Park (including the River Park)

PHASE III

28,600 SF Retail;
935,000 SF multi-tenant Office;
2.2 acre Undeveloped Park

PROJECT BUILDOUT[a]

4,300 multi-family dwelling units;
152,000 SF Retail;
1,000,000 SF multi-tenant Office;
27.87 acre Developed Park;[b]
58.79 acre Undeveloped Park[c]
23 acre Open Space and Trails[d]

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For footnote details, see Table 2-1

Figure 2-4
Project Phasing Plan

RIVERWALK



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Figure 2-5
Project Parks Plan

RIVERWALK

3.0 REPORT APPROACH

In conformance with Senate Bill 743 (SB 743), under a separate cover, a Transportation Impact Analysis was prepared that evaluates Riverwalk Project's potential vehicular impacts using a Vehicle Miles Traveled (VMT) metric, pursuant to the latest direction from the Governor's Office of Planning and Research (OPR) in December 2018 (*Technical Advisory on Evaluating Transportation Impacts in CEQA*).

This report is a Project-Specific Mobility Assessment (MA) that focuses on automobile delay and LOS within the project's study area within the Mission Valley Community Plan Area. The LOS analysis was conducted to identify the project traffic's effect in the project study area and recommends improvements to ensure that the Riverwalk project is consistent with the Mission Valley Community Plan transportation improvements and that improvements will be implemented by the project consistent with the TIP. Consistent with SB 743 and CEQA Guidelines 15064.3, the CEQA significance determination for the Riverwalk project is based only on VMT and not on LOS.

3.1 Planning Documents and Supporting Information

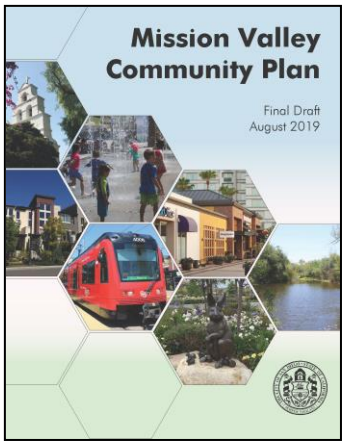
The following key adopted and ongoing planning documents were referenced in preparation of this report:

Levi Cushman Specific Plan (1987)

The Levi Cushman Specific Plan proposed a mixed-use development on approximately 200 acres of land on the current Riverwalk golf course. The Specific Plan contemplated a blend of uses including residential, office, hotel, retail and recreational uses. The Levi Cushman Specific Plan anticipated approximately 1,329 dwelling units; 1000-room hotel; 200,000 square feet of retail space; 2,582,000 square feet of office space. This development was calculated to generate approximately 66,955 cumulative average daily trips (ADT's) and 69,744 driveway ADT. Since the approval of the Levi-Cushman Specific Plan by City Council in 1987, no development has occurred with the golf course, which is still under operation.

The current Riverwalk Project proposes the replacement of the Levi Cushman Specific Plan with the Riverwalk Specific Plan. The mix and quantity of land uses would change from what was approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of community commercial; 1,000,000 square feet of office; 12-acre neighborhood park; 97 acres of park, open space, and trails to implement the San Diego River Park Master Plan; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop within the development. The proposed Riverwalk project is estimated to generate approximately 37,222 cumulative ADT's and 41,186 driveway ADT.

Mission Valley Community Plan (2019)



The Mission Valley Community Plan was recently updated and approved by City Council in September 2019. The Mission Valley planning area includes approximately 2,418 acres in the center of the City of San Diego. The community is bounded on the west by Interstate 5 and on the east by the San Diego River and Fairmount Avenue. The northern and southern community boundaries generally follow the valley peaks.

Several freeway facilities traverse the community or run adjacent to it, contributing to Mission Valley's role as a pass through for daily commuters in addition to serving as a regional destination for shopping and entertainment. These facilities include Interstate 5, State Route 163, Interstate 805, Interstate 15, and Interstate 8. The Green Line Trolley crosses the community east-west parallel to the San Diego River and Interstate 8. Public transportation is further supplemented by bus services. The San Diego River Trail also parallels the San Diego River, providing a multi-use path across the community.

The Mission Valley Community Plan provides a road map for future development, which will promote the creation of walkable, mixed-use community areas; better connectivity; increased spaces for parks and recreation facilities; tailored infrastructure solutions; and more mobility choices, with a focus on celebrating the San Diego River.

Mission Valley Public Facilities Financing Plan (FY 2013)

Potential improvements to the local street system are planned under the auspices of the City of San Diego's Public Facilities Financing Plan (PFFP). Under the PFFP, development projects within the Mission Valley Community (MV) planning area pay Developer Impact Fees (DIF), which when combined with other funding sources are used to help pay for identified infrastructure improvements to accommodate planned development in the planning area which include Transportation, Parks and Recreation, Fire and Library. Annual reports are published detailing the funding and construction status of these improvement projects. An updated Impact Fee Study (IFS) is currently underway and is pending City Council approval.

City of San Diego General Plan – Mobility Element (2008)

The City of San Diego General Plan Mobility Element identifies transportation planning goals and policies related to pedestrian, transit, street and freeway systems, Intelligent Transportation Systems (ITS), Transportation Demand Management (TDM), bicycling, parking management, airports, passenger rail, goods movement/freight, and regional coordination and financing. The element discusses several key topics related to pedestrian-oriented planning, traffic calming techniques, bicycle network improvements, and transit priorities.

SANDAG San Diego Regional Bike Plan (2010)

The Regional Bike Plan identifies a vision for a diverse regional bicycle system of interconnected bicycle corridors, support facilities, and programs to make cycling more practical and desirable to a broader range of the population. The document includes recommendations and goals that seek to increase bicycle ridership and the frequency of bicycle trips for all purposes. It also encourages the development of Complete Streets, to improve safety for bicyclists, and to increase public awareness and support for bicycling in the region.

City of San Diego Bicycle Master Plan (2013)

The City of San Diego Bicycle Master Plan provides a framework for making cycling a more practical and convenient transportation option for all users. The plan is comprised of a proposed bicycle network, projects, policies and programs aimed at improving bicycling through 2030 and beyond. The City has continued development of the plan to address urban core communities as well as other communities. The Bicycle Master Plan is supplemented by the bicycle portion of each Community Plan Update's Mobility Element.

City of San Diego Pedestrian Master Plan (2015)

The Pedestrian Master Plan provides guidance for the implementation of pedestrian projects. The document also includes a prioritization process used to identify high priority pedestrian routes within Community Planning areas and a methodology to determine potential pedestrian improvement projects along identified routes. The guidance aims to establish a level of consistency among the plans and analysis methodologies utilized.

Traffic Signal Communications Master Plan (2014)

In 2014, the City of San Diego completed the Traffic Signal Communication Master Plan as a means to modernize the traffic signal system. The resulting improved coordination is intended to increase public safety, shorten commutes, reduce greenhouse gas emissions, and enhance mobility at intersections for all modes of travel. The Traffic Signal Communications Master Plan identified traffic signal communication gaps within the City's traffic signal network.

Approved Development Project Transportation Impact Studies

There have been several development projects that have recently been approved and/or under construction in the immediate vicinity of the Riverwalk Project. Through these projects, traffic operations data, forecast volumes, trip generation and other pertinent information was obtained, and reviewed. The approved development projects and their status is included below:

- Town and Country Master Plan (under construction)
- Legacy International Center (completed and operational)
- Camino Del Rio Mixed Use: Millennium I (completed and operational)
- Alexan Fashion Valley (under construction)
- Friars Road Multi-Family (under construction)
- Union Tribune Master Plan (Phase I completed)

- USD Master Plan (ongoing)
- Witt Mission Valley (Millennium II: under construction)

3.2 Report Organization

The remainder of this report is divided into the following sections:

Section 4.0 – Study Objectives, Analysis Approach and Methodology: This section describes in detail the study objectives, analysis approach and methodology used to produce the analyses contained in the study (signalized and unsignalized intersections, street and freeway segments, metered freeway on-ramps). A discussion of the concept of Level of Service (LOS) is also provided in this section.

Section 5.0 – Study Area, Existing Vehicular Mobility: A description of the study area, existing roadway geometrics and traffic counts are provided in this section.

Section 6.0 – Analysis of Existing Vehicular Conditions: The existing traffic volumes from the Mission Valley Community Plan Transportation Impact Analysis (May 3, 2019) were used and analyzed for the purposes of providing baseline conditions within the project's study area.

Section 7.0 – Trip Generation, Distribution, and Assignment: The trip generation, trip distribution and assignment associated with the proposed Riverwalk project is shown and discussed in this section.

Section 8.0 – Existing + Project Vehicular Analysis: The addition of project traffic for the various phases on Existing Conditions under this scenario are presented in this chapter.

Section 9.0 – Cumulative Projects: This section provides a discussion of the other reasonably foreseeable projects in the project study area.

Section 10.0 – Near-Term (Opening Day Year 2025) – Phase I Vehicular Analysis: This section provides information on the Near-Term (Opening Day- Year 2025) roadway conditions and traffic volumes. The results of the Near-Term (Opening Day) traffic analyses both without and with the project are presented in this section.

Section 11.0 – Year 2030 – Project Phase II Vehicular Analysis: This section provides information on the Year 2030 roadway conditions and traffic volumes. The results of the Year 2030 traffic analyses both without and with the project (Phases I through II) are presented in this section.

Section 12.0 – Year 2035 – Project Phase III Vehicular Analysis: This section provides information on the Year 2035 roadway conditions and traffic volumes. The results of the Year 2035 traffic analyses both without and with the project (Phases I through III) are presented in this section.

Section 13.0 – Year 2050 Community Plan Vehicular Analysis: This section provides information on the Mission Valley community buildout (Year 2050) analysis for without and with the project (Phases I through III).

Section 14.0 – Transportation Improvement Plan: This section presents the Transportation Improvement Plan (TIP) for the project. The TIP includes project improvements and their implementation on an Equivalent Dwelling Unit (EDU) basis.

Section 15.0 – Year 2035 Improvement Analysis: This section provides the LOS analysis of the project with the proposed improvements in the Year 2035.

Section 16.0 – Site Access, Circulation and Internal Street Sections: This section describes the access points to the project site and the internal circulation within the project site. In addition, a detailed internal street section analysis is presented.

Section 17.0 – Parking: This section provides information on the automobile, bicycle, and motorcycle parking for the project.

Multi-Modal Review

Section 18.0 – Pedestrian Mobility: This section describes existing pedestrian mobility, future pedestrian mobility in the community, project pedestrian mobility, and the project's pedestrian improvements in and around the Riverwalk project study area.

Section 19.0 – Bicycle Mobility: This section describes existing bicycle mobility, future bicycle mobility in the community, project bicycle mobility, and the project's bicycle improvements in and around the Riverwalk project study area.

Section 20.0 – Transit Mobility: This section describes existing transit mobility, future transit improvements proposed by the Riverwalk project, and ridership projections at the Riverwalk transit station.

ITS and TDM

Section 21.0 – Intelligent Transportation Systems (ITS): This section discusses various aspects of ITS and applications, which would be implemented by the Riverwalk project.

Section 22.0 – Transportation Demand Management (TDM) Program: This section provides a discussion of the project's proposed TDM measures for the following categories: Commuting/Alternative Transportation; Shuttle Service; Transportation Amenities, Parking Policies; Resources and Services.

4.0 STUDY OBJECTIVES, ANALYSIS APPROACH AND METHODOLOGY

This section discusses the MA study objectives and the analysis approach and methodology used in the preparation of the study.

4.1 Study Objectives

This MA evaluates the Riverwalk's project's traffic effect in the study area. The MA has the following objectives:

- Identify and provide improvements that will be implemented consistent with the TIP
- Ensure that the project proposed improvements are consistent with the Mission Valley Community Plan and support all travel modes, including active transportation and transit
- Provide connections to existing active transportation and transit modes to expand the overall multi-modal roadway network

4.2 Analysis Approach and Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis considering factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.3 Intersections

Signalized intersections were analyzed under weekday 7:00-9:00 AM and 4:00-6:00 PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *2016 Highway Capacity Manual (HCM 6th Edition),* with the assistance of the *Synchro* (version 10) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection LOS. A more detailed explanation of the methodology is attached in ***Appendix A***. ***Table 4–1*** shows the signalized intersection delay categorized for each LOS.

Unsignalized intersections were analyzed under weekday 7:00-9:00 AM and 4:00-6:00 PM peak hour conditions. Average vehicle delay and LOS were determined based upon the procedures found in Chapters 19 and 20 of the *HCM 6,* with the assistance of the *Synchro* (version 10) computer software. A more detailed explanation of the methodology is attached in *Appendix A. Table 4–1* shows the unsignalized intersection delay categorized for each LOS.

TABLE 4–1
INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	**Unsignalized Intersections**
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: Highway Capacity Manual

The HCM 6th edition analysis methodology requires strict adherence to standard dual ring National Electrical Manufacturers Association (NEMA) phasing. Conflicting phase overlaps, clustered intersections or other non-compliant phasing sequences cannot be analyzed using this method. Based upon the geometry and phasing per their respective signal timing sheets, the following intersections did not adhere to standard NEMA phasing:

6. Morena Boulevard / Taylor Street (non-NEMA phasing)
7. Friars Road / Napa Street (exclusive pedestrian phase)
19. Ulric St. / SR-163 SB On-Ramp (unsignalized intersection with yield control)
20. Friars Road & Ulric St. / SR-163 SB Ramp (non-NEMA phasing)
33. Hazard Center West Driveway / Hazard Center Drive (non-NEMA phasing)
35. Hazard Center Drive / Frazee Rd. (exclusive pedestrian phase)
43. Mission Center Road. / I-8 EB Ramp (cluster intersection)
44. Mission Center Road / Camino Del Rio South (cluster intersection)

4.4 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of San Diego's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The *Mission Valley Community Plan Update Transportation Impact Analysis (May 3, 2019: Figure 3-1: Existing Roadway Functional Classification figure)* is attached in ***Appendix B***. ***Table 4–2*** shows the City of San Diego's Roadway Classification.

TABLE 4–2
CITY OF SAN DIEGO ROADWAY SEGMENT DAILY CAPACITY AND LEVEL OF SERVICE STANDARDS

Roadway Functional Classification	Lanes	Level of Service				
		A	B	C	D	E
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial	8	35,000	50,000	70,000	75,000	80,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial	5	17,500	24,500	35,000	40,000	45,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial	2	7,500	10,500	15,000	17,500	20,000
Collector (w/ two-way left-turn lane)	4	10,000	14,000	20,000	25,000	30,000
Collector (w/ turn pockets)	4	7,500	10,500	15,000	18,750	22,500
Collector (w/ two-way left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (w/out two-way left-turn lane)	4	5,000	7,000	10,000	13,000	15,000
Collector (w/out two-way left-turn lane)	3	4,000	5,000	7,500	10,000	11,000
Collector (w/out two-way left-turn lane)	2	2,500	3,500	5,000	6,500	8,000
Collector (w/out two-way left-turn lane) - no fronting property	2	4,000	5,500	7,500	9,000	10,000
Collector (one-way)	2	7,500	9,500	12,500	15,500	17,500

General Notes:

1. Roadway Capacity and Classification based on *Mission Valley Community Plan Update Transportation Impact Study, May 2019.*

4.5 Freeway Segments

Freeway segments were analyzed under AM and PM peak hour based on the standards outlined in the *Caltrans Guide for the Preparation of Traffic Impact Studies using Highway Capacity Manual* (HCM 6th Edition). The freeway analyses were conducted using the *Highway Capacity Software* (HCS version 7.3). The freeway analysis is based on assessing freeway operations based on traffic volumes, freeway lane configurations and other segment specific characteristics and reporting freeway volume to capacity ratio and density. ***Table 4–3*** presents the freeway segment criteria based on density.

TABLE 4–3
FREEWAY SEGMENT LOS CRITERIA

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

General Notes:

1. *Source: HCM 6th Edition*
2. pc/mi/ln– Passenger car per mile per lane

4.6 Metered Freeway On-Ramps

Ramp meter delays and queues are reported using a "Fixed Rate" approach. The fixed rate approach is based on the specific time intervals at which the ramp meter is programmed to release traffic based on a most restrictive meter rate identified by Caltrans. Because ramp meter rates are not constant within the peak hours, the analysis was conducted using the most restrictive meter rates. The meter rates dynamically adjust based on the level of traffic on the freeway mainlines. The meter rates were obtained from Caltrans.

4.7 Pedestrian Mobility

The project's pedestrian network connectivity was evaluated by reviewing the existing pedestrian network, which included documenting missing sidewalks, pedestrian barriers and pedestrian pathways within the ½ mile driving distance of the project. In addition to documenting existing pedestrian activity, a walkshed analysis was performed to evaluate the pedestrian connectivity in the vicinity of the project site and to ensure the project provides the appropriate pedestrian facilities. Finally, pedestrian improvements that will be constructed by the project are summarized as shown in *Section 18.0.*

4.8 Bicycle Mobility

The project's bicycle network connectivity was evaluated by reviewing the existing bicycle network in the project study area. In addition to documenting existing bicycle activity, a bikeshed analysis was performed to evaluate the bicycle connectivity in the vicinity of the project site and to ensure the project provides the appropriate bicycle facilities. Finally, bicycle improvements that will be constructed by the project were summarized as shown in *Section 19.0.*

4.9 Transit Mobility

The Transit Mobility review included reviewing the existing transit network in the project study area and reviewing the routes and headways of the Green Line Trolley and MTS buses. Existing transit stop amenities in the project study area and projections for Year 2050 trolley ridership in the adjacent trolley stations were also reviewed. Finally, transit mobility improvements that will be constructed by the project were summarized as shown in *Section 20.0*.

4.10 Intelligent Transportation Systems (ITS)

As a part of overall mobility, several ITS improvements were also reviewed, which included Traffic Signal Coordination, Emergency Vehicle Preemption (EVP), Transit Signal Priority (TSP), Adaptive Signal Control, Grade crossing preemption. The ITS improvements proposed by the project were summarized as shown in *Section 21.0*.

5.0 EXISTING VEHICULAR MOBILITY

This section presents the intersections, roadways, freeway segments, and metered on-ramps and describes existing roadway conditions within the project area. ***Figures 5–1*** and ***5–2*** shows existing conditions diagrams for study intersections and roadway segments, respectively.

5.1 Project Study Area

The study area was developed in coordination with City staff based on several factors such as the project driveway locations and ½-mile driving distance from each project driveway, closest interchanges to the project from each direction and surrounding arterials and roadways closest to the project site. Based on the above, the study area for the Riverwalk project includes the following fifty-seven (57) intersections, seventy (70) street segments, eleven (11) freeway segments and one (1) metered freeway on-ramp.

The study area for this project covers all the major regional and local corridors in the project vicinity, such as I-5, I-8, SR 163, Friars Road, Via Las Cumbres, Morena Boulevard, Fashion Valley Road, Riverwalk Drive, Hotel Circle North and South, Taylor Street, Sea World Drive, Mission Center Road, Camino De La Reina. The study area is generally shown in *Figure 5–2*. The project internal streets are analyzed in *Section 15.0.*

STUDY INTERSECTIONS

1. Sea World Dr. / Friars Rd.
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy
3. Sea World Dr. / I-5 SB Ramps
4. Sea World Dr. / I-5 NB Ramps
5. Linda Vista Rd. / Via Las Cumbres
6. Morena Blvd. / Taylor St.
7. Friars Rd. / Napa St.
8. Friars Rd. / Colusa St.
9. Friars Rd. / Goshen St.
10. Friars Rd. / Street A
11. Friars Rd. / Via Las Cumbres / Street F
12. Friars Rd. / Street I
13. Friars Rd. / Street K
14. Friars Rd. / Street M
15. Friars Rd. / Fashion Valley Rd.
16. Friars Rd. / Via de la Moda
17. Friars Rd. / Avenida de las Tiendas
18. Friars Rd. / Avenida del Rio
19. Ulric St. / SR-163 SB On Ramp
20. Friars Rd. & Ulric St. / SR-163 SB Ramps
21. Friars Rd. / SR-163 NB Ramps
22. Friars Rd. / Frazee Rd.
23. Friars Rd. WB / Mission Center Rd.
24. Friars Rd. EB / Mission Center Rd.
25. Friars Rd. WB / Qualcomm Way
26. Friars Rd. EB / Qualcomm Way
27. Friars Rd / River Run Dr.
28. Fashion Valley Rd. / Private Drive T
29. Riverwalk Dr. / Fashion Valley Rd.
30. Fashion Valley Rd. / Street U
31. Street U / Private Drive W
32. Riverwalk Dr. / Avenida Del Rio
33. Hazard Center West Drwy. / Hazard Center Dr.
34. Hazard Center East Drwy. / Hazard Center Dr.
35. Hazard Center Dr. / Frazee Rd.
36. Hazard Center Dr. / Mission Center Rd.
37. Camino de la Reina / Avenida Del Rio
38. Camino de la Reina / Camino de la Siesta
39. Camino de la Reina / Camino Del Arroyo
40. Camino de la Reina / Shopping Center Drwy.
41. Camino de la Reina / Mission Center Rd.
42. Mission Center Rd. / Camino del Rio N.
43. Mission Center Rd. / I-8 EB Ramps
44. Camino Del Rio S. / Auto Circle
45. Taylor Street / I-8 EB Hook Ramps
46. Hotel Circle Place / Hotel Circle N.
47. Hotel Circle Place / I-8 WB Ramp
48. Hotel Circle N. / I-8 WB Hook Ramps
49. Hotel Circle N. / Fashion Valley Rd.
50. Hotel Circle N. / Camino de la Reina
51. Hotel Circle S. / I-8 EB Hook Ramps
52. Hotel Circle S. / Bachman Place
53. Street J / Riverwalk Drive
54. Street J / Street V
55. Street J / Hotel Circle N.
56. Street J / Hotel Circle S.
57. Street V / Street U

STUDY SEGMENTS

Sea World Drive

1. South Shores Parkway to Friars Road
2. Friars Road to Pacific Highway/E. Mission Bay Drive
3. Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps
4. I-5 SB Ramps to I-5 NB Ramps

Tecolote Road

5. I-5 NB Ramps to Morena Boulevard

Friars Road

6. Sea World Drive to Napa Street
7. Napa Street to Colusa Street
8. Colusa Street to Goshen Street
9. Goshen Street to Street A
10. Street A to Via Las Cumbres
11. Via Las Cumbres to Street I
12. Street I to Street K
13. Street K to Street M
14. Street M to Fashion Valley Road
15. Fashion Valley Road to Via De La Moda
16. Via De La Moda to Avenida De Las Tiendas
17. Avenida De Las Tiendas to Ulric Street
18. Ulric Street to SR163 NB Ramps
19. SR163 NB Ramps to Frazee Road
20. Frazee Road to Mission Center Road
21. Mission Center Road to Qualcomm Way
22. Qualcomm Way to River Run Drive

Hotel Circle North

23. Hotel Circle Place to I-8 WB Hook Ramps
24. I-8 WB Hook Ramps to Fashion Valley Road
25. Fashion Valley Road to Camino De La Reina

Camino Del Rio North

26. Camino De La Siesta to Mission Center Road
27. Mission Center Road to I-8 WB Ramp

Camino De La Reina

28. Hotel Circle North to Avenida Del Rio
29. Avenida Del Rio to Camino De La Siesta
30. Camino De La Siesta to Camino Del Arroyo
31. Camino Del Arroyo to Mission Center Road

Taylor Street

32. Sunset Street to Morena Boulevard
33. Morena Boulevard to I-8 EB Hook Ramps
34. I-8 EB Hook Ramps to Hotel Circle South
35. Hotel Circle South to I-8 WB Hook Ramps

Hotel Circle South

36. Taylor Street to I-8 EB Hook Ramps
37. I-8 EB Hook Ramps to Bachman Place
38. Bachman Place to Camino De La Reina

Morena Boulevard

44. Linda Vista Road to I-8 WB Off-Ramp
45. I-8 WB Off-Ramp to Taylor Street

Napa Street

46. Linda Vista Road to Friars Road

Colusa Street

47. Linda Vista Road to Friars Road

Via Las Cumbres

48. Linda Vista Road to Friars Road

Fashion Valley Road

49. Friars Road to Private Drive T
50. Private Drive T to Riverwalk Drive
51. Riverwalk Drive to Street U
52. Street U to Hotel Circle North

Frazee Road

53. Friars Road to Hazard Center Drive

Mission Center Road

54. Friars Road to Mission Center Court
55. Mission Center Court to Hazard Center Drive
56. Hazard Center Drive to Camino De La Reina
57. Camino De La Reina to Camino Del Rio North
58. Camino Del Rio North to I-8 EB Ramps

Qualcomm Way

59. Friars Road to Rio San Diego Drive
60. Rio San Diego Drive to Camino Del Rio North

Riverwalk Drive

61. Fashion Valley Road to Avenida Del Rio

Avenida Del Rio

62. Riverwalk Drive to Camino De La Reina

Hazard Center Drive

63. Avenida Del Rio to Hazard Center West Driveway (under
64. Hazard Center West Driveway to Frazee Road
65. Frazee Road to Mission Center Road

Street V

66. Street J to Street U
67. Street U to Fashion Valley Road

Street U

68. Street V to Hotel Circle North

Street I/Street J

69. Friars Road to Riverwalk Drive
70. Riverwalk Drive to Street V

STUDY FREEWAY MAINLINE SEGMENTS

Interstate 8

1. I-5 to Morena Boulevard
2. Morena Boulevard to Taylor Street
3. Taylor Street to Hotel Circle
4. Hotel Circle to SR163
5. SR163 to Mission Center Road
6. East of Mission Center Road

Interstate 5

7. North of Sea World Drive
8. Sea World Drive to I-8

State Route 163

9. North of Friars Road
10. Friars Road to I-8
11. South of I-8

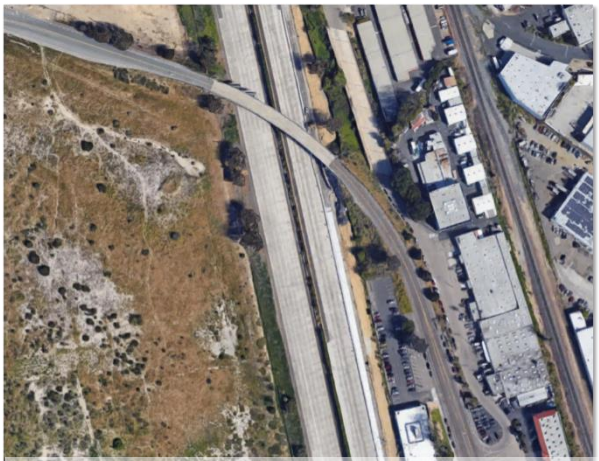
STUDY METERED FREEWAY ON RAMPS

1. Sea World Drive to NB I-5

5.2 Existing Roadway Network

The following is a description of the existing roadway network in the study area.

Interstate 5 (I-5) is a major north-south Interstate Freeway providing interregional connectivity between San Diego County and Orange / Los Angeles Counties to the north. It has a posted speed limit of 65 miles per hour. Within the study area, I-5 generally consists of eight travel lanes in the north-south direction with additional auxiliary lanes.



I-5 between Sea World Drive and I-8

State Route 163 (SR-163) is a north-south State Route providing interregional connectivity between downtown San Diego and Interstate 15 to the north. It has a posted speed limit of 65 miles per hour. Within the study area, SR-163 generally consists of eight travel lanes in the north-south direction with additional auxiliary lanes. An interchange within the immediate vicinity of project study area is provided at Friars Road. Phase I of a planned interchange upgrade at SR-163/Friars Road was completed and operational in December 2019. The upgrade primarily included widening of the overcrossing, reconfiguration of the NB ramps to remove the NB SR 163 to eastbound Friars Road direct connector and intersection improvements at the ramp intersections and at Friars Road / Frazee Road.



SR163 just north of Friars Road



I-8 just west of SR163

Interstate 8 (I-8) is a major east-west Interstate Freeway providing interregional connectivity between San Diego County and Imperial County to the east. It has a posted speed limit of 65 miles per hour. Within the study area, I-8 generally consists of eight travel lanes in the east-west direction with additional auxiliary lanes. Interchanges within the immediate vicinity of project study area are provided at Taylor Street, Hotel Circle North, and Hotel Circle South.

Sea World Drive/Tecolote Road is currently classified on the Adopted (1998) *Linda Vista Community Plan Circulation Element* as Four-Lane Prime Arterial between Friars Road and Pacific Highway and a Five-Lane Prime Arterial between Pacific Highway and I-5. Sea World Drive is currently built as a Four-Lane Major Road, west of Pacific Highway; and as Five-Lane Major Road with a striped median between Pacific Highway and I-5. Bike lanes and curbs are provided. The posted speed limit is 40 mph. Curbside parking is not permitted. East of I-5, Sea World Drive



Sea World Drive just west of Friars Road

becomes Tecolote Road. Tecolote Road is classified on the *Linda Vista Community Plan Circulation Element* as a Four-Lane Major Road from the I-5 Ramps to Morena Boulevard. It is currently built to its ultimate classification as a Four-Lane Major Road with a raised median. Currently, Class II bike lanes, contiguous sidewalks and a raised median are provided. The posted speed limit is 35 mph. Curbside parking is not permitted.



Friars Road just west of Avenida de las Tiendas

Friars Road forms the boundary between the Linda Vista and Mission Valley Communities, and is a classified roadway on both the Mission Valley Community Plan and the Linda Vista Community Plan, with classification inconsistencies between the two documents. Per the current *Mission Valley Community Plan*, Friars Road is classified as a Four-Lane Major Arterial between east of Napa Street and Fashion Valley Road, a Five-Lane Major Arterial between Fashion Valley Road and Avenida De Las Tiendas, a Six-Lane Major Arterial between Avenida De Las Tiendas and the SR-163 Interchange, an Eight-Lane Primary Arterial between the SR-163 Interchange and Mission Center Road, and a Six-Lane Expressway between Mission Center Road and I-805.

Friars Road is currently built as follows:

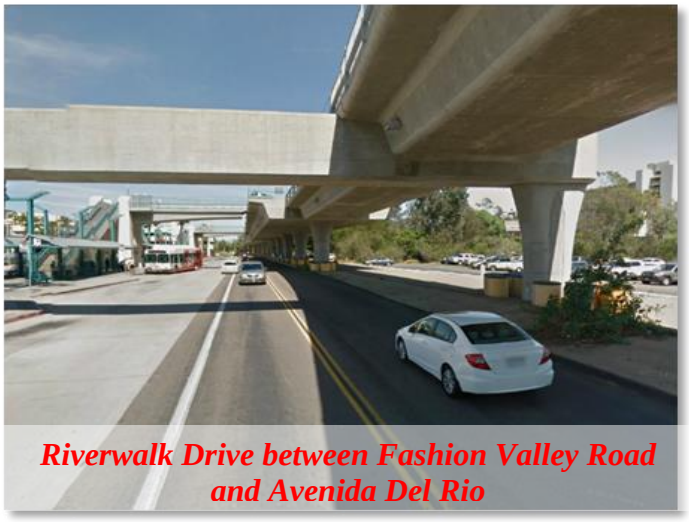
- *Napa Street to Colusa Street* - Four-lane divided roadway with a raised median.
- *East of Colusa Street to Fashion Valley Road* - Four-lane roadway with an intermittent TWLTL and striped median.
- *East of Fashion Valley Road to Avenida de las Tiendas*– Three travel lanes in the eastbound direction and two travel lanes westbound, with a raised median.
- *East of Avenida de las Tiendas to SR-163* - Six-lane facility, with a raised median.
- *SR 163 to Mission Center Road* – Seven-lane facility, with a raised median.
- *Mission Center Road to Qualcomm Way* – Eight-lane Expressway, with a raised

median.

- *Qualcomm Way to I-805* – Six-lane Expressway, with a raised median.

Bike lanes and sidewalks are provided along the roadway. The bike lanes on the north side are provided adjacent to the curbside parking between just east of Napa Street and just west of Fashion Valley Road. On the south side of Friars Road, a buffered bike lane exists between the vehicular travel way and a Class IV two-way cycle track. The two-way cycle track is currently built between Sea World Drive and west of Fashion Valley Road. The posted speed limit is generally 45 mph.

Riverwalk Drive is classified as a two-lane Collector in the current *Mission Valley Community Plan*. Currently, Riverwalk Drive is constructed as a two-lane undivided roadway (Collector) that terminates into the Fashion Valley Mall (east of Avenida Del Rio). A planned extension of Hazard Center Drive that includes 2 lanes under SR-163 is a requirement of the Hazard Center Redevelopment project that is currently under construction. Riverwalk Drive provides access to the Fashion Valley Mall and Fashion Valley Transit Center. Curbside parking is not permitted. A sidewalk is provided on the north side serving the Fashion Valley Transit Center and the mall. A Class I River path currently exists on Riverwalk Drive approximately 430'east of Avenida Del Rio and provides a pedestrian and bicycle connection under SR 163.



Riverwalk Drive between Fashion Valley Road and Avenida Del Rio

Camino De La Reina is classified as a two-lane Collector between Hotel Circle North and Camino De La Siesta and as a four-lane Major Arterial between Camino De Las Siesta and Mission Center Road in the *Mission Valley Community Plan*. It is currently constructed as a two-lane undivided roadway (Collector) with a two-way left-turn lane between Hotel Circle and Avenida Del Rio, a two-lane divided roadway (Collector) between Avenida Del Rio and Camino De La Siesta and a four-lane divided roadway between Camino De La Siesta and Mission Center Road. There is no posted speed limit between Hotel Circle and Avenida Del Rio. The posted speed limit is 35 mph between Avenida Del Rio and Qualcomm Way. Curbside parking is prohibited between Hotel Circle and Avenida Del Rio; however, curbside parking is provided between Camino De La Siesta and west of Mission Center Road. Bike lanes are not provided. Sidewalks are provided intermittently between Hotel Circle N. and Camino De La Siesta. Sidewalks are provided on both sides of the roadway between Camino De La Siesta and Mission Center Road.



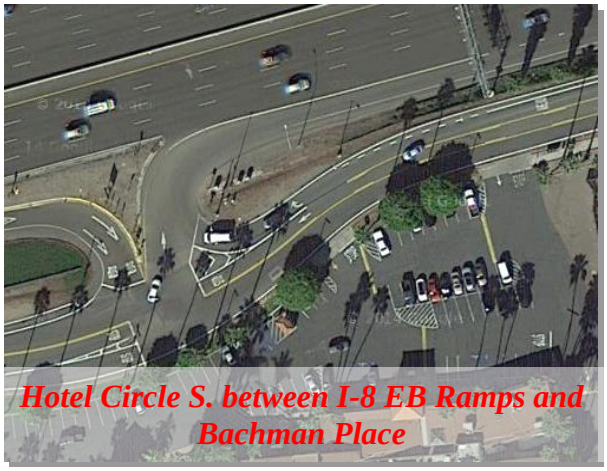
Camino De La Reina between Avenida Del Rio and Hotel Circle

Hotel Circle North forms the southern boundary of a portion of the Riverwalk project site**.** Hotel Circle North is classified as a two-lane Collector (one-way) with a Class IV two-way Cycle Track in the *Mission Valley Community Plan*. Hotel Circle North is currently constructed as a two-lane undivided roadway (Collector) with a two-way left-turn lane west of the I-8 ramps, a three-lane undivided roadway (Collector) between the I-8 ramps and Fashion Valley Road and a two-lane undivided roadway (Collector) with a two-way left-turn lane between Fashion Valley Road and Camino De La Reina. The posted speed limit is 40 mph. Curbside parking is not permitted. Bike lanes are provided on Hotel Circle North just west of the I-8 interchange to Hotel Circle



Hotel Circle N. between I-8 WB Ramps and Fashion Valley Road

Place. The Hotel Circle name transition occurs underneath the I-8 Freeway.



Hotel Circle S. between I-8 EB Ramps and Bachman Place

Hotel Circle South is classified as a two-lane Collector (one-way) with a Class IV two-way Cycle Track in the *Mission Valley Community Plan*. Hotel Circle South is currently constructed as a two-lane undivided roadway from Taylor Street to approximately 1,200' eastward and as a two-lane undivided roadway with a two-way left-turn lane (Collector) from approximately 1,200' east of Taylor Street to Camino De La Reina. Hotel Circle is under City of San Diego jurisdiction throughout the study area with the exception of the I-8 Interchange which is located within Caltrans' right-of-way. Traffic is controlled by signals or stop signs. The posted speed limit is 35 mph. Curbside parking is permitted intermittently on the south side. Bike lanes are provided on Hotel Circle South just west of the I-8 freeway underpass to Hotel Circle Court.

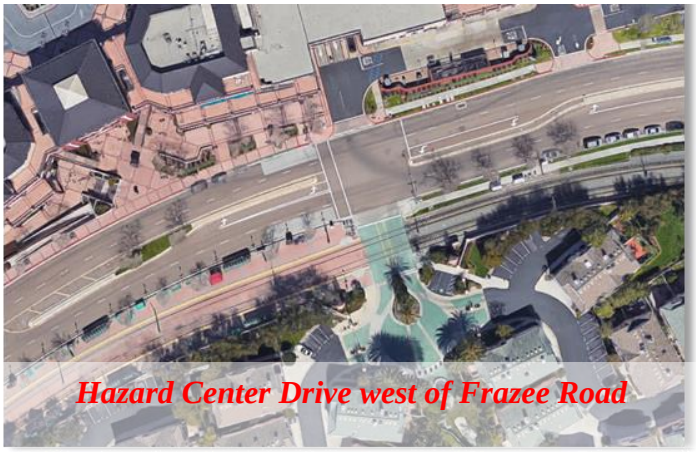
Taylor Street is classified as a four-lane Major Street between Pacific Highway and Congress Street, a five-lane Major Street between Congress Street and Juan Street, a four-lane Major Street between Juan Street and Morena Boulevard and a two-lane Collector Street between Presidio Drive and I-8 EB ramps in the *Old Town San Diego Community Plan* (2018). Taylor Street is classified as a two-lane Collector between the I-8 EB ramps and Hotel Circle S. and as a two-lane Collector (one-way) between Hotel Circle S. and the I-8 WB ramps in the *Mission Valley Community Plan*. Currently, Taylor Street is a five-lane roadway between Pacific Highway and Morena Boulevard with a posted speed of 35 mph. Sidewalks are present on both sides of the roadway in this segment, although bicycle facilities are not present. Between Morena Boulevard and I-8 EB ramps, Taylor Street is a two-lane Collector, and a two-lane Collector with two-way left-turn lane between I-8 EB ramps and Hotel Circle S. Class II bike lanes



Taylor Street between Pacific Highway and Morena Boulevard

are present on the south side between Morena Boulevard and the I-8 eastbound ramps. There are no sidewalks present east of Morena Boulevard. On-street parking is prohibited.

Hazard Center Drive is classified as a two-lane Collector between Avenida Del Rio and Hazard Center W. Driveway and a four-lane Collector between Hazard Center W. Driveway and Mission Center Road in the *Mission Valley Community Plan*. Currently, Hazard Center Drive is a four-lane roadway west of Mission Center Road. The median varies between a striped median and a raised median, with no posted speed limit, between its western terminus and Frazee Road. East of Frazee Road, Hazard Center Drive is a four-lane roadway with a raised median and no posted speed limit. Sidewalks are present on both sides of the roadway, but no bicycle facilities are provided. Parking is permitted on both sides of the roadway. Hazard Center Drive is currently under construction to be extended as a two-lane roadway from Hazard Center West Driveway to Avenida Del Rio.



Hazard Center Drive west of Frazee Road



Camino Del Rio North between Camino Del Arroyo and Mission Center Road

Camino Del Rio North is classified as a two-lane Collector between Camino De La Reina and Mission Center Road, a four-lane Major between Mission Center Road and the I-8 WB ramps, a three-lane Collector between I-8 WB ramps to Camino Del Este and a four-lane Collector between Camino Del Este and Qualcomm Way in the *Mission Valley Community Plan*. Currently, Camino Del Rio North is an east-west two-lane roadway between Camino De La Reina and Mission Center Road with intermittent two-way left-turn lane and raised median, a four-lane divided roadway between Mission Center Road and the I-8 WB ramps, a three-lane divided roadway between the I-8 WB ramps and Camino Del Este and a four-lane divided roadway between Camino Del Este and Qualcomm Way. The posted speed limit on Camino Del Rio North is 35 mph. Bike lanes are not provided. Curbside parking is permitted.

Camino Del Rio South is classified as a two-lane Collector from is western terminus to Mission City Parkway in the current *Mission Valley Community Plan*. Currently, Camino Del Rio South is built as a 2-lane roadway. Camino Del Rio South has a center left-turn lane for approximately 1,200' west of Mission Center Road to its terminus. Camino Del Rio South has a posted speed limit of 25 mph west of Mission Center Road and 35 mph between Mission Center Road and Mission City Parkway. On-street parking is allowed along the south side of the roadway between Mission Center Road and Texas Street. Sidewalks are present along the south side of the entire roadway, and are present on both sides of the roadway between the western terminus of Camino Del Rio South and Mission Center Road. Bicycle facilities are not provided, except between Mission Center Road and Texas Street, where Class II bike lanes are present.



Camino Del Rio South west of Mission Center Road



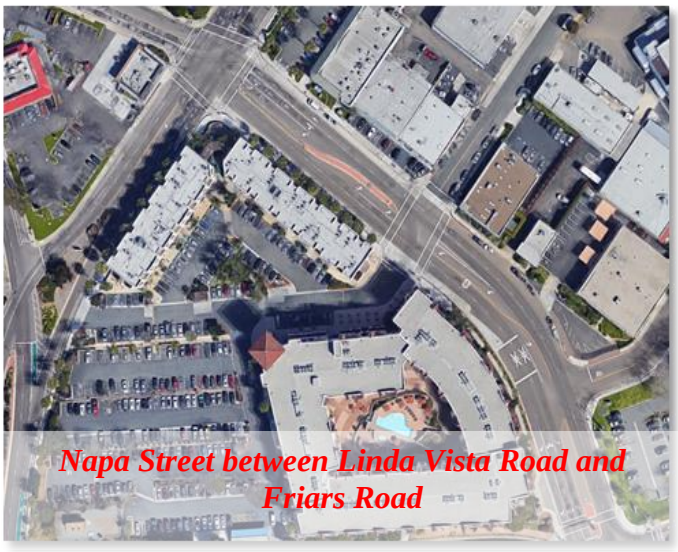
Morena Boulevard north of Napa Street

Morena Boulevard is classified in the Adopted (1998) *Linda Vista Community Plan Circulation Element* as a Four-Lane Major roadway from its overpass with Friars Road to its split with West Morena Boulevard. From West Morena Boulevard to Tecolote Road, it is classified as a Three-Lane Collector. North of Knoxville Street within the Community of Linda Vista, it is classified as a Two-Lane Collector. South of Friars Road to the I-8 EB ramps, Morena Boulevard is classified as a four-lane Major, and a three-lane major south of the I-8 EB ramps in the *Old Town San Diego Community Plan (2018).*

A Morena Boulevard Station Area Planning Study (MBAP) was approved by City Council in August 2019. The MBAP proposes land use and mobility changes adjacent to the Mid-Coast trolley stations at Tecolote Road and Clairemont Drive within the Clairemont Mesa and Linda Vista community planning areas. The MBAP proposes roadway improvements and street vacations to relieve congestion in the area while addressing several existing multi-modal challenges.

It is currently built as a four-lane divided roadway with a raised median from the Friars Road underpass to its split with West Morena Boulevard. Morena Boulevard, south of Tecolote Road to its split with West Morena Boulevard is built as a 2-Lane Collector with a central two-way-left-turn lane. South of Friars Road to the I-8 EB ramps, Morena Boulevard currently built as a four-lane divided roadway, and a three-lane divided roadway south of the I-8 EB ramps. Sidewalks are provided and Class II bike lanes exist. Parking is prohibited from the Friars Road underpass to the split at West Morena Boulevard. North of West Morena Boulevard, parking is allowed on both sides of the roadway. The posted speed limit is 35 mph. This portion of Morena Boulevard is generally surrounded by commercial, light industrial and residential land uses.

Napa Street is classified in the Adopted (1998) *Linda Vista Community Plan Circulation Element* as a Four-Lane Major roadway. Napa Street connects Friars Road and Morena Boulevard and is currently a four-lane roadway with a striped and raised median from Friars Road to Linda Vista Road and a four-lane undivided roadway from Linda Vista Road to Morena Boulevard. No bike lanes are provided. Sidewalks exist on both sides of the roadway and curbside parking is permitted intermittently. The posted speed limit is 25 mph. This portion of Napa Street generally fronts commercial and multi-family residential land uses

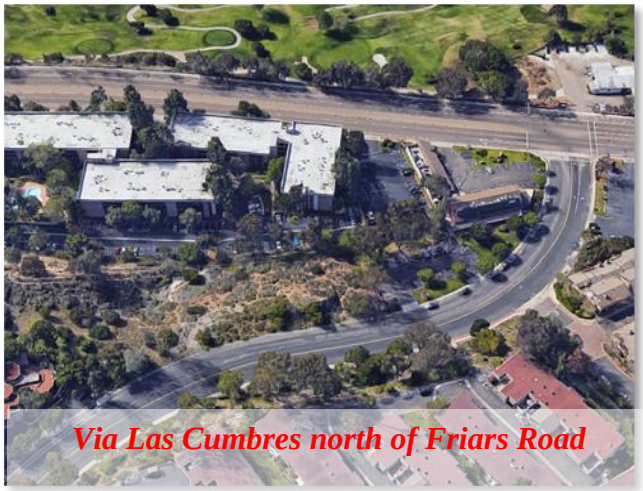


Napa Street between Linda Vista Road and Friars Road

Colusa Street is classified as a Two-Lane Collector between Friars Road and Linda Vista Road in the Adopted (1998) *Linda Vista Community Plan*. It is currently built as a two-lane roadway between Friars Road and Linda Vista Road. Curbside parking is permitted along both curbs. The land uses fronting this street are generally multi-family residential. The posted speed limit is 25 mph. Sidewalks are provided on both sides of Colusa Street. Bike lanes are not provided.



Colusa Street between Lauretta Street and Riley Street



Via Las Cumbres north of Friars Road

Via Las Cumbres is classified in the Adopted (1998) *Linda Vista Community Plan Circulation Element* as a Three-Lane Collector from Friars Road to Linda Vista Road and as a Two-Lane Collector north of Linda Vista Road. From Friars Road to Linda Vista Road, it is currently built as a three-lane undivided roadway with two lanes of travel in the northbound direction and one lane traveling southbound. A sidewalk is provided on the west side and intermittently on the east side of the roadway from Friars Road to Linda Vista Road. Curbside parking is provided intermittently, a Class II buffered bike lane is provided on the east side of the roadway from Friars Road continuing to Linda Vista Road. Sharrows are provided on the west side of the roadway from Friars Road to Camino Costanero that transitions to a Class II buffered bike lane from Camino Costanero to Linda Vista Road. North of Linda Vista Road, sharrows are provided on the east side of the roadway and a Class II bike lane is provided on the west side of the roadway. The posted speed limit is 35 mph. Via Las Cumbres is generally surrounded by educational institutions and multi-family residential land uses.

Fashion Valley Road forms the western boundary of the Town and Country and Fashion Valley Mall sites and the eastern boundary of the Riverwalk project site. Fashion Valley Road is classified as a four-lane Major Arterial in the current *Mission Valley Community Plan*. Currently, Fashion Valley Road is a four-lane undivided roadway (Collector) between Friars Road and Hotel Circle North. Fashion Valley Road is under City of San Diego jurisdiction throughout the study area. While this roadway lacks a continuous center left-turn lane or median, left-turn pockets are provided at intersections and one mid-block location at the unsignalized intersection serving the Fashion Valley Mall. The posted speed limit is 35 mph. Curbside parking is not permitted. No bike lanes are provided, but bus stops are provided.



Fashion Valley Road between Friars Road and Riverwalk Drive

Sidewalks are provided throughout the east side and intermittently on the west side.

Avenida Del Rio is classified as a four-lane Collector in the current *Mission Valley Community Plan*. Currently, Avenida Del Rio is constructed as a four-lane undivided roadway (Collector) between Riverwalk Drive and Camino De La Reina. Avenida Del Rio is under City of San Diego jurisdiction and provides access to the Fashion Valley Mall Transit Center. There is no posted speed limit. Curbside parking is not permitted. Bike lanes and bus stops are not provided. A sidewalk is provided on the west side only.



Avenida Del Rio between Riverwalk Drive and Camino De La Reina



Mission Center Road north of Friars Road

Mission Center Road is classified as a four-lane Major Street between Friars Road and Mission Center Court, a five-lane Major Street between Mission Center Court and Camino Del Rio North, and a four-lane Major Street from Camino Del Rio North and I-8 EB ramps in the current *Mission Valley Community Plan*. Currently, Mission Center Road is a five-lane roadway north of Friars Road. Mission Center Road becomes a four-lane roadway between Friars Road EB ramps and Mission Center Court, and expands to five lanes between Mission Center Court and Camino Del Rio North. The posted speed limit is 40 mph from Camino Del Rio N to 600' north of Sevan Court. Curbside parking is not permitted. Sidewalks are provided on both sides of the roadway.

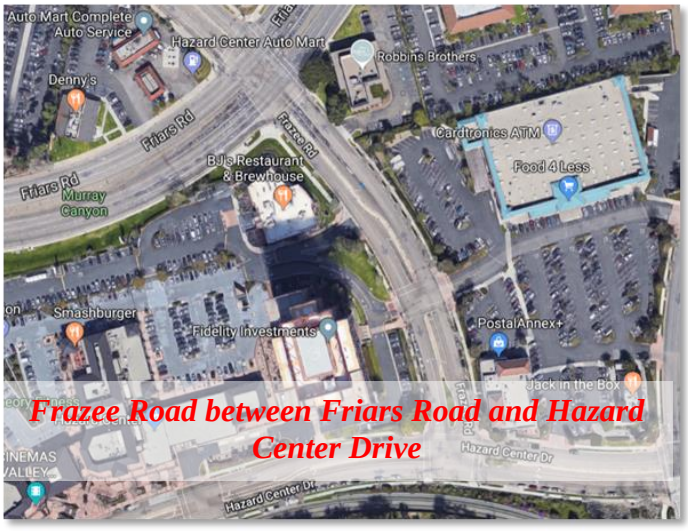
Qualcomm Way is classified as a five-lane Major Street between Friars Road and Rio San Diego Drive, a six-lane Major Street between Rio San Diego Drive and Camino Del Rio North, a five-lane Major Street between Camino Del Rio North and I-8 WB ramps, a six-lane Major Street between I-8 WB ramps and I-8 EB ramps, and a four-lane Major Street between I-8 EB ramps and Camino Del Rio South in the *Mission Valley Community Plan*. Currently, Qualcomm Way is a north-south six-lane

undivided roadway. Qualcomm Way includes a raised median north of the trolley overcrossing while a painted median is provided between the trolley overcrossing and Camino Del Rio North, a five-lane undivided roadway between Camino Del Rio North and I-8 WB ramps, a six-lane undivided roadway between I-8 WB ramps and I-8 EB ramps and a four-lane divided roadway between I-8 EB ramps and Camino Del Rio South. Qualcomm Way includes a grade separated interchange at Friars Road. The posted speed limit is 40 mph. Class II bicycle lanes are provided on Qualcomm Way.



Qualcomm Way north of Camino De La Reina

Frazee Road is classified as a four-lane Major Arterial in the *Mission Valley Community Plan*. Currently, Frazee Road is a north-south four-lane divided roadway. The posted speed limit is 35 mph. Curbside parking is not permitted. No bike lanes are provided, but bus stops are provided. Sidewalks are provided on both sides of the roadway.



Frazee Road between Friars Road and Hazard Center Drive

5.3 Existing Traffic Volumes

This section presents a summary of the existing traffic volumes obtained for the various facilities in the project area.

5.3.1 *Intersections and Street Segments*

Existing intersection and street segment traffic volumes were obtained from multiple sources. Traffic counts for all roadways in the Mission Valley Community were obtained from the published Existing Conditions Report (ECR) – Mobility Element for the Mission Valley Community Plan Update (MVCPU) (dated June 2017). The intersection and street segments in the ECR were counted in September 2015. ***Appendix C*** contains the ECR existing traffic volume count sheets.

For intersections and street segment that are located outside of the Mission Valley community, weekday traffic counts (intersection and street segments) were conducted in September 2017. *Appendix C* contains the count sheets from the Riverwalk Existing Counts.

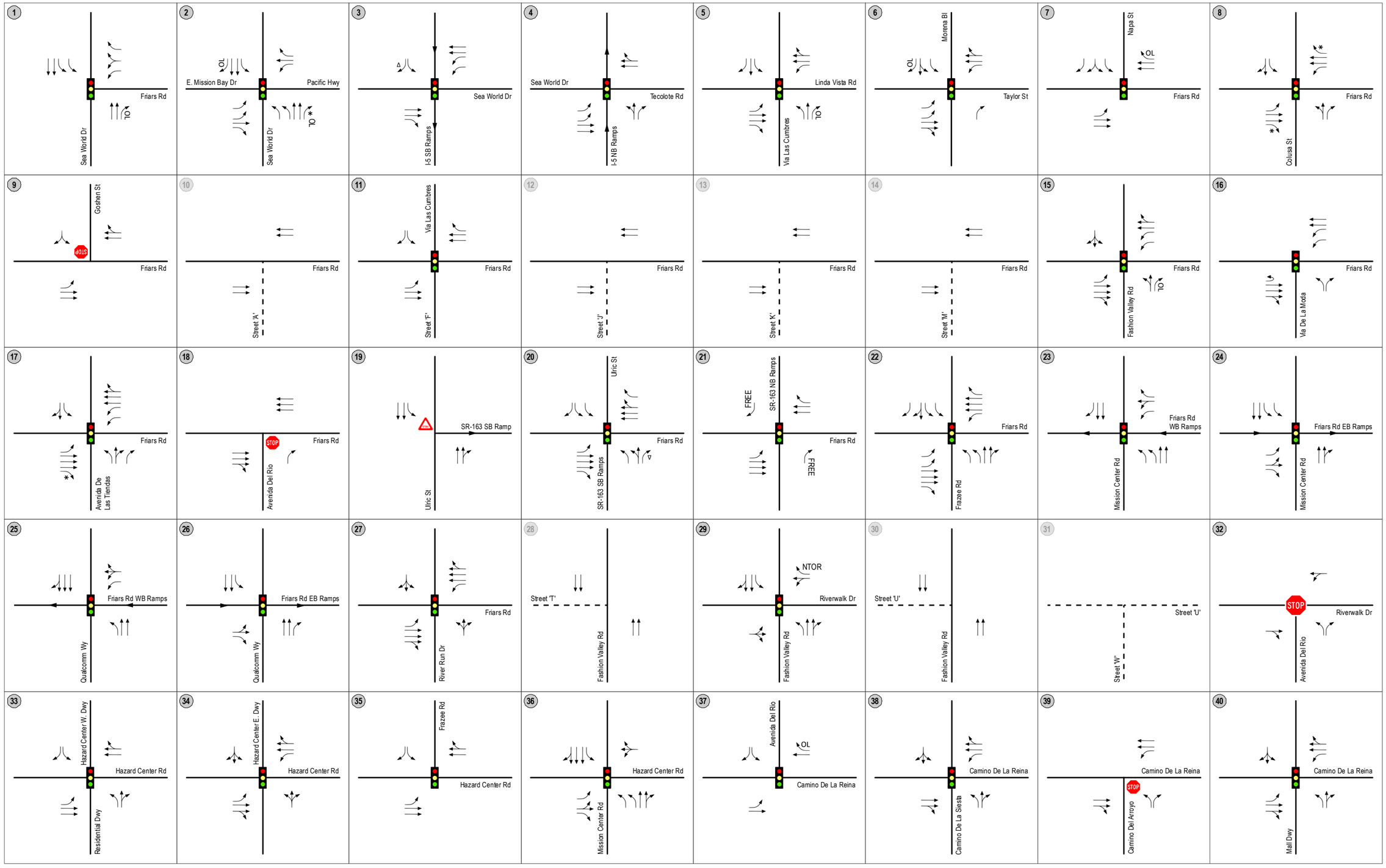
A traffic count validation was conducted to determine if the September 2015 traffic counts still reflect existing traffic counts today. Year 2017 traffic counts were conducted at several spot locations at intersections and segments and compared to the 2015 counts. As shown in *Appendix C*, the 2017 average peak hour traffic counts were counted to be lower (approximately 1%) as compared to the 2015 ECR counts. On street segments, the 2017 counts, on an average were calculated to be approximately 5% higher than 2015 count, which is within the tolerance level of daily fluctuations (typically 10%). Based on the above, it was determined that the 2015 counts are valid and acceptable to use.

5.3.2 *Existing Freeway Volumes*

Existing Freeway traffic volumes were obtained from *Caltrans 2016 Volumes on California State Highways*, which is the publication consistent with the existing baseline counts used in the Mission MVCPU ECR.

In addition to obtaining traffic volumes, "K" and "D" factors were obtained from *Caltrans 2016 Peak Hour Volume Data*. K factor is the percentage of ADT during the peak hour for both directions of travel. D factor is the percentage of the peak hour travel in the peak direction. The truck factor is the percentage of average daily truck traffic, which was obtained from *Caltrans 2016 Annual Average Daily Truck Traffic on the California State Highway System*.

Figure 5–3 shows the existing AM and PM peak hour turning movement counts and ***Figure 5–4*** shows the existing daily traffic volumes.

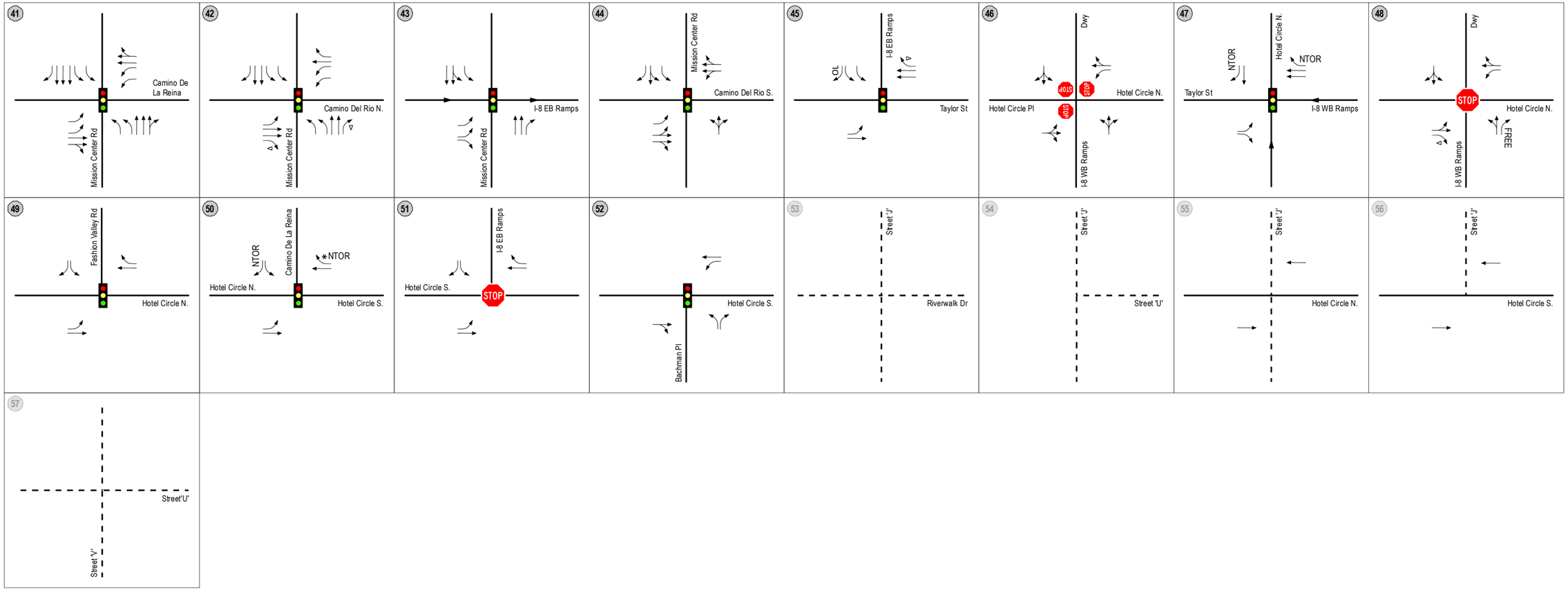


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Date: 4/1/2020
Time: 4:44 PM

	Traffic Signal	NTOR	No Turn On Red	FREE	Free Movement
STOP	Stop Sign	*	Sneaker Lane	#	Study Intersection
	Turning Movements		Right-Turn Overlap	#	Intersection does not exist

Figure 5-1
Existing Conditions Diagram
(Page 1 of 2)
Riverwalk

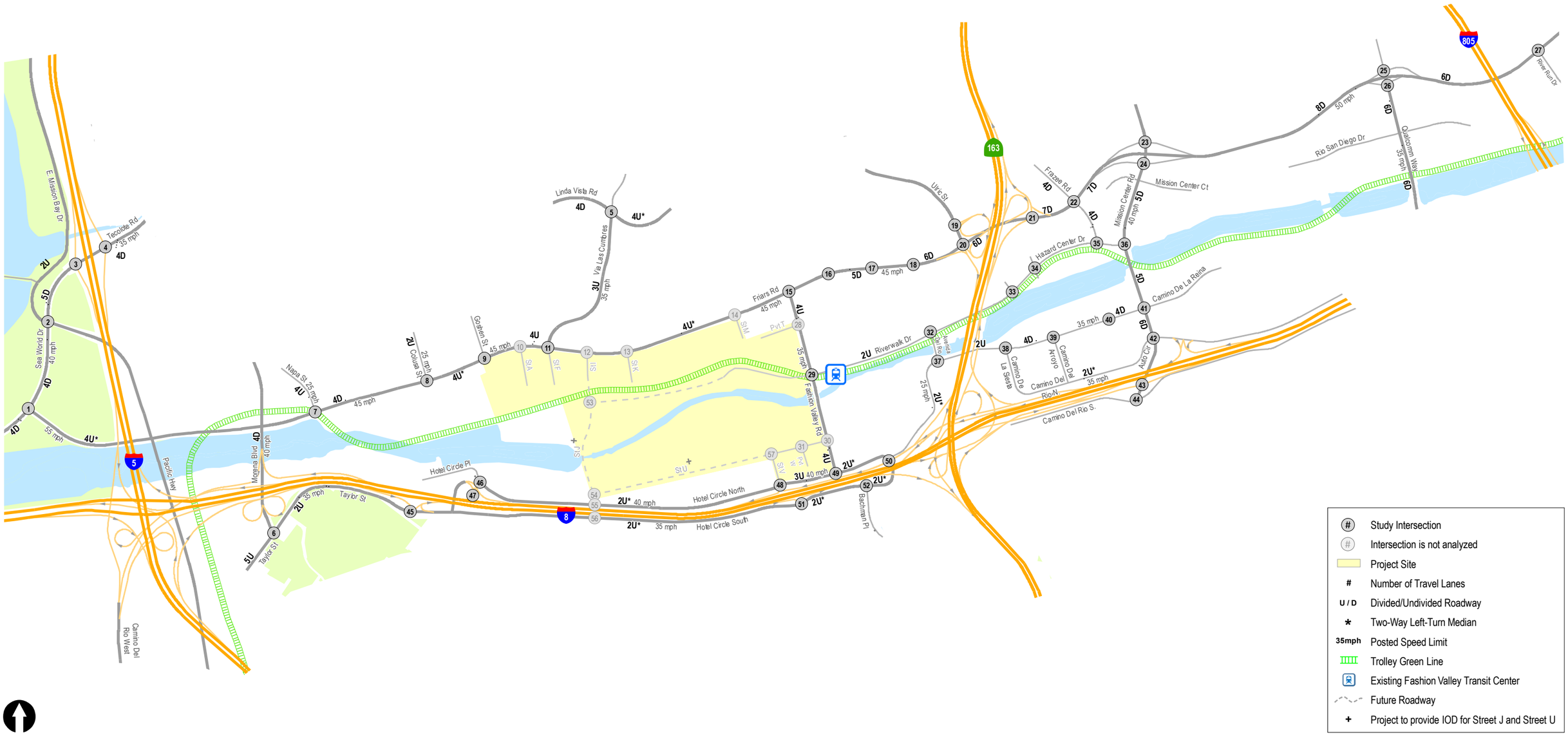


LINSCOTT LAW & GREENSPAN engineers

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Date: 4/1/2020
Time: 4:44 PM

	Traffic Signal	NTOR	No Turn On Red	FREE	Free Movement
STOP	Stop Sign	*	Sneaker Lane	#	Study Intersection
	Turning Movements		Right-Turn Overlap	#	Intersection does not exist

Figure 5-1
Existing Conditions Diagram
(Page 2 of 2)
Riverwalk



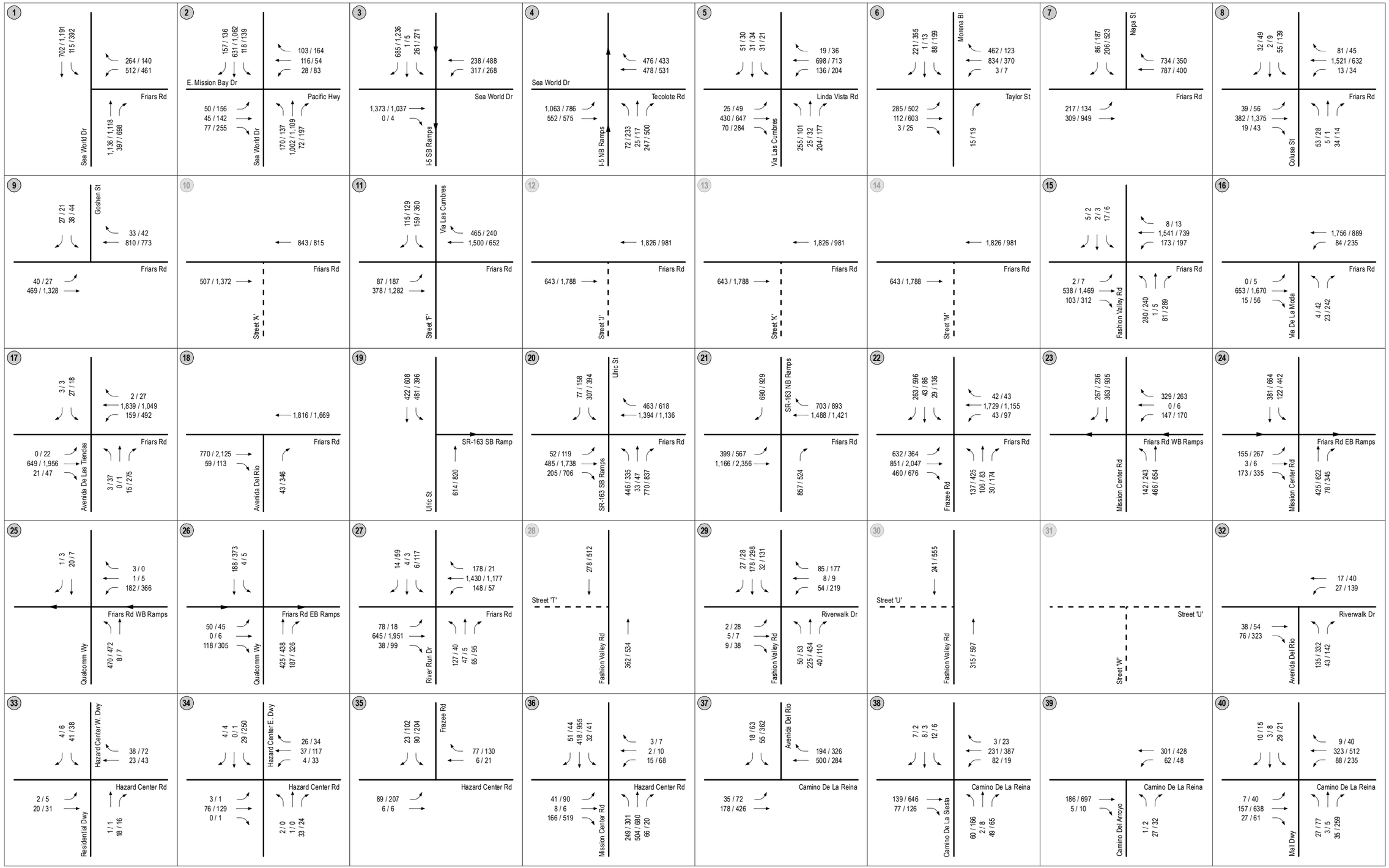
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Time: 10:09 AM

Figure 5-2

Existing Conditions Diagram

Riverwalk

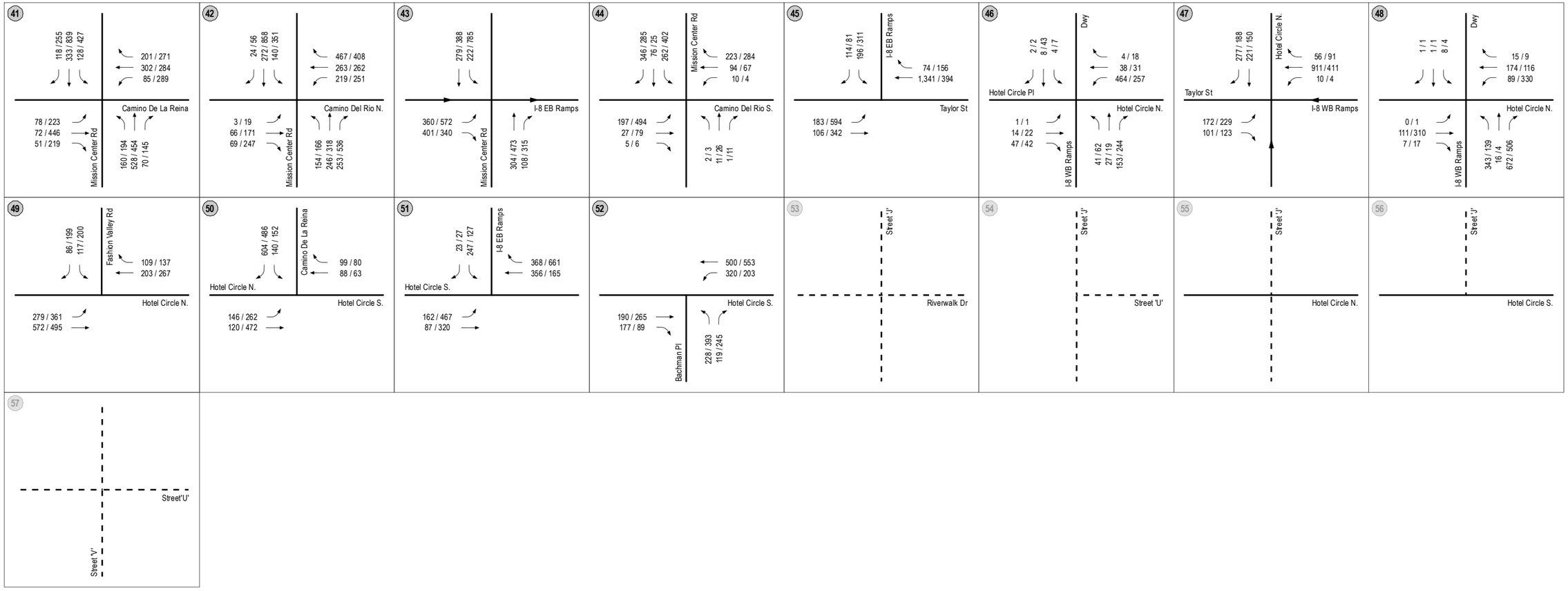


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Date: 3/17/2020
Time: 10:23 AM

(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 5-3
Existing Traffic Volumes
(Page 1 of 2)
Riverwalk

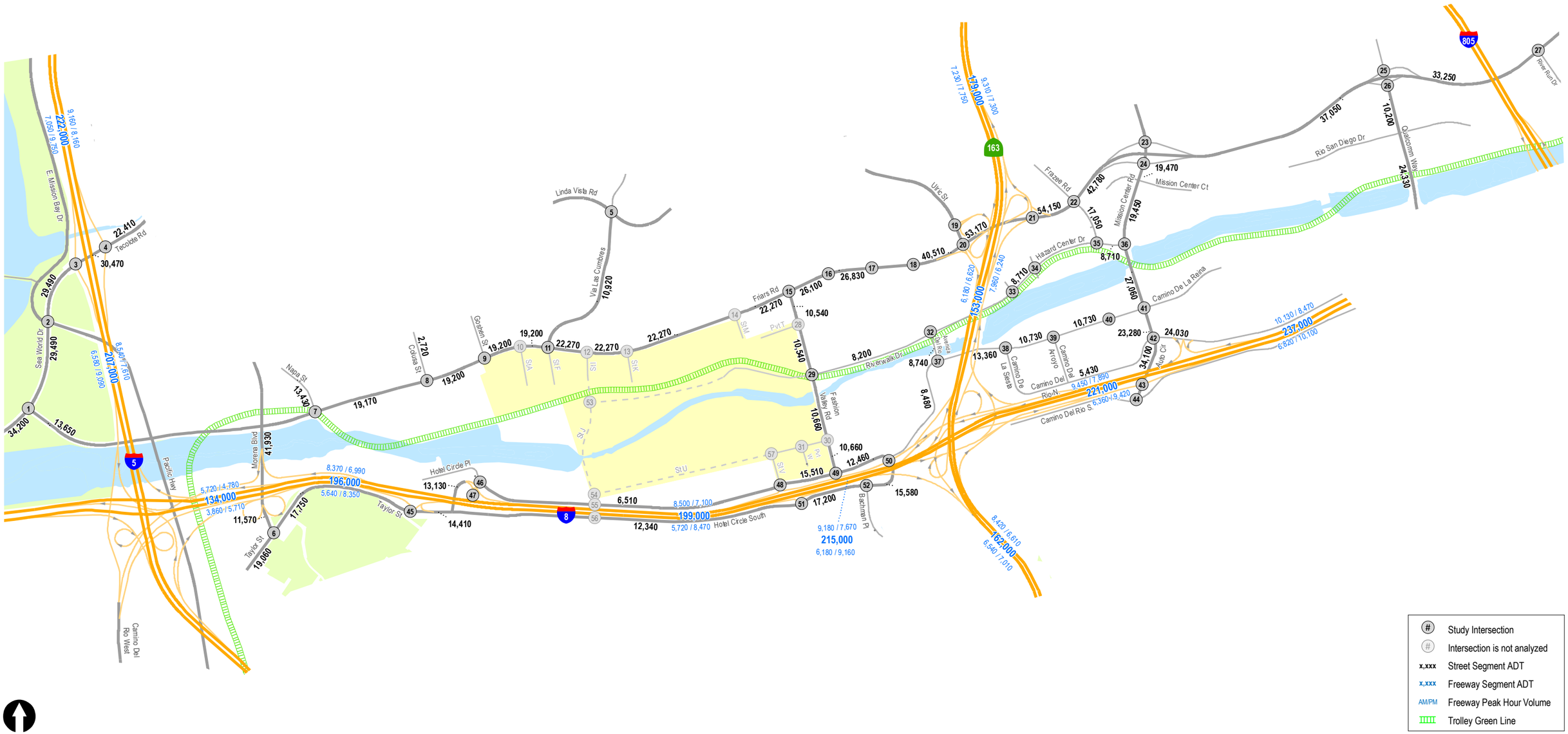


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Date: 3/17/2020
Time: 10:23 AM

(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 5-3
Existing Traffic Volumes
(Page 2 of 2)
Riverwalk



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Date: 3/17/2020
Time: 10:34 AM

Figure 5-4

Existing Traffic Volumes

Riverwalk

6.0 EXISTING ANALYSIS

The analysis of existing conditions includes the assessment of the study area intersections, street segments, metered freeway on-ramps and freeway mainline segments using the methodologies described in Section 4.0.

6.1 Peak Hour Intersection Operations

Intersection capacity analyses were conducted for the study intersections under Existing conditions. ***Table 6–1*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to currently operate at LOS E or F:

- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS E during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix D contains the intersection analysis worksheets for the Existing scenario.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Sea World Dr. / Friars Rd.	Signal	AM PM	15.1 13.8	B B
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM PM	29.0 36.5	C D
3. Sea World Dr. / I-5 SB Ramps	Signal	AM PM	26.8 29.5	C C
4. Sea World Dr. / I-5 NB Ramps	Signal	AM PM	42.9 35.1	D D
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM PM	34.8 26.3	C C
6. Morena Blvd. / Taylor St.	Signal	AM PM	37.7 27.4	D C
7. Friars Rd. / Napa St.	Signal	AM PM	22.6 23.9	C C
8. Friars Rd. / Colusa St.	Signal	AM PM	14.9 14.8	B B
9. Friars Rd. / Goshen St.	OWSC[c]	AM PM	20.0 25.5	C D
10. Friars Rd. / Street 'A'	*DNE*	AM PM	– –	– –
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM PM	14.5 18.3	B B
12. Friars Rd. / Street I	*DNE*	AM PM	– –	– –
13. Friars Rd. / Street 'K'	*DNE*	AM PM	– –	– –
14. Friars Rd. / Street 'M'	*DNE*	AM PM	– –	– –
15. Friars Rd. / Fashion Valley Rd.	Signal	AM PM	23.1 51.1	C D
16. Friars Rd. / Via de la Moda	Signal	AM PM	3.3 16.0	A B

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
17. Friars Rd. / Avenida de las Tiendas	Signal	AM PM	6.7 21.7	A C
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM PM	13.8 >100	B F
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM PM	4.4 3.4	A A
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM PM	34.8 30.6	C C
21. Friars Rd. / SR-163 NB Ramps	Signal	AM PM	15.0 16.1	B B
22. Friars Rd. / Frazee Rd.	Signal	AM PM	48.6 59.4	D E
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM PM	18.2 19.7	B B
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM PM	12.3 20.8	B C
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM PM	45.0 42.6	D D
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM PM	9.4 17.7	A B
27. Friars Rd / River Run Dr.	Signal	AM PM	26.9 21.7	C C
28. Fashion Valley Rd. / Private Drive 'T'	*DNE*	AM PM	– –	– –
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM PM	17.6 31.2	B C
30. Fashion Valley Rd. / Street 'U'	*DNE*	AM PM	– –	– –
31. Street 'U' / Private Drive 'W'	*DNE*	AM PM	– –	– –
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM PM	8.5 14.7	A B
33. Hazard Center West Drwy. / Hazard Center Dr.	Signal	AM PM	5.1 4.5	A A

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
34. Hazard Center East Drwy. / Hazard Center Dr.	Signal	AM PM	11.5 13.3	B B
35. Hazard Center Dr. / Frazee Rd.	Signal	AM PM	23.1 27.7	C C
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM PM	25.6 33.1	C C
37. Camino de la Reina / Avenida Del Rio	Signal	AM PM	13.7 24.9	B C
38. Camino de la Reina / Camino de la Siesta	Signal	AM PM	16.7 18.1	B B
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM PM	9.1 12.0	A B
40. Camino de la Reina / Mall Drwy.	Signal	AM PM	29.0 43.2	C D
41. Camino de la Reina / Mission Center Rd.	Signal	AM PM	32.8 50.1	C D
42. Mission Center Rd. / Camino del Rio N.	Signal	AM PM	42.1 43.6	D D
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM PM	36.3 41.0	D D
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM PM	29.0 32.4	C C
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM PM	17.8 34.0	B C
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM PM	20.7 11.7	C B
47. Hotel Circle Place / I-8 WB Ramp	Signal	AM PM	6.7 4.6	A A
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM PM	47.1 39.3	E E
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM PM	9.8 12.7	A B
50. Hotel Circle N. / Camino de la Reina	Signal	AM PM	30.5 24.0	C C

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	16.6	C
		PM	67.9	F
52. Hotel Circle S. / Bachman Place	Signal	AM	23.6	C
		PM	22.5	C
53. Street J / Riverwalk Drive	*DNE*	AM	–	–
		PM	–	–
54. Street J / Street U	*DNE*	AM	–	–
		PM	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–
		PM	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–
		PM	–	–
57. Street V / Street U	*DNE*	AM	–	–
		PM	–	–

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control

General Notes:
1. *DNE* – Does not exist.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOL	
Delay	LOS	Delay	LO
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

6.2 Daily Street Segment Operations

Existing street segment analyses were conducted for roadways in the study area. ***Table 6–2*** reports the existing street segment operations on a daily basis. The following segments are calculated to currently operate at LOS E or F:

- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS E)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
Sea World Drive					
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	34,200	D	0.855
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	29,490	C	0.737
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	29,490	C	0.666
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	30,470	D	0.762
Tecolote Road					
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	22,410	C	0.560
Friars Road					
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	13,650	A	0.341
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	19,170	B	0.479
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	19,200	B	0.480
Goshen Street to Street A	4-Lane Major Arterial	40,000	19,200	B	0.480
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	19,200	B	0.480
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	22,270	C	0.557
Street I to Street K	4-Lane Major Arterial	40,000	22,270	C	0.557
Street K to Street M	4-Lane Major Arterial	40,000	22,270	C	0.557
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	22,270	C	0.557
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	26,100	C	0.580
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	26,830	C	0.596
Avenida De La Tiendas to Ulric Street	6-Lane Major Arterial	50,000	40,510	D	0.810
Ulric Street to SR163 NB Ramps	6-Lane Prime Arterial	60,000	53,170	D	0.886
SR163 NB Ramps to Frazee Road	7-Lane Prime Arterial	65,000	54,150	D	0.833
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	42,780	B	0.458
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	37,050	B	0.463
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	33,250	B	0.416
Hotel Circle North					
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	6,510	B	0.434
I-8 WB Hook Ramps to Fashion Valley Road	3-Lane Collector	11,000	15,510	F	1.410
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	12,460	D	0.831
Camino Del Rio North					
Camino de la Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	5,430	B	0.362
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	24,030	C	0.601
Camino De La Reina					
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	8,480	C	0.565
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	13,360	F	1.336
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	10,730	A	0.268
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	10,730	A	0.268

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
Taylor Street					
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	19,060	B	0.424
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	17,750	F	1.775
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	14,410	F	1.310
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	13,130	F	1.313
Hotel Circle South					
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	12,340	D	0.823
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	17,200	F	1.147
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	15,580	F	1.039
Morena Boulevard					
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	41,930	F	1.048
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	11,570	C	0.514
Napa Street					
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	13,430	A	0.336
Colusa Street					
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,720	B	0.340
Via las Cumbres					
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,920	E	0.993
Fashion Valley Road					
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468
Riverwalk Drive to Street U	4-Lane Collector	15,000	10,660	D	0.711
Street U to Hotel Circle North	4-Lane Collector	15,000	10,660	D	0.711
Frazee Road					
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	17,050	B	0.426
Mission Center Road					
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	19,470	B	0.487
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	19,450	B	0.432
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	27,060	C	0.601
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	23,280	B	0.466
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	34,100	D	0.853

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
Qualcomm Way					
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	10,200	A	0.204
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	24,330	B	0.487
Riverwalk Drive					
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	8,200	F	1.025
Avenida Del Rio					
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	8,740	C	0.583
Hazard Center Drive					
Avenida Del Rio to Hazard Center West Driveway[f]	*DNE*	–	–	–	–
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	8,710	A	0.218
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	8,710	A	0.218
Street U					
Street J to Street V	*DNE*	–	–	–	–
Street V to Fashion Valley Road	*DNE*	–	–	–	–
Street V					
Street U to Hotel Circle North	*DNE*	–	–	–	–
Street I/Street J					
Friars Road to Riverwalk Drive	*DNE*	–	–	–	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–

Footnotes:

a. Roadway Capacity at LOS E based on City of San Diego's Roadway Classification Table (See Table 4-2 and *Appendix B*).

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity.

e. A capacity reduction was assumed to account for the EB auxiliary lane

f. Currently under construction

General Notes:

1. *DNE* – Does not exist.

6.3 Freeway Segment Operations

Existing freeway segment analyses were conducted in the study area. ***Appendix E*** contains the detailed calculations sheets. ***Table 6–3*** reports the existing peak hour freeway segment operations. The following segments are calculated to currently operate at LOS E or F:

- I-8: I-5 to Morena Boulevard, WB (LOS E – AM peak) and EB (LOS F – PM peak)
- I-8: Morena Boulevard to Taylor Street, EB (LOS F – PM peak)
- I-8: Taylor Street to Hotel Circle, EB (LOS E – PM peak)
- I-8: Hotel Circle to SR163, EB (LOS E – PM peak)
- I-8: SR163 to Mission Center Road, WB (LOS E – AM peak)
- I-8: East of Mission Center Road, WB (LOS F – AM peak) and EB (LOS E – PM peak)
- I-5: North of Sea World Drive, NB (LOS E – AM peak) and SB (LOS E – PM peak)
- SR 163: North of Friars Road, NB (LOS E – AM peak) and SB (LOS F – PM peak)
- SR 163: Friars Road to I-8, NB (LOS F/E – AM/PM peak) and SB (LOS E – PM peak)
- SR 163: South of I-8, NB (LOS F – AM peak) and SB (LOS E/F – AM/PM peak)

TABLE 6–3
EXISTING FREEWAY SEGMENT OPERATIONS

Freeway and Segment	ADT[a]	Direction & Number of Lanes		AM Peak Hour			PM Peak Hour		
				V/C[b]	Density	LOS[c]	V/C[b]	Density	LOS[c]
I-8									
I-5 to Morena Boulevard	134,000	EB	4M	0.446	14.50	B	0.690	>45.00	F
		WB	3M	0.896	36.80	E	0.741	28.80	D
Morena Boulevard to Taylor Street	196,000	EB	4M+1A	0.567	20.60	C	0.860	>45.00	F
		WB	5M	0.780	30.70	D	0.637	24.90	C
Taylor Street to Hotel Circle	199,000	EB	4M	0.670	26.70	D	0.952	41.00	E
		WB	5M	0.786	31.10	D	0.650	25.60	C
Hotel Circle to SR 163	215,000	EB	4M+1A	0.630	23.10	C	0.905	36.30	E
		WB	5M+1A	0.753	28.10	D	0.629	23.40	C
SR163 to Mission Center Road	221,000	EB	5M	0.611	24.50	C	0.857	34.90	D
		WB	4M+1A	0.945	39.50	E	0.789	29.50	D
East of Mission Center Road	237,000	EB	5M	0.641	25.70	C	0.919	38.60	E
		WB	4M+1A	1.002	>45.00	F	0.847	32.60	D
I-5									
North of Sea World Drive	222,000	NB	5M	0.880	35.80	E	0.784	30.70	D
		SB	5M	0.649	25.20	C	0.878	35.70	E
Sea World Drive to I-8	207,000	NB	5M+1A	0.752	27.80	D	0.641	23.50	C
		SB	5M+1A	0.543	19.90	C	0.734	27.00	D
SR-163									
North of Friars Road	179,000	NB	5M	0.870	35.40	E	0.668	26.40	D
		SB	4M	0.830	33.40	D	0.908	>45.00	F
Friars Road to I-8	153,000	NB	3M	1.255	>45.00	F	0.934	39.50	E
		SB	4M + 2A	0.549	18.80	C	0.629	36.80	E
South of I-8	162,000	NB	3M+1A	1.082	>45.00	F	0.832	31.10	D
		SB	3M	0.987	>45.00	F	1.058	>45.00	F

Footnotes:

a. Existing Average Daily Trip Volume from Caltrans "2016 Traffic Volumes."
b. Volume to Capacity.
c. Level of Service.

General Notes:

1. See *Appendix E* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

6.4 Ramp Meter Operations

Existing ramp meter analyses were conducted in the study area. ***Table 6–4*** reports both the existing ramp meter operations and the ramp meter operations based on the most restrictive meter rates provided by Caltrans. *Appendix E* contains a summary of the observed ramp meter operations and Caltrans ramp meter rates.

TABLE 6–4
EXISTING RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/ln)	Ramp Meter Rate (Flow)[a] (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5 / Sea World Drive (2 SOV)							
Existing	AM	1,564	782	*Restrictive:* 965	0	0	0
				Observed: 774	8	1	200
	PM	1,236	618	*Restrictive:* 972	0	0	0
				Observed: 612	6	1	150

Footnotes:

a. While meter rates were obtained from Caltrans, the rates were reduced to reflect existing ramp meter observations (see *Appendix E* for both the Caltrans rates and the existing ramp meter observations).
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The Riverwalk project proposes to redevelop the existing golf course as a walkable, transit-centric, and modern live-work-play mixed-use neighborhood with a local and natural focus that showcases a large river park. The primary project objectives are to create a sense of place both within the site boundaries and the surrounding community with emphasis on non-auto mobility focusing on pedestrians, bicycle connectivity and direct access to transit. The mix and quantity of land uses currently proposed as a part of the Riverwalk project would change from what was approved in the Levi-Cushman Specific Plan. The current Riverwalk project includes 4,300 multi-family residential dwelling units; 152,000 square feet of commercial retail space; 1,000,000 square feet of multi-tenant office; and 97 acres of parks and open space, that would serve the project and surrounding community and would implement the San Diego River Park Master Plan; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop/transit center within the development. The section below provides a detailed description of the project's trip generation.

7.1 Trip Generation

The trip generation rates for the Riverwalk project were based on the *City of San Diego Trip Generation Manual, May 2003.* ***Table 7–1*** is a breakdown of the various project uses and densities per phase.

TABLE 7–1
PROJECT PHASING

Phase	Year	Development Activity
I	*2025*	1,910 multi-family dwelling units; 110,300 SF Retail; 65,000 SF multi-tenant office; 1.6-acre Developed Park; 3.11-acre Undeveloped Park.
II	*2030*	2,390 multi-family dwelling units; 13,100 SF Retail; construction of the Riverwalk trolley station; 26.27-acre Developed Park; 53.48-acre Undeveloped Park (including the River Park).
III	*2035*	28,600 SF Retail; 935,000 SF multi-tenant office; 2.2-acre Undeveloped Park.
Project Buildout[a]		▪ 4,300 multi-family dwelling units ▪ 152,000 SF Retail ▪ 1,000,000 SF Office ▪ 27.87-acres Developed Park[b] ▪ 58.79-acres Undeveloped Park[c] ▪ 28-acres Open Space[d]

Footnotes:

a. Park acreage changes are due to changes in the project description and site plan that were made to ensure consistency with the 2019 Mission Valley Community Plan (MVCP) Preferred Roadway Network, including Irrevocable Offer of Dedications (IOD's) for Streets J and U. Additionally, a 50' no-use buffer surrounding the SD River and Multi-Habitat Planning Area (MHPA) has been subtracted from previous Undeveloped Park acreage.

b. The total acreage for Developed Parks used in the trip generation calculations from an earlier project description equals 27.87 Per the current project description, the total Developed Parks acreage is 20 acres (Phase I: 0.9 acres and Phase II: 19.1 acres) including a recreation center identified in the 2019 Mission Valley Community Plan. However, to be conservative, the 27.87 acres was used in the trip generation calculations.

c. The total acreage for Undeveloped Parks used in the trip generation calculations from an earlier project description equals 58.79 acres. Per the current project description, the total Undeveloped Parks acreage is 42.3 acres (Phase I: 2.4 acres and Phase II: 39.9 acres). However, to be conservative, the 58.79 acres was used in the trip generation calculations.

d. The total acreage for Open Space from an earlier project description totals 28 acres. Per the current project description, the total Open Space acreage is 35 acres

7.2 MXD Model Trip Generation

Traditionally, mixed-use and transit credits for smart growth developments in the City of San Diego are determined by applying a vehicle trip reduction of 3-5 percent (on a daily basis) for locations within one-quarter mile of transit and 3-10 percent (on a daily basis) for mixed-use to the trip generation rates outlined in *The City of San Diego Trip Generation Manual*. This traditional methodology currently recommends generic, across-the-board trip reduction percentages of 5% for locations within ¼ mile of transit, and 10% for mixed use.

SANDAG developed a Mixed-Use Development (MXD) methodology in June 2010 to improve vehicle trip generation forecasts for mixed-use and smart growth developments such as the Riverwalk project. This MXD methodology accounts for site-specific characteristics such as the development density, walking and transit options, the mix of land uses on the site (commercial, office and residential), site context and regional accessibility. Therefore, the trip generation credits for the Riverwalk project were calculated using the MXD model.

7.2.1 *Background of Mixed-Use Development (MXD) Model*

The Riverwalk project includes land uses (such as retail, residential and office) that promote interaction and synergy between the on-site land uses. In addition, the project is located in a Year 2035 Transit Priority Area with two trolley stations in close walking distance (5 to 10-minute walk): an on-site Riverwalk trolley station which will be located in the Mixed-Use Core area and the adjacent Fashion Valley Transit Center. Mixed-use developments near high-quality transit such as the proposed project generally generate fewer vehicle trips and less demand for parking as compared to conventional suburban developments due to the synergy of land uses and increased activity of transit, pedestrian and bicycle trips, which led to the development of the MXD model.

7.2.2 *Development of MXD*

In order to provide a straightforward and empirically validated method for estimating vehicle trip generation at mixed-use developments, United States Environmental Protection Agency (EPA) sponsored a national study. Travel survey data was gathered from 239 mixed-use developments (MXDs) in six major metropolitan regions, correlated with the characteristics of the sites and their surroundings, and validated through cordon traffic counts at 16 additional sites (six sites in San Diego). It was determined that the amount of external traffic generated by mixed-use and smart growth developments is affected by many factors, each pertaining to one or more of the following "D" characteristics:

- Density and Development Scale
- Diversity of Uses
- Design
- Destination Accessibility and Distance to transit

These characteristics were shown to be statistically related to the vehicle trip reductions observed at the subject mixed-used developments.

In the EPA study, vehicle trip reduction is defined as a **percentage reduction** that can be applied to trip generation estimates for individual land uses to account for **trips internal to the site and trips taken to nearby sites by walking, bicycling or transit**. The statistical relationships between the "D" characteristics and the trip reductions observed in the surveys produced equations, collectively known as the Mixed-Use Method (MXD), which allow the user to predict the vehicle trip reduction as a function of the D characteristics.

7.2.3 *MXD Method Validation*

To validate the MXD method for use in the San Diego region, a series of tests were performed by SANDAG comparing the method's estimations with actual traffic count data from a number of sites within the region. Four mixed-use / transit-oriented development (TOD) sites, which are very similar to the Riverwalk project in terms of land use mix, location, transit proximity, that are located within the City of San Diego were identified for comparing the MXD method estimates to actual vehicle counts for the purpose of testing the MXD method. ***Table 7–2*** summarizes these four sites. Additional sites outside the City of San Diego were also used in the original SANDAG validation study, but not considered in this report, since they are located outside the City of San Diego.

TABLE 7–2
MXD MODEL STUDY SITES

Site Name	Location	Land Uses	Transit Opportunities
1. Station Village at Rio Vista Trolley Station	Mission Valley - bound by Camino Del Este, Rio San Diego Drive. Qualcomm Way, and the trolley tracks	Residential and Retail	Trolley Station and local bus
2. The Uptown Center	Hillcrest - bound by University Avenue, Cleveland Avenue, Richmond Street, Washington Street and SR-163	Residential and Retail	High frequency local bus
3. The Village at Morena Linda Vista Trolley Station	Linda Vista - bound by Morena Boulevard, Linda Vista Road, Napa Street and the train tracks	Residential and Retail	Trolley Station and local bus
4. Hazard Center	Mission Valley - bound by SR-163, Friars Road, Frazee Road, and Hazard Center Drive	Retail and Office	Trolley Station and local bus

Continuous 24-hour traffic counts were conducted at the four sites listed above on typical weekdays. In addition, the MXD trip generation estimates were calculated for each of the above sites. The effectiveness of the MXD method was tested by comparing the observed counts to the method's predictions.

Table 7–3 shows the results of LLG's review, including using the City's standard trip generation rates at reductions, the MXD method's count predictions and the actual external vehicle trip counts. As shown, the MXD method was shown to predict external vehicle trips generated by mixed-use and smart growth developments with ***greater accuracy*** than the conventional trip generation method, ***while still remaining somewhat conservative***. In all cases listed in *Table 7–3*, the MXD method

results in an estimation of external vehicle trips that is below the levels of estimated trip generation using standard trip generation rates and reductions alone and above the level of trips that were determined through actual counts.

TABLE 7–3
CITY TRIP GENERATION RATES VS. MXD MODEL COMPARISON – DAILY VOLUMES

Site Name (Mixed-Use / TOD)	Location	City Trips (with reductions)[a]	Ground Counts	MXD Model Net Trips	% Deviation (City↔ Ground Counts)	% Deviation (MXD ↔ Ground Counts)
Rio Vista Station Village	San Diego	6,294	5,307	5,538	16%	4%
Uptown Center	San Diego	19,622	16,866	17,097	14%	1%
Village at Morena Linda Vista	San Diego	5,242	4,712	5,251	10%	11%
Hazard Center	San Diego	15,039	11,644	13,214	23%	13%
				Average	***16%***	***7%***

Footnotes:

a. Using *the City of San Diego Trip Generation Manual, May 2003* and standard reductions.

7.3 Project Trip Generation Summary

A MXD model specific to the Riverwalk project was prepared by SANDAG. The MXD Model was applied for each project phase. The information relating to the employment data regarding jobs within one mile and jobs within 30-minute transit trip was provided by SANDAG based on the regional demographics. Based on the employment information and the different project uses and densities for every phase, the MXD model was conducted to determine the trip generation credit per phase. *Appendix F* includes the input and result sheets from the MXD model for each project phase.

Under Phase I of the project, the on-site Riverwalk trolley station will not yet be built and therefore, no transit credit was taken for Phase I. As shown in ***Table 7–4***, the Phase I project is calculated to generate 14,932 net new cumulative ADT with 1,024 total AM peak hour trips (329 inbound/ 695 outbound) and 1,448 total PM peak hour trips (871 inbound/ 577 outbound). The Phase I Project is calculated to generate 17,248 driveway ADT with 1,094 total AM peak hour trips (371 inbound/ 723 outbound) and 1,680 total PM peak hour trips (987 inbound/ 693 outbound).

Under Project Phase II, as shown in ***Table 7–5***, Phases I and II Project combined are calculated to generate 28,305 net new cumulative ADT with 1,988 total AM peak hour trips (528 inbound/ 1,460 outbound) and 2,627 total PM peak hour trips (1,682 inbound/ 945 outbound). The Phase II Project is calculated to generate 30,896 driveway ADT with 2,066 total AM peak hour trips (575 inbound/ 1,491 outbound) and 2,886 total PM peak hour trips (1,811 inbound/ 1,075 outbound).

Under Project Phase III, as shown in ***Table 7–6***, Phases I, II and III Project combined, which represents the Project Buildout, the total project trips are calculated as 37,222 net new cumulative

ADT with 3,105 total AM peak hour trips (1,519 inbound/ 1,586 outbound) and 3,906 total PM peak hour trips (1,973 inbound/ 1,933 outbound).

The Project Buildout is calculated to generate 41,186 driveway ADT with 3,224 total AM peak hour trips (1,591 inbound/ 1,633 outbound) and 4,302 total PM peak hour trips (2,171 inbound/ 2,131 outbound).

TABLE 7–4
PROJECT TRIP GENERATION – PHASE I (YEAR 2025)

Description and Size	Trip Rate & Credits	ADT[a]	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
			% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
					In	Out	Total			In	Out	Total
Proposed												
Residential[b]	Trip Rate (6/DU)	11,460	8%	20:80	183	734	917	9%	70:30	722	309	1,031
1,910 DU	Cumulative (100%)	11,460			183	734	917			722	309	1,031
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	11,460			183	734	917			722	309	1,031
Commercial Retail[c]	Trip Rate (70/KSF)	7,721	3%	60:40	139	93	232	10%	50:50	386	386	772
110,300 SF	Cumulative (70%)	5,405			97	65	162			270	270	540
	Pass-By (30%)	2,316			42	28	70			116	116	232
	Driveway (100%)	7,721			139	93	232			386	386	772
Commercial Office[d]	Trip Rate (Ln Formula)	1,030	13%	90:10	121	13	134	14%	20:80	29	115	144
52,000 GLA	Cumulative (100%)	1,030			121	13	134			29	115	144
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	1,030			121	13	134			29	115	144
Park – Developed[e]	Trip Rate (50/Acre)	80	4%	50:50	2	1	3	8%	50:50	3	3	6
1.6 Acres	Cumulative (100%)	80			2	1	3			3	3	6
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	80			2	1	3			3	3	6
Parks – Undeveloped[f]	Trip Rate (5/Acre)	16	4%	50:50	1	0	1	8%	50:50	1	0	1
3.11 Acres	Cumulative (100%)	16			1	0	1			1	0	1
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	16			1	0	1			1	0	1
Subtotal Proposed Project	Cumulative	17,991			404	813	1,217			1,025	697	1,722
	Pass-By	2,316			42	28	70			116	116	232
	Driveway	20,307			446	841	1,287			1,141	813	1,954
	MXD Credit (15%, 14% AM, 14% PM[g])	*-2,699*			-57	-114	-171			-144	-98	-242
	Cumulative	15,292			347	699	1,046			881	599	1,480
	Pass-By	2,316			42	28	70			116	116	232
	Driveway	17,608			389	727	1,116			997	715	1,712
Existing (to be removed)												
Existing Golf Course[h]	Trip Rate (40/hole)	-360	6%	80:20	-18	-4	-22	9%	30:70	-10	-22	-32
(9 holes)	Cumulative (100%)	-360			-18	-4	-22			-10	-22	-32
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	-360			-18	-4	-22			-10	-22	-32
Trip Generation Summary												
Net Project Total (Proposed – Existing)	***Cumulative***	***14,932***			***329***	***695***	***1,024***			***871***	***577***	***1,448***
	Pass-By	***2,316***			***42***	***28***	***70***			***116***	***116***	***232***
	Driveway	***17,248***			***371***	***723***	***1,094***			***987***	***693***	***1,680***

Footnotes:

a. Traffic volumes expressed in vehicles per day.
b. Per City of San Diego Trip Generation Manual, trip rate for Multi-Family Dwelling Unit (over 20 dwelling units/acre) is 6/DU with AM splits as 8% ADT with 20:80 (In:Out). PM splits are 9% ADT with 70:30 (In:Out).
c. Per City of San Diego Trip Generation Manual, trip rate for Community Shopping Center (greater than 100,000 GSF) is 70/KSF with AM splits as 3% ADT with 60:40 (In:Out). PM splits are 10% ADT with 50:50 (In:Out).
d. Per City of San Diego Trip Generation Manual, trip rate for Commercial Office is (Ln(T) = 0.756 Ln(x) + 3.95) with AM splits as 13% ADT with 90:10 (In:Out). PM splits are 14% ADT with 20:80 (In:Out). Per City of San Diego Trip Generation Manual, gross leasable area (GLA) was used for Commercial Office.
e. Per City of San Diego Trip Generation Manual, trip rate for Developed Park is 50/acre with AM splits as 4% ADT and PM splits are 8% ADT. The City Trip Generation Manual does not provide peak hour splits for Park uses, therefore 50:50 (In:Out) was used for both AM and PM peak hours. Additionally, per the current project description, the total Developed Parks acreage in Phase I is 0.9 acres. However, to be conservative, 1.6 acres was used in the trip generation calculations.
f. Per City of San Diego Trip Generation Manual, trip rate for Undeveloped Park is 5/acre with AM splits as 4% ADT and PM splits are 8% ADT. The City Trip Generation Manual does not provide peak hour splits for Park uses, therefore 50:50 (In:Out) was used for both AM and PM peak hours. Additionally, per the current project description, the total Undeveloped Parks acreage in Phase I is 2.4 acres. However, to be conservative, 3.11 acres was used in the trip generation calculations.
g. The project is a mixed-use development with residential, office and retail uses within walking distance between the uses. To account for the synergy and interaction between the uses, per SANDAG MXD model, a 15% ADT and a 14% AM and PM peak hour mixed-use reduction was applied based on site-specific calculations shown in *Appendix F*. No transit credit was applied in project Phase I as the on-site trolley station is not proposed until Phase II.
h. Per City of San Diego Trip Generation Manual, trip rate for golf course is 40 trips/hole with AM splits as 6% ADT with 80:20 (In:Out). PM splits are 9% ADT with 30:70 (In:Out).

General Notes:

1. All trip rates and percentages are based on the City of San Diego Trip Generation Manual, May 2003.
2. Driveway Trips—vehicles entering and exiting project driveways (Driveway = Cumulative + Pass-By).
3. Cumulative Trips—net new vehicles added to the network.
4. Pass-By Trips—vehicles already on the street network diverting to the project site.

TABLE 7–5
PROJECT TRIP GENERATION – PHASES I + II (YEAR 2030)

Description and Size	Trip Rate & Credits	ADT[a]	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
			% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
					In	Out	Total			In	Out	Total
Phase I												
Residential	Trip Rate (6/DU)	11,460	8%	20:80	183	734	917	9%	70:30	722	309	1,031
1,910 DU	Cumulative (100%)	11,460			183	734	917			722	309	1,031
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	11,460			183	734	917			722	309	1,031
Commercial Retail	Trip Rate (70/KSF)	7,721	3%	60:40	139	93	232	10%	50:50	386	386	772
110,300 SF	Cumulative (70%)	5,405			97	65	162			270	270	540
	Pass-By (30%)	2,316			42	28	70			116	116	232
	Driveway (100%)	7,721			139	93	232			386	386	772
Commercial Office	Trip Rate (Ln Formula)	1,030	13%	90:10	121	13	134	14%	20:80	29	115	144
52,000 GLA	Cumulative (100%)	1,030			121	13	134			29	115	144
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	1,030			121	13	134			29	115	144
Park – Developed	Trip Rate (50/Acre)	80	4%	50:50	2	1	3	8%	50:50	3	3	6
1.6 Acres	Cumulative (100%)	80			2	1	3			3	3	6
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	80			2	1	3			3	3	6
Parks – Undeveloped	Trip Rate (5/Acre)	16	4%	50:50	1	0	1	8%	50:50	1	0	1
3.11 Acres	Cumulative (100%)	16			1	0	1			1	0	1
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	16			1	0	1			1	0	1
	Cumulative	*17,991*			*404*	*813*	*1,217*			*1,025*	*697*	*1,722*
Subtotal Phase I	*Pass-By*	*2,316*			*42*	*28*	*70*			*116*	*116*	*232*
	Driveway	*20,307*			*446*	*841*	*1,287*			*1,141*	*813*	*1,954*
Phase II												
Residential[b]	Trip Rate (6/DU)	14,340	8%	20:80	229	918	1,147	9%	70:30	904	387	1,291
2,390 DU	Cumulative (100%)	14,340			229	918	1,147			904	387	1,291
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	14,340			229	918	1,147			904	387	1,291
Commercial Retail[c]	Trip Rate (70/KSF)	917	3%	60:40	16	11	27	10%	50:50	46	46	92
13,100 SF	Cumulative (70%)	642			11	8	19			33	32	65
	Pass-By (30%)	275			5	3	8			13	14	27
	Driveway (100%)	917			16	11	27			46	46	92
Park – Developed[d]	Trip Rate (50/Acre)	1,314	4%	50:50	27	26	53	8%	50:50	53	52	105
26.27 Acres	Cumulative (100%)	1,314			27	26	53			53	52	105
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	1,314			27	26	53			53	52	105
Parks – Undeveloped[e]	Trip Rate (5/Acre)	267	4%	50:50	6	5	11	8%	50:50	11	10	21
53.48 Acres	Cumulative (100%)	267			6	5	11			11	10	21
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	267			6	5	11			11	10	21
	Cumulative	16,563			273	957	1,230			1,001	481	1,482
Subtotal Phase II Project	Pass-By	275			5	3	8			13	14	27
	Driveway	16,838			278	960	1,238			1,014	495	1,509
	MXD Credit (16%,17%AM,16%PM[f])	*-5,529*			*-115*	*-301*	*-416*			*-324*	*-188*	*-512*
	Cumulative	29,025			562	1,469	2,031			1,702	990	2,692
Subtotal Phase I + II Project	Pass-By	2,591			47	31	78			129	130	259
	Driveway	31,616			609	1,500	2,109			1,831	1,120	2,951
Existing (to be removed)												
Existing Golf Course[g]	Trip Rate (40/hole)	-720	6%	80:20	-34	-9	-43	9%	30:70	-20	-45	-65
(18 holes)	Cumulative (100%)	-720			-34	-9	-43			-20	-45	-65
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	-720			-34	-9	-43			-20	-45	-65

TABLE 7–5
PROJECT TRIP GENERATION – PHASES I + II (YEAR 2030)

Description and Size	Trip Rate & Credits	ADT[a]	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
			% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
					In	Out	Total			In	Out	Total
Trip Generation Summary												
Net Project Phase I+ II Total (Proposed – Existing)	***Cumulative***	***28,305***			***528***	***1,460***	***1,988***			***1,682***	***945***	***2,627***
	Pass-By	***2,591***			***47***	***31***	***78***			***129***	***130***	***259***
	Driveway	***30,896***			***575***	***1,491***	***2,066***			***1,811***	***1,075***	***2,886***

Footnotes:

a. Traffic volumes expressed in vehicles per day.
b. Per City of San Diego Trip Generation Manual, trip rate for Multi-Family Dwelling Unit (over 20 dwelling units/acre) is 6/DU with AM splits as 8% ADT with 20:80 (In:Out). PM splits are 9% ADT with 70:30 (In:Out).
c. Per City of San Diego Trip Generation Manual, trip rate for Community Shopping Center (greater than 100,000 GSF) is 70/KSF with AM splits as 3% ADT with 60:40 (In:Out). PM splits are 10% ADT with 50:50 (In:Out). The Community Commercial uses in Phase I of 110,300 SF and Phase II of 13,100 SF are collectively shown.
d. Per City of San Diego Trip Generation Manual, trip rate for Developed Park is 50/acre with AM splits as 4% ADT and PM splits are 8% ADT. The City Trip Generation Manual does not provide peak hour splits for Park uses, therefore 50:50 (In:Out) was used for both AM and PM peak hours. Additionally, per the current project description, the total Developed Parks acreage in Phase II is 19.1 acres. However, to be conservative, 26.27 acres was used in the trip generation calculations.
e. Per City of San Diego Trip Generation Manual, trip rate for Undeveloped Park is 5/acre with AM splits as 4% ADT and PM splits are 8% ADT. The City Trip Generation Manual does not provide peak hour splits for Park uses, therefore 50:50 (In:Out) was used for both AM and PM peak hours. Additionally, per the current project description, the total Undeveloped Parks acreage in Phase II is 39.9 acres. However, to be conservative, 53.48 acres was used in the trip generation calculations.
f. The project is a mixed-use transit-oriented development with residential, office and retail uses within walking distance between the uses. To account for the synergy and interaction between the uses as well as the on-site transit opportunities, per SANDAG MXD model, a 16% ADT, 17% AM peak hour and 16% PM peak hour mixed-use and transit reduction were applied based on site-specific calculations as shown in *Appendix F*.
g. Per City of San Diego Trip Generation Manual, trip rate for golf course is 40 trips/hole with AM splits as 6% ADT with 80:20 (In:Out). PM splits are 9% ADT with 30:70 (In:Out).

General Notes:

1. All trip rates and percentages are based on the City of San Diego Trip Generation Manual, May 2003.
2. Driveway Trips—vehicles entering and exiting project driveways (Driveway = Cumulative + Pass-By).
3. Cumulative Trips—net new vehicles added to the network.
4. Pass-By Trips—vehicles already on the street network diverting to the project site.

TABLE 7–6
BUILDOUT PROJECT TRIP GENERATION – PHASES I + II + III (YEAR 2035)

Description and Size	Trip Rate & Credits	ADT[a]	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
			% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
					In	Out	Total			In	Out	Total
Phase I												
Residential	Trip Rate (6/DU)	11,460	8%	20:80	183	734	917	9%	70:30	722	309	1,031
1,910 DU	Cumulative (100%)	11,460			183	734	917			722	309	1,031
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	11,460			183	734	917			722	309	1,031
Commercial Retail	Trip Rate (70/KSF)	7,721	3%	60:40	139	93	232	10%	50:50	386	386	772
110,300 SF	Cumulative (70%)	5,405			97	65	162			270	270	540
	Pass-By (30%)	2,316			42	28	70			116	116	232
	Driveway (100%)	7,721			139	93	232			386	386	772
Commercial Office	Trip Rate (Ln Formula)	1,030	13%	90:10	121	13	134	14%	20:80	29	115	144
52,000 GLA	Cumulative (100%)	1,030			121	13	134			29	115	144
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	1,030			121	13	134			29	115	144
Park – Developed	Trip Rate (50/Acre)	80	4%	50:50	2	1	3	8%	50:50	3	3	6
1.6 Acres	Cumulative (100%)	80			2	1	3			3	3	6
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	80			2	1	3			3	3	6
Parks – Undeveloped	Trip Rate (5/Acre)	16	4%	50:50	1	0	1	8%	50:50	1	0	1
3.11 Acres	Cumulative (100%)	16			1	0	1			1	0	1
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	16			1	0	1			1	0	1
	Cumulative	*17,991*			*404*	*813*	*1,217*			*1,025*	*697*	*1,722*
Subtotal Phase I	*Pass-By*	*2,316*			*42*	*28*	*70*			*116*	*116*	*232*
	Driveway	*20,307*			*446*	*841*	*1,287*			*1,141*	*813*	*1,954*
Phase II												
Residential	Trip Rate (6/DU)	14,340	8%	20:80	229	918	1,147	9%	70:30	904	387	1,291
2,390 DU	Cumulative (100%)	14,340			229	918	1,147			904	387	1,291
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	14,340			229	918	1,147			904	387	1,291
Commercial Retail	Trip Rate (70/KSF)	917	3%	60:40	16	11	27	10%	50:50	46	46	92
13,100 SF	Cumulative (70%)	642			11	8	19			33	32	65
	Pass-By (30%)	275			5	3	8			13	14	27
	Driveway (100%)	917			16	11	27			46	46	92
Park – Developed	Trip Rate (50/Acre)	1,314	4%	50:50	27	26	53	8%	50:50	53	52	105
26.27 Acres	Cumulative (100%)	1,314			27	26	53			53	52	105
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	1,314			27	26	53			53	52	105
Parks – Undeveloped	Trip Rate (5/Acre)	267	4%	50:50	6	5	11	8%	50:50	11	10	21
53.48 Acres	Cumulative (100%)	267			6	5	11			11	10	21
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	267			6	5	11			11	10	21
	Cumulative	*16,563*			*273*	*957*	*1,230*			*1,001*	*481*	*1,482*
Subtotal Phase II	*Pass-By*	*275*			*5*	*3*	*8*			*13*	*14*	*27*
	Driveway	*16,838*			*278*	*960*	*1,238*			*1,014*	*495*	*1,509*
Phase III												
Commercial Retail[b]	Trip Rate (120/KSF)	3,432	3%	60:40	62	41	103	10%	50:50	172	171	343
28,600 SF	Cumulative (60%)	2,059			37	25	62			103	103	206
	Pass-By (40%)	1,373			25	16	41			69	68	137
	Driveway (100%)	3,432			62	41	103			172	171	343
Commercial Office[c]	Trip Rate (Ln Formula)	2,893	13%	90:10	338	38	376	14%	20:80	81	324	405
203,920 GLA	Cumulative (100%)	2,893			338	38	376			81	324	405
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	2,893			338	38	376			81	324	405
Commercial Office[c]	Trip Rate (Ln Formula)	3,433	13%	90:10	401	45	446	14%	20:80	96	385	481
255,680 GLA	Cumulative (100%)	3,433			401	45	446			96	385	481
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	3,433			401	45	446			96	385	481
Commercial Office[c]	Trip Rate (Ln Formula)	3,760	13%	90:10	440	49	489	14%	20:80	105	421	526
288,400 GLA	Cumulative (100%)	3,760			440	49	489			105	421	526
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	3,760			440	49	489			105	421	526
Parks – Undeveloped[d]	Trip Rate (5/Acre)	11	4%	50:50	0	0	0	8%	50:50	1	0	1
2.20 Acres	Cumulative (100%)	11			0	0	0			1	0	1
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	11			0	0	0			1	0	1

TABLE 7–6
BUILDOUT PROJECT TRIP GENERATION – PHASES I + II + III (YEAR 2035)

Description and Size	Trip Rate & Credits	ADT[a]	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
			% of ADT	In: Out Split	Volume			% of ADT	In: Out Split	Volume		
					In	Out	Total			In	Out	Total
Subtotal Project Phase III	Cumulative	12,156			1,216	157	1,373			386	1,233	1,619
	Pass-By	1,373			25	16	41			69	68	137
	Driveway	13,529			1,241	173	1,414			455	1,301	1,756
	MXD Credit (18%, 17% AM,17%PM[e])	*-8,408*			*-322*	*-328*	*-650*			*-410*	*-410*	*-820*
Subtotal Project Phase I + II + III	Cumulative	38,302			1,571	1,599	3,170			2,002	2,001	4,003
	Pass-By	3,964			72	47	119			198	198	396
	Driveway	42,266			1,643	1,646	3,289			2,200	2,199	4,399
Existing (to be removed)												
Existing Golf Course[f] (27 holes)	Trip Rate (40/hole)	-1,080	6%	80:20	-52	-13	-65	9%	30:70	-29	-68	-97
	Cumulative (100%)	-1,080			-52	-13	-65			-29	-68	-97
	Pass-By (0%)	0			0	0	0			0	0	0
	Driveway (100%)	-1,080			-52	-13	-65			-29	-68	-97
Trip Generation Summary												
Net Project Buildout (Proposed – Existing)	***Cumulative***	***37,222***			***1,519***	***1,586***	***3,105***			***1,973***	***1,933***	***3,906***
	Pass-By	***3,964***			***72***	***47***	***119***			***198***	***198***	***396***
	Driveway	***41,186***			***1,591***	***1,633***	***3,224***			***2,171***	***2,131***	***4,302***

Footnotes:

a. Traffic volumes expressed in vehicles per day.
b. Per City of San Diego Trip Generation Manual, trip rate for Neighborhood Shopping Center (less than 100,000 GSF) is 120/KSF with AM splits as 3% ADT with 60:40 (In:Out). PM splits are 10% ADT with 50:50 (In:Out).
c. Per City of San Diego Trip Generation Manual, trip rate for Commercial Office is (Ln(T) = 0.756 Ln(x) + 3.95) with AM splits as 13% ADT with 90:10 (In:Out). PM splits are 14% ADT with 20:80 (In:Out). Per City of San Diego Trip Generation Manual, gross leasable area (GLA) was used for Commercial Office.
d. Per City of San Diego Trip Generation Manual, trip rate for Undeveloped Park is 5/acre with AM splits as 4% ADT and PM splits are 8% ADT. The City Trip Generation Manual does not provide peak hour splits for Park uses, therefore 50:50 (In:Out) was used for both AM and PM peak hours. Additionally, per the current project description, there are no Undeveloped Parks in Phase III. However, to be conservative, 2.20 acres from an earlier project description was used in the trip generation calculations.
e. The project is a mixed-use transit-oriented development with residential, office and retail uses within walking distance between the uses. To account for the synergy and interaction between the uses as well as the on-site transit opportunities, per SANDAG MXD model, an 18% ADT, 17% AM peak hour and 17% PM peak hour mixed-use and transit reduction were applied based on site-specific calculations shown in *Appendix F*.
f. Per City of San Diego Trip Generation Manual, trip rate for golf course is 40 trips/hole with AM splits as 6% ADT with 80:20 (In:Out). PM splits are 9% ADT with 30:70 (In:Out).

General Notes:

1. All trip rates and percentages are based on the City of San Diego Trip Generation Manual, May 2003.
2. Driveway Trips—vehicles entering and exiting project driveways (Driveway = Cumulative + Pass-By).
3. Cumulative Trips—net new vehicles added to the network.
4. Pass-By Trips—vehicles already on the street network diverting to the project site.
5. The total acreage for Developed Parks used in the trip generation calculations from an earlier project description equals 27.87 acres. Per the current project description, the total Developed Parks acreage is 20 acres (Phase I: 0.9 acres and Phase II: 19.1 acres) including a recreation center identified in the 2019 Mission Valley Community Plan. However, to be conservative, the 27.87 acres was used in the trip generation calculations.
6. The total acreage for Undeveloped Parks used in the trip generation calculations from an earlier project description equals 58.79 acres. Per the current project description, the total Undeveloped Parks acreage is 42.3 acres (Phase I: 2.4 acres and Phase II: 39.9 acres). However, to be conservative, the 58.79 acres was used in the trip generation calculations.
7. The total acreage for Open Space from an earlier project description totals 28 acres. Per the current project description, the total Open Space acreage is 35 acres.

7.3.1 *Proposed Project vs. Levi-Cushman Specific Plan*

As noted previously, the proposed Riverwalk project is different in terms of land use mix and land use intensity from the Levi-Cushman Specific Plan. ***Table 7–7*** provides a comparison of the proposed project land use mix and the Levi-Cushman Specific Plan. ***Table 7–8*** provides a trip generation comparison between the proposed project and Levi-Cushman Specific Plan. *Appendix F* includes the trip generation table from the Levi-Cushman Specific Plan.

TABLE 7–7
LEVI-CUSHMAN SPECIFIC PLAN VS. RIVERWALK – LAND USE COMPARISON

Land Use	Levi-Cushman	Riverwalk	Δ
Residential	1,329 units	4,300 units	2,971 units
Office	2,582,000 SF	1,000,000 SF	(1,582,000 SF)
Retail	200,000 SF	152,000 SF	(48,000 SF)
Hotel	1,000 rooms	N/A	(1,000 rooms)

General Notes:

() indicates a reduction with the proposed project.

TABLE 7–8
LEVI-CUSHMAN SPECIFIC PLAN VS. RIVERWALK – TRIP GENERATION COMPARISON

Trip Generation	Levi-Cushman	Proposed Project	Δ
Total Cumulative Trips (ADT)	66,955	37,222	(29,733) or (44%)

7.4 Trip Distribution/Assignment

The project trip distribution was developed with coordination from City staff based on a SANDAG Series 12 Select Zone Assignment, which is the latest available information at the time this report was prepared. Two separate Select Zone Assignments were conducted – North of the SD River and South of the SD River given that the traffic patterns and land use types between the north and south sides of the SD River are different given their location and proximity to Friars Road, Hotel Circle North and Hotel Circle South. The project trip assignment will also vary near the project driveways depending on the project phase. For the specific project trip distribution and assignment of each project phase, see *Sections 10.0-13.0.*

8.0 EXISTING + PROJECT ANALYSIS

The Existing + Project analysis is an assessment of the project traffic's effect of the individual project phases as well as the project at buildout in relation to the existing conditions.

8.1 Existing + Project Phase I

The following section presents the analysis of study area intersections, street segments, freeway mainline segments, and metered freeway on-ramps under Existing + Project Phase I conditions.

Figure 8–1 shows the Existing + Project Phase I AM and PM peak hour traffic volumes and ***Figure 8–2*** shows the Existing + Project Phase I daily traffic volumes.

8.1.1 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Existing + Project Phase I conditions. ***Table 8–1*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road / Goshen Street (LOS E during the PM peak hour)
- Friars Road / Via Las Cumbres / Street F (LOS E during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix G contains the intersection analysis worksheets for the Existing + Project Phase I scenario.

8.1.2 *Daily Street Segment Operations*

Existing + Project Phase I street segment analyses were conducted for roadways in the study area. ***Table 8–2*** reports the Existing + Project Phase I daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Friars Road: Ulric Street to SR 163 NB Ramps (LOS E)
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Hotel Circle North: Fashion Valley Road to Camino De La Reina (LOS E)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)

- Fashion Valley Road: Riverwalk Drive to Street U (LOS E)
- Fashion Valley Road: Street U to Hotel Circle North (LOS E)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

8.1.3 *Freeway Segment Operations*

Freeway segments were analyzed under Existing + Project Phase I conditions. ***Appendix H*** contains the detailed calculations sheets for the Existing + Project Phase I scenario. ***Tables 8–3*** and ***8–4*** reports the Existing + Project Phase I freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS E–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*

I-5

- North of Sea World Drive, *LOS E–AM (NB) and LOS E–PM (SB)*

SR-163

- North of Friars Road, *LOS E–AM (NB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS E–PM (NB and SB)*
- South of I-8, *LOS F/E–AM (NB/SB) and LOS F–PM (SB)*

8.1.4 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Existing + Project Phase I conditions. ***Table 8–5*** reports the Existing + Project Phase I ramp meter operations.

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	15.1	B	16.9	B	1.8
		PM	13.8	B	17.3	B	3.5
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	29.0	C	29.5	C	0.5
		PM	36.5	D	40.4	D	3.9
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	26.8	C	28.7	C	1.9
		PM	29.5	C	29.5	C	0.0
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	42.9	D	47.9	D	5.0
		PM	35.1	D	39.2	D	4.1
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	34.8	C	37.7	D	2.9
		PM	26.3	C	28.9	C	2.6
6. Morena Blvd. / Taylor St.	Signal	AM	37.7	D	38.1	D	0.4
		PM	27.4	C	27.6	C	0.2
7. Friars Rd. / Napa St.	Signal	AM	22.6	C	24.9	C	2.3
		PM	23.9	C	30.9	C	7.0
8. Friars Rd. / Colusa St.	Signal	AM	14.9	B	21.4	C	6.5
		PM	14.8	B	22.8	C	8.0
9. Friars Rd. / Goshen St.	OWSC[c]	AM	20.0	C	27.6	D	7.6
		PM	25.5	D	36.3	E	10.8
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	11.0	B	–
		PM	–	–	20.4	C	–
11. Friars Rd. / Via Las Cumbres / Street 'F'	Signal	AM	14.5	B	67.2	E	52.7
		PM	18.3	B	78.0	E	59.7
12. Friars Rd. / Street 'I'	Signal	AM	–	–	15.3	B	–
		PM	–	–	52.4	D	–

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
13. Friars Rd. / Street 'K'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
14. Friars Rd. / Street 'M'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	23.1	C	33.7	C	10.6
		PM	51.1	D	51.7	D	0.6
16. Friars Rd. / Via de la Moda	Signal	AM	3.3	A	3.3	A	0.0
		PM	16.0	B	20.9	C	4.9
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	6.7	A	7.0	A	0.3
		PM	21.7	C	21.7	C	0.0
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	13.8	B	15.3	C	1.5
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	4.4	A	4.4	A	0.0
		PM	3.4	A	3.4	A	0.0
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	34.8	C	36.2	D	1.4
		PM	30.6	C	36.8	D	6.2
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	15.0	B	18.4	B	3.4
		PM	16.1	B	18.1	B	2.0
22. Friars Rd. / Frazee Rd.	Signal	AM	48.6	D	49.7	D	1.1
		PM	59.4	E	60.4	E	1.0
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	18.2	B	18.2	B	0.0
		PM	19.7	B	19.7	B	0.0
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	12.3	B	12.4	B	0.1
		PM	20.8	C	20.8	C	0.0
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	45.0	D	45.0	D	0.0
		PM	42.6	D	43.0	D	0.4

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	9.4	A	10.2	B	0.8
		PM	17.7	B	18.0	B	0.3
27. Friars Rd / River Run Dr.	Signal	AM	26.9	C	26.9	C	0.0
		PM	21.7	C	21.8	C	0.1
28. Fashion Valley Rd. / Private Drive 'T'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	17.6	B	22.4	C	4.8
		PM	31.2	C	46.7	D	15.5
30. Fashion Valley Rd. / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
31. Street 'U' / Private Drive 'W'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	8.5	A	9.1	A	0.6
		PM	14.7	B	19.1	C	4.4
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.1	A	5.1	A	0.0
		PM	4.5	A	4.5	A	0.0
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	11.5	B	11.6	B	0.1
		PM	13.3	B	13.6	B	0.3
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	23.1	C	24.9	C	1.8
		PM	27.7	C	33.5	C	5.8
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	25.6	C	25.8	C	0.2
		PM	33.1	C	33.3	C	0.2
37. Camino de la Reina / Avenida Del Rio	Signal	AM	13.7	B	14.0	B	0.3
		PM	24.9	C	26.5	C	1.6
38. Camino de la Reina / Camino de la Siesta	Signal	AM	16.7	B	16.9	B	0.2
		PM	18.1	B	18.6	B	0.5

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	9.1	A	9.2	A	0.1
		PM	12.0	B	12.3	B	0.3
40. Camino de la Reina / Mall Drwy.	Signal	AM	29.0	C	29.2	C	0.2
		PM	43.2	D	45.0	D	1.8
41. Camino de la Reina / Mission Center Rd.	Signal	AM	32.8	C	33.4	C	0.6
		PM	50.1	D	50.7	D	0.6
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.1	D	42.6	D	0.5
		PM	43.6	D	45.2	D	1.6
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	36.3	D	36.5	D	0.2
		PM	41.0	D	41.2	D	0.2
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	29.0	C	40.8	D	11.8
		PM	32.4	C	32.7	C	0.3
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	17.8	B	17.8	B	0.0
		PM	34.0	C	34.0	C	0.0
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	20.7	C	20.7	C	0.0
		PM	11.7	B	11.7	B	0.0
47. Hotel Circle Place / I-8 WB Ramps	Signal	AM	6.7	A	7.4	A	0.7
		PM	4.6	A	4.6	A	0.0
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	47.1	E	62.4	F	15.3
		PM	39.3	E	71.6	F	32.3
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	9.8	A	12.5	B	2.7
		PM	12.7	B	17.7	B	5.0
50. Hotel Circle N. / Camino de la Reina	Signal	AM	30.5	C	31.7	C	1.2
		PM	24.0	C	25.3	C	1.3
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	16.6	C	19.8	C	3.2
		PM	67.9	F	102.2	F	34.3

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phase I		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
52. Hotel Circle S. / Bachman Place	Signal	AM	23.6	C	23.6	C	0.0
		PM	22.5	C	23.8	C	1.3
53. Street J / Riverwalk Drive	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
54. Street J / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	34,200	D	0.855	34,650	D	0.866	0.011
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	29,490	C	0.737	31,880	D	0.797	0.060
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	29,490	C	0.666	30,980	C	0.700	0.034
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	30,470	D	0.762	31,220	D	0.781	0.019
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	22,410	C	0.560	22,410	C	0.560	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	13,650	A	0.341	16,490	B	0.412	0.071
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	19,170	B	0.479	24,250	C	0.606	0.127
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	19,200	B	0.480	24,430	C	0.611	0.131
Goshen Street to Street A	4-Lane Major Arterial	40,000	19,200	B	0.480	24,430	C	0.611	0.131
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	19,200	B	0.480	23,900	C	0.598	0.118
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	22,270	C	0.557	28,240	C	0.706	0.149
Street I to Street K	4-Lane Major Arterial	40,000	22,270	C	0.557	30,780	D	0.770	0.213
Street K to Street M	4-Lane Major Arterial	40,000	22,270	C	0.557	30,780	D	0.770	0.213
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	22,270	C	0.557	30,780	D	0.770	0.213
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	26,100	C	0.580	30,130	C	0.670	0.090

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	26,830	C	0.596	30,860	C	0.686	0.090
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	40,510	D	0.810	44,540	D	0.891	0.081
Ulric Street to SR163 NB Ramps	6-Lane Prime Arterial	60,000	53,170	D	0.886	55,860	E	0.931	0.045
SR163 NB Ramps to Frazee Road	7-Lane Prime Arterial	65,000	54,150	D	0.833	55,640	D	0.856	0.023
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	42,780	B	0.458	43,830	B	0.470	0.012
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	37,050	B	0.463	37,800	B	0.473	0.010
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	33,250	B	0.416	33,400	B	0.418	0.002
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	6,510	B	0.434	6,510	B	0.434	0.000
I-8 Hook WB Ramps to Fashion Valley Road	3-Lane Collector	11,000	15,510	F	1.410	16,780	F	1.525	0.115
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	12,460	D	0.831	14,330	E	0.955	0.124
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	5,430	B	0.362	5,580	B	0.372	0.010
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	24,030	C	0.601	24,250	C	0.606	0.005
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	8,480	C	0.565	8,630	C	0.575	0.010
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	13,360	F	1.336	14,410	F	1.441	0.105
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	10,730	A	0.268	11,630	A	0.291	0.023

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	10,730	A	0.268	11,630	A	0.291	0.023
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	19,060	B	0.424	19,510	B	0.434	0.010
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	17,750	F	1.775	18,050	F	1.805	0.030
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	14,410	F	1.310	14,710	F	1.337	0.027
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	13,130	F	1.313	13,130	F	1.313	0.000
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	12,340	D	0.823	12,640	D	0.843	0.020
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	17,200	F	1.147	18,770	F	1.251	0.104
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	15,580	F	1.039	17,300	F	1.153	0.114
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	41,930	F	1.048	42,680	F	1.067	0.019
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	11,570	C	0.514	12,320	C	0.548	0.034
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	13,430	A	0.336	15,670	B	0.392	0.056
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,720	B	0.340	2,870	B	0.359	0.019

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,920	E	0.993	12,110	F	1.101	0.108
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	15,320	D	0.681	0.213
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	15,320	D	0.681	0.213
Riverwalk Drive to Street U	4-Lane Collector	15,000	10,660	D	0.711	13,800	E	0.920	0.209
Street U to Hotel Circle North	4-Lane Collector	15,000	10,660	D	0.711	13,800	E	0.920	0.209
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	17,050	B	0.426	17,200	B	0.430	0.004
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	19,470	B	0.487	19,470	B	0.487	0.000
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	19,450	B	0.432	19,450	B	0.432	0.000
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	27,060	C	0.601	27,060	C	0.601	0.000
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	23,280	B	0.466	23,730	B	0.475	0.009
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	34,100	D	0.853	34,470	D	0.862	0.009
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	10,200	A	0.204	10,500	A	0.210	0.006
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	24,330	B	0.487	24,630	B	0.493	0.006

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	8,200	F	1.025	9,390	F	1.174	0.149
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	8,740	C	0.583	9,640	C	0.643	0.060
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	*DNE*	–	–	–	–	–	–	–	–
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	8,710	A	0.218	8,860	A	0.222	0.004
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	8,710	A	0.218	8,710	A	0.218	0.000
Street U									
Street J to Street V	*DNE*	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	*DNE*	–	–	–	–	–	–	–	–
Street V									
Street U to Hotel Circle North	*DNE*	–	–	–	–	–	–	–	–

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	7,620	B	0.381	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. A capacity reduction was assumed to account for the EB auxiliary lane
f. Δ denotes a project-induced increase in the Volume to Capacity ratio

General Notes:

1. *DNE* = does not exist

TABLE 8–3
EXISTING + PROJECT PHASE I FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Existing + Project Phase I ADT	Direction	Number of Lanes	Existing			Existing + Project Phase I			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	134,600	EB Mainlines	4M	0.446	17.50	B	0.447	17.60	B	0.001
		WB Mainlines	3M	0.896	36.80	E	0.900	37.10	E	0.004
Morena Boulevard to Taylor Street	196,750	EB Mainlines	4M+1A	0.567	20.60	C	0.568	20.60	C	0.001
		WB Mainlines	5M	0.780	30.70	D	0.783	30.80	D	0.003
Taylor Street to Hotel Circle	199,750	EB Mainlines	4M	0.670	26.70	D	0.673	26.80	D	0.003
		WB Mainlines	5M	0.786	31.10	D	0.789	31.30	D	0.003
Hotel Circle to SR163	216,790	EB Mainlines	4M+1A	0.630	23.10	C	0.639	23.40	C	0.009
		WB Mainlines	5M+1A	0.753	28.10	D	0.756	28.30	D	0.003
SR163 to Mission Center Road	222,050	EB Mainlines	5M	0.611	24.50	C	0.615	24.70	C	0.004
		WB Mainlines	4M+1A	0.945	39.50	E	0.947	39.80	E	0.002
East of Mission Center Road	238,490	EB Mainlines	5M	0.641	25.70	C	0.647	25.90	C	0.006
		WB Mainlines	4M+1A	1.002	>45.00	F	1.005	>45.00	F	0.003
I-5										
North of Sea World Drive	223,490	NB Mainlines	5M	0.880	35.80	E	0.887	36.20	E	0.007
		SB Mainlines	5M	0.649	25.20	C	0.652	25.40	C	0.003
Sea World Drive to I-8	207,000	NB Mainlines	5M+1A	0.752	27.80	D	0.752	27.80	D	0.000
		SB Mainlines	5M+1A	0.543	19.90	C	0.543	19.90	C	0.000
SR 163										
North of Friars Road	180,790	NB Mainlines	5M	0.870	35.40	E	0.878	35.90	E	0.008
		SB Mainlines	4M	0.830	33.40	D	0.834	33.60	D	0.004
Friars Road to I-8	153,600	NB Mainlines	3M	1.255	>45.00	F	1.257	>45.00	F	0.002
		SB Mainlines	4M+2A	0.549	18.80	C	0.552	18.90	C	0.003
South of I-8	163,340	NB Mainlines	3M+1A	1.082	>45.00	F	1.085	>45.00	F	0.003
		SB Mainlines	3M	0.987	43.80	E	0.996	44.7	E	0.009

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix H* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–4
EXISTING + PROJECT PHASE I FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Existing + Project Phase I ADT	Direction	Number of Lanes	Existing			Existing + Project Phase I			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	134,600	EB Mainlines	4M	0.690	>45.00	F	0.695	>45.00	F	0.005
		WB Mainlines	3M	0.741	28.80	D	0.744	29.00	D	0.003
Morena Boulevard to Taylor Street	196,750	EB Mainlines	4M+1A	0.860	>45.00	F	0.864	>45.00	F	0.004
		WB Mainlines	5M	0.637	24.90	C	0.640	25.00	C	0.003
Taylor Street to Hotel Circle	199,750	EB Mainlines	4M	0.952	41.00	E	0.957	41.40	E	0.005
		WB Mainlines	5M	0.650	25.60	C	0.652	25.70	C	0.002
Hotel Circle to SR163	216,790	EB Mainlines	4M+1A	0.905	36.30	E	0.912	36.80	E	0.007
		WB Mainlines	5M+1A	0.629	23.40	C	0.638	23.70	C	0.009
SR163 to Mission Center Road	222,050	EB Mainlines	5M	0.857	34.90	D	0.861	35.20	E	0.004
		WB Mainlines	4M+1A	0.789	29.50	D	0.795	29.80	D	0.006
East of Mission Center Road	238,490	EB Mainlines	5M	0.919	38.60	E	0.925	39.00	E	0.006
		WB Mainlines	4M+1A	0.847	32.60	D	0.856	33.10	D	0.009
I-5										
North of Sea World Drive	223,490	NB Mainlines	5M	0.784	30.70	D	0.789	31.00	D	0.005
		SB Mainlines	5M	0.878	35.70	E	0.886	36.20	E	0.008
Sea World Drive to I-8	207,000	NB Mainlines	5M+1A	0.641	23.50	C	0.641	23.50	C	0.000
		SB Mainlines	5M+1A	0.734	27.00	D	0.734	27.00	D	0.000
SR 163										
North of Friars Road	180,790	NB Mainlines	5M	0.668	26.40	D	0.674	26.60	D	0.006
		SB Mainlines	4M	0.908	>45.00	F	0.920	>45.00	F	0.012
Friars Road to I-8	153,600	NB Mainlines	3M	0.934	39.50	E	0.939	40.00	E	0.005
		SB Mainlines	4M+2A	0.629	36.80	E	0.631	36.90	E	0.002
South of I-8	163,340	NB Mainlines	3M+1A	0.832	31.10	D	0.841	31.70	D	0.009
		SB Mainlines	3M	1.058	>45.00	F	1.066	>45.00	F	0.008

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix H* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–5
EXISTING + PROJECT PHASE I RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Existing	AM	1,564	782	774	8	1	200
	PM	1,236	618	612	6	1	150
Existing + Project Phase I	AM	1,634	817	774	43	3	1,075
	PM	1,294	647	612	35	3	875
Project Increase	AM	70	35	NA	35	2	875
	PM	58	29	NA	29	2	725

Footnotes:

a. While meter rates were obtained from Caltrans, the rates were reduced to reflect existing ramp meter observations (see *Appendix E* for both the Caltrans rates and the existing ramp meter observations).

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

8.2 Existing + Project Phases I and II

The following section presents the analysis of study area intersections, street segments, freeway segments and ramp meter under Existing + Project Phases I and II conditions without and with the Riverwalk project.

Figure 8–3 shows the Existing + Project Phases I and II AM and PM peak hour traffic volumes and ***Figure 8–4*** shows the Existing + Project Phases I and II daily traffic volumes.

8.2.1 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Existing + Project Phases I and II conditions. ***Table 8–6*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road / Goshen Street (LOS E during the AM and PM peak hours)
- Friars Road / Via Las Cumbres / Street F (LOS F during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix I contains the intersection analysis worksheets for the Existing + Project Phases I and II scenario.

8.2.2 *Daily Street Segment Operations*

Existing + Project Phases I and II street segment analyses were conducted for roadways in the study area. ***Table 8–7*** reports the Existing + Project Phases I and II daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS E)
- Friars Road: Ulric Street to SR 163 NB Ramps (LOS E)
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Hotel Circle North: Fashion Valley Road to Camino De La Reina (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)

- Fashion Valley Road: Riverwalk Drive to Hotel Circle North (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

8.2.3 *Freeway Segment Operations*

Freeway segments were analyzed under Existing + Project Phases I and II conditions. ***Appendix J*** contains the detailed calculations sheets for the Existing + Project Phases I and II scenarios. ***Tables 8–8*** and ***8–9*** reports the Existing + Project Phases I and II freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS E–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*

I-5

- North of Sea World Drive, *LOS E–AM (NB) and LOS E–PM (SB)*

SR-163

- North of Friars Road, *LOS E–AM (NB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS E–PM (NB and SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (SB)*

8.2.4 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Existing + Project Phases I and II conditions. ***Table 8–10*** reports the Existing + Project Phases I and II ramp meter operations.

TABLE 8–6
EXISTING + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	15.1	B	18.7	B	3.6
		PM	13.8	B	24.8	C	11.0
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	29.0	C	29.5	C	0.5
		PM	36.5	D	40.8	D	4.3
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	26.8	C	33.0	C	6.2
		PM	29.5	C	29.5	C	0.0
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	42.9	D	51.7	D	8.8
		PM	35.1	D	39.8	D	4.7
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	34.8	C	40.3	D	5.5
		PM	26.3	C	32.3	C	6.0
6. Morena Blvd. / Taylor St.	Signal	AM	37.7	D	38.7	D	1.0
		PM	27.4	C	27.6	C	0.2
7. Friars Rd. / Napa St.	Signal	AM	22.6	C	32.4	C	9.8
		PM	23.9	C	53.4	D	29.5
8. Friars Rd. / Colusa St.	Signal	AM	14.9	B	44.3	D	29.4
		PM	14.8	B	48.1	D	33.3
9. Friars Rd. / Goshen St.	OWSC[c]	AM	20.0	C	42.2	E	22.2
		PM	25.5	D	48.7	E	23.2
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	12.0	B	–
		PM	–	–	29.4	D	–
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	14.5	B	110.9	F	96.4
		PM	18.3	B	81.2	F	62.9
12. Friars Rd. / Street I	Signal	AM	–	–	15.3	B	–
		PM	–	–	52.6	D	–
13. Friars Rd. / Street 'K'	RIRO[d]	AM	–	–	12.3	B	–
		PM	–	–	26.8	D	–

TABLE 8–6
EXISTING + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
14. Friars Rd. / Street 'M'	Signal	AM	–	–	21.0	C	–
		PM	–	–	34.6	C	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	23.1	C	33.7	C	10.6
		PM	51.1	D	51.9	D	0.8
16. Friars Rd. / Via de la Moda	Signal	AM	3.3	A	3.5	A	0.2
		PM	16.0	B	28.4	C	12.4
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	6.7	A	7.0	A	0.3
		PM	21.7	C	22.3	C	0.6
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	13.8	B	17.3	C	3.5
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	4.4	A	4.5	A	0.1
		PM	3.4	A	3.4	A	0.0
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	34.8	C	37.0	D	2.2
		PM	30.6	C	42.3	D	11.7
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	15.0	B	25.0	C	10.0
		PM	16.1	B	20.1	C	4.0
22. Friars Rd. / Frazee Rd.	Signal	AM	48.6	D	50.5	D	1.9
		PM	59.4	E	60.4	E	1.0
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	18.2	B	18.3	B	0.1
		PM	19.7	B	20.0	B	0.3
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	12.3	B	12.6	B	0.3
		PM	20.8	C	20.8	C	0.0
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	45.0	D	45.1	D	0.1
		PM	42.6	D	43.1	D	0.5
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	9.4	A	11.0	B	1.6
		PM	17.7	B	18.3	B	0.6

TABLE 8–6
EXISTING + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
27. Friars Rd / River Run Dr.	Signal	AM	26.9	C	26.9	C	0.0
		PM	21.7	C	21.8	C	0.1
28. Fashion Valley Rd. / Private Drive 'T'	Unsignalized	AM	–	–	10.0	A	–
		PM	–	–	11.2	B	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	17.6	B	34.0	C	16.4
		PM	31.2	C	50.5	D	19.3
30. Fashion Valley Rd. / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
31. Street 'U' / Private Drive 'W'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	8.5	A	9.6	A	1.1
		PM	14.7	B	25.9	D	11.2
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.1	A	5.1	A	0.0
		PM	4.5	A	4.9	A	0.4
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	11.5	B	11.7	B	0.2
		PM	13.3	B	13.8	B	0.5
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	23.1	C	26.8	C	3.7
		PM	27.7	C	33.6	C	5.9
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	25.6	C	26.0	C	0.4
		PM	33.1	C	33.6	C	0.5
37. Camino de la Reina / Avenida Del Rio	Signal	AM	13.7	B	14.7	B	1.0
		PM	24.9	C	27.5	C	2.6
38. Camino de la Reina / Camino de la Siesta	Signal	AM	16.7	B	17.1	B	0.4
		PM	18.1	B	18.9	B	0.8
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	9.1	A	9.5	A	0.4
		PM	12.0	B	12.6	B	0.6

TABLE 8–6
EXISTING + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
40. Camino de la Reina / Mall Drwy.	Signal	AM	29.0	C	29.5	C	0.5
		PM	43.2	D	45.6	D	2.4
41. Camino de la Reina / Mission Center Rd.	Signal	AM	32.8	C	33.9	C	1.1
		PM	50.1	D	51.1	D	1.0
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.1	D	42.7	D	0.6
		PM	43.6	D	47.5	D	3.9
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	36.3	D	36.9	D	0.6
		PM	41.0	D	41.2	D	0.2
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	29.0	C	42.1	D	13.1
		PM	32.4	C	33.2	C	0.8
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	17.8	B	17.8	B	0.0
		PM	34.0	C	36.0	D	2.0
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	20.7	C	20.7	C	0.0
		PM	11.7	B	11.7	B	0.0
47. Taylor Street / I-8 WB Ramp	Signal	AM	6.7	A	7.4	A	0.7
		PM	4.6	A	4.7	A	0.1
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	47.1	E	73.8	F	26.7
		PM	39.3	E	112.0	F	72.7
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	9.8	A	16.2	B	6.4
		PM	12.7	B	30.6	C	17.9
50. Hotel Circle N. / Camino de la Reina	Signal	AM	30.5	C	34.3	C	3.8
		PM	24.0	C	28.3	C	4.3
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	16.6	C	27.2	D	10.6
		PM	67.9	F	126.4	F	58.5
52. Hotel Circle S. / Bachman Place	Signal	AM	23.6	C	23.9	C	0.3
		PM	22.5	C	25.9	C	3.4

TABLE 8–6
EXISTING + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
53. Street J / Riverwalk Drive	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
54. Street J / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	34,200	D	0.855	35,050	E	0.876	0.021
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	29,490	C	0.737	34,020	D	0.851	0.114
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	29,490	C	0.666	32,320	C	0.730	0.064
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	30,470	D	0.762	31,890	D	0.797	0.035
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	22,410	C	0.560	22,410	C	0.560	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	13,650	A	0.341	19,030	B	0.476	0.135
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	19,170	B	0.479	28,790	C	0.720	0.241
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	19,200	B	0.480	29,110	C	0.728	0.248
Goshen Street to Street A	4-Lane Major Arterial	40,000	19,200	B	0.480	29,110	C	0.728	0.248
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	19,200	B	0.480	28,680	C	0.717	0.237
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	22,270	C	0.557	28,210	C	0.705	0.148
Street I to Street K	4-Lane Major Arterial	40,000	22,270	C	0.557	27,790	C	0.695	0.138
Street K to Street M	4-Lane Major Arterial	40,000	22,270	C	0.557	27,080	C	0.677	0.120
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	22,270	C	0.557	27,930	C	0.698	0.141
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	26,100	C	0.580	33,740	C	0.750	0.170

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	26,830	C	0.596	34,470	C	0.766	0.170
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	40,510	D	0.810	48,150	E	0.963	0.153
Ulric Street to SR163 NB Ramps	6-Lane Prime Arterial	60,000	53,170	D	0.886	58,270	E	0.971	0.085
SR163 NB Ramps to Frazee Road	7-Lane Prime Arterial	65,000	54,150	D	0.833	56,980	D	0.877	0.044
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	42,780	B	0.458	44,760	B	0.480	0.022
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	37,050	B	0.463	38,470	B	0.481	0.018
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	33,250	B	0.416	33,530	B	0.419	0.003
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	6,510	B	0.434	6,510	B	0.434	0.000
I-8 WB Hook Ramps to Fashion Valley Road	3-Lane Collector	11,000	15,510	F	1.410	17,920	F	1.629	0.219
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	12,460	D	0.831	16,000	F	1.067	0.236
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	5,430	B	0.362	5,710	B	0.381	0.019
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	24,030	C	0.601	24,450	C	0.611	0.010
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	8,480	C	0.565	8,760	C	0.584	0.019
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	13,360	F	1.336	15,340	F	1.534	0.198

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	10,730	A	0.268	12,430	A	0.311	0.043
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	10,730	A	0.268	12,430	A	0.311	0.043
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	19,060	B	0.424	19,910	B	0.442	0.018
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	17,750	F	1.775	18,320	F	1.832	0.057
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	14,410	F	1.310	14,980	F	1.362	0.052
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	13,130	F	1.313	13,130	F	1.313	0.000
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	12,340	D	0.823	12,910	D	0.861	0.038
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	17,200	F	1.147	20,170	F	1.345	0.198
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	15,580	F	1.039	18,840	F	1.256	0.217
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	41,930	F	1.048	43,350	F	1.084	0.036
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	11,570	C	0.514	12,990	C	0.577	0.063
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	13,430	A	0.336	17,680	B	0.442	0.106

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,720	B	0.340	3,000	B	0.375	0.035
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,920	E	0.993	13,180	F	1.198	0.205
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	12,800	C	0.569	0.101
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	13,370	C	0.594	0.126
Riverwalk Drive to Street U	4-Lane Collector	15,000	10,660	D	0.711	16,600	F	1.107	0.396
Street U to Hotel Circle North	4-Lane Collector	15,000	10,660	D	0.711	16,600	F	1.107	0.396
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	17,050	B	0.426	17,330	B	0.433	0.007
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	19,470	B	0.487	19,470	B	0.487	0.000
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	19,450	B	0.432	19,450	B	0.432	0.000
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	27,060	C	0.601	27,060	C	0.601	0.000
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	23,280	B	0.466	24,130	B	0.483	0.017
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	34,100	D	0.853	34,810	D	0.870	0.017

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	10,200	A	0.204	10,770	A	0.215	0.011
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	24,330	B	0.487	24,900	B	0.498	0.011
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	8,200	F	1.025	10,460	F	1.308	0.283
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	8,740	C	0.583	10,440	D	0.696	0.113
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	*DNE*	–	–	–	–	–	–	–	–
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	8,710	A	0.218	8,990	A	0.225	0.007
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	8,710	A	0.218	8,710	A	0.218	0.000
Street U									
Street J to Street V	*DNE*	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	*DNE*	–	–	–	–	–	–	–	–
Street V									
Street U to Hotel Circle North	*DNE*	–	–	–	–	–	–	–	–

TABLE 8–7
EXISTING + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I and II			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	5,800	A	0.290	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Based on coordination with City staff, a capacity reduction was assumed to account for the EB auxiliary lane
f. Δ denotes a project-induced increase in the Volume to Capacity ratio

General Notes:

1. *DNE* = does not exist

TABLE 8–8
EXISTING + PROJECT PHASES I AND II FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Existing + Project Phases I and II ADT	Direction	Number of Lanes	Existing			Existing + Project Phases I and II			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	135,130	EB Mainlines	4M	0.446	14.50	B	0.448	17.60	B	0.002
		WB Mainlines	3M	0.896	36.80	E	0.905	37.50	E	0.009
Morena Boulevard to Taylor Street	197,420	EB Mainlines	4M+1A	0.567	20.60	C	0.569	20.70	C	0.002
		WB Mainlines	5M	0.780	30.70	D	0.786	30.90	D	0.006
Taylor Street to Hotel Circle	200,420	EB Mainlines	4M	0.670	26.70	D	0.673	26.90	D	0.003
		WB Mainlines	5M	0.786	31.10	D	0.793	31.40	D	0.007
Hotel Circle to SR163	218,400	EB Mainlines	4M+1A	0.630	23.10	C	0.648	23.80	C	0.018
		WB Mainlines	5M+1A	0.753	28.10	D	0.758	28.40	D	0.005
SR163 to Mission Center Road	222,980	EB Mainlines	5M	0.611	24.50	C	0.620	24.90	C	0.009
		WB Mainlines	4M+1A	0.945	39.50	E	0.948	39.80	E	0.003
East of Mission Center Road	239,830	EB Mainlines	5M	0.641	25.70	C	0.654	26.20	D	0.013
		WB Mainlines	4M+1A	1.002	>45.00	F	1.008	>45.00	F	0.006
I-5										
North of Sea World Drive	224,830	NB Mainlines	5M	0.880	35.80	E	0.894	36.70	E	0.014
		SB Mainlines	5M	0.649	25.20	C	0.653	25.40	C	0.004
Sea World Drive to I-8	207,000	NB Mainlines	5M+1A	0.752	27.80	D	0.752	27.80	D	0.000
		SB Mainlines	5M+1A	0.543	19.90	C	0.543	19.90	C	0.000
SR 163										
North of Friars Road	182,400	NB Mainlines	5M	0.870	35.40	E	0.886	36.40	E	0.016
		SB Mainlines	4M	0.830	33.40	D	0.837	33.80	D	0.007
Friars Road to I-8	154,130	NB Mainlines	3M	1.255	>45.00	F	1.259	>45.00	F	0.004
		SB Mainlines	4M+2A	0.549	18.80	C	0.554	19.00	C	0.005
South of I-8	164,550	NB Mainlines	3M+1A	1.082	>45.00	F	1.087	>45.00	F	0.005
		SB Mainlines	3M	0.987	>45.00	F	1.007	>45.00	F	0.020

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix J* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–9
EXISTING + PROJECT PHASES I AND II FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Existing + Project Phases I and II ADT	Direction	Number of Lanes	Existing			Existing + Project Phases I and II			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	135,130	EB Mainlines	4M	0.690	>45.00	F	0.698	>45.00	F	0.008
		WB Mainlines	3M	0.741	28.80	D	0.747	29.10	D	0.006
Morena Boulevard to Taylor Street	197,420	EB Mainlines	4M+1A	0.860	>45.00	F	0.868	>45.00	F	0.008
		WB Mainlines	5M	0.637	24.90	C	0.642	25.10	C	0.005
Taylor Street to Hotel Circle	200,420	EB Mainlines	4M	0.952	41.00	E	0.962	41.70	E	0.010
		WB Mainlines	5M	0.650	25.60	C	0.654	25.80	C	0.004
Hotel Circle to SR163	218,400	EB Mainlines	4M+1A	0.905	36.30	E	0.916	37.20	E	0.011
		WB Mainlines	5M+1A	0.629	23.40	C	0.646	24.00	C	0.017
SR163 to Mission Center Road	222,980	EB Mainlines	5M	0.857	34.90	D	0.864	35.20	E	0.007
		WB Mainlines	4M+1A	0.789	29.50	D	0.800	30.10	D	0.011
East of Mission Center Road	239,830	EB Mainlines	5M	0.919	38.60	E	0.928	39.20	E	0.009
		WB Mainlines	4M+1A	0.847	32.60	D	0.864	33.60	D	0.017
I-5										
North of Sea World Drive	224,830	NB Mainlines	5M	0.784	30.70	D	0.793	31.10	D	0.009
		SB Mainlines	5M	0.878	35.70	E	0.894	36.70	E	0.016
Sea World Drive to I-8	207,000	NB Mainlines	5M+1A	0.641	23.50	C	0.641	23.50	C	0.000
		SB Mainlines	5M+1A	0.734	27.00	D	0.734	27.00	D	0.000
SR 163										
North of Friars Road	182,400	NB Mainlines	5M	0.668	26.40	D	0.678	26.80	D	0.010
		SB Mainlines	4M	0.908	>45.00	F	0.932	>45.00	F	0.024
Friars Road to I-8	154,130	NB Mainlines	3M	0.934	39.50	E	0.944	40.30	E	0.010
		SB Mainlines	4M+2A	0.629	36.80	E	0.632	37.00	E	0.003
South of I-8	164,550	NB Mainlines	3M+1A	0.832	31.10	D	0.850	32.20	D	0.018
		SB Mainlines	3M	1.058	>45.00	F	1.071	>45.00	F	0.013

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix J* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–10
EXISTING + PROJECT PHASES I AND II RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Existing	AM	1,564	782	774	8	1	200
	PM	1,236	618	612	6	1	150
Existing + Project Phases I and II	AM	1,710	855	774	81	6	2,025
	PM	1,331	666	612	54	5	1,338
Project Increase	AM	146	73	NA	73	5	1,825
	PM	95	48	NA	48	4	1,188

Footnotes:

a. While meter rates were obtained from Caltrans, the rates were reduced to reflect existing ramp meter observations (see *Appendix E* for both the Caltrans rates and the existing ramp meter observations).

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

8.3 Existing + Project Phases I through III

The following section presents the analysis of study area intersections, street segments, freeway segments and ramp meter under Existing + Project Phases I through III conditions without and with the Riverwalk project.

Figure 8–5 shows the Existing + Project Phases I through III AM and PM peak hour traffic volumes and ***Figure 8–6*** shows the Existing + Project Phases I through III daily traffic volumes.

8.3.1 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Existing + Project Phases I through III conditions. ***Table 8–11*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road / Goshen Street (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road / Via Las Cumbres / Street F (LOS F during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Riverwalk Drive / Avenida Del Rio (LOS F during the PM peak hour)
- Hotel Circle N. / Hotel Circle Place (LOS F during the AM and PM peak hours)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS E during the AM peak hour and LOS F during the PM peak hour)

Appendix K contains the intersection analysis worksheets for the Existing + Project Phases I through III scenario.

8.3.2 *Daily Street Segment Operations*

Existing + Project Phases I through III street segment analyses were conducted for roadways in the study area. ***Table 8–12*** reports the Existing + Project Phases I through III daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS E)
- Friars Road: Ulric Street to SR 163 NB Ramps (LOS E)
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Hotel Circle North: Fashion Valley Road to Camino De La Reina (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)

- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS E)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Fashion Valley Road: Riverwalk Drive to Street U (LOS F)
- Fashion Valley Road: Street U to Hotel Circle North (LOS E)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS E)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

8.3.3 *Freeway Segment Operations*

Freeway segments were analyzed under Existing + Project Phases I through III conditions. ***Appendix L*** contains the detailed calculations sheets for the Existing + Project Phases I through III scenario. ***Tables 8–13*** and ***8–14*** reports the Existing + Project Phases I through III freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS E–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*

I-5

- North of Sea World Drive, *LOS E–AM (NB) and LOS E–PM (SB)*

SR-163

- North of Friars Road, *LOS E–AM (NB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS E–PM (NB and SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (SB)*

8.3.4 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Existing + Project Phases I through III conditions. ***Table 8–15*** reports the Existing + Project Phases I through III ramp meter operations.

TABLE 8–11
EXISTING + PROJECT PHASES I THROUGH III INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I through III		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	15.1	B	18.8	B	3.7
		PM	13.8	B	25.4	C	11.6
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	29.0	C	29.5	C	0.5
		PM	36.5	D	41.8	D	5.3
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	26.8	C	33.0	C	6.2
		PM	29.5	C	29.5	C	0.0
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	42.9	D	51.7	D	8.8
		PM	35.1	D	39.8	D	4.7
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	34.8	C	42.4	D	7.6
		PM	26.3	C	32.6	C	6.3
6. Morena Blvd. / Taylor St.	Signal	AM	37.7	D	39.6	D	1.9
		PM	27.4	C	28.0	C	0.6
7. Friars Rd. / Napa St.	Signal	AM	22.6	C	33.1	C	10.5
		PM	23.9	C	54.5	D	30.6
8. Friars Rd. / Colusa St.	Signal	AM	14.9	B	44.7	D	29.8
		PM	14.8	B	52.4	D	37.6
9. Friars Rd. / Goshen St.	OWSC[c]	AM	20.0	C	42.6	E	22.6
		PM	25.5	D	51.4	F	25.9
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	12.2	B	–
		PM	–	–	29.8	D	–
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	14.5	B	112.5	F	98.0
		PM	18.3	B	81.2	F	62.9
12. Friars Rd. / Street I	Signal	AM	–	–	16.0	B	–
		PM	–	–	54.5	D	–
13. Friars Rd. / Street 'K'	RIRO[d]	AM	–	–	12.5	B	–
		PM	–	–	28.0	D	–

TABLE 8–11
EXISTING + PROJECT PHASES I THROUGH III INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I through III		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
14. Friars Rd. / Street 'M'	Signal	AM	–	–	22.7	C	–
		PM	–	–	35.2	D	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	23.1	C	41.4	D	18.3
		PM	51.1	D	52.8	D	1.7
16. Friars Rd. / Via de la Moda	Signal	AM	3.3	A	3.6	A	0.3
		PM	16.0	B	29.1	C	13.1
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	6.7	A	7.4	A	0.7
		PM	21.7	C	22.7	C	1.0
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	13.8	B	17.7	C	3.9
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	4.4	A	4.6	A	0.2
		PM	3.4	A	3.5	A	0.1
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	34.8	C	42.8	D	8.0
		PM	30.6	C	46.2	D	15.6
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	15.0	B	25.9	C	10.9
		PM	16.1	B	26.2	C	10.1
22. Friars Rd. / Frazee Rd.	Signal	AM	48.6	D	52.5	D	3.9
		PM	59.4	E	60.8	E	1.4
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	18.2	B	18.3	B	0.1
		PM	19.7	B	21.2	C	1.5
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	12.3	B	12.7	B	0.4
		PM	20.8	C	20.9	C	0.1
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	45.0	D	45.3	D	0.3
		PM	42.6	D	43.5	D	0.9
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	9.4	A	11.1	B	1.7
		PM	17.7	B	19.3	B	1.6

TABLE 8–11
EXISTING + PROJECT PHASES I THROUGH III INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I through III		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
27. Friars Rd / River Run Dr.	Signal	AM	26.9	C	27.0	C	0.1
		PM	21.7	C	21.9	C	0.2
28. Fashion Valley Rd. / Private Drive 'T'	Unsignalized	AM	–	–	10.7	B	–
		PM	–	–	11.3	B	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	17.6	B	34.5	C	16.9
		PM	31.2	C	51.3	D	20.1
30. Fashion Valley Rd. / Street 'U'	Signal	AM	–	–	13.6	B	–
		PM	–	–	15.6	B	–
31. Street 'U' / Private Drive 'W'	Signal	AM	–	–	4.1	A	–
		PM	–	–	9.7	A	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	8.5	A	11.1	B	2.6
		PM	14.7	B	66.7	F	52.0
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.1	A	5.1	A	0.0
		PM	4.5	A	5.0	A	0.5
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	11.5	B	11.9	B	0.4
		PM	13.3	B	14.5	B	1.2
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	23.1	C	27.3	C	4.2
		PM	27.7	C	43.8	D	16.1
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	25.6	C	26.1	C	0.5
		PM	33.1	C	33.9	C	0.8
37. Camino de la Reina / Avenida Del Rio	Signal	AM	13.7	B	15.5	B	1.8
		PM	24.9	C	27.8	C	2.9
38. Camino de la Reina / Camino de la Siesta	Signal	AM	16.7	B	17.3	B	0.6
		PM	18.1	B	21.3	C	3.2
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	9.1	A	9.5	A	0.4
		PM	12.0	B	13.3	B	1.3

TABLE 8–11
EXISTING + PROJECT PHASES I THROUGH III INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I through III		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
40. Camino de la Reina / Mall Drwy.	Signal	AM	29.0	C	29.6	C	0.6
		PM	43.2	D	52.7	D	9.5
41. Camino de la Reina / Mission Center Rd.	Signal	AM	32.8	C	34.8	C	2.0
		PM	50.1	D	51.1	D	1.0
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.1	D	42.8	D	0.7
		PM	43.6	D	48.4	D	4.8
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	36.3	D	37.0	D	0.7
		PM	41.0	D	41.4	D	0.4
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	29.0	C	43.1	D	14.1
		PM	32.4	C	33.6	C	1.2
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	17.8	B	17.8	B	0.0
		PM	34.0	C	37.2	D	3.2
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	20.7	C	114.5	F	93.8
		PM	11.7	B	157.2	F	145.5
47. Taylor Street / I-8 WB Ramp	Signal	AM	6.7	A	7.4	A	0.7
		PM	4.6	A	4.7	A	0.1
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	47.1	E	288.1	F	241.0
		PM	39.3	E	282.9	F	243.6
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	9.8	A	16.3	B	6.5
		PM	12.7	B	30.8	C	18.1
50. Hotel Circle N. / Camino de la Reina	Signal	AM	30.5	C	55.0	D	24.5
		PM	24.0	C	32.4	C	8.4
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	16.6	C	35.3	E	18.7
		PM	67.9	F	127.3	F	59.4
52. Hotel Circle S. / Bachman Place	Signal	AM	23.6	C	43.9	D	20.3
		PM	22.5	C	31.2	C	8.7

TABLE 8–11
EXISTING + PROJECT PHASES I THROUGH III INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project Phases I through III		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
53. Street J / Riverwalk Drive	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
54. Street J / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	Signal	AM	–	–	5.1	A	–
		PM	–	–	5.4	A	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	34,200	D	0.855	35,220	E	0.881	0.026
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	29,490	C	0.737	33,580	D	0.840	0.103
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	29,490	C	0.666	32,220	C	0.728	0.062
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	30,470	D	0.762	31,830	D	0.796	0.034
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	22,410	C	0.560	22,410	C	0.560	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	13,650	A	0.341	18,760	B	0.469	0.128
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	19,170	B	0.479	28,660	C	0.717	0.238
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	19,200	B	0.480	29,070	C	0.727	0.247
Goshen Street to Street A	4-Lane Major Arterial	40,000	19,200	B	0.480	29,070	C	0.727	0.247
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	19,200	B	0.480	28,790	C	0.720	0.240
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	22,270	C	0.557	28,690	C	0.717	0.160
Street I to Street K	4-Lane Major Arterial	40,000	22,270	C	0.557	27,510	C	0.688	0.131
Street K to Street M	4-Lane Major Arterial	40,000	22,270	C	0.557	27,100	C	0.678	0.121
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	22,270	C	0.557	28,190	C	0.705	0.148
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	26,100	C	0.580	34,410	C	0.765	0.185

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	26,830	C	0.596	35,140	D	0.781	0.185
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	40,510	D	0.810	48,820	E	0.976	0.166
Ulric Street to SR163 NB Ramps	6-Lane Prime Arterial	60,000	53,170	D	0.886	58,230	E	0.971	0.085
SR163 NB Ramps to Frazee Road	7-Lane Prime Arterial	65,000	54,150	D	0.833	56,430	D	0.868	0.035
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	42,780	B	0.458	45,290	B	0.485	0.027
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	37,050	B	0.463	39,290	B	0.491	0.028
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	33,250	B	0.416	34,000	B	0.425	0.009
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	6,510	B	0.434	10,390	D	0.693	0.259
I-8 WB Hook Ramps to Fashion Valley Road	3-Lane Collector	11,000	15,510	F	1.410	18,240	F	1.658	0.248
Fashion Valley Road to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	12,460	D	0.831	15,040	F	1.003	0.172
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	5,430	B	0.362	5,800	B	0.387	0.025
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	24,030	C	0.601	24,640	C	0.616	0.015
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	8,480	C	0.565	8,920	C	0.595	0.030
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	13,360	F	1.336	16,270	F	1.627	0.291

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	10,730	A	0.268	13,270	A	0.332	0.064
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	10,730	A	0.268	13,270	A	0.332	0.064
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	19,060	B	0.424	20,380	B	0.453	0.029
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	17,750	F	1.775	18,800	F	1.880	0.105
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	14,410	F	1.310	15,460	F	1.405	0.095
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	13,130	F	1.313	17,010	F	1.701	0.388
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	12,340	D	0.823	13,150	E	0.877	0.054
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	17,200	F	1.147	19,340	F	1.289	0.142
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	15,580	F	1.039	17,720	F	1.181	0.142
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	41,930	F	1.048	43,290	F	1.082	0.034
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	11,570	C	0.514	12,930	C	0.575	0.061
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	13,430	A	0.336	17,820	B	0.446	0.110

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,720	B	0.340	3,090	B	0.386	0.046
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,920	E	0.993	13,200	F	1.200	0.207
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	13,690	C	0.608	0.140
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	10,540	C	0.468	13,690	C	0.608	0.140
Riverwalk Drive to Street U	4-Lane Collector	15,000	10,660	D	0.711	20,840	F	1.389	0.678
Street U to Hotel Circle North	4-Lane Collector	15,000	10,660	D	0.711	13,980	E	0.932	0.221
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	17,050	B	0.426	17,920	B	0.448	0.022
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	19,470	B	0.487	19,940	B	0.499	0.012
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	19,450	B	0.432	20,020	B	0.445	0.013
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	27,060	C	0.601	27,160	C	0.604	0.003
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	23,280	B	0.466	24,600	B	0.492	0.026
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	34,100	D	0.853	35,180	E	0.880	0.027

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	10,200	A	0.204	10,950	A	0.219	0.015
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	24,330	B	0.487	25,080	B	0.502	0.015
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	8,200	F	1.025	13,220	F	1.653	0.628
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	8,740	C	0.583	11,210	D	0.747	0.164
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	DNE	–	–	–	–	–	–	–	–
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	8,710	A	0.218	10,530	A	0.263	0.045
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	8,710	A	0.218	9,280	A	0.232	0.014
Street U									
Street J to Street V	*DNE*	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	4-Lane Collector (continuous left-turn lane)	30,000	–	–	–	8,850	A	0.295	–
Street V									
Street U to Hotel Circle North	4-Lane Collector	30,000	–	–	–	7,660	A	0.255	–

TABLE 8–12
EXISTING + PROJECT PHASES I THROUGH III SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Existing			Existing + Project Phases I through III			Δ^{f}
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	6,090	A	0.305	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Based on coordination with City staff, a capacity reduction was assumed to account for the EB auxiliary lane.
f. Δ denotes a project-induced increase in the Volume to Capacity ratio

General Notes:

1. *DNE* = does not exist

TABLE 8–13
EXISTING + PROJECT PHASES I THROUGH III FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Existing + Project Phases I through III ADT	Direction	Number of Lanes	Existing			Existing + Project Phases I through III			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	136,190	EB Mainlines	4M	0.446	14.50	B	0.461	18.10	C	0.015
		WB Mainlines	3M	0.896	36.80	E	0.907	37.60	E	0.011
Morena Boulevard to Taylor Street	198,760	EB Mainlines	4M+1A	0.567	20.60	C	0.584	21.20	C	0.017
		WB Mainlines	5M	0.780	30.70	D	0.788	31.00	D	0.008
Taylor Street to Hotel Circle	204,900	EB Mainlines	4M	0.670	26.70	D	0.715	28.50	D	0.045
		WB Mainlines	5M	0.786	31.10	D	0.794	31.50	D	0.008
Hotel Circle to SR163	221,260	EB Mainlines	4M+1A	0.630	23.10	C	0.652	23.90	C	0.022
		WB Mainlines	5M+1A	0.753	28.10	D	0.783	29.40	D	0.030
SR163 to Mission Center Road	224,310	EB Mainlines	5M	0.611	24.50	C	0.622	24.90	C	0.011
		WB Mainlines	4M+1A	0.945	39.50	E	0.963	41.20	E	0.018
East of Mission Center Road	241,520	EB Mainlines	5M	0.641	25.70	C	0.657	26.30	D	0.016
		WB Mainlines	4M+1A	1.002	>45.00	F	1.025	>45.00	F	0.023
I-5										
North of Sea World Drive	225,430	NB Mainlines	5M	0.880	35.80	E	0.895	36.80	E	0.015
		SB Mainlines	5M	0.649	25.20	C	0.660	25.70	C	0.011
Sea World Drive to I-8	207,700	NB Mainlines	5M+1A	0.752	27.80	D	0.753	27.80	D	0.001
		SB Mainlines	5M+1A	0.543	19.90	C	0.549	20.10	C	0.006
SR 163										
North of Friars Road	184,060	NB Mainlines	5M	0.870	35.40	E	0.888	36.50	E	0.018
		SB Mainlines	4M	0.830	33.40	D	0.858	34.90	D	0.028
Friars Road to I-8	154,690	NB Mainlines	3M	1.255	>45.00	F	1.260	>45.00	F	0.005
		SB Mainlines	4M+2A	0.549	18.80	C	0.560	19.20	C	0.011
South of I-8	165,450	NB Mainlines	3M+1A	1.082	>45.00	F	1.100	>45.00	F	0.018
		SB Mainlines	3M	0.987	>45.00	F	1.009	>45.00	F	0.022

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix L* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–14
EXISTING + PROJECT PHASES I THROUGH III FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Existing + Project Phases I through III ADT	Direction	Number of Lanes	Existing			Existing + Project Phases I through III			Δ V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	136,190	EB Mainlines	4M	0.690	>45.00	F	0.703	>45.00	F	0.013
		WB Mainlines	3M	0.741	28.80	D	0.764	29.80	D	0.023
Morena Boulevard to Taylor Street	198,760	EB Mainlines	4M+1A	0.860	>45.00	F	0.873	>45.00	F	0.013
		WB Mainlines	5M	0.637	24.90	C	0.655	25.60	C	0.018
Taylor Street to Hotel Circle	204,900	EB Mainlines	4M	0.952	41.00	E	1.014	>45.00	F	0.062
		WB Mainlines	5M	0.650	25.60	C	0.667	26.30	D	0.017
Hotel Circle to SR163	221,260	EB Mainlines	4M+1A	0.905	36.30	E	0.946	39.60	E	0.041
		WB Mainlines	5M+1A	0.629	23.40	C	0.653	24.30	C	0.024
SR163 to Mission Center Road	224,310	EB Mainlines	5M	0.857	34.90	D	0.876	36.00	E	0.019
		WB Mainlines	4M+1A	0.789	29.50	D	0.805	30.30	D	0.016
East of Mission Center Road	241,520	EB Mainlines	5M	0.919	38.60	E	0.944	40.40	E	0.025
		WB Mainlines	4M+1A	0.847	32.60	D	0.869	33.90	D	0.022
I-5										
North of Sea World Drive	225,430	NB Mainlines	5M	0.784	30.70	D	0.799	31.40	D	0.015
		SB Mainlines	5M	0.878	35.70	E	0.896	36.80	E	0.018
Sea World Drive to I-8	207,700	NB Mainlines	5M+1A	0.641	23.50	C	0.647	23.70	C	0.006
		SB Mainlines	5M+1A	0.734	27.00	D	0.736	27.10	D	0.002
SR 163										
North of Friars Road	184,060	NB Mainlines	5M	0.668	26.40	D	0.695	27.40	D	0.027
		SB Mainlines	4M	0.908	>45.00	F	0.938	>45.00	F	0.030
Friars Road to I-8	154,690	NB Mainlines	3M	0.934	39.50	E	0.953	41.00	E	0.019
		SB Mainlines	4M+2A	0.629	36.80	E	0.634	37.10	E	0.005
South of I-8	165,450	NB Mainlines	3M+1A	0.832	31.10	D	0.854	32.50	D	0.022
		SB Mainlines	3M	1.058	>45.00	F	1.086	>45.00	F	0.028

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix E* and *Appendix L* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 8–15
EXISTING + PROJECT PHASES I THROUGH III RAMP METER OPERATIONS

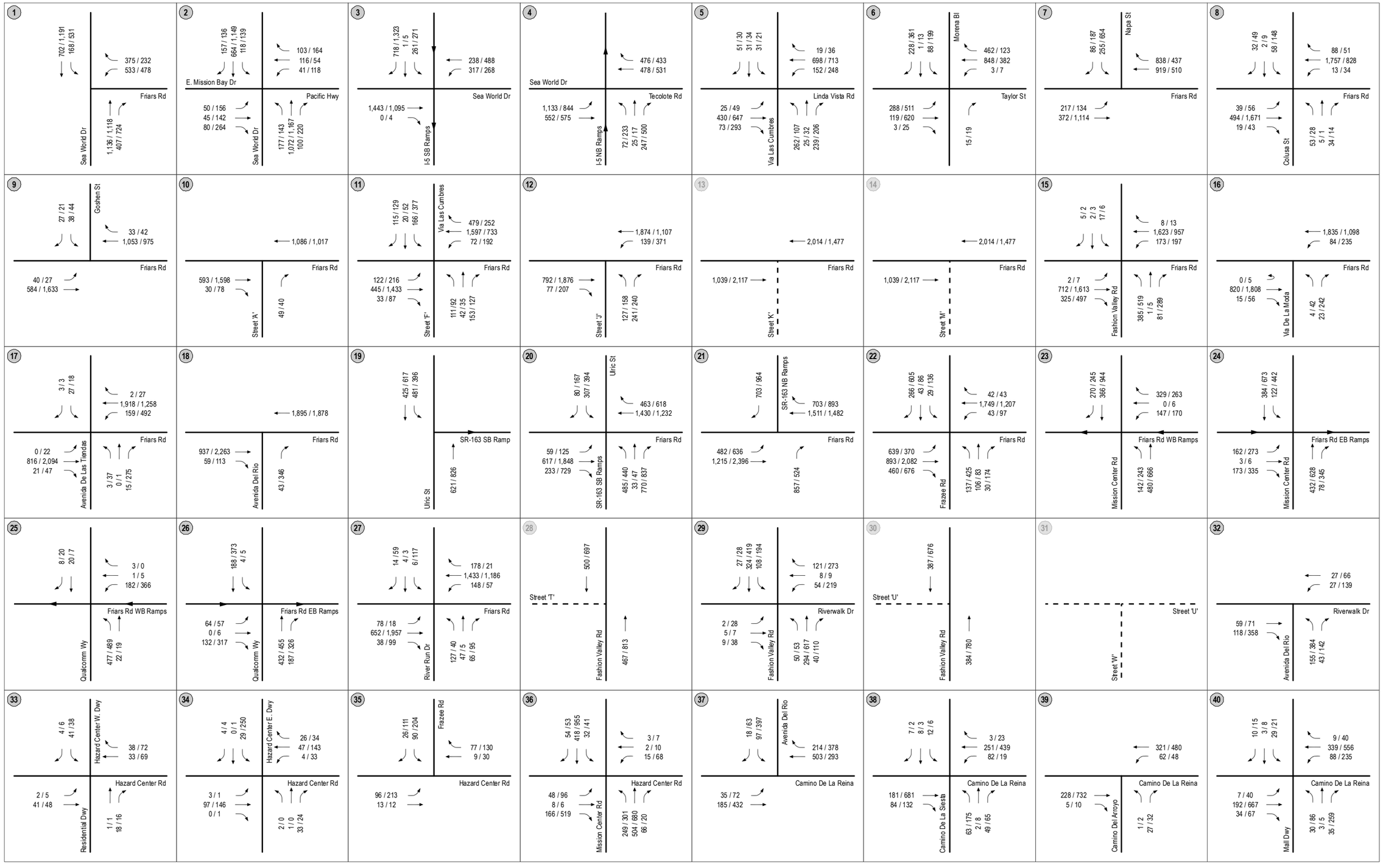
Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Existing	AM	1,564	782	774	8	1	200
	PM	1,236	618	612	6	1	150
Existing + Project Phases I through III	AM	1,710	855	774	81	6	2,025
	PM	1,327	664	612	52	5	1,288
Project Increase	AM	146	73	NA	73	5	1,825
	PM	91	46	NA	46	4	1,138

Footnotes:

a. While the most restrictive meter rates were obtained from Caltrans, the rates were reduced to reflect existing ramp meter observations (see *Appendix E* for both the Caltrans rates and the existing ramp meter observations).

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.



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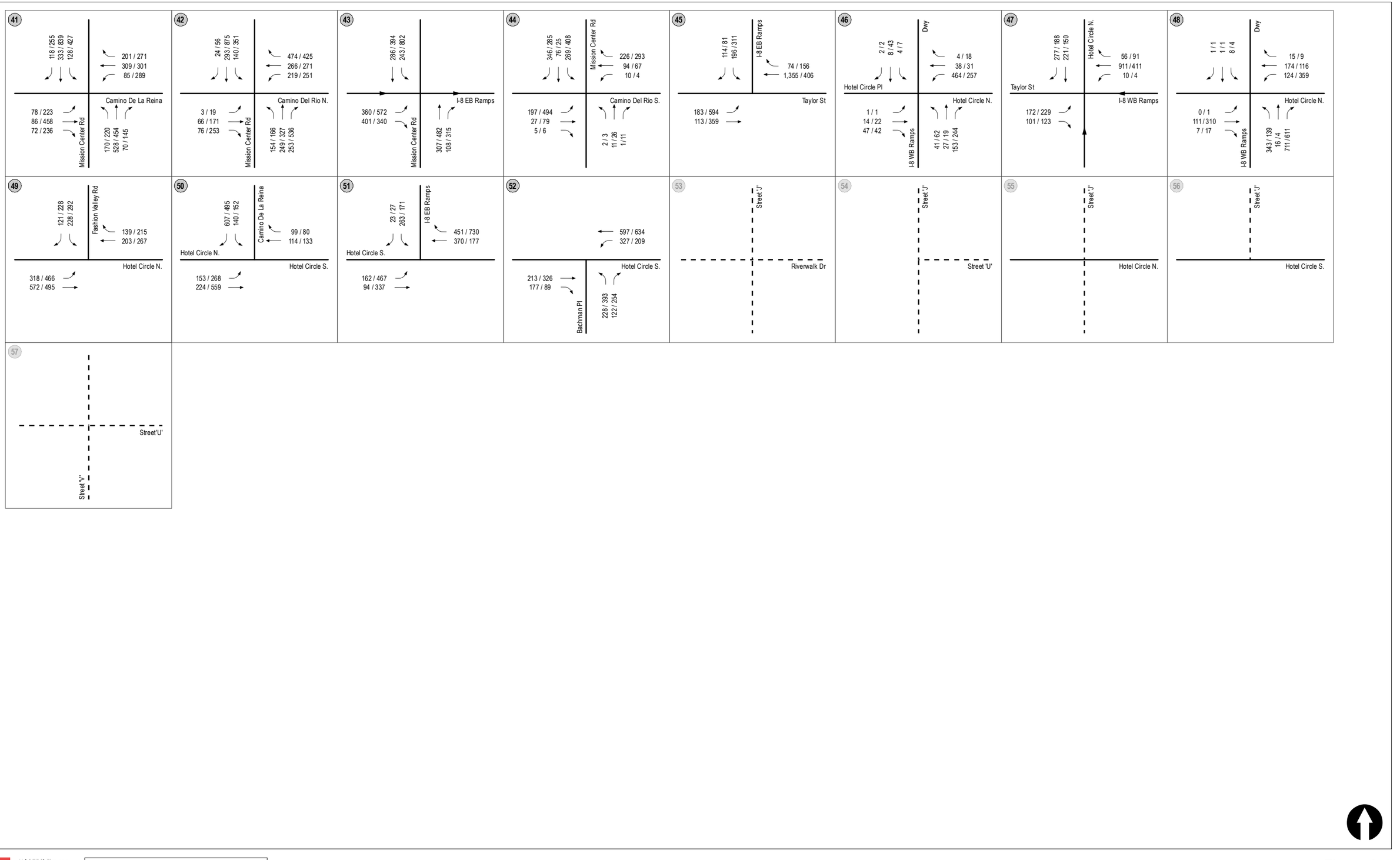
(#) Study Intersection
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Intersection AM/PM Peak Hour volumes

Figure 8-1

Existing + Project Phase I Traffic Volumes

(Page 1 of 2)

Riverwalk

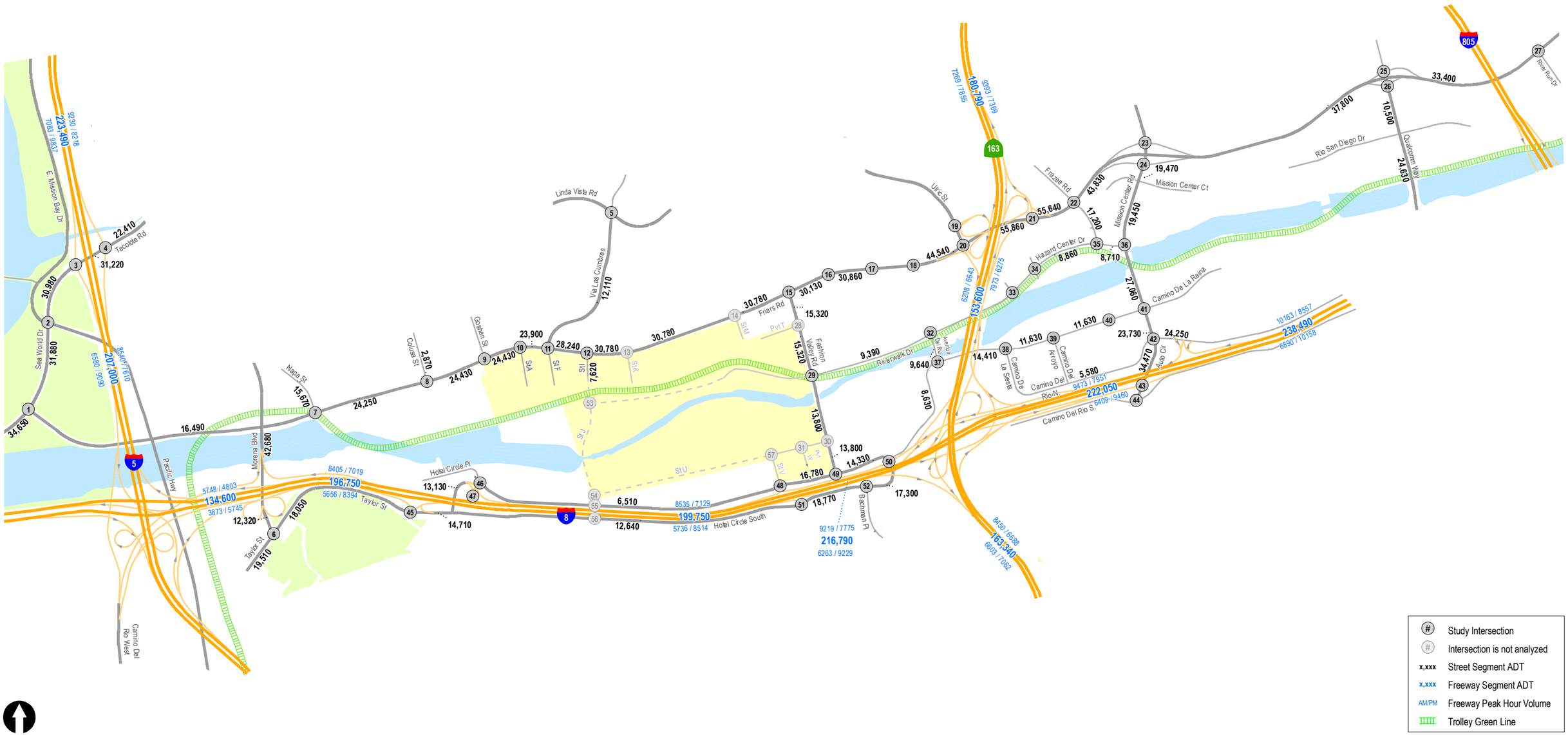


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Intersection AM/PM Peak Hour volumes

Figure 8-1
Existing + Project Phase I Traffic Volumes
(Page 2 of 2)
Riverwalk



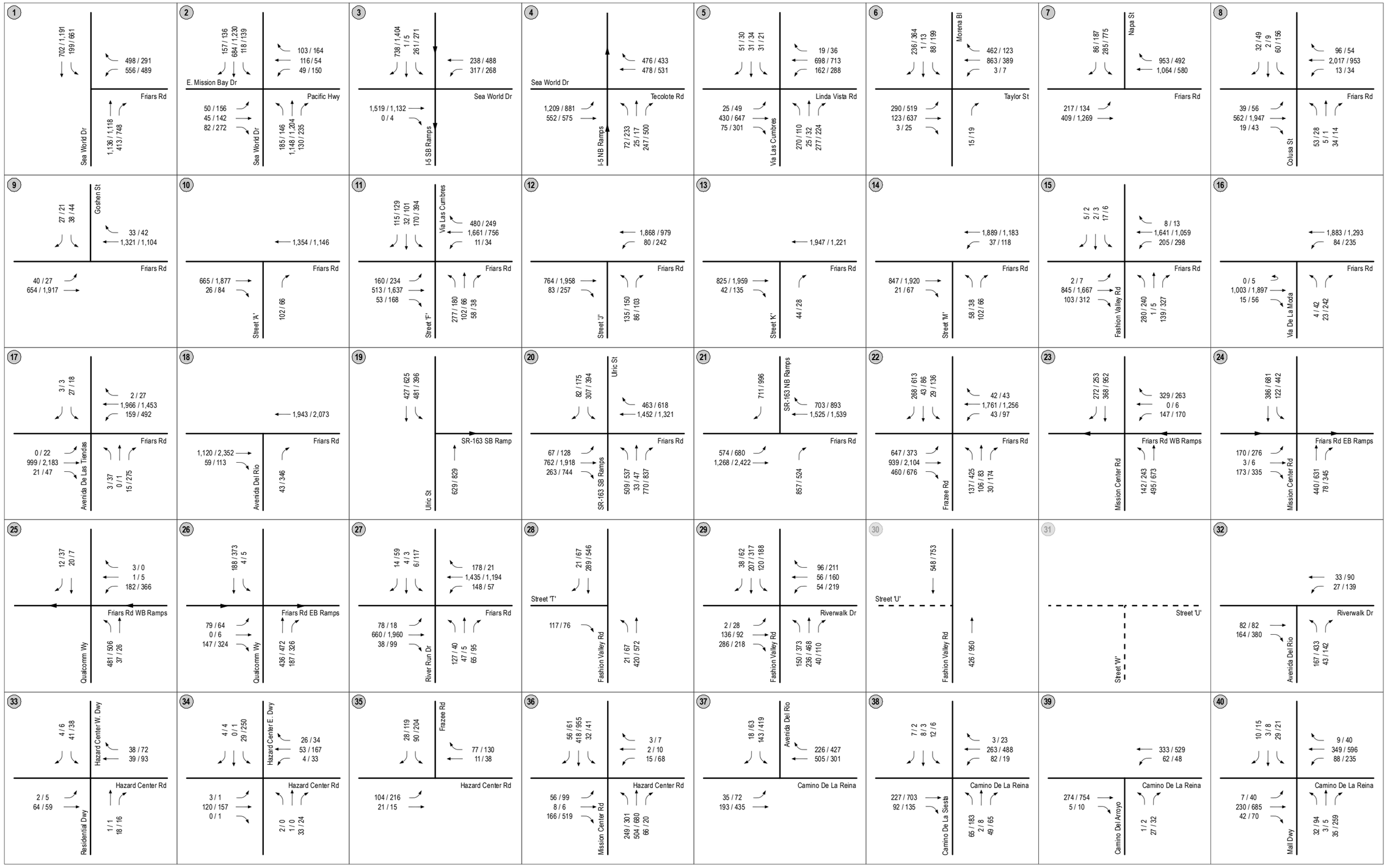
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Figure 8-2

Existing + Phase I Traffic Volumes

Riverwalk

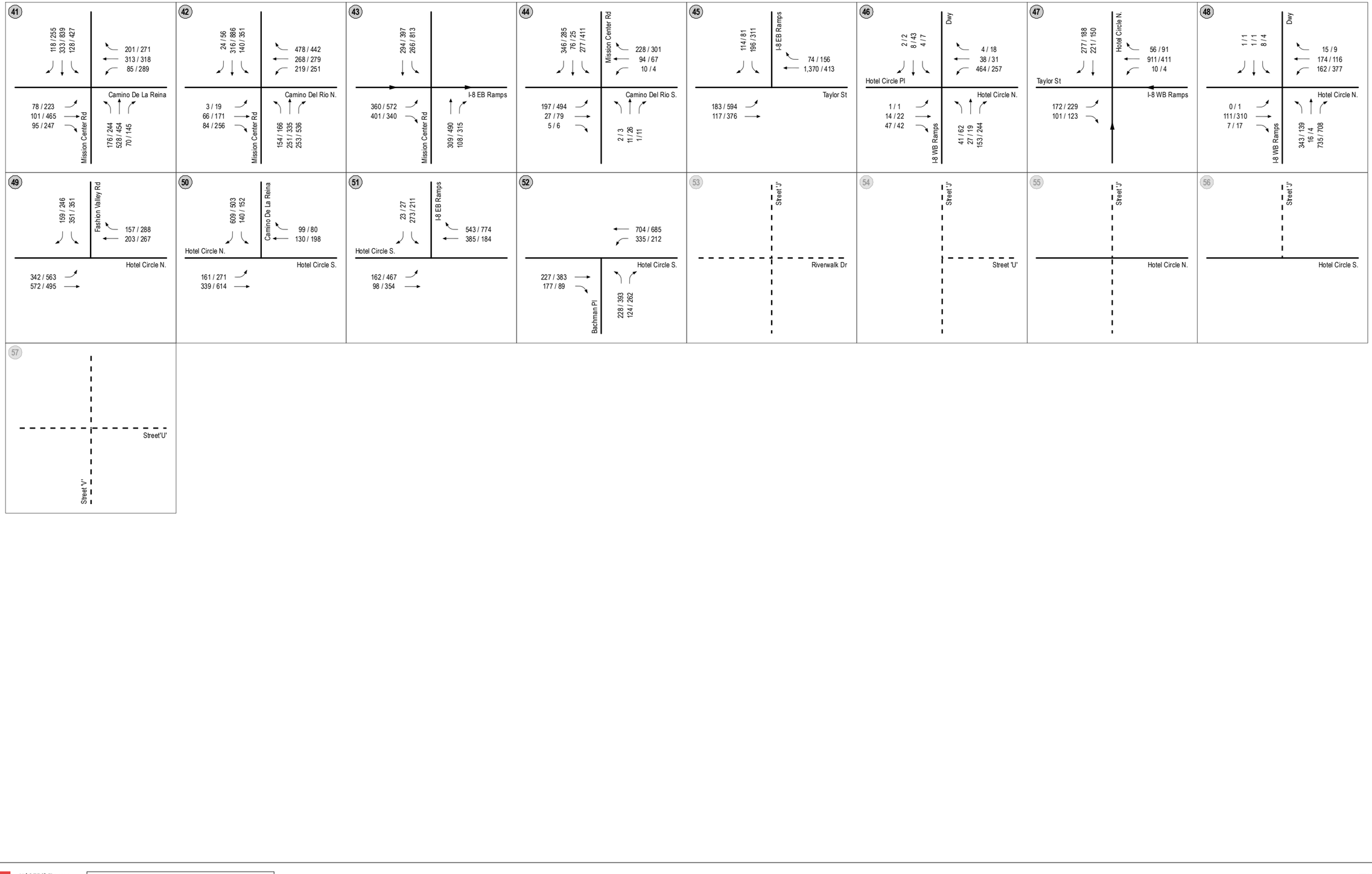


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Intersection AM/PM Peak Hour volumes

Figure 8-3
Existing + Project Phases I and II Traffic Volumes
(Page 1 of 2)
Riverwalk

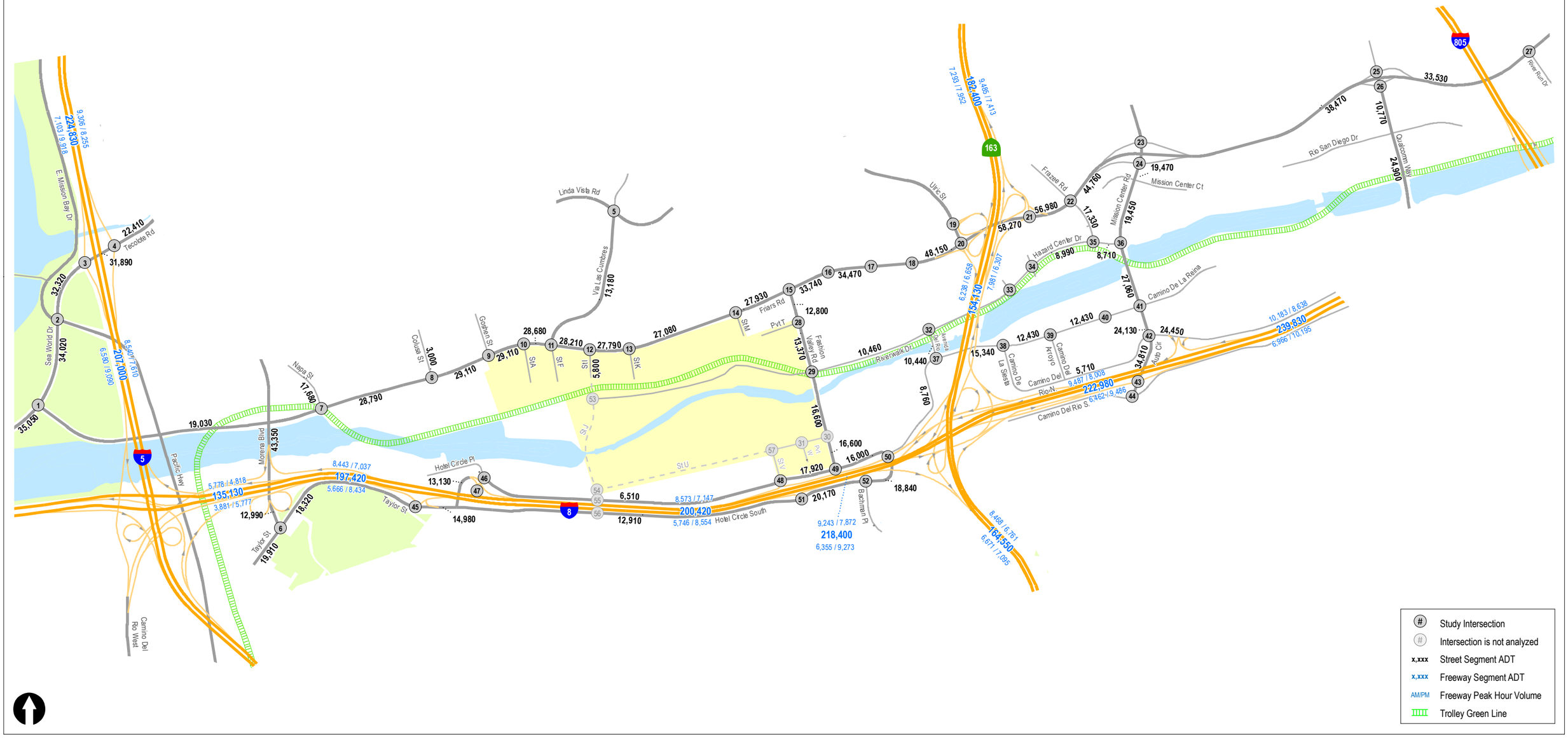


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(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 8-3
Existing + Project Phases I and II Traffic Volumes
(Page 2 of 2)
Riverwalk



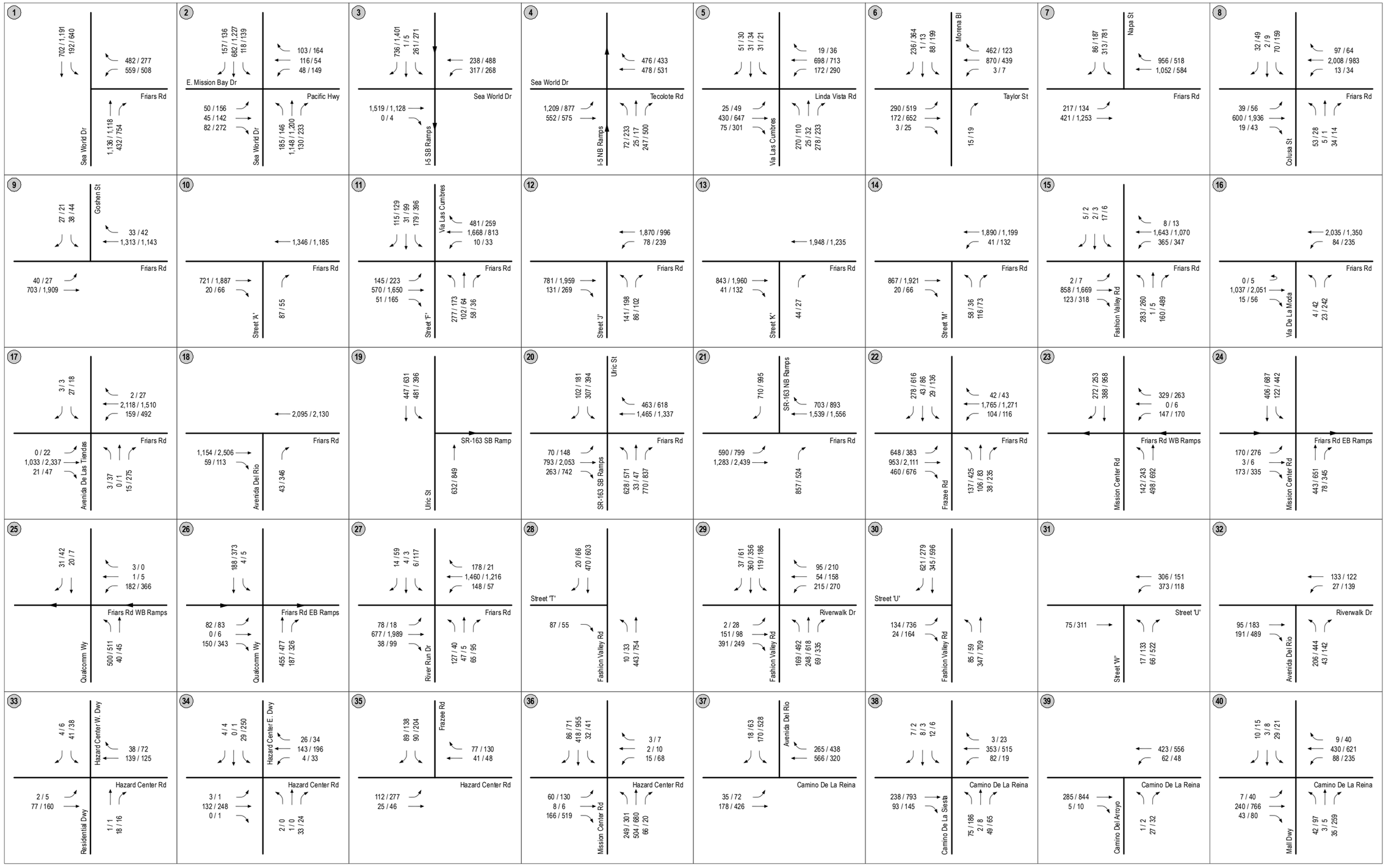
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Figure 8-4

Existing + Phase I and II Traffic Volumes

Riverwalk



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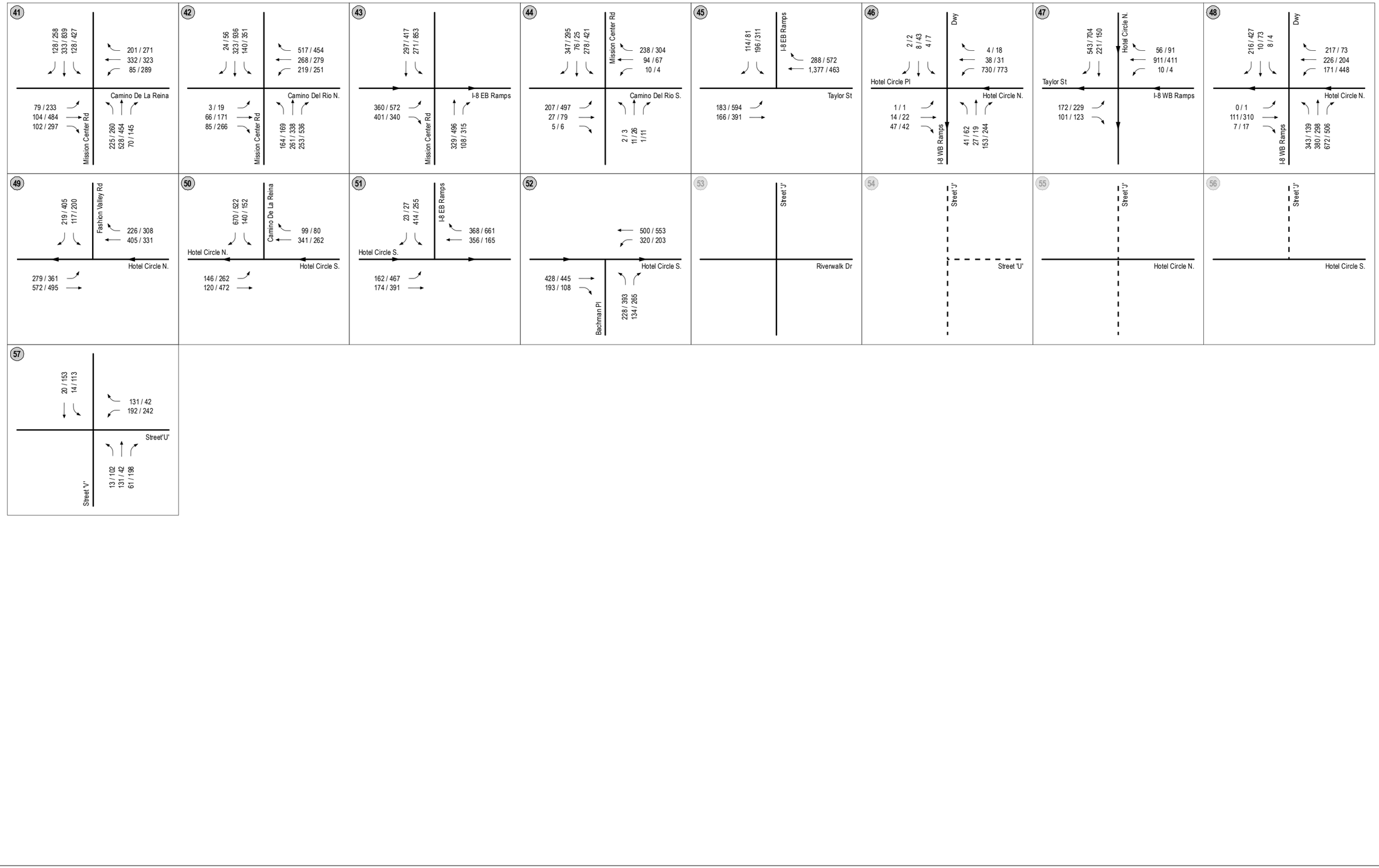
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 8-5

Existing + Project Phases I through III Traffic Volumes

(Page 1 of 2)

Riverwalk

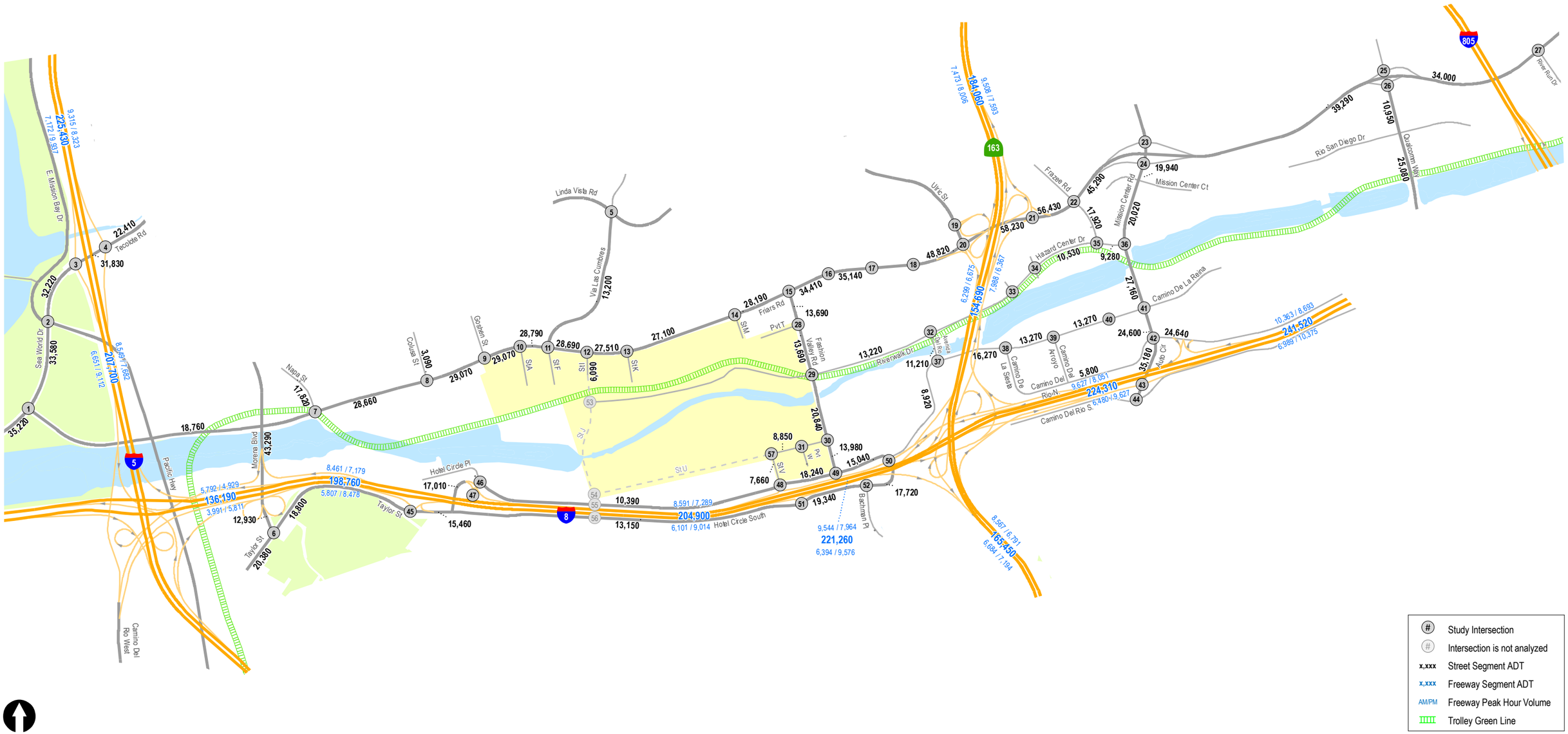


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(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 8-5
Existing + Project Phases I through III Traffic Volumes
(Page 2 of 2)
Riverwalk



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Figure 8-6

Existing + Phase I, II, and III Traffic Volumes

Riverwalk

9.0 CUMULATIVE PROJECTS

Cumulative projects represent reasonably foreseeable planned development that contributes to background traffic conditions that are planned to open in the interim or the horizon year but not open at the time project's existing count data was collected. The following section discusses the cumulative projects in the study area.

9.1 Cumulative Project Research

With assistance from the City, nineteen (19) cumulative projects have been identified. Each project was reviewed to determine its occupancy/ construction status and timing of construction relative to the date of this project's existing traffic count data. ***Table 9–1*** contains the list of cumulative projects. ***Figure 9–1*** shows the cumulative projects location map.

TABLE 9–1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT	Status
1. Town & Country Master Plan (PTS 424475)[a]	Multi-Family Residential (Hotel) (Convention Center)	840 Units (254 Rooms) (35,632 SF)	0	Under Construction
2. Union Tribune Master Plan (PTS 277550)[b]	Multi-Family Residential Service Retail Amenity Space Commercial Office	129 Units 3,000 SF 170,000 SF	1,128	Phase I complete and operational
3. Alexan Fashion Valley (PTS 474586)	Multi-Family Residential Commercial Office Retail (Office)	284 Units 8,150 SF 3,145 SF (69,651 SF)	851	Under Construction
4. Legacy International Center (PTS 332401)	Hotel Vision Center Pavilion Outdoor Plaza Resort Hotel Restaurant Gas station Health club Liquor store	127 Rooms 41,074 SF 63,477 SF 7,783 SF (202 Rooms) (5300 SF) (8 Pumps) (28,000 SF) (1,200 SF)	277	Completed and operational in January 2020
5. Camino Del Rio Mixed Use (Millennium I) (PTS 341130)	Multi-Family Residential Multi-Tenant Office Retail	305 dwelling units 5,000 SF 4,000 SF	1,432	Completed and operational in February 2018
6. Witt Mission Valley (Millennium 2) (PTS 562674)	Multi-Family Residential Multi-Tenant Office Retail Restaurant (Car dealership) Repair Shop	277 dwelling units 3,600 SF 2,500 SF 3,500 SF (20,400 SF) (17,700 SF)	581	Under construction
7. Friars Road Multi-Family (PTS 453373)	Multi-Family Residential (Office)	249 Apartments 70 Condominiums 6 Shopkeepers Units (28,548 SF)	878	Under Construction
8. USD Master Plan Update (PTS 417090)[c]	University	3,000 FTE	9,300	Under Construction
9. Hotel Circle Marijuana Outlet (PTS 546628)	Marijuana Outlet	1,667 SF	417	Under Review
10. Iris Hotel (PTS 577225)	Hotel	96 Rooms	386	Under Review

TABLE 9–1
CUMULATIVE PROJECTS

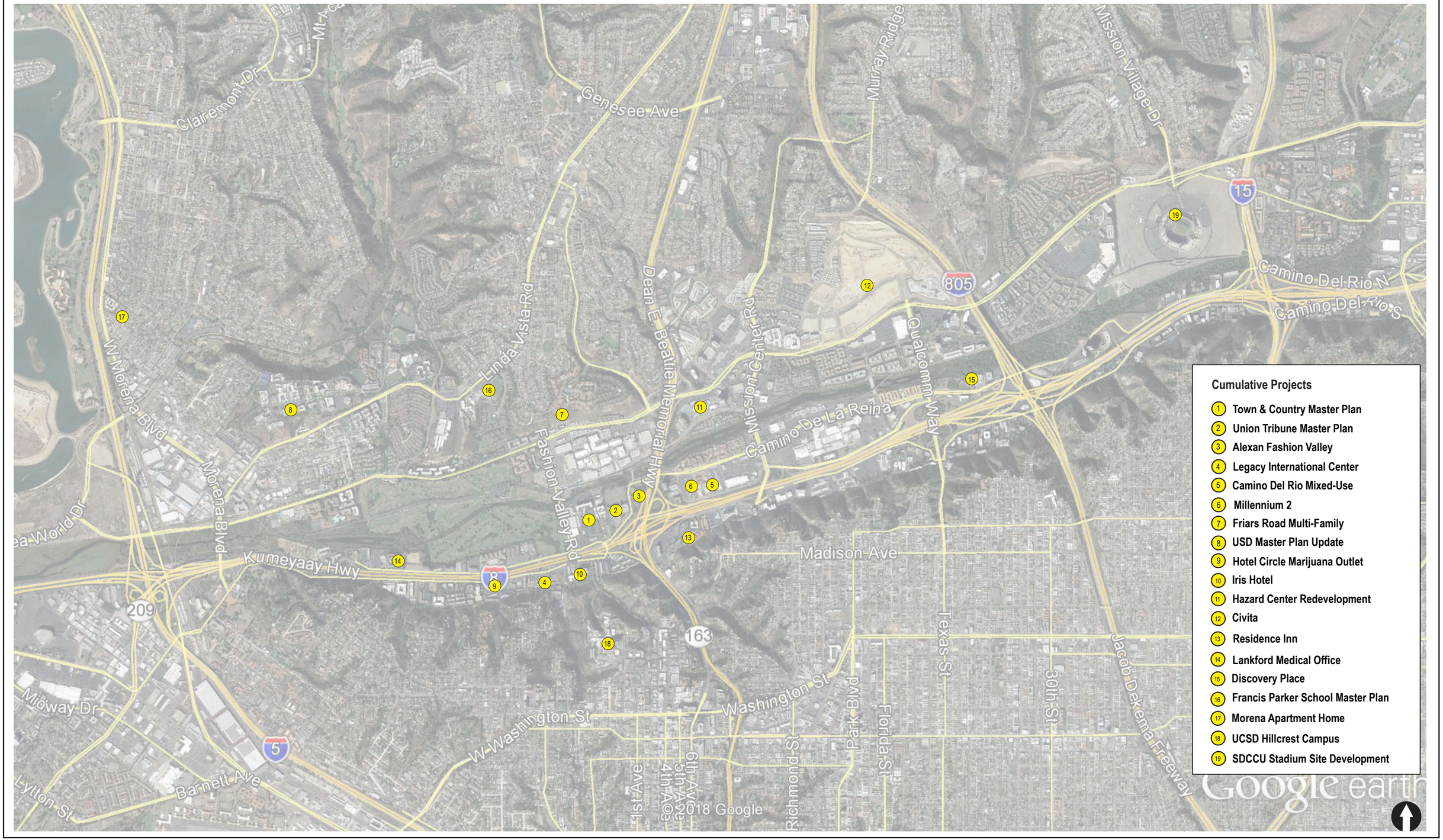
Project Name	Type of Development	Project Size	ADT	Status
11. Hazard Center Redevelopment (PTS 146803)	Residential Commercial / Retail	473 Multi-Dwelling Units 4,205 SF Commercial	950	Approved
12. Quarry Falls (Civita) – Project Buildout[d] (PTS 49068)	Residential Retail Commercial Community Commercial Neighborhood Commercial Commercial Office Recreation Center	4,780 dwelling units 503,000 SF 50,000 SF 50,000 SF 620,000 SF 4,000 SF	52,330	Under Construction
13. Residence Inn (PTS 322365)	Motel	118 Rooms	1,062	Under Review
14. Lankford Medical Office (PTS 523313)	Medical Office	92,400 SF	1,848	Under Review
15. Discovery Place (PTS 369379)	Hotel Fast Food Commercial / Retail	111 Rooms 1,500 SF 6,000 SF	1,971	Under Review
16. Francis Parker School Master Plan Update (PTS 31079)	Students	140 Students	476	Under Review
17. Morena Apartment Homes (PTS 526167)	Multi-Family Residential Mobile Home Park	150 Dwelling Units (45 Dwelling Units)	796	Approved
18. UCSD Hillcrest Master Plan	Medical Office Commercial Office Science Research Wellness Center Residential Hospital Retail	292,000 SF 161,000 SF 194,000 SF 40,000 SF 1,000 units 300 beds 4,000 SF	3,494 (net new)	Approved
19. SDCCU Stadium Site Development[d]	Stadium Residential Retail Campus Use Hotel Parks	35,000 seats 4,600 units 95,000 SF 1,600,000 SF 400 room 84 acres	57,077	Initiative Approved

Footnotes:

a. Per the approved Town and Country Master Plan, the project proposes to construct 840 dwelling units by demolishing 254 rooms and 35,632 SF of convention space. Given the reduction in hotel rooms and conventions rooms, per the approved project EIR, there was no change in daily traffic. Based on coordination with the Town & Country applicant in January 2020, the Town & Country project is anticipated to build its first two phases (i.e. 435 units) in Year 2020.
b. The Union Tribune office use was completed and occupied in October 2018. The timing of the residential use is unknown at this time.
c. The project proposes to add a total of 3,000 FTE by Year 2035. In Fall 2018, 500 FTE's were added to the existing FTE count of 7,000 FTE totaling 7,500 FTE. To be conservative, full buildout of the project was assumed.
d. Based on coordination with the applicant, most of Phase 1 was occupied in year 2015. To be conservative, full buildout of the project was assumed.
e. The MVCPU included the Soccer City development in its forecast projections as it was conservative from a traffic generation perspective.

General Notes:

1. The status of the project reflects the latest information available at the time of writing this report. In comparison to the existing counts (i.e. Year 2015), only Quarry Falls (i.e. Civita) was under construction. Therefore, for the Near-Term analysis, the traffic generated by all of these projects was included.
2. FTE – Full Time Equivalent.
3. ( ) – Demolition and reduction in trips.



Cumulative Projects

1. Town & Country Master Plan
2. Union Tribune Master Plan
3. Alexan Fashion Valley
4. Legacy International Center
5. Camino Del Rio Mixed-Use
6. Millennium 2
7. Friars Road Multi-Family
8. USD Master Plan Update
9. Hotel Circle Marijuana Outlet
10. Iris Hotel
11. Hazard Center Redevelopment
12. Civita
13. Residence Inn
14. Lankford Medical Office
15. Discovery Place
16. Francis Parker School Master Plan
17. Morena Apartment Home
18. UCSD Hillcrest Campus
19. SDCCU Stadium Site Development

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Figure 9-1

Cumulative Project Location Map

Riverwalk

10.0 NEAR-TERM (OPENING DAY 2025) (PHASE I) ANALYSIS

The following section presents the analysis of study area intersections, street segments, and freeway segments under Near-Term (Opening Day is expected in Year 2025) conditions without and with the Riverwalk project.

10.1 Near-Term (Opening Day 2025) Analysis Approach

To determine the potential Year 2025 traffic effects, the "Year 2025" future baseline is compared to the "Year 2025 with Riverwalk project" scenario to identify potential locations of transportation improvements that will be consistent with the TIP.

10.2 Near-Term (Opening Day 2025) Auto Conditions

For the purposes of this traffic study, the implementation of a number of local and regional roadway improvements were reviewed based on information provided in the *Mission Valley Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista Public Facilities Financing Plan (PFFP) – Fiscal Year 2006, Mission Valley Community Plan (2019),* the *2050 Regional Transportation Plan* (RTP), *City of San Diego Pedestrian (2015) and Bicycle (2013) Master Plans*, and other approved developer transportation improvements in the Mission Valley and Linda Vista Communities.

10.2.1 *Planned Local Improvements*

Table 10–1 identifies the local improvements assumed in the analysis. This was determined on a project-by-project basis. An improvement project was assumed only if it is currently under construction or if a development project was approved by City Council and a roadway improvement is assured as a part of its mitigation measure obligations. ***Figure 10–1*** shows the Near-Term (Opening Day 2025) conditions diagrams for the study intersections. ***Figure 10–2*** shows the Near-Term (Opening Day 2025) conditions diagrams for the study street segments and freeways.

Table 10–2 identifies local improvements considered but not assumed. These improvements were reviewed as they represent full maturity of the transportation network; however, these improvements were not assumed in the analysis.

TABLE 10–1
NEAR-TERM (OPENING DAY 2025) PLANNED LOCAL IMPROVEMENTS– ASSUMED

Project Name/ Location	Approved Project's Condition of Approval Improvements	Schedule/ Funding / Notes
Hotel Circle North widening to 4-lanes between Fashion Valley Road and Camino De La Reina	This improvement proposes to widen Hotel Circle N. from Fashion Valley Road to Camino De La Reina to 4-lane Collector standards per the Mission Valley Community Plan. Additional turn lanes will be provided at Fashion Valley Road and Camino De La Reina intersections.	This improvement is a condition of approval of the Town & Country Master Plan and is along that project's frontage. This improvement is under construction.
Hotel Circle S. / I-8 EB Ramps Intersection Improvements	This improvement includes the widening of Hotel Circle South to include an additional eastbound and westbound travel lane at the I-8 EB Ramps/Hotel Circle South intersection.	This improvement is a condition of approval of the Legacy International Center project and is along that project's frontage. This improvement has been completed.
Friars Road between Fashion Valley Road and Via De La Moda Improvements	This improvement includes widening of Friars Road to accommodate an additional westbound travel lane between Fashion Valley Road and Via De La Moda. A fourth leg to the Friars Road/Via De La Moda intersection will be added.	This improvement is a condition of approval of the Friars Road Multi-Family project and is along that project's frontage. This improvement is currently in the permitting stage.
Hazard Center Drive Extension (Mission Valley / T-15)	This improvement would provide for the extension of Hazard Center Drive as two-lanes from Avenida del Rio to the existing road behind the Hazard Center shopping center.	This improvement is currently under construction.
Friars Road EB Ramps / Qualcomm Way	This improvement includes construction of an additional eastbound left-turn lane.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project. This project has been completed.
Camino Del Rio N. restriping between Camino De La Siesta to Camino Del Arroyo	This improvement includes restriping of Camino Del Rio N. to include a continuous 10-foot wide left turn lane between Camino De La Siesta to Camino Del Arroyo.	This improvement is a condition of approval of the Witt Mission Valley project (Millennium 2) and is along that project's frontage.

TABLE 10–2
NEAR-TERM (OPENING DAY 2025) PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Valley Public Facilities Financing Plan (PFFP) and Other Project Mitigation		
Camino De La Reina widening to 4-lanes **(MV T-11)**	This improvement includes the widening of Camino De La Reina to 4-lane Major between Hotel Circle North and Avenida Del Rio.	This improvement is a condition of approval of the Town and Country Master Plan, Union Tribune Master Plan and Alexan Fashion Valley projects. However, given that the MVCP classifies Camino De la Reina as a 2-lane Collector, this improvement was not assumed.
Camino Del Rio South Widening from Mission Center Road to I-805 (Mission Valley / T-2)	This improvement would widen Camino Del Rio South to a 4-lane Collector from Mission Center Road to I-805. Includes a grade separation of Camino Del Rio South from Texas Street.	Unidentified funding
Hotel Circle/Eastbound & Westbound I-8 Ramps (Mission Valley / T-5)	This improvement would provide increased intersection capacity and signalization at the eastbound I-8 ramps at Hotel Circle South and construct new Fashion Valley Road ramps to/from westbound I-8, including a realignment of Hotel Circle North at Fashion Valley Road.	Subdivider funded project
Friars Road – Restriping from Colusa Street to Ulric Street (Mission Valley / T-6)	This improvement would provide for the restriping along Friars Road to create a 6-lane Major from Colusa Street to Ulric Street. Restriping was completed from west of Ulric Street to east of Fashion Valley Road; remaining portion to Colusa Street has not yet been completed.	Subdivider funded project
Camino De La Reina Extension – Fashion Valley Road to Via las Cumbres (Mission Valley / T-7)	This improvement includes the construction of Riverwalk Drive/Camino De La Reina as a 4-lane Major Street between Fashion Valley Road and Napa Street. Based on coordination with City staff as a part of the current Mission Valley Community Plan Update, the extension is proposed to Via Las Cumbres. The extension between Via Las Cumbres and Napa Street is no longer proposed.	Subdivider funded project
Hotel Circle South – widen between EB I-8 ramps and Camino De La Reina (Mission Valley / T-8B)	This improvement would widen Hotel Circle South between the eastbound I-8 hook ramps and Camino De La Reina to a 4-lane Collector from 2 lanes.	Subdivider funded project
Taylor Street – widen between EB Presidio ramps and I-8 Presidio overcrossing (Mission Valley / T-9)	This improvement would provide for the widening of Taylor Street between the eastbound Presidio ramps and I-8 Presidio overcrossing to 4 lanes and a bike lane.	Unidentified funding
Hotel Circle North – widen between I-8 ramps and Camino De La Reina (Mission Valley / T-10A)	This improvement would widen Hotel Circle North to a 4-lane Collector between the westbound I-8 ramps and Camino De La Reina.	Subdivider funded project

TABLE 10–2
NEAR-TERM (OPENING DAY 2025) PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Camino De La Reina – 4-lane Major between SR 163 and Fashion Valley Road (Mission Valley / T-10B)	This improvement would provide for the construction of Camino De La Reina as a 4-lane Major Street between SR 163 and Fashion Valley Road.	Subdivider funded project
Camino De La Reina – widen between Hotel Circle North and Avenida Del Rio (Mission Valley / T-11)	This improvement would widen the existing Camino De La Reina to a 4-lane Major between Hotel Circle North and Avenida Del Rio.	Subdivider funded project
I-8/Via Las Cumbres Interchange (Mission Valley / T-12)	This improvement would provide for the construction of a new interchange at Hotel Circle North and Hotel Circle South at I-8 and is needed to serve new development.	Subdivider funded project
Via Las Cumbres Extension (Mission Valley / T-13)	This improvement includes the extension of Via Las Cumbres between Friars Road and Hotel Circle N.	Subdivider funded project
I-8 Hook Ramps (Mission Valley / T-22)	This improvement would provide for the reconstruction of ramps to/from Camino Del Rio North at the I-8 freeway westbound.	Subdivider funded project
Widen Camino Del Rio North – I-15 to Ward Road (Mission Valley / T-24A)	This improvement includes the widening of Camino Del Rio North to a 4-lane Major between the west side of I-15 and Ward Road.	Unidentified funding
Friars Road (North Side) – Fashion Valley Road to Avenida De Las Tiendas (Mission Valley / T-28)	This improvement would restripe the north side of Friars Road to 6 lanes with bicycle lanes from Fashion Valley Road to Avenida De Las Tiendas. Parking will be removed.	Based on field observations, both Phase I and Phase II appear to be completed.
Mission Center Road/Camino Del Rio North intersection	This improvement includes construction of an additional westbound through lane at the Mission Road / Camino Del Rio North intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.

TABLE 10–2
NEAR-TERM (OPENING DAY 2025) PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Center Road/ I-8 EB Ramps intersection	This improvement includes construction of an additional southbound through lane, an additional southbound left-turn lane and an additional eastbound left-turn lane at the Mission Center Road/I-8 EB Ramps intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.
Linda Vista Valley Public Facilities Financing Plan (PFFP)		
Napa Street Traffic Improvements (Linda Vista / T-7)	This improvement proposes to improve traffic flow at the Linda Vista Road / Napa Street intersection. The improvement description is preliminary and the scope of work has not been established.	Unidentified funding
Traffic Signal at Goshen Street and Linda Vista Road (Linda Vista / T-19)	This improvement includes the installation of a traffic signal at the intersection of Goshen Street and Linda Vista Road.	Unidentified funding

10.2.2 *Planned Regional Improvements*

Table 10–3 identifies the regional improvements assumed in the analysis. These improvements are considered assured and/or in progress.

Table 10–4 identifies regional improvements considered but not assumed in the analysis due to a lack of funding or assured timing.

Excerpts from the documents pertaining to the study area can be found in ***Appendix M.***

TABLE 10–3
NEAR-TERM (OPENING DAY 2025) PLANNED REGIONAL IMPROVEMENTS – ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase I (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phase I of the improvement includes widening of Friars Road from Avenida de las Tiendas to Mission Center Road, including the Friars Road overcrossing and reconstructing the interchange improvements to ramp intersections. • Widening Friars Road overcrossing • Improving Frazee Road, Avenida de las Tiendas and Ulric Street intersections along Friars Road • Constructing a designated bike lane and improving pedestrian facilities.	This improvement was recently completed (December 2019).

TABLE 10–4
NEAR-TERM (OPENING DAY 2025) PLANNED REGIONAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase II and III (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phases II and III include the following improvements: • Widening southbound SR 163 to include two (2) additional lanes between Friars Road and I-8 to accommodate a southbound collector-distributor (Phase II) • Construction of a flyover structure from Ulric Street to southbound SR 163 (Phase II) • Construction of a dedicated southbound auxiliary lane on SR 163 to I-8 westbound to eliminate the freeway weaving conflict on SR 163 (Phase II) • Construct new NB SR 163 on ramp at Friars Road with auxiliary lanes on the freeway (Phase III)	Given that the schedule and funding for Phases II and III are unknown at this time, these improvements were not assumed.
I-5 Operational Improvements Project	This project includes widening of I-5 between I-15 and I-8 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-5 are programmed in the Year 2050.
I-5 Managed Lanes Project	This project includes widening of I-5 between I-8 and La Jolla Village Drive to provide a managed lane in each direction.	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the addition of managed lanes on I-5 is programmed in the Year 2050.
I-8 Operational Improvements Project	This project includes widening of I-8 between I-5 and I-15 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-8 are programmed in the Year 2050.

10.2.3 *Near-Term (Opening Day 2025) Traffic Volumes*

Near-Term (Opening Day 2025) traffic volumes were calculated for the study area by manually adding the Near-Term cumulative project volumes onto the existing volumes. The traffic volumes represent LLG's and the City's best efforts of forecasting Near-Term (Opening Day 2025) conditions with the most recent information available at the time this report was prepared.

Figure 10–3 shows the Near-Term (Opening Day 2025) intersection volumes. ***Figure 10–4*** shows the Near-Term (Opening Day 2025) street segment and freeway volumes.

10.2.4 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Near-Term (Opening Day 2025) conditions. ***Table 10–5*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road / Goshen Street (LOS E during the PM peak hour)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS E during the AM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix N contains the intersection analysis worksheets for the Near-Term (Opening Day 2025) scenario.

10.2.5 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Near-Term (Opening Day 2025) conditions. ***Table 10–6*** reports the Near-Term (Opening Day 2025) street segment operations on a daily basis. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS E)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS E)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)

- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

10.2.6 *Freeway Segment Operations*

Freeway segment analyses were conducted in the study area under Near-Term (Opening Day 2025) conditions. ***Appendix O*** contains the detailed calculations sheets for the Near-Term (Opening Day 2025) scenario. ***Tables 10–7*** and ***10–8*** reports the Near-Term (Opening Day 2025) peak hour freeway segment operations. The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS E–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*

I-5

- North of Sea World Drive, *LOS E– AM (NB) and LOS E–PM (SB)*

SR 163

- North of Friars Road, *LOS E–AM (NB and SB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS E/F–PM (NB/SB)*

10.2.7 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Near-Term (Opening Day 2025) conditions. ***Table 10–9*** reports the Near-Term (Opening Day 2025) ramp meter operations.

10.3 Near-Term (Opening Day 2025) + Project Phase I

10.3.1 *Project Improvements*

For the Near-Term (Opening Day 2025) Phase I, the project would construct the following improvements.

- Construct a right-in/right-out driveway (Street A) on Friars Road, west of Via Las Cumbres. Street A would include two lanes with one lane inbound and one lane outbound.
- Construct the south leg of the Friars Road / Via Las Cumbres / Street F intersection and associated traffic signal modifications. The south leg (Street F) would include two inbound lanes and two outbound lanes with buffered bike lanes on both sides.
- Construct a new signalized intersection on Friars Road at the intersection of Street I / Street J that would serve the Riverwalk Transit Center. Street I would include four lanes with two inbound lanes and two outbound lanes separated by a raised median. Buffered bike lanes are also proposed on the both sides of Street I. Street J, south of Street I would include one travel lane in each direction, a raised median and buffered bike lane on both sides.
- Construct a right-in/right-out driveway (Street K) on Friars Road, east of Street I intersection. Street K would include two lanes with one lane inbound and one lane outbound.
- Construct the internal streets as needed to serve the Phase I development.

Figure 10–5 shows the Near-Term (Opening Day 2025) Project Phase I intersection trip distribution percentages. ***Figure 10–6*** shows the Near-Term (Opening Day 2025) Project Phase I street segment and freeway trip distribution percentages. ***Figure 10–7*** shows the Project Phase I intersection volumes. ***Figure 10–8*** shows the Project Phase I street segment and freeway volumes. ***Figure 10–9*** shows the Near-Term (Opening Day 2025) + Project Phase I intersection volumes. ***Figure 10–10*** shows the Near-Term (Opening Day 2025) + Project Phase I street segment and freeway volumes.

10.3.2 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Near-Term (Opening Day 2025) + Project Phase I conditions. *Table 10–5* reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road / Goshen Street (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road / Via Las Cumbres / Street F (LOS F during the AM and PM peak hours)
- Friars Road / Fashion Valley Road (LOS E during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS E during the AM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix P contains the intersection analysis worksheets for the Near-Term (Opening Day 2025) + Project Phase I scenario.

10.3.3 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Near-Term (Opening Day 2025) + Project Phase I conditions. *Table 10–6* reports the Near-Term (Opening Day 2025) + Project Phase I daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS E)
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS E)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Fashion Valley Road: Friars Road to Private Drive T (LOS E)
- Fashion Valley Road: Private Drive T to Riverwalk Drive (LOS E)
- Fashion Valley Road: Riverwalk Drive to Hotel Circle North (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

10.3.4 *Freeway Segment Operations*

Freeway segments were analyzed under Near-Term (Opening Day 2025) + Project Phase I conditions. ***Appendix Q*** contains the detailed calculations sheets for the Near-Term (Opening Day 2025) + Project Phase I scenario. *Tables 10–7* and *10–8* reports the Near-Term (Opening Day 2025) + Project Phase I freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS E–AM (WB) and LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*

I-5

- North of Sea World Drive, *LOS E– AM (NB) and LOS E–PM (SB)*

SR 163

- North of Friars Road, *LOS E–AM (NB and SB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS E/F–PM (NB/SB)*

10.3.5 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Near-Term (Opening Day 2025) + Project Phase I conditions. *Table 10–9* reports the Near-Term (Opening Day 2025) + Project Phase I ramp meter operations.

TABLE 10–5
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2025)		Near-Term (Opening Day 2025) + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	18.5	B	20.9	C	2.4
		PM	20.3	C	26.4	C	6.1
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	29.7	C	29.7	C	0.0
		PM	38.8	D	42.8	D	4.0
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	42.8	D	42.9	D	0.1
		PM	33.4	C	33.5	C	0.1
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	43.5	D	48.1	D	4.6
		PM	41.8	D	42.6	D	0.8
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	40.3	D	42.7	D	2.4
		PM	31.6	C	34.1	C	2.5
6. Morena Blvd. / Taylor St.	Signal	AM	49.5	D	50.2	D	0.7
		PM	31.2	C	34.6	C	3.4
7. Friars Rd. / Napa St.	Signal	AM	32.8	C	38.6	D	5.8
		PM	29.4	C	32.7	C	3.3
8. Friars Rd. / Colusa St.	Signal	AM	15.1	B	46.7	D	31.6
		PM	19.9	B	23.6	C	3.7
9. Friars Rd. / Goshen St.	OWSC[c]	AM	25.2	D	37.2	E	12.0
		PM	35.1	E	54.4	F	19.3
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	11.4	B	–
		PM	–	–	24.3	C	–
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	21.9	C	80.7	F	58.8
		PM	27.6	C	106.0	F	78.4
12. Friars Rd. / Street I	Signal	AM	–	–	24.9	C	–
		PM	–	–	53.3	D	–

TABLE 10–5
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2025)		Near-Term (Opening Day 2025) + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
13. Friars Rd. / Street 'K'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
14. Friars Rd. / Street 'M'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	42.8	D	62.7	E	19.9
		PM	51.4	D	80.0	E	28.6
16. Friars Rd. / Via de la Moda	Signal	AM	13.1	B	13.4	B	0.3
		PM	32.8	C	34.8	C	2.0
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	8.7	A	8.7	A	0.0
		PM	33.0	C	34.2	C	1.2
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	15.2	C	17.0	C	1.8
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	13.2	B	13.6	B	0.4
		PM	22.9	C	23.2	C	0.3
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	52.8	D	53.0	D	0.2
		PM	50.4	D	50.7	D	0.3
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	20.2	C	25.4	C	5.2
		PM	20.9	C	24.5	C	3.6
22. Friars Rd. / Frazee Rd.	Signal	AM	52.1	D	53.3	D	1.2
		PM	63.2	E	64.2	E	1.0
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	20.8	C	20.9	C	0.1
		PM	25.7	C	25.8	C	0.1
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	14.1	B	14.2	B	0.1
		PM	30.5	C	31.0	C	0.5

TABLE 10–5
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2025)		Near-Term (Opening Day 2025) + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	46.4	D	47.9	D	1.5
		PM	42.8	D	43.8	D	1.0
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	20.6	C	20.6	C	0.0
		PM	36.3	D	37.2	D	0.9
27. Friars Rd / River Run Dr.	Signal	AM	30.5	C	30.5	C	0.0
		PM	27.0	C	27.1	C	0.1
28. Fashion Valley Rd. / Private Drive 'T'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	17.7	B	35.6	D	17.9
		PM	35.4	D	49.6	D	14.2
30. Fashion Valley Rd. / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
31. Street 'U' / Private Drive 'W'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	9.2	A	9.4	A	0.2
		PM	19.5	C	28.5	D	9.0
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.3	A	5.3	A	0.0
		PM	4.9	A	4.9	A	0.0
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	11.7	B	12.1	B	0.4
		PM	14.1	B	14.5	B	0.4
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	25.3	C	26.0	C	0.7
		PM	28.7	C	33.5	C	4.8
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	27.8	C	27.9	C	0.1
		PM	33.7	C	34.3	C	0.6

TABLE 10–5
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2025)		Near-Term (Opening Day 2025) + Project Phase I		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
37. Camino de la Reina / Avenida Del Rio	Signal	AM	14.6	B	15.5	B	0.9
		PM	25.5	C	28.1	C	2.6
38. Camino de la Reina / Camino de la Siesta	Signal	AM	16.8	B	17.4	B	0.6
		PM	22.4	C	22.7	C	0.3
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	9.7	A	10.0	A	0.3
		PM	14.7	B	15.3	C	0.6
40. Camino de la Reina / Mall Drwy.	Signal	AM	30.6	C	30.8	C	0.2
		PM	46.3	D	53.7	D	7.4
41. Camino de la Reina / Mission Center Rd.	Signal	AM	33.0	C	35.1	D	2.1
		PM	50.3	D	50.9	D	0.6
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.3	D	42.8	D	0.5
		PM	45.2	D	49.8	D	4.6
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	37.1	D	37.3	D	0.2
		PM	48.7	D	52.9	D	4.2
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	47.4	D	47.6	D	0.2
		PM	41.6	D	42.1	D	0.5
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	28.2	C	28.3	C	0.1
		PM	40.9	D	41.1	D	0.2
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	37.0	E	37.0	E	0.0
		PM	14.1	B	14.1	B	0.0
47. Taylor Street / I-8 WB Ramp	Signal	AM	8.5	A	8.5	A	0.0
		PM	5.2	A	5.3	A	0.1
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	92.8	F	111.5	F	18.7
		PM	74.3	F	119.2	F	44.9

TABLE 10–5
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term (Opening Day 2025)		Near-Term (Opening Day 2025) + Project Phase I		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	10.9	B	16.8	B	5.9
		PM	15.0	B	26.8	C	11.8
50. Hotel Circle N. / Camino de la Reina	Signal	AM	32.4	C	37.4	D	5.0
		PM	24.2	C	25.3	C	1.1
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	17.7	C	21.0	C	3.3
		PM	108.7	F	145.5	F	36.8
52. Hotel Circle S. / Bachman Place	Signal	AM	33.3	C	45.2	D	11.9
		PM	26.9	C	31.6	C	4.7
53. Street J / Riverwalk Drive	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
54. Street J / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	37,860	E	0.947	38,310	E	0.958	0.011
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	32,580	D	0.815	34,970	D	0.874	0.059
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	34,430	D	0.778	35,920	D	0.812	0.034
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	35,930	E	0.898	36,680	E	0.917	0.019
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	26,950	C	0.674	26,950	C	0.674	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	15,890	B	0.397	18,730	B	0.468	0.071
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	23,070	C	0.577	28,150	C	0.704	0.127
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	23,300	C	0.583	28,530	C	0.713	0.130
Goshen Street to Street A	4-Lane Major Arterial	40,000	21,500	C	0.538	26,730	C	0.668	0.130
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	21,500	C	0.538	26,200	C	0.655	0.117
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	24,860	C	0.622	30,830	D	0.771	0.149
Street I to Street K	4-Lane Major Arterial	40,000	24,860	C	0.622	33,370	D	0.834	0.212
Street K to Street M	4-Lane Major Arterial	40,000	24,860	C	0.622	33,370	D	0.834	0.212
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	24,860	C	0.622	33,370	D	0.834	0.212

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	28,690	C	0.638	32,270	C	0.717	0.079
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	28,700	C	0.638	32,280	C	0.717	0.079
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	45,800	E	0.916	49,380	E	0.988	0.072
Ulric Street to SR163 NB Ramps	8-Lane Prime Arterial	80,000	58,750	C	0.734	60,990	D	0.762	0.028
SR163 NB Ramps to Frazee Road	8-Lane Prime Arterial	80,000	60,980	C	0.762	62,030	C	0.775	0.013
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	51,300	C	0.550	52,200	C	0.559	0.009
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	48,240	C	0.603	48,990	C	0.612	0.009
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	44,030	C	0.550	44,180	C	0.552	0.002
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	8,000	C	0.533	8,000	C	0.533	0.000
I-8 WB Hook Ramps to Fashion Valley Road	3-Lane Collector	11,000	18,890	F	1.717	20,160	F	1.833	0.116
Fashion Valley Road to Camino De La Reina	4-Lane Collector (continuous left-turn lane)	30,000	15,730	C	0.524	17,600	C	0.587	0.063
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	7,000	B	0.467	7,150	C	0.477	0.010
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	28,610	C	0.715	28,830	C	0.721	0.006
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	14,370	E	0.958	14,520	E	0.968	0.010

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	15,620	F	1.562	16,670	F	1.667	0.105
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	13,140	A	0.329	14,040	A	0.351	0.022
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	13,290	A	0.332	14,190	A	0.355	0.023
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	22,120	B	0.492	22,570	B	0.502	0.010
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	20,600	F	2.060	20,900	F	2.090	0.030
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	16,720	F	1.520	17,020	F	1.547	0.027
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	15,240	F	1.524	15,240	F	1.524	0.000
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	14,830	E	0.989	15,130	F	1.009	0.020
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	21,060	F	1.404	22,630	F	1.509	0.105
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	19,030	F	1.269	20,750	F	1.383	0.114
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	46,000	F	1.150	46,750	F	1.169	0.019
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	13,290	C	0.591	14,040	C	0.624	0.033
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	15,680	B	0.392	17,920	B	0.448	0.056

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	3,540	C	0.443	3,690	C	0.461	0.018
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	13,110	F	1.192	14,300	F	1.300	0.108
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	16,150	D	0.718	20,930	E	0.930	0.212
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	16,150	D	0.718	20,930	E	0.930	0.212
Riverwalk Drive to Street U	4-Lane Collector	15,000	12,820	D	0.855	15,960	F	1.064	0.209
Street U to Hotel Circle North	4-Lane Collector	15,000	12,820	D	0.855	15,960	F	1.064	0.209
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	20,800	B	0.520	20,950	B	0.524	0.004
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	24,340	C	0.609	24,490	C	0.612	0.003
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	23,860	B	0.530	24,010	B	0.534	0.004
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	33,010	C	0.734	33,010	C	0.734	0.000
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	27,830	B	0.557	28,280	C	0.566	0.009
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	40,680	F	1.017	41,050	F	1.026	0.009

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	16,750	A	0.335	17,050	A	0.341	0.006
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	31,500	C	0.630	31,800	C	0.636	0.006
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	16,620	F	2.078	18,260	F	2.283	0.205
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	12,070	D	0.805	12,970	D	0.865	0.060
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	2-Lane Collector (continuous left-turn lane)	15,000	9,540	C	0.636	9,990	C	0.666	0.030
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	12,040	A	0.301	12,490	A	0.312	0.011
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	10,400	A	0.260	10,550	A	0.264	0.004
Street U									
Street J to Street V	*DNE*	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	*DNE*	–	–	–	–	–	–	–	–
Street V									
Street U to Hotel Circle North	*DNE*	–	–	–	–	–	–	–	–

TABLE 10–6
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	7,620	B	0.381	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Based on coordination with City staff, a capacity reduction was assumed to account for the EB auxiliary lane.
f. Δ denotes a project-induced increase in the Volume to Capacity ratio

TABLE 10–7
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Near-Term (Opening Day 2025) + Project Phase I ADT	Direction	Number of Lanes	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	149,600	EB Mainlines	4M	0.495	19.50	C	0.496	19.50	C	0.001
		WB Mainlines	3M	0.998	44.80	E	1.002	>45.00	F	0.004
Morena Boulevard to Taylor Street	216,750	EB Mainlines	4M+1A	0.624	22.70	C	0.626	22.70	C	0.002
		WB Mainlines	5M	0.863	34.90	D	0.867	35.10	E	0.004
Taylor Street to Hotel Circle	221,750	EB Mainlines	4M	0.746	29.70	D	0.747	29.80	D	0.001
		WB Mainlines	5M	0.873	35.50	E	0.876	35.80	E	0.003
Hotel Circle to SR163	229,790	EB Mainlines	4M+1A	0.669	24.50	C	0.677	24.80	C	0.008
		WB Mainlines	5M	0.799	30.20	D	0.802	30.40	D	0.003
SR163 to Mission Center Road	233,050	EB Mainlines	5M	0.641	25.70	C	0.646	25.90	C	0.005
		WB Mainlines	4M+1A	0.992	44.10	E	0.994	44.30	E	0.002
East of Mission Center Road	246,490	EB Mainlines	5M	0.662	26.50	D	0.669	26.80	D	0.007
		WB Mainlines	4M+1A	1.036	>45.00	F	1.039	>45.00	F	0.003
I-5										
North of Sea World Drive	237,490	NB Mainlines	5M	0.934	39.50	E	0.941	40.00	E	0.007
		SB Mainlines	5M	0.690	26.90	D	0.693	27.00	D	0.003
Sea World Drive to I-8	227,000	NB Mainlines	5M+1A	0.824	31.40	D	0.824	31.40	D	0.000
		SB Mainlines	5M+1A	0.595	21.80	C	0.595	21.80	C	0.000
SR 163										
North of Friars Road	199,790	NB Mainlines	5M	0.961	41.60	E	0.969	42.30	E	0.008
		SB Mainlines	4M	0.917	38.50	E	0.922	38.70	E	0.005
Friars Road to I-8	166,600	NB Mainlines	3M	1.361	>45.00	F	1.363	>45.00	F	0.002
		SB Mainlines	4M+2A	0.596	20.40	C	0.598	20.50	C	0.002
South of I-8	181,340	NB Mainlines	3M+1A	1.202	>45.00	F	1.206	>45.00	F	0.004
		SB Mainlines	3M	1.097	>45.00	F	1.107	>45.00	F	0.010

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix O* and *Appendix Q* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 10–8
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Near-Term (Opening Day 2025) + Project Phase I ADT	Direction	Number of Lanes	Near-Term (Opening Day 2025)			Near-Term (Opening Day 2025) + Project Phase I			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	149,600	EB Mainlines	4M	0.768	>45.00	F	0.772	>45.00	F	0.004
		WB Mainlines	3M	0.825	32.70	D	0.828	32.90	D	0.003
Morena Boulevard to Taylor Street	216,750	EB Mainlines	4M+1A	0.947	>45.00	F	0.952	>45.00	F	0.005
		WB Mainlines	5M	0.703	27.50	D	0.706	27.60	D	0.003
Taylor Street to Hotel Circle	221,750	EB Mainlines	4M	1.058	>45.00	F	1.063	>45.00	F	0.005
		WB Mainlines	5M	0.722	28.50	D	0.725	28.60	D	0.003
Hotel Circle to SR163	229,790	EB Mainlines	4M+1A	0.959	40.80	E	0.966	41.50	E	0.007
		WB Mainlines	5M	0.667	24.80	C	0.676	25.20	C	0.009
SR163 to Mission Center Road	233,050	EB Mainlines	5M	0.900	37.40	E	0.904	37.60	E	0.004
		WB Mainlines	4M+1A	0.829	31.60	D	0.835	31.90	D	0.006
East of Mission Center Road	246,490	EB Mainlines	5M	0.951	40.90	E	0.956	41.20	E	0.005
		WB Mainlines	4M+1A	0.875	34.30	D	0.883	34.90	D	0.008
I-5										
North of Sea World Drive	237,490	NB Mainlines	5M	0.834	33.20	D	0.839	33.40	D	0.005
		SB Mainlines	5M	0.934	39.40	E	0.941	40.00	E	0.007
Sea World Drive to I-8	227,000	NB Mainlines	5M+1A	0.703	25.80	C	0.703	25.80	C	0.000
		SB Mainlines	5M+1A	0.805	30.30	D	0.805	30.30	D	0.000
SR 163										
North of Friars Road	199,790	NB Mainlines	5M	0.739	29.20	D	0.746	29.40	D	0.007
		SB Mainlines	4M	1.004	>45.00	F	1.016	>45.00	F	0.012
Friars Road to I-8	166,600	NB Mainlines	3M	1.013	>45.00	F	1.018	>45.00	F	0.005
		SB Mainlines	4M+2A	0.682	39.90	E	0.684	40.00	E	0.002
South of I-8	181,340	NB Mainlines	3M+1A	0.923	37.50	E	0.933	38.20	E	0.010
		SB Mainlines	3M	1.176	>45.00	F	1.184	>45.00	F	0.008

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix O* and *Appendix Q* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 10–9
NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Near-Term (Opening Day 2025)	AM	1,835	918	774	144	11	3,588
	PM	1,460	730	612	118	12	2,950
Near-Term (Opening Day 2025) + Project Phase I	AM	1,905	953	774	179	14	4,463
	PM	1,518	759	612	147	14	3,675
Project Increase	AM	70	35	NA	35	3	875
	PM	58	29	NA	29	2	725

Footnotes:

a. While meter rates were obtained from Caltrans, the rates were reduced to reflect existing ramp meter observations (see *Appendix E* for both the Caltrans rates and the existing ramp meter observations).

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

General Notes:

1. NA = Not Applicable.



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N:\2750\Figures
Date: 4/1/2020
Time: 4:45 PM

Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
RTO Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

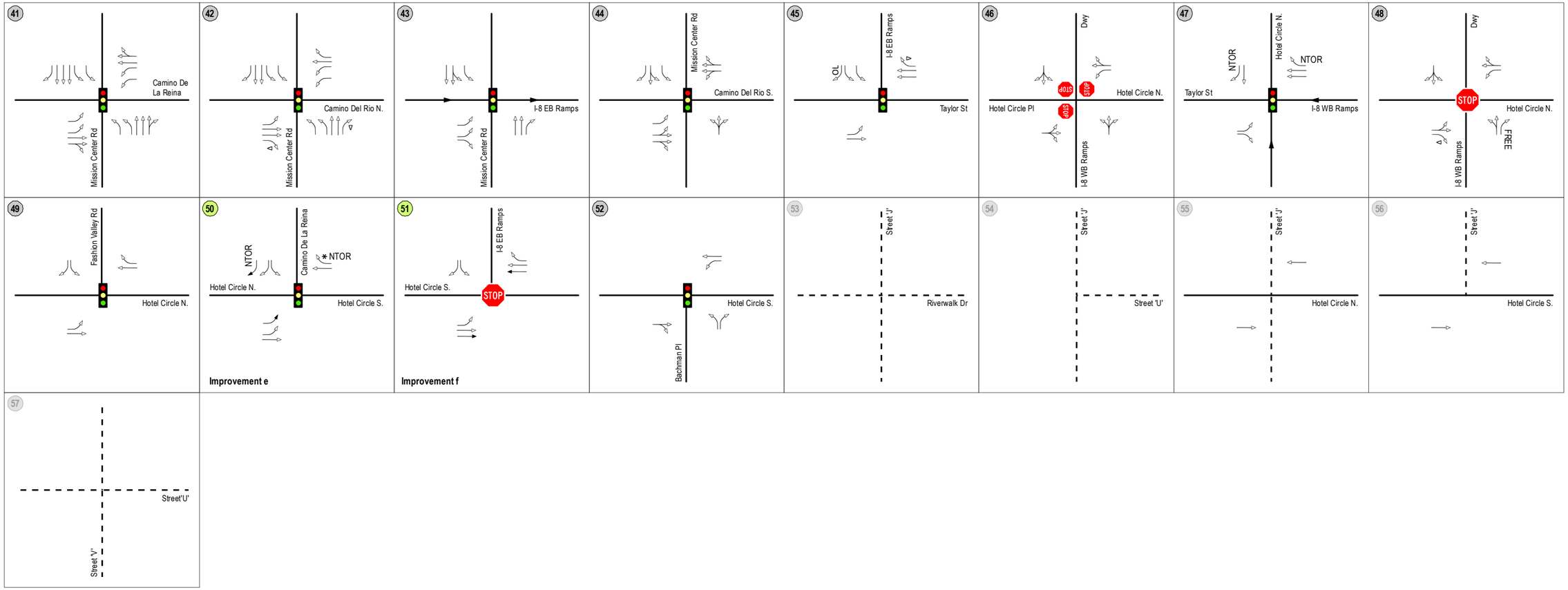
a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 10-1

Near-Term (Opening Day 2025) Conditions Diagram

(Page 1 of 2)

Riverwalk



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N:\2750\Figures
Date: 4/1/2020
Time: 4:46 PM

Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
Study Intersection
Intersection does not exist
Planned Improvements
Project Improvements

List of Improvements:

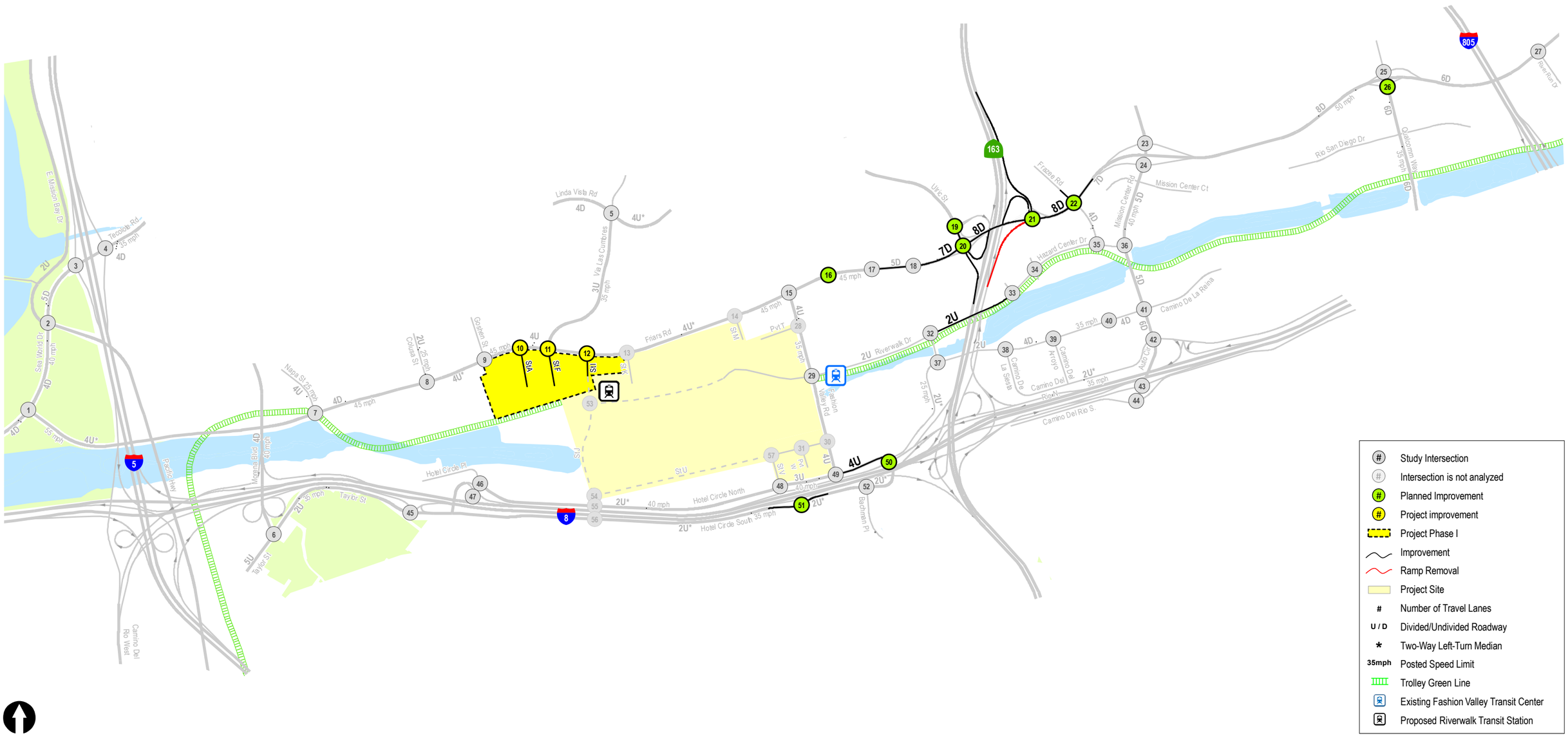
a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 10-1

Near-Term (Opening Day 2025) Conditions Diagram

(Page 2 of 2)

Riverwalk



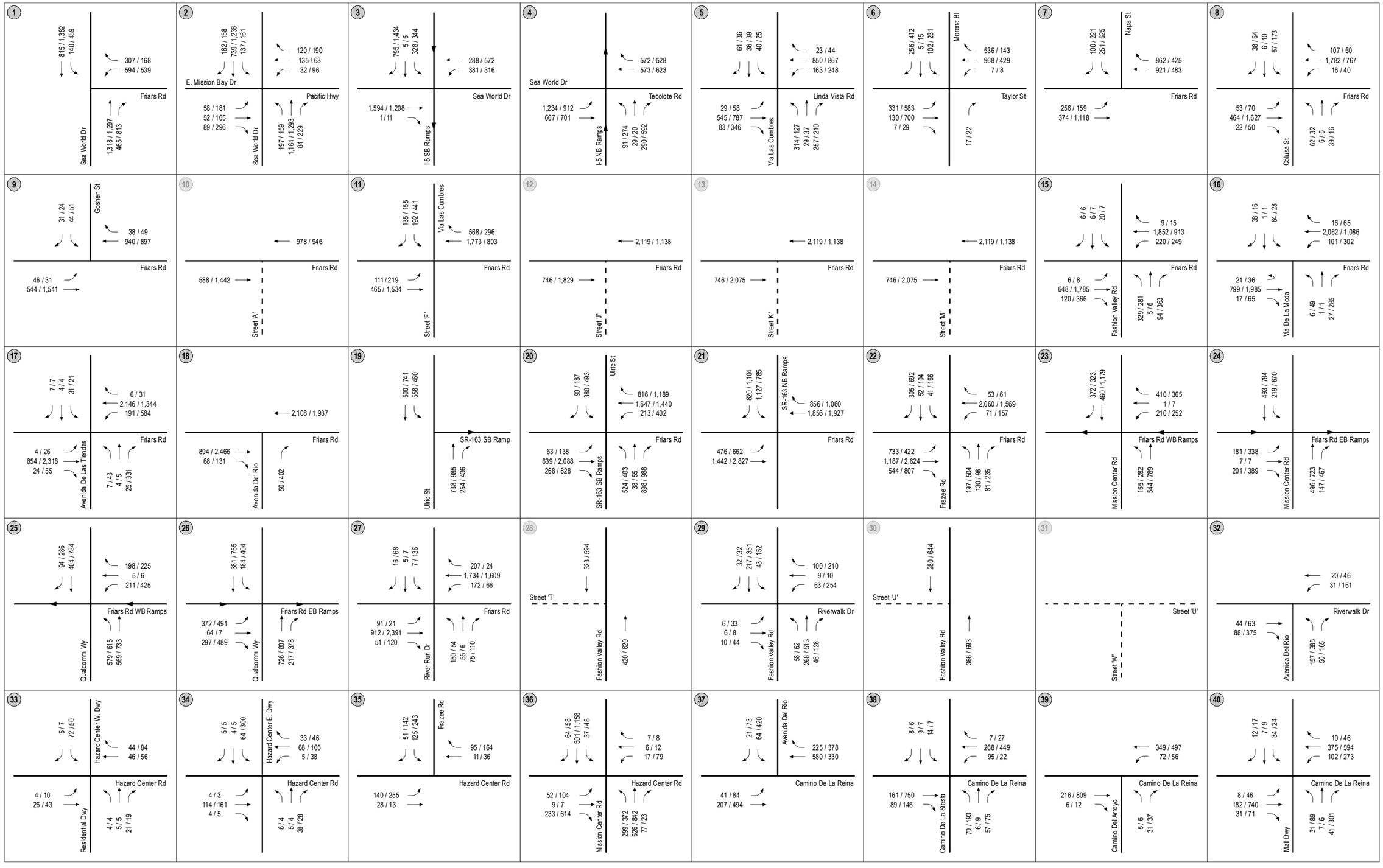
LINSCOTT LAW & GREENSPAN engineers

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Figure 10-2

Near-Term (Opening Day 2025) Conditions Diagram

Riverwalk

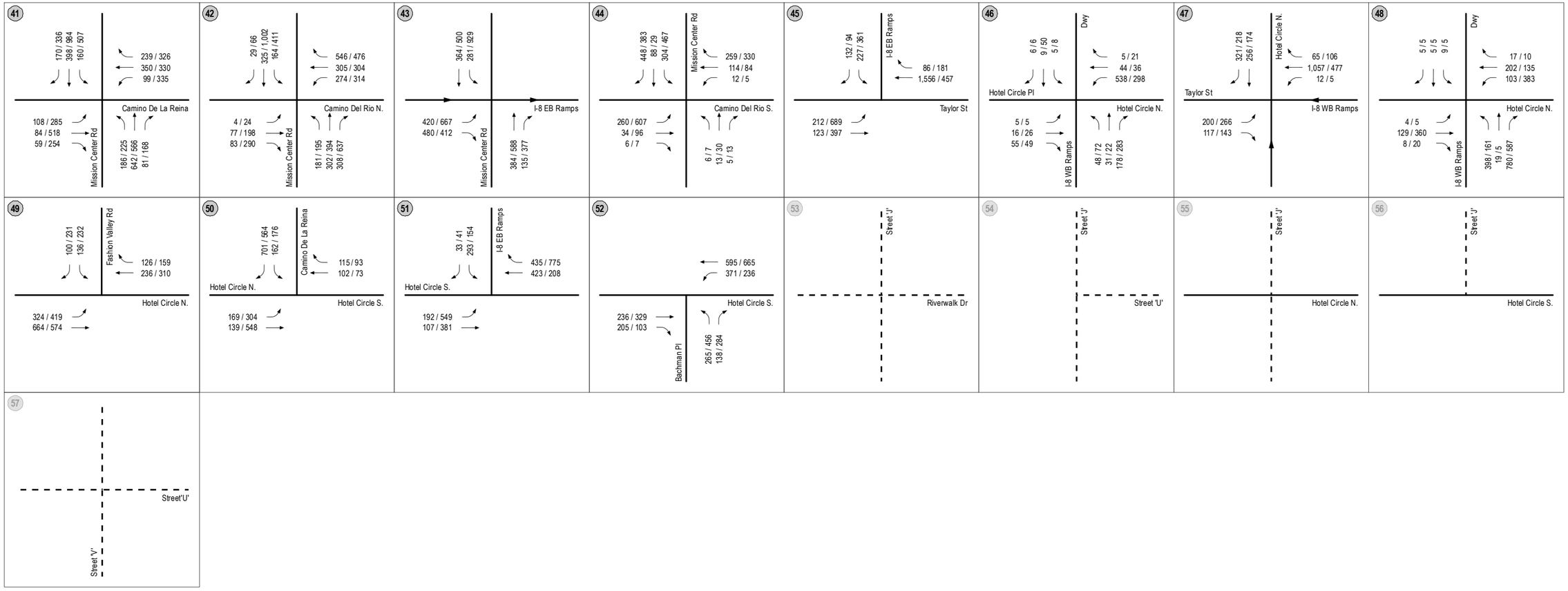


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(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-3
Near-Term (Opening Day 2025) Traffic Volumes
(Page 1 of 2)
Riverwalk

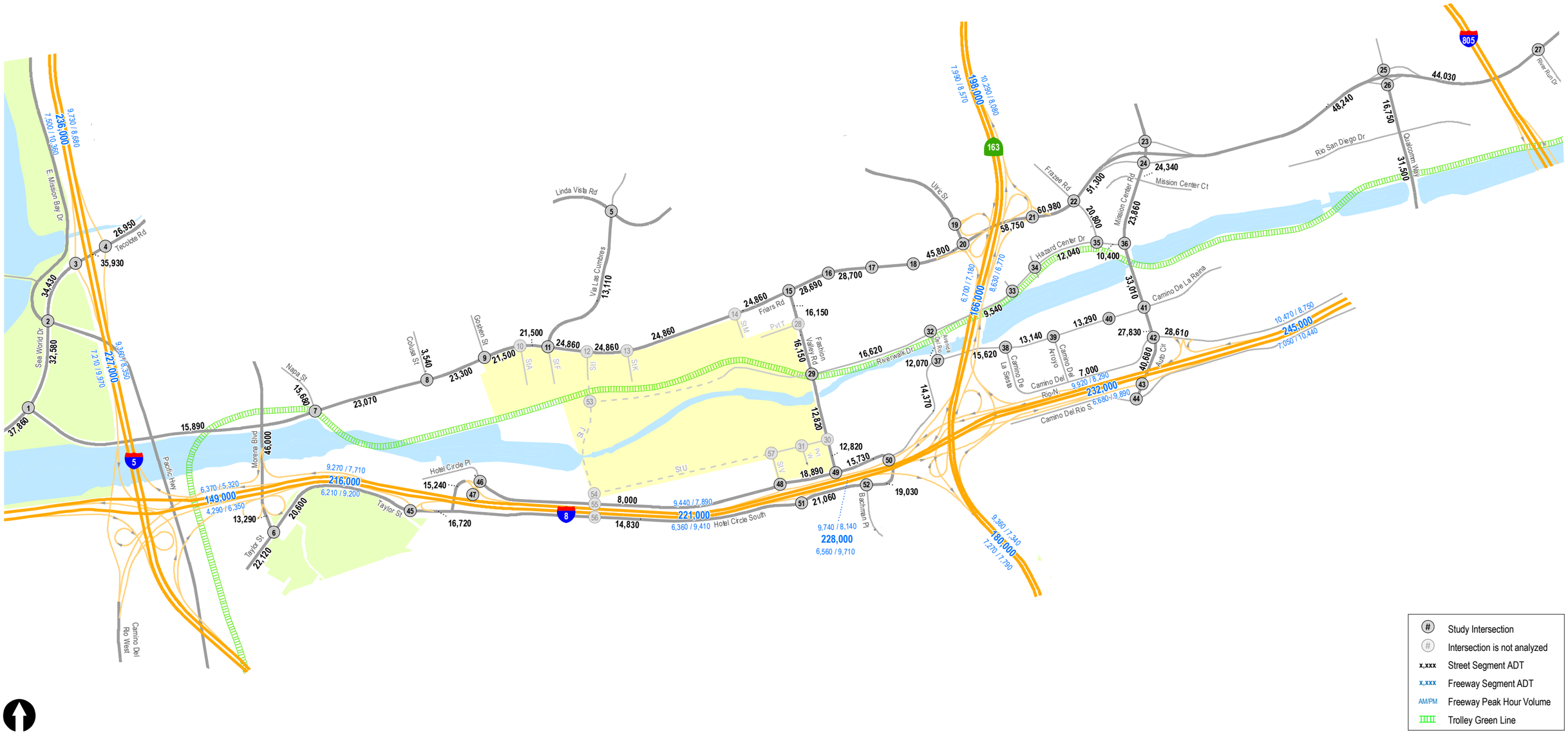


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Intersection AM/PM Peak Hour volumes

Figure 10-3
Near-Term (Opening Day 2025) Traffic Volumes
(Page 2 of 2)
Riverwalk



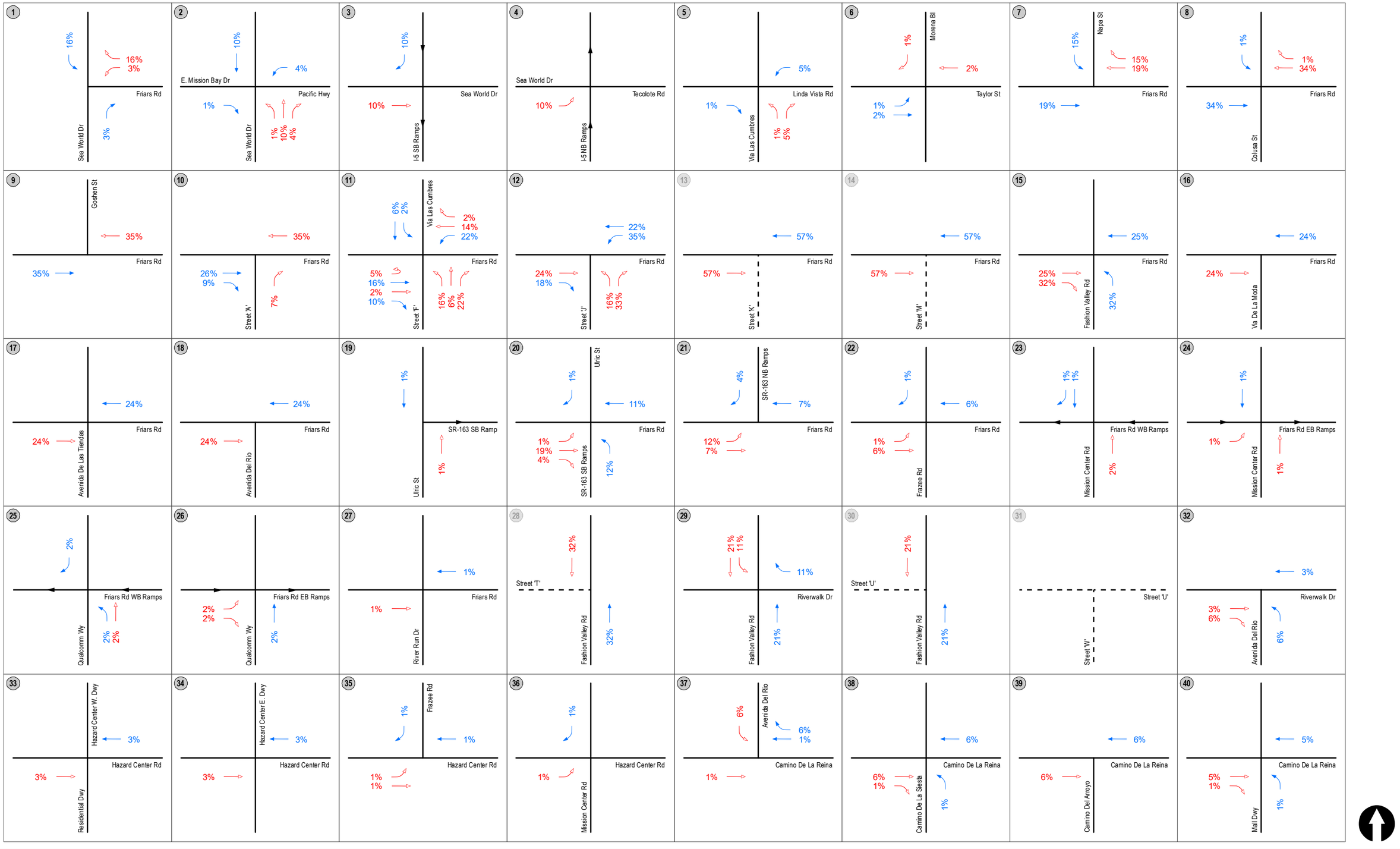
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Figure 10-4

Near-Term (Opening Day 2025) Traffic Volumes

Riverwalk



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N:\2750\Figures
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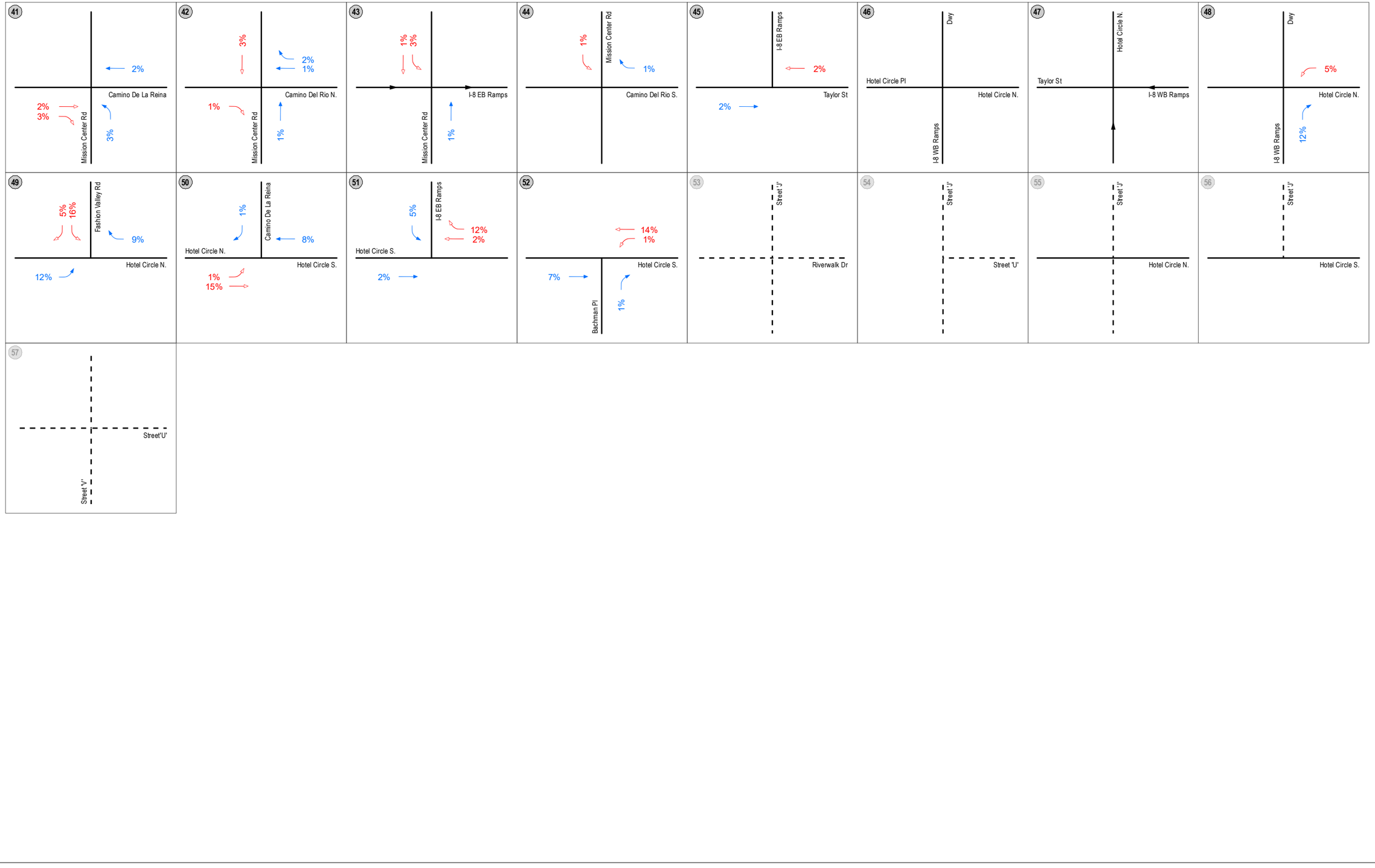
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 10-5

Project Phase I Traffic Distribution

(Page 1 of 2)

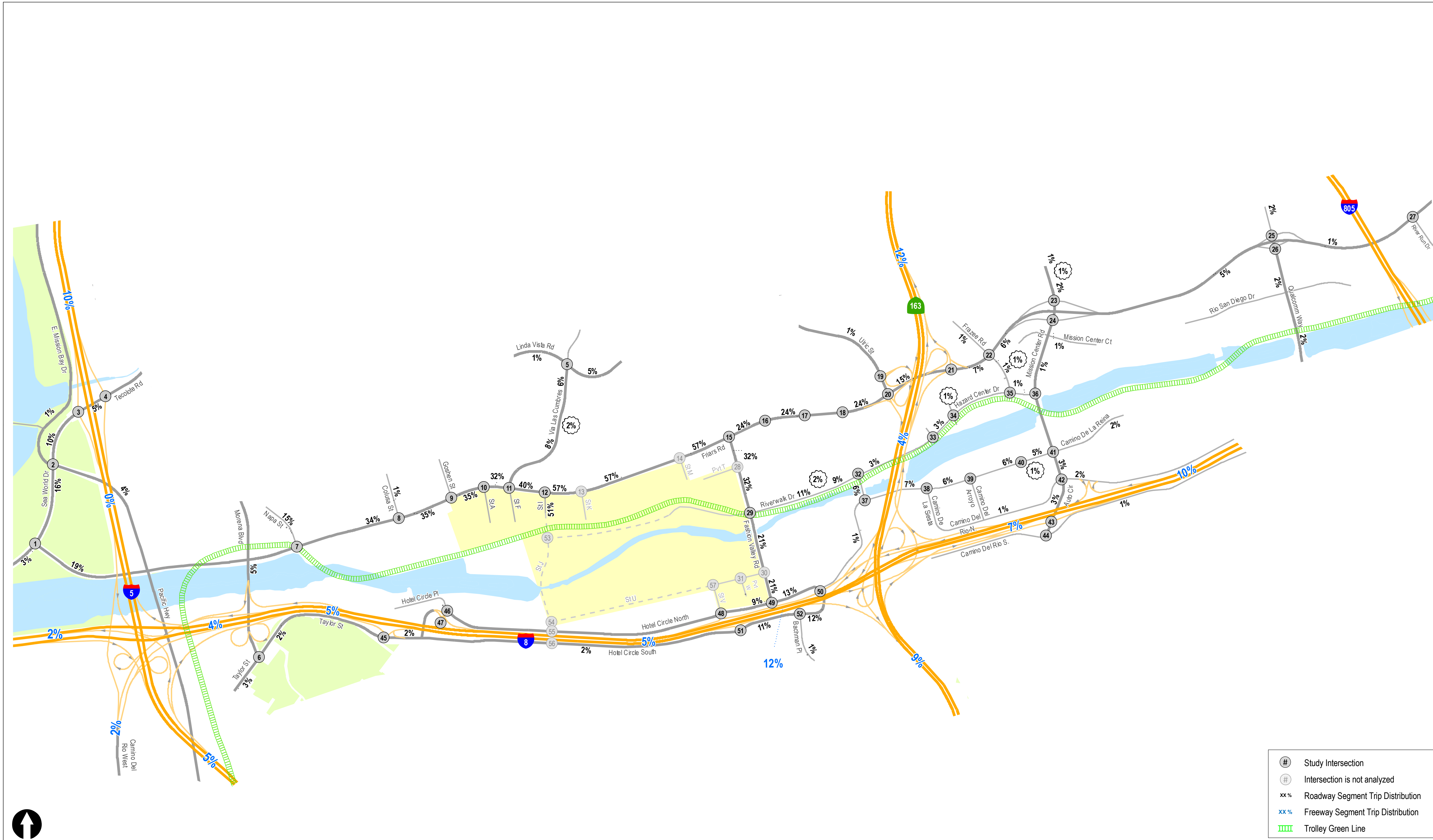
Riverwalk



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Study Intersections
Inbound Trip Distribution
Intersection is not analyzed
Outbound Trip Distribution

Figure 10-5
Project Phase I Traffic Distribution
(Page 2 of 2)
Riverwalk



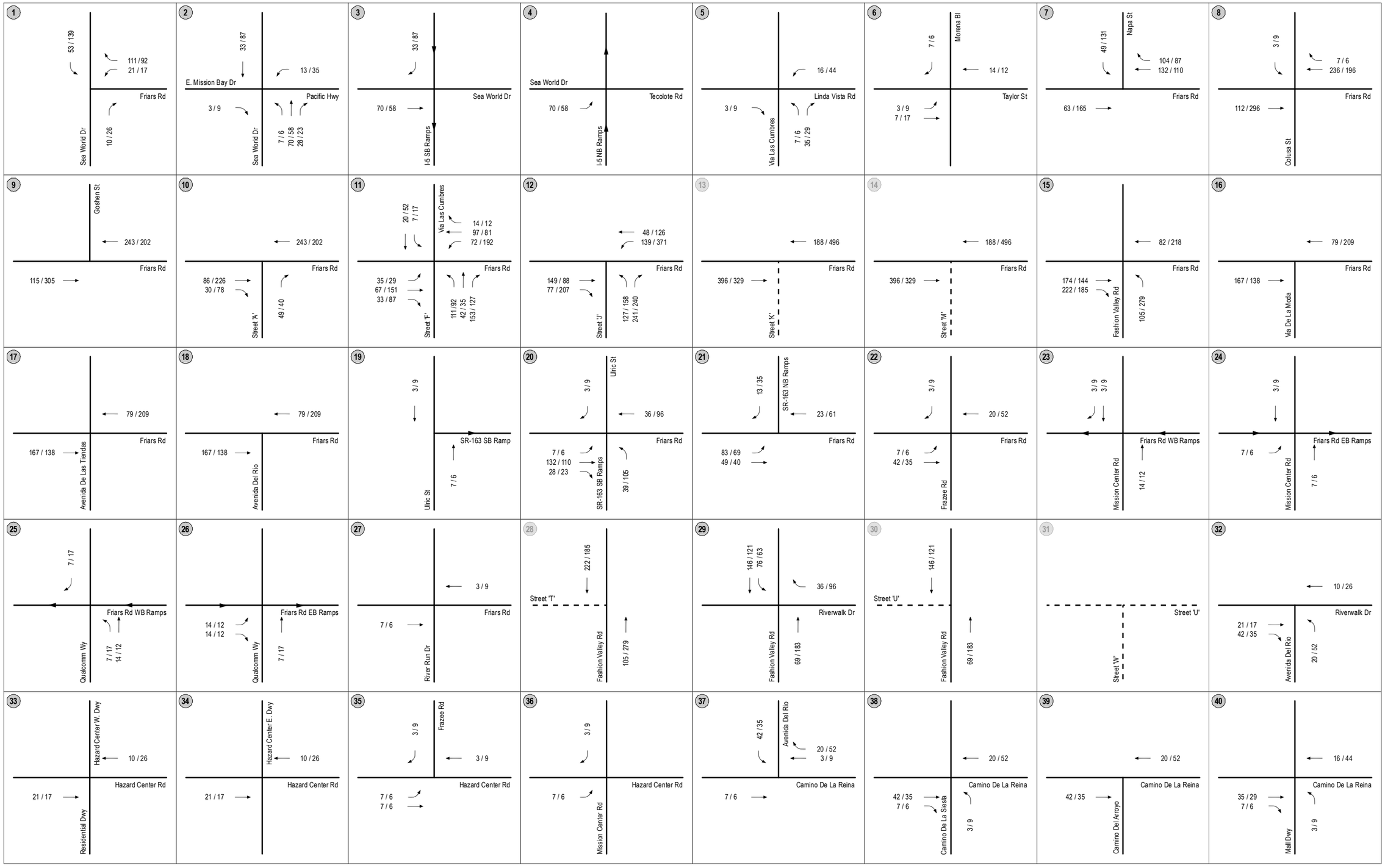
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Figure 10-6

Project Phase I Traffic Distribution

Riverwalk



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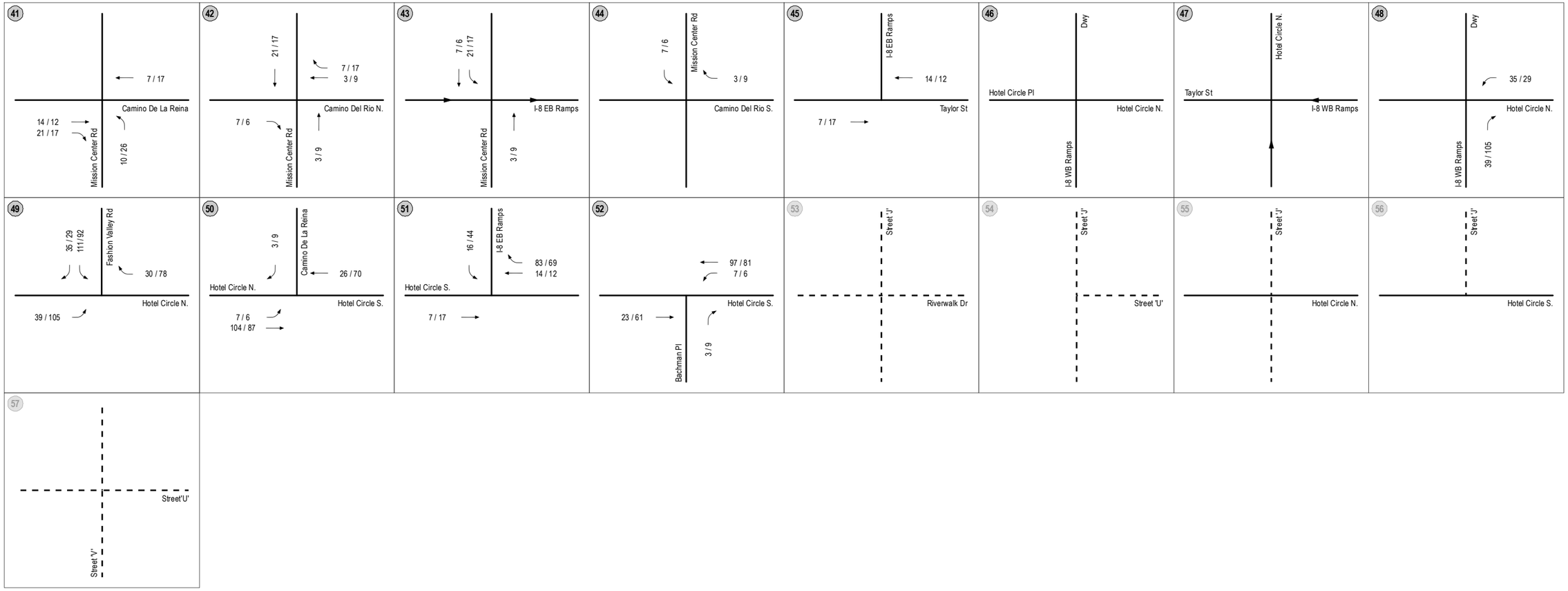
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Intersection AM/PM Peak Hour volumes

Figure 10-7

Project Phase I Traffic Volumes

(Page 1 of 2)

Riverwalk

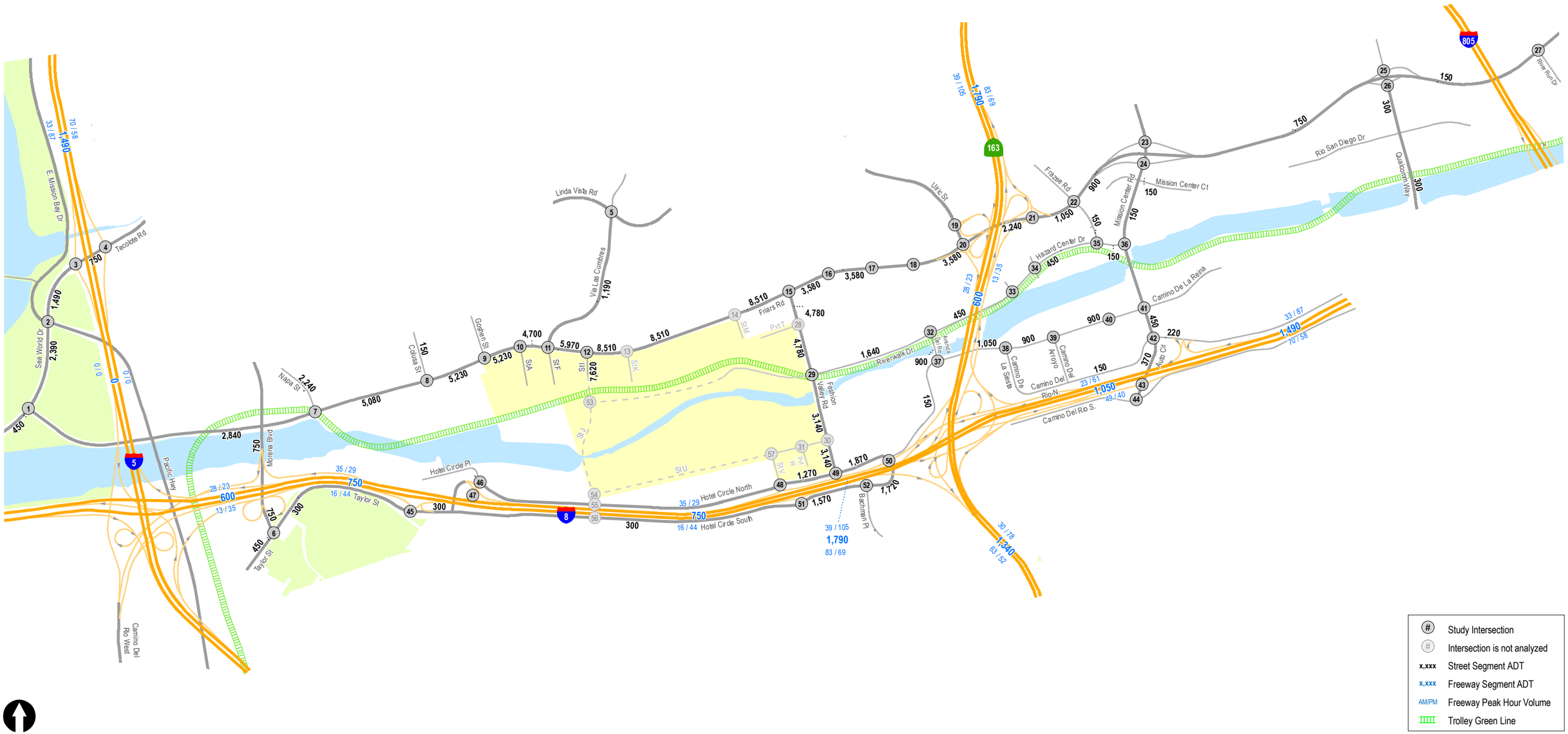


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(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-7
Project Phase I Traffic Volumes
(Page 2 of 2)
Riverwalk



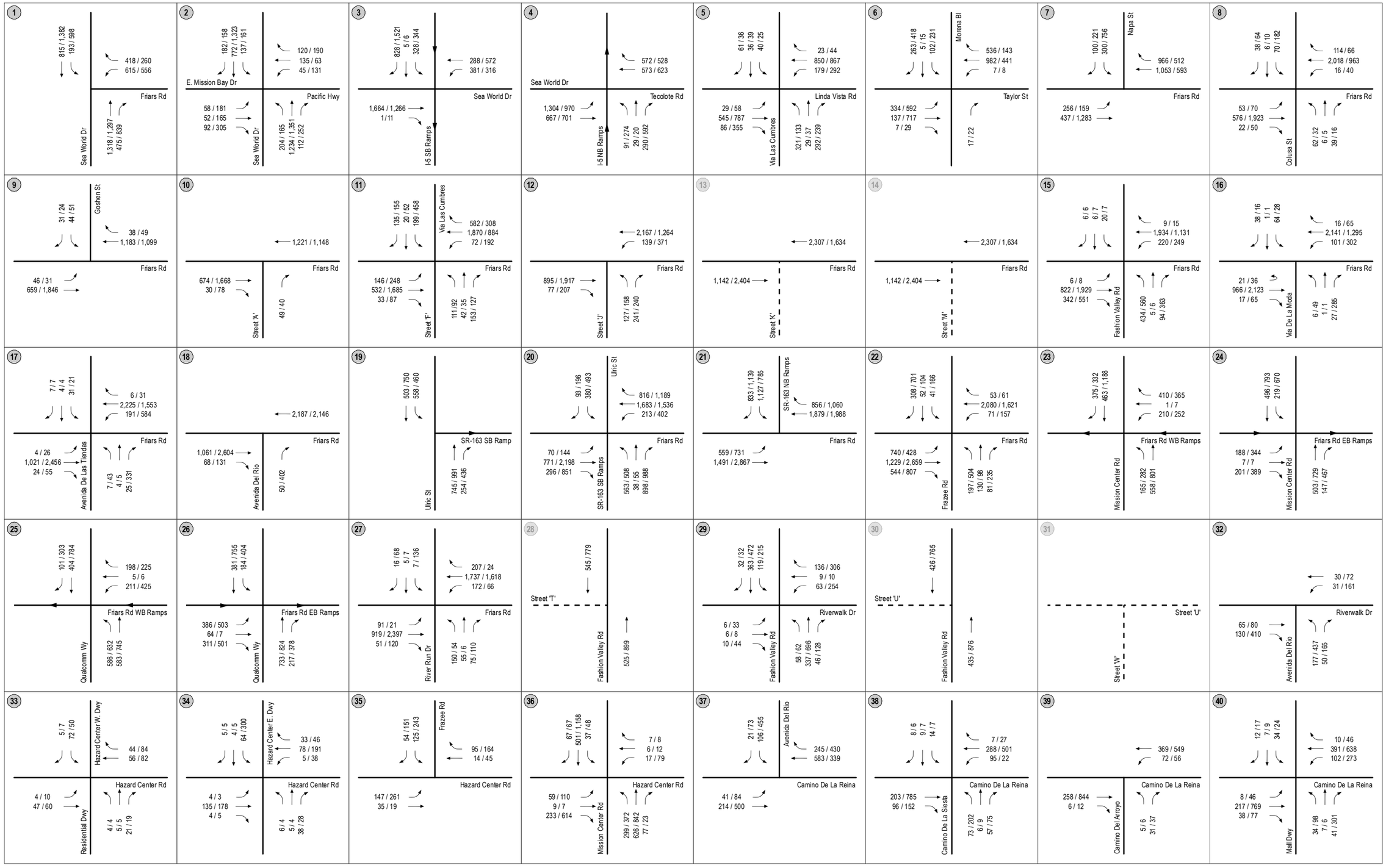
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Figure 10-8

Project Phase I Traffic Volumes

Riverwalk



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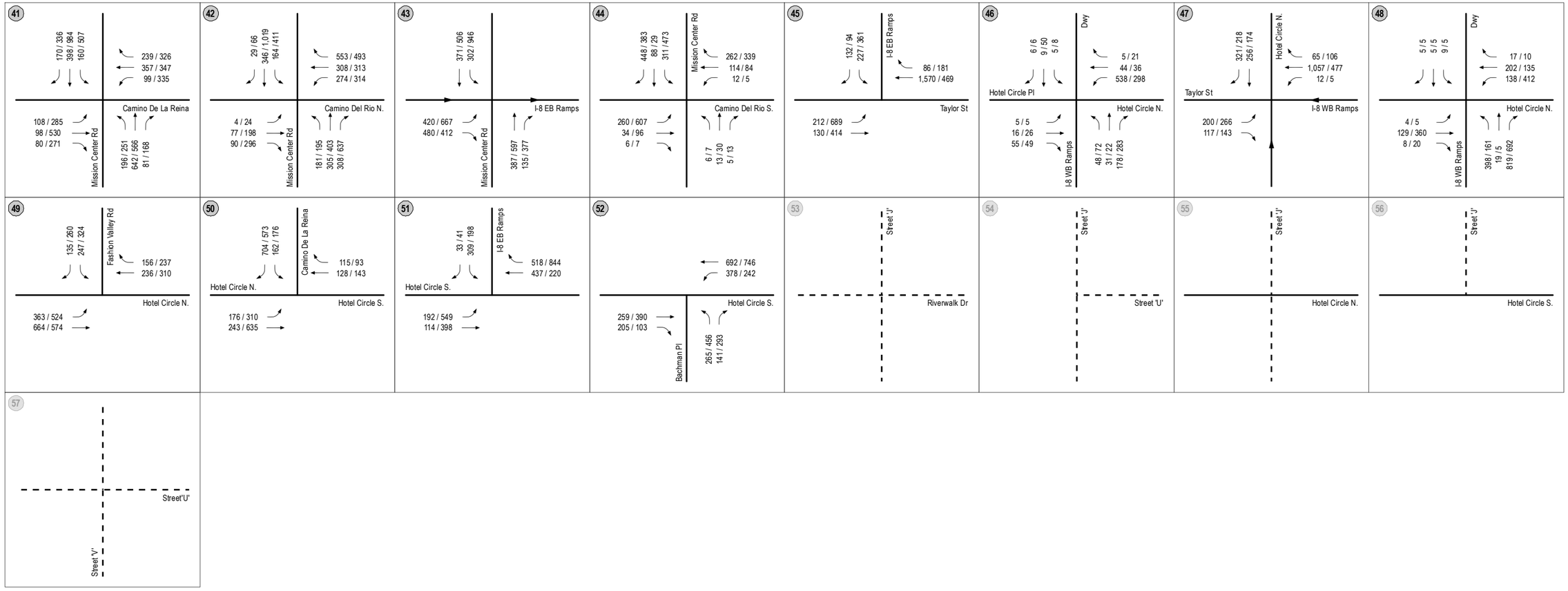
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-9

Near-Term (Opening Day 2025) + Project Phase I Traffic Volumes

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 3/17/2020
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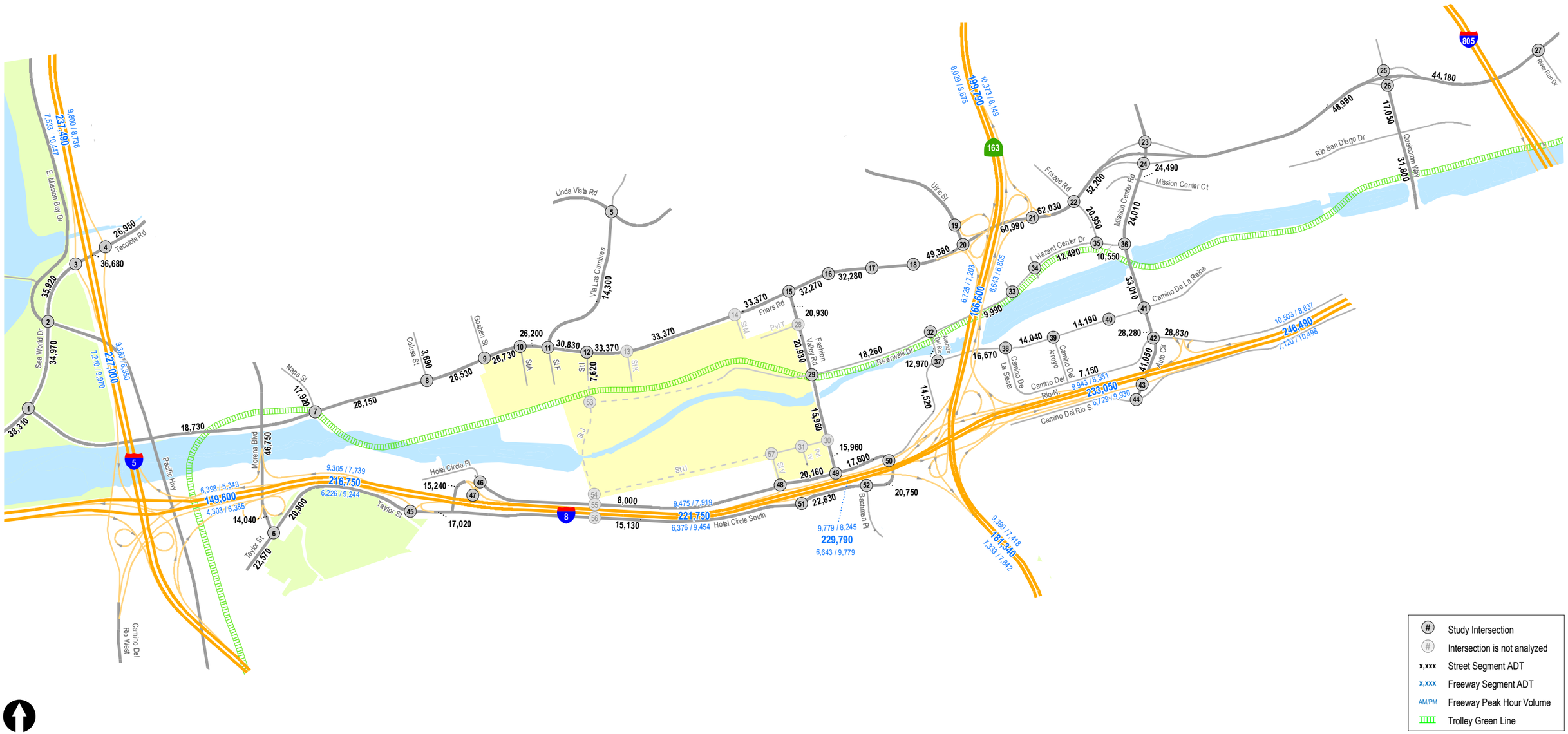
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-9

Near-Term (Opening Day 2025) + Project Phase I Traffic Volumes

(Page 2 of 2)

Riverwalk



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Figure 10-10

Near-Term + Project Phase I (Opening Day 2025) Traffic Volumes

Riverwalk

11.0 YEAR 2030 (PHASES I AND II) ANALYSIS

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2030 conditions without and with the Riverwalk project.

11.1 Year 2030 Analysis Approach

To determine the potential Year 2030 traffic effects, the "Year 2030" future baseline is compared to the "Year 2030 with Riverwalk project" scenario to identify potential locations of transportation improvements that will be implemented consistent with the TIP.

11.2 Year 2030 Auto Conditions

For the purposes of this traffic study, the implementation of a number of local and regional roadway improvements were reviewed based on information provided in the *Mission Valley Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista Public Facilities Financing Plan (PFFP) – Fiscal Year 2006, Mission Valley Community Plan (2019),* the *2050 Regional Transportation Plan* (RTP), *City of San Diego Pedestrian Master Plan (2015), the City of San Diego Bicycle Master Plan (2013),* and other approved developer transportation improvements in the Mission Valley and Linda Vista Communities.

11.2.1 *Planned Local Improvements*

Table 11–1 identifies the local improvements assumed in the analysis. This was determined on a project-by-project basis. An improvement project was assumed only if it is currently under construction or if a development project was approved by City Council and a roadway improvement is assured as a part of its mitigation measure obligations. ***Figure 11–1*** shows the Year 2030 conditions diagrams for the study intersections. ***Figure 11–2*** shows the Year 2030 conditions diagrams for the study street segments and freeways.

Table 11–2 identifies local improvements considered but not assumed. These improvements were reviewed as they represent full maturity of the transportation network; however, these improvements were not assumed in the analysis.

TABLE 11–1
YEAR 2030 PLANNED LOCAL IMPROVEMENTS– ASSUMED

Project Name/ Location	Approved Project's Condition of Approval Improvements	Schedule/ Funding / Notes
Hotel Circle North widening to 4-lanes between Fashion Valley Road and Camino De La Reina	This improvement proposes to widen Hotel Circle N. from Fashion Valley Road to Camino De La Reina to 4-lane Collector standards per the Mission Valley Community Plan. Additional turn lanes will be provided at Fashion Valley Road and Camino De La Reina intersections.	This improvement is a condition of approval of the Town & Country Master Plan and is along the project's frontage. This improvement is under construction.
Hotel Circle S. / I-8 EB Ramps Intersection Improvements	This improvement includes the widening of Hotel Circle South to include an additional eastbound and westbound travel lane at the I-8 EB Ramps/Hotel Circle South intersection.	This improvement is a condition of approval of the Legacy International Center project and is along that project's frontage. This improvement has been completed.
Friars Road between Fashion Valley Road and Via De La Moda Improvements	This improvement includes widening of Friars Road to accommodate an additional westbound travel lane between Fashion Valley Road and Via De La Moda. A fourth leg to the Friars Road/Via De La Moda intersection will be added.	This improvement is a condition of approval of the Friars Road Multi-Family project and is along that project's frontage. This improvement is currently in the permitting stage.
Hazard Center Drive Extension (Mission Valley / T-15)	This improvement would provide for the extension of Hazard Center Drive to two-lanes from the eastern terminus of Hazard Center Drive to the existing road behind the Fashion Valley shopping center.	This improvement is currently under construction.
Friars Road EB Ramps / Qualcomm Way	This improvement includes construction of an additional eastbound left-turn lane.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project. This project has been completed.
Camino Del Rio N. restriping between Camino De La Siesta to Camino Del Arroyo	This improvement includes restriping of Camino Del Rio N. to include a continuous 10-foot wide left turn lane between Camino De La Siesta to Camino Del Arroyo.	This improvement is a condition of approval of the Witt Mission Valley project (Millennium 2) and is along that project's frontage.

TABLE 11–2
YEAR 2030 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Valley Public Facilities Financing Plan (PFFP) and Other Project Mitigation		
Camino De La Reina widening to 4-lanes **(MV T-11)**	This improvement includes the widening of Camino De La Reina to 4-lane Major between Hotel Circle North and Avenida Del Rio.	This improvement is a condition of approval of the Town and Country Master Plan, Union Tribune Master Plan and Alexan Fashion Valley projects. However, given that the MVCP classifies Camino De la Reina as a 2-lane Collector, this improvement was not assumed.
Camino Del Rio South Widening from Mission Center Road to I-805 (Mission Valley / T-2)	This improvement would widen Camino Del Rio South to a 4-lane Collector from Mission Center Road to I-805. Includes a grade separation of Camino Del Rio South from Texas Street.	Unidentified funding
Hotel Circle/Eastbound & Westbound I-8 Ramps (Mission Valley / T-5)	This improvement would provide increased intersection capacity and signalization at the eastbound I-8 ramps at Hotel Circle South and construct new Fashion Valley Road ramps to/from westbound I-8, including a realignment of Hotel Circle North at Fashion Valley Road.	Subdivider funded project
Friars Road – Restriping from Colusa Street to Ulric Street (Mission Valley / T-6)	This improvement would provide for the restriping along Friars Road to create a 6-lane Major from Colusa Street to Ulric Street. Restriping was completed from west of Ulric Street to east of Fashion Valley Road; remaining portion to Colusa Street has not yet been completed.	Subdivider funded project
Camino De La Reina Extension – Fashion Valley Road to Via las Cumbres (Mission Valley / T-7)	This improvement includes the construction of Camino De La Reina as a 4-lane Major Street between Fashion Valley Road and Napa Street. Based on coordination with City staff as a part of the current Mission Valley Community Plan Update, the extension is proposed to Via Las Cumbres. The extension between Via Las Cumbres and Napa Street is no longer proposed.	Subdivider funded project
Hotel Circle South – widen between EB I-8 ramps and Camino De La Reina (Mission Valley / T-8B)	This improvement would widen Hotel Circle South between the eastbound I-8 and Camino De La Reina to a 4-lane Collector from 2 lanes.	Subdivider funded project
Taylor Street – widen between EB Presidio ramps and I-8 Presidio overcrossing (Mission Valley / T-9)	This improvement would provide for the widening of Taylor Street between the eastbound Presidio ramps and I-8 Presidio overcrossing to 4 lanes and a bike lane.	Unidentified funding
Hotel Circle North – widen between I-8 ramps and Camino De La Reina (Mission Valley / T-10A)	This improvement would widen Hotel Circle North to a 4-lane Collector between the westbound I-8 ramps and Camino De La Reina.	Subdivider funded project

TABLE 11–2
YEAR 2030 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Camino De La Reina – 4-lane Major between SR 163 and Fashion Valley Road (Mission Valley / T-10B)	This improvement would provide for the construction of Camino De La Reina as a 4-lane Major Street between SR 163 and Fashion Valley Road.	Subdivider funded project
Camino De La Reina – widen between Hotel Circle North and Avenida Del Rio (Mission Valley / T-11)	This improvement would widen the existing Camino De La Reina to a 4-lane Major between Hotel Circle North and Avenida Del Rio.	Subdivider funded project
I-8/Via Las Cumbres Interchange (Mission Valley / T-12)	This improvement would provide for the construction of a new interchange at Hotel Circle North and Hotel Circle South at I-8 and is needed to serve new development.	Subdivider funded project
Via Las Cumbres Extension (Mission Valley / T-13)	This improvement includes the extension of Via Las Cumbres between Friars Road and Hotel Circle N.	Subdivider funded project
I-8 Hook Ramps (Mission Valley / T-22)	This improvement would provide for the reconstruction of ramps to/from Camino Del Rio North at the I-8 freeway westbound.	Subdivider funded project
Widen Camino Del Rio North – I-15 to Ward Road (Mission Valley / T-24A)	This improvement includes the widening of Camino Del Rio North to a 4-lane Major between the west side of I-15 and Ward Road.	Unidentified funding
Friars Road (North Side) – Fashion Valley Road to Avenida De Las Tiendas (Mission Valley / T-28)	This improvement would restripe the north side of Friars Road to 6 lanes with bicycle lanes from Fashion Valley Road to Avenida De Las Tiendas. Parking will be removed.	Based on field observations, both Phase I and Phase II appear to be completed.
Mission Center Road/Camino Del Rio North intersection	This improvement includes construction of an additional westbound through lane at the Mission Road / Camino Del Rio North intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.

TABLE 11–2
YEAR 2030 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Center Road/ I-8 EB Ramps intersection	This improvement includes construction of an additional southbound through lane, an additional southbound left-turn lane and an additional eastbound left-turn lane at the Mission Center Road/I-8 EB Ramps intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.
Linda Vista Valley Public Facilities Financing Plan (PFFP)		
Napa Street Traffic Improvements (Linda Vista / T-7)	This improvement proposes to improve traffic flow at the Linda Vista Road / Napa Street intersection. The improvement description is preliminary and the scope of work has not been established.	Unidentified funding
Traffic Signal at Goshen Street and Linda Vista Road (Linda Vista / T-19)	This improvement includes the installation of a traffic signal at the intersection of Goshen Street and Linda Vista Road.	Unidentified funding

11.2.2 *Planned Regional Improvements*

Table 11–3 identifies the regional improvements assumed in the analysis. These improvements are considered assured and/or in progress.

Table 11–4 identifies regional improvements considered but not assumed in the analysis due to a lack of funding or assured timing.

TABLE 11–3
YEAR 2030 PLANNED REGIONAL IMPROVEMENTS – ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase I (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phase I of the improvement includes widening of Friars Road from Avenida de las Tiendas to Mission Center Road, including the Friars Road overcrossing and reconstructing the interchange improvements to ramp intersections. • Widening Friars Road overcrossing • Improving Frazee Road, Avenida de las Tiendas and Ulric Street intersections along Friars Road • Constructing a designated bike lane and improving pedestrian facilities.	This improvement was recently completed (December 2019).

TABLE 11–4
YEAR 2030 PLANNED REGIONAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase II and III (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phases II and III include the following improvements: • Widening southbound SR 163 to include two (2) additional lanes between Friars Road and I-8 to accommodate a southbound collector-distributor (Phase II) • Construction of a flyover structure from Ulric Street to southbound SR 163 (Phase II) • Construction of a dedicated southbound auxiliary lane on SR 163 to I-8 westbound to eliminate the freeway weaving conflict on SR 163 (Phase II) • Construct new NB SR 163 on ramp at Friars Road with auxiliary lanes on the freeway (Phase III)	Given the lack of funding for Phases II and III, these improvements were not assumed
I-5 Operational Improvements Project	This project includes widening of I-5 between I-15 and I-8 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-5 are programmed in the Year 2050.
I-5 Managed Lanes Project	This project includes widening of I-5 between I-8 and La Jolla Village Drive to provide a managed lane in each direction.	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the addition of managed lanes on I-5 is programmed in the Year 2050.
I-8 Operational Improvements Project	This project includes widening of I-8 between I-5 and I-15 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-8 are programmed in the Year 2050.

11.2.3 *Year 2030 Traffic Volumes*

The Year 2030 traffic volumes were developed based on interpolation of Near-Term (Opening Day – Year 2025) and Year 2035 traffic volumes. The traffic volumes were developed based on the most recent information available at the time this report was prepared.

Figure 11–3 shows the Year 2030 intersection volumes. ***Figure 11–4*** shows the Year 2030 street segment and freeway volumes.

11.2.4 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2030 conditions. ***Table 11–5*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Morena Boulevard / Taylor Street (LOS E during the AM peak hour)
- Friars Road / Goshen Street (LOS E during the PM peak hour)
- Friars Road / Fashion Valley Road (LOS E during the AM peak hour)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Ulric Street / SR163 SB On-Ramp (LOS E during the PM peak hour)
- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the AM and PM peak hours)
- Friars Road / Frazee Road (LOS E during the AM and PM peak hours)
- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS F during the AM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix R contains the intersection analysis worksheets for the Year 2030 scenario.

11.2.5 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2030 conditions. ***Table 11–6*** reports the Year 2030 street segment operations on a daily basis. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)

- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 Hook EB Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Fashion Valley Road: Riverwalk Drive to Hotel Circle North (LOS E)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

11.2.6 *Freeway Segment Operations*

Freeway segment analyses were conducted in the study area under Year 2030 conditions. ***Appendix S*** contains the detailed calculations sheets for the Year 2030 scenario**.** ***Tables 11–7*** and ***11–8*** reports the Year 2030 peak hour freeway segment operations. The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F/E–PM (EB/WB)*
- Morena Boulevard to Taylor Street, *LOS E–AM (WB) and LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB and WB)*

I-5

- North of Sea World Drive, *LOS E– AM (NB) and LOS E–PM (SB)*

SR 163

- North of Friars Road, *LOS F/E–AM (NB/SB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (NB and SB)*

11.2.7 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2030 conditions. ***Table 11–9*** reports the Year 2030 ramp meter operations.

11.3 Year 2030 + Project Phases I and II

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2030 conditions without and with the Riverwalk Phases I and II.

Figure 11–5 shows the Year 2030 Project Phases I and II intersection trip distribution percentages. ***Figure 11–6*** shows the Year 2030 Project Phases I and II street segment and freeway trip distribution percentages. ***Figure 11–7*** shows the Project Phases I and II intersection volumes. ***Figure 11–8*** shows the Project Phases I and II street segment and freeway volumes. ***Figure 11–9*** shows the Year 2030 + Project Phases I and II intersection volumes. ***Figure 11–10*** shows the Year 2030 + Project Phases I and II street segment and freeway volumes.

11.3.1 *Project Improvements*

Under the Phase II scenario, in addition to the Phase I roadways already constructed (in 2025), the project would construct the following.

- Construct a new Green Line trolley station (east of Street J) within the project site called Riverwalk Transit Station. The trolley stop/transit station within Riverwalk is proposed as a part of a Mobility Center, which would incorporate parking, pedestrians, bicycles, autos, bus, and commercial activity areas. The new trolley stop at Riverwalk combined with the existing trolley stop at Fashion Valley mall will provide connectivity and access to transit for the site users and the surrounding community. The trolley stop at Riverwalk will be a part of the Green Line system. The transit stop will serve as a mobility center and would provide access to and from buses, the trolley, and path, trails, and sidewalks that serve the neighborhood and the region. The facility will include bicycle lockers/racks and rentals, automobile drop-off/pick-up, rideshare, and other forms of transportation.
- Construct a new signalized intersection on Friars Road at the Street M. Street M would include one inbound lane and two outbound lanes separated by a raised median. Buffered Class II bike lanes are proposed on both sides of Street M.
- Construct a new right-in/right-out driveway (Private Drive T) on Fashion Valley Road. Private Drive T would include two lanes with one lane inbound and one lane outbound. A dedicated northbound left-turn pocket on Fashion Valley Road at Private Drive T is also proposed.
- Extend Riverwalk Drive from its current terminus at the golf clubhouse to connect to Street J undercrossing. Riverwalk Drive is proposed to terminate as a cul-de-sac, west of Street J.
- Construct the internal streets needed to serve the Phase II development.
- Construct Street J undercrossing of the trolley tracks.

11.3.2 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2030 + Project Phases I and II conditions. *Table 11–5* reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Sea World Drive / I-5 NB Ramps (LOS E during the PM peak hour)

- Morena Boulevard / Taylor Street (LOS E during the AM peak hour)
- Friars Road / Goshen Street (LOS F during the AM and PM peak hours)
- Friars Road / Via Las Cumbres / Street F (LOS F during the AM and PM peak hours)
- Friars Road / Fashion Valley Road (LOS F during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Ulric Street / SR163 SB On-Ramp (LOS E during the PM peak hour)
- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the AM and PM peak hours)
- Friars Road / Frazee Road (LOS E during the AM and PM peak hours)
- Riverwalk Drive / Fashion Valley Road (LOS F during the PM peak hour)
- Riverwalk Drive / Avenida Del Rio (LOS E during the PM peak hour)
- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS F during the AM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS E during the AM peak hour and LOS F during the PM peak hour)

Appendix T contains the intersection analysis worksheets for the Year 2030 + Project Phases I and II scenario.

11.3.3 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2030 + Project Phases I and II conditions. *Table 11–6* reports the Year 2030 + Project Phases I and II daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Sea World Drive: Friars Road to Pacific Highway/E. Mission Bay Drive (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Colusa Street to Goshen Street (LOS E)
- Friars Road: Avenida De las Tiendas to Ulric Street (LOS F)
- Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road (LOS F)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramp (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)

- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Fashion Valley Road: Riverwalk Drive to Hotel Circle North (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)

11.3.4 *Freeway Segment Operations*

Freeway segments were analyzed under Year 2030 + Project Phases I and II conditions. ***Appendix U*** contains the detailed calculations sheets for the Year 2030 + Project Phases I and II scenario. *Tables 11–7* and *11–8* reports the Year 2030 + Project Phases I and II freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F/E–PM (EB/WB)*
- Morena Boulevard to Taylor Street, *LOS E–AM (WB) and LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB and WB)*

I-5

- North of Sea World Drive, *LOS E– AM (NB) and LOS E–PM (NB and SB)*

SR 163

- North of Friars Road, *LOS F/E–AM (NB/SB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (NB and SB)*

11.3.5 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2030 + Project Phases I and II conditions. *Table 11–9* reports the Year 2030 + Project Phases I and II ramp meter operations.

TABLE 11–5
YEAR 2030 + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	18.5	B	23.3	C	4.8
		PM	27.7	C	32.2	C	4.5
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	30.1	C	30.3	C	0.2
		PM	39.1	D	43.1	D	4.0
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	43.5	D	45.3	D	1.8
		PM	33.7	C	34.0	C	0.3
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	44.8	D	50.1	D	5.3
		PM	47.2	D	56.1	E	8.9
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	43.5	D	45.2	D	1.7
		PM	34.2	C	39.0	D	4.8
6. Morena Blvd. / Taylor St.	Signal	AM	58.9	E	60.9	E	2.0
		PM	38.3	D	40.7	D	2.4
7. Friars Rd. / Napa St.	Signal	AM	37.4	D	43.2	D	5.8
		PM	29.5	C	37.8	D	8.3
8. Friars Rd. / Colusa St.	Signal	AM	15.2	B	49.5	D	34.3
		PM	25.0	C	49.4	D	24.4
9. Friars Rd. / Goshen St.	OWSC[c]	AM	30.0	D	96.8	F	66.8
		PM	47.9	E	138.6	F	90.7
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	13.0	B	–
		PM	–	–	33.4	D	–
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	26.0	C	133.6	F	107.6
		PM	28.3	C	130.6	F	102.3
12. Friars Rd. / Street I	Signal	AM	–	–	26.8	C	–
		PM	–	–	54.9	D	–
13. Friars Rd. / Street 'K'	RIRO[d]	AM	–	–	13.3	B	–
		PM	–	–	34.6	D	–

TABLE 11–5
YEAR 2030 + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
14. Friars Rd. / Street 'M'	Signal	AM	–	–	14.6	B	–
		PM	–	–	34.6	C	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	58.1	E	85.1	F	27.0
		PM	51.5	D	96.2	F	44.7
16. Friars Rd. / Via de la Moda	Signal	AM	15.9	B	17.2	B	1.3
		PM	34.3	C	40.4	D	6.1
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	9.7	A	10.1	B	0.4
		PM	33.7	C	36.5	D	2.8
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	15.4	C	19.8	C	4.4
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	24.8	C	32.6	D	7.8
		PM	39.6	E	46.1	E	6.5
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	58.3	E	60.0	E	1.7
		PM	57.2	E	68.0	E	10.8
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	25.5	C	38.0	D	12.5
		PM	25.0	C	31.4	C	6.4
22. Friars Rd. / Frazee Rd.	Signal	AM	61.7	E	63.7	E	2.0
		PM	68.7	E	70.6	E	1.9
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	21.3	C	21.5	C	0.2
		PM	26.1	C	26.6	C	0.5
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	14.3	B	14.5	B	0.2
		PM	32.7	C	32.7	C	0.0
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	48.5	D	50.5	D	2.0
		PM	45.3	D	48.5	D	3.2
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	20.9	C	21.6	C	0.7
		PM	40.3	D	42.1	D	1.8

TABLE 11–5
YEAR 2030 + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
27. Friars Rd / River Run Dr.	Signal	AM	33.2	C	33.3	C	0.1
		PM	32.3	C	32.6	C	0.3
28. Fashion Valley Rd. / Private Drive 'T'	Unsignalized	AM	–	–	10.3	B	–
		PM	–	–	11.8	B	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	20.0	B	40.3	D	20.3
		PM	36.5	D	83.2	F	46.7
30. Fashion Valley Rd. / Street 'U'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
31. Street 'U' / Private Drive 'W'	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	9.3	A	10.0	A	0.7
		PM	19.9	C	41.9	E	22.0
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.6	A	5.8	A	0.2
		PM	5.1	A	5.1	A	0.0
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	11.8	B	12.3	B	0.5
		PM	14.6	B	15.0	B	0.4
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	26.0	C	27.2	C	1.2
		PM	29.8	C	34.2	C	4.4
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	28.2	C	33.3	C	5.1
		PM	39.3	D	44.6	D	5.3
37. Camino de la Reina / Avenida Del Rio	Signal	AM	15.1	B	15.8	B	0.7
		PM	25.8	C	30.1	C	4.3
38. Camino de la Reina / Camino de la Siesta	Signal	AM	18.7	B	19.0	B	0.3
		PM	23.9	C	24.5	C	0.6
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	10.2	B	10.8	B	0.6
		PM	17.2	C	18.9	C	1.7

TABLE 11–5
YEAR 2030 + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project Phases I and II		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
40. Camino de la Reina / Mall Drwy.	Signal	AM	31.2	C	31.6	C	0.4
		PM	47.2	D	53.8	D	6.6
41. Camino de la Reina / Mission Center Rd.	Signal	AM	33.2	C	36.5	D	3.3
		PM	50.3	D	51.3	D	1.0
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.4	D	43.0	D	0.6
		PM	50.1	D	52.7	D	2.6
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	38.4	D	38.8	D	0.4
		PM	62.0	E	63.7	E	1.7
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	48.7	D	50.8	D	2.1
		PM	43.4	D	46.1	D	2.7
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	30.2	C	30.3	C	0.1
		PM	42.6	D	42.8	D	0.2
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	66.4	F	66.4	F	0.0
		PM	18.5	C	18.5	C	0.0
47. Taylor Street / I-8 WB Ramp	Signal	AM	16.5	B	24.8	C	8.3
		PM	5.5	A	5.5	A	0.0
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	136.1	F	171.0	F	34.9
		PM	117.9	F	212.9	F	95.0
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	11.4	B	21.7	C	10.3
		PM	16.9	B	48.1	D	31.2
50. Hotel Circle N. / Camino de la Reina	Signal	AM	35.4	D	42.5	D	7.1
		PM	24.4	C	26.3	C	1.9
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	19.9	C	37.0	E	17.1
		PM	135.8	F	205.4	F	69.6
52. Hotel Circle S. / Bachman Place	Signal	AM	35.2	D	47.9	D	12.7
		PM	28.2	C	38.8	D	10.6

TABLE 11–5
YEAR 2030 + PROJECT PHASES I AND II INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2030		Year 2030 + Project Phases I and II		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
53. Street J / Riverwalk Drive	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
54. Street J / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	38,690	E	0.967	39,540	E	0.989	0.022
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	32,360	D	0.809	36,890	E	0.922	0.113
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	34,480	D	0.779	37,310	D	0.843	0.064
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	36,940	E	0.924	38,360	E	0.959	0.035
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	28,980	C	0.725	28,980	C	0.725	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	15,650	B	0.391	21,030	C	0.526	0.135
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	24,930	C	0.623	34,550	D	0.864	0.241
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	25,980	C	0.650	35,890	E	0.897	0.247
Goshen Street to Street A	4-Lane Major Arterial	40,000	24,010	C	0.600	33,920	D	0.848	0.248
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	22,630	C	0.566	32,110	D	0.803	0.237
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	26,680	C	0.667	32,620	D	0.816	0.149
Street I to Street K	4-Lane Major Arterial	40,000	26,680	C	0.667	32,200	D	0.805	0.138
Street K to Street M	4-Lane Major Arterial	40,000	26,680	C	0.667	31,490	D	0.787	0.120
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	26,680	C	0.667	32,340	D	0.809	0.142
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	28,100	C	0.624	34,890	C	0.775	0.151

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	32,910	C	0.731	39,700	D	0.882	0.151
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	44,520	D	0.890	51,310	F	1.026	0.136
Ulric Street to SR163 NB Ramps	8-Lane Prime Arterial	80,000	58,690	C	0.734	62,940	C	0.787	0.053
SR163 NB Ramps to Frazee Road	8-Lane Prime Arterial	80,000	61,160	C	0.765	63,140	C	0.789	0.024
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	52,480	C	0.562	54,180	C	0.581	0.019
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	50,720	C	0.634	52,140	C	0.652	0.018
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	48,230	B	0.603	48,510	B	0.606	0.003
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	9,730	C	0.649	9,730	C	0.649	0.000
I-8 WB Hook Ramps to Fashion Valley Road	3-Lane Collector (continuous left-turn lane)	11,000	20,380	F	1.853	22,790	F	2.072	0.219
Fashion Valley Road to Camino De La Reina	4-Lane Collector (continuous left-turn lane)	30,000	15,290	C	0.510	18,830	C	0.628	0.118
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	7,750	C	0.517	8,030	C	0.535	0.018
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	29,410	C	0.735	29,830	C	0.746	0.011
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	15,040	F	1.003	15,320	F	1.021	0.018
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	16,200	F	1.620	18,180	F	1.818	0.198

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	14,050	A	0.351	15,750	B	0.394	0.043
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	14,120	A	0.353	15,820	B	0.396	0.043
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	22,220	B	0.494	23,070	B	0.513	0.019
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	21,200	F	2.120	21,770	F	2.177	0.057
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	18,960	F	1.724	19,530	F	1.775	0.051
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (no driveway)	10,000	17,060	F	1.706	17,060	F	1.706	0.000
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	15,170	F	1.011	15,740	F	1.049	0.038
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (continuous left-turn lane)	15,000	21,680	F	1.445	24,650	F	1.643	0.198
Bachman Place to Camino De La Reina	2-Lane Collector (continuous left-turn lane)	15,000	19,620	F	1.308	22,880	F	1.525	0.217
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	47,170	F	1.179	48,590	F	1.215	0.036
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	13,260	C	0.589	14,680	C	0.652	0.063
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	15,160	B	0.379	19,410	B	0.485	0.106

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	4,230	C	0.529	4,510	C	0.564	0.035
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	13,510	F	1.228	15,770	F	1.434	0.206
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	16,330	D	0.726	17,750	D	0.789	0.063
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	16,330	D	0.726	18,310	D	0.814	0.088
Riverwalk Drive to Street U	4-Lane Collector	15,000	14,510	E	0.967	20,450	F	1.363	0.396
Street U to Hotel Circle North	4-Lane Collector	15,000	14,510	E	0.967	20,450	F	1.363	0.396
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	20,900	B	0.523	21,180	C	0.530	0.007
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	26,870	C	0.672	27,150	C	0.679	0.007
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	24,680	C	0.548	24,960	C	0.555	0.007
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	33,910	C	0.754	33,910	C	0.754	0.000
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	30,420	C	0.608	31,270	C	0.625	0.017
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	41,290	F	1.032	42,000	F	1.050	0.018

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	19,260	A	0.385	19,830	A	0.397	0.012
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	33,700	C	0.674	34,270	C	0.685	0.011
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	17,690	F	2.211	20,800	F	2.600	0.389
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	10,780	D	0.719	12,480	D	0.832	0.113
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	2-Lane Collector (continuous left-turn lane)	15,000	9,790	C	0.653	10,640	D	0.709	0.056
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	12,350	A	0.309	13,200	A	0.330	0.021
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	11,530	A	0.288	11,810	A	0.295	0.007
Street U									
Street J to Street V	DNE	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	DNE	–	–	–	–	–	–	–	–
Street V									
Street U to Hotel Circle North	DNE	–	–	–	–	–	–	–	–

TABLE 11–6
YEAR 2030 + PROJECT PHASES I AND II SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2030			Year 2030 + Project Phases I and II			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	5,800	A	0.290	–
Riverwalk Drive to Street U	DNE	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Based on coordination with City staff, a capacity reduction was assumed to account for the EB auxiliary lane.
f. Δ denotes a project-induced increase in the Volume to Capacity ratio.

TABLE 11–7
YEAR 2030 + PROJECT PHASES I AND II FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Year 2030 + Project Phases I and II ADT	Direction	Number of Lanes	Year 2030			Year 2030 + Project Phases I and II			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	167,130	EB Mainlines	4M	0.552	21.70	C	0.554	21.80	C	0.002
		WB Mainlines	3M	1.111	>45.00	F	1.120	>45.00	F	0.009
Morena Boulevard to Taylor Street	227,420	EB Mainlines	4M+1A	0.653	23.70	C	0.656	23.80	C	0.003
		WB Mainlines	5M	0.899	37.10	E	0.906	37.50	E	0.007
Taylor Street to Hotel Circle	235,420	EB Mainlines	4M	0.789	31.50	D	0.792	31.60	D	0.003
		WB Mainlines	5M	0.924	38.80	E	0.931	39.30	E	0.007
Hotel Circle to SR163	237,400	EB Mainlines	4M+1A	0.686	25.20	C	0.704	25.80	C	0.018
		WB Mainlines	5M	0.819	31.20	D	0.824	31.50	D	0.005
SR163 to Mission Center Road	238,980	EB Mainlines	5M	0.655	26.20	D	0.664	26.60	D	0.009
		WB Mainlines	4M+1A	1.012	>45.00	F	1.016	>45.00	F	0.004
East of Mission Center Road	251,830	EB Mainlines	5M	0.674	27.00	D	0.687	27.60	D	0.013
		WB Mainlines	4M+1A	1.053	>45.00	F	1.058	>45.00	F	0.005
I-5										
North of Sea World Drive	245,830	NB Mainlines	5M	0.962	41.70	E	0.976	42.90	E	0.014
		SB Mainlines	5M	0.710	27.60	D	0.715	27.80	D	0.005
Sea World Drive to I-8	233,000	NB Mainlines	5M+1A	0.846	32.60	D	0.846	32.60	D	0.000
		SB Mainlines	5M+1A	0.610	22.40	C	0.610	22.40	C	0.000
SR 163										
North of Friars Road	217,400	NB Mainlines	5M	1.040	>45.00	F	1.056	>45.00	F	0.016
		SB Mainlines	4M	0.992	44.20	E	0.999	44.90	E	0.007
Friars Road to I-8	173,130	NB Mainlines	3M	1.410	>45.00	F	1.413	>45.00	F	0.003
		SB Mainlines	4M+2A	0.618	21.10	C	0.623	21.30	C	0.005
South of I-8	199,550	NB Mainlines	3M+1A	1.315	>45.00	F	1.321	>45.00	F	0.006
		SB Mainlines	3M	1.200	>45.00	F	1.220	>45.00	F	0.020

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix S* and *Appendix U* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 11–8
YEAR 2030 + PROJECT PHASES I AND II FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Year 2030 + Project Phases I and II ADT	Direction	Number of Lanes	Year 2030			Year 2030 + Project Phases I and II			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	167,130	EB Mainlines	4M	0.855	>45.00	F	0.863	>45.00	F	0.008
		WB Mainlines	3M	0.917	38.30	E	0.924	38.70	E	0.007
Morena Boulevard to Taylor Street	227,420	EB Mainlines	4M+1A	0.990	>45.00	F	0.999	>45.00	F	0.009
		WB Mainlines	5M	0.735	28.80	D	0.739	28.90	D	0.004
Taylor Street to Hotel Circle	235,420	EB Mainlines	4M	1.120	>45.00	F	1.129	>45.00	F	0.009
		WB Mainlines	5M	0.764	30.20	D	0.768	30.40	D	0.004
Hotel Circle to SR163	237,400	EB Mainlines	4M+1A	0.984	43.20	E	0.995	44.50	E	0.011
		WB Mainlines	5M	0.685	25.50	C	0.701	26.10	D	0.016
SR163 to Mission Center Road	238,980	EB Mainlines	5M	0.919	38.60	E	0.925	39.00	E	0.006
		WB Mainlines	4M+1A	0.847	32.60	D	0.858	33.30	D	0.011
East of Mission Center Road	251,830	EB Mainlines	5M	0.966	42.10	E	0.974	42.80	E	0.008
		WB Mainlines	4M+1A	0.889	35.20	E	0.905	36.40	E	0.016
I-5										
North of Sea World Drive	245,830	NB Mainlines	5M	0.859	34.60	D	0.868	35.10	E	0.009
		SB Mainlines	5M	0.962	41.60	E	0.977	42.90	E	0.015
Sea World Drive to I-8	233,000	NB Mainlines	5M+1A	0.722	26.50	D	0.722	26.50	D	0.000
		SB Mainlines	5M+1A	0.827	31.40	D	0.827	31.40	D	0.000
SR 163										
North of Friars Road	217,400	NB Mainlines	5M	0.799	31.70	D	0.809	32.20	D	0.010
		SB Mainlines	4M	1.085	>45.00	F	1.109	>45.00	F	0.024
Friars Road to I-8	173,130	NB Mainlines	3M	1.051	>45.00	F	1.061	>45.00	F	0.010
		SB Mainlines	4M+2A	0.707	41.30	E	0.711	41.60	E	0.004
South of I-8	199,550	NB Mainlines	3M+1A	1.010	>45.00	F	1.029	>45.00	F	0.019
		SB Mainlines	3M	1.286	>45.00	F	1.299	>45.00	F	0.013

Footnotes:

a. Volume to Capacity.
b. Level of Service.

General Notes:

1. See *Appendix S* and *Appendix U* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 11–9
YEAR 2030 + PROJECT PHASES I AND II RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Year 2030	AM	1,970	985	965	20	1	500
	PM	1,580	790	972	0	0	0
Year 2030 + Project Phases I and II	AM	2,116	1,058	965	93	6	2,325
	PM	1,675	838	972	0	0	0
Project Increase	AM	146	73	NA	73	5	1,825
	PM	95	48	NA	0	0	0

Footnotes:
a. Meter Rates obtained from Caltrans (see *Appendix E*).
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

General Notes:
1. NA = Not Applicable.



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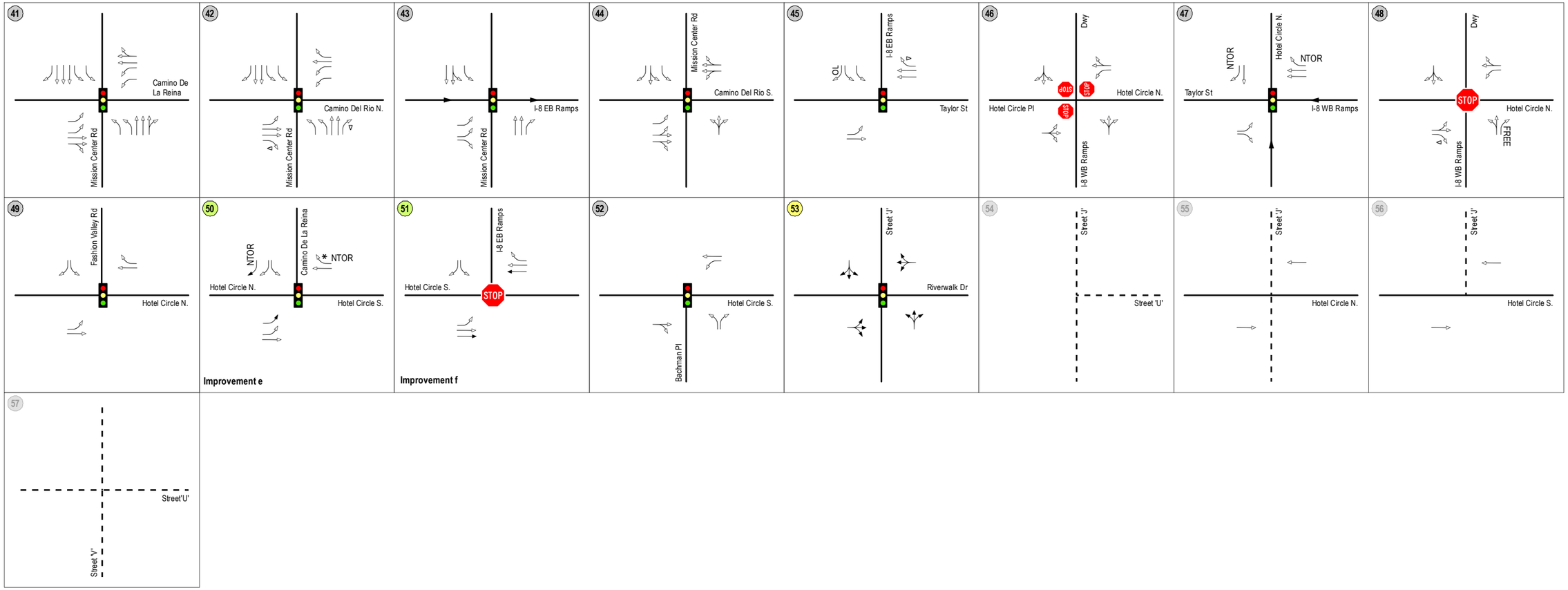
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Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 11-1
Year 2030 Conditions Diagram
(Page 1 of 2)
Riverwalk



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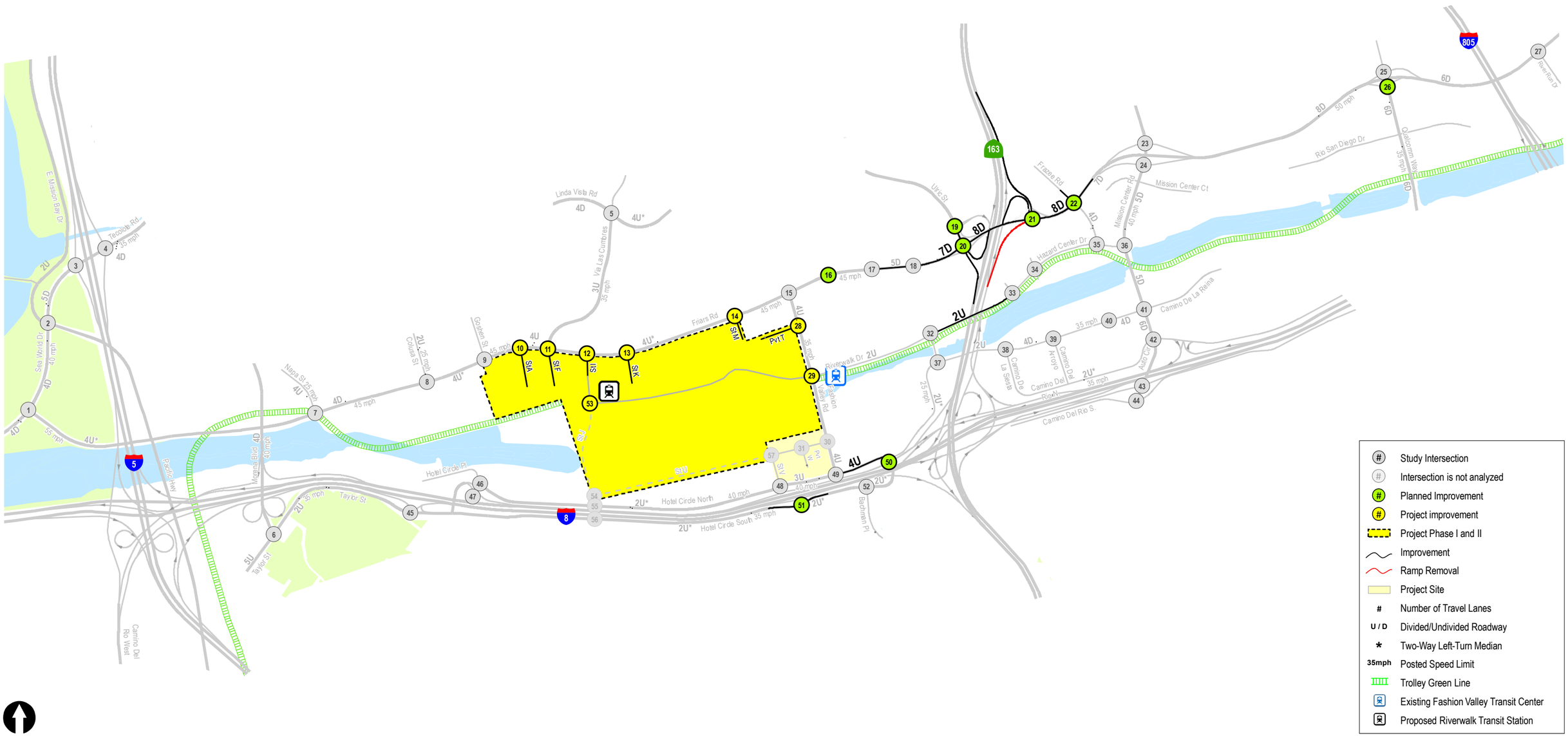
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Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 11-1
Year 2030 Conditions Diagram
(Page 2 of 2)
Riverwalk



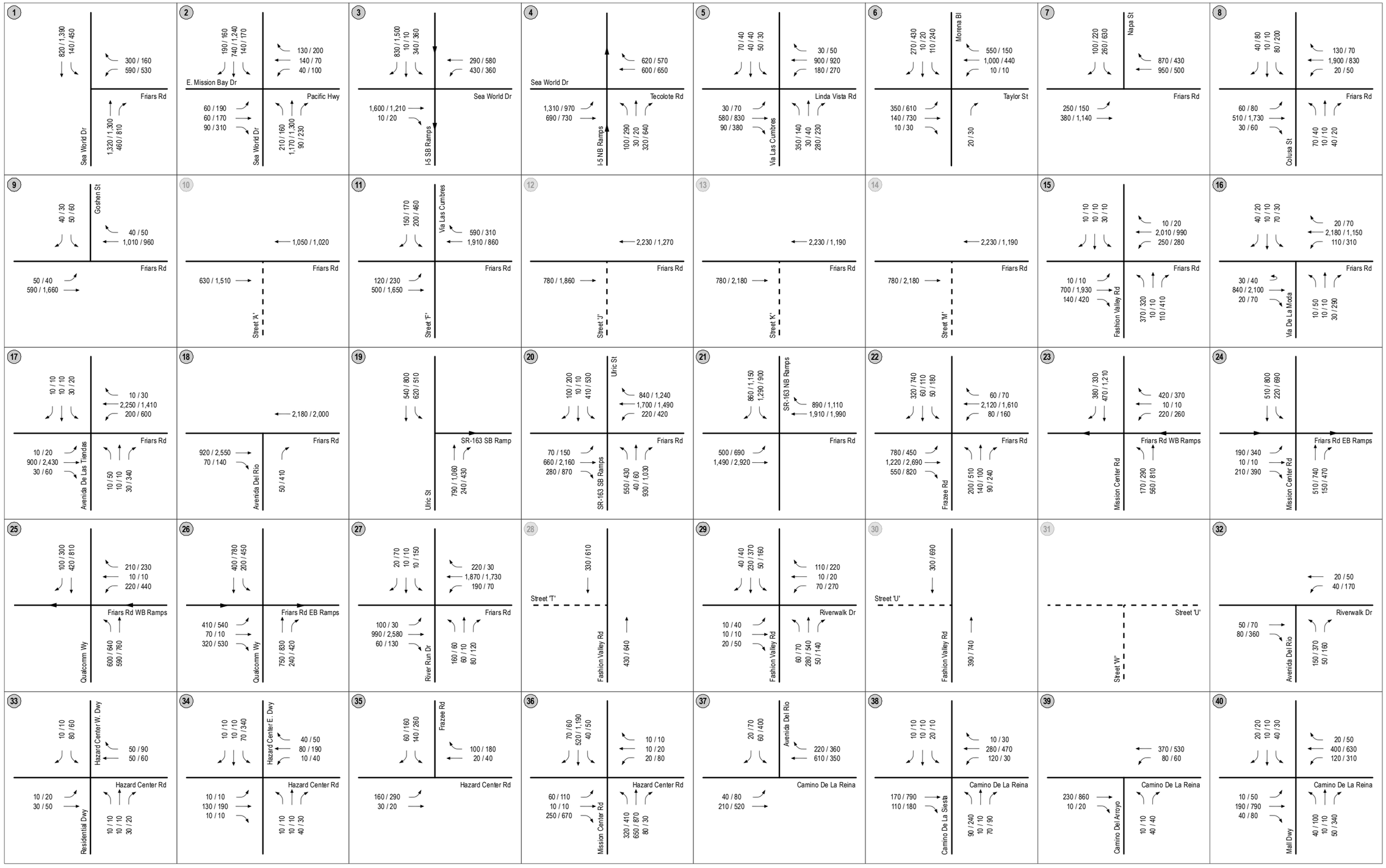
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Figure 11-2

Year 2030 Conditions Diagram

Riverwalk

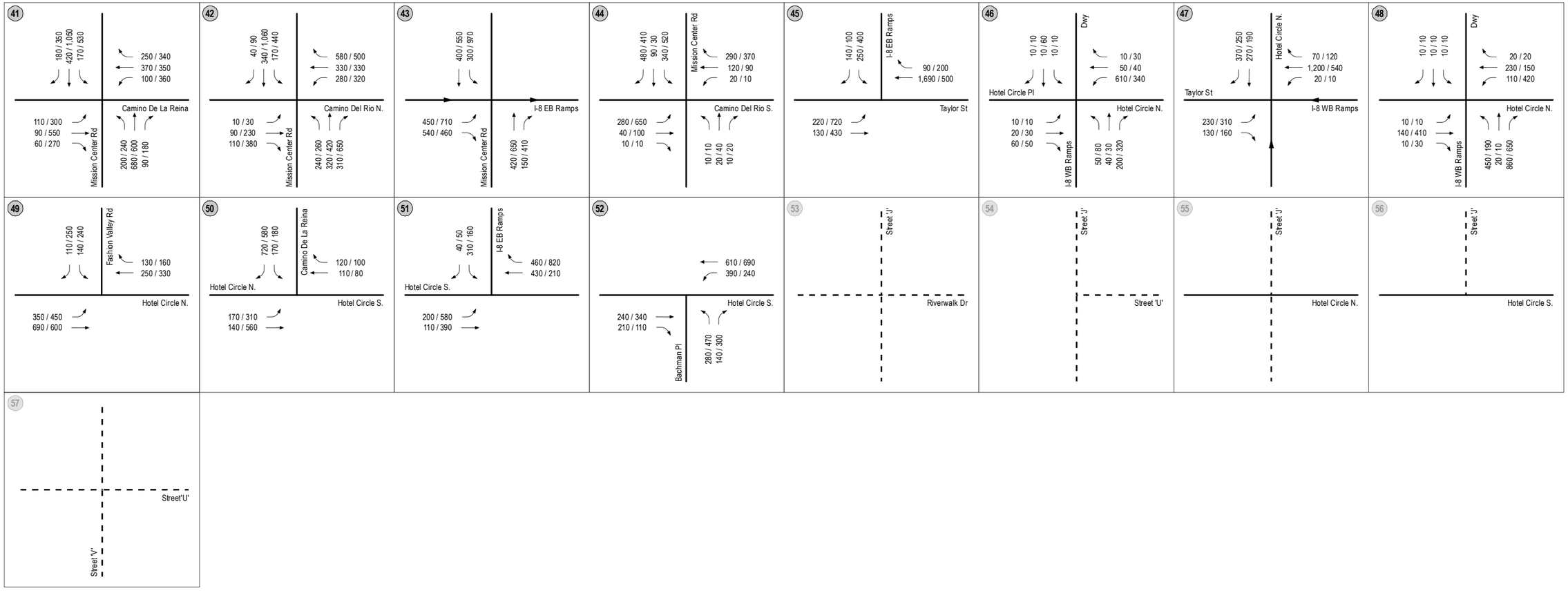


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Intersection AM/PM Peak Hour volumes

Figure 11-3
Year 2030 Traffic Volumes
(Page 1 of 2)
Riverwalk

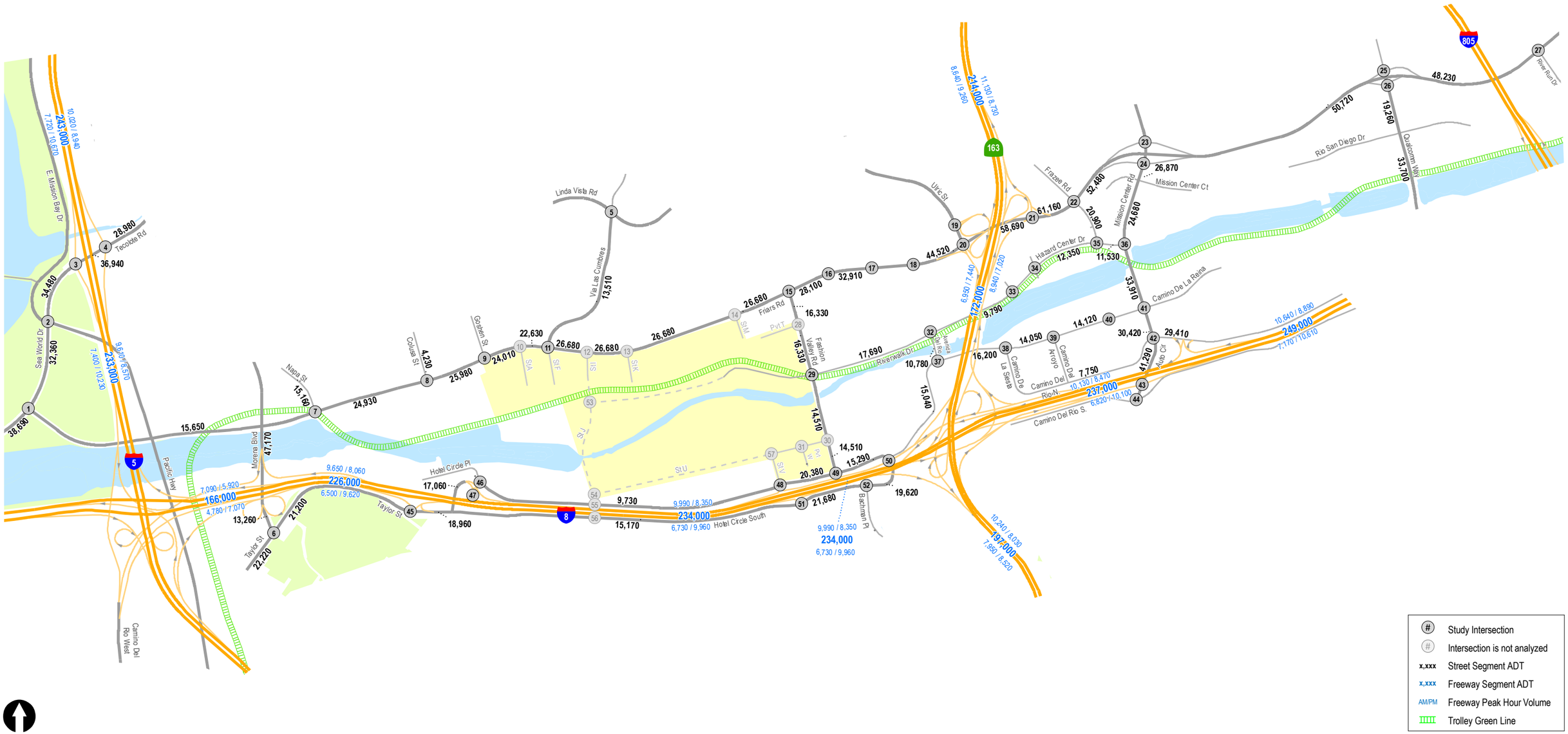


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(#) Study Intersection
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Intersection AM/PM Peak Hour volumes

Figure 11-3
Year 2030 Traffic Volumes
(Page 2 of 2)
Riverwalk



- Study Intersection
- Intersection is not analyzed
- x,xxx Street Segment ADT
- x,xxx Freeway Segment ADT
- AM/PM Freeway Peak Hour Volume
- Trolley Green Line

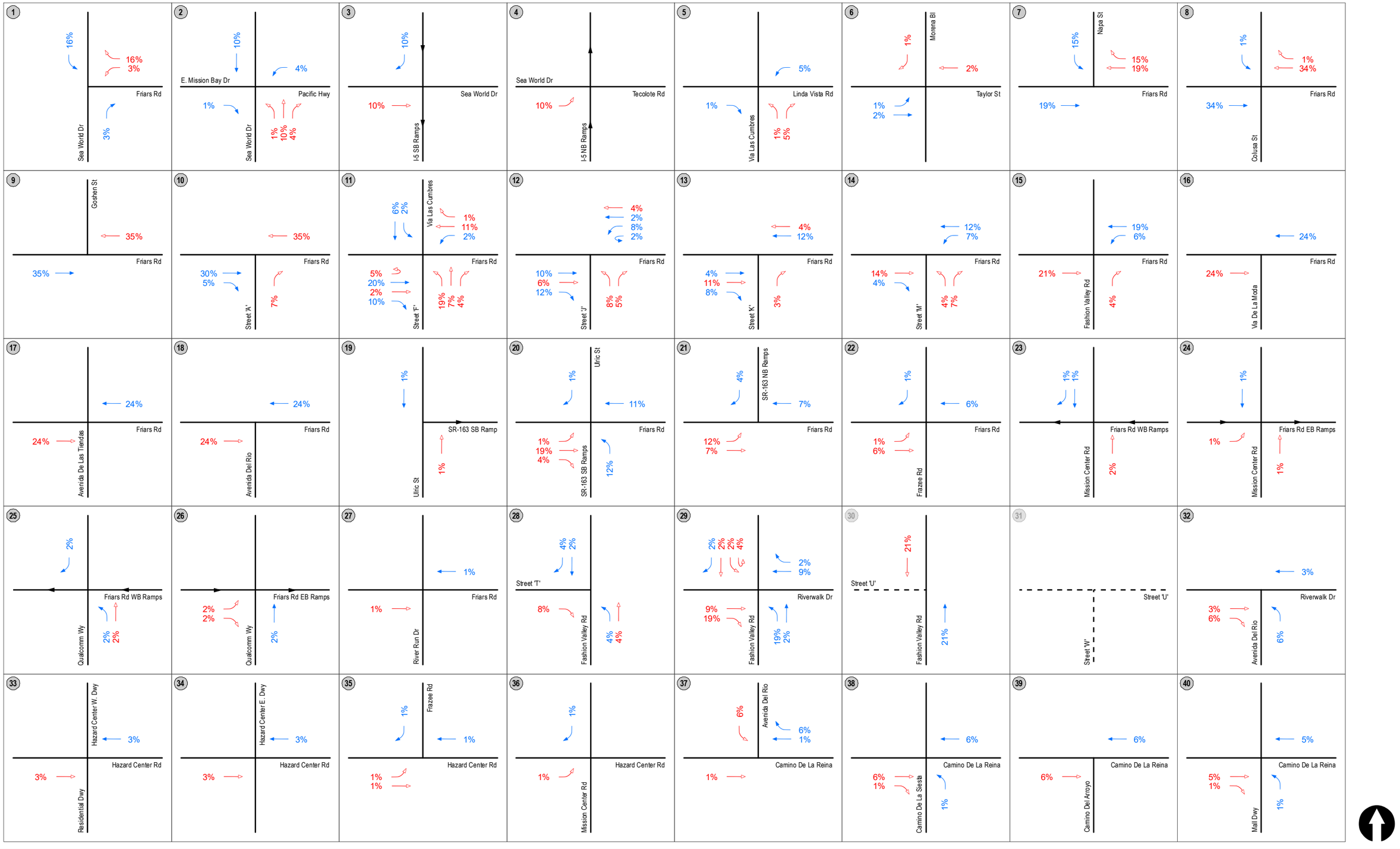
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Figure 11-4

Year 2030 Traffic Volumes

Riverwalk



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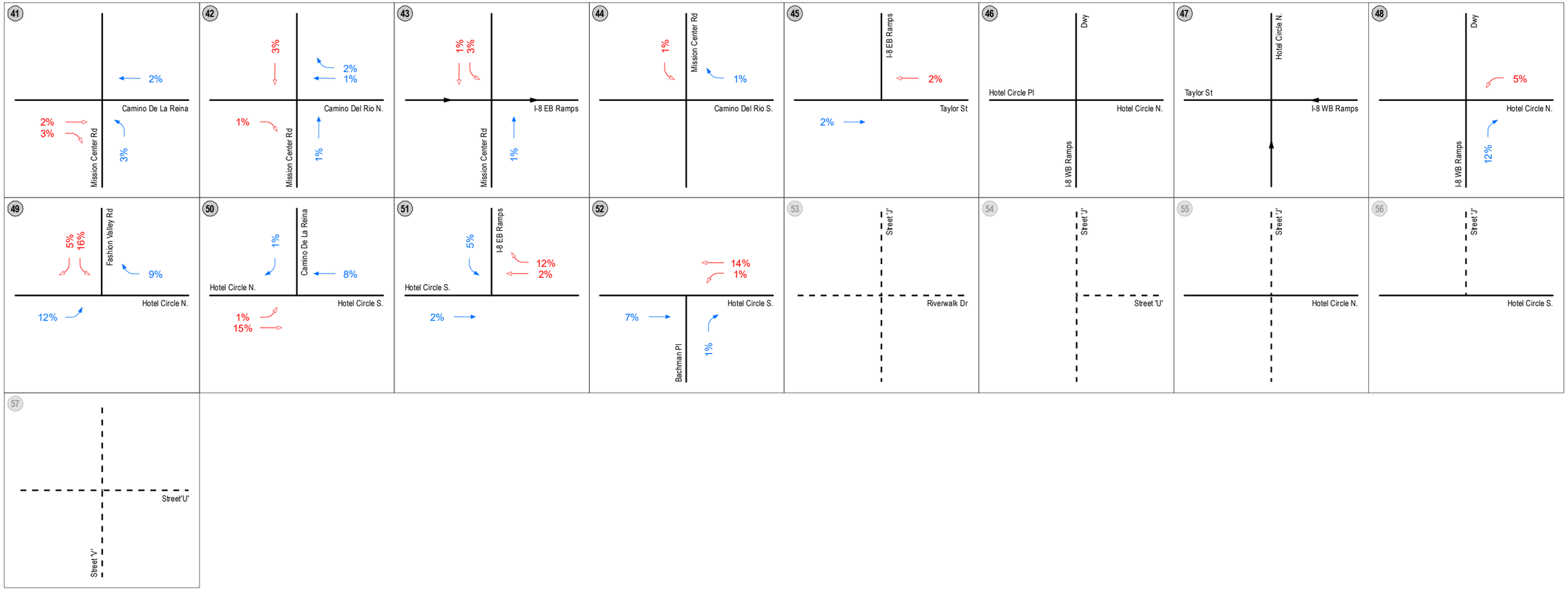
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 11-5

Project Phases I and II Traffic Distribution

(Page 1 of 2)

Riverwalk



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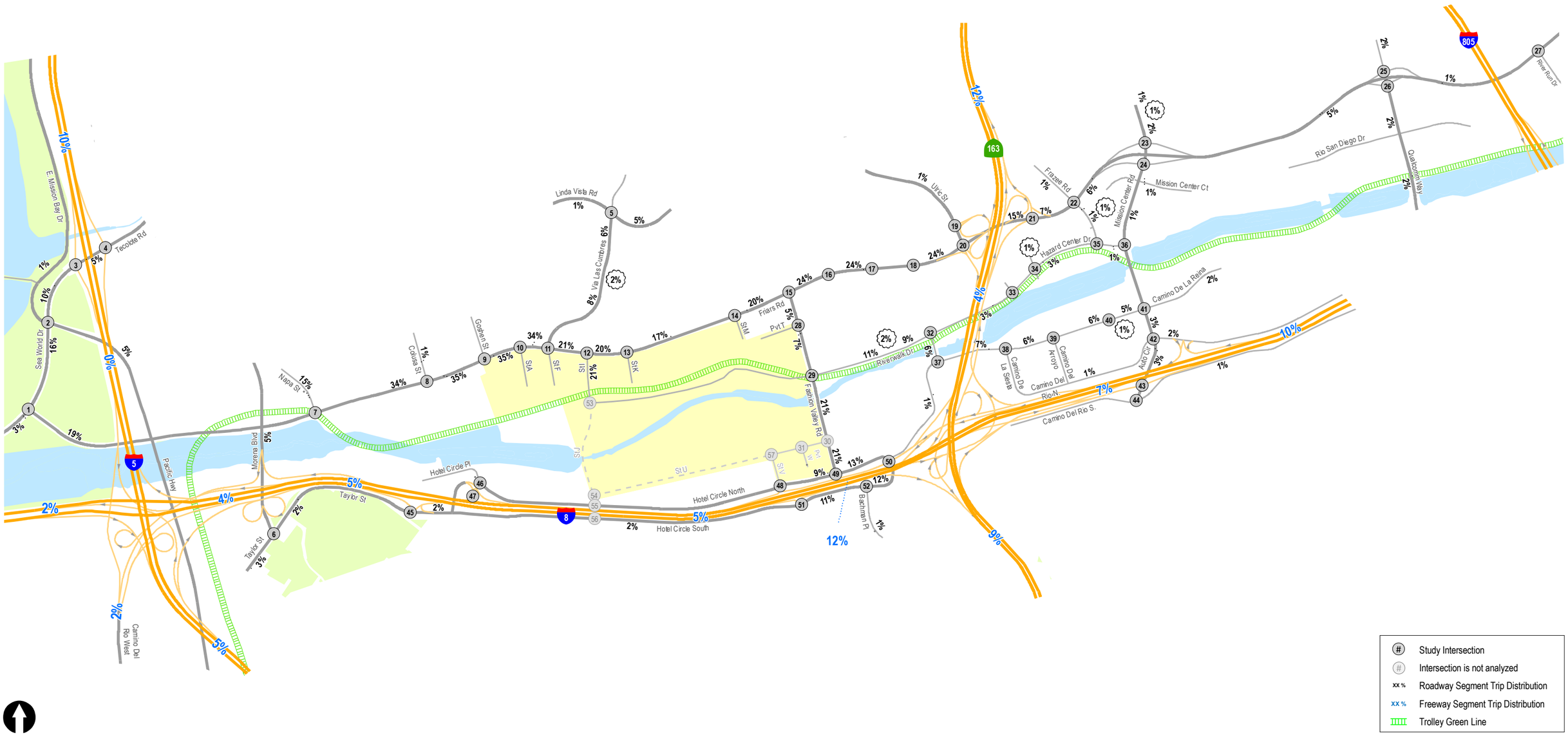
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 11-5

Project Phases I and II Traffic Distribution

(Page 2 of 2)

Riverwalk

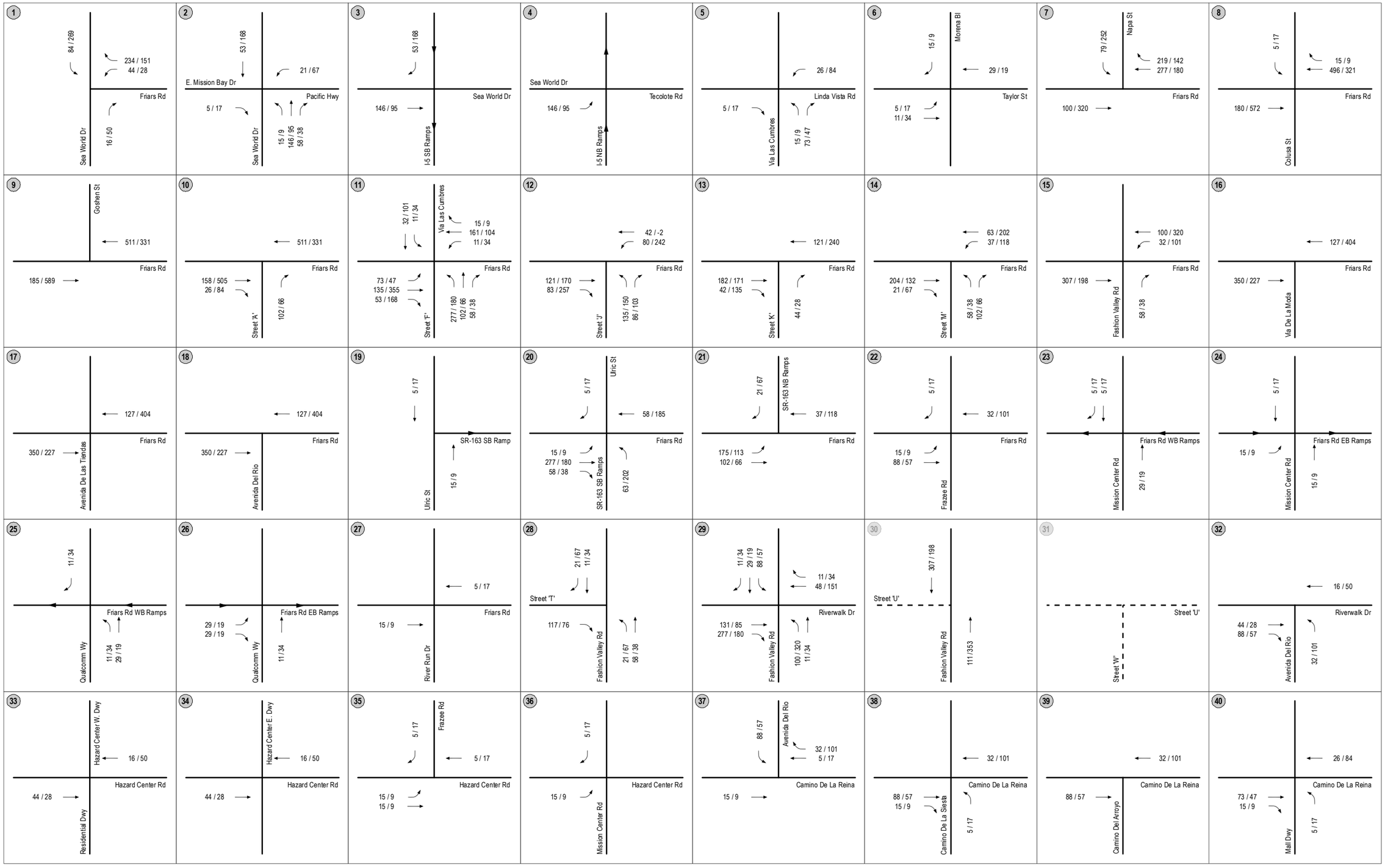


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Figure 11-6

Project Phase I and II Traffic Distribution

Riverwalk



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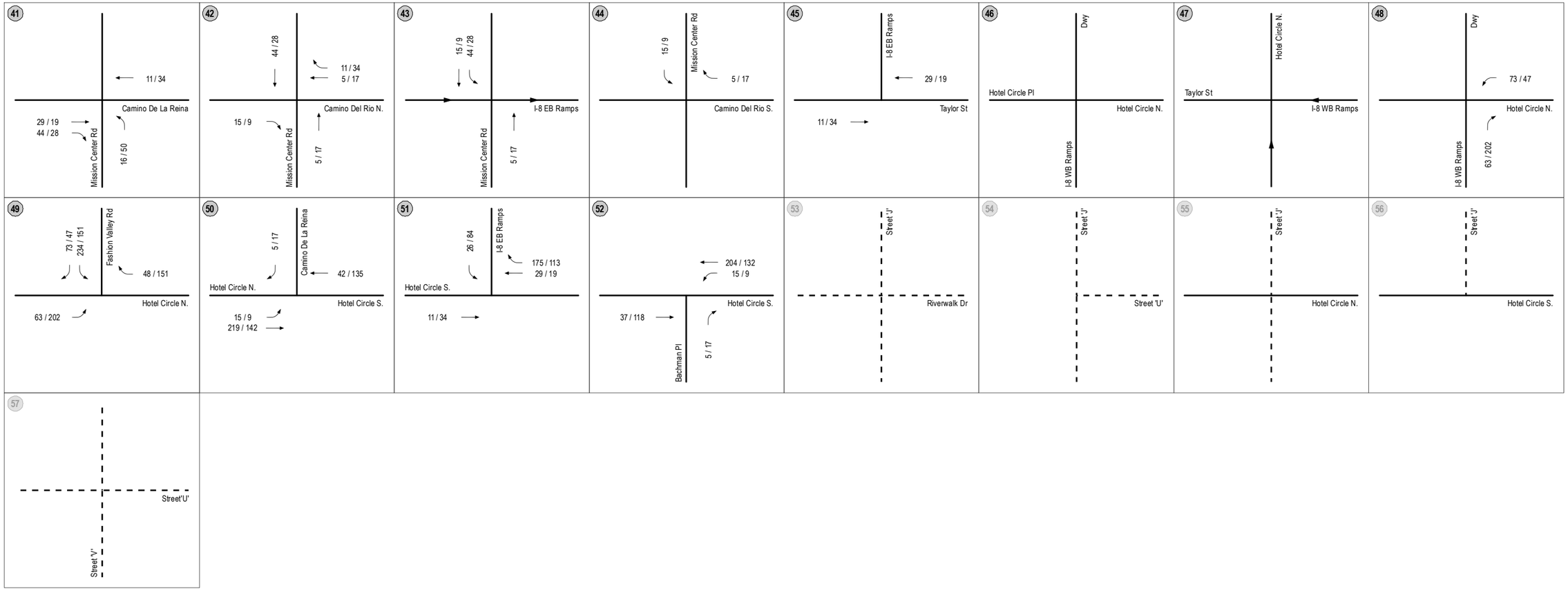
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Intersection AM/PM Peak Hour volumes

Figure 11-7

Project Phases I and II Traffic Volumes

(Page 1 of 2)

Riverwalk

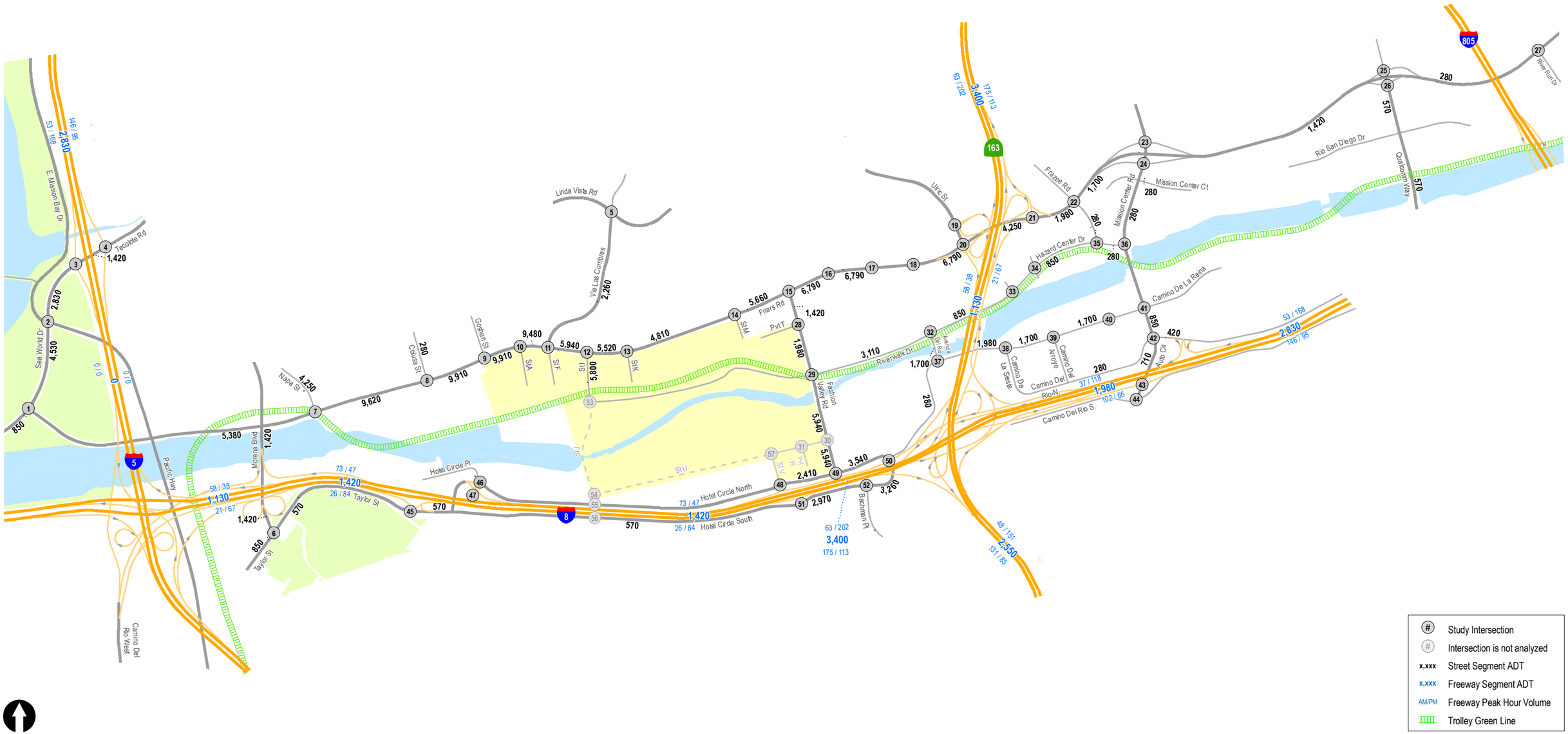


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(#) Study Intersection
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Intersection AM/PM Peak Hour volumes

Figure 11-7
Project Phases I and II Traffic Volumes
(Page 2 of 2)
Riverwalk



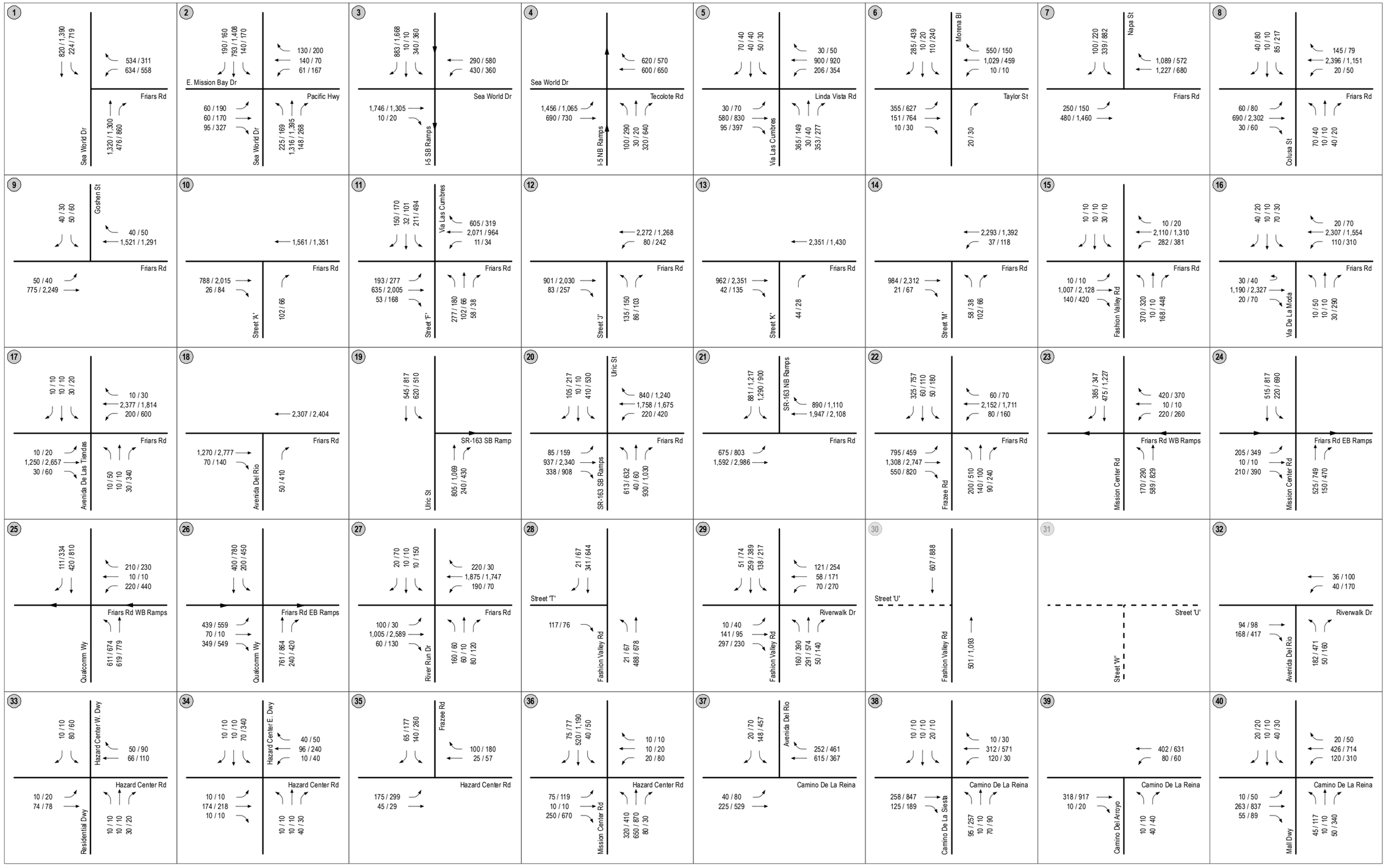
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Figure 11-8

Project Phase I and II Traffic Volumes

Riverwalk



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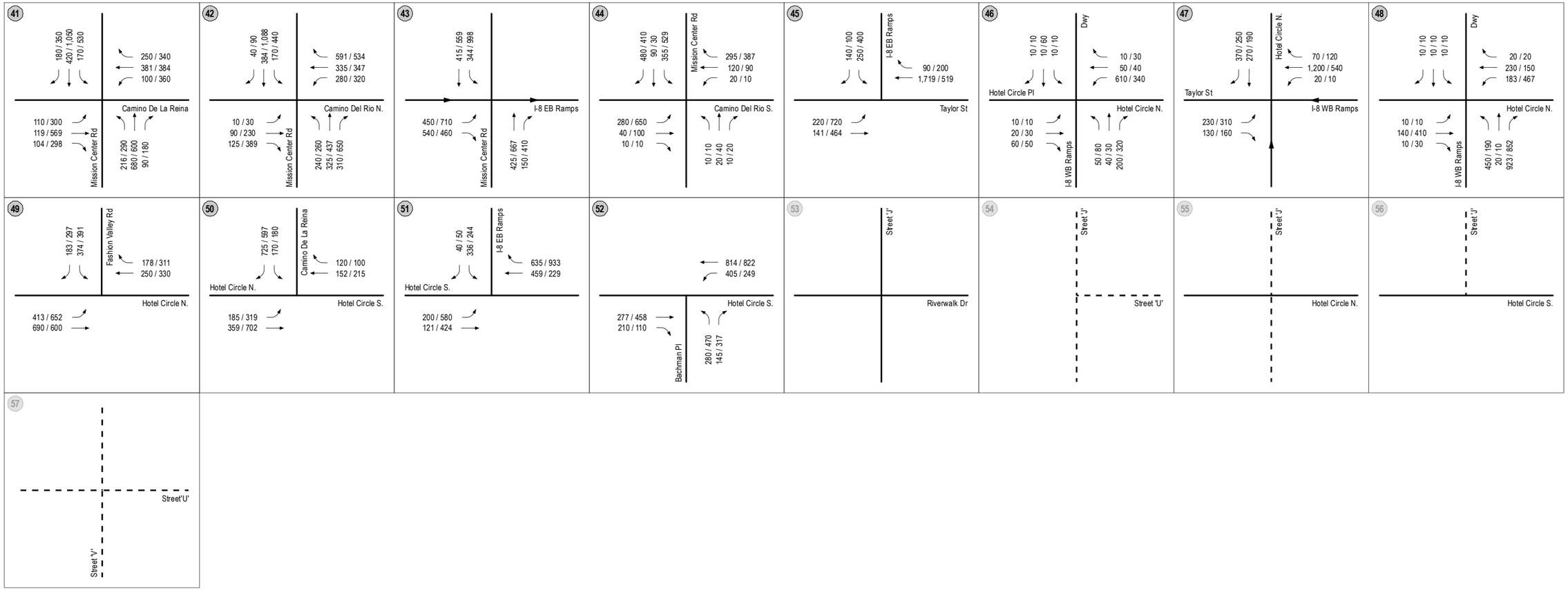
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Intersection AM/PM Peak Hour volumes

Figure 11-9

Year 2030 + Project Phases I and II Traffic Volumes

(Page 1 of 2)

Riverwalk



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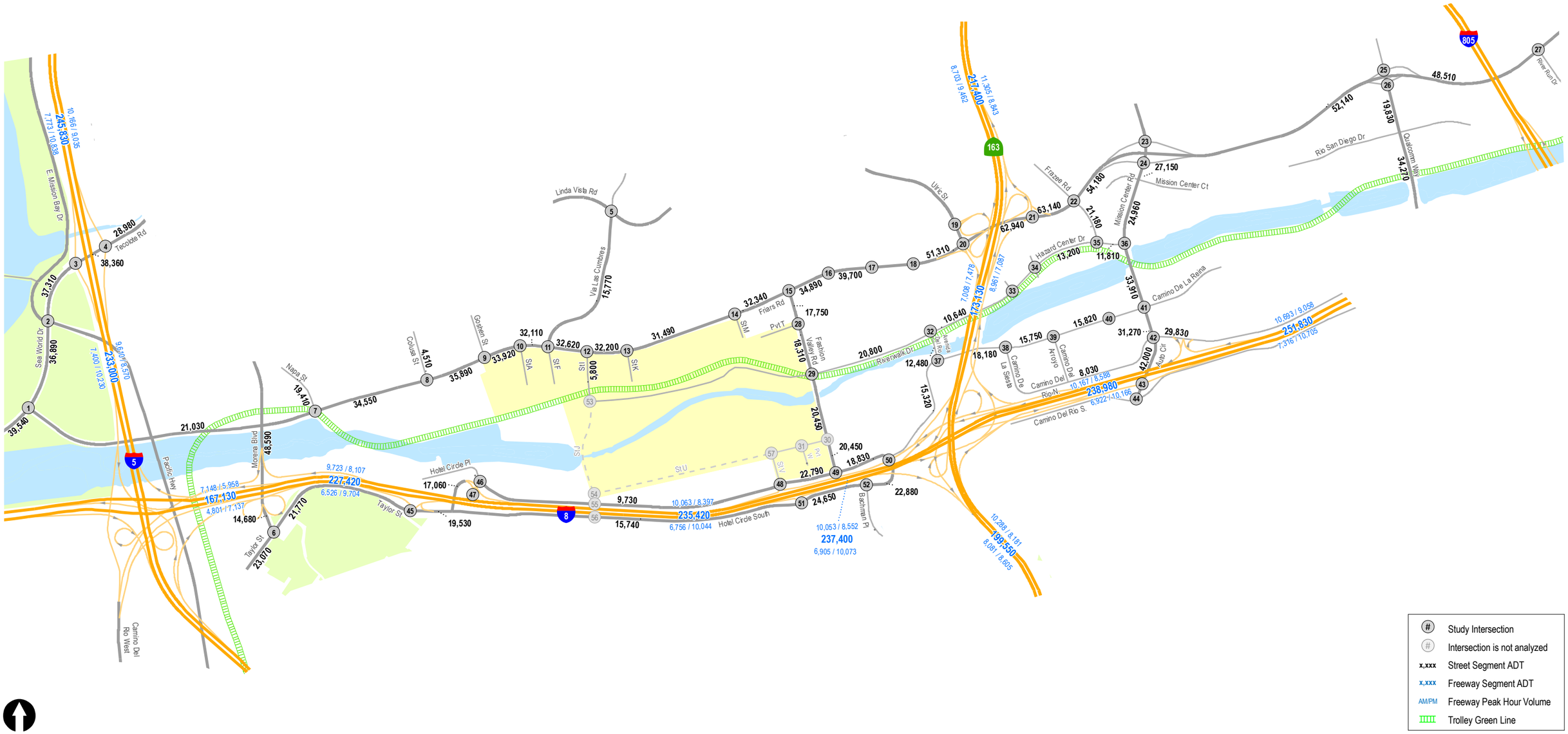
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Intersection AM/PM Peak Hour volumes

Figure 11-9

Year 2030 + Project Phases I and II Traffic Volumes

(Page 2 of 2)

Riverwalk



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Figure 11-10

Year 2030 + Project Phase I and II Traffic Volumes

Riverwalk

12.0 YEAR 2035 (PHASES I THROUGH III) ANALYSIS

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2035 conditions without and with the Riverwalk project.

12.1 Year 2035 Analysis Approach

To determine the potential Year 2035 traffic effects, the "Year 2035" future baseline is compared to the "Year 2035 with Riverwalk project" scenario to identify potential locations of transportation improvements that will be implemented consistent with the TIP.

12.2 Year 2035 Auto Conditions

For the purposes of this traffic study, the implementation of a number of local and regional roadway improvements were reviewed based on information provided in the *Mission Valley Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista Public Facilities Financing Plan (PFFP) – Fiscal Year 2006,* the ongoing Mission Valley Community Plan Update, the *2050 Regional Transportation Plan* (RTP), *City of San Diego Pedestrian Master Plan (2015) City of San Diego Bicycle Master Plan (2013),* and other approved developer transportation improvements in the Mission Valley and Linda Vista Communities

12.2.1 *Planned Local Improvements*

Table 12–1 identifies the local improvements assumed in the analysis. This was determined on a project-by-project basis. An improvement project was assumed only if it is currently under construction or if a development project was approved by City Council and a roadway improvement is assured as a part of its mitigation measure obligations. ***Figure 12–1*** shows the Year 2035 conditions diagrams for the study intersections. ***Figure 12–2*** shows the Year 2035 conditions diagrams for the study street segments and freeways.

Table 12–2 identifies local improvements considered but not assumed. These improvements were reviewed as they represent full maturity of the transportation network; however, these improvements were not assumed in the analysis.

TABLE 12–1
YEAR 2035 PLANNED LOCAL IMPROVEMENTS– ASSUMED

Project Name/ Location	Approved Project's Condition of Approval Improvements	Schedule/ Funding / Notes
Hotel Circle North widening to 4-lanes between Fashion Valley Road and Camino De La Reina	This improvement proposes to widen Hotel Circle N. from Fashion Valley Road to Camino De La Reina to 4-lane Collector standards per the Mission Valley Community Plan. Additional turn lanes will be provided at Fashion Valley Road and Camino De La Reina intersections.	This improvement is a condition of approval of the Town & Country Master Plan and is along the project's frontage. This improvement is under construction.
Hotel Circle S. / I-8 EB Ramps Intersection Improvements	This improvement includes the widening of Hotel Circle South to include an additional eastbound and westbound travel lane at the I-8 EB Ramps/Hotel Circle South intersection.	This improvement is a condition of approval of the Legacy International Center project and is along that project's frontage. This improvement has been completed.
Friars Road between Fashion Valley Road and Via De La Moda Improvements	This improvement includes widening of Friars Road to accommodate an additional westbound travel lane between Fashion Valley Road and Via De La Moda. A fourth leg to the Friars Road/Via De La Moda intersection will be added.	This improvement is a condition of approval of the Friars Road Multi-Family project and is along that project's frontage. This improvement is currently in the permitting stage.
Hazard Center Drive Extension (Mission Valley / T-15)	This improvement would provide for the extension of Hazard Center Drive to two-lanes from the eastern terminus of Hazard Center Drive to the existing road behind the Fashion Valley shopping center.	This improvement is currently under construction.
Friars Road EB Ramps / Qualcomm Way	This improvement includes construction of an additional eastbound left-turn lane.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project. This project has been completed.
Camino Del Rio N. restriping between Camino De La Siesta to Camino Del Arroyo	This improvement includes restriping of Camino Del Rio N. to include a continuous 10-foot wide left turn lane between Camino De La Siesta to Camino Del Arroyo.	This improvement is a condition of approval of the Witt Mission Valley project (Millennium 2) and is along that project's frontage.
Hotel Circle North and South	This improvement includes the conversion of Hotel Circle North and Hotel Circle South to a one-way couplet. Hotel Circle North would include one-way westbound movements while Hotel Circle South would include one-way eastbound movements. A Class IV two-way cycle track is also assumed with the one-way couplet configuration.	This improvement is a part of the MVCP. The project does not propose to construct the one-way couplet. However, the Riverwalk project will fully fund a Hotel Circle and I-8 Circulation Study to evaluate local and regional alternatives along I-8 from Taylor Street to SR 163.

TABLE 12–2
YEAR 2035 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Valley Public Facilities Financing Plan (PFFP) and Other Project Mitigation		
Camino De La Reina widening to 4-lanes **(MV T-11)**	This improvement includes the widening of Camino De La Reina to 4-lane Major between Hotel Circle North and Avenida Del Rio.	This improvement is a condition of approval of the Town and Country Master Plan, Union Tribune Master Plan and Alexan Fashion Valley projects. However, given that the MVCP classifies Camino De la Reina as a 2-lane Collector, this improvement was not assumed.
Camino Del Rio South Widening from Mission Center Road to I-805 (Mission Valley / T-2)	This improvement would widen Camino Del Rio South to a 4-lane Collector from Mission Center Road to I-805. Includes a grade separation of Camino Del Rio South from Texas Street.	Unidentified funding
Hotel Circle/Eastbound & Westbound I-8 Ramps (Mission Valley / T-5)	This improvement would provide increased intersection capacity and signalization at the eastbound I-8 ramps at Hotel Circle South and construct new Fashion Valley Road ramps to/from westbound I-8, including a realignment of Hotel Circle North at Fashion Valley Road.	Subdivider funded project
Friars Road – Restriping from Colusa Street to Ulric Street (Mission Valley / T-6)	This improvement would provide for the restriping along Friars Road to create a 6-lane Major from Colusa Street to Ulric Street. Restriping was completed from west of Ulric Street to east of Fashion Valley Road; remaining portion to Colusa Street has not yet been completed.	Subdivider funded project
Camino De La Reina Extension – Fashion Valley Road to Via las Cumbres (Mission Valley / T-7)	This improvement includes the construction of Camino De La Reina as a 4-lane Major Street between Fashion Valley Road and Napa Street. Based on coordination with City staff as a part of the current Mission Valley Community Plan Update, the extension is proposed to Via Las Cumbres. The extension between Via Las Cumbres and Napa Street is no longer proposed.	Subdivider funded project
Hotel Circle South – widen between EB I-8 ramps and Camino De La Reina (Mission Valley / T-8B)	This improvement would widen Hotel Circle South between the eastbound I-8 and Camino De La Reina to a 4-lane Collector from 2 lanes.	Subdivider funded project
Taylor Street – widen between EB Presidio ramps and I-8 Presidio overcrossing (Mission Valley / T-9)	This improvement would provide for the widening of Taylor Street between the eastbound Presidio ramps and I-8 Presidio overcrossing to 4 lanes and a bike lane.	Unidentified funding
Hotel Circle North – widen between I-8 ramps and Camino De La Reina (Mission Valley / T-10A)	This improvement would widen Hotel Circle North to a 4-lane Collector between the westbound I-8 ramps and Camino De La Reina.	Subdivider funded project

TABLE 12–2
YEAR 2035 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Camino De La Reina – 4-lane Major between SR 163 and Fashion Valley Road (Mission Valley / T-10B)	This improvement would provide for the construction of Camino De La Reina as a 4-lane Major Street between SR 163 and Fashion Valley Road.	Subdivider funded project
Camino De La Reina – widen between Hotel Circle North and Avenida Del Rio (Mission Valley / T-11)	This improvement would widen the existing Camino De La Reina to a 4-lane Major between Hotel Circle North and Avenida Del Rio.	Subdivider funded project
I-8/Via Las Cumbres Interchange (Mission Valley / T-12)	This improvement would provide for the construction of a new interchange at Hotel Circle North and Hotel Circle South at I-8 and is needed to serve new development.	Subdivider funded project
Via Las Cumbres Extension (Mission Valley / T-13)	This improvement includes the extension of Via Las Cumbres between Friars Road and Hotel Circle N.	Subdivider funded project
I-8 Hook Ramps (Mission Valley / T-22)	This improvement would provide for the reconstruction of ramps to/from Camino Del Rio North at the I-8 freeway westbound.	Subdivider funded project
Widen Camino Del Rio North – I-15 to Ward Road (Mission Valley / T-24A)	This improvement includes the widening of Camino Del Rio North to a 4-lane Major between the west side of I-15 and Ward Road.	Unidentified funding
Friars Road (North Side) – Fashion Valley Road to Avenida De Las Tiendas (Mission Valley / T-28)	This improvement would restripe the north side of Friars Road to 6 lanes with bicycle lanes from Fashion Valley Road to Avenida De Las Tiendas. Parking will be removed.	Based on field observations, both Phase I and Phase II appear to be completed.
Mission Center Road/Camino Del Rio North intersection	This improvement includes construction of an additional westbound through lane at the Mission Road / Camino Del Rio North intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.

TABLE 12–2
YEAR 2035 PLANNED LOCAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule / Funding / Notes
Mission Center Road/ I-8 EB Ramps intersection	This improvement includes construction of an additional southbound through lane, an additional southbound left-turn lane and an additional eastbound left-turn lane at the Mission Center Road/I-8 EB Ramps intersection.	This improvement is a condition of approval of the Quarry Falls (i.e. Civita) project but was not assumed given that this improvement is not assured with the approval of the Phyllis Place extension.
Linda Vista Valley Public Facilities Financing Plan (PFFP)		
Napa Street Traffic Improvements (Linda Vista / T-7)	This improvement proposes to improve traffic flow at the Linda Vista Road / Napa Street intersection. The improvement description is preliminary and the scope of work has not been established.	Unidentified funding
Traffic Signal at Goshen Street and Linda Vista Road (Linda Vista / T-19)	This improvement includes the installation of a traffic signal at the intersection of Goshen Street and Linda Vista Road.	Unidentified funding

12.2.2 *Planned Regional Improvements*

Table 12–3 identifies the regional improvements assumed in the analysis. These improvements are considered assured and/or in progress.

Table 12–4 identifies regional improvements considered but not assumed in the analysis due to a lack of funding, assured timing, or infeasibility.

TABLE 12–3
YEAR 2035 PLANNED REGIONAL IMPROVEMENTS – ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase I (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phase I of the improvement includes widening of Friars Road from Avenida de las Tiendas to Mission Center Road, including the Friars Road overcrossing and reconstructing the interchange improvements to ramp intersections. • Widening Friars Road overcrossing • Improving Frazee Road, Avenida de las Tiendas and Ulric Street intersections along Friars Road • Constructing a designated bike lane and improving pedestrian facilities.	This improvement was recently completed (December 2019).

TABLE 12–4
YEAR 2035 PLANNED REGIONAL IMPROVEMENTS – NOT ASSUMED

Project Name	Improvements	Schedule/ Funding / Notes
SR 163 / Friars Road Interchange – Phase II and III (Mission Valley / MV-14, 17, & 18) and SANDAG RTP 2050	Phases II and III include the following improvements: • Widening southbound SR 163 to include two (2) additional lanes between Friars Road and I-8 to accommodate a southbound collector-distributor (Phase II) • Construction of a flyover structure from Ulric Street to southbound SR 163 (Phase II) • Construction of a dedicated southbound auxiliary lane on SR 163 to I-8 westbound to eliminate the freeway weaving conflict on SR 163 (Phase II) • Construct new NB SR 163 on ramp at Friars Road with auxiliary lanes on the freeway (Phase III)	Given the lack of funding for Phases II and III, these improvements were not assumed
I-5 Operational Improvements Project	This project includes widening of I-5 between I-15 and I-8 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-5 are programmed in the Year 2050.
I-5 Managed Lanes Project	This project includes widening of I-5 between I-8 and La Jolla Village Drive to provide a managed lane in each direction.	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the addition of managed lanes on I-5 is programmed in the Year 2050.
I-8 Operational Improvements Project	This project includes widening of I-8 between I-5 and I-15 with freeway operational improvements	Per the SANDAG 2050 RTP, under the Revenue Constrained scenario, the operational improvements on I-8 are programmed in the Year 2050.

12.2.3 *Year 2035 Traffic Volumes*

As of September 2019, the MVCPU traffic forecast model was under review by SANDAG and was not available to the public. Therefore, the model could not be reviewed in detail or used for this Mobility Assessment. Based on consultation with City staff, the Year 2035 forecast volumes for the Riverwalk project were developed using the available SANDAG Series 12 and Series 13 forecast projections, the MVCPU Year 2050 forecast volumes and traffic forecast volume projections from other sources such as the SANDAG Traffic Forecast Information Center, which represent the best information available at the time this report was prepared. The Series 13 volumes were developed based on the growth trends between the Near-Term, Year 2035 and Year 2050. The traffic volumes represent LLG's and the City's best efforts of forecasting future conditions with the most recent information available at the time this report was prepared. A detailed explanation of the volume forecasting and adjustments are provided in ***Appendix V***.

Figure 12–3 shows the Year 2035 intersection volumes. ***Figure 12–4*** shows the Year 2035 street segment and freeway volumes.

12.2.4 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2035 conditions. ***Table 12–5*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Sea World Drive / I-5 NB Ramps (LOS E during the PM peak hour)
- Morena Boulevard / Taylor Street (LOS E during the AM peak hour)
- Friars Road / Goshen Street (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road / Fashion Valley Road (LOS F during the AM peak hour and LOS E during the PM peak hour)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Ulric Street / SR163 SB On-Ramp (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the AM and PM peak hours)
- Friars Road / Frazee Road (LOS E during the AM and PM peak hours)
- Riverwalk Drive / Avenida Del Rio (LOS F during the PM peak hour)
- Hazard Center Drive / Frazee Road (LOS F during the PM peak hour)
- Mission Center Road / Camino Del Rio N. (LOS E during the PM peak hour)
- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS F during the AM and PM peak hours)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS E during the PM peak hour)

Appendix W contains the intersection analysis worksheets for the Year 2035 scenario.

12.2.5 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2035 conditions. ***Table 12–6*** reports the Year 2035 street segment operations on a daily basis. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS F)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS F)

- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramp to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramps (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS E)
- Hotel Circle South: Bachman Place to Camino De La Reina (LOS E)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)
- Avenida Del Rio: Riverwalk Drive to Camino De La Reina (LOS E)
- Hazard Center Drive: Avenida Del Rio to Hazard Center West Driveway (LOS F)

12.2.6 *Freeway Segment Operations*

Freeway segment analyses were conducted in the study area under Year 2035 conditions. ***Appendix X*** contains the detailed calculations sheets for the Year 2035 scenario. ***Tables 12–7*** and ***12–8*** reports the Year 2035 peak hour freeway segment operations. The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F–PM (EB and WB)*
- Morena Boulevard to Taylor Street, *LOS E–AM (WB) and LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS E–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB and WB)*

I-5

- North of Sea World Drive, *LOS E– AM (NB) and LOS E–PM (NB and SB)*

SR 163

- North of Friars Road, *LOS F–AM (NB and SB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (NB and SB)*

12.2.7 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2035 conditions. ***Table 12–9*** reports the Year 2035 ramp meter operations.

12.3 Year 2035 + Project Phases I through III

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2035 conditions without and with the Riverwalk Phase III project.

Figure 12–5 shows the Project Phases I through III intersection trip distribution (north of the river) percentages. ***Figure 12–6*** shows the Project Phases I through III street segment and freeway trip distribution (north of the river) percentages. ***Figure 12–7*** shows the Project Phases I through III intersection trip distribution (south of the river) percentages. ***Figure 12–8*** shows the Project Phases I through III street segment and freeway trip distribution (south of the river) percentages. ***Figure 12–9*** shows the Project Phases I through III intersection volumes (north of the river).

Figure 12–10 shows the Project Phases I through III street segment and freeway volumes (north of the river). ***Figure 12–11*** shows the Project Phases I through III intersection volumes (south of the river). ***Figure 12–12*** shows the Project Phases I through III street segment and freeway volumes (south of the river). ***Figure 12–13*** shows the Project Phases I, II, and III – Project Buildout intersection volumes. ***Figure 12–14*** shows the Project Phases I, II, and III – Project Buildout street segment and freeway volumes. ***Figure 12–15*** shows the Year 2035 + Project Phases I, II, and III – Project Buildout intersection volumes. ***Figure 12–16*** shows the Year 2035 + Project Phases I, II, and III – Project Buildout street segment and freeway volumes.

12.3.1 *Project Improvements*

Under the Phase III scenario, in addition to the already constructed Phase I (2025) and Phase II (2030) roadways, the project would construct the following.

- Construct a new signalized intersection on Fashion Valley Road at Street U. Street U would include two inbound lanes and two outbound lanes separated by a 16 ft wide raised median. A two-way Class IV cycle track is proposed on the north side of Street U.
- Construct a new north-south roadway (Street V) as the fourth leg of the I-8 WB Hook Ramps / Hotel Circle North intersection, subject to Caltrans' approval and findings of the Circulation Study. Street V will provide access to the project office uses as well as provide community access from Hotel Circle North to Fashion Valley Road when the one-way couplet is implemented on Hotel Circle North. Street V would include two travel lanes in each direction with a 4 ft raised median and Class II buffered bike lanes on both sides.
- Construct a new office north-south driveway (Private Drive W) between Street V and Fashion Valley Road. Private Drive W will provide access to the Riverwalk office uses on the south side of Street U. Private Drive W would include two travel lanes in each direction with a center two-way left turn lane.
- Construct the internal streets and drives needed to serve the Phase III development.

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2035 conditions without and with the Riverwalk Phase III project.

12.3.2 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2035 + Project Phases I, II, and III – Project Buildout conditions. *Table 12–5* reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Sea World Drive / I-5 NB Ramps (LOS E during the PM peak hour)
- Morena Boulevard / Taylor Street (LOS E during the AM peak hour)
- Friars Road / Goshen Street (LOS F during the AM and PM peak hours)
- Friars Road / Via Las Cumbres / Street F (LOS F during the AM and PM peak hours)
- Friars Road / Fashion Valley Road (LOS F during the AM and PM peak hours)
- Friars Road / Avenida Del Rio (LOS F during the PM peak hour)
- Ulric Street / SR163 SB On-Ramp (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Friars Road / Frazee Road (LOS E during the AM and PM peak hours)
- Riverwalk Drive / Fashion Valley Road (LOS F during the PM peak hour)
- Riverwalk Drive / Avenida Del Rio (LOS F during the PM peak hour)
- Hazard Center Drive / Frazee Road (LOS F during the PM peak hour)
- Mission Center Road / Camino Del Rio N. (LOS E during the PM peak hour)
- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle Place / Hotel Circle N. (LOS F during the AM and PM peak hours)
- Taylor Street / I-8 WB Ramps (LOS E during the AM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)
- Hotel Circle S. / I-8 EB Hook Ramps (LOS F during the PM peak hour)

Appendix Y contains the intersection analysis worksheets for the Year 2035 + Project Phases I, II, and III – Project Buildout scenario.

12.3.3 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2035 + Project Phases I, II, and III – Project Buildout conditions. *Table 12–6* reports the Year 2035 + Project Phases I, II, and III – Project Buildout daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS F)
- Sea World Drive: Friars Road to Pacific Highway/E. Mission Bay Drive (LOS E)
- Sea World Drive: I-5 SB Ramps to I-5 NB Ramps (LOS E)
- Friars Road: Napa Street to Colusa Street (LOS E)
- Friars Road: Colusa Street to Goshen Street (LOS E)
- Friars Road: Goshen Street to Street A (LOS E)
- Friars Road: Via Las Cumbres to Street I (LOS E)
- Friars Road: Via De La Moda to Avenida De Las Tiendas (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS F)
- Hotel Circle North: Hotel Circle Place to I-8 WB Hook Ramps (LOS E)
- Camino De La Reina: Hotel Circle North to Avenida Del Rio (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Taylor Street: Morena Boulevard to I-8 EB Hook Ramps (LOS F)
- Taylor Street: I-8 EB Hook Ramps to Hotel Circle South (LOS F)
- Taylor Street: Hotel Circle South to I-8 WB Hook Ramp (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Hotel Circle South: I-8 EB Hook Ramps to Bachman Place (LOS F)
- Hotel Circle South: Bachman Place to Camino de la Reina (LOS F)
- Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Fashion Valley Road: Friars Road to Private Drive T (LOS E)
- Fashion Valley Road: Private Drive T to Riverwalk Drive (LOS E)
- Fashion Valley Road: Riverwalk Drive to Street U (LOS F)
- Fashion Valley Road: Street U to Hotel Circle North (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)
- Avenida Del Rio: Riverwalk Drive to Camino De La Reina (LOS F)

- Hazard Center Drive: Avenida Del Rio to Hazard Center West Driveway (LOS F)

12.3.4 *Freeway Segment Operations*

Freeway segments were analyzed under Year 2035 + Project Phases I, II, and III – Project Buildout conditions. ***Appendix Z*** contains the detailed calculations sheets for the Year 2035 + Project Phases I, II, and III – Project Buildout scenario. *Tables 12–7* and *12–8* reports the Year 2035 + Project Phases I, II, and III – Project Buildout freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F–PM (EB and WB)*
- Morena Boulevard to Taylor Street, *LOS E–AM (WB) and LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS E–AM (EB and WB) and LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- SR 163 to Mission Center Road, *LOS F–AM (WB) and LOS E–PM (EB)*
- East of Mission Center Road, *LOS F–AM (WB) and LOS F/E–PM (EB/WB)*

I-5

- North of Sea World Drive, *LOS F– AM (NB) and LOS E/F–PM (NB/SB)*

SR 163

- North of Friars Road, *LOS F–AM (NB and SB) and LOS E/F–PM (NB/SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS F–AM (NB and SB) and LOS F–PM (NB and SB)*

12.3.5 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2035 + Project Phases I, II, and III – Project Buildout conditions. *Table 12–9* reports the Year 2035 + Project Phases I, II, and III – Project Buildout ramp meter operations.

TABLE 12–5
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II, and III – Project Buildout		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	18.6	B	23.3	C	4.7
		PM	27.9	C	32.4	C	4.5
2. Sea World Dr. / E. Mission Bay Dr. / Pacific Hwy	Signal	AM	30.6	C	30.8	C	0.2
		PM	49.3	D	49.9	D	0.6
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	45.1	D	48.9	D	3.8
		PM	34.1	C	34.4	D	0.3
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	46.3	D	54.8	D	8.5
		PM	71.7	E	78.2	E	6.5
5. Linda Vista Rd. / Via Las Cumbres	Signal	AM	46.9	D	48.9	D	2.0
		PM	38.0	D	44.3	D	6.3
6. Morena Blvd. / Taylor St.	Signal	AM	70.6	E	71.1	E	0.5
		PM	41.0	D	43.9	D	2.9
7. Friars Rd. / Napa St.	Signal	AM	38.5	D	51.8	D	13.3
		PM	29.6	C	38.4	D	8.8
8. Friars Rd. / Colusa St.	Signal	AM	23.2	C	53.1	D	29.9
		PM	29.7	C	53.2	D	23.5
9. Friars Rd. / Goshen St.	OWSC[c]	AM	40.9	E	181.4	F	140.5
		PM	77.9	F	283.6	F	205.7
10. Friars Rd. / Street 'A'	RIRO[d]	AM	–	–	13.5	B	–
		PM	–	–	33.7	D	–
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	33.1	C	153.9	F	120.8
		PM	31.5	C	145.4	F	113.9

TABLE 12–5
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II, and III – Project Buildout		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
12. Friars Rd. / Street I	Signal	AM	–	–	27.2	C	–
		PM	–	–	54.9	D	–
13. Friars Rd. / Street 'K'	RIRO[d]	AM	–	–	13.7	B	–
		PM	–	–	34.6	D	–
14. Friars Rd. / Street 'M'	Signal	AM	–	–	18.0	B	–
		PM	–	–	43.4	D	–
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	89.2	F	101.6	F	12.4
		PM	76.1	E	103.8	F	27.7
16. Friars Rd. / Via de la Moda	Signal	AM	26.0	C	40.9	D	14.9
		PM	37.7	D	40.4	D	2.7
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	10.6	B	11.0	B	0.4
		PM	33.9	C	40.6	D	6.7
18. Friars Rd. / Avenida del Rio	RIRO[d]	AM	15.8	C	20.8	C	5.0
		PM	>100	F	>100	F	>10.0
19. Ulric St. / SR-163 SB On Ramp	Unsignalized	AM	43.8	E	45.6	E	1.8
		PM	59.8	F	62.7	F	2.9
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	74.8	E	76.5	E	1.7
		PM	57.3	E	81.6	F	24.3
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	27.3	C	39.8	D	12.5
		PM	30.1	C	43.7	D	13.6
22. Friars Rd. / Frazee Rd.	Signal	AM	69.1	E	70.9	E	1.8
		PM	75.7	E	77.3	E	1.6
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	21.6	C	22.0	C	0.4
		PM	26.9	C	29.6	C	2.7

TABLE 12–5
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II, and III – Project Buildout		Δ[g]
			Delay[a]	LOS[b]	Delay	LOS	
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	14.6	B	14.6	B	0.0
		PM	34.1	C	38.0	D	3.9
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	53.2	D	54.7	D	1.5
		PM	48.5	D	51.2	D	2.7
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	22.3	C	23.2	C	0.9
		PM	48.5	D	52.8	D	4.3
27. Friars Rd / River Run Dr.	Signal	AM	37.0	D	37.7	D	0.7
		PM	43.2	D	45.3	D	2.1
28. Fashion Valley Rd. / Private Drive 'T'	Unsignalized	AM	–	–	12.5	B	–
		PM	–	–	13.1	B	–
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	24.6	C	45.7	D	21.1
		PM	46.9	D	121.2	F	74.3
30. Fashion Valley Rd. / Street 'U'	Signal	AM	–	–	17.7	B	–
		PM	–	–	17.9	B	–
31. Street 'U' / Private Drive 'W'	Signal	AM	–	–	3.9	A	–
		PM	–	–	10.1	B	–
32. Riverwalk Dr. / Avenida Del Rio	AWSC[f]	AM	13.8	B	23.2	C	9.4
		PM	61.8	F	166.2	F	104.4
33. Hazard Center West Dwy. / Hazard Center Dr.	Signal	AM	5.9	A	5.9	A	0.0
		PM	5.2	A	5.3	A	0.1
34. Hazard Center East Dwy. / Hazard Center Dr.	Signal	AM	13.2	B	13.4	B	0.2
		PM	19.2	B	21.1	C	1.9
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	31.6	C	31.8	C	0.2
		PM	84.5	F	100.2	F	15.7
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	34.1	C	34.5	C	0.4
		PM	46.9	D	47.8	D	0.9

TABLE 12–5
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II, and III – Project Buildout		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
37. Camino de la Reina / Avenida Del Rio	Signal	AM	30.6	C	35.4	D	4.8
		PM	31.5	C	46.3	D	14.8
38. Camino de la Reina / Camino de la Siesta	Signal	AM	19.1	B	19.2	B	0.1
		PM	25.7	C	28.1	C	2.4
39. Camino de la Reina / Camino Del Arroyo	TWSC[e]	AM	10.5	B	11.4	B	0.9
		PM	24.7	C	34.4	D	9.7
40. Camino de la Reina / Mall Drwy.	Signal	AM	32.2	C	32.7	C	0.5
		PM	52.4	D	54.3	D	1.9
41. Camino de la Reina / Mission Center Rd.	Signal	AM	34.4	C	46.3	D	11.9
		PM	51.8	D	52.3	D	0.5
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	45.1	D	45.3	D	0.2
		PM	71.8	E	72.5	E	0.7
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	38.7	D	39.3	D	0.6
		PM	73.5	E	73.8	E	0.3
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	48.8	D	52.5	D	3.7
		PM	45.8	D	52.2	D	6.4
45. Taylor Street / I-8 EB Hook Ramp	Signal	AM	33.2	C	33.7	C	0.5
		PM	44.3	D	44.3	D	0.0
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	270.6	F	441.6	F	171.0
		PM	262.1	F	602.9	F	340.8
47. Taylor Street / I-8 WB Ramp	Signal	AM	40.3	D	63.6	E	23.3
		PM	8.3	A	10.8	B	2.5
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	165.3	F	259.3	F	94.0
		PM	108.9	F	213.1	F	104.2

TABLE 12–5
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II, and III – Project Buildout		Δ^g
			Delay[a]	LOS[b]	Delay	LOS	
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	5.2	A	6.6	A	1.4
		PM	5.9	A	7.9	A	2.0
50. Hotel Circle N. / Camino de la Reina	Signal	AM	1.1	A	1.3	A	0.2
		PM	1.0	A	1.2	A	0.2
51. Hotel Circle S. / I-8 EB Hook Ramps	AWSC	AM	14.0	B	34.8	D	20.8
		PM	40.6	E	58.5	F	17.9
52. Hotel Circle S. / Bachman Place	Signal	AM	11.1	B	15.0	B	3.9
		PM	14.2	B	17.8	B	3.6
53. Street J / Riverwalk Drive	AWSC	AM	–	–	8.2	A	–
		PM	–	–	8.9	A	–
54. Street J / Street U	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
55. Street J / Hotel Circle N.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
56. Street J / Hotel Circle S.	*DNE*	AM	–	–	–	–	–
		PM	–	–	–	–	–
57. Street V / Street U	Signal	AM	–	–	7.8	A	–
		PM	–	–	10.8	B	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. One-Way Stop Control
d. Right-In Right-Out
e. Two-Way Stop Control
f. All-Way Stop Control
g. Δ denotes the project-induced increase in delay.

General Notes:

1. *DNE* = does not exist

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 12–6
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ^{f}
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	39,520	E	0.988	40,540	F	1.014	0.026
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	32,130	D	0.803	36,220	E	0.906	0.103
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	34,520	D	0.780	37,250	D	0.842	0.062
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	37,950	E	0.949	39,310	E	0.983	0.034
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	31,000	D	0.775	31,000	D	0.775	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	15,410	B	0.385	20,520	B	0.513	0.128
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	26,790	C	0.670	36,280	E	0.907	0.237
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	28,660	C	0.717	38,530	E	0.963	0.246
Goshen Street to Street A	4-Lane Major Arterial	40,000	26,510	C	0.663	36,380	E	0.910	0.247
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	23,750	C	0.594	33,340	D	0.834	0.240
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	28,500	C	0.713	36,010	E	0.900	0.187
Street I to Street K	4-Lane Major Arterial	40,000	28,500	C	0.713	33,740	D	0.844	0.131
Street K to Street M	4-Lane Major Arterial	40,000	28,500	C	0.713	33,330	D	0.833	0.120
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	28,500	C	0.713	34,420	D	0.861	0.148
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	32,080	C	0.713	39,900	D	0.887	0.174

TABLE 12–6
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ^{f}
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	33,290	C	0.740	41,110	E	0.914	0.174
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	52,830	F	1.057	60,650	F	1.213	0.156
Ulric Street to SR163 NB Ramps	8-Lane Prime Arterial	80,000	65,390	C	0.817	70,310	D	0.879	0.062
SR163 NB Ramps to Frazee Road	8-Lane Prime Arterial	80,000	71,610	D	0.895	73,890	D	0.924	0.029
Frazee Road to Mission Center Road	7-Lane Expressway	93,333	53,660	C	0.575	56,170	C	0.602	0.027
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	53,200	C	0.665	55,440	C	0.693	0.028
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	52,420	C	0.655	53,170	C	0.665	0.010
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (one-way)	17,500	12,850	D	0.734	16,730	E	0.956	0.222
I-8 WB Hook Ramps to Fashion Valley Road	2-Lane Collector (one-way)	17,500	10,950	C	0.626	13,680	D	0.782	0.156
Fashion Valley Road to Camino De La Reina	2-Lane Collector (one-way)	17,500	7,410	A	0.423	9,990	C	0.571	0.148
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	9,200	C	0.613	9,570	C	0.638	0.025
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	32,980	D	0.825	33,590	D	0.840	0.015
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	16,980	F	1.132	17,420	F	1.161	0.029
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	18,170	F	1.817	21,080	F	2.108	0.291
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	15,650	B	0.391	18,190	B	0.455	0.064

TABLE 12–6
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	15,650	B	0.391	18,190	B	0.455	0.064
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	22,310	B	0.496	23,630	B	0.525	0.029
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (no driveway)	10,000	21,800	F	2.180	22,850	F	2.285	0.105
I-8 EB Hook Ramps to Hotel Circle South	3-Lane Collector	11,000	22,790	F	2.072	23,840	F	2.167	0.095
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (one-way)	17,500	24,580	F	1.405	28,460	F	1.626	0.221
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (one-way)	17,500	18,570	F	1.061	19,380	F	1.107	0.046
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (one-way)	17,500	15,710	E	0.898	17,850	F	1.020	0.122
Bachman Place to Camino De La Reina	2-Lane Collector (one-way)	17,500	16,430	E	0.939	18,570	F	1.061	0.122
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	48,330	F	1.208	49,690	F	1.242	0.034
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (with raised median)	22,500	13,220	C	0.588	14,580	C	0.648	0.060
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	14,630	A	0.366	19,020	B	0.476	0.110
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	4,910	C	0.614	5,280	D	0.660	0.046

TABLE 12–6
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ^{f}
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	13,910	F	1.265	16,190	F	1.472	0.207
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Collector (with turn pockets)	22,500	17,540	D	0.780	20,200	E	0.898	0.118
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	16,500	D	0.733	19,650	E	0.873	0.140
Riverwalk Drive to Street U	4-Lane Collector	15,000	12,140	D	0.809	23,710	F	1.581	0.772
Street U to Hotel Circle North	4-Lane Collector	15,000	12,490	D	0.833	15,810	F	1.054	0.221
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	25,240	C	0.631	26,110	C	0.653	0.022
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	29,400	C	0.735	29,870	C	0.747	0.012
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	25,500	C	0.567	26,070	C	0.579	0.012
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	36,190	D	0.804	36,290	D	0.806	0.002
Camino De La Reina to Camino Del Rio North	6-Lane Major Arterial	50,000	35,090	C	0.702	35,510	C	0.710	0.008
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	41,890	F	1.047	42,970	F	1.074	0.027
Qualcomm Way									
Friars Road to Rio San Diego Drive	6-Lane Major Arterial	50,000	21,760	B	0.435	22,510	B	0.450	0.015
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	35,900	C	0.718	36,650	C	0.733	0.015

TABLE 12–6
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ[f]
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	20,730	F	2.591	25,750	F	3.219	0.628
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	14,200	E	0.947	16,670	F	1.111	0.164
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	2-Lane Collector (continuous left-turn lane)	15,000	15,670	F	1.045	17,350	F	1.157	0.112
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	18,300	B	0.458	19,220	B	0.481	0.023
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	14,040	A	0.351	14,610	A	0.365	0.014
Street U									
Street J to Street V	*DNE*	–	–	–	–	–	–	–	–
Street V to Fashion Valley Road	4-Lane Collector (continuous left-turn lane)	30,000	–	–	–	10,240	B	0.341	–
Street V									
Street U to Hotel Circle North	4-Lane Collector	30,000	–	–	–	9,050	A	0.302	–
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	–	–	–	6,090	A	0.305	–
Riverwalk Drive to Street U	*DNE*	–	–	–	–	–	–	–	–

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. A capacity reduction was assumed to account for the EB auxiliary lane
f. Δ denotes a project-induced increase in the Volume to Capacity ratio

TABLE 12–7
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Year 2035 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	185,190	EB Mainlines	4M	0.607	23.90	C	0.622	24.50	C	0.015
		WB Mainlines	3M	1.225	>45.00	F	1.236	>45.00	F	0.011
Morena Boulevard to Taylor Street	238,760	EB Mainlines	4M+1A	0.682	24.80	C	0.699	25.40	C	0.017
		WB Mainlines	5M	0.939	39.90	E	0.947	40.50	E	0.008
Taylor Street to Hotel Circle	253,160	EB Mainlines	4M	0.838	33.80	D	0.883	36.30	E	0.045
		WB Mainlines	5M	0.979	43.10	E	0.988	43.80	E	0.009
Hotel Circle to SR163	239,440	EB Mainlines	4M+1A	0.656	24.10	C	0.678	24.90	C	0.022
		WB Mainlines	5M	0.779	29.30	D	0.809	30.70	D	0.030
SR163 to Mission Center Road	243,920	EB Mainlines	5M	0.669	26.80	D	0.680	27.30	D	0.011
		WB Mainlines	4M+1A	0.997	44.70	E	1.015	>45.00	F	0.018
East of Mission Center Road	256,520	EB Mainlines	5M	0.682	27.30	D	0.698	28.00	D	0.016
		WB Mainlines	4M+1A	1.066	>45.00	F	1.089	>45.00	F	0.023
I-5										
North of Sea World Drive	252,430	NB Mainlines	5M	0.986	43.70	E	1.001	>45.00	F	0.015
		SB Mainlines	5M	0.728	28.30	D	0.739	28.80	D	0.011
Sea World Drive to I-8	239,700	NB Mainlines	5M+1A	0.868	33.90	D	0.869	34.00	D	0.001
		SB Mainlines	5M+1A	0.626	23.00	C	0.632	23.20	C	0.006
SR 163										
North of Friars Road	234,060	NB Mainlines	5M	1.112	>45.00	F	1.130	>45.00	F	0.018
		SB Mainlines	4M	1.062	>45.00	F	1.089	>45.00	F	0.027
Friars Road to I-8	177,040	NB Mainlines	3M	1.427	>45.00	F	1.432	>45.00	F	0.005
		SB Mainlines	4M+2A	0.622	21.30	C	0.633	21.60	C	0.011
South of I-8	217,840	NB Mainlines	3M+1A	1.432	>45.00	F	1.451	>45.00	F	0.019
		SB Mainlines	3M	1.298	>45.00	F	1.320	>45.00	F	0.022

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix X* and *Appendix Z* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 12–8
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Year 2035 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	185,190	EB Mainlines	4M	0.942	>45.00	F	0.954	>45.00	F	0.012
		WB Mainlines	3M	1.012	>45.00	F	1.035	>45.00	F	0.023
Morena Boulevard to Taylor Street	238,760	EB Mainlines	4M+1A	1.035	>45.00	F	1.047	>45.00	F	0.012
		WB Mainlines	5M	0.768	30.10	D	0.785	30.90	D	0.017
Taylor Street to Hotel Circle	253,160	EB Mainlines	4M	1.197	>45.00	F	1.259	>45.00	F	0.062
		WB Mainlines	5M	0.810	32.20	D	0.827	33.10	D	0.017
Hotel Circle to SR163	239,440	EB Mainlines	4M+1A	0.928	38.10	E	0.969	41.80	E	0.041
		WB Mainlines	5M	0.691	25.70	C	0.715	26.60	D	0.024
SR163 to Mission Center Road	243,920	EB Mainlines	5M	0.939	40.00	E	0.957	41.40	E	0.018
		WB Mainlines	4M+1A	0.857	33.20	D	0.873	34.20	D	0.016
East of Mission Center Road	256,520	EB Mainlines	5M	0.977	43.00	E	1.003	>45.00	F	0.026
		WB Mainlines	4M+1A	0.900	36.00	E	0.922	37.70	E	0.022
I-5										
North of Sea World Drive	252,430	NB Mainlines	5M	0.880	35.80	E	0.896	36.80	E	0.016
		SB Mainlines	5M	0.985	43.60	E	1.002	>45.00	F	0.017
Sea World Drive to I-8	239,700	NB Mainlines	5M+1A	0.740	27.30	D	0.747	27.60	D	0.007
		SB Mainlines	5M+1A	0.847	32.60	D	0.849	32.80	D	0.002
SR 163										
North of Friars Road	234,060	NB Mainlines	5M	0.855	34.50	D	0.881	36.10	E	0.026
		SB Mainlines	4M	1.161	>45.00	F	1.191	>45.00	F	0.030
Friars Road to I-8	177,040	NB Mainlines	3M	1.022	>45.00	F	1.042	>45.00	F	0.020
		SB Mainlines	4M+2A	0.728	42.60	E	0.734	42.90	E	0.006
South of I-8	217,840	NB Mainlines	3M+1A	1.139	>45.00	F	1.162	>45.00	F	0.023
		SB Mainlines	3M	1.391	>45.00	F	1.419	>45.00	F	0.028

Footnotes:

a. Volume to Capacity.
b. Level of Service.

General Notes:

1. See *Appendix X* and *Appendix Z* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 12–9
YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Year 2035	AM	2,110	1,055	965	90	6	2,250
	PM	1,690	845	972	0	0	0
Year 2035 + Project Phases I, II, and III – Project Buildout	AM	2,256	1,128	965	163	10	4,075
	PM	1,781	891	972	0	0	0
Project Increase	AM	146	73	NA	73	4	1,825
	PM	91	46	NA	0	0	0

Footnotes:
a. Meter Rates obtained from Caltrans (see *Appendix E*).
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

General Notes:
1. NA = Not Applicable.



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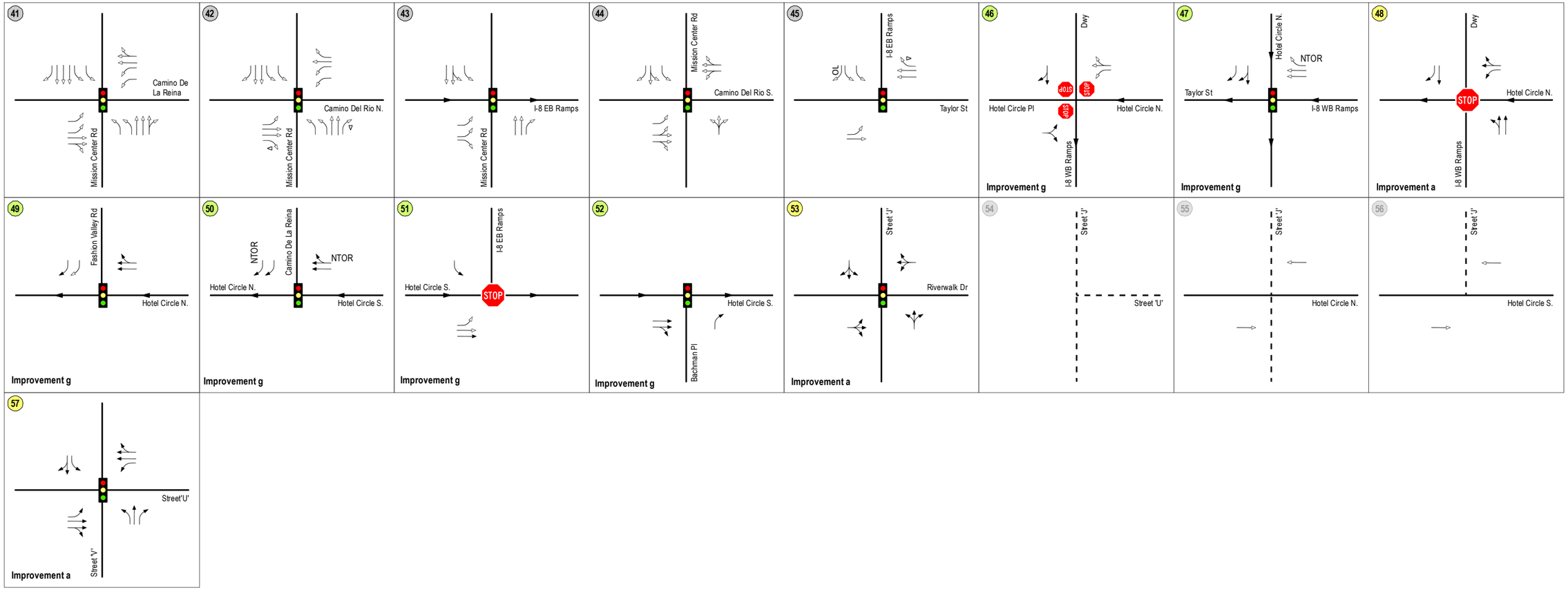
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Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 12-1
Year 2035 Conditions Diagram
(Page 1 of 2)
Riverwalk



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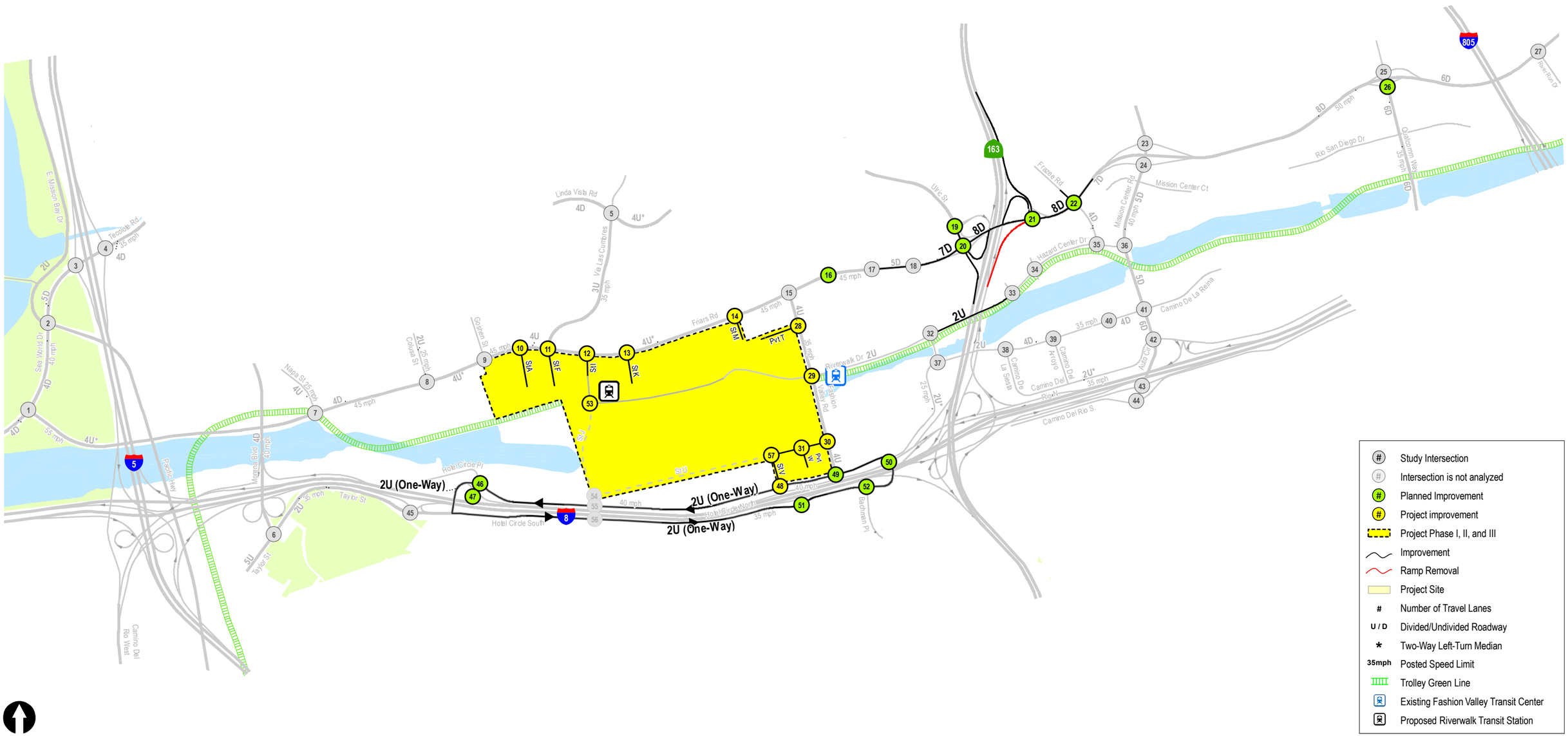
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Time: 4:47 PM

Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

a. Riverwalk Master Plan
b. Friars Road Multi-Family
c. State Route 163 & Friars Road Interchange (Phase I)
d. Civita
e. Town & County Master Plan
f. Legacy International Center
g. MVCPU One-Way Couplet

Figure 12-1
Year 2035 Conditions Diagram
(Page 2 of 2)
Riverwalk



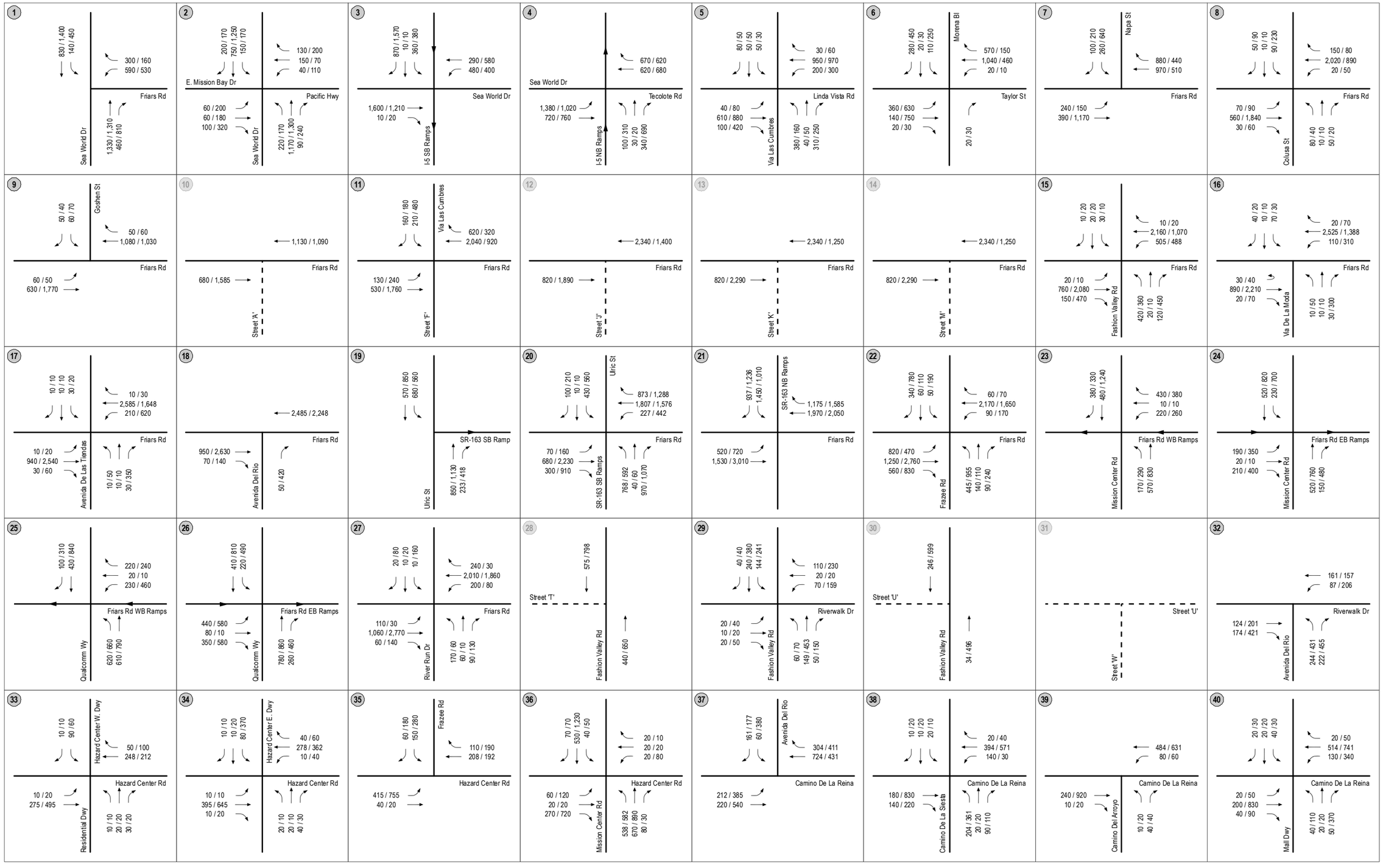
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Figure 12-2

Year 2035 Conditions Diagram

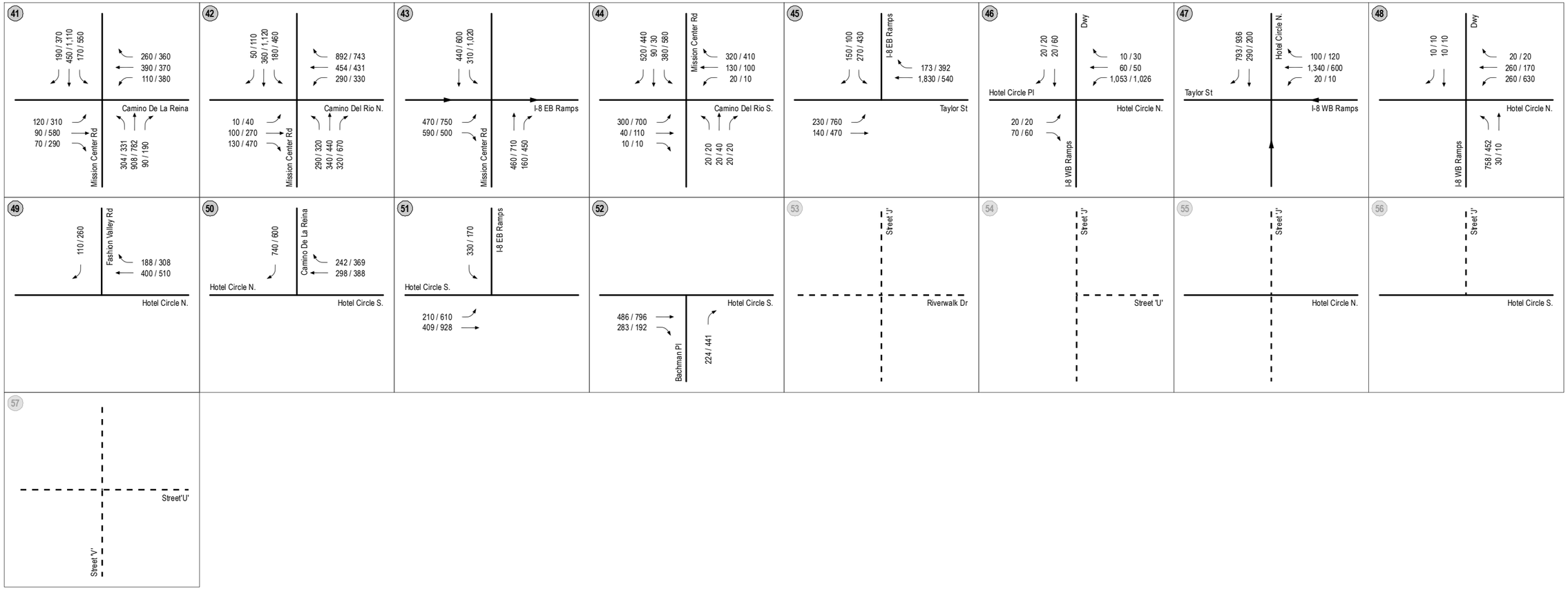
Riverwalk



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(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

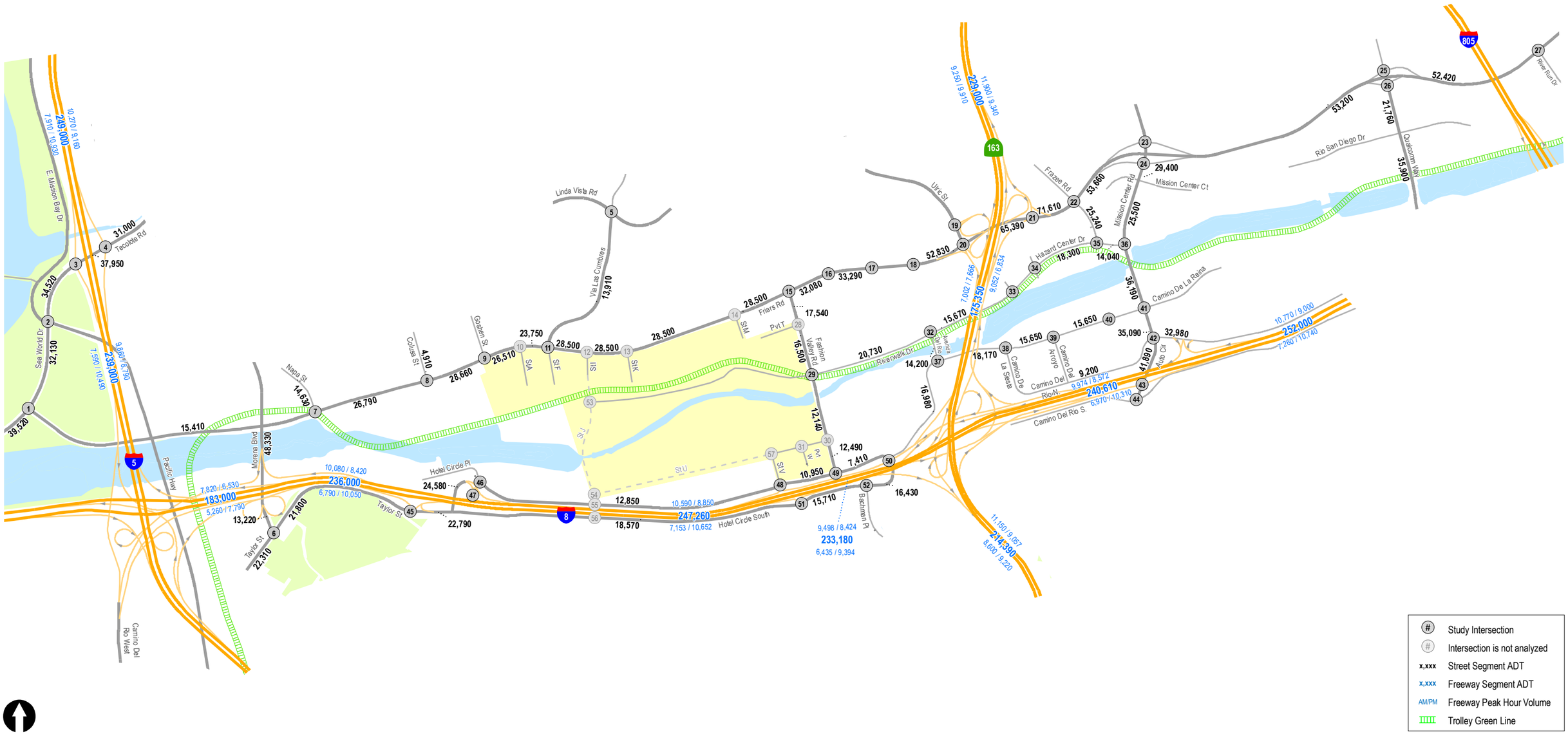
Figure 12-3
Year 2035 Traffic Volumes
(Page 1 of 2)
Riverwalk



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(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-3
Year 2035 Traffic Volumes
(Page 2 of 2)
Riverwalk



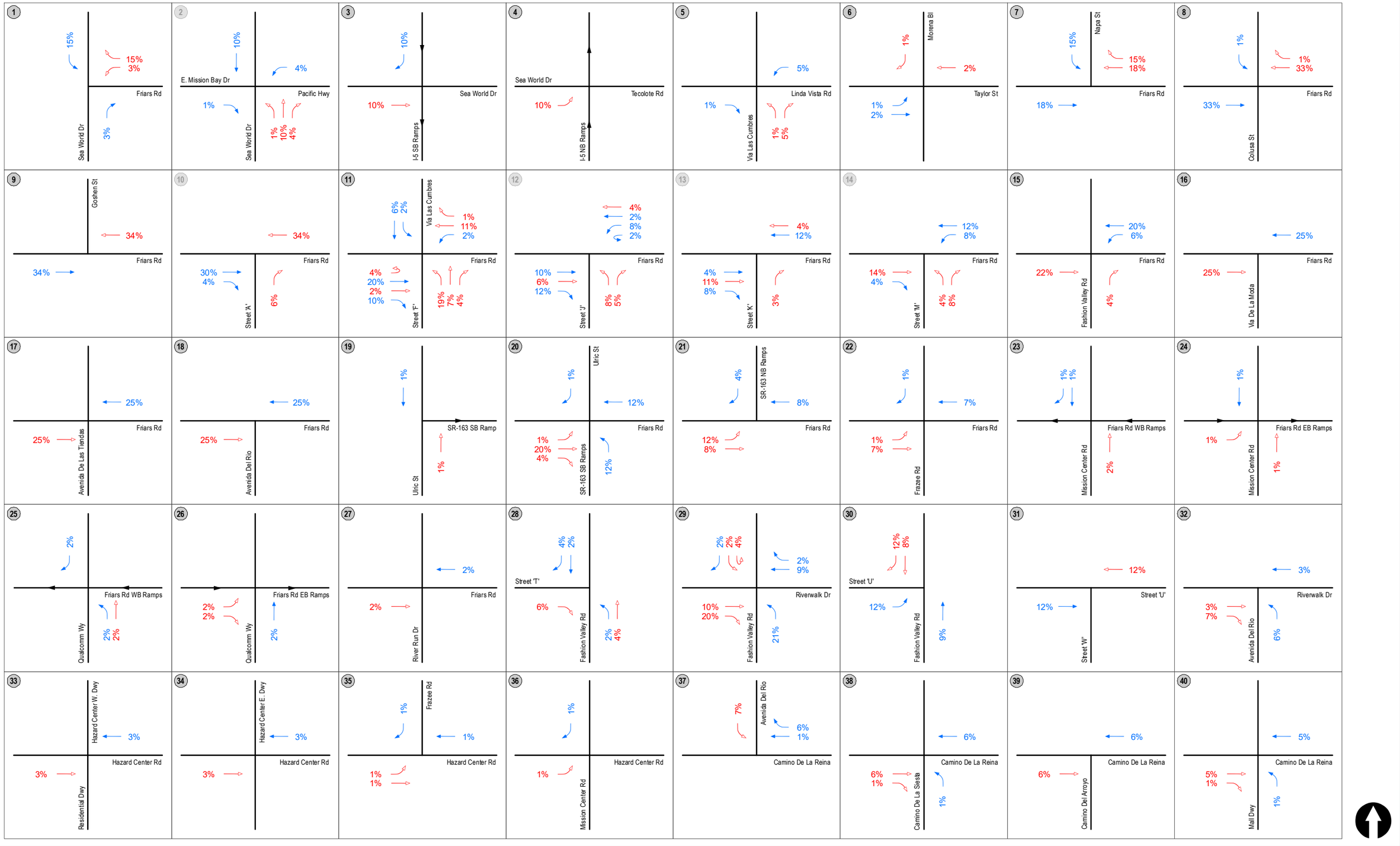
LINSCOTT LAW & GREENSPAN engineers

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Figure 12-4

Year 2035 Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Time: 9:59 PM

(#) Study Intersections
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-5

Year 2035 - Project Phases I through III Traffic Distribution- North of River

(Page 1 of 2)

Riverwalk



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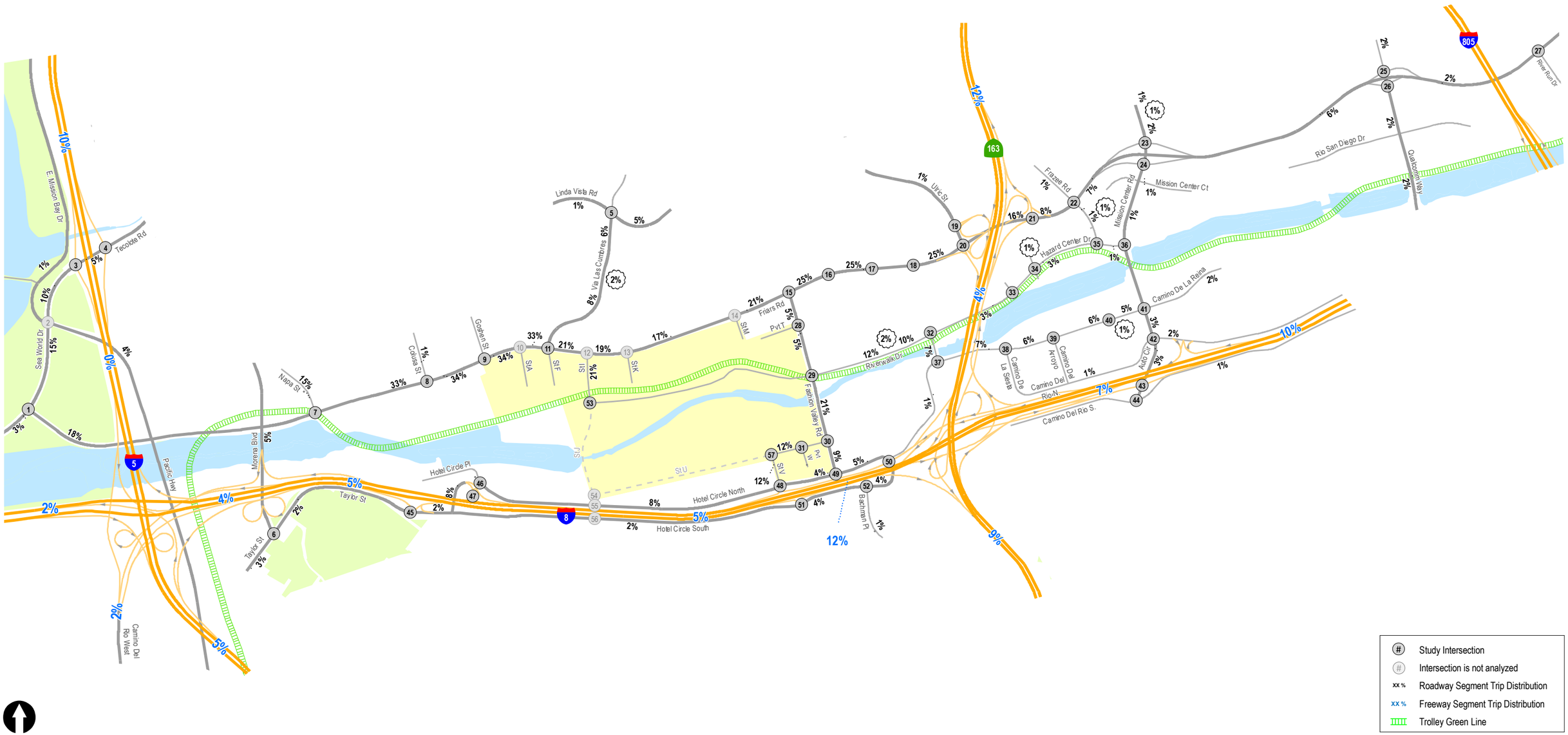
(#) Study Intersections
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-5

Year 2035 - Project Phases I through III Traffic Distribution- North of River

(Page 2 of 2)

Riverwalk



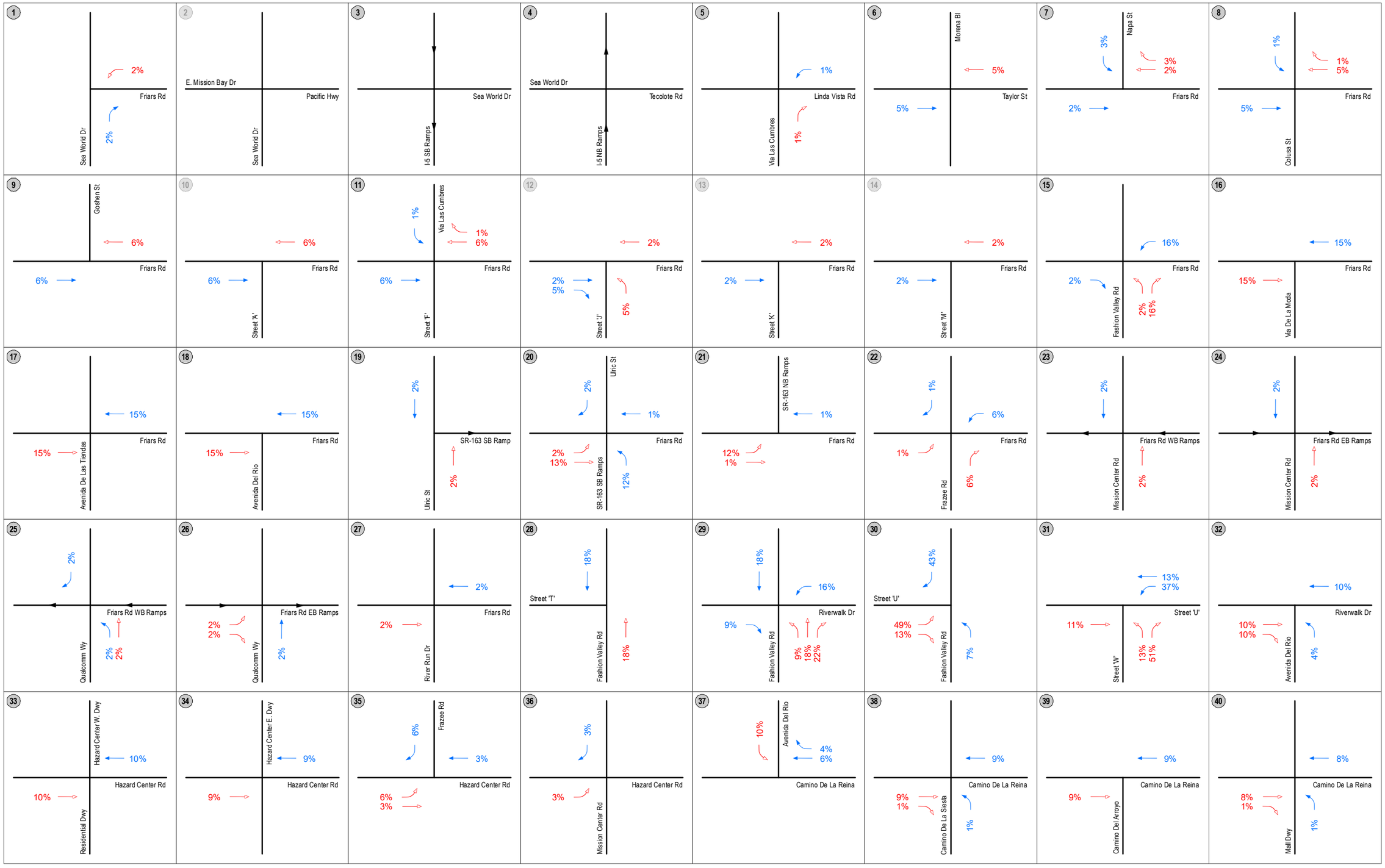
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Figure 12-6

Year 2035 - Project Phase I, II, and III Traffic Distribution - North of the River

Riverwalk



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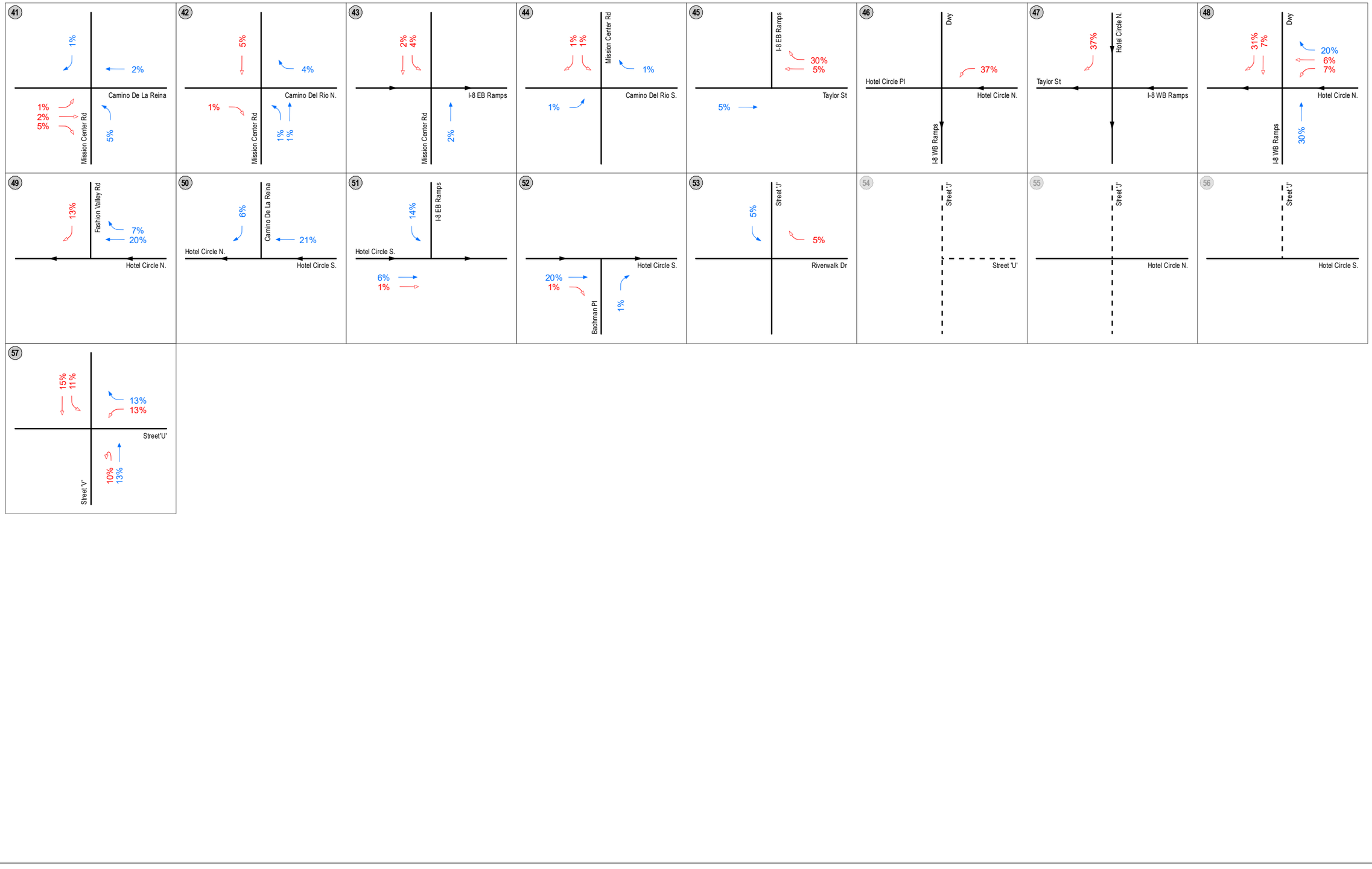
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-7

Year 2035 - Project Phases I through III Traffic Distribution - South of River

(Page 1 of 2)

Riverwalk



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LINSCOTT LAW & GREENSPAN engineers

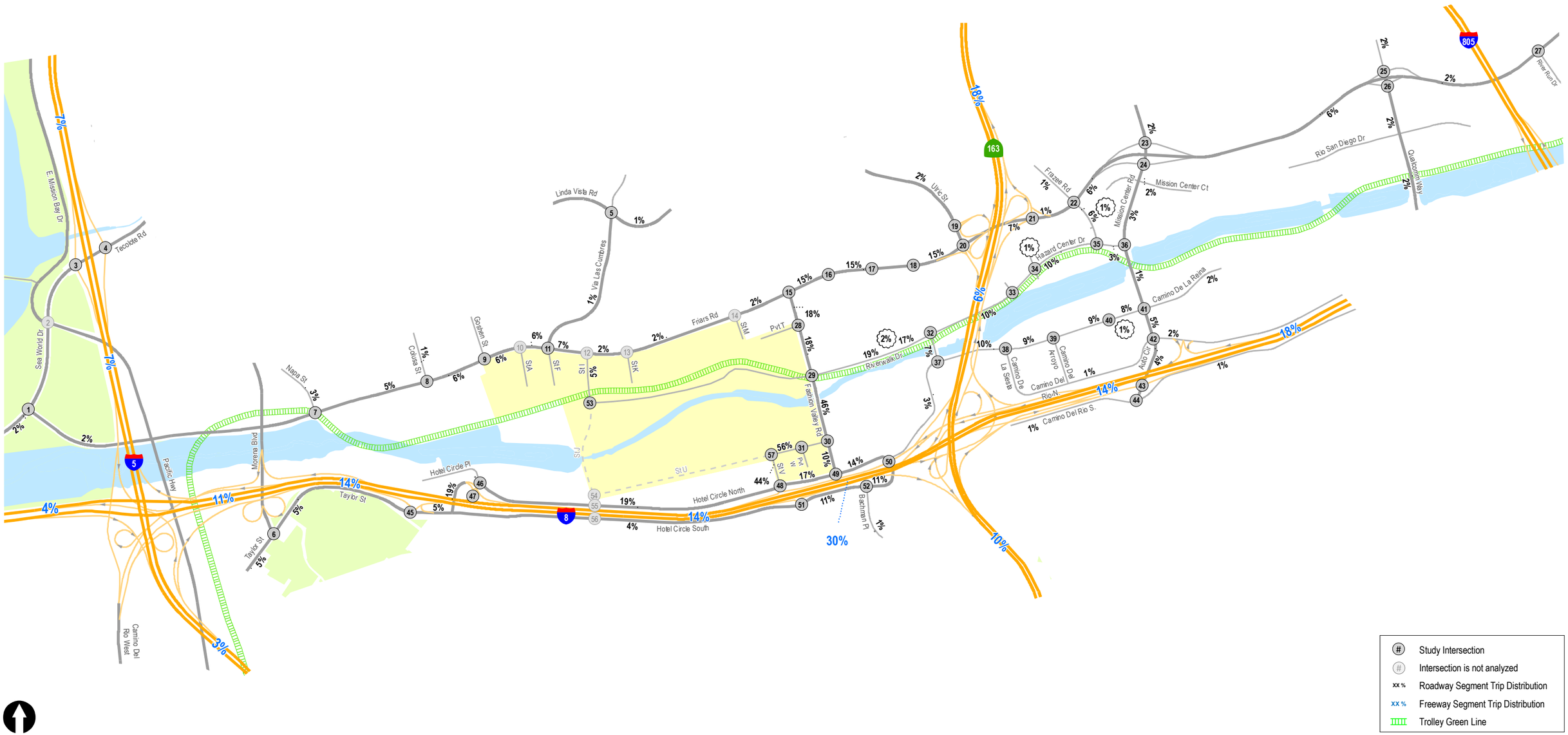
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-7

Year 2035 - Project Phases I through III Traffic Distribution - South of River

(Page 2 of 2)

Riverwalk



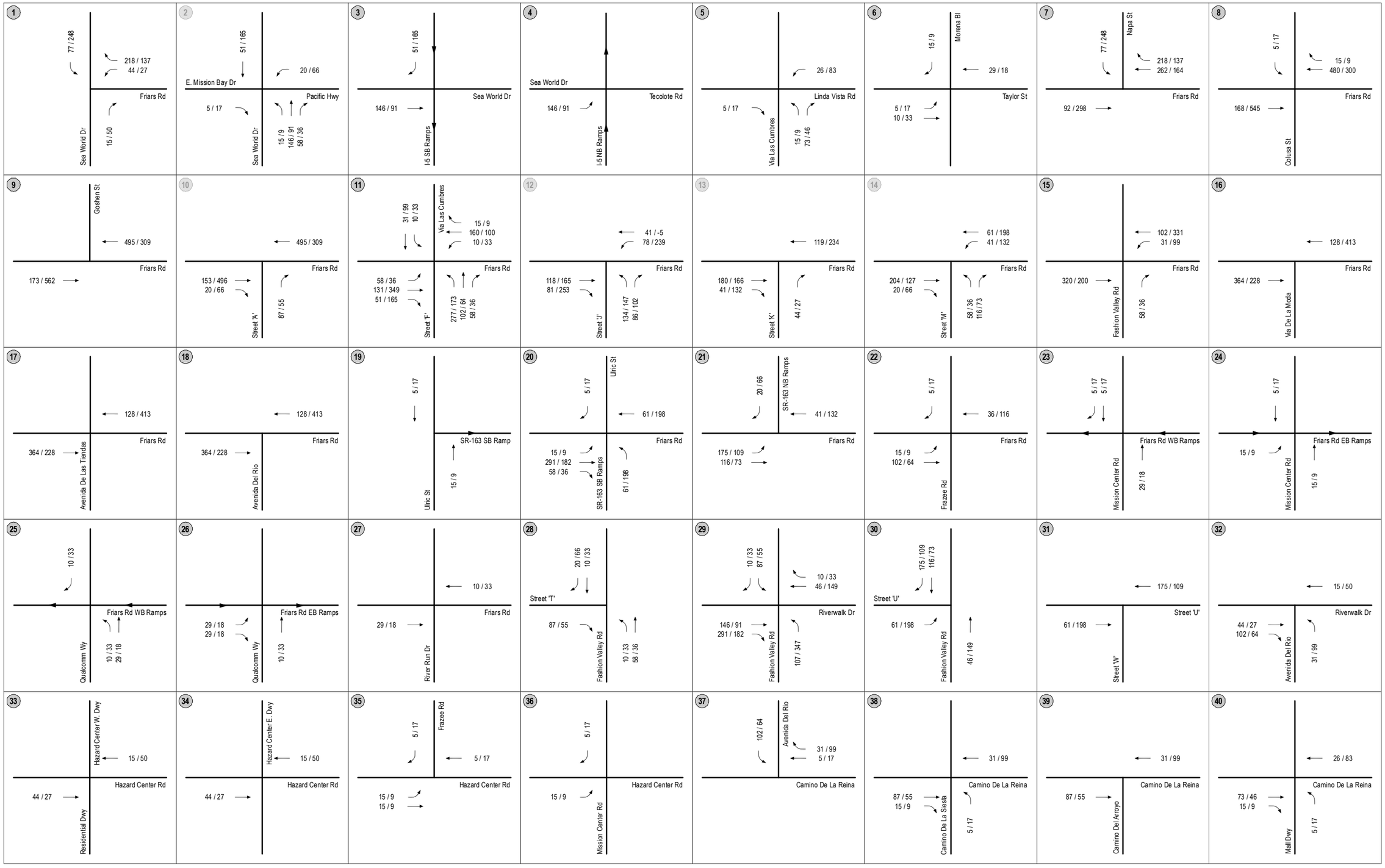
LINSCOTT LAW & GREENSPAN engineers

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Figure 12-8

Year 2035 - Project Phase I, II, and III Traffic Distribution - South of the River

Riverwalk



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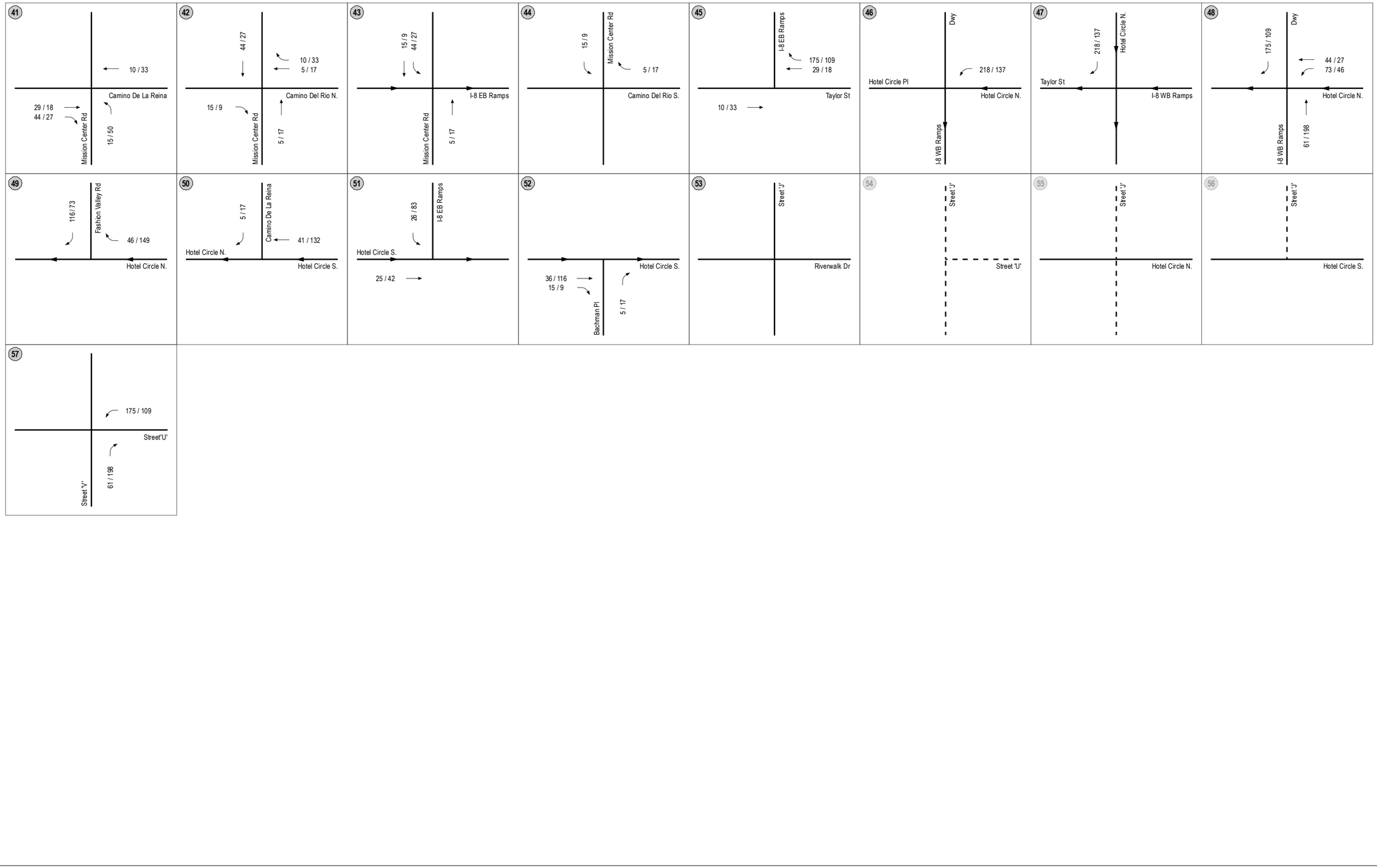
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-9

Year 2035 - Project Phases I through III Traffic Volumes - North of River

(Page 1 of 2)

Riverwalk



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Date: 3/17/2020
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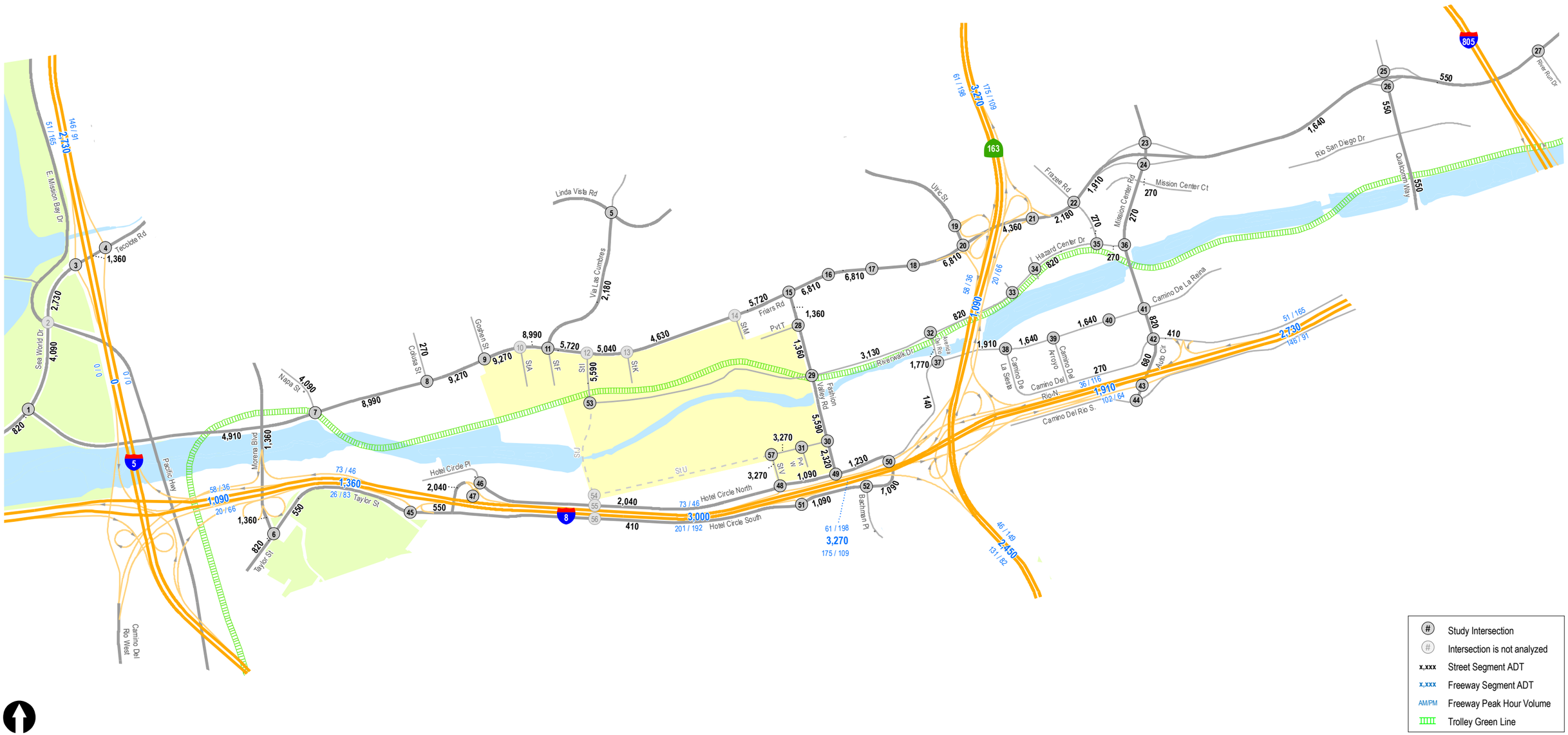
(#) Study Intersection
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Intersection AM/PM Peak Hour volumes

Figure 12-9

Year 2035 - Project Phases I through III Traffic Volumes - North of River

(Page 2 of 2)

Riverwalk



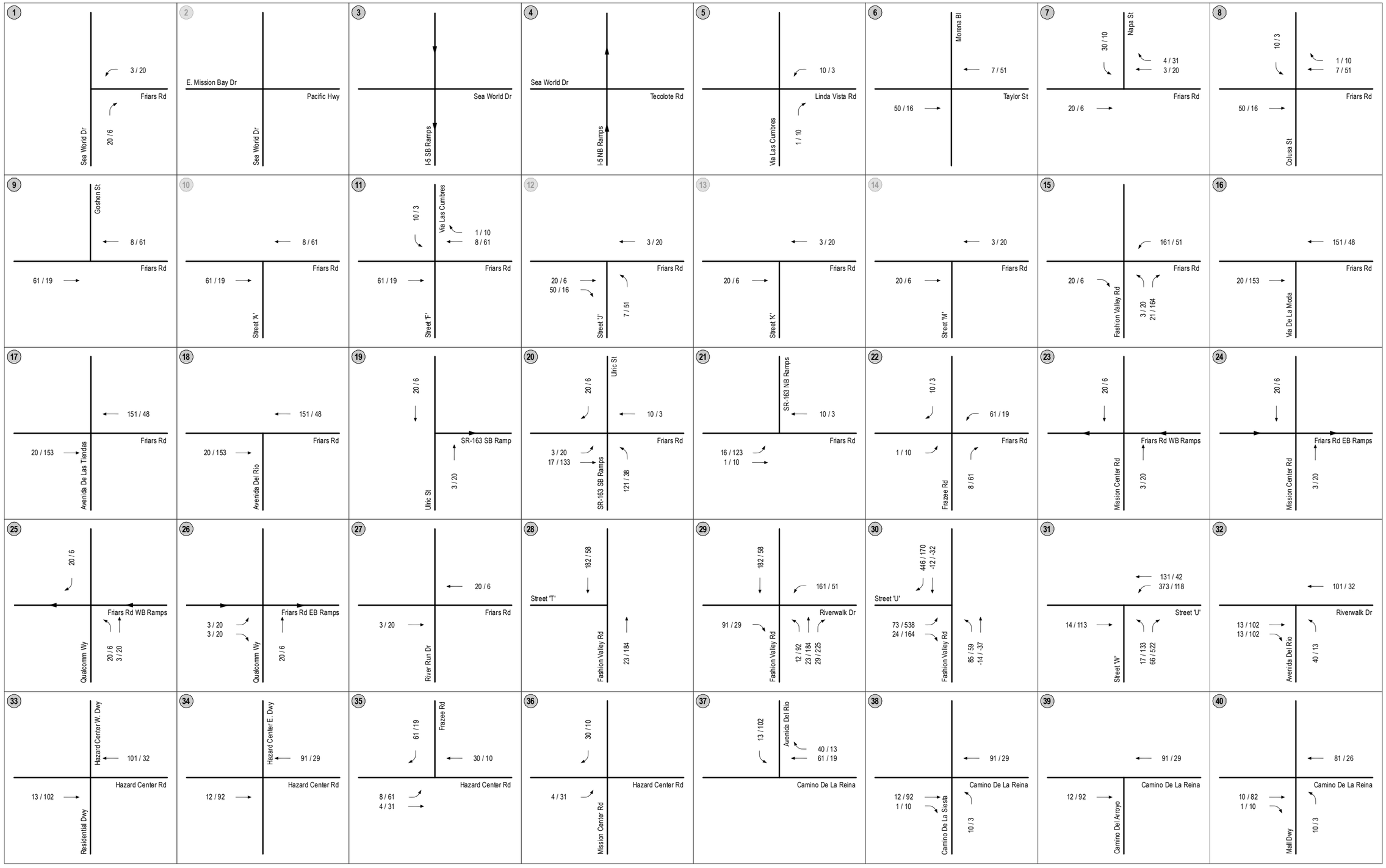
LINSCOTT LAW & GREENSPAN engineers

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Figure 12-10

Year 2035 - Project Phase I, II, and III Traffic Volumes - North of the River

Riverwalk



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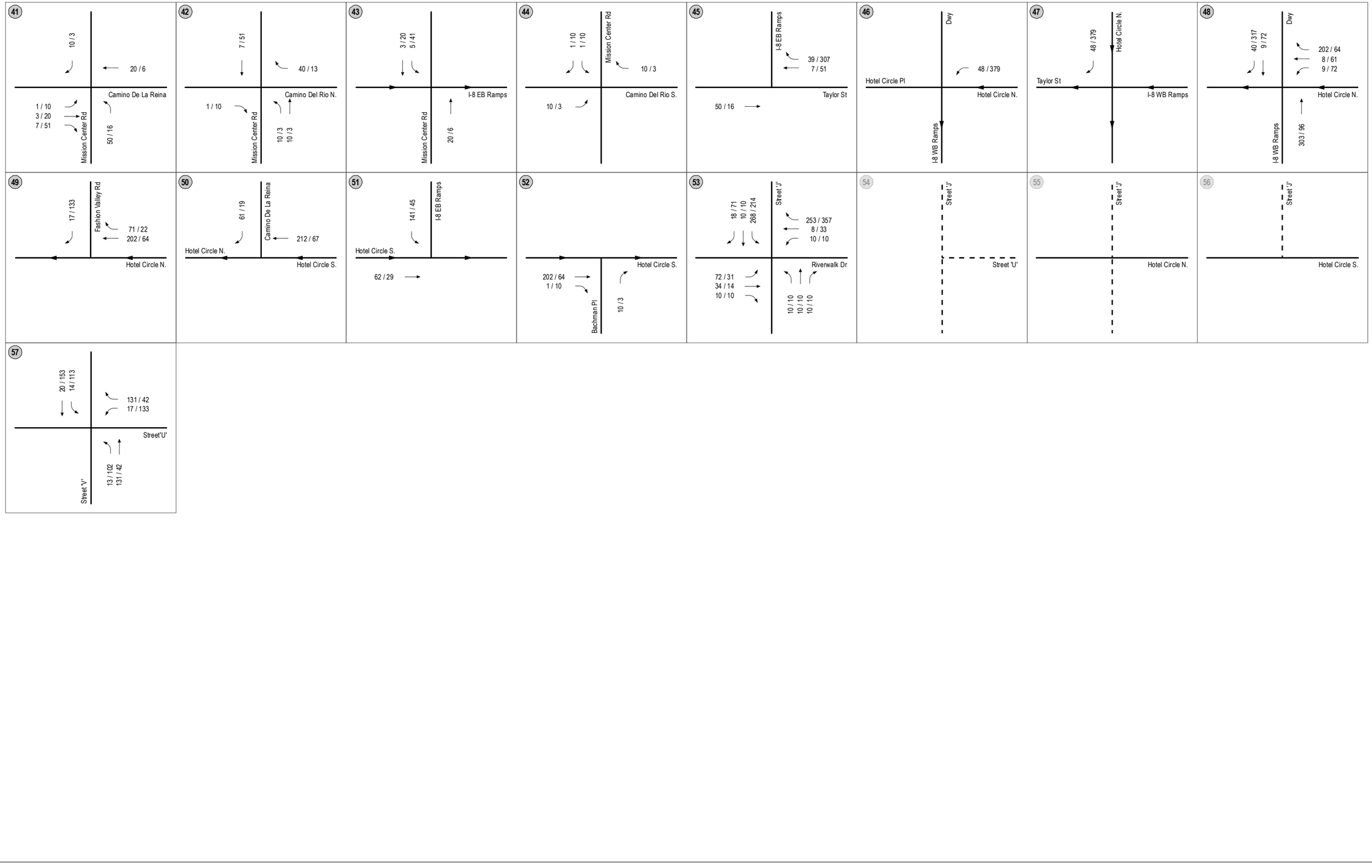
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-11

Year 2035 - Project Phases I through III Traffic Volumes - South of River

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 3/17/2020
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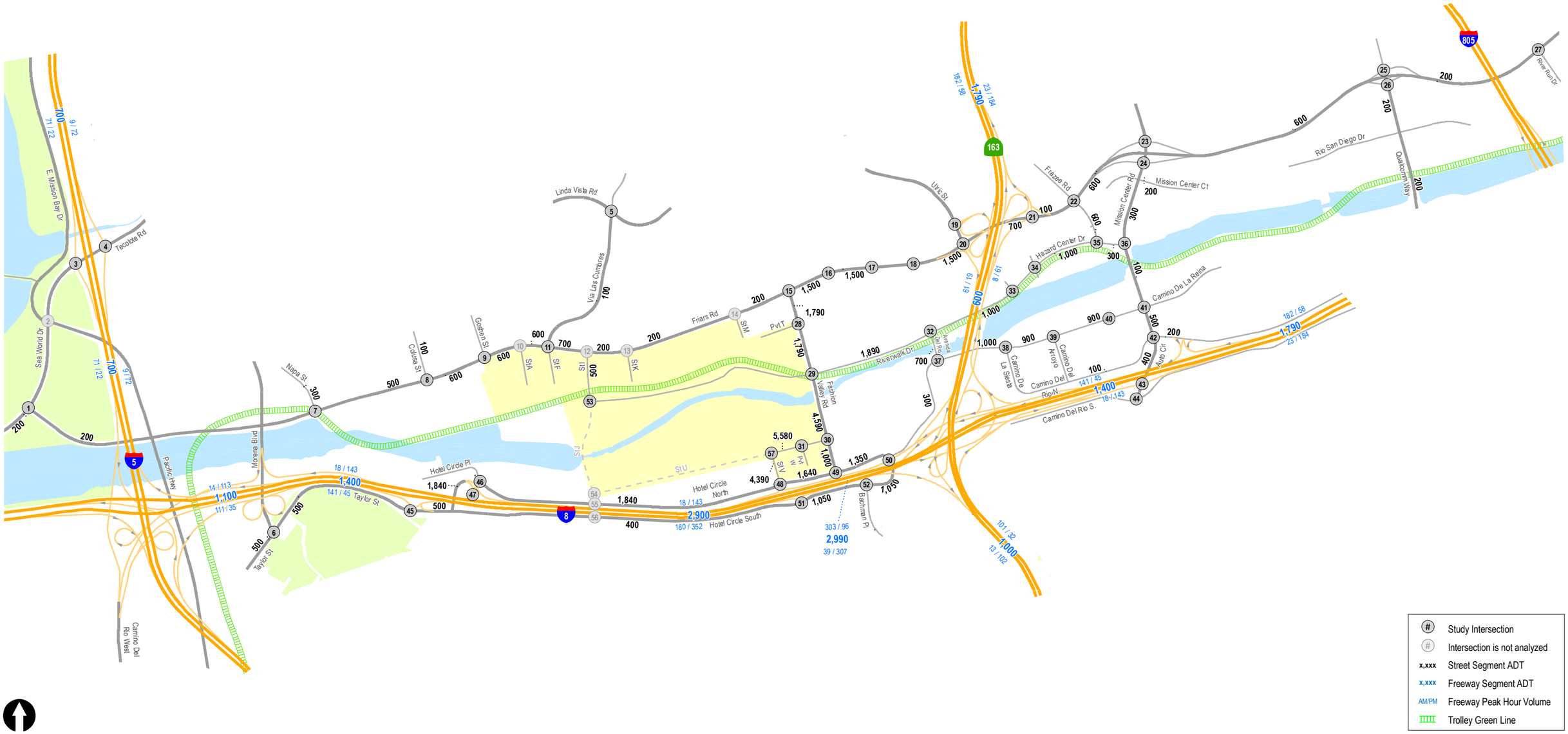
(#) Study Intersection
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Intersection AM/PM Peak Hour volumes

Figure 12-11

Year 2035 - Project Phases I through III Traffic Volumes - South of River

(Page 2 of 2)

Riverwalk



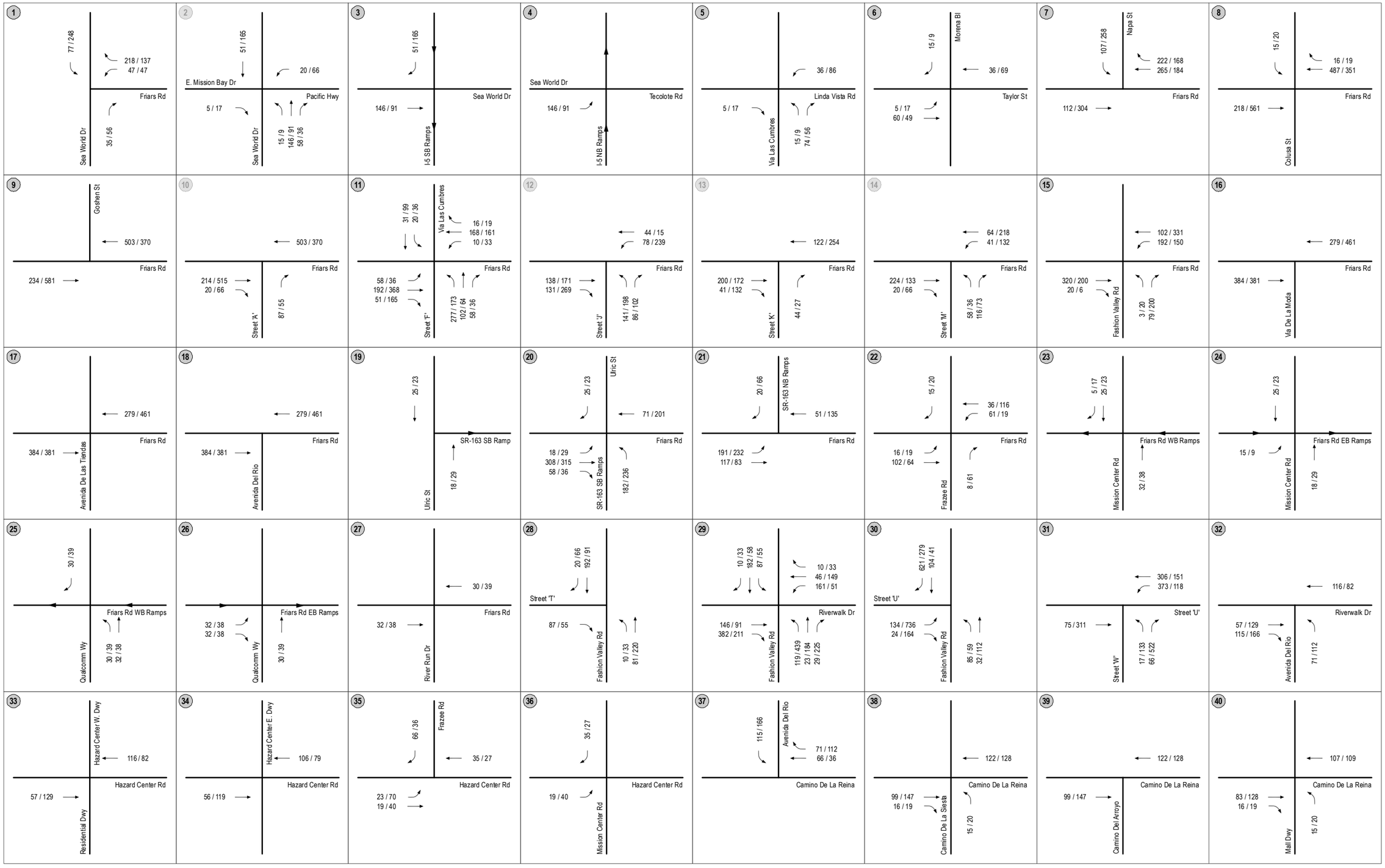
LINSCOTT LAW & GREENSPAN engineers

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Figure 12-12

Year 2035 - Project Phase I, II, and III Traffic Volumes - South of the River

Riverwalk



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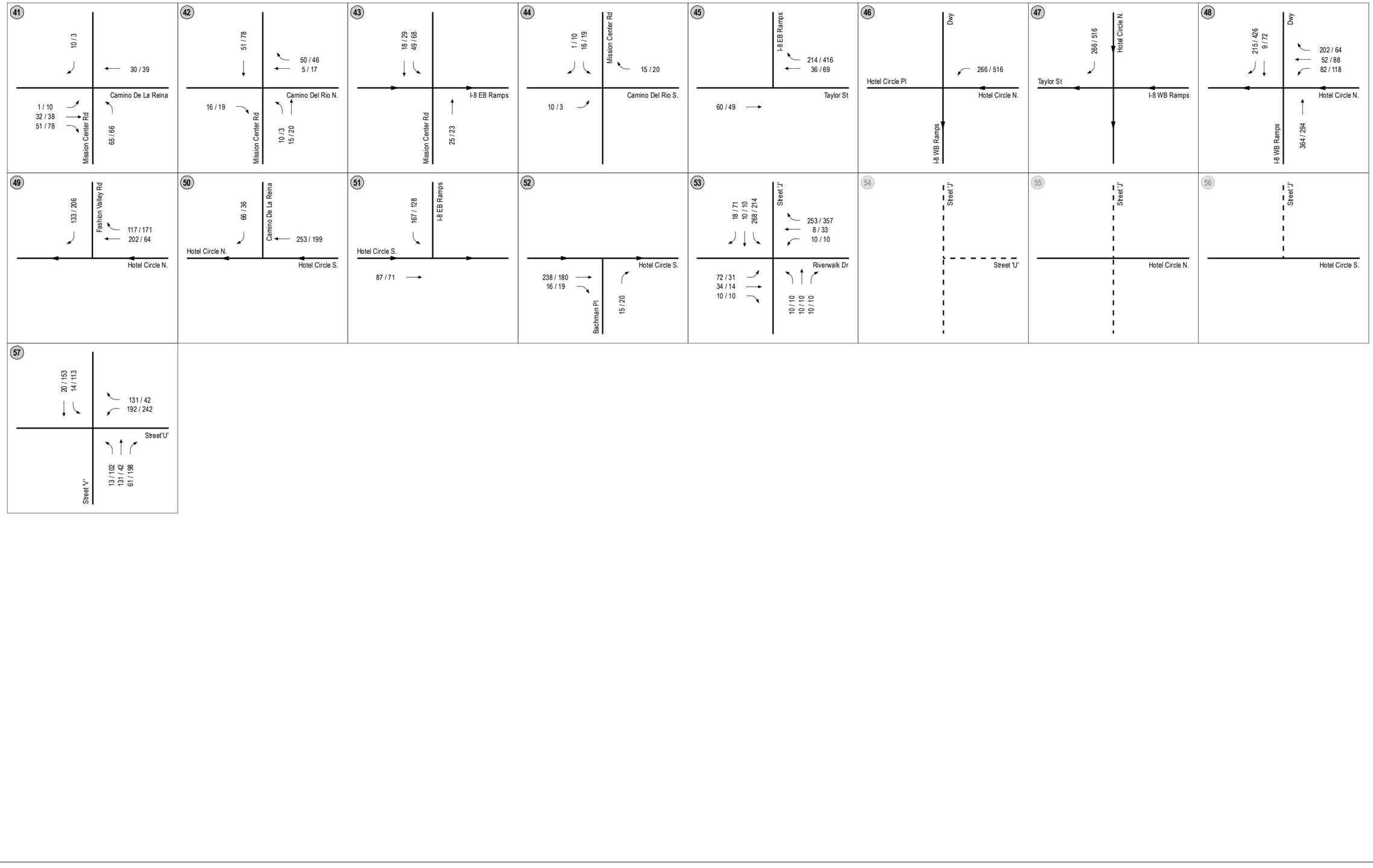
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-13

Year 2035 - Total Project Traffic Volumes

(Page 1 of 2)

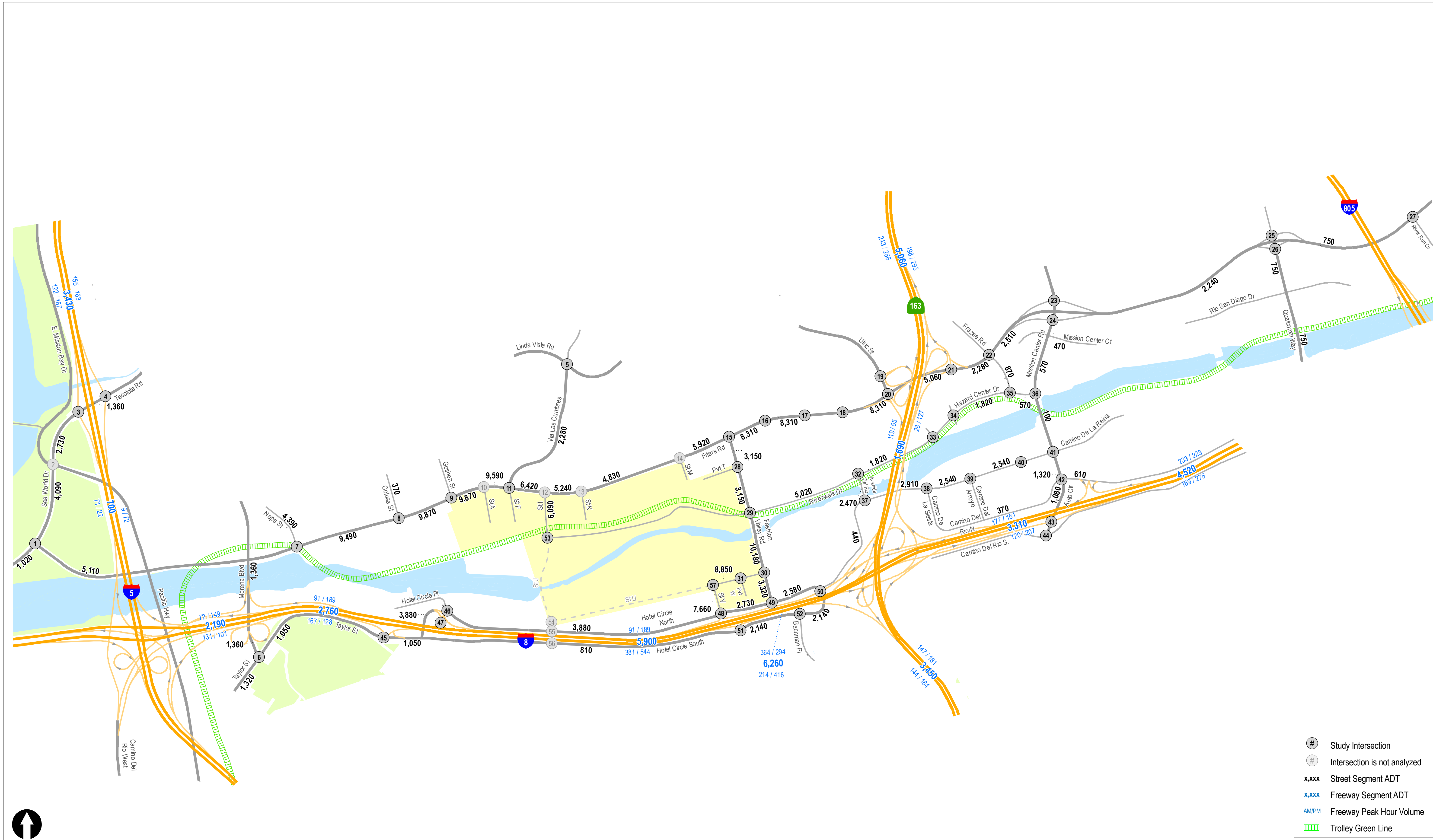
Riverwalk



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Study Intersection
Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-13
Year 2035 - Total Project Traffic Volumes
(Page 2 of 2)
Riverwalk



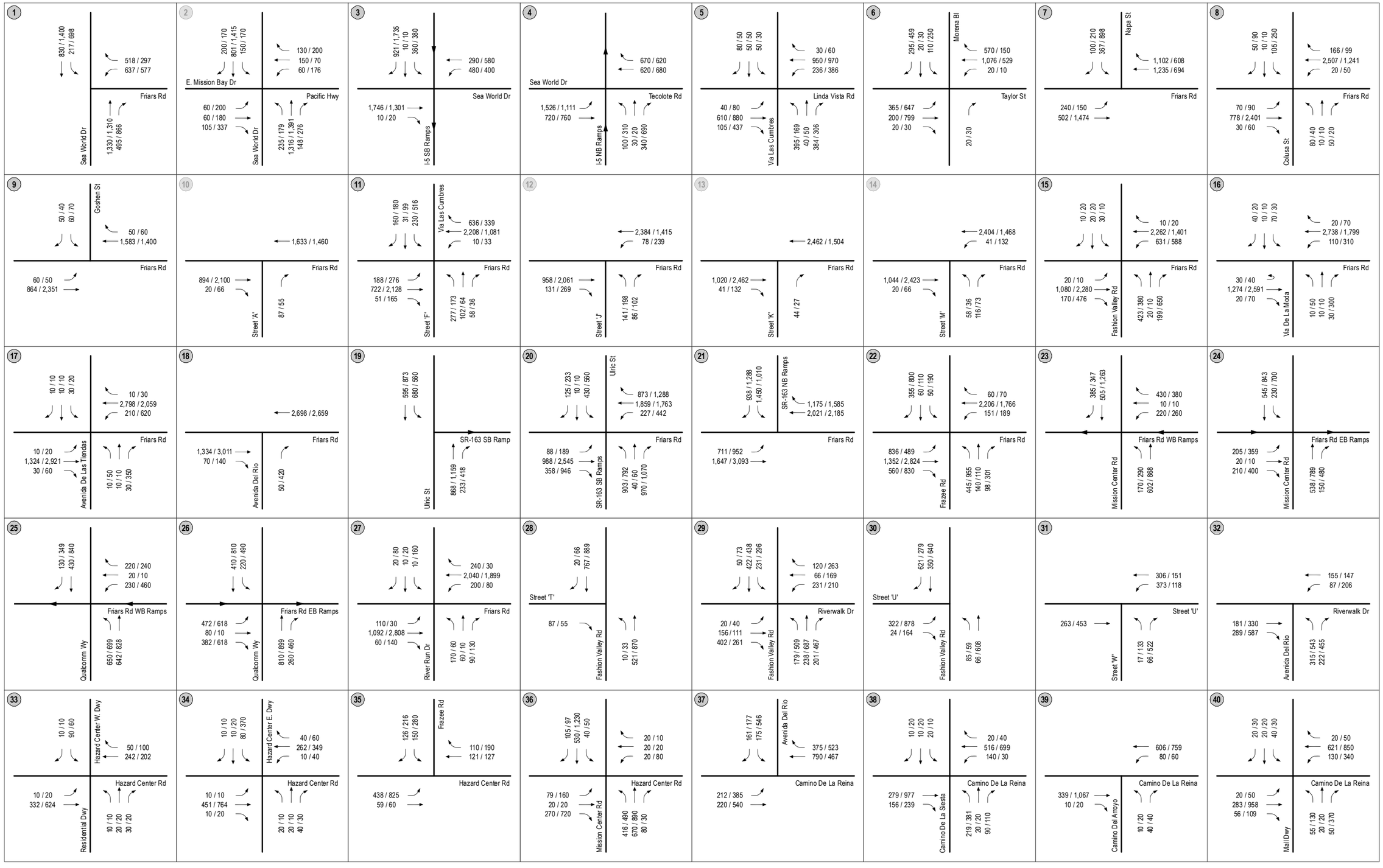
LINSCOTT LAW & GREENSPAN engineers

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Figure 12-14

Total Project Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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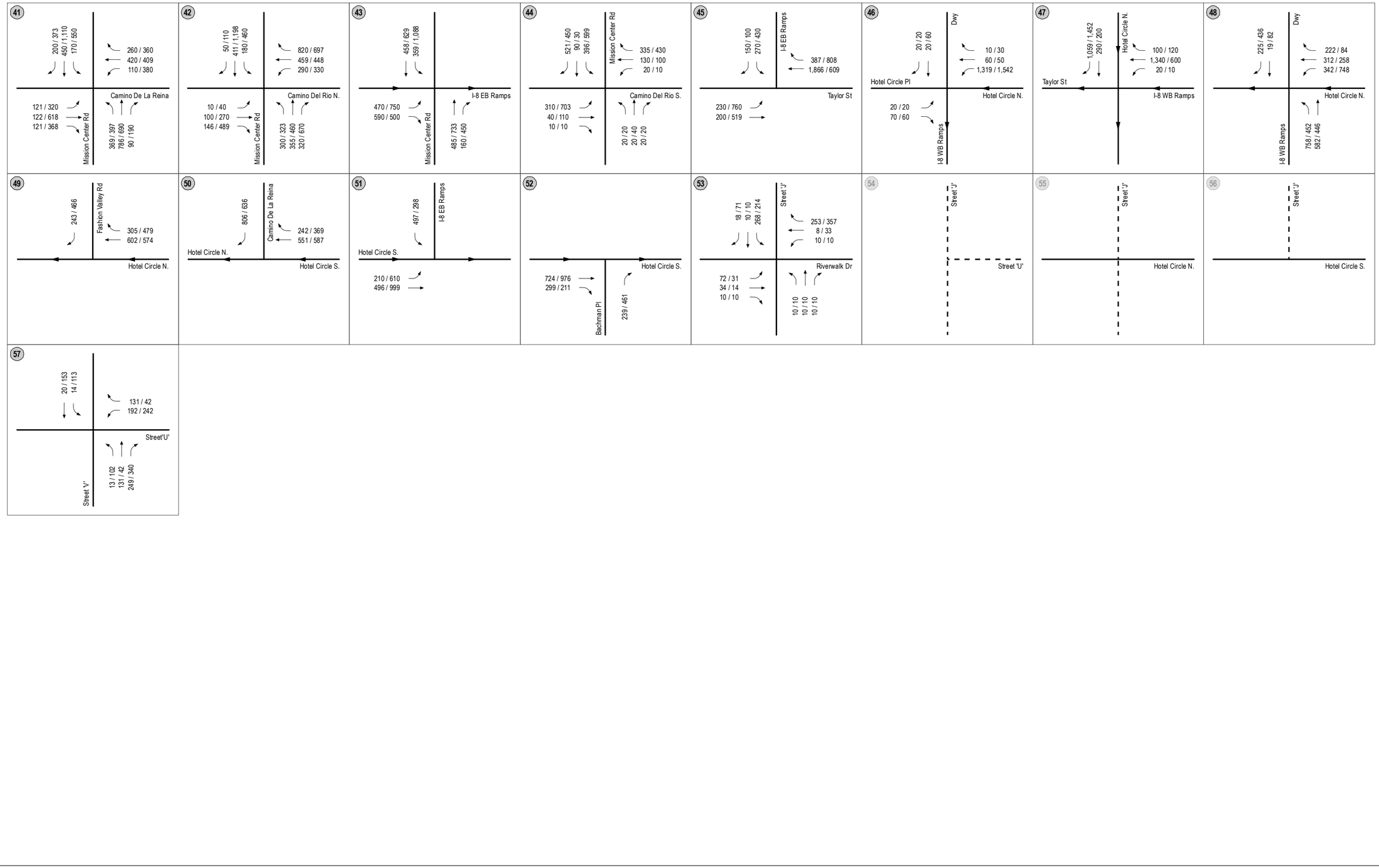
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-15

Year 2035 + Project Phases I, II, and III - Project Buildout

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Time: 10:24 AM

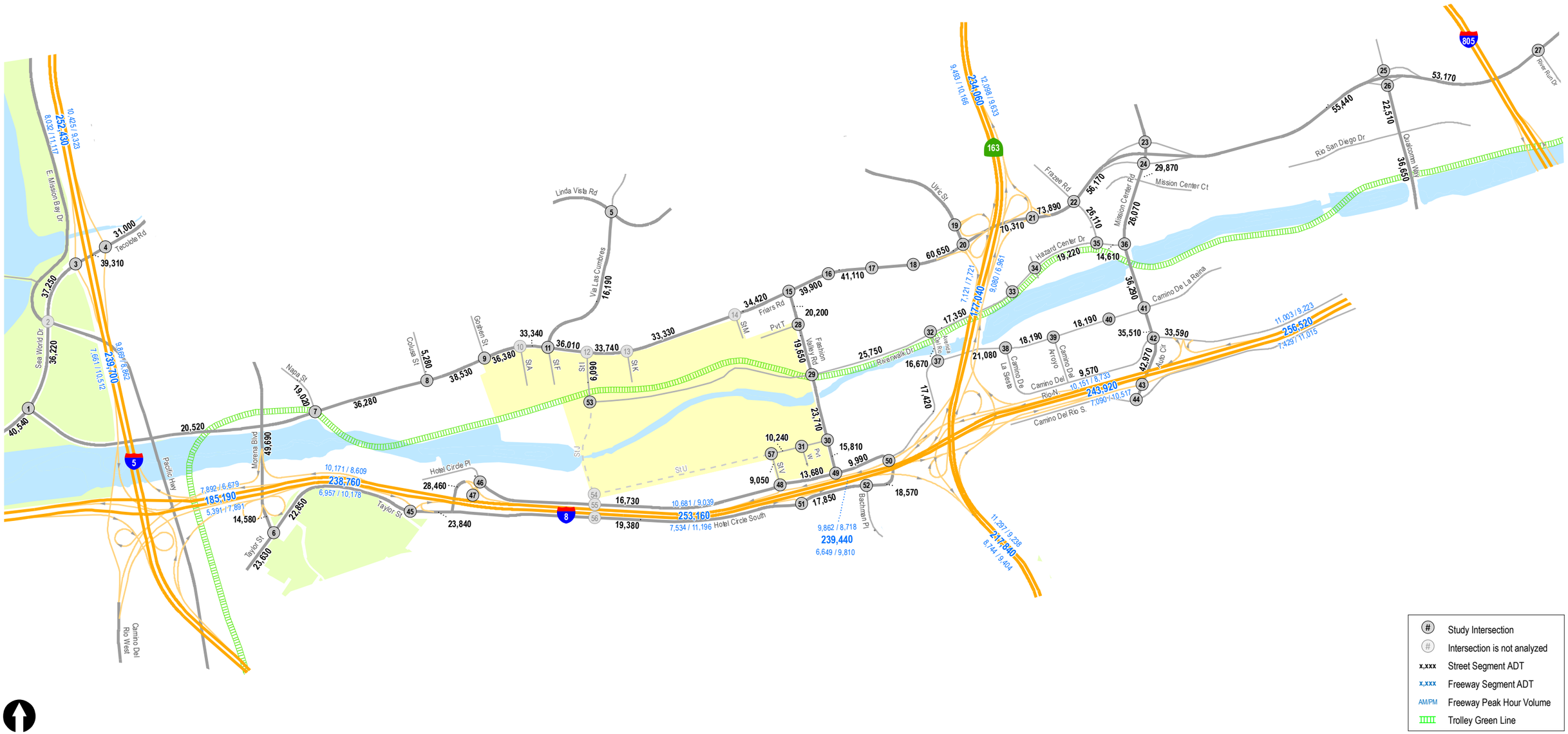
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-15

Year 2035 + Project Phases I, II, and III - Project Buildout

(Page 2 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 4/29/2020
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Figure 12-16

Year 2035 + Project Phases I, II, and III - Project Buildout

Riverwalk

13.0 YEAR 2050 COMMUNITY PLAN ANALYSIS

The following section presents the project's traffic effect and consistency with the Mission Valley Community Plan analysis of study area intersections, street segments, and freeway segments under Year 2050 conditions without and with the Riverwalk project. The Year 2050 timeframe represents the full buildout of the Mission Valley community as included in the MVCP.

13.1 Year 2050 Analysis Approach

For the Year 2050 analysis, the land use assumptions, traffic volumes, roadway network were referenced from the Mission Valley Community Plan Transportation Impact Analysis (May 2019). For the purposes of this analysis, the Preferred Roadway Network that was adopted by City Council, which is the Cross-Valley Connection Alternative was used. The Cross-Valley Connection Alternative includes a new north-south Street J extension between Riverwalk Drive and Street U over the SD River as 2-lane roadway with buffered bike lanes; between Street U and Hotel Circle North as a 4-lane roadway with buffered bike lanes. In addition to the Street J extension, the Cross Valley Connection Alternative also includes a new I-8 freeway overpass and a new east-west roadway Street U between Fashion Valley Road and Street J. Street U would be a 4-lane Collector with a two-way left-turn lane with a two-way Class IV cycle track on the north side. ***Figure 13–1*** shows the Year 2050 conditions diagrams for the study intersections for the proposed planned improvements per the MVCP. ***Figure 13–2*** shows the Year 2050 conditions diagrams for the study street segments and freeways.

13.1.1 *Year 2050 Traffic Volumes*

The MVCP Year 2050 traffic volumes represent Year 2050 with project traffic volumes and includes the full buildout of the Riverwalk Project. The Riverwalk project traffic was included in the Year 2050 MVCP and therefore, the project traffic was subtracted to develop the Year 2050 without project volumes. The traffic volumes represent LLG's and the City's best efforts of forecasting future conditions with the most recent information available at the time this report was prepared.

Figure 13–3 shows the Year 2050 without project intersection volumes. ***Figure 13–4*** shows the Year 2050 without project street segment and freeway volumes.

13.1.2 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2050 conditions. ***Table 13–1*** reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the PM peak hour)
- Friars Road EB Ramps / Qualcomm Way (LOS E during the PM peak hour)
- Riverwalk Drive / Avenida Del Rio (LOS E during the PM peak hour)
- Hazard Center Drive / Mission Center Road (LOS E during the PM peak hour)
- Camino De La Reina / Avenida Del Rio (LOS E during the PM peak hour)

- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)

Appendix AA contains the intersection analysis worksheets for the Year 2050 scenario.

13.1.3 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2050 conditions. ***Table 13–2*** reports the Year 2050 street segment operations on a daily basis. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS F)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS F)
- Hotel Circle North: Hotel Circle Place to I-8 WB Hook Ramps (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS E)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)
- Avenida Del Rio: Riverwalk Drive to Camino De La Reina (LOS F)

13.1.4 *Freeway Segment Operations*

Freeway segment analyses were conducted in the study area under Year 2050 conditions. ***Appendix BB*** contains the detailed calculations sheets for the Year 2050 scenario***. Tables 13–3*** and ***13–4*** reports the Year 2050 peak hour freeway segment operations. The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS E–PM (EB)*
- East of Mission Center Road, *LOS E–AM (WB) and LOS F–PM (EB)*

I-5

- Sea World Drive to I-8, *LOS E–AM (NB)*

SR 163

- North of Friars Road, *LOS F–AM (NB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS E/F–AM (NB/SB) and LOS E/F–PM (NB/SB)*

13.1.5 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2050 conditions. ***Table 13–5*** reports the Year 2050 ramp meter operations.

13.2 Year 2050 + Project Buildout

The following section presents the analysis of study area intersections, street segments, and freeway segments under Year 2050 conditions without and with the Riverwalk project.

Figure 13–5 shows the Year 2050 Project Phases I through III intersection trip distribution (north of the river) percentages. ***Figure 13–6*** shows the Year 2050 Project Phases I through III street segment and freeway trip distribution (north of the river) percentages. ***Figure 13–7*** shows the Year 2050 Project Phases I through III intersection trip distribution (south of the river) percentages. ***Figure 13–8*** shows the Year 2050 Project Phases I through III street segment and freeway trip distribution (south of the river) percentages.

Figure 13–9 shows the Year 2050 + Project Phases I, II, and III – Project Buildout intersection volumes. ***Figure 13–10*** shows the Year 2050 + Project Phases I, II, and III – Project Buildout street segment and freeway volumes.

13.2.1 *Peak Hour Intersection Operations*

Intersection capacity analyses were conducted for the study intersections under Year 2050 + Project Phases I, II, and III – Project Buildout conditions. *Table 13–1* reports the intersection operations during the peak hour conditions. The following intersections are calculated to operate at LOS E or F:

- Friars Road & Ulric Street / SR163 SB Ramps (LOS E during the PM peak hour)
- Friars Road EB Ramps / Qualcomm Way (LOS E during the PM peak hour)
- Riverwalk Drive / Fashion Valley Road (LOS F during the PM peak hour)
- Riverwalk Drive / Avenida Del Rio (LOS F during the PM peak hour)
- Hazard Center Drive / Mission Center Road (LOS F during the PM peak hour)
- Camino De La Reina / Avenida Del Rio (LOS E during the PM peak hour)
- Mission Center Road / I-8 EB Ramp (LOS E during the PM peak hour)
- Hotel Circle N. / I-8 WB Hook Ramps (LOS F during the AM and PM peak hours)

Appendix CC contains the intersection analysis worksheets for the Year 2050 + Project Phases I, II, and III – Project Buildout scenario.

13.2.2 *Daily Street Segment Operations*

Street segment analyses were conducted for roadways in the study area under Year 2050 + Project Phases I, II, and III – Project Buildout conditions. *Table 13–2* reports the Year 2050 + Project Phases I, II, and III – Project Buildout daily street segment operations. The following segments are calculated to operate at LOS E or F:

- Sea World Drive: South Shores Parkway to Friars Road (LOS F)
- Friars Road: Via De La Moda to Avenida De Las Tiendas (LOS E)
- Friars Road: Avenida De Las Tiendas to Ulric Street (LOS F)
- Hotel Circle North: Hotel Circle Place to I-8 WB Hook Ramps (LOS F)
- Camino De La Reina: Avenida Del Rio to Camino De La Siesta (LOS F)
- Hotel Circle South: Taylor Street to I-8 EB Hook Ramps (LOS F)
- Via Las Cumbres: Linda Vista Road to Friars Road (LOS F)
- Mission Center Road: Camino Del Rio North to I-8 EB Ramps (LOS F)
- Riverwalk Drive: Fashion Valley Road to Avenida Del Rio (LOS F)
- Avenida Del Rio: Riverwalk Drive to Camino De La Reina (LOS F)

13.2.3 *Freeway Segment Operations*

Freeway segments were analyzed under Year 2050 + Project Phases I, II, and III – Project Buildout conditions. ***Appendix DD*** contains the detailed calculations sheets for the Year 2050 + Project Phases I, II, and III – Project Buildout scenario. *Tables 13–3* and *13–4* reports the Year 2050 + Project Phases I, II, and III – Project Buildout freeway segment operations.

The following segments are calculated to operate at LOS E or F:

I-8

- I-5 to Morena Boulevard, *LOS F–AM (WB) and LOS F–PM (EB)*
- Morena Boulevard to Taylor Street, *LOS F–PM (EB)*
- Taylor Street to Hotel Circle, *LOS F–PM (EB)*
- Hotel Circle to SR 163, *LOS F–PM (EB)*
- East of Mission Center Road, *LOS E–AM (WB) and LOS F–PM (EB)*

I-5

- Sea World Drive to I-8, *LOS E–AM (NB)*

SR 163

- North of Friars Road, *LOS F–AM (NB) and LOS F–PM (SB)*
- Friars Road to I-8, *LOS F–AM (NB) and LOS F/E–PM (NB/SB)*
- South of I-8, *LOS E/F–AM (NB/SB) and LOS E/F–PM (NB/SB)*

13.2.4 *Ramp Meter Operations*

The Sea World Drive / I-5 NB on-ramp meter was analyzed under Year 2050 + Project Phases I, II, and III – Project Buildout conditions. *Table 13–5* reports the Year 2050 + Project Phases I, II, and III – Project Buildout ramp meter operations.

TABLE 13–1
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2050		Year 2050 + Project Phases I, II, and III – Project Buildout		Δ^d
			Delay[a]	LOS[b]	Delay	LOS	
1. Sea World Dr. / Friars Rd.	Signal	AM	16.3	B	17.7	B	1.4
		PM	17.0	B	21.6	C	4.6
3. Sea World Dr. / I-5 SB Ramps	Signal	AM	46.0	D	46.7	D	0.7
		PM	34.2	C	34.5	C	0.3
4. Sea World Dr. / I-5 NB Ramps	Signal	AM	41.6	D	42.5	D	0.9
		PM	43.3	D	44.8	D	1.5
6. Morena Blvd. / Taylor St.	Signal	AM	42.2	D	42.8	D	0.6
		PM	27.7	C	30.7	C	3.0
7. Friars Rd. / Napa St.	Signal	AM	28.4	C	32.2	C	3.8
		PM	25.4	C	27.8	C	2.4
8. Friars Rd. / Colusa St.	Signal	AM	16.1	B	18.1	B	2.0
		PM	16.4	B	18.9	B	2.5
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	24.9	C	54.1	D	29.2
		PM	20.7	C	45.2	D	24.5
12. Friars Rd. / Street I	Signal	AM	9.9	A	13.6	B	3.7
		PM	13.6	B	24.7	C	11.1
15. Friars Rd. / Fashion Valley Rd.	Signal	AM	25.1	C	28.1	C	3.0
		PM	26.7	C	28.4	C	1.7
16. Friars Rd. / Via de la Moda	Signal	AM	7.6	A	8.1	A	0.5
		PM	18.4	B	19.8	B	1.4
17. Friars Rd. / Avenida de las Tiendas	Signal	AM	7.9	A	7.9	A	0.0
		PM	27.7	C	30.6	C	2.9

TABLE 13–1
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2050		Year 2050 + Project Phases I, II, and III – Project Buildout		Δ^d
			Delay[a]	LOS[b]	Delay	LOS	
20. Friars Rd. & Ulric St. / SR-163 SB Ramps	Signal	AM	47.5	D	47.7	D	0.2
		PM	56.3	E	57.7	E	1.4
21. Friars Rd. / SR-163 NB Ramps	Signal	AM	17.0	B	18.7	B	1.7
		PM	18.4	B	19.6	B	1.2
22. Friars Rd. / Frazee Rd.	Signal	AM	40.1	D	40.7	D	0.6
		PM	46.8	D	46.9	D	0.1
23. Friars Rd. WB Ramps / Mission Center Rd.	Signal	AM	18.1	B	18.1	B	0.0
		PM	20.2	C	21.0	C	0.8
24. Friars Rd. EB Ramps / Mission Center Rd.	Signal	AM	12.0	B	12.1	B	0.1
		PM	26.6	C	27.0	C	0.4
25. Friars Rd. WB Ramps / Qualcomm Way	Signal	AM	21.4	C	21.6	C	0.2
		PM	26.0	C	43.8	D	17.8
26. Friars Rd. EB Ramps / Qualcomm Way	Signal	AM	13.3	B	14.2	B	0.9
		PM	58.2	E	58.3	E	0.1
27. Friars Rd / River Run Dr.	Signal	AM	36.7	D	36.9	D	0.2
		PM	48.4	D	53.1	D	4.7
29. Riverwalk Dr. / Fashion Valley Rd.	Signal	AM	24.0	C	25.9	C	1.9
		PM	48.3	D	89.6	F	41.3
30. Fashion Valley Rd. / Street 'U'	Signal	AM	10.4	B	11.0	B	0.6
		PM	12.4	B	19.4	B	7.0
32. Riverwalk Dr. / Avenida Del Rio	AWSC[c]	AM	12.9	B	18.6	C	5.7
		PM	45.5	E	84.8	F	39.3
35. Hazard Center Dr. / Frazee Rd.	Signal	AM	17.8	B	19.1	B	1.3
		PM	21.9	C	22.0	C	0.1

TABLE 13–1
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2050		Year 2050 + Project Phases I, II, and III – Project Buildout		Δ[d]
			Delay[a]	LOS[b]	Delay	LOS	
36. Hazard Center Dr. / Mission Center Rd.	Signal	AM	23.5	C	24.8	C	1.3
		PM	79.8	E	83.1	F	3.3
37. Camino de la Reina / Avenida Del Rio	Signal	AM	22.0	C	24.0	C	2.0
		PM	65.3	E	66.8	E	1.5
41. Camino de la Reina / Mission Center Rd.	Signal	AM	33.4	C	34.3	C	0.9
		PM	51.1	D	51.5	D	0.4
42. Mission Center Rd. / Camino del Rio N.	Signal	AM	42.8	D	43.0	D	0.2
		PM	41.3	D	43.8	D	2.5
43. Mission Center Rd. / I-8 EB Ramps	Signal	AM	39.0	D	39.9	D	0.9
		PM	61.6	E	62.8	E	1.2
44. Mission Center Rd. / Camino Del Rio S.	Signal	AM	49.5	D	49.9	D	0.4
		PM	48.3	D	53.4	D	5.1
46. Hotel Circle Place / Hotel Circle N.	Signal	AM	15.5	C	16.7	C	1.2
		PM	8.4	A	9.0	A	0.6
48. Hotel Circle N. / I-8 WB Hook Ramps	AWSC	AM	165.3	F	259.9	F	94.6
		PM	108.9	F	240.9	F	132.0
49. Hotel Circle N. / Fashion Valley Rd.	Signal	AM	6.2	A	6.2	A	0.0
		PM	7.3	A	7.6	A	0.3
50. Hotel Circle N. / Camino de la Reina	Signal	AM	1.4	A	1.4	A	0.0
		PM	1.4	A	1.5	A	0.1
52. Hotel Circle S. / Bachman Place	Signal	AM	13.4	B	13.6	B	0.2
		PM	33.6	C	36.6	D	3.0
53. Street J / Riverwalk Drive	Signal	AM	7.1	A	36.2	D	29.1
		PM	11.7	B	33.4	C	21.7
54. Street J / Street U	Signal	AM	16.3	B	47.5	D	31.2
		PM	10.0	A	35.2	D	25.2

TABLE 13–1
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Year 2050		Year 2050 + Project Phases I, II, and III – Project Buildout		Δ^d
			Delay[a]	LOS[b]	Delay	LOS	
55. Street J / Hotel Circle N.	Signal	AM	24.0	C	41.4	D	17.4
		PM	21.0	C	49.2	D	28.2
56. Street J / Hotel Circle S.	Signal	AM	32.9	C	47.3	D	14.4
		PM	20.1	C	26.4	C	6.3
57. Street V / Street U	Signal	AM	–	–	7.8	A	–
		PM	–	–	10.8	B	–

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. All-Way Stop Control
d. Δ denotes the increase in delay.

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Sea World Drive									
South Shores Parkway to Friars Road	4-Lane Major Arterial	40,000	40,490	F	1.012	41,200	F	1.030	0.018
Friars Road to Pacific Highway/E. Mission Bay Drive	4-Lane Major Arterial	40,000	31,610	D	0.790	34,800	D	0.870	0.080
Pacific Highway/E. Mission Bay Drive to I-5 SB Ramps	5-Lane Major Arterial[e]	44,250	32,670	C	0.738	34,800	D	0.786	0.048
I-5 SB Ramps to I-5 NB Ramps	4-Lane Major Arterial	40,000	33,740	D	0.844	34,800	D	0.870	0.026
Tecolote Road									
I-5 NB Ramps to Morena Boulevard	4-Lane Major Arterial	40,000	31,900	D	0.798	31,900	D	0.798	0.000
Friars Road									
Sea World Drive to Napa Street	4-Lane Major Arterial	40,000	11,500	A	0.288	15,400	B	0.385	0.097
Napa Street to Colusa Street	4-Lane Major Arterial	40,000	12,190	A	0.305	19,400	B	0.485	0.180
Colusa Street to Goshen Street	4-Lane Major Arterial	40,000	17,740	B	0.444	25,200	C	0.630	0.186
Goshen Street to Street A	4-Lane Major Arterial	40,000	17,740	B	0.444	25,200	C	0.630	0.186
Street A to Via Las Cumbres	4-Lane Major Arterial	40,000	17,950	B	0.449	25,200	C	0.630	0.181
Via Las Cumbres to Street I	4-Lane Major Arterial	40,000	19,020	B	0.476	24,600	C	0.615	0.139
Street I to Street K	4-Lane Major Arterial	40,000	20,590	B	0.515	24,600	C	0.615	0.100
Street K to Street M	4-Lane Major Arterial	40,000	20,910	B	0.523	24,600	C	0.615	0.092
Street M to Fashion Valley Road	4-Lane Major Arterial	40,000	20,060	B	0.502	24,600	C	0.615	0.113

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Fashion Valley Road to Via De La Moda	5-Lane Major Arterial	45,000	21,330	B	0.474	27,200	C	0.604	0.130
Via De La Moda to Avenida De Las Tiendas	5-Lane Major Arterial	45,000	35,430	D	0.787	41,300	E	0.918	0.131
Avenida De Las Tiendas to Ulric Street	6-Lane Major Arterial	50,000	52,330	F	1.047	58,200	F	1.164	0.117
Ulric Street to SR163 NB Ramps	8-Lane Prime Arterial	80,000	51,930	C	0.649	55,600	C	0.695	0.046
SR163 NB Ramps to Frazee Road	8-Lane Prime Arterial	80,000	43,660	C	0.546	45,400	C	0.568	0.022
Frazee Road to Mission Center Road	8-Lane Prime Arterial	80,000	39,790	B	0.497	41,500	B	0.519	0.022
Mission Center Road to Qualcomm Way	6-Lane Expressway	80,000	34,000	B	0.425	35,500	B	0.444	0.019
Qualcomm Way to River Run Drive	6-Lane Expressway	80,000	38,400	B	0.480	38,900	B	0.486	0.006
Hotel Circle North									
Hotel Circle Place to I-8 WB Hook Ramps	2-Lane Collector (one-way)	17,500	21,770	F	1.244	25,000	F	1.429	0.185
I-8 WB Hook Ramps to Fashion Valley Road	2-Lane Collector (one-way)	17,500	13,920	D	0.795	14,200	D	0.811	0.016
Fashion Valley Road to Camino De La Reina	2-Lane Collector (one-way)	17,500	7,860	B	0.449	8,200	B	0.469	0.020
Camino Del Rio North									
Camino De La Siesta to Mission Center Road	2-Lane Collector (continuous left-turn lane)	15,000	12,550	D	0.837	12,800	D	0.853	0.016
Mission Center Road to I-8 WB Ramp	4-Lane Major Arterial	40,000	29,210	C	0.730	29,600	C	0.740	0.010

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	9,680	C	0.645	9,900	C	0.660	0.015
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	15,240	F	1.524	17,100	F	1.710	0.186
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	9,190	A	0.230	10,800	A	0.270	0.040
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	9,190	A	0.230	10,800	A	0.270	0.040
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	17,980	B	0.400	18,800	B	0.418	0.018
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	3,390	A	0.226	4,000	A	0.267	0.041
I-8 EB Hook Ramps to Hotel Circle South	2-Lane Collector	10,000	3,600	A	0.360	5,000	B	0.500	0.140
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (one-way)	17,500	2,980	A	0.170	3,300	A	0.189	0.019
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (one-way)	17,500	27,130	F	1.550	30,200	F	1.726	0.176
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (one-way)	17,500	13,970	D	0.798	14,100	D	0.806	0.008
Bachman Place to Camino De La Reina	2-Lane Collector (one-way)	17,500	14,570	D	0.833	14,700	D	0.840	0.007

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	27,840	C	0.696	28,900	C	0.723	0.027
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (continuous left-turn lane)	22,500	14,540	C	0.646	15,600	D	0.693	0.047
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	12,400	A	0.310	15,700	B	0.393	0.083
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,450	A	0.306	2,700	B	0.338	0.032
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,460	E	0.951	12,200	F	1.109	0.158
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Major Arterial	40,000	6,480	A	0.162	8,200	A	0.205	0.043
Private Drive T to Riverwalk Drive	4-Lane Major Arterial	40,000	6,050	A	0.151	8,200	A	0.205	0.054
Riverwalk Drive to Street U	4-Lane Major Arterial	40,000	14,400	A	0.360	17,400	B	0.435	0.075
Street U to Hotel Circle North	4-Lane Major Arterial	40,000	16,970	B	0.424	17,400	B	0.435	0.011
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	18,770	B	0.469	19,200	B	0.480	0.011

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	25,320	C	0.633	25,600	C	0.640	0.007
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	22,080	B	0.491	22,400	B	0.498	0.007
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	32,060	C	0.712	32,100	C	0.713	0.001
Camino De La Reina to Camino Del Rio North	5-Lane Major Arterial	45,000	30,880	C	0.686	31,700	C	0.704	0.018
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	40,420	F	1.011	41,100	F	1.028	0.017
Qualcomm Way									
Friars Road to Rio San Diego Drive	5-Lane Major Arterial	45,000	25,800	C	0.573	26,300	C	0.584	0.011
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	42,200	D	0.844	42,700	D	0.854	0.010
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	12,050	F	1.506	15,200	F	1.900	0.394
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	17,460	F	1.164	19,100	F	1.273	0.109
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	2-Lane Collector (continuous left-turn lane)	15,000	11,490	D	0.766	12,500	D	0.833	0.067
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	11,490	A	0.287	12,500	A	0.313	0.026
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	15,580	B	0.390	15,900	B	0.398	0.008

TABLE 13–2
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^{f}
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street U									
Street J to Street V	4-Lane Collector (continuous left-turn lane)	30,000	8,650	A	0.288	11,300	B	0.377	0.089
Street V to Fashion Valley Road	4-Lane Collector (continuous left-turn lane)	30,000	7,180	A	0.239	11,300	B	0.377	0.138
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	6,750	A	0.338	11,300	C	0.565	0.227
Riverwalk Drive to Street U	2-Lane Major Arterial	20,000	14,150	C	0.708	17,200	D	0.860	0.152

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Based on coordination with City staff, a capacity reduction was assumed to account for the EB auxiliary lane.
f. Δ denotes an increase in the Volume to Capacity ratio

TABLE 13–3
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Year 2050 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	178,000	EB Mainlines	4M	0.702	27.60	D	0.709	27.90	D	0.007
		WB Mainlines	3M	1.107	>45.00	F	1.115	>45.00	F	0.008
Morena Boulevard to Taylor Street	231,000	EB Mainlines	4M+1A	0.793	29.50	D	0.800	29.80	D	0.007
		WB Mainlines	5M	0.854	34.30	D	0.859	34.70	D	0.005
Taylor Street to Hotel Circle	205,000	EB Mainlines	4M	0.829	33.40	D	0.829	33.40	D	0.000
		WB Mainlines	5M	0.758	29.90	D	0.758	29.90	D	0.000
Hotel Circle to SR163	222,000	EB Mainlines	4M+1A	0.765	28.30	D	0.781	29.00	D	0.016
		WB Mainlines	5M	0.714	26.60	D	0.727	27.00	D	0.013
SR163 to Mission Center Road	192,000	EB Mainlines	5M	0.627	25.10	C	0.635	25.50	C	0.008
		WB Mainlines	4M+1A	0.758	28.10	D	0.766	28.50	D	0.008
East of Mission Center Road	249,000	EB Mainlines	5M	0.793	31.90	D	0.805	32.40	D	0.012
		WB Mainlines	4M+1A	0.972	42.00	E	0.982	43.10	E	0.010
I-5										
North of Sea World Drive	Not Analyzed	NB Mainlines	–	–	–	–	–	–	–	–
		SB Mainlines	–	–	–	–	–	–	–	–
Sea World Drive to I-8	243,000	NB Mainlines	5M+1A	0.922	37.80	E	0.922	37.80	E	0.000
		SB Mainlines	5M+1A	0.642	23.60	C	0.644	23.60	C	0.002
SR 163										
North of Friars Road	213,000	NB Mainlines	5M	1.007	>45.00	F	1.021	>45.00	F	0.014
		SB Mainlines	4M	0.826	33.20	D	0.840	33.90	D	0.014
Friars Road to I-8	180,000	NB Mainlines	3M	1.116	>45.00	F	1.119	>45.00	F	0.003
		SB Mainlines	4M+2A	0.648	22.20	C	0.654	22.40	C	0.006
South of I-8	192,000	NB Mainlines	3M+1A	0.961	40.90	E	0.970	41.80	E	0.009
		SB Mainlines	3M	1.166	>45.00	F	1.182	>45.00	F	0.016

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix BB* and *Appendix DD* for calculation sheets.

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 13–4
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Year 2050 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	178,000	EB Mainlines	4M	0.975	>45.00	F	0.983	>45.00	F	0.008
		WB Mainlines	3M	0.822	32.60	D	0.833	33.10	D	0.011
Morena Boulevard to Taylor Street	231,000	EB Mainlines	4M+1A	1.077	>45.00	F	1.085	>45.00	F	0.008
		WB Mainlines	5M	0.628	24.60	C	0.636	24.90	C	0.008
Taylor Street to Hotel Circle	205,000	EB Mainlines	4M	1.053	>45.00	F	1.053	>45.00	F	0.000
		WB Mainlines	5M	0.567	22.40	C	0.567	22.40	C	0.000
Hotel Circle to SR163	222,000	EB Mainlines	4M+1A	0.981	42.90	E	1.001	>45.00	F	0.020
		WB Mainlines	5M	0.534	19.90	C	0.549	20.40	C	0.015
SR163 to Mission Center Road	192,000	EB Mainlines	5M	0.788	31.60	D	0.797	32.00	D	0.009
		WB Mainlines	4M+1A	0.568	21.00	C	0.579	21.30	C	0.011
East of Mission Center Road	249,000	EB Mainlines	5M	1.020	>45.00	F	1.033	>45.00	F	0.013
		WB Mainlines	4M+1A	0.735	27.10	D	0.750	27.70	D	0.015
I-5										
North of Sea World Drive	Not Analyzed	NB Mainlines	–	–	–	–	–	–	–	–
		SB Mainlines	–	–	–	–	–	–	–	–
Sea World Drive to I-8	243,000	NB Mainlines	5M+1A	0.750	27.70	D	0.752	27.80	D	0.002
		SB Mainlines	5M+1A	0.740	27.30	D	0.741	27.30	D	0.001
SR 163										
North of Friars Road	213,000	NB Mainlines	5M	0.739	29.20	D	0.753	29.70	D	0.014
		SB Mainlines	4M	1.117	>45.00	F	1.137	>45.00	F	0.020
Friars Road to I-8	180,000	NB Mainlines	3M	1.090	>45.00	F	1.101	>45.00	F	0.011
		SB Mainlines	4M+2A	0.671	39.30	E	0.674	39.40	E	0.003
South of I-8	192,000	NB Mainlines	3M+1A	0.969	41.60	E	0.985	43.30	E	0.016
		SB Mainlines	3M	1.125	>45.00	F	1.140	>45.00	F	0.015

Footnotes:
a. Volume to Capacity.
b. Level of Service.

General Notes:
1. See *Appendix BB* and *Appendix DD* for calculation sheets.

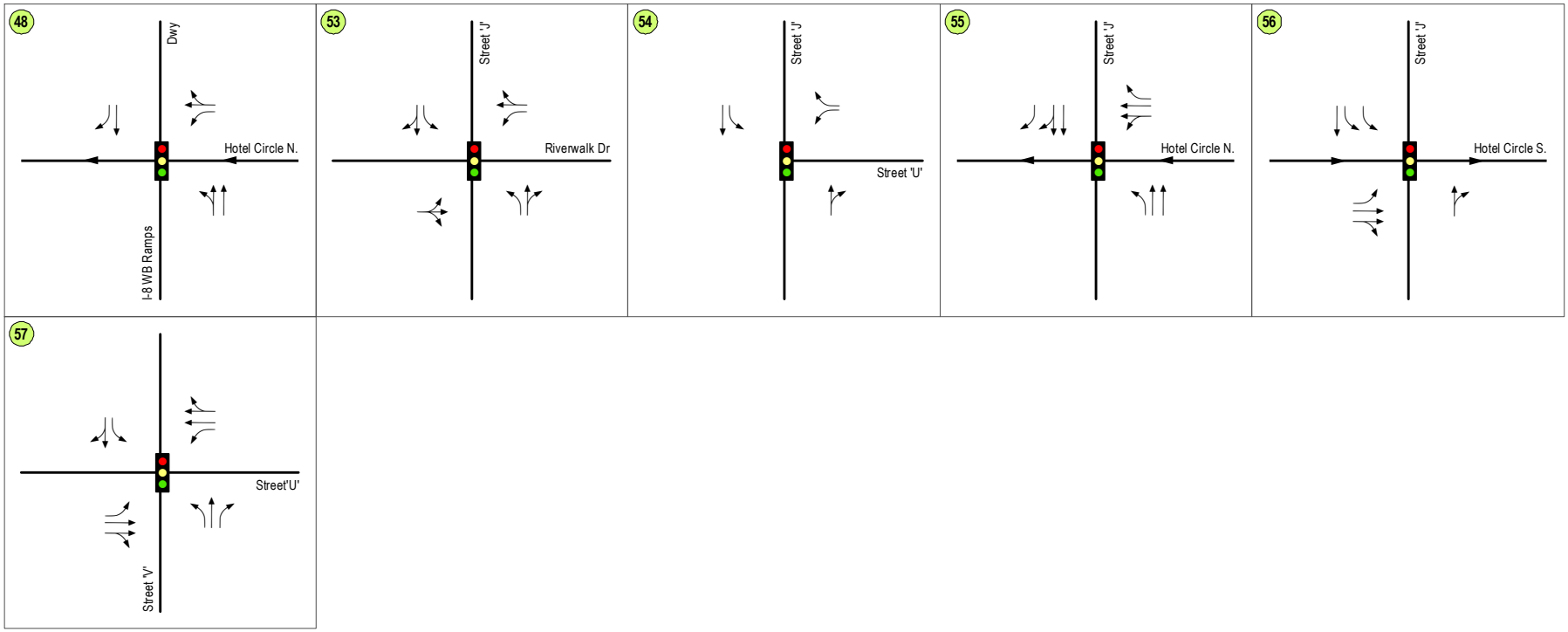
LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 13–5
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Year 2050	AM	1,616	808	965	0	0	0
	PM	1,289	645	972	0	0	0
Year 2050 + Project Phases I, II, and III – Project Buildout	AM	1,730	865	965	0	0	0
	PM	1,360	680	972	0	0	0
Project Increase	AM	114	57	NA	0	0	0
	PM	71	35	NA	0	0	0

Footnotes:
a. Meter Rates obtained from Caltrans (see *Appendix E*).
b. Delay expressed in minutes per lane.
c. Queue expressed in feet per lane.

General Notes:
1. NA = Not Applicable.



Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Planned Improvements
(#) Project Improvements

LINSCOTT LAW & GREENSPAN engineers

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Date: 3/27/2020
Time: 10:46 AM

Figure 13-1
Year 2050 Conditions Diagram

Riverwalk



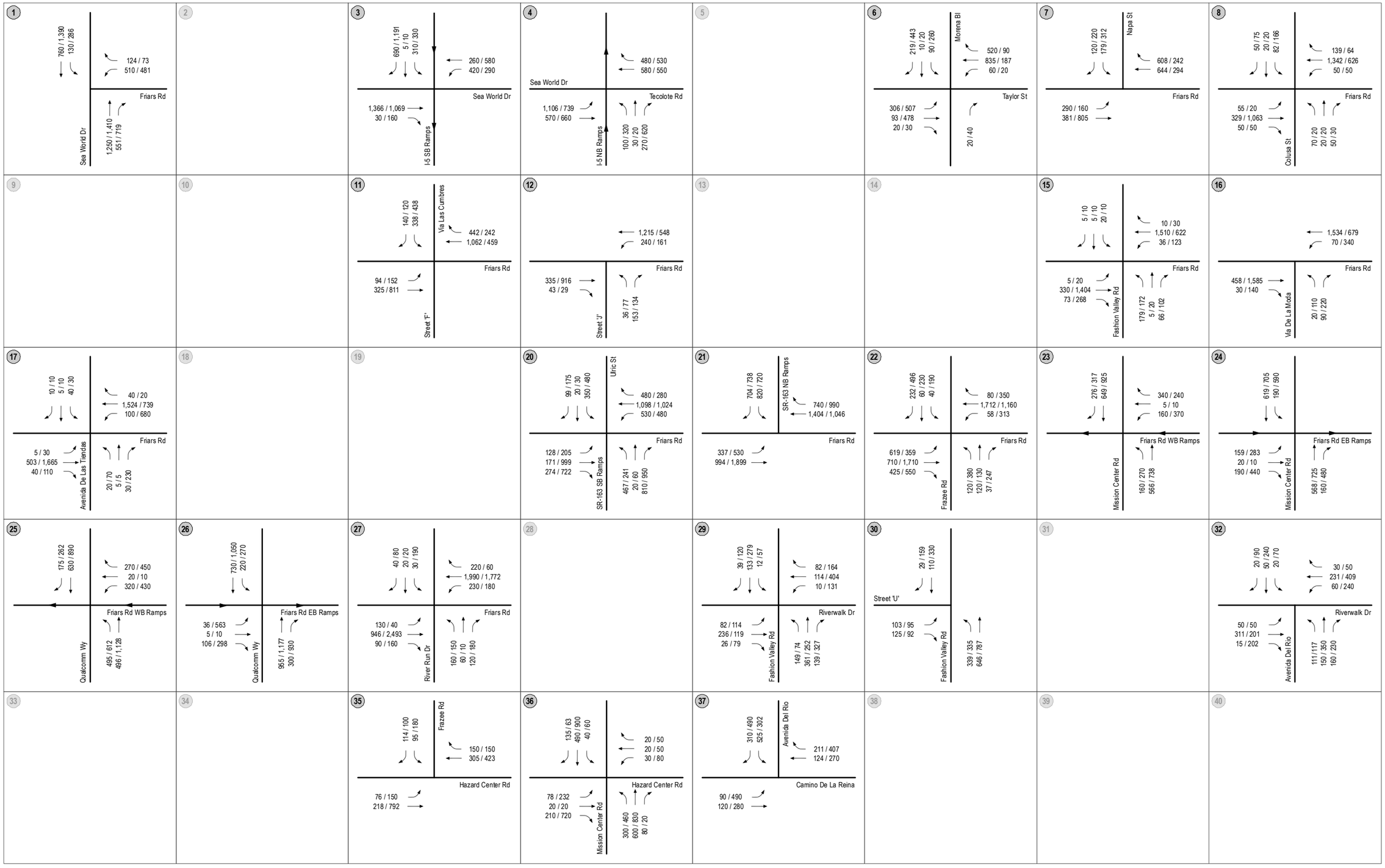
LINSCOTT LAW & GREENSPAN engineers

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Figure 13-2

Year 2050 Conditions Diagram

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Time: 10:48 AM

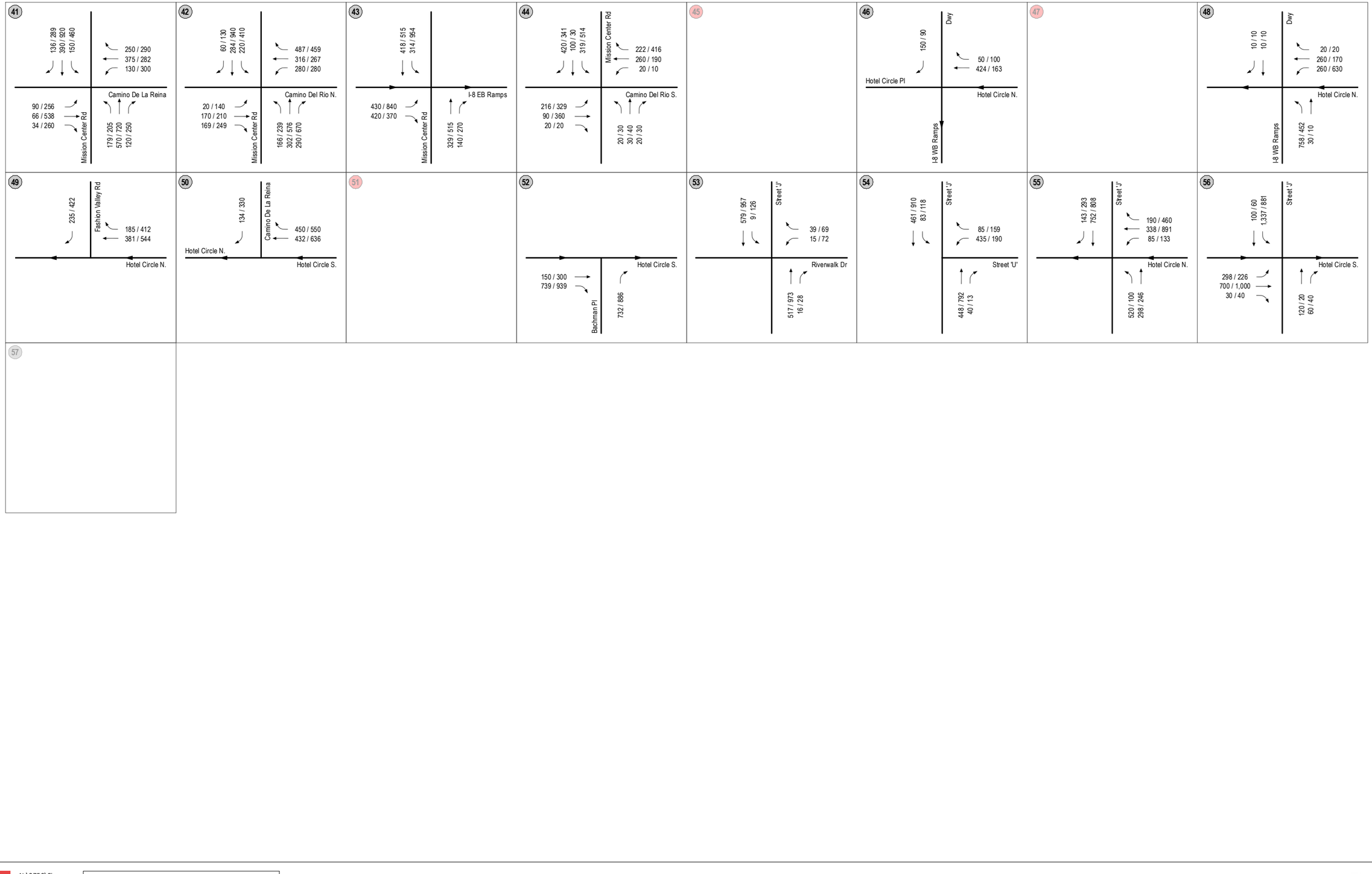
- (#) Study Intersection
- (#) Intersection is not analyzed in the MVCP
- (#) Intersection does not exist
- Intersection AM/PM Peak Hour volumes

Figure 13-3

Year 2050 Traffic Volumes

(Page 1 of 2)

Riverwalk

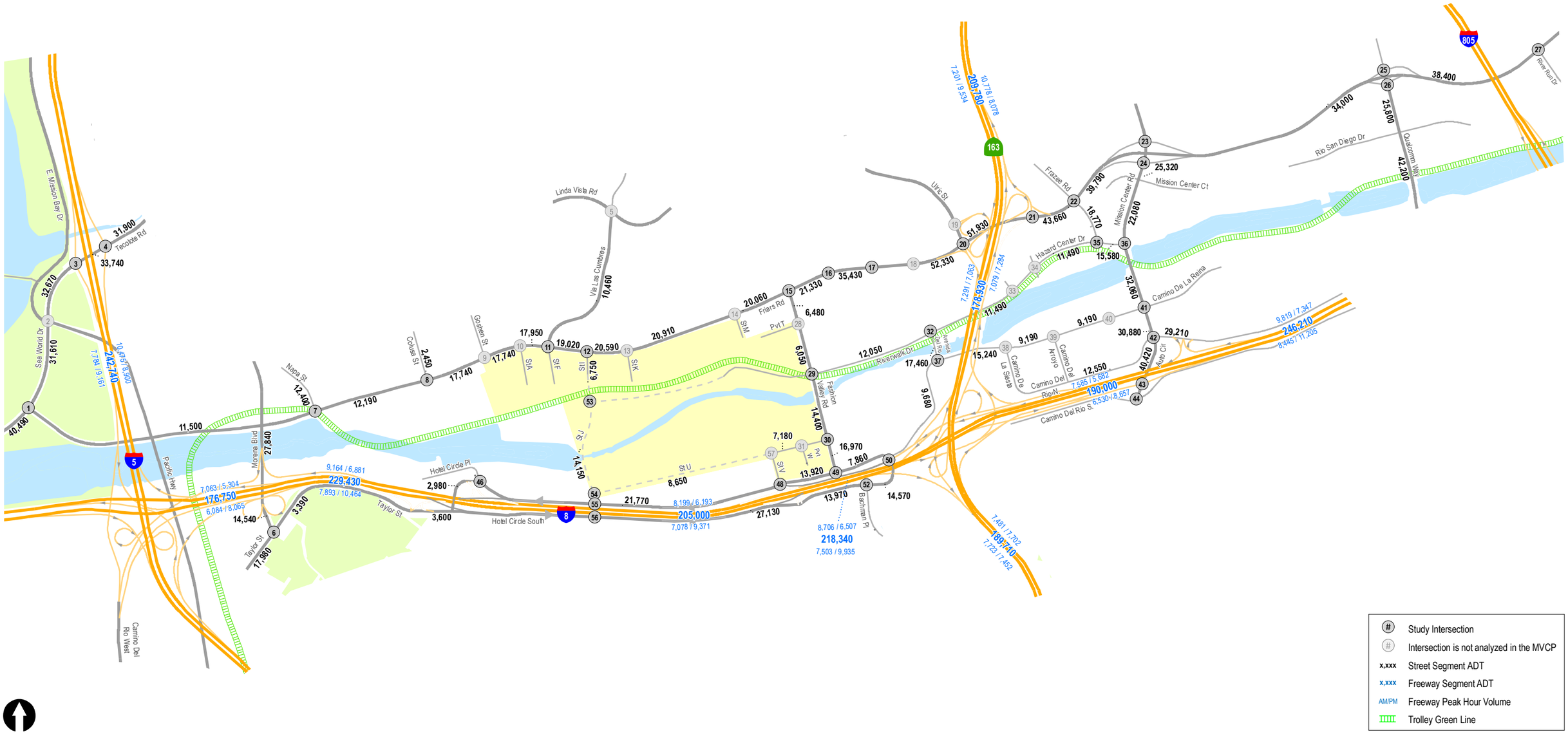


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(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-3
Year 2050 Traffic Volumes
(Page 2 of 2)
Riverwalk



#	Study Intersection
#	Intersection is not analyzed in the MVCP
x,xxx	Street Segment ADT
x,xxx	Freeway Segment ADT
AM/PM	Freeway Peak Hour Volume
	Trolley Green Line

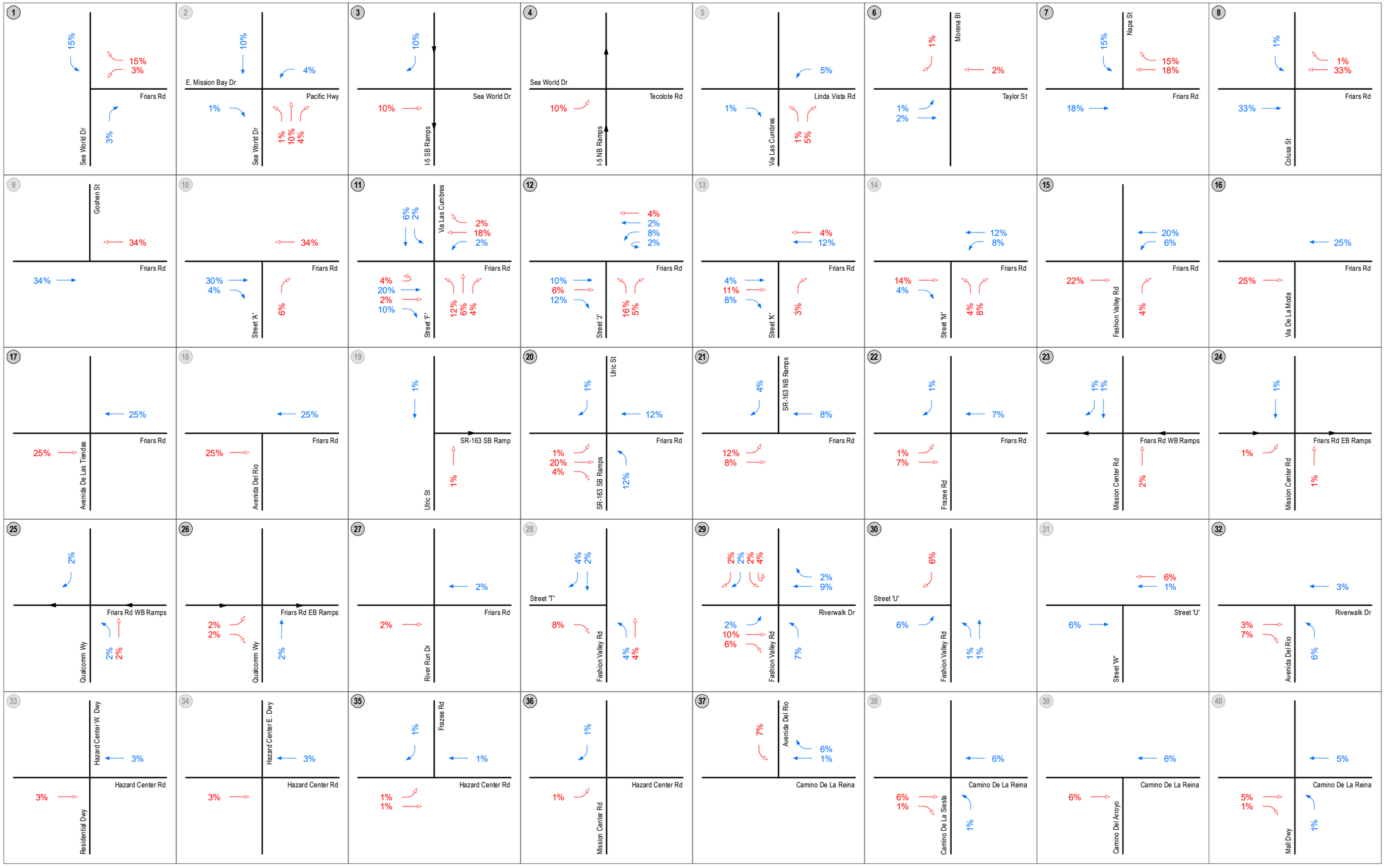
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Time: 10:51 AM

Figure 13-4

Year 2050 Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 3/27/2020
Time: 10:53 AM

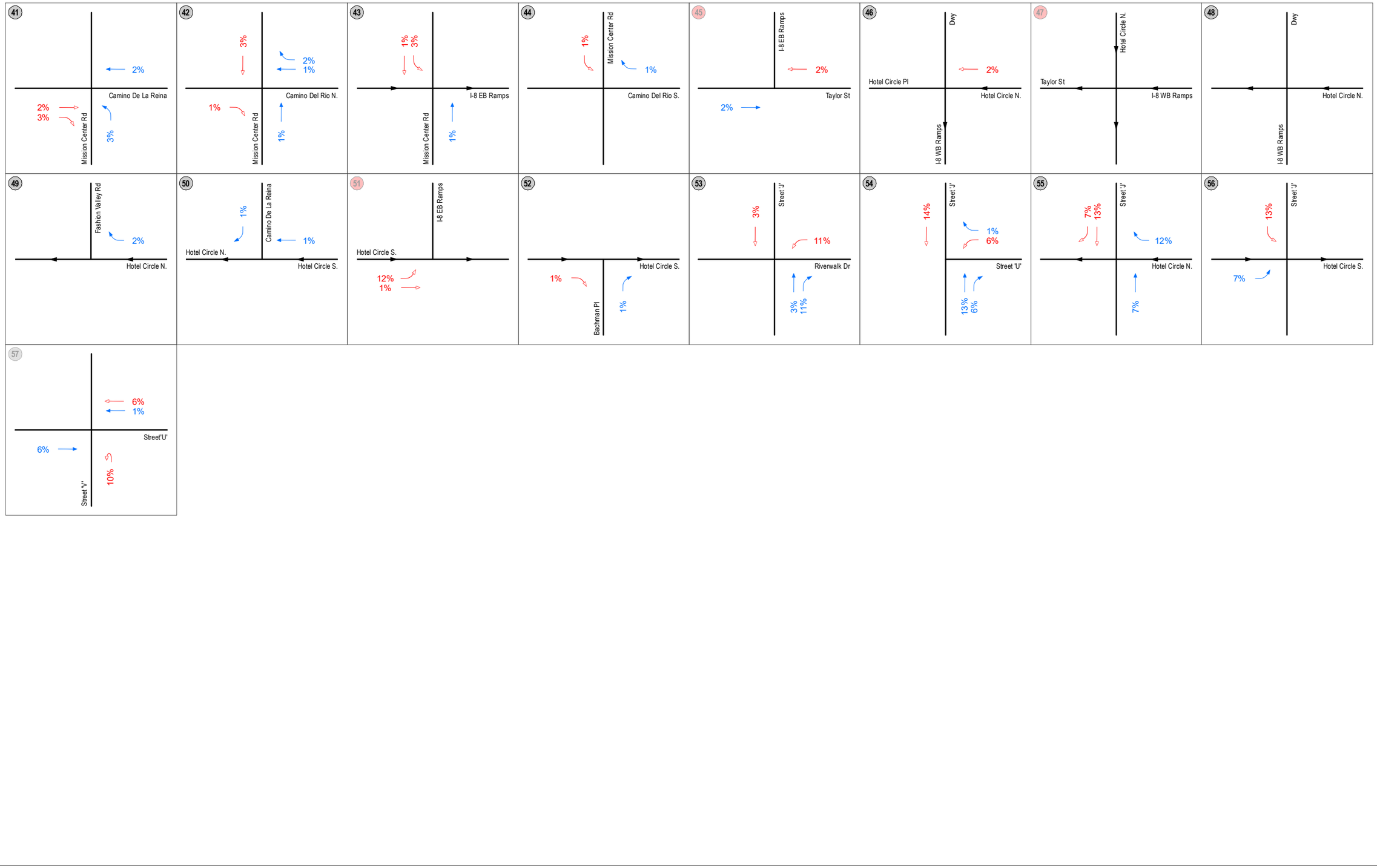
(#) Study Intersections
Inbound Trip Distribution
(#) Intersection does not exist
(#) Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-5

Project Phases I through III Traffic Distribution- North of River - Year 2050

(Page 1 of 2)

Riverwalk



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Date: 3/27/2020
Time: 10:53 AM

Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-5

Project Phases I through III Traffic Distribution- North of River - Year 2050

(Page 2 of 2)

Riverwalk



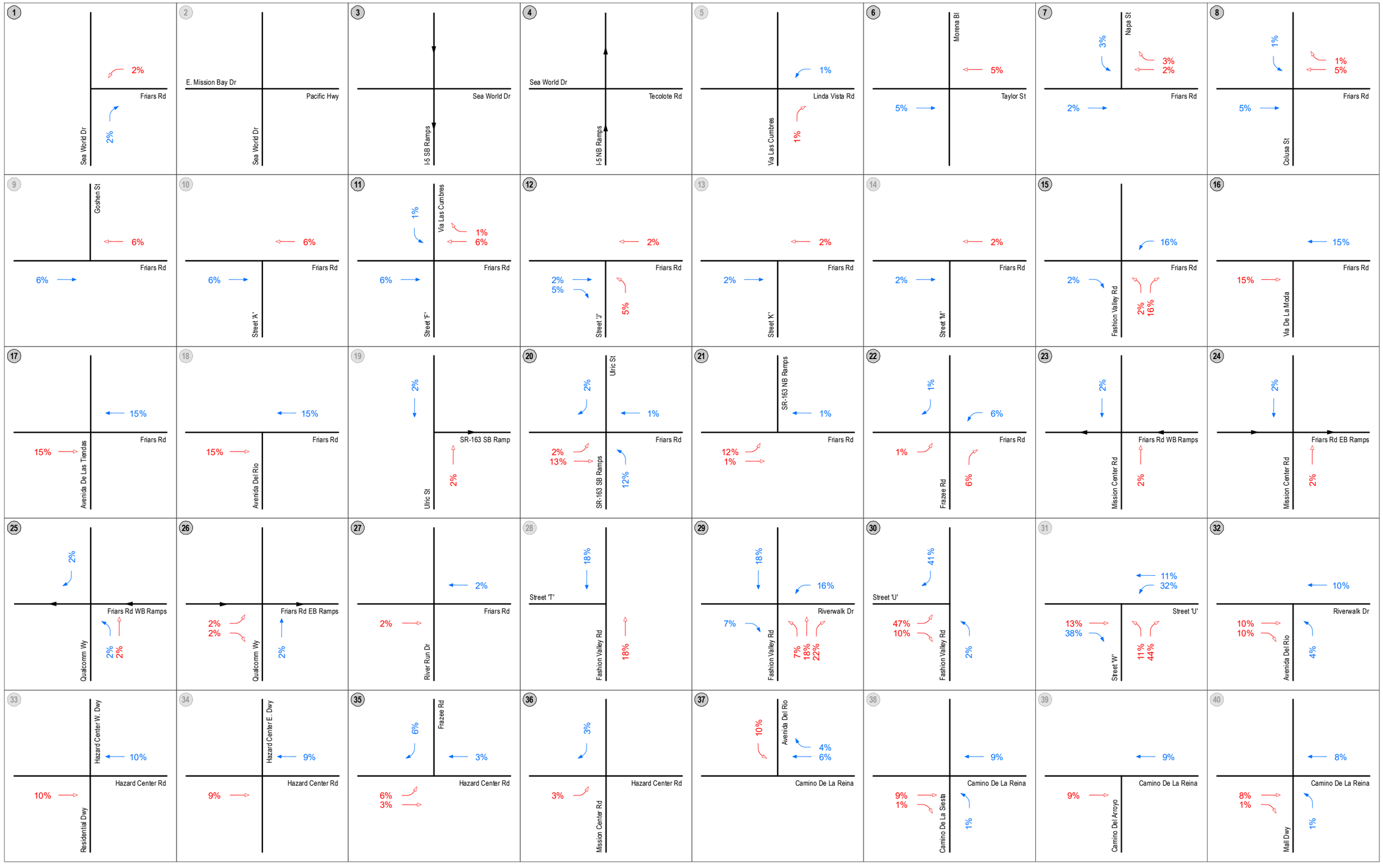
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Time: 10:55 AM

Figure 13-6

Project Phase I, II, and III Traffic Distribution - North of the River

Riverwalk



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Date: 3/27/2020
Time: 10:56 AM

Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-7

Project Phases I through III Traffic Distribution - South of River

(Page 1 of 2)

Riverwalk



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engineers

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Date: 3/27/2020
Time: 10:56 AM

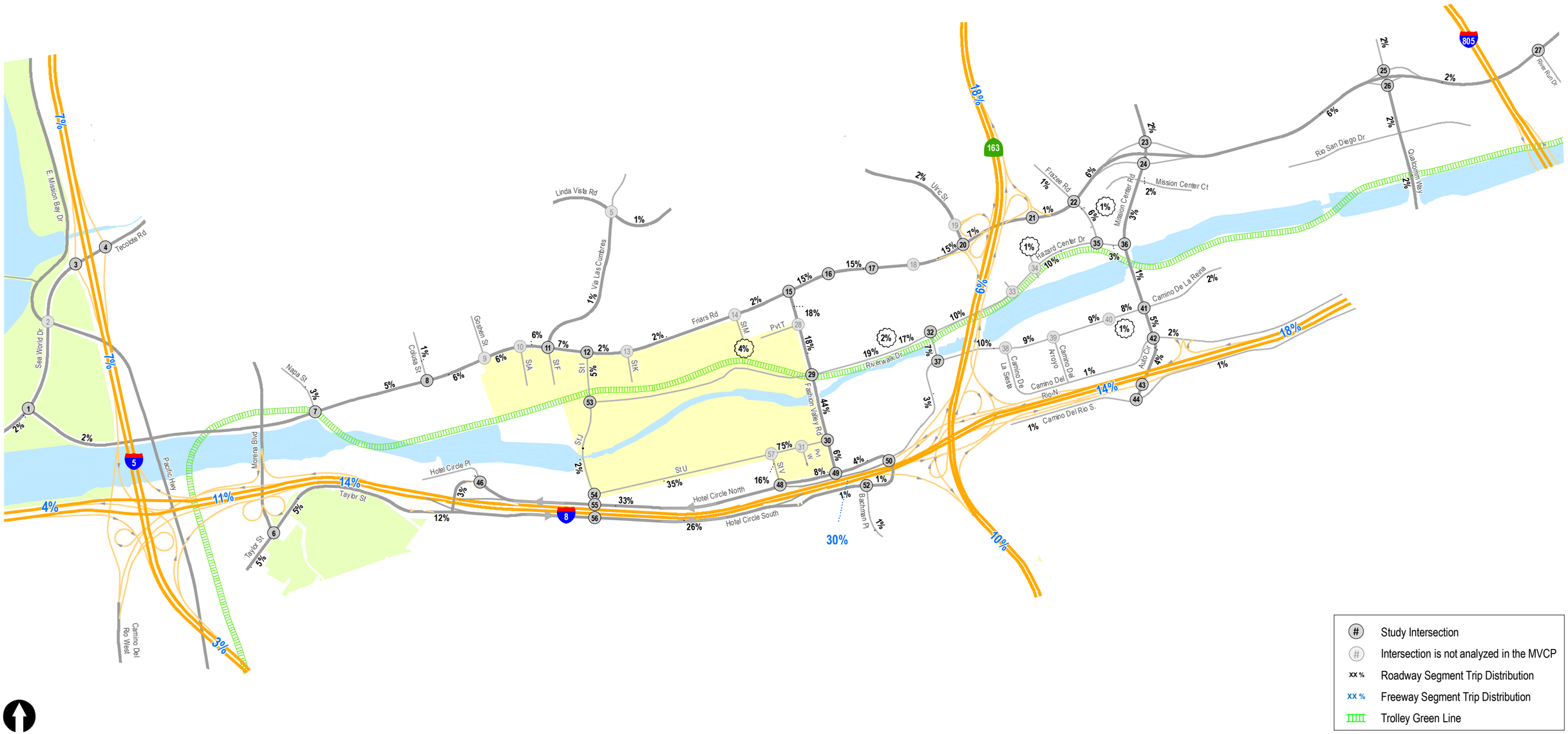
Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-7

Project Phases I through III Traffic Distribution - South of River

(Page 2 of 2)

Riverwalk

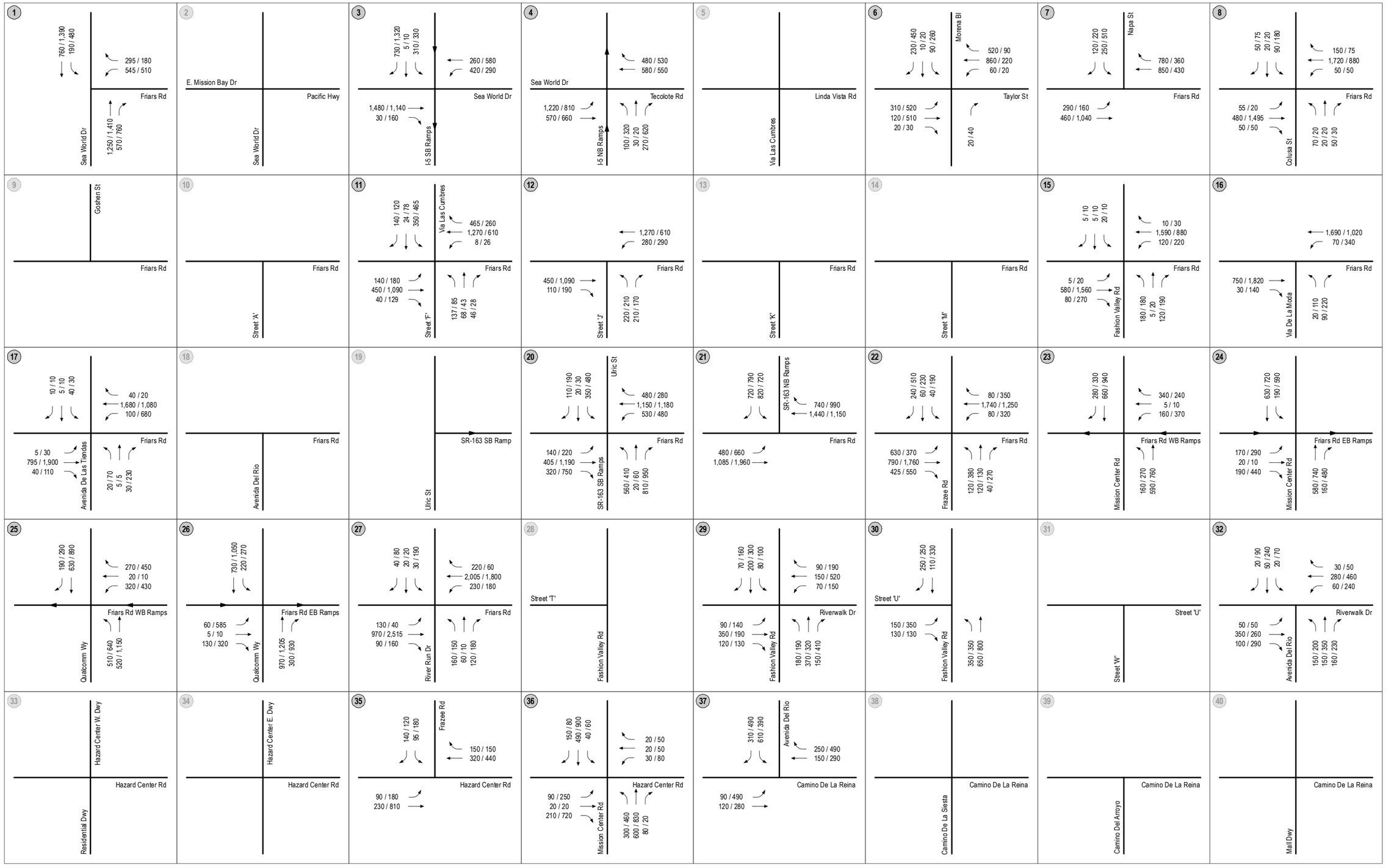


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Time: 10:57 AM

Figure 13-8

Project Phase I, II, and III Traffic Distribution - South of the River

Riverwalk



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Time: 10:30 AM

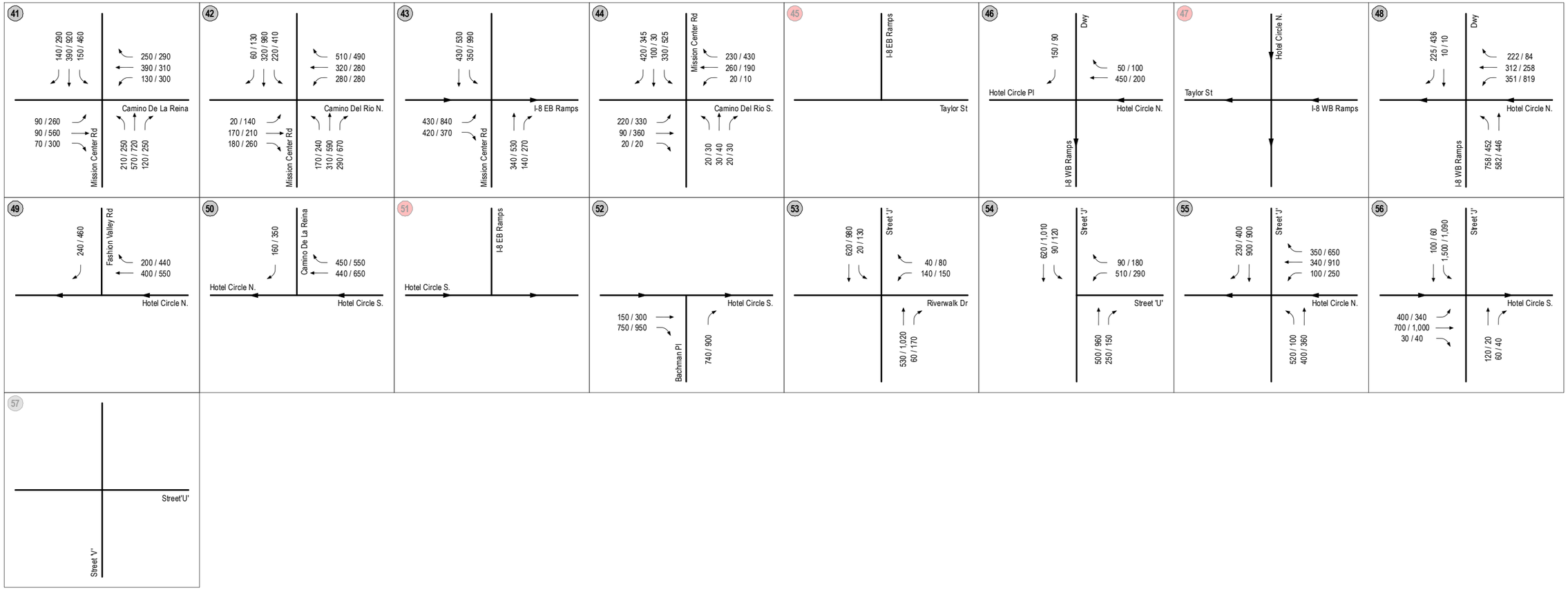
(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-9

Year 2050 + Project Phases I, II, and III - Project Buildout

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 4/29/2020
Time: 10:30 AM

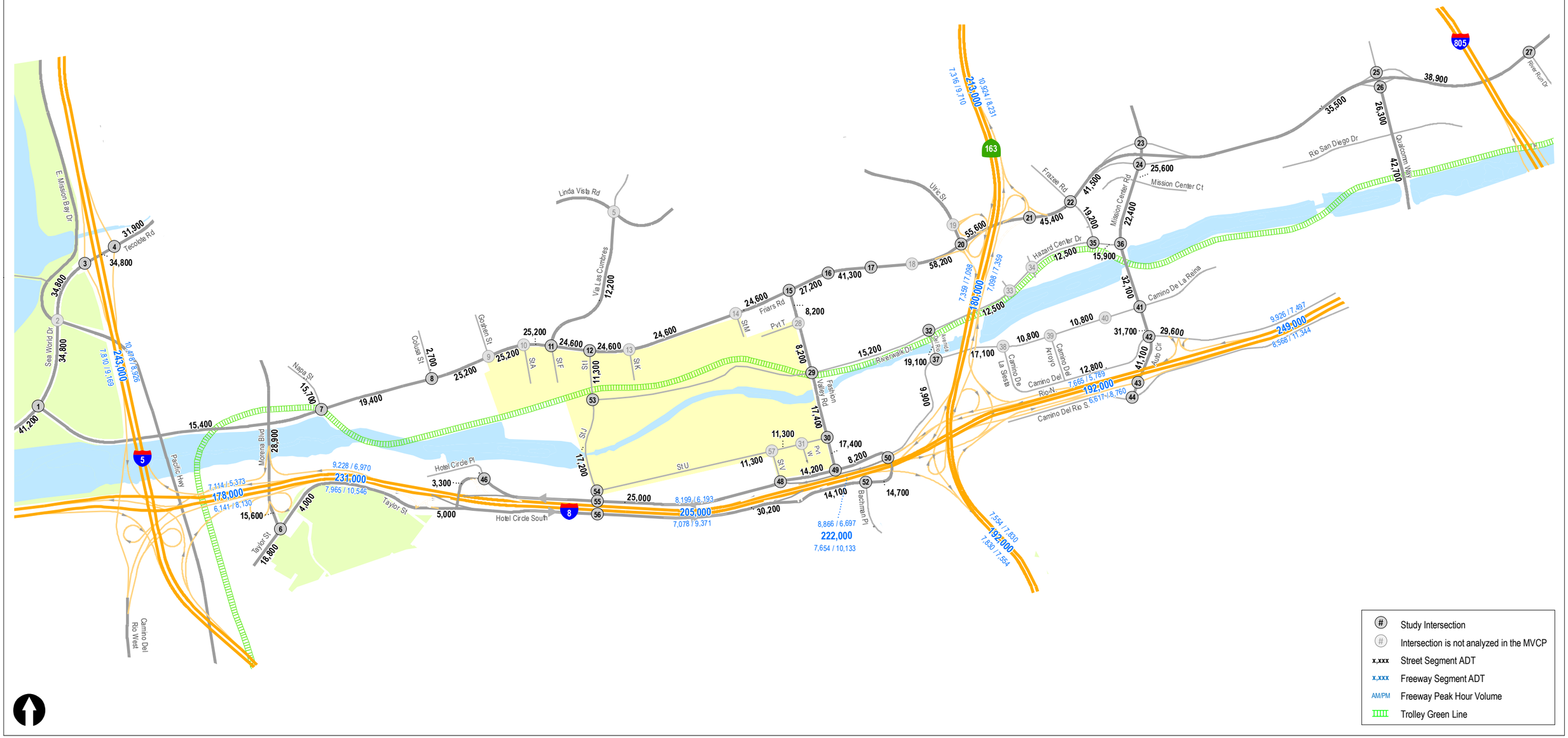
(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-9

Year 2050 + Project Phases I, II, and III - Project Buildout

(Page 2 of 2)

Riverwalk



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Figure 13-10

Year 2050 + Project Phases I, II, and III - Project Buildout

Riverwalk

14.0 TRANSPORTATION IMPROVEMENT PLAN (TIP)

The preceding LOS analysis was conducted to identify the project traffic's effect in the study area, identify improvements by the project, and ensure that the improvements to be constructed by the Riverwalk project are consistent with transportation improvements identified in the TIP and the Mission Valley Community Plan. These improvements promote active transportation for pedestrian, bicycle, and transit mobility as well as vehicular traffic. The list of transportation improvements are summarized in a Transportation Improvement Plan (TIP), which identifies the improvement location (i.e. intersection, street segment, freeway interchange), the improvement description, and an identified Equivalent Dwelling Unit (EDU) threshold for transportation improvements to be completed in conjunction with project build-out.

14.1 EDU Analysis Methodology

The project land uses include multi-family residential, office, commercial retail, and park use. Each of these uses has a different trip generation rate and metric. Therefore, EDU's are calculated to normalize all land use categories to the trip generation equivalent to one multi-family residential dwelling unit. For example, each multi-family residential dwelling unit generates 6 trips per day, so 1 EDU would equal 6 trips. To determine the EDU's for a specific land use, the daily trips for that land use would be multiplied by 0.166 (1 divided by 6) EDU. ***Table 14–1*** details the EDU calculations for the different land uses and ***Table 14–2*** details the EDU's calculations per project phase. ***Table 14–3*** details the project's TIP.

TABLE 14–1
EDU PER TRIP RATE

Land Use	Daily Trip Rate		
	Trip Rate		EDU (Trip Rate / 6)
Residential	6	per DU	1 per DU
Commercial Office [a]			
Phase I	19.81	per ksf	3.30 per ksf
Phase III	13.48	per ksf	2.25 per ksf
Commercial Retail			
Neighborhood	120	per ksf	20.00 per ksf
Community	70	per ksf	11.67 per ksf
Park - Developed	50	per acre	8.33 per acre
Park - Undeveloped	5	per acre	0.83 per acre

Footnotes:

a. Due to the Commercial Office trip generation being determined by a logarithmic formula, the Commercial Office EDU varies between Phase I and Phase III.

TABLE 14–2
PROJECT EDU'S PER PHASE

Land Use	Amount		EDU Rate	Daily EDU
Phase I				
Residential	1,910	DU	1 per DU	1,910
Community Retail	110.3	ksf	11.67 per ksf	1,288
Commercial Office	52	ksf	3.30 per ksf	172
Park – Developed	1.6	acre	8.33 per acre	13
Park - Undeveloped	3.11	acre	0.83 per acre	3
Phase I EDU's				*3,386*
Phase II				
Residential	2,390	DU	1 per DU	2,390
Community Retail	13.1	ksf	11.67 per ksf	153
Park – Developed	26.27	acre	8.33 per acre	219
Park - Undeveloped	53.48	acre	0.83 per acre	45
Phase II EDU's				*2,807*
Phases I + II EDU's				*6,193*
Phase III				
Neighborhood Retail	28.6	ksf	20 per ksf	572
Commercial Office	748.0	ksf	2.25 per ksf	1,683
Park – Undeveloped	2.20	acre	0.83 per acre	2
Phase III EDU's				*2,257*
Phases I + II + III EDU's				*8,450*

TABLE 14–3
TRANSPORTATION IMPROVEMENT PLAN (TIP)

	Facility	Project Improvement	Implementation ADT EDU Threshold [1]
1	Friars Road frontage improvements: Street A to Fashion Valley Road	Install a raised median, curb, gutter, sidewalk, parkway and cycle track on the Friars Road project frontage. The project will install a raised median between the easterly property line and Fashion Valley Road.	Frontage[a]
2	Friars Road / Goshen Street intersection	Install a traffic signal and implement ITS improvements	Frontage
3	Friars Road: Goshen Street to Private Driveway A	Construct a raised median	Frontage
4	Friars Road / Via Las Cumbres intersection	Widen eastbound approach to provide an additional left-turn lane. Restripe the southbound approach to provide dual left-turn lanes and shared through right lane. Signal modification is also proposed.	Frontage[a]
5	Fashion Valley Road: Private Drive T to Hotel Circle North	Widen to 4-lane Major standards with a raised median with a two-way cycle track on the west side	Frontage[b]
6	Riverwalk Drive / Fashion Valley Road intersection	Widen the westbound approach to include an exclusive westbound left-turn lane. Install overlap phases on westbound and eastbound right-turn movements. Signal modification is also proposed.	Frontage[b]
7	Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road	Implement the one-way couplet pending the findings of Circulation Study for one-way couplet and I-8 corridor between SR 163 and Taylor Street (See #10)	Frontage
8	Friars Road: Sea World Drive to Avenida De Las Tiendas	Install ITS improvements at the following intersections: • Sea World Drive / Friars Road • Napa Street / Friars Road • Colusa Street / Friars Road • Via Las Cumbres / Friars Road • Fashion Valley Road / Friars Road	1
9	Hotel Circle North / I-8 WB Hook Ramps intersection	Install a traffic signal pending Caltrans approval and Circulation Study findings	750
10	Hotel Circle North and South Couplet I-8: Taylor Street to SR 163	Fully Fund Circulation Study for Hotel Circle one-way couplet and I-8 corridor between SR 163 and Taylor Street (Not to exceed $1.5M)	750
11	Fashion Valley Road: Friars Road to Hotel Circle North	Install ITS Improvements with Transit Signal Priority at the following intersections: • Friars Road / Fashion Valley Road • Riverwalk Drive / Fashion Valley Road • Hotel Circle North / Fashion Valley Road	1,500
12	Riverwalk Transit Station	Construct Transit Station	3,386
13	I-8: SR 163 to East of Mission Center Road and Mission Center Road: Camino Del Rio North to I-8 EB Ramps	Pay a fair-share contribution (23.2%) towards a Project Study Report (total estimated cost not to exceed: $500,000; 23.2% * $500K = $116K) at the I-8/Mission Center Road interchange	3,386
14	Riverwalk Drive / Avenida Del Rio intersection	Install a traffic signal subject to available ROW	4,800
15	Friars Road: Colusa Street to Goshen Street	Construct a raised median	4,800
16	Hotel Circle Place / Hotel Circle North intersection	Install a traffic signal subject to the findings of the Hotel Circle & I-8 Corridor circulation study	5,500
17	Hotel Circle N. / I-8 WB Ramps / Taylor Street intersection	Restripe the southbound approach to include dual right-turn lanes subject to the findings of the Hotel Circle circulation study	5,500
18	Friars Rd. & Ulric St. / SR 163 SB Ramps. Friars Road / SR 163 NB Ramps and Friars Road/ Frazee Road intersection	Install ITS Improvements with Transit Signal Priority	6,200
19	Ulric Street / SR 163 SB On-ramp intersection	Install a traffic signal and ITS Improvements	6,200
20	SR 163: North of Friars Road to I-8	Contribution towards future interchange phases	Pay a fair-share contribution towards Phase II and III interchange improvements[c]
21	Street J	The project will construct Street J between Friars Road and the San Diego River Trail, south of the MTS trolley tracks. The project will offer an Irrevocable Offer of Dedication (IOD) between this southerly terminus and the southerly property line immediately adjacent to Hotel Circle North.	Prior to the 1st occupancy permit in the Central District (lots 32 through 40)
22	Street U	The project will construct Street U between Fashion Valley Road and Street V. The project will offer an Irrevocable Offer of Dedication (IOD) between this westerly terminus and future Street J subject to the park General Development Plan. ITS improvements on Street U are also proposed.	Prior to the 1st occupancy permit in the South District (lots 43 through 52)
23	Street V	The project will construct public Street V between Hotel Circle North and Street U prior to the 1st occupancy permit in the in the South District (lots 43 through 52), subject to Caltrans approval and findings of the Circulation study. ITS improvements on Street V are also proposed.	Prior to the 1st occupancy permit in the South District (lots 43 through 52)

Footnotes:

a. Improvements along project frontage on Friars Road would be permitted and bonded prior to the issuance of the building permit of the adjacent lot and constructed prior to the first occupancy permit as shown below.
   - *Stage A*: First occupancy permit for any Lot 1 or 3 through 10 would include improvements between the project's westerly property line and Street I
   - *Stage B*: First occupancy permit for any Lot 10 through 16 would include improvements between Street I and Fashion Valley Road.

b. Improvement along project frontage on Fashion Valley Road, which includes Riverwalk Drive / Fashion Valley Road intersection and Fashion Valley Road widening between Private Drive T and Hotel Circle North to 4-lane Major would be permitted and bonded prior to the issuance of the building permit of the adjacent lot and constructed prior to first occupancy permit as shown below:
   - *Stage C*: First occupancy permit for either Lot 41 or 42 would include Fashion Valley Road widening between Private Drive T and Riverwalk Drive and westbound approach of Riverwalk Drive / Fashion Valley Road intersection.
   - *Stage D*: First occupancy permit for any Lot 43 through 52 would include Fashion Valley Road widening to 4-lane Major between Riverwalk Drive and Hotel Circle North.

   Improvements to the Fashion Valley Road San Diego River crossing is included in this stage. The widening of the northbound approach of Riverwalk Drive / Fashion Valley Road intersection will be included in this stage.

c. The project will pay a fair-share contribution towards SR 163 / Friars Road interchange improvements.

General Notes:

1. Improvements that are off-site would be permitted and bonded prior to the issuance of the building permit per the identified implementation EDU threshold and constructed prior to issuance of occupancy permit unless noted in the TIP.

15.0 YEAR 2035 ANALYSIS WITH PROJECT IMPROVEMENTS

As discussed previously, the TIP outlined in *Section 14.0* identifies the project improvements in the study area to address the project's traffic effect, as well as thresholds to ensure that the project constructs the improvements that will be implemented consistent with the TIP. While the analysis in Chapter 12 accounted for on-site improvements, this section provides the LOS analysis for the project's proposed frontage and off-site improvements in the project buildout Year 2035.

15.1 Intersections

The project will provide the following intersection improvements in the study area as listed below and in the TIP.

- #9: Friars Road / Goshen Street:
  - Install a traffic signal and implement ITS improvements.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 1 and constructed prior to the issuance of the first occupancy permit for Lot 1.
- #11: Friars Road / Via Las Cumbres:
  - Widen eastbound approach to provide an additional left-turn lane.
  - Restripe the southbound approach to provide dual left-turn lanes and shared through right lane.
  - Implement signal modification.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 4 or Lot 5 and constructed prior to the issuance of the first occupancy permit for any Lot 1 or 3 through 10.
- #19: Ulric Street / SR 163 SB On-ramp:
  - Install a traffic signal and ITS Improvements.
  - These improvements would be permitted and bonded prior to the issuance of the building permit for the 6,200th EDU and constructed prior to the issuance of the occupancy permit for the 6,200th EDU.
- #29: Riverwalk Drive / Fashion Valley Road:
  - Widen the westbound approach to include an exclusive westbound left-turn lane.
  - Install overlap phases on westbound and eastbound right-turn movements
  - Implement signal modification.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 41 or Lot 42 and constructed prior to the issuance of the first occupancy permit for Lot 41 or Lot 42.
- #32: Riverwalk Drive / Avenida Del Rio:
  - Install a traffic signal subject to available ROW
  - These improvements would be permitted and bonded prior to the issuance of the building permit for the 4,800th EDU and constructed prior to the issuance of the occupancy permit for the 4,800th EDU.

- #46: Hotel Circle Place / Hotel Circle North:
    - Install a traffic signal subject to the findings of the I-8 Corridor Circulation Study
    - These improvements would be permitted and bonded prior to the issuance of the building permit for the 5,500th EDU and constructed prior to the issuance of the occupancy permit for the 5,500th EDU.
- #47: Hotel Circle North / I-8 WB Ramps / Taylor Street:
    - Restripe the southbound approach to include dual right-turn lanes subject to the findings of the I-8 Corridor Circulation Study
    - These improvements would be permitted and bonded prior to the issuance of the building permit for the 5,500th EDU and constructed prior to the issuance of the occupancy permit for the 5,500th EDU.
- #48: Hotel Circle North / I-8 WB Hook Ramps:
    - Install a traffic signal pending Caltrans approval and I-8 Corridor Circulation Study findings.
    - These improvements would be permitted and bonded prior to the issuance of the building permit for the 750th EDU and constructed prior to the issuance of the occupancy permit for the 750th EDU.

Table 15–1 shows the LOS analysis for the above intersections including the project improvements. While the physical improvements were included in the LOS analysis, the ITS improvements that are shown below were excluded due to current planning analysis software being limited in its ability to model ITS and to quantitatively report its benefits to the roadway network.

Appendix EE contains the intersection analysis worksheets for the Year 2035 + Project Phases I, II, and III – Project Buildout with Improvements scenario.

TABLE 15–1
YEAR 2035 INTERSECTION IMPROVEMENT ANALYSIS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II and III – Project Buildout		Year 2035 + Project Phases I, II and III – Project Buildout with Improvement		Project Improvement
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	
9. Friars Rd. / Goshen St.	OWSC[c]	AM	40.9	E	181.4	F	9.1	A	Install a traffic signal
		PM	77.9	F	283.6	F	9.5	A	
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	33.1	C	153.9	F	85.9	F	Widen the eastbound approach on Friars Road to add an additional eastbound left-turn lane and restripe the southbound approach to include dual left turn lanes with a shared through right lane.
		PM	31.5	C	145.4	F	69.4	E	
19. Ulric Street / SR 163 SB On-Ramp	Unsignalized	AM	43.8	E	45.6	E	11.4	B	Install a traffic signal
		PM	59.8	F	62.7	F	11.7	B	
29. Riverwalk Drive / Fashion Valley Road	Signal	AM	24.6	C	45.7	D	25.3	C	Widen the northbound approach to include dual left-turn lanes, widen the eastbound approach to include the addition of a left turn lane, a shared through left right lane, and a right turn lane, and widen the westbound approach to include an exclusive left-turn lane, and right-turn overlap phasing for eastbound and westbound movements.
		PM	46.9	D	121.2	F	49.8	D	
32. Riverwalk Drive / Avenida Del Rio	AWSC[d]	AM	13.8	B	23.2	C	8.8	A	Install a traffic signal
		PM	61.8	F	166.2	F	142.3	F	

TABLE 15–1
YEAR 2035 INTERSECTION IMPROVEMENT ANALYSIS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II and III – Project Buildout		Year 2035 + Project Phases I, II and III – Project Buildout with Improvement		Project Improvement
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	270.6	F	441.6	F	31.3	C	Install a traffic signal
		PM	262.1	F	602.9	F	79.5	E	
47. Taylor Street / I-8 WB Ramp	Signal	AM	40.3	D	63.6	E	39.1	D	Restripe the southbound approach to include dual right-turn lanes
		PM	8.3	A	10.8	B	17.1	B	
48. Hotel Circle N. / I-8 Hook WB Ramps	AWSC	AM	165.3	F	259.3	F	41.9	D	Install a traffic signal pending Caltrans approval and Circulation Study findings
		PM	108.9	F	213.1	F	45.5	D	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. OWSC - One-Way Stop Control
d. AWSC - All-Way Stop Control

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

In addition to the physical improvements to the above intersections, the project proposes to install Intelligent Transportation Systems (ITS) improvements, which include Adaptive Traffic Signals and Transit Priority Signals and communication upgrades at the following intersections to the satisfaction of the City Engineer:

- Sea World Drive / Friars Road
- Napa Street / Friars Road
- Colusa Street / Friars Road
- Goshen Street / Friars Road
- Via Las Cumbres / Friars Road
- Fashion Valley Road / Friars Road
- Friars Road / Ulric Street / SR 163 SB Ramps
- Ulric Street / SR 163 SB on-ramp
- Friars Road / SR 163 NB Ramps
- Friars Road / Frazee Road
- Riverwalk Drive / Fashion Valley Road
- Street U / Fashion Valley Road
- Hotel Circle North / Fashion Valley Road
- I-8 WB Ramps / Hotel Circle North / Street V
- Street U / Street V

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 1st EDU at the following intersections:

- Sea World Drive / Friars Road
- Napa Street / Friars Road
- Colusa Street / Friars Road
- Goshen Street / Friars Road
- Via Las Cumbres / Friars Road
- Fashion Valley Road / Friars Road

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 1,500th EDU at the following intersections:

- Fashion Valley Road / Friars Road
- Riverwalk Drive / Fashion Valley Road
- Hotel Circle North / Fashion Valley Road

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 6,200th EDU at the following intersections:

- Friars Road / Ulric Street / SR 163 SB Ramps
- Ulric Street / SR 163 SB On-ramp
- Friars Road / SR 163 NB Ramps
- Friars Road / Frazee Road

15.2 Street Segments

The project will construct several physical street segment improvements on Friars Road and Fashion Valley as shown below and outlined in the TIP.

- Friars Road – Colusa Street to Goshen Street:
  - Construct a raised median.
  - This improvement would be permitted and bonded prior to the issuance of the building permit for the 4,800th EDU and constructed prior to the issuance of the occupancy permit for the 4,800th EDU.
- Friars Road – Goshen Street to Street A:
  - Construct a raised median.
  - This improvement would be permitted and bonded prior to the issuance of the first building permit for Lot 1 and constructed prior to the issuance of the first occupancy permit for Lot 1.
- Friars Road – Street A to Fashion Valley Road:
  - Install a raised median, curb, gutter, sidewalk, parkway and cycle track on the Friars Road project frontage. The project will install a raised median between the easterly property line and Fashion Valley Road.
  - From Street A to Street I, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot 1 or 3 through 10 and constructed prior to the issuance of the first occupancy permit for any Lot 1 or 3 through 10.
  - From Street I to Fashion Valley Road, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot 10 through 16 and constructed prior to the issuance of the first occupancy permit for any Lot 10 through 16.
- Fashion Valley Road – Private Drive T to Hotel Circle North:
  - Widen to 4-lane Major standards with a raised median and two-way Class IV cycle track on the west side
  - From Private Drive T to Riverwalk Drive, these improvements would be permitted and bonded prior to the issuance of the first building permit for either Lot 41 or 42 and constructed prior to the issuance of the first occupancy permit for either Lot 41 or 42.
  - From Riverwalk Drive to Hotel Circle North, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot

43 through 52 and constructed prior to the issuance of the first occupancy permit for any Lot 43 through 52.

Table 15–2 shows the LOS analysis of widening Fashion Valley Road to a 4-lane Major roadway. In addition to the above physical improvements, the project will fund a Circulation Study (for a Hotel Circle one-way couplet and I-8 corridor between SR 163 and Taylor Street), and provide fair-share contribution on a Project Study Report (PSR) at the I-8/Mission Center Road interchange.

TABLE 15–2
YEAR 2035 STREET SEGMENT IMPROVEMENT ANALYSIS

Street Segment	Functional Classification	Capacity (LOS E)[a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Improvement Classification	Mitigation Capacity	Year 2035 + Project Phases I, II, and III – Project Buildout with Improvement			Improvement
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]			ADT	LOS	V/C	
Fashion Valley Road														
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	16,500	D	0.733	19,650	E	0.873	4-Lane Major Arterial	40,000	19,650	B	0.491	Widen to 4-lane Major standards with a raised median and two-way Class IV cycle track on the west side
Riverwalk Drive to Street U	4-Lane Collector	15,000	12,140	D	0.809	23,710	F	1.581	4-Lane Major Arterial	40,000	23,710	C	0.593	
Street U to Hotel Circle North	4-Lane Collector	15,000	12,490	D	0.833	15,810	F	1.054	4-Lane Major Arterial	40,000	15,810	B	0.395	

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio

15.3 Freeway Segments

To address the project's traffic effect on freeway facilities, the project proposes the following:

15.3.1 *SR 163*

Phase I of the SR 163/Friars Road Interchange project was recently completed (December 2019), which included widening of the Friars Road overcrossing and improving local street intersections on Friars Road. The SR 163/Friars Road Interchange project also includes Phase II and III improvements. Phase II improvements include two additional exit lanes to Friars Road, widen SB off-ramp at Friars Road, a new collector bridge on SB SR 163 between Friars Road and I-8 and a new flyover bridge from Ulric Street. The project proposes a fair-share contribution towards implementation of Phase II and III improvements of the SR 163/Friars Road Interchange project.

15.3.2 *I-8*

An Interstate 8 Corridor Study (preliminary draft dated August 2016) was jointly prepared by SANDAG and Caltrans that analyzed transportation alternatives on I-8 between Nimitz Boulevard and Lake Murray Boulevard to meet future regional and local demand. The Corridor Study recommended several improvements on I-8 in the Mission Valley community that included reconfiguration of on-ramps and off-ramps at Hotel Circle North and South, Taylor Street interchange among others.

The Mission Valley Community Preferred Roadway Network also includes several new roadways such as Street J, Street U and a new freeway overpass of I-8. However, while both the Corridor Study and the Mission Valley Community Plan reviewed several conceptual alternatives, neither study included detailed engineering feasibility drawings, cost estimates or other analyses to identify a preferred alternative or improvement.

Therefore, in coordination with City of San Diego and Caltrans, the Riverwalk project will fully fund a Hotel Circle and I-8 Circulation Study (up to $1.5 million) to evaluate local and regional alternatives along I-8 from Taylor Street to SR 163. The Circulation Study will evaluate feasibility and operational analysis of several alternatives (at-grade vs. elevated) that will include a combination of Street J, Street U, the Hotel Circle one-way couplet and new I-8 freeway overpass. The study will include design drawings, cost estimates and design feasibility for each alternative. Vehicle Miles Traveled (VMT), pedestrian, bicycle and transit mobility for each alternative will be reviewed as well.

In addition to the circulation study, the project will pay a fair-share contribution (23.2% as shown in *Appendix EE*) towards a Project Study Report (total estimated cost not to exceed $500,000; 23.2% *$500K = $116K) at the I-8/Mission Center Road interchange. The fair-share contribution will be provided prior to the issuance of the building permit for the 3,386th EDU.

16.0 SITE ACCESS, CIRCULATION, AND INTERNAL STREET REVIEW

16.1 Site Access

Riverwalk is afforded vehicular accessibility from a well-established system of roadways and a variety of transportation options. Regional Access to the site is provided by I-5, I-8 and SR163. I-5, a major north-south freeway that connects San Diego to Orange County and Los Angeles, is located approximately 2.5 miles west of Riverwalk. I-8, a major east-west freeway, is located immediately south of Riverwalk, connecting the Pacific Ocean to the local mountains and deserts to the east. SR-163, located approximately one-half mile east of Riverwalk, provide regional north-south access, from downtown San Diego to Interstate 15 to points north of San Diego County

Local access to the site is provided via Friars Road to the north, Hotel Circle North to the south, both of which provide east-west travel. Fashion Valley Road forms Riverwalk's eastern border and connects Friars Road to Hotel Circle North. Friars Road connects Riverwalk and the Mission Valley community to Linda Vista to the north, Morena and Mission Bay to the west, and Grantville to the east.

Riverwalk is accessible via transit to the MTS Green Line Trolley and the regional bus service, with an existing transit center located immediately east of the Specific Plan area at Fashion Valley Mall and the proposed Green Line Trolley stop that the project will construct on-site. These two (2) trolley stations on the Green Line Trolley will connect the project site to the Old Town Transit Center on the west end to the City of Santee on the east, as well as the greater San Diego and southern California region via bus, trolley, and commuter rail.

16.1.1 *Project Access Points*

The Riverwalk project proposes access points along Friars Road, Fashion Valley Road and Hotel Circle North. ***Figure 16–1*** shows the Project Access.

The project site design includes a total of five (5) access points along Friars Road. The driveways include a combination of signalized and unsignalized intersections (right-in/right-out only driveways). The driveway locations were developed considering the intersection spacing, existing driveway/street locations on the north side, and proximity of pedestrian crossings to preserve traffic capacity, yet provide convenient and safe access.

On Fashion Valley Road, two driveways (one unsignalized and one signalized) are proposed in addition to the Riverwalk Drive / Fashion Valley Road intersection. The unsignalized driveway is proposed to serve the residential development located at the northwest corner of Fashion Valley Road / Riverwalk Drive intersection. A new traffic signal is proposed at the Fashion Valley Road / Street U intersection to serve the office development.

On Hotel Circle North, Street V is proposed as the fourth leg of the I-8 WB Hook ramps/Hotel Circle North intersection (subject to Caltrans approval and findings of the Circulation Study). This driveway would serve as an office access. With the implementation of the one-way couplet

configuration on Hotel Circle North, traffic between Hotel Circle North and Fashion Valley Road could use the Street U and thereby access Fashion Valley Road and its surrounding land uses.

16.2 Internal Circulation

Vehicular circulation within Riverwalk is achieved through connections to the primary network established by existing city streets. The internal street system is based upon a modified grid-pattern that is influenced by the landform, location of the existing trolley tracks and the proposed Riverwalk trolley station, San Diego River, shape of the Specific Plan area, provision of connectivity, and the Mission Valley Community Plan. The street system will be constructed as part of the Riverwalk Vesting Tentative Map to connect each District. Additional internal private drives will provide access to development within each District.

16.2.1 *Internal Street Review*

The Riverwalk project's on-site network of streets and intersections consists of different street design types based on expected traffic volumes. ***Appendix FF*** provides the roadway cross-sections. Roadways will vary within the parameters of the City's standard design for Major, Collector Roads, and Residential Collectors. It is not anticipated that any on-site roadway would exceed the ADT thresholds set forth above by these design standards.

Figure 16–2 shows the Riverwalk Internal Roadway System.

16.2.2 *Traffic Volumes*

On-site traffic volumes were distributed and assigned to the Project site by assigning the trip generation individually on a per lot basis. On-site trip distribution was developed by assessing the land use plan and assigning trips based on their location within the project site. ***Table 16–1*** shows the internal street sections and their associated traffic volumes and LOS. As shown, all the internal streets are calculated to operate at acceptable levels of service.

Figure 16–3 shows the internal roadway volumes.

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
North of River								
1	A	2-lane Collector (w/ fronting property)	36’	64’	8,000	2,950	0.369	B
2	D1	2-lane Collector w/ TWLTL	54’	84’	15,000	1,570	0.105	A
3	B	2-lane Collector (w/ fronting property) – *Private Drive*	51’	57.5’	8,000	1,680	0.210	A
4	F	4-lane Collector	59’	87’	15,000	4,040	0.269	A
5	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	3,960	0.264	A
6	H	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	3,790	0.474	C
7	H	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	2,550	0.319	B
8	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	4,980	0.332	A
9	I	4-lane Collector	66’	94’	15,000	6,090	0.406	A
10	J1	2-lane Major	44’	50.5’	20,000	5,610	0.281	A
11	E	2-lane Collector w/ TWLTL	78’	90’	15,000	3,730	0.249	A
12	D1	2-lane Collector w/ TWLTL	56’	84	15,000	3,730	0.249	A
13	K	2-lane Collector (w/ fronting property)	28’	56’	8,000	4,120	0.515	C
14	L	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	2,660	0.333	B
15	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	7,010	0.467	C
16	D2	2-lane Collector w/ TWLTL	56’	84’	15,000	6,610	0.441	B

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

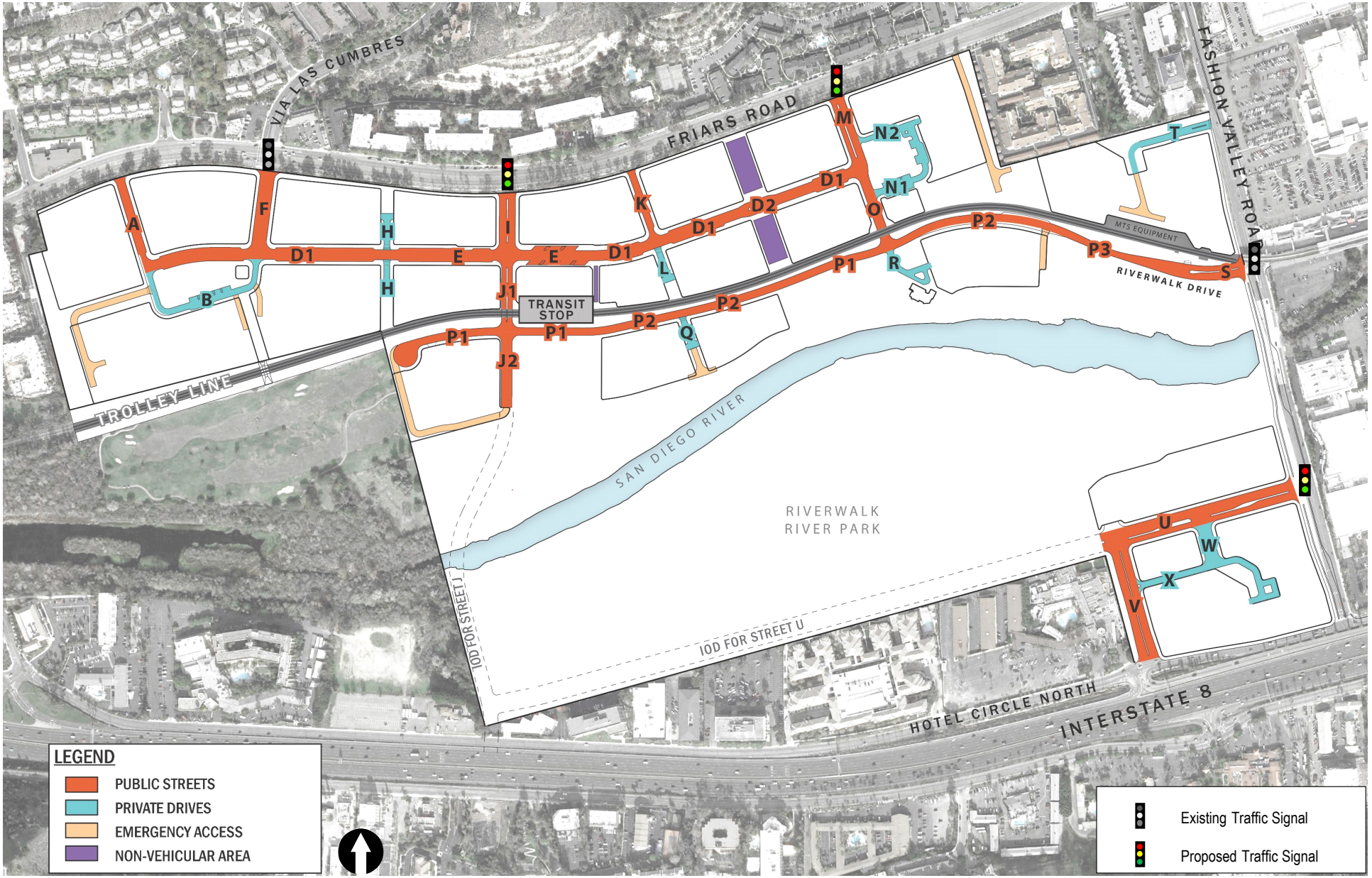
Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
17	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	7,850	0.523	C
18	M	3-lane Collector	56’	84’	20,000	5,810	0.387	B
19	O	2-lane Collector (w/ fronting property)	40’	68’	8,000	4,060	0.508	C
20	N2	1-lane Collector (w/ fronting property) – *Private Drive*	20.5’	33.5’	4,000	1,450	0.363	B
21	N1	2-lane Collector (w/ fronting property) – *Private Drive*	60.5’	66.5’	8,000	1,450	0.181	A
22	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	1,380	0.138	A
23	J2	2-lane Major – *Private Drive*	44.5’	58.5’	20,000	50	0.003	A
24	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	5,110	0.511	B
25	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	5,110	0.511	B
26	Q	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	1,980	0.248	A
27	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	4,400	0.440	B
28	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	4,400	0.440	B
29	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	8,070	0.807	D
30	P3	2-lane Collector (No fronting Property)	24.5’ to 41.5’	45.5’ to 62.5’	10,000	8,070	0.807	D
31	S	4-lane Major	59’	94’	40,000	8,070	0.202	A
32	R	2-lane Collector (w/ fronting property)	24’	48’	8,000	1,080	0.135	A
33	T	2-lane Collector (w/ fronting property) – *Private Drive*	26.5’	74.3’ to 85.1’	8,000	2,200	0.275	A
South of River								
34	U	4-lane Collector w/ median	75’	103’	30,000	8,850	0.295	A

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
35	V	4-lane Collector w/ median	68’	89.5’	30,000	7,660	0.255	A
36	W	4-lane Collector *Private Drive*	56’	84’	30,000	2,430	0.081	A
37	X	2-lane Collector w/ TWLTL – *Private Drive*	27’	27’	15,000	3,490	0.233	A

Footnotes:

a. Capacity based on roadway classification operating at LOS E.
b. Average Daily Traffic.
c. Volume to Capacity.
d. Level of Service.



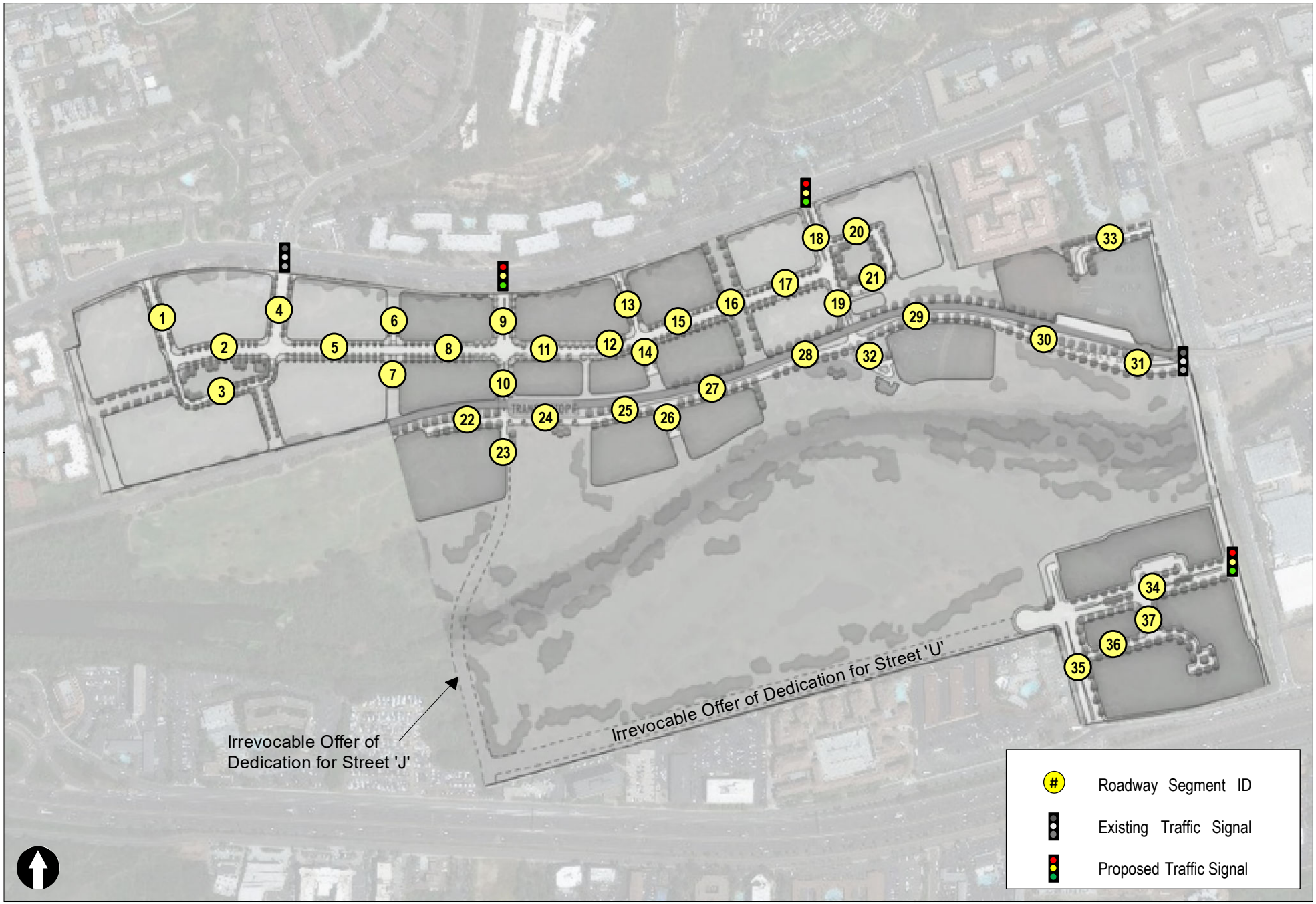
LINSCOTT LAW & GREENSPAN engineers

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Figure 16-1

Project Access

RIVERWALK



LINSCOTT LAW & GREENSPAN engineers

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Figure 16-2

Internal Roadway System

RIVERWALK



LINSCOTT LAW & GREENSPAN engineers

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Figure 16-3

Internal Roadway Volumes

RIVERWALK

17.0 PARKING

The number of parking spaces for automobile, bicycle, and motorcycle parking shall comply with the Land Development Code (LDC) based on the zoning and land uses of each development area. However, the sharing of parking to reflect the collocation of uses is expected to address uses that complement each other relative to required parking.

- *Automobile Parking*. Automobile parking shall comply with the LDC based on the zoning and land use applied to each development area. Parking requirements contained in LDC Chapter 14, Article 2, Division 5 shall apply to development in Riverwalk. During the course of Riverwalk's build out, parking regulations within the LDC may change, resulting in reduced parking regulations, which would not require a change to this Specific Plan. Instead, these changes would be reviewed as a Substantial Conformance Review (SCR).

- *Bicycle Parking and Micro-Mobility Equipment*. The number of short- and long-term bicycle parking and facilities will exceed the minimum required number of spaces required in LDC Section 142.0530(e). Bicycle parking will be accommodated with a combination of racks, bicycle lockers, and/or other bicycle parking innovations not currently envisioned in the LDC. Bicycle lockers/racks, personal lockers, shower, and changing facilities shall be provided in order to promote the use of bicycles and bikeways by employees. Signs shall be posted indicating the availability of bicycle parking facilities.

  Designated bicycle parking is encouraged for bike-share or other micro-mobility programs (e.g., electric scooters or future micro-mobility innovations), with related signage and bike racks located within the public realm. Designation of parking areas for micro-mobility programs will avoid shared bikes being abandoned on sidewalks and within the public right-of-way, where they may block pedestrian access or damage trees and/or parkway landscaping.

- *Motorcycle Parking*. Motorcycle parking shall be provided in accordance with LDC Section 142.0530(g).

18.0 PEDESTRIAN MOBILITY

This section presents the pedestrian conditions in the project study area and includes a walkshed analysis to ensure the project provides the appropriate pedestrian facilities. The *City of San Diego Pedestrian Master Plan (2015)* and the *General Plan Mobility Element (2008)* establish guidelines for a complete, functional, and interconnected pedestrian network, that is accessible to pedestrians of all abilities. The improvements to enhance pedestrian mobility that the project will construct are also presented.

18.1 Existing Pedestrian Mobility

A pedestrian network inventory was conducted along street segments, which included documenting missing sidewalks, pedestrian barriers and pedestrian pathways within the ½ mile driving distance of the project. ***Figure 18–1*** shows the existing pedestrian network within the immediate vicinity of the project.

18.1.1 *Existing Pedestrian Activity*

Existing pedestrian activity (from the Mission Valley Community Plan Update (MVCPU), Mobility Existing Conditions Report (ECR), June 2017) was documented at intersections within the ½ mile driving distance of the project during the commuter AM/PM peak hours as shown in ***Appendix GG***. The average AM and PM pedestrian activity was documented and every intersection was categorized into the following pedestrian activity level categories. For the purposes of this analysis, low activity was assumed as less than 30 pedestrians/hour, medium activity was assumed as 31-59 pedestrians/hour and high activity was assumed as greater than 60 pedestrians/hour. ***Figure 18–2*** shows the existing pedestrian activity in proximity of the Riverwalk project per the above categories.

As shown in *Figure 18–2*, the following intersections were observed as having a medium or high pedestrian activity for locations within ½ mile driving distance of the project area:

- Linda Vista Road/ Via Las Cumbres
- Friars Road / Colusa Street
- Friars Road / Fashion Valley Road
- Fashion Valley Road / Riverwalk Drive
- Hotel Circle South / Bachman Place

A subset of intersections from the above list that are on the Riverwalk project frontage were reviewed and pedestrian improvements that will be constructed by the project are described in Section 18.9.

The existing pedestrian activity in the MVCPU was also evaluated using the City of San Diego Pedestrian Priority Model, US Census Bureau data, and peak period pedestrian counts. *Appendix GG* includes the Figure 4-3: Pedestrian Priority Model from the MVCP Mobility Element ECR. In the vicinity of the Riverwalk project site, the Pedestrian Priority model shows medium to high

pedestrian activity surrounding the Fashion Valley Transit Center and the Fashion Valley Mall, and low activity surrounding the Riverwalk Golf Course and Hotel Circle North.

18.2 Future Pedestrian Mobility

Several planning and project documents that include pedestrian improvements via a condition of approval from a nearby project or identified as improvements in the MVCPU were reviewed. These documents include the Mission Valley Community Plan Update's – *Mobility Technical Report*, Mission Valley Impact Fee Study (March 2020), *Mission Valley Plan Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista (PFFP) – Fiscal Year 2006,* the *2050 Regional Transportation Plan* (RTP) and the *City of San Diego Pedestrian Master Plan (April 2015).* In addition, other approved developer pedestrian improvements such as Union Tribune and Town and Country in the Mission Valley Community were also reviewed and identified.

Table 18–1 shows the planned pedestrian improvements that were reviewed.

TABLE 18–1
PLANNED IMPROVEMENTS - PEDESTRIAN

Project Name	Improvements	Schedule/ Funding
Hotel Circle North between Fashion Valley Road and Camino De La Reina	This project provides a non-contiguous sidewalk on the north side of Hotel Circle North between Fashion Valley Road and Camino De La Reina	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
Camino De La Reina between Hotel Circle North and Town and Country project driveway	This project provides a non-contiguous sidewalk on the north side of Camino De La Reina between Hotel Circle North and the Town and Country project driveway	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
San Diego River Pedestrian Improvements	This project provides for the improvement of a dedicated pedestrian path along the SD River across Fashion Valley mall.	This improvement is a condition of approval of the Town & Country Master Plan and Union Tribune projects. These improvements are under construction and expected to be complete by end of Year 2020.
MV PFFP Priority Project 7 and IFS Project No P-14	This project proposes pedestrian pathways along both sides of the San Diego River.	Design and construction will be scheduled once funding is identified

18.3 Pedestrian Mobility Review

18.3.1 *Walkshed Analysis*

As stated above, a walkshed analysis was performed to evaluate the pedestrian connectivity in the vicinity of the project site and to ensure the project provides the appropriate pedestrian facilities.

The walkshed analysis was performed by identifying all access points to / from the Riverwalk project considering topography constraints. From each access point, areas outside the Riverwalk project site that could be reached by walking 0.25 miles were identified. Selected walking routes from each access point consider the existence of crosswalks, pedestrian bridges, etc. In this regard, while some areas are located within the 0.25-mile radius around the project site, they may not be reached by walking due to lack of facilities. After creating the walkshed network, the area that could be captured by walking was measured. A larger walkshed area (walkshed network) means higher connectivity between the project site and nearby areas.

As shown in ***Figure 18–3***, the Riverwalk project in general has good connectivity to the surrounding community.

18.4 On-Site Project Pedestrian Improvements

18.4.1 *Pedestrian Improvements Along Fronting Streets*

The Riverwalk project site proposes substantial improvements to promote walkability. The section below discusses the frontage and on-site pedestrian improvements:

18.5 Pedestrian Improvements

The project proposes to construct the following improvements on the fronting streets:

- A non-contiguous sidewalk will be constructed along the entire project frontage on the south side of Friars Road. The sidewalk will be separated from the curb by a 17ft wide landscaped buffer to provide refuge for pedestrians.
- Currently, a 5ft wide contiguous sidewalk exists only on the east side of Fashion Valley Road between Friars Road and Hotel Circle North. The 5ft wide contiguous sidewalk on the west side on Fashion Valley Road is provided for approximately 620 feet between Friars Road and proposed Private Drive T. The project will widen Fashion Valley Road and construct a 6ft wide non-contiguous sidewalk on the west side of Fashion Valley Road along the entire project frontage between proposed Private Drive T and Hotel Circle North. This will enhance pedestrian mobility and interaction between the Fashion Valley mall and surrounding community.
- Currently there are no sidewalks on Riverwalk Drive, west of Fashion Valley Road. The project will construct a 7ft wide non-contiguous sidewalk along the south side of Riverwalk Drive between Fashion Valley Road to its on-site terminus. No sidewalk is proposed on the north side as it is fronting the trolley tracks.
- A 7ft wide non-contiguous sidewalk will be constructed along the 840-foot project frontage on the north side of Hotel Circle North. The sidewalk will be separated by a 7ft wide landscaped buffer to provide refuge for pedestrians.

18.6 Pedestrian Improvements Within the Site

The entirety of Riverwalk is designed to accommodate pedestrians, with linked walkways, paths, and sidewalks to permit access from one part of the project site to any other part. The following is a brief description of the pedestrian improvements that the project will construct:

- *SD River Pedestrian and Bicycle Path*: A Class I pedestrian/bicycle path will be constructed on both sides of the San Diego River and will connect with multimodal paths on property east and west of Riverwalk. Sidewalks will also connect to the community-wide pedestrian network. An existing golf cart tunnel will be utilized for pedestrian and bicycle access from the north to the south side of the trolley tracks. ***Figure 18–4*** shows the proposed pedestrian circulation within the project site and ***Figure 18–5*** shows the pedestrian network along the project frontages.
- *Pedestrian Bridges:* The two (2) existing bridges across the San Diego River will function not only as a pedestrian link from the transportation center and urban core to the southern portions of Riverwalk, but also to activate the River Park. The travel way of the pedestrian bridges is approximately 11 feet in width. Paths will connect the pedestrian bridges to the river pathways, the various elements of the park system, and pedestrian/bicycle linkages to the development areas on both sides of the San Diego River. In addition to the two (2) existing bridges over the SD River, a new pedestrian bridge is proposed on Street J, north of Street P connecting to the Riverwalk trolley station.

- *Pedestrian Tunnels:* Two existing tunnels under the trolley tracks will be repurposed for use by pedestrians and bicyclists. The travel way of the tunnels is approximately eight) feet wide and ten feet high. The tunnels provide grade-separated pedestrian crossings of the trolley tracks
- *Sidewalks:* All on-site roadways include sidewalks on both sides of the roadway (except Riverwalk Drive on the north side fronting the trolley tracks) and crosswalks on all approaches.
- *Open Space/Walkway:* A 7-foot-wide open space/walkway for pedestrians is also proposed on the north side of the trolley tracks connecting Fashion Valley Road to the west end of the project site

18.7 Pedestrian Design Elements

The following is a brief description of the pedestrian design elements that are included as a part of the site design:

Pedestrian Sidewalks/Pathways

- The widths of pedestrian sidewalks located within a public street right-of-way shall be determined by the classification of the adjacent street and shall be separated from the street by a landscaped strip. The Riverwalk Specific Plan includes a range of fourteen- to 20-foot curb-to-property line distances for sidewalk and landscaping.
- The widths of pedestrian paths which lie outside a public street right-of-way shall be no less than five feet wide and will include ADA compliant surface satisfactory to the City Engineer.
- The Class I river pathway will be approximately 14 feet wide with 10 feet paved concrete surface, with two-foot shoulders on both sides.
- The primary pedestrian paths shall have adequate security lighting and signage to provide for the safety of the users.
- All pedestrian paths will provide adequate accommodations for disabled users.
- Existing golf cart paths will be retained around the bridge areas; however, the remainder of the paths will be demolished.

Pedestrian Access

- Development oriented toward the river will be constructed to provide pedestrian access from public streets.
- Active transportation internal circulation paths will be provided to minimize conflicts between pedestrians/bicyclists and automobile traffic.

Pedestrian Linkages

- Safe and convenient pedestrian movement will be provided within, to, and from parking areas, as well as to surrounding existing commercial, residential, and office developments and the Mission Valley community-wide pedestrian and public transit systems.
- Pedestrian paths will link the river bridges to the community-wide trail system.
- The pedestrian path system will connect recreational uses to one another and link recreational areas to development areas.
- Where residential, retail, recreational, and employment developments occur adjacent to open space parcels, pedestrian linkages will be provided from the development area to the designated pedestrian pathways or open space entries.

Pedestrian Crossings and Intersections

- Crosswalks will comply with the City's design standards including directional curb ramps, pedestrian countdown timers, and continental (high-visibility) crosswalks. This will include upgrading crosswalks at all fronting intersections to the project

18.8 Pedestrian Mobility Enhancements

In addition to the above, the following pedestrian mobility enhancements will be considered where appropriate, satisfactory to the City Engineer:

- *Leading Pedestrian Intervals:* Leading Pedestrian Intervals provide a "head-start" for pedestrians by advancing the "walk" sign and letting pedestrian and bicyclists to advance in the crosswalk to reduce conflicts with right turning vehicles.

- *Curb pop-outs or extensions:* Curb extensions are a traffic calming measure to reduce vehicle speeds as the curbs are extended into the roadway to provide minimum travel lane widths. This, in turn, helps reduce pedestrian crossing distance and exposure. -Given the anticipated pedestrian activity in the Mixed-Use Core area, curb pop-outs are provided along Street D1 between Street A and Street M (see Figure 2-2).

18.9 Pedestrian Improvement Recommendations

The following pedestrian improvements will be constructed by the project, where appropriate satisfactory to the City Engineer:

P-I-1: San Diego River Pathway

- Construct bridges across the San Diego River to provide a new pedestrian connection between the north and south sides. This San Diego River pathway will be connected to the San Diego River Pathway on the northerly edge of the Town and Country Hotel.

P-I-2: Pedestrian Connections

- Construct an open space /walkway to connect the west park to the existing Courtyards development to facilitate community access to/from the project site from the west.

P-I-3: Pedestrian Curb Extensions

- Install pedestrian curb extensions at the identified internal street intersections to reduce pedestrian crossing distances and slow vehicle speeds.

P-I-4: Fashion Valley Road between Private Drive T and Hotel Circle North

- Construct a 15ft parkway (6ft non-contiguous sidewalk and 9ft landscaped buffer) for approximately 2,170ft along this segment.

P-I-5: Friars Road project frontage

- Remove the existing sidewalk and construct a 23ft parkway (6ft non-contiguous sidewalk and 17ft landscaped buffer) for approximately 3,880ft along this segment.

P-I-6: Hotel Circle North project frontage

- Remove the existing sidewalk and construct a 14ft parkway (7ft non-contiguous sidewalk and 7ft landscaped buffer) for approximately 850ft along this segment.

P-I-7: Friars Road / Goshen Street intersection

- Install high visibility crosswalks on all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers on all intersection legs with pedestrian crossings.
- Consistent with the MVCP recommendations, lead pedestrian timing interval for the pedestrian crossing Friars Road should be considered.

P-I-8: Friars Road / Via las Cumbres / Street F intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs with pedestrian crossings.
- Consistent with the MVCP recommendations, lead pedestrian timing interval for the pedestrian crossing Friars Road should be considered.

P-I-9: Friars Road / Street I intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs with pedestrian crossings.
- Consider installing leading pedestrian intervals for pedestrians crossing Friars Road.

P-I-10: Friars Road / Street M intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Consider installing pedestrian countdown timers at all the applicable intersection legs. with pedestrian crossings
- Consider installing leading pedestrian intervals for pedestrians crossing Friars Road.

P-I-11: Friars Road / Fashion Valley Road intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings, if not already provided.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian intervals should be considered on all legs.

P-I-12: Fashion Valley Road / Riverwalk Drive intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian intervals should be considered for pedestrians crossing Fashion Valley Road.

P-I-13: Fashion Valley Road / Street U intersection

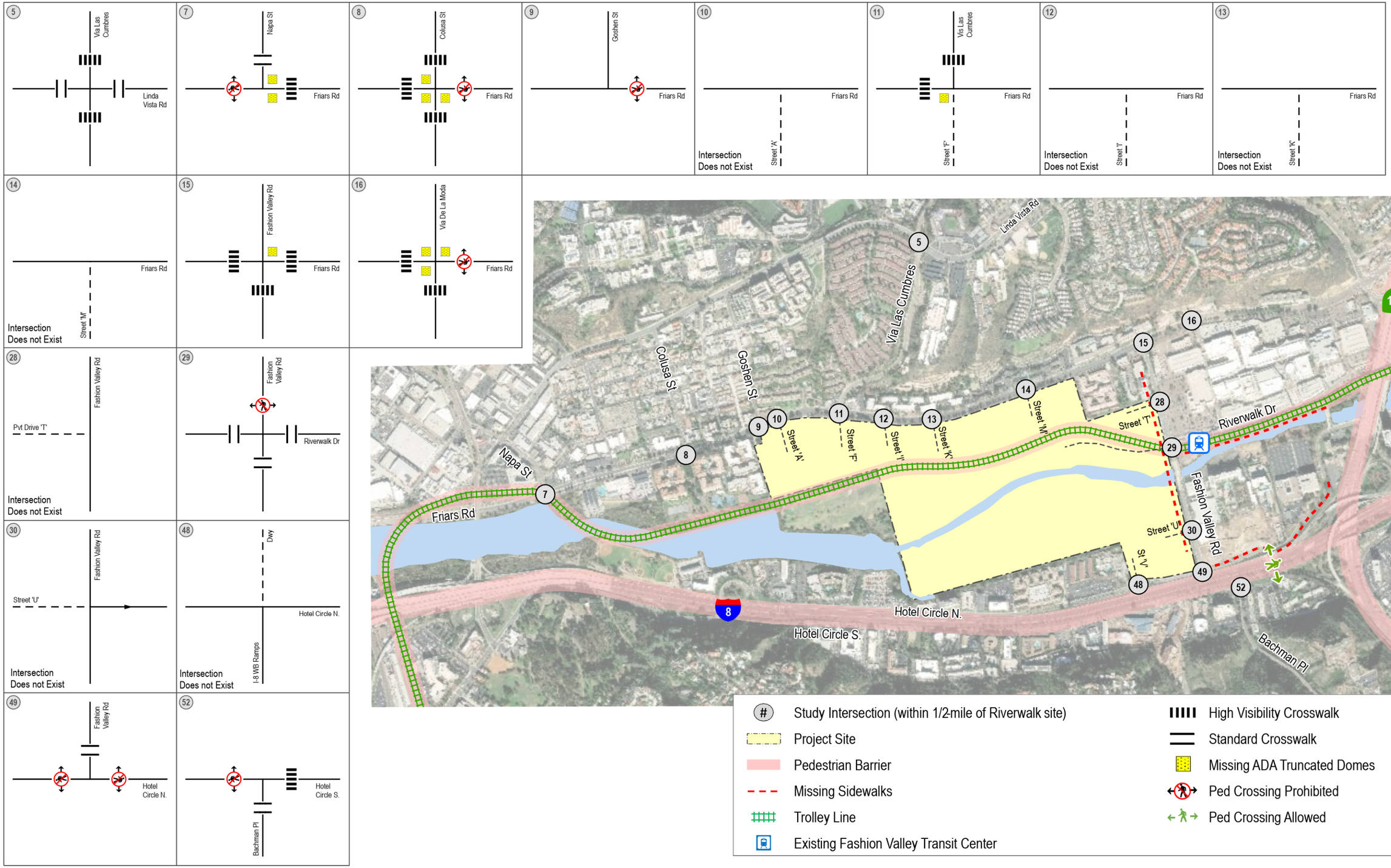
- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Fashion Valley Road.

P-I-14: Fashion Valley Road / Hotel Circle North intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Fashion Valley Road.

P-I-15: Hotel Circle North / I-8 WB Ramps / Street V intersection

- As a part of a traffic signal installation by the proposed project at this intersection subject to Caltrans' approval, install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Street V.

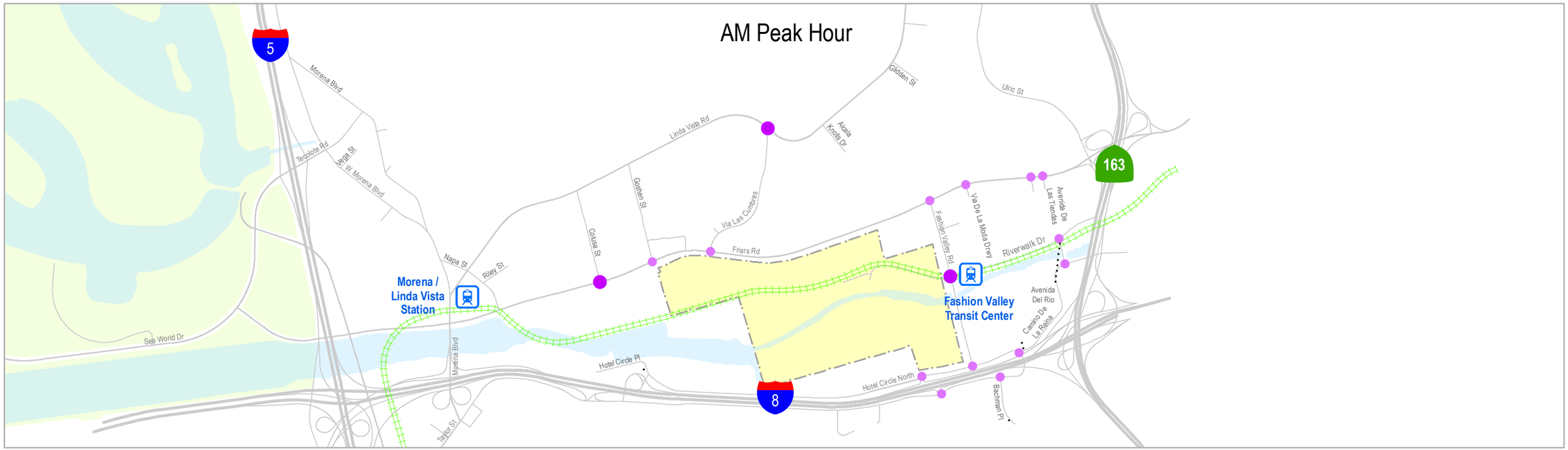


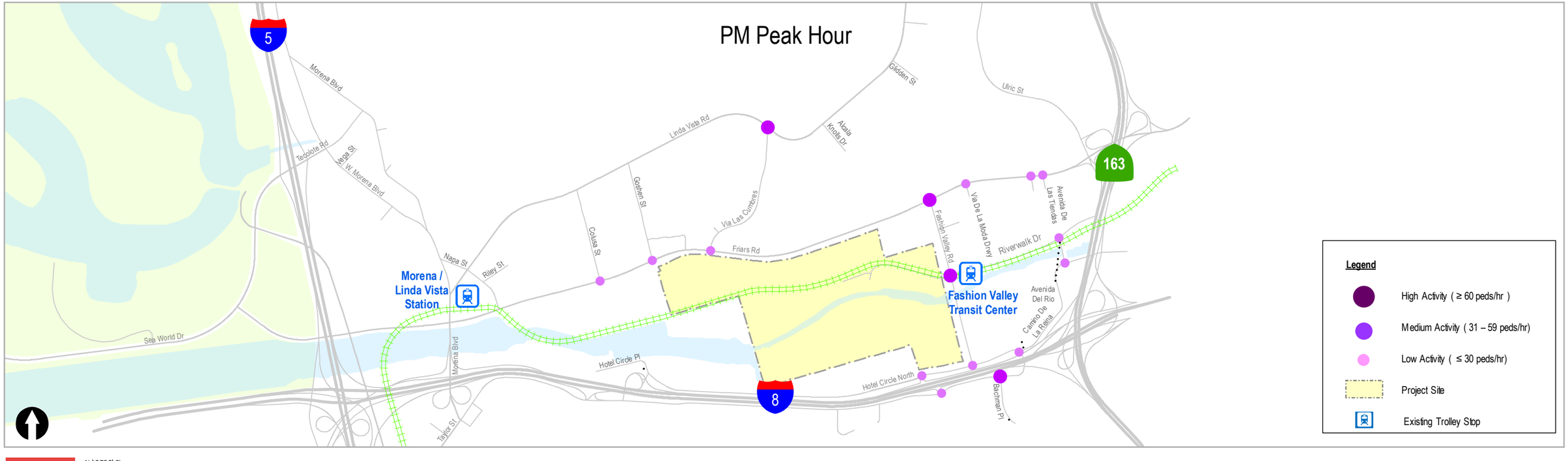
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 18-1
Existing Pedestrian Network

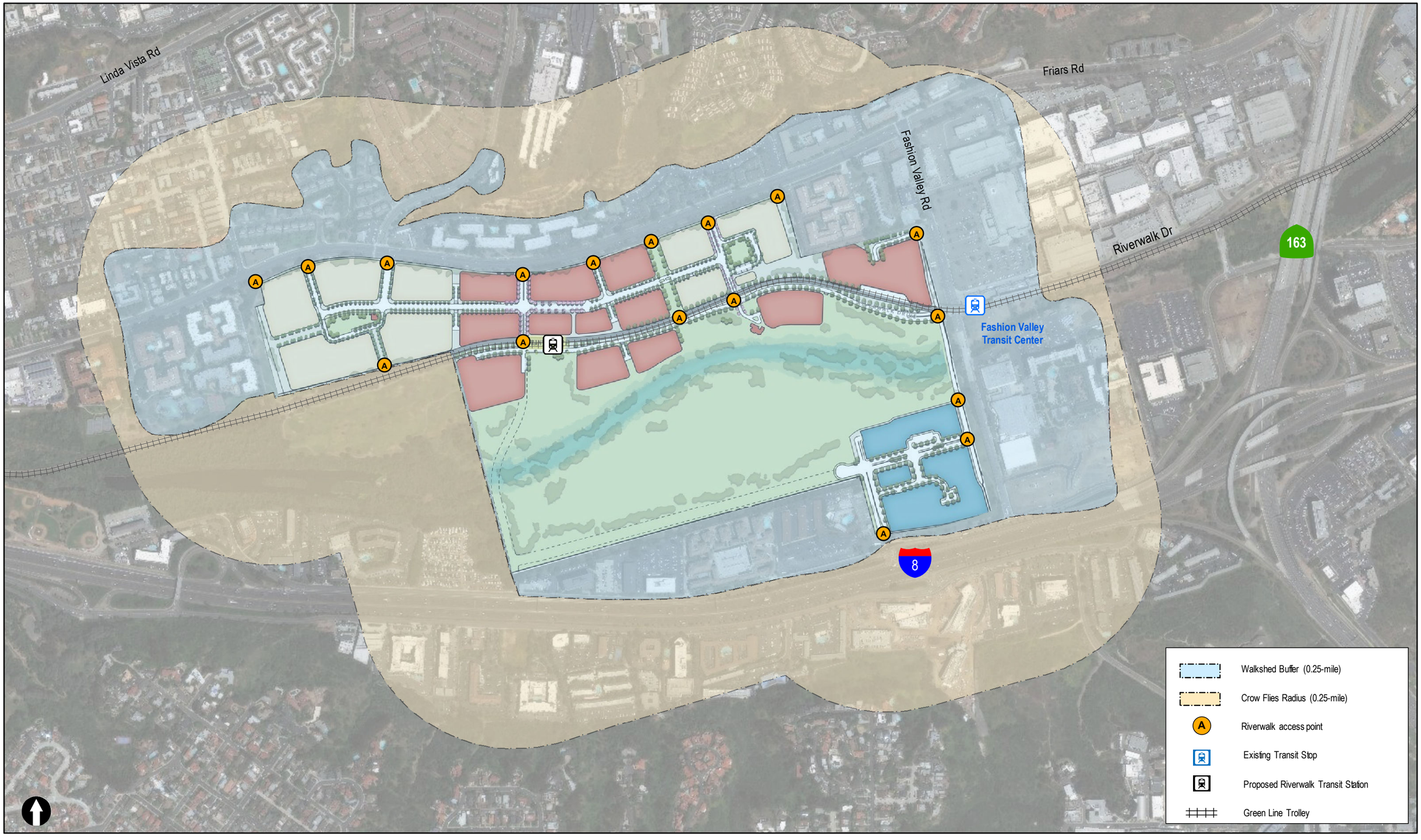




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Figure 18-2
Existing Pedestrian Activity



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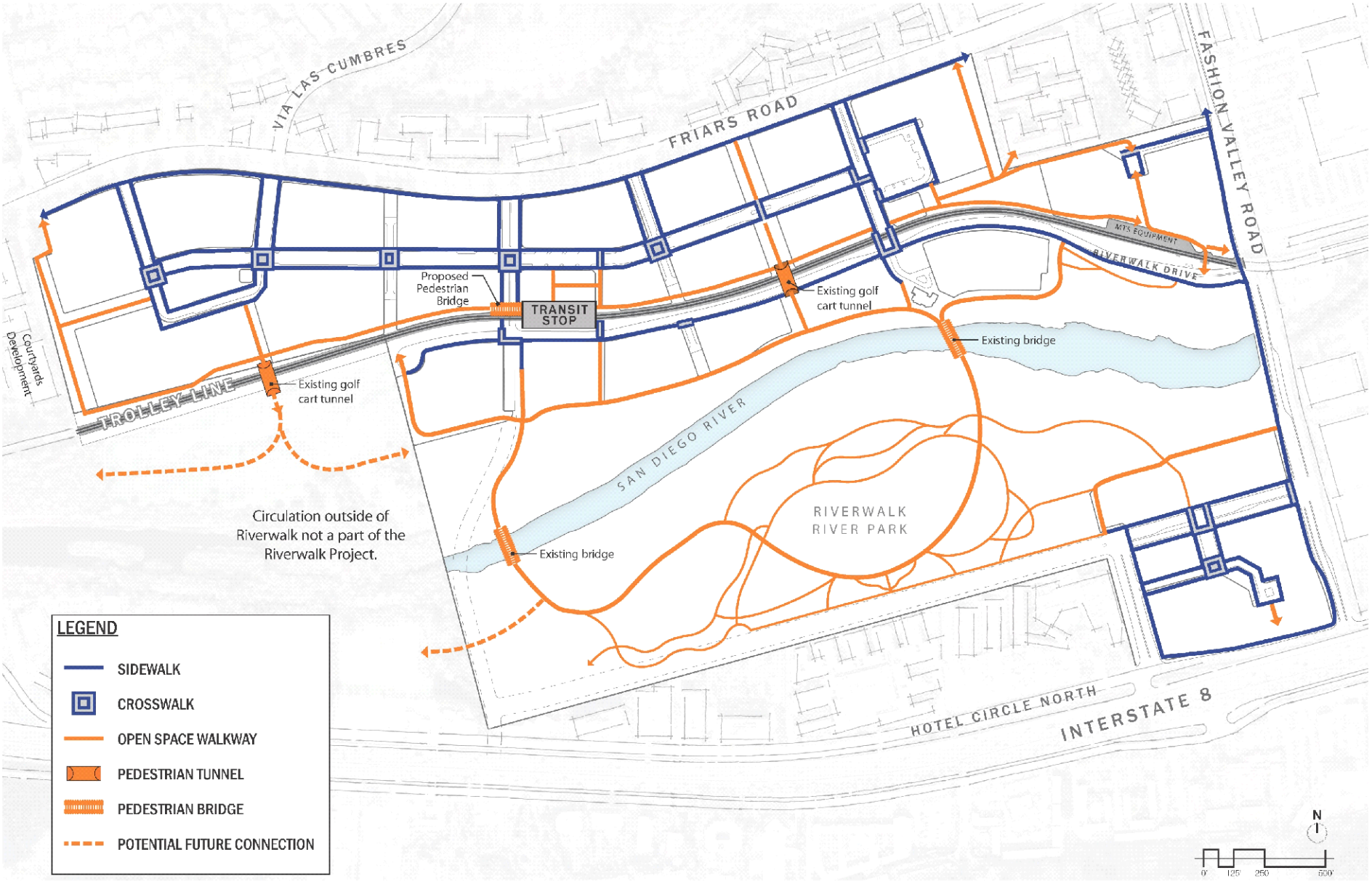
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Figure 18-3

Walkshed Analysis

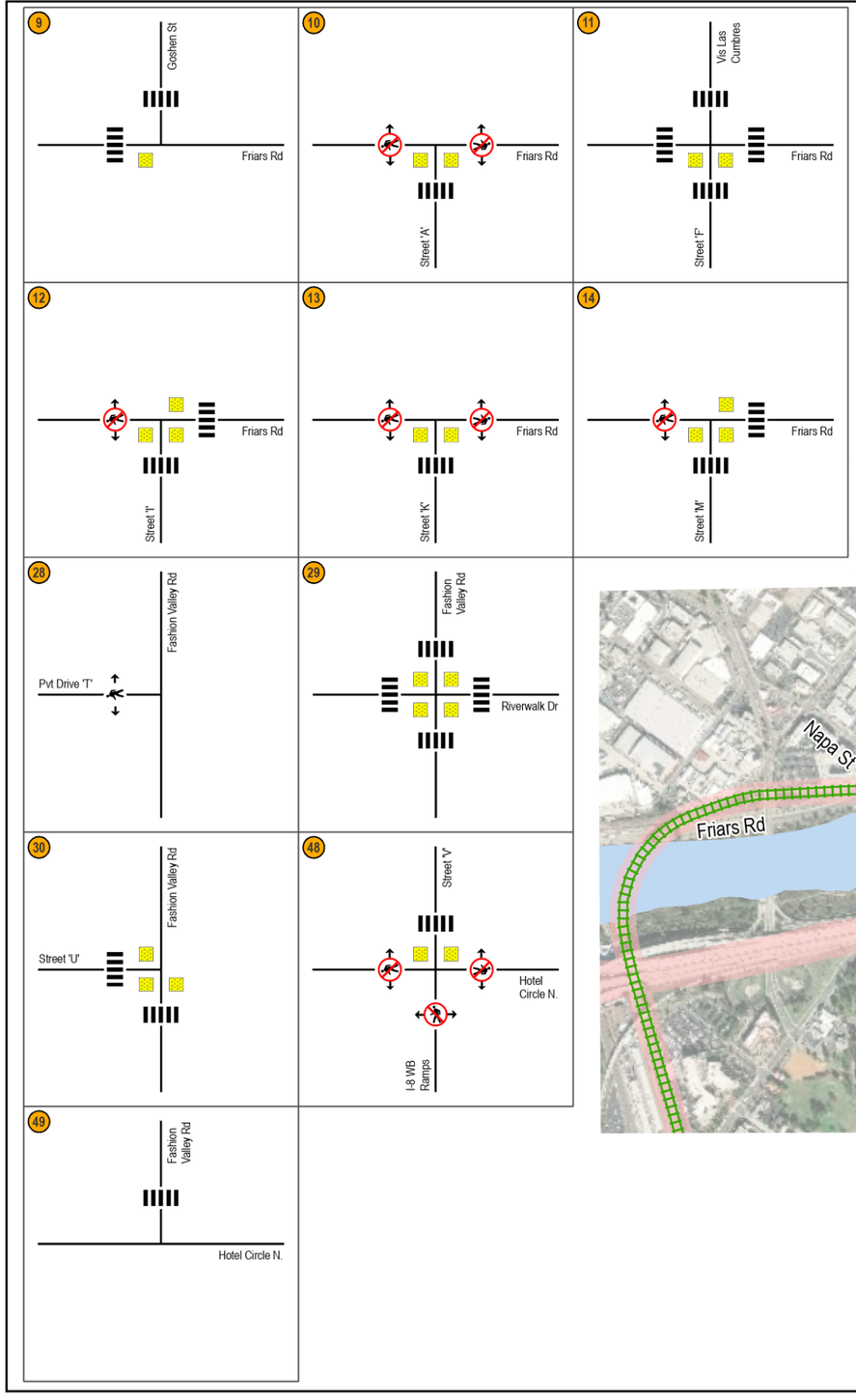
RIVERWALK



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Figure 18-4
Project Pedestrian Circulation





- # Project Improvement
- Project Site
- Pedestrian Barrier
- Non-contiguous sidewalk
- Existing contiguous sidewalk to non-contiguous sidewalk conversion
- Trolley Green Line
- Ped Crossing Allowed
- High Visibility Crosswalk
- Standard Crosswalk
- Proposed ADA Truncated Domes
- Ped Crossing Prohibited
- Proposed Riverwalk Transit Station
- Existing Fashion Valley Transit Center

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 18-5
Pedestrian Network - Project Frontage

19.0 BICYCLE MOBILITY

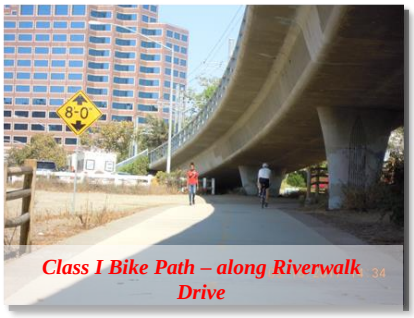
This section presents the bicycle network in the project study area and includes a bikeshed analysis to ensure the project provides the appropriate bicycle facilities. In addition, the section also summarizes recommended bike infrastructure projects proposed in the area based on the Mission Valley Community Plan Update – *Mobility Technical Report (December 2018), City of San Diego Bicycle Master Plan (December 2013), San Diego Regional Bicycle Master Plan (April 2010)* and *Mission Valley Community Plan (September 2019).* Bicycle improvements that will be constructed by the project are also presented.

19.1 Bicycle Facility Classifications

There are four different existing and proposed bicycle facility classifications – Class I, Class II, Class III and Class IV as shown in ***Table 19–1.***

TABLE 19–1
BICYCLE FACILITY CLASSIFICATIONS

Class I refers to exclusive **bike paths**, also termed shared-use or multi-use paths, for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. They are physically separated from vehicular traffic and can be constructed in roadway right-of-way or exclusive right-of-way. Bike paths provide critical connections where roadways are absent or are not conducive to bicycle travel.



Class I Bike Path – along Riverwalk Drive

Class II refers to **bicycle lanes** defined by pavement striping and signage used to allocate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities on either side of a roadway. A painted buffer can separate bikes from vehicles or parking lanes. Green paint can identify conflict zones.

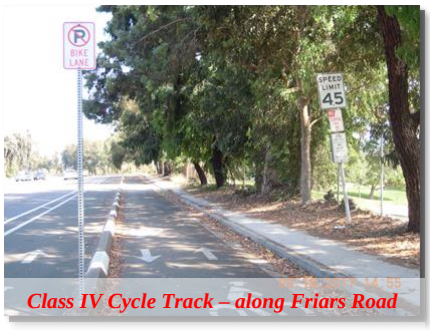

Class II Bike Lane – along Friars Road

Class III refers to bike routes that share use with motor vehicle traffic within the same travel lane. Bike routes are identified with signage and street markings known as "sharrows" or shared lane markings to delineate that the road is a shared-use facility.



Class III Bike Route – along Camino De La Reina

Class IV refers to a **Cycle Track**, which is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers, flexible posts, on-street parking curbs, or other objects. Cycle tracks provide for one-way or two-way bicycle travel and are exclusively for bicycle use.



Class IV Cycle Track – along Friars Road

19.2 Existing Bicycle Mobility

A detailed bicycle network inventory was conducted for the surrounding study area. ***Table 19–2*** summarizes the existing and future bicycle classifications on the study street segments. ***Figure 19–1*** presents the existing bicycle network in the project study area.

TABLE 19–2
BICYCLE FACILITY

Street Segment	Existing Classification	Future Classification per MVCP
Friars Road		
Napa Street to Colusa Street	Class II and Class IV[3]	Class II and Class IV[2]
Colusa Street to Goshen Street	Class II and Class IV[3]	Class II and Class IV[2]
Goshen Street to Via las Cumbres	Class II and Class IV[3]	Class II and Class IV[2]
Via las Cumbres to Fashion Valley Road	Class II[4]	Class II and Class IV[2]
Fashion Valley Road to Via De La Moda	Class II	Class IV[1]
Via De La Moda to Avenida De Las Tiendas	Class II	Class IV[1]
Avenida De La Tiendas to Ulric Street	Class II	Class IV[1]
Ulric Street to SR-163 NB Ramps	Class II	Class II
Hotel Circle North		
Hotel Circle Place to I-8 WB Hook Ramps	Class II	Class IV[2]
I-8 WB Hook Ramps to Fashion Valley Road	None	Class IV[2]
Fashion Valley Road to Camino De La Reina	None	Class IV[2]
Camino de la Reina		
Hotel Circle North to Avenida del Rio	Class III	Class IV[2]
Avenida del Rio to Camino de la Siesta	None	Class I / Class II
Taylor Street		
I-8 EB Hook Ramps to Hotel Circle South	Class II	Class II
Hotel Circle South to I-8 WB Hook Ramps	None	Class IV[2]
Hotel Circle South		
Taylor Street to I-8 EB Hook Ramps	Class III	Class IV[2]
I-8 EB Hook Ramps to Bachman Place	Class II	Class IV[2]
Bachman Place to Camino de la Reina	Class II	Class IV[2]
Fashion Valley Road		
Friars Road to Riverwalk Drive	Class III	Class IV[2]
Riverwalk Drive to Hotel Circle North	Class III	Class IV[2]

Footnotes:

1. One-way cycle track.
2. Two-way cycle track.
3. Friars Road currently includes Class II bicycle lanes on both sides of the roadway. In addition, a Class IV two -way cycle track is provided on the south side.
4. The cycle track terminates approximately 920 ft west of Fashion Valley Road

19.2.1 *Existing Bicycle Activity*

Existing bicycle activity (from the Mission Valley Community Plan Update (MVCPU), Mobility Existing Conditions Report, June 2017) was documented at every intersection in the study area during the commuter AM/PM peak hours as shown in *Appendix GG*. The average AM and PM bicycle activity level for the study area within ½ mile driving distance of the project was documented and every intersection was categorized as low activity, medium activity or high activity. For the purposes of this analysis, low activity was assumed as less than 5 bicyclists/hour, medium activity was assumed as 6-9 bicyclists/hour and high activity was assumed as greater than 10 bicyclists/hour. ***Figure 19–2*** shows the existing bicycle activity in proximity of the Riverwalk project per these defined categories.

As shown in *Figure 19–2*, the following intersections were observed as "medium" or "high" bicycle activity locations within ½ mile driving distance of the project area:

- Linda Vista Road/ Via Las Cumbres
- Friars Road / Goshen Street
- Friars Road / Via De La Moda
- Friars Road / Avenida De las Tiendas
- Fashion Valley Road / Riverwalk Drive
- Camino De La Reina / Avenida Del Rio
- Hotel Circle North / I-8 WB Ramps
- Hotel Circle North / Fashion Valley Road
- Hotel Circle North / Camino De La Reina

A subset of intersections from the above list that are on the Riverwalk project frontage were reviewed and bicycle improvements that will be constructed by the project are shown in Section 8.8.

The existing bicycle activity in the MVCPU was also evaluated using the City of San Diego Bicycle Demand Model, US Census Bureau data, and peak period bicycle counts. *Appendix GG* includes the Figure 4-4: Bicycle Demand Model (June 2017) from MVCPU Mobility Element ECR, June 2017. Along the frontage of the Riverwalk project site, the Bicycle Demand Model shows medium to high bicycle activity on Friars Road, Fashion Valley Road and Hotel Circle North.

19.3 Bicycle Mobility Review

19.3.1 *Bikeshed Analysis*

In this study, a bikeshed analysis was conducted to evaluate bicycle connectivity in the vicinity of the project site. This analysis also identifies potential locations where providing bicycle access could improve project connectivity to surrounding area.

The bikeshed analysis was performed by identifying all access points to / from the Riverwalk project. From each access point, areas outside the Riverwalk project site that could be reached by biking 1.0 mile (or approximately 10 minutes) were identified. Selected biking routes from each

access point consider the presence of bike routes, lanes, dedicated pathways, intersection crosswalks, bicycle/pedestrian bridges, etc. In this regard, while some areas are located within the one-mile buffer around the project site, they may not be reached by bike due to lack of facilities. A larger bikeshed area (bikeshed network) means higher connectivity between the project site and nearby areas.

As shown in ***Figure 19–3*** the Riverwalk project in general has good connectivity to the surrounding community.

19.3.2 *Bicycle Facility Quality*

Bicycle level of traffic stress (LTS) is a grading system to rate a transportation network's bicycling comfort. Developed at the Mineta Transportation Institute, bicycle Level of Traffic Stress (LTS) classifies the street network into categories according to the level of stress the environment causes cyclists. The assessment considers physical separation from vehicular traffic, vehicular traffic speeds along the roadway segment, number of travel lanes, and factors related to intersection approaches with dedicated right-turn lanes and unsignalized crossings.

LTS scores range from 1 (lowest stress) to 4 (highest stress), and correspond to roadways offering varying quality environments to cyclists considering their stress tolerance. Each LTS classification is associated with a cyclist's tolerance for traffic.

In the Riverwalk project's sphere of influence, the following roads were identified as LTS 3 and 4.

- *Friars Road – Class II bike lanes (LTS 4):* The segments of Class II bikes lanes on Friars Road are areas where bicyclists have to maneuver through high-speed through and turning traffic
- *Fashion Valley Road (LTS 4)*: There are no dedicated bike lanes on Fashion Valley Road and bicyclists currently have to share the road with vehicles.
- *Hotel Circle North between I-8 WB ramps and Fashion Valley Road (LTS 4):* There are no dedicated bike lanes on this segment of Hotel Circle North and bicyclists currently have to share the road with vehicles.

Bike improvements along Friars Road, Fashion Valley Road and Hotel Circle North are proposed as a part of the project frontage improvements as shown in Section 8.8. With a Class IV cycle track on Fashion Valley Road and Class IV cycle track on Hotel Circle North as a part of the one-way couplet, the bicycle stress on these streets is expected to reduce to LTS-1 given the cycle track's physical separation from vehicular traffic.

19.4 Future Bicycle Mobility

The implementation of a number of local improvements were reviewed based on information provided in the *Mission Valley Plan Public Facilities Financing Plan (PFFP) – Fiscal Year 2013*, *Linda Vista (PFFP) – Fiscal Year 2006*, the Mission Valley Community Plan Update (2019), the *2050 Regional Transportation Plan* (RTP), the *City of San Diego Bicycle Master Plan (2013)* and

San Diego Regional Bicycle Master Plan (2010). In addition, other approved developer bicycle improvements in the Mission Valley and Linda Vista Communities were also reviewed and identified.

Table 19–3 shows the planned bicycle improvements that were reviewed.

TABLE 19–3
PLANNED IMPROVEMENTS - BICYCLE

Project Name	Improvements	Schedule/ Funding
San Diego River Bicycle Improvements – Regional	This improvement incudes a dedicated Class I path along the SD River from Voltaire Street in Mission Bay to SR 125 in Santee totaling 17.9 miles.	Design and construction is contingent on funding.
San Diego River Bicycle Improvements – Local	This project provides a dedicated Class I path along the SD River across Fashion Valley Mall frontage.	This improvement is a condition of approval of the Town & Country Master Plan and Union Tribune projects. This improvement is expected to be complete by Year 2020.
Hotel Circle North widening to 4-lanes between Fashion Valley Road and Camino De La Reina	This improvement proposes to widen Hotel Circle N. from Fashion Valley Road to Camino De La Reina and provide Class II bicycle lanes on both sides.	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
Camino De La Reina widening to 4-lanes	This improvement includes the widening of Camino De La Reina to 4-lane Major between Hotel Circle North and Avenida Del Rio and provide Class II bicycle lanes on both sides.	This improvement is a condition of approval of the Town and Country Master Plan (constructing Class II bicycle lanes), Union Tribune Master Plan and Alexan Fashion Valley projects. However, the MVCP recommends to maintain the existing classification of 2-lane Collector with center left turn lane and construct a Class IV two-way cycle track.
Hotel Circle S. / I-8 EB Ramps Intersection Improvements	This improvement includes the widening of Hotel Circle South to include Class II bicycle lanes both sides.	This improvement is a condition of approval of the Legacy International Center project, which was recently opened.

19.5 Bicycle Improvements

19.5.1 *Bicycle Improvements Along Fronting Streets*

To promote bicycle mobility, the project proposes to construct several bicycle improvements along all the major project fronting corridors of Friars Road, Fashion Valley Road, and Hotel Circle North. The following is a brief description of the project bicycle improvements:

Friars Road: The existing Class IV cycle track between Colusa Street and Street M will be reconstructed and the project will construct entrances into the Riverwalk project site at various points. The existing Class II buffered bike lanes on both sides of Friars Road between Colusa Street and Fashion Valley Road will remain.

Fashion Valley Road: Consistent with MVCP Bicycle Plan, the project will construct a two-way Class IV Cycle Track on the west side of Fashion Valley Road between Riverwalk Drive and Hotel Circle North along the project frontage and a southbound Class II bike lane between Private Drive T

and Riverwalk Drive. A Class III bike route will be designated along southbound Fashion Valley Road for portions that are not along Riverwalk project frontage (which is approximately 660 ft).

Hotel Circle North: Currently, Hotel Circle North along the project frontage includes no bike lanes. Consistent with the MVCP Bicycle Plan, the project will construct a two-way Class IV Cycle track on the north side of Hotel Circle North between Fashion Valley Road and I-8 WB Ramps. This assumes a one-way couplet is implemented on Hotel Circle North and Hotel Circle South per the MVCP.

Street U: Consistent with the MVCP, the project will construct a two-way Class IV cycle track on the north side of Street U between Fashion Valley Road and Street V.

Street V: The project will construct buffered Class II bicycle lanes on Street V between Hotel Circle North and Street U.

19.6 Bicycle Improvements within the Site

The project site design incorporates green street principles and elements that prioritize bicycle travel and encourage non-vehicular movement. The San Diego River Pathway will be constructed by the project on the north side of the SD River and will include a Class I path. A continuous pedestrian and bike path will be located on both sides of the San Diego River and will connect with pedestrian/bike paths on property east and west of the site.

Bike facilities will link employment, residential, retail, and open space areas within Riverwalk, as well as to the community-wide bikeway system. Because bicycle facilities will connect with the City-wide system, a cyclist will be able to ride through and then beyond Riverwalk.

The following is a brief description of the various internal streets and project bicycle improvements:

- *Street F*, which is one of major project driveways (located on the south leg of the Via Las Cumbres intersection) off Friars Road, will include buffered Class II bike lanes on both sides. This will ensure bike connectivity between the major arterial (i.e. Friars Road) and appropriate entry into the Riverwalk project site for the bicyclists.
- *Street I*, the primary project driveway off Friars Road that would serve the Riverwalk Transit Center, will include buffered Class II bike lanes on both sides. This will ensure a direct bike connection between the major arterial (i.e. Friars Road) and the Riverwalk transit station.
- *Streets D and E*, the *east-west on-site road*, which parallels Friars Road and Riverwalk Drive will include Class II bicycle lanes between Street A and Street M.
- *Street M*, the easterly project driveway, will include buffered Class II bike lanes on both sides. This provides a north-south connection on the Riverwalk project site to connect to the northerly Class I San Diego River Trail.

- The *north-south linear park space (Section II and JJ)* will include a Class I bike path on the west side of the linear park, labeled on *Figure 2–5* This linear park design allows only pedestrian and bicycle travel. No vehicular traffic is allowed on the north-south linear park.
- The project also proposes a *San Diego River Class I path*, which is designed on the north of the SD River in the River Park area. The northerly path is proposed between the buildings (south of the tracks) and the SD River. The northerly Class I path connects to Riverwalk Drive at the easterly end and terminates at the westerly pedestrian/bikeway bridge for future extensions as future projects develop to complete the connection to Mission Bay. The two existing bridges will provide pedestrian and bicycle connectivity between the two SD River paths.
- A Class I bicycle path is also proposed on the linear park space connecting Friars Road to the northerly Class I San Diego River path. The bicycle path will provide street access to the San Diego River with a tunnel under the trolley tracks. In addition to the San Diego River path, two additional Class I bicycle paths are proposed on the north side of the River as well. On the western edge of the project site, a north-south Class I path (west of Street A) is proposed to connect Friars Road to Street D. A second east-west Class I path is proposed at the northwest corner of Fashion Valley Road / Riverwalk Drive intersection to provide bicycle connectivity between Friars Road and Fashion Valley Road and will provide connection to the San Diego River Class I path.

Figure 19–4 shows the project on-site bicycle circulation.

19.7 Bicycle Design Elements

The following is a brief description of the bicycle design elements included as a part of the site design:

<u>Bikeway Design</u>

- A minimum two-foot horizontal and a minimum eight-foot vertical clearance to obstructions

- All bikeways shall have adequate lighting and signage.

- Commercial and residential buildings shall provide secure bike racks in well-lit areas to encourage bicycle use.

- Bicycle lockers/racks, personal lockers, showers, and changing facilities shall be provided throughout the site in order to promote the use of bicycles and bikeways by employees.

- All other private drives within Riverwalk will be signed "bikeways" shared with motor vehicles with no specially marked lane. Widths of routes vary based on vehicular traffic, road conditions, etc. Class I paths are proposed to connect both sides of the San Diego River to connect the River Park open space areas via the pedestrian bridges.

19.8 Bicycle Improvement Recommendations

The following bicycle improvements will be implemented by the project:

B-I-1: San Diego River Class I Path

- Install a Class I path along the north side of the San Diego River within the Riverwalk project site to construct a portion of the San Diego River Bike Path. Provide bridges to facilitate bicycle crossing across the SD River to connect northbound and southbound bicycle travel.

B-I-2: Friars Road between Colusa Street and Fashion Valley Road

- Remove the existing Class IV cycle track on Friars Road and install a new Class IV cycle track between Colusa Street and easterly property line on Friars Road. The Class IV cycle track will terminate into a Class I bike path, east of Street M providing bicycle connectivity between Friars Road and Fashion Valley Road.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in areas of conflict as applicable to increase the visibility of the facility, identify potential areas of conflict, and reinforce priority to bicyclists in conflict areas.

B-I-3: Friars Road between Colusa Street and Street M

- Install bicycle crossing markings through the intersections to safely guide bicyclists. This would increase the visibility of the facility, identifies potential areas of conflict, and reinforces priority to bicyclists in conflict areas.

B-I-4: Fashion Valley Road between Private Drive T and Hotel Circle North

- Install a southbound Class II bicycle lane between Private Drive T and Riverwalk Drive and provide a Class III sharrow marking on northbound Fashion Valley Road between Riverwalk Drive and Friars Road.
- Install a two-way Class IV Cycle track on the west side of Fashion Valley Road between Riverwalk Drive and Hotel Circle North.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, , and reinforces priority to bicyclists in conflict areas.

B-I-5: Hotel Circle North between I-8 WB Ramps and Fashion Valley Road

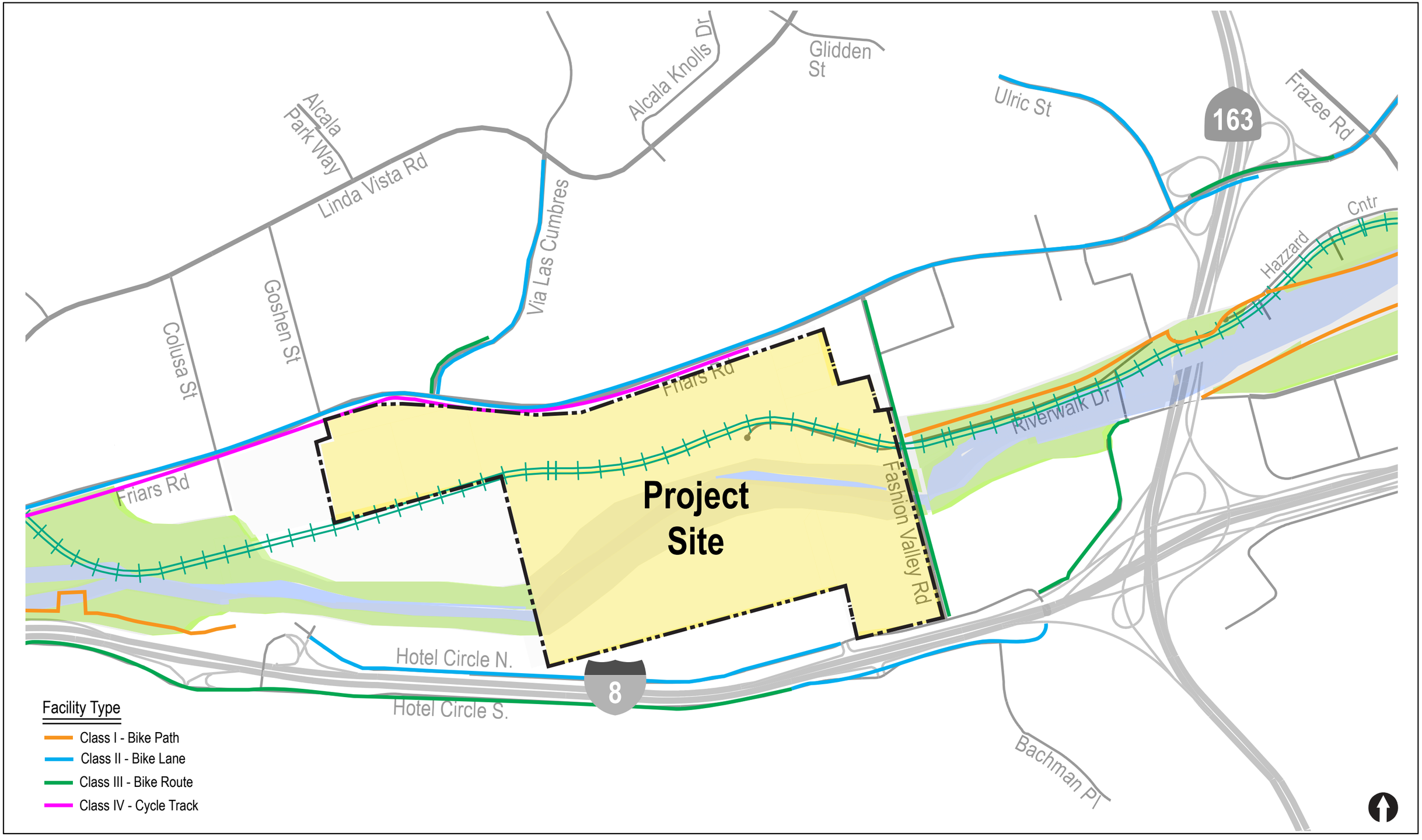
- Install a two-way Class IV Cycle track on the north side of Hotel Circle North between Fashion Valley Road and I-8 WB Ramps.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.

B-I-6: Street U between Fashion Valley Road and Street V

- Install a two-way Class IV two-way cycle track on Street U between Fashion Valley Road and Street V.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.

B-I-7: Street V between Hotel Circle North and Street U

- Install Class II buffered bike lanes on Street V between Hotel Circle North and Street U.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.



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Figure 19-1

Existing Bicycle Network

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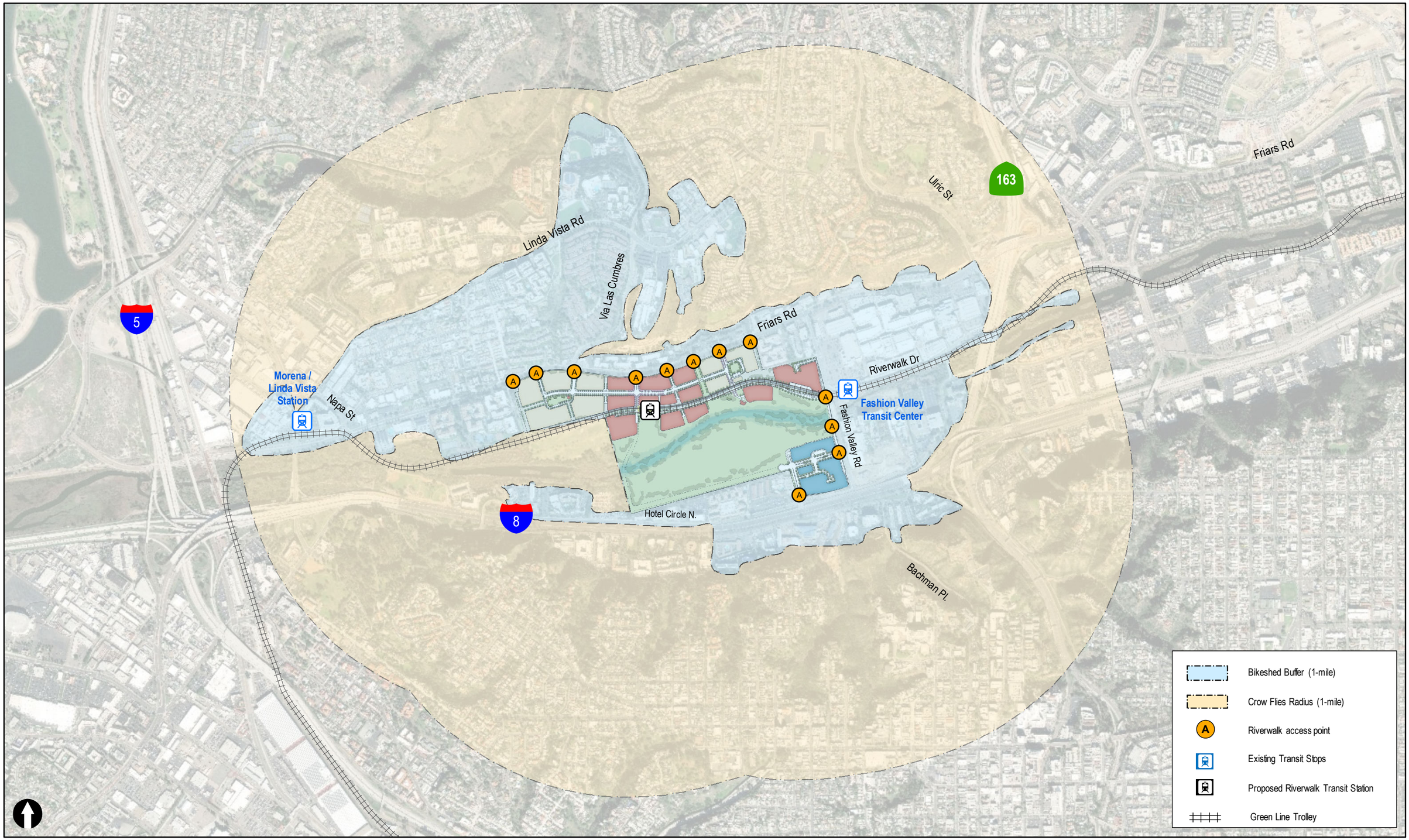


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Figure 19-2
Existing Bicycle Activity

RIVERWALK



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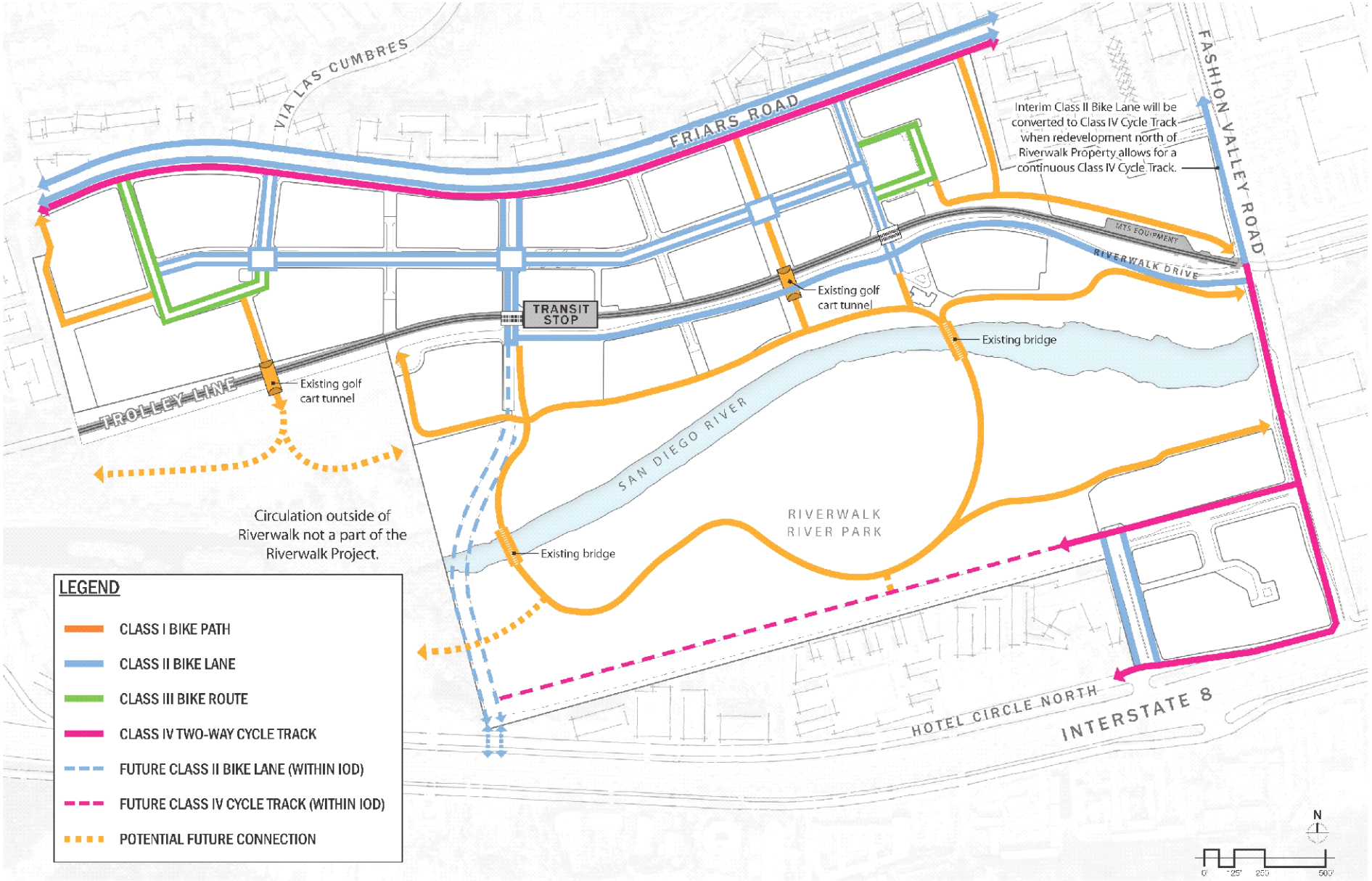
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Figure 19-3

Bikeshed Analysis

RIVERWALK



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Figure 19-4
Project Bicycle Circulation

20.0 TRANSIT MOBILITY

This section presents the existing and future transit conditions in the project study area.

20.1 Light Rail

Regional light rail transit service in the project study area is provided by the MTS Trolley Green Line, which runs between Santee and Downtown San Diego. The intermediate stops include Alvarado Medical Center, San Diego State University (SDSU), Fashion Valley, Mission Valley Center, Linda Vista, Old Town and Convention Center. There are 7 stations within the Mission Valley community located at Mission San Diego, Qualcomm Stadium, Fenton Parkway, Rio Vista, Mission Valley Center, Hazard Center, and Fashion Valley. The Green Line covers 23.6 miles, with 15-minute service Mondays through Saturdays and 30-minute service during the late-evenings, weekend mornings, and Sundays. The Green Line serves a total of 27 stations.

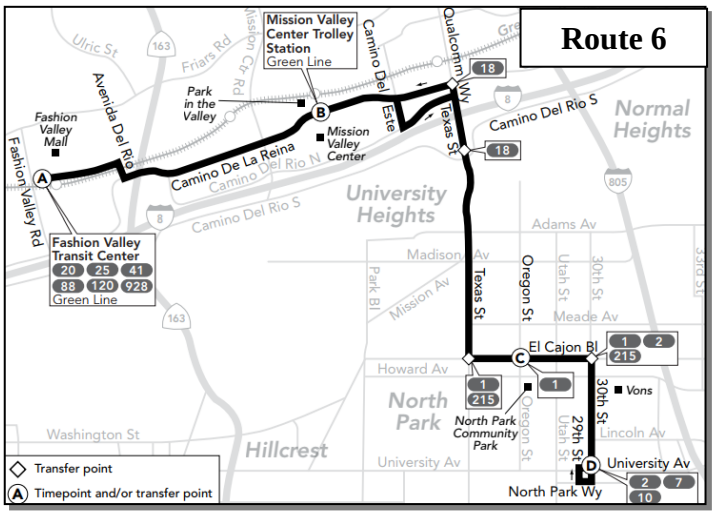


The MTS Green Line Trolley will provide connection to the MTS Blue Line Trolley extension project (the Mid Coast Project). Currently, the Mid Coast project is under construction and will provide light-rail service between Old Town and the University Town Center (UTC) area such as the UTC mall and the University of California – San Diego. This trolley line is expected to be operational in late 2021, which is prior to the proposed project's opening day.

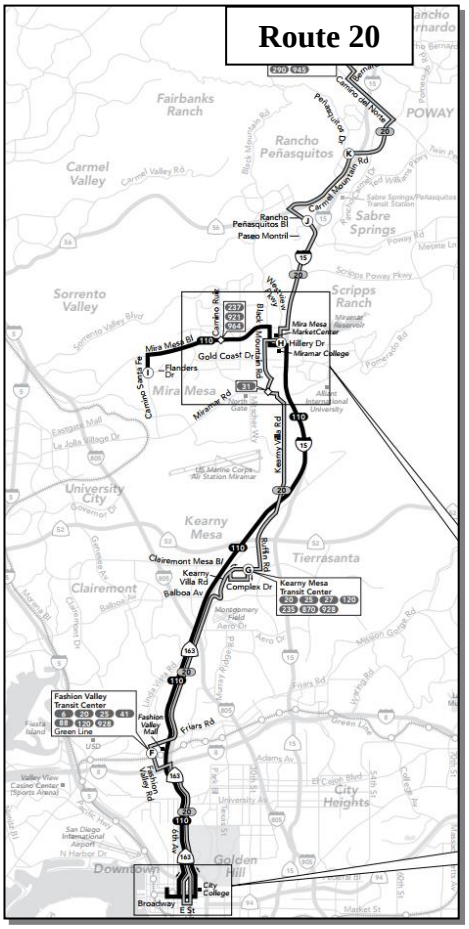
Within the Mission Valley community, the trolley Green Line tracks run parallel to Friars Road and the San Diego River. Within walking distance from a portion of Riverwalk project site, the Fashion Valley Transit Center serves as a convergence point for the Green Line Trolley and seven bus routes, including Route 6, 20, 25, 41, 88, 120, and 928. Access to the Fashion Valley Transit Center is provided via the local roadway network, dedicated transit center parking (63 spaces), the San Diego River Trail, and a pedestrian bridge crossing the San Diego River. Transfers between the Trolley and bus routes are possible at other locations as well. ***Figure 20–1*** shows the existing transit network.

20.2 Bus Service

Bus service is provided by the Metropolitan Transit System (MTS). The bus routes serving in the immediate project area include MTS Routes 6, 20, 25, 41, 88, 120 and 928. A description of each of these routes is given below. ***Appendix HH*** includes the timetable of these bus routes.

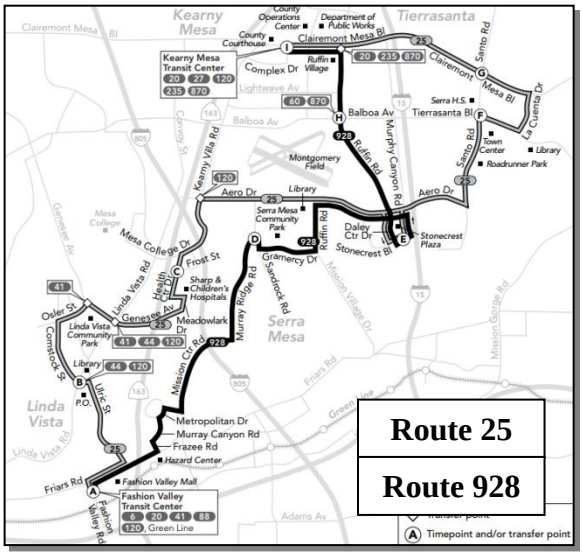


Route 6 runs between Mission Valley (Fashion Valley Transit Station) to North Park (30th St. and University Avenue). The route runs along Camino De la Reina, Qualcomm Way, Texas Street, and El Cajon Boulevard to North Park. There are a total of nineteen (19) stops along this route. Weekday service begins at 6:01 AM with 15-minute headways and ends at 11:25 PM. Saturday service beings at 6:34 AM with 30-minute headways and ends at 10:25 PM. Sunday service begins at 9:37 AM with 30-minute headways and ends at 8:31 PM.



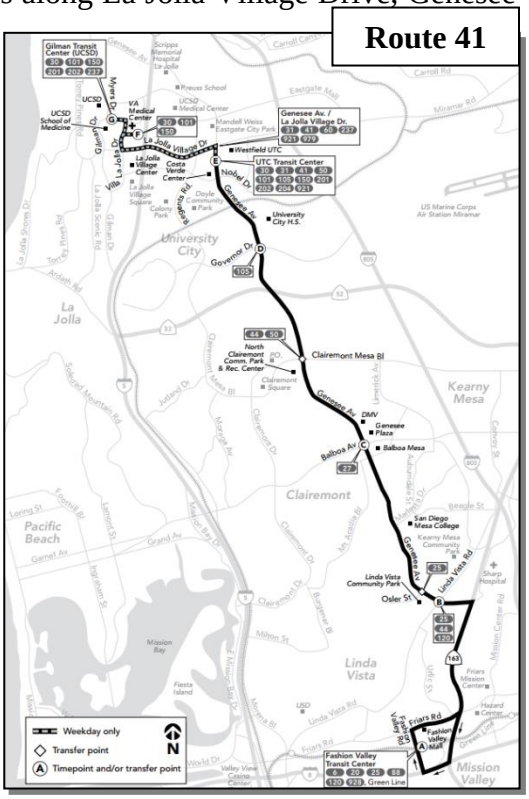
Route 20 is an Express Bus Service that runs from Rancho Bernardo Transit Station to Downtown San Diego. The route runs along Camino Del Norte, Interstate 15 (I-15), Carmel Mountain Road, Black Mountain Road, Kearny Villa Road, and State Route 163. There are thirty-eight (38) stops along this route, including the Fashion Valley Transit Center. Weekday service begins at 5:13 AM with 15-minute headways and ends at 10:17 PM. Saturday service begins at 5:41 AM with 30-minute headways and ends at 9:17 PM. Sunday service begins at 5:41 AM with 1-hour headways and ends at 8:49 PM.

Route 25 runs from Fashion Valley to Kearny Mesa. The route runs along Clairemont Mesa Boulevard, Santo Road, Aero Drive, Kearny Villa Drive, Genesee Avenue, Ulric Street, and Friars Road. There is a total of thirty (30) stops along this route including destinations to Linda Vista Park and Recreation Center, Stone Crest Plaza, and Sharp Hospital. This route runs on weekdays starting at 6:30 AM with 1-hour headways and ends at 6:51 PM. No weekend service is provided.

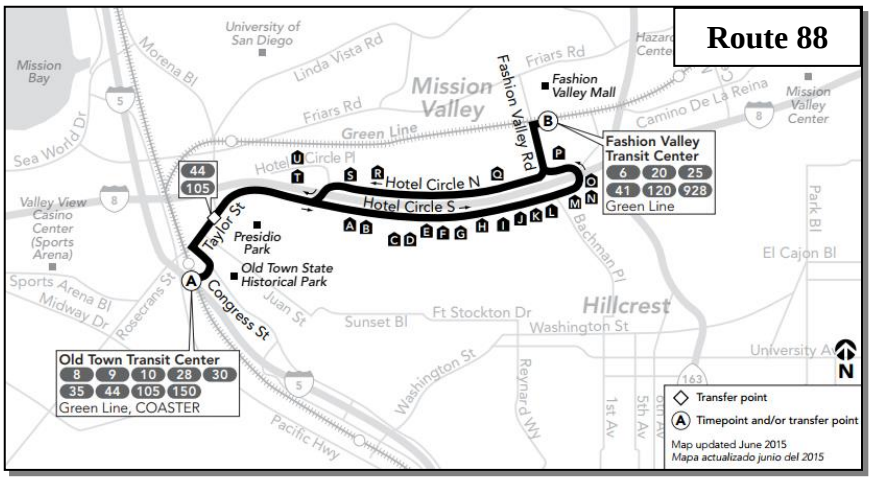


Route 928 runs from Fashion Valley to Kearny Mesa. The route runs along Clairemont Mesa Boulevard, Ruffin Road, Aero Drive, Murray Ridge Road, Mission Center Road, and Friars Road. There is a total of thirty-three (33) stops along this route including destinations to Hazard Center and Stone Crest Plaza. Weekday service begins at 4:47 AM with 30-minute headways and ends at 9:24 PM. Saturday service begins at 8:30 AM with 1-hour headways and ends at 6:29 PM. Sunday service begins at 6:30 AM with 1-hour headways and ends at 9:27 PM.

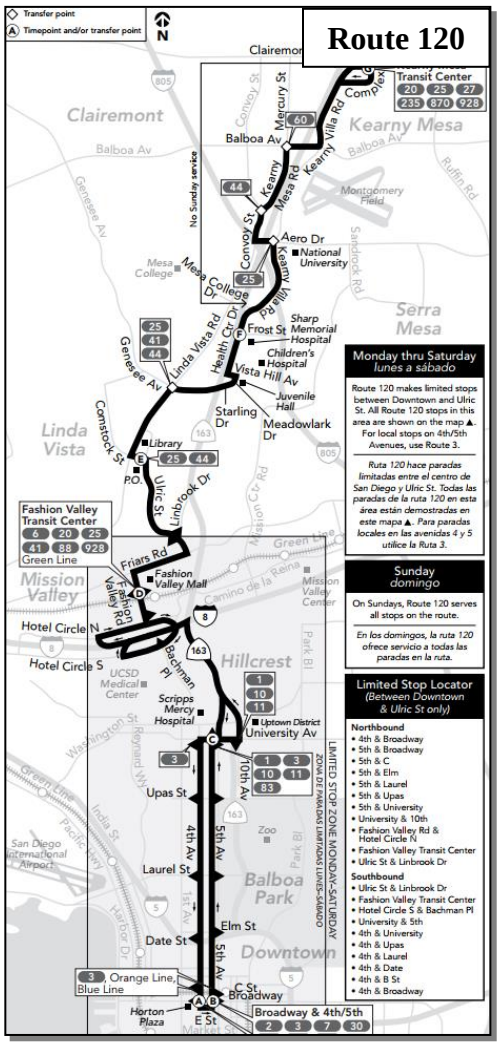
Route 41 runs from Fashion Valley to UCSD. The route runs along La Jolla Village Drive, Genesee Avenue, State Route 163, and Fashion Valley Road. There is a total of thirty-four (34) stops including destinations to Costa Verde Center, Fashion Valley Mall, Genesee Plaza, Mesa College, and Westfield UTC. Weekday service begins at 5:21 AM with 15-minute headway and ends at 11:41 PM. Weekend service is available from Fashion Valley to UTC Transit Center. Saturday service begins at 6:07 AM with 30-minute headways and ends at 10:36 PM. Sunday service begins at 6:27 AM with 30-minute headways and ends at 9:53 PM.



Route 88 runs from Old Town to Fashion Valley Transit Center via Hotel Circle. There is a total of thirteen (13) stops along this route. Weekday and Saturday service begin at 5:55 AM with 30-minute headways and ends at 9:21 PM. Saturday service begins at 5:40 AM with 30-minute headways and ends at 8:37 PM. No Sunday service is provided.



Route 120 runs from Downtown (4th Avenue and Broadway) to Kearny Mesa The route runs along Kearny Mesa Road, Linda Vista Road, Ulric Street, Friars Road, Fashion Valley Road, State Route 163, and Fourth Avenue. There is a total of thirty-two (32) stops including destinations to Fashion Valley Mall, Horton Plaza, Sharp and Children's Hospitals, Kearny Mesa Courthouse, and Juvenile Hall. Weekday service begins at 4:59 AM with 15-minute headways and ends at 11:54 PM. Weekend service begins at 5:43 AM on Saturdays with 30-minute headways and ends at 10:33 AM. Sunday service begins at 6:13 AM on Sundays with 30-minute headways and ends at 9:59 PM.



20.2.1 *Bus Stop Amenities*

Table 20–1 summarizes the existing transit stops within a ½ mile distance from the project's access points and the amenities currently provided at each stop.

TABLE 20–1
EXISTING TRANSIT STOP AMENITIES

Location	Stop ID	Amenities						
		Shelters	Benches	Trash Receptacles	Station Signs	Maps/Wayfinding	Lighting	ADA Compliancy
Friars Rd & Avenida De Las Tiendas	13389	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Friars Rd & Via De La Moda	13390	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fashion Valley Rd & Friars Rd	11995	No	No	No	Yes	No	No	Yes
Fashion Valley Rd & Friars Rd	12400	No	Yes	No	Yes	No	No	Yes
Fashion Valley Transit Center	Multiple	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fashion Valley Road & Hotel Circle North	11623	No	Yes	No	Yes	No	No	Yes
Fashion Valley Road & Hotel Circle North	11225	No	Yes	No	Yes	No	No	Yes
Hotel Circle North & 1650	13096	No	No	No	Yes	No	No	Yes
Hotel Circle North & 1550	13067	No	Yes	No	Yes	No	No	Yes
Hotel Circle North & 950	13098	No	Yes	Yes	Yes	No	No	Yes
Hotel Circle North & Camino De La Reina	99379	No	Yes	No	Yes	No	No	No
Hotel Circle South & Bachman Place	13034	No	Yes	No	Yes	No	No	Yes
Hotel Circle South & Bachman Place	13510	No	No	No	Yes	No	No	No

General Notes:

a. **Bold** indicates bus stop located on project frontage.

20.3 Riverwalk Trolley Station

The Riverwalk project will construct a new trolley station within the project site to promote transit mobility for all site users as well as residents in the neighboring communities. ***Figure 20–2*** shows the walkshed buffer from the existing Fashion Valley Transit Center. ***Figure 20–3*** shows the walkshed buffer from the existing Fashion Valley Transit Center and the proposed Riverwalk Transit Station. The new transit stop is proposed to be located at the intersection of Street J and Riverwalk Drive, which was selected based upon MTS criteria relative to the separation between existing trolley stations (approximately the mid-point between Linda Vista / Morena Station and Fashion Valley Transit Center stops).

It is also important to note that a trolley station at the project site was envisioned as a part of the Levi-Cushman Specific Plan. Furthermore, based on past discussions with SANDAG staff, it is understood that the proposed trolley station is also a part of the Regional Transportation Plan (RTP) as evidenced by its inclusion in the Regionwide Traffic Forecasting Models (SANDAG Series 12 and 13) and its subsequent inclusion in the Mission Valley Community Plan Update project.

A few notable design elements of the transit station include:

- The trolley stop will serve as a mobility center and will provide access to and from the trolley, and paths, trails, and sidewalks that serve the neighborhood and the region. The facility will include bicycle lockers/racks and rentals, automobile drop-off/pick-up and, rideshare. The transit stop will be architecturally and functionally integrated into the design of the community. The Riverwalk project site design also proposes to accommodate future bus services to access the site.
- The plaza area adjoining the trolley stop will incorporate landscaping, kiosks, ticket booths, etc.
- Shared parking for both site users and transit riders will be provided in the Mixed-Use core area.
- Providing pedestrian walkways from the trolley stop to high activity areas such as Friars Road, commercial uses, and the River Park will increase use of the facilities. Considerations include reasonable walking distances, tree-shaded walks, etc.

20.3.1 *Trolley Ridership Projections*

Trolley ridership projections at the Riverwalk station were obtained as a part of the Mission Valley Community Plan (MVCP) project. The forecast traffic model (Series 13) that was used for the MVCP includes the buildout of the Mission Valley community, which also included the subject Riverwalk project.

The ridership projections, which includes boarding's and alighting's, were provided by City Planning Department staff from the Series 13 model. ***Table 20–2*** shows the ridership projections at the Riverwalk station.

TABLE 20–2
YEAR 2050 TROLLEY RIDERSHIP PROJECTIONS

Station	Weekday Daily Boardings[a]	Weekday Daily Alightings[b]	Total Weekday Daily Ridership[c]
Fashion Valley Transit Center	2,995	2,349	5,344
Riverwalk Station	1,420	1,314	2,734
Morena / Linda Vista Station	1,739	1,777	3,516

Footnotes:

a. Weekday daily boarding's include boarding's from both eastbound and westbound travel.

b. Weekday daily alighting's include alighting's from both eastbound and westbound travel.

c. Total Ridership = Daily boarding's + Daily alighting's.

As shown in *Table 20–2*, the weekday daily ridership at the Riverwalk station is projected as 2,734 passengers. The Riverwalk station is calculated to handle approximately 78% of the trolley traffic at the Morena / Linda Vista station and 52% of the projected trolley traffic at Fashion Valley Center trolley stop.

The projected ridership at the Riverwalk station was also compared with the existing ridership at other Mission Valley stations. ***Table 20–3*** shows the existing ridership at eight (8) trolley stations in Mission Valley.

TABLE 20–3
EXISTING TROLLEY RIDERSHIP COMPARISON

Station	Weekday Daily Boardings[a]	Weekday Daily Alightings[b]	Total Weekday Daily Ridership
Mission San Diego Station	480	417	897
Qualcomm Stadium	264	247	511
Fenton Parkway Station	700	695	1,395
Rio Vista Station	686	657	1,343
Mission Valley Center Station	1,099	1,111	2,210
Hazard Center Station	916	926	1,842
Fashion Valley Transit Center	2,908	3,145	6,048
Morena / Linda Vista Station	1,016	938	1,954

Footnotes:

a. Weekday daily boarding's referenced from *FY 2014 Passenger Counting Program* obtained from Mission Valley Community Plan Update Existing Conditions Report. This includes both eastbound and westbound travel.

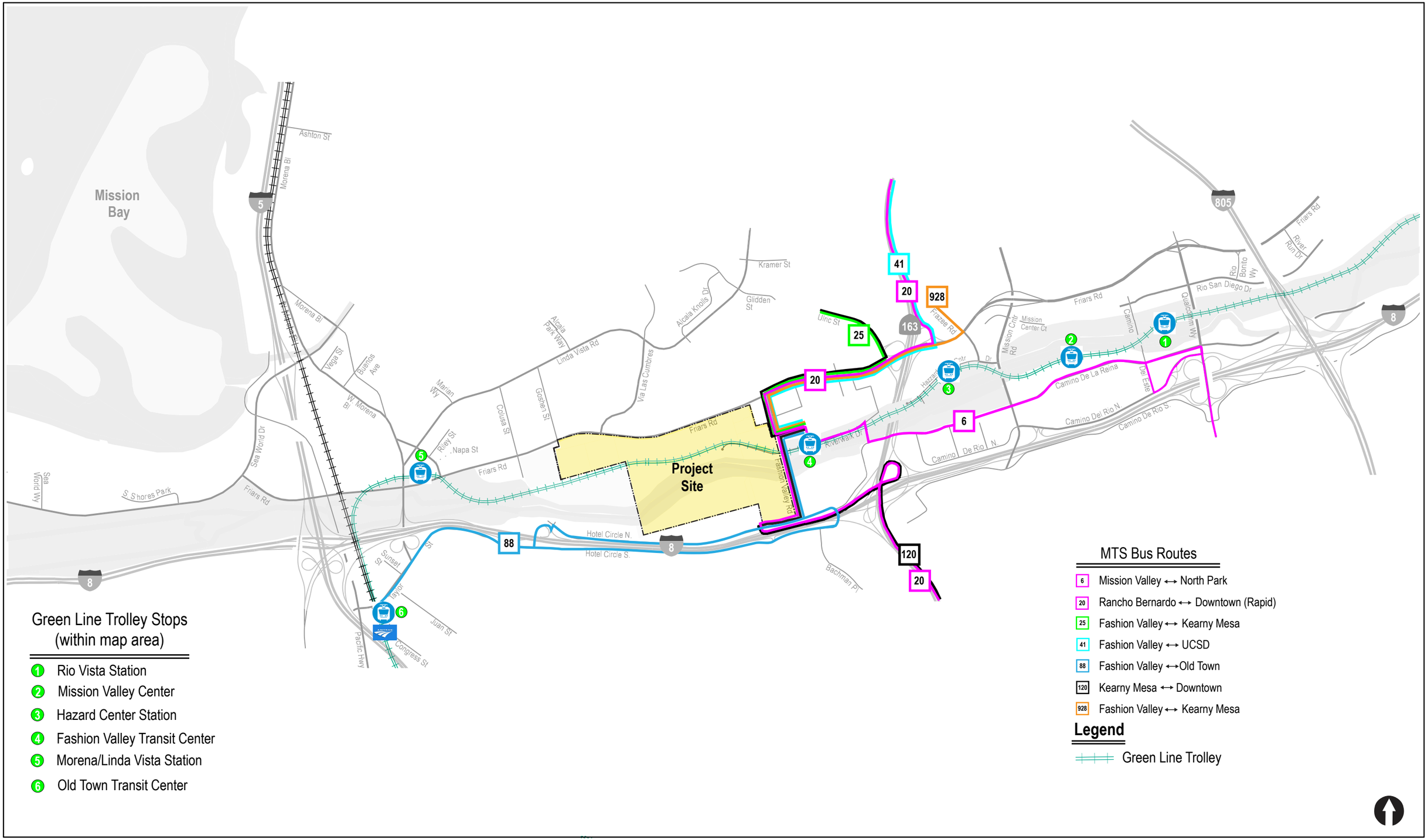
b. Weekday daily alighting's referenced from *FY 2014 Passenger Counting Program* obtained from Mission Valley Community Plan Update Existing Conditions Report. This includes both eastbound and westbound travel.

20.4 Transit Improvement Recommendations

The following transit access improvements will be provided by the project:

T-I-1 Transit Priority Signals

- Coordinate with SANDAG, City of San Diego and MTS to review opportunities to incorporate Transit Signal Priority system as a part of the Intelligent Transportation System improvements to reduce travel times for the MTS buses along Friars Road, Fashion Valley Road and Hotel Circle North.
- As a part of the project frontage improvements, at the existing bus stop on Fashion Valley Road and Hotel Circle North (Stop ID 11623), the project will add a shelter, trash receptacle, maps/way finding signs and lighting.
- Coordinate with SANDAG and MTS on the accommodation for future MTS buses on the project site as a part of the future Riverwalk trolley station.



Green Line Trolley Stops (within map area)

1. Rio Vista Station
2. Mission Valley Center
3. Hazard Center Station
4. Fashion Valley Transit Center
5. Morena/Linda Vista Station
6. Old Town Transit Center

MTS Bus Routes

- 6 Mission Valley ↔ North Park
- 20 Rancho Bernardo ↔ Downtown (Rapid)
- 25 Fashion Valley ↔ Kearny Mesa
- 41 Fashion Valley ↔ UCSD
- 88 Fashion Valley ↔ Old Town
- 120 Kearny Mesa ↔ Downtown
- 928 Fashion Valley ↔ Kearny Mesa

Legend

- Green Line Trolley

LINSCOTT LAW & GREENSPAN engineers

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Figure 20-1

Existing Transit Network

RIVERWALK



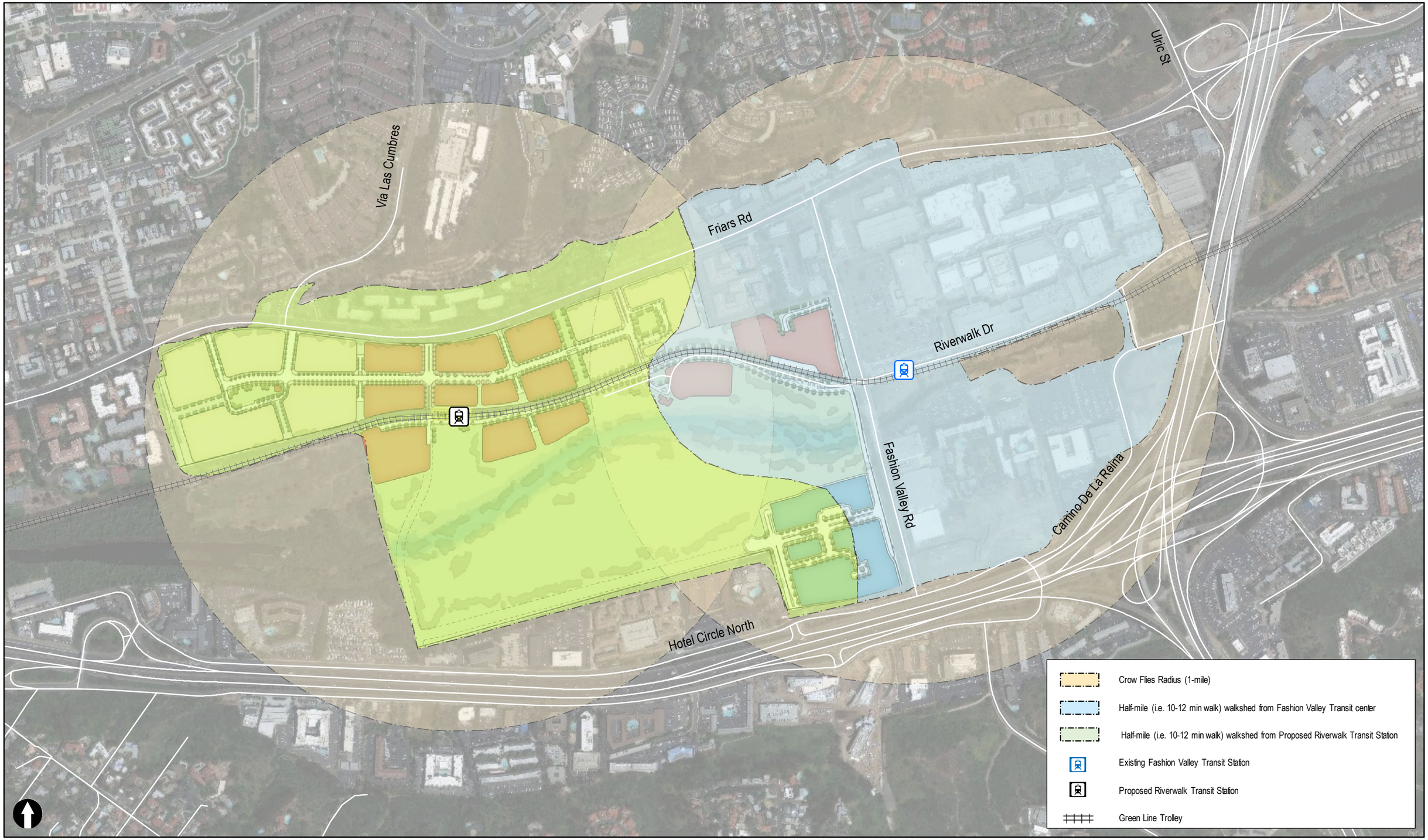
LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 3/27/2020
Time: 9:51 AM

0 0.125 0.25 0.5 Miles

Figure 20-2

Existing Transit Walk Buffer from Trolley Stop



LINSCOTT LAW & GREENSPAN engineers

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Date: 3/27/2020
Time: 9:52 AM

0 0.125 0.25 0.5 Miles

Figure 20-3

Future Transit Walk Buffer from Trollley Stops

21.0 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Achieving optimal and sustainable mobility for different modes of transportation requires a comprehensive traffic signal system that utilizes a variety of operations and Intelligent Transportation Systems (ITS) technologies. The use of ITS can provide many benefits to a mobility network, including improved travel time, providing transit bypass methods, helping relay valuable traffic-related information to vehicular and non-vehicular / emergency users, and providing guidance to key destinations. Some ITS applications include:

- Traffic Signal Coordination
- Emergency Vehicle Preemption (EVP)
- Transit Signal Priority (TSP)
- Adaptive Signal Control
- Grade crossing preemption

Each application is discussed in detail in the following section.

21.1 ITS Applications

21.1.1 *Traffic Signal Coordination*

Coordinated traffic signals are an example of an ITS strategy that helps improve roadway operations and can be found in the Mission Valley community. Traffic signals have coordinated timing plans and information is relayed between traffic signals in real-time. The traffic signals typically communicate using underground copper or fiber optic interconnects. Having traffic signals coordinated helps to maximize the efficiency of the traffic signal system on that roadway.

The following corridors currently have traffic signal coordination:

- Friars Road
- Mission Center Road
- Qualcomm Way

21.1.2 *Emergency Vehicle Preemption (EVP)*

Emergency Vehicle Preemption technology is utilized to override signal operations and provide priority to approaching emergency responders. Standard intersection signal design includes the EVP.

21.1.3 *Transit signal priority (TSP)*

Transit Signal Priority is an ITS strategy that allows public transit vehicles, such as an MTS bus, to communicate with traffic signals to advance transition to a green phase for its approach. Objectives of TSP include improved schedule adherence and improved transit time efficiency while minimizing impacts to normal traffic operations. The TSP is implemented as a module as a part of the Adaptive Traffics Control System (ATCS).

Given the additional development by the Riverwalk project and the Community Plan, MTS buses, especially Rapid and Express Bus services (Bus Routes 20, 120,) to Downtown would benefit from the installation of TSP's along the major arterials in the Mission Valley Community such as Friars Road, Fashion Valley Road and Hotel Circle North.

21.1.4 *Adaptive Signal Control*

Inefficient traffic signal timing can contribute to traffic congestion and delay. Conventional signal control technology uses pre-programmed signal timing schedules which are optimized for "typical" conditions. When conditions differ somewhat from these "typical" conditions, inefficiency can occur and unnecessary delay results. An Adaptive Traffic Control System (ATCS) is a traffic management strategy in which traffic signal timing changes, or adapts, based on actual real-time traffic demand. This is accomplished using an adaptive traffic control system consisting of both hardware and software. Adaptive traffic signals or "Smart" traffic signals communicate with each other and dynamically adjust signal timings, memorize traffic patterns, and can improve traffic flow and reduce vehicle stops, especially in less than saturated traffic conditions.

The City of San Diego has already implemented adaptive traffic signals on several corridors including Rosecrans Street, Mira Mesa Boulevard, Lusk Boulevard, Friars Road, La Jolla Parkway and Vista Sorrento Parkway. In 2014, City officials created a $163 million, 10-year master plan to install modern traffic signal timing and communication systems and other ITS strategies that combat gridlock. Additional information on adaptive signals is contained in ***Appendix II***. Currently, in the Riverwalk project vicinity, Adaptive Signals are in operation at intersections on Friars Road at the Avenida De Las Tiendas and Via De La Moda intersections; however, given the buildout of the Community and the associated increase in traffic, several corridors such as Friars Road and Fashion Valley Road might be candidates for ATCS.

21.1.5 *Grade Crossing Preemption*

Signal operations at intersections with light-rail crossings involve complex signal timing that accommodates non-conflicting movements of traffic. The Riverwalk project propose a new trolley station and an extension of Riverwalk Drive to the west. The project proposes a grade-separated crossing at Riverwalk Drive and Street I / Street J and an at-grade crossing at Street O / Riverwalk Drive intersection. The at-grade crossing at the Street O will include grade crossing preemption infrastructure to ensure smooth and safe access for all travel modes and will be designed per California Public Utilities Commission (CPUC) and MTS requirements and standards.

21.2 ITS Communication Systems

The communication system is an integral part of ITS functionality and effectiveness. ITS communication occurs between traffic signals, transit / emergency vehicle preemptions and the City's Traffic Management Center (TMC). Per the 2014 Traffic Signal Communications Master Plan, communication deficiencies were identified on Fashion Valley Road, Hotel Circle North, Hotel Circle South and Camino De La Reina at the following locations:

- Fashion Valley Road / Riverwalk Drive
- Fashion Valley Road / Hotel Circle North
- Hotel Circle North / Camino De La Reina
- Hotel Circle South / Bachman Place
- Camino De La Reina / Avenida Del Rio
- Camino De La Reina / Camino De La Siesta

The communication systems along a subset of these intersections that are along the Friars Road, Fashion Valley Road and Hotel Circle North are proposed to be improved as discussed in Section 10.4 below.

21.3 MVCP ITS Policies

The MVCP includes ITS policies to improve mobility in Mission Valley. The two policies are ITS-1 and ITS-2:

ITS-1: New development should carefully evaluate Intelligent Transportation Systems (ITS) improvements, such as Adaptive Signals and improved coordination technologies and determine if they are feasible and suitable.

ITS-2: New development should coordinate with the City's Transportation and Storm Water Department and Development Services Department to identify opportunities to incorporate ITS technologies as a means to improve transportation efficiency.

Consistent with the MVCP policies and recommendations, the Riverwalk project proposes to implement Adaptive Signals with Transit Signal Priority to improve mobility in Mission Valley per the recommendations below.

21.4 ITS Improvement Recommendations

Several Intelligent Transportation Systems (ITS) strategies were reviewed including traffic signal coordination, EVP, detectors, Adaptive Traffic Control, and Transit Signal Priority for MTS bus service.

Based on discussions with the City of San Diego traffic operations group, the Riverwalk project would implement Adaptive Traffic Signal Control and upgrade the communication deficiencies as on these major corridors:

- Friars Road – Sea World Drive to Frazee Road
- Fashion Valley Road – Friars Road to Hotel Circle North
- Hotel Circle North – I-8 WB Hook Ramps to Fashion Valley Road

In addition, as a part of the adaptive traffic signal system, Transit Signal Priority features are included on the below corridors to improve transit performance:

- Friars Road – SR 163 to Fashion Valley Road
- Fashion Valley Road – Friars Road to Hotel Circle North
- Street U and Street V

Implementation of ITS strategies will be according to the City of San Diego and Caltrans requirements and will require communications upgrades, (which may include wireless, fiber optic, cellular modem, communication hub or other pertinent items as needed) between the traffic signals, upgrades to vehicle detection and system implementation at the controller cabinets. Remote link to the City and Caltrans' Traffic Management Center (TMC) may also be required.

22.0 TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

Transportation Demand Management (TDM) plans are comprised of measures, to encourage residents and employees to use alternative forms of transportation other than single occupancy vehicles. The goal of these plans is to reduce and/or remove single occupancy vehicle trips out of the peak hours, thereby relieving traffic congestion. A detailed description of the project's TDM measures is provided below.

22.1 Project TDM Measures

The Project TDM measures can be broadly categorized as follows:

- *Management* - measures in place to ensure the smooth running of a TDM plan such as a dedicated transportation coordinator
- *Education* - measures intended to inform stakeholders and users about the existence and importance of a TDM plan as well as how it fits with their everyday lives
- *Promotion* - measures necessary to provide reinforcement and reminders of the availability of TDM opportunities
- *Employee Incentives*- measures intended to encourage stakeholder/employee use of TDM
- *Active Measures* - measures which directly reduce travel during the peak hour
- *Parking* - measures intended to disincentivize Single Occupancy Vehicle (SOV) travel through paid parking

This project TDM measures include the following:

Transit Station:

- The project will construct a new MTS Trolley Stop in the Mixed-Use Core of the project. The new trolley stop is proposed to be located at the intersection of Street J and Riverwalk Drive to promote transit mobility for all site users as well as residents in the neighboring communities and would be constructed at 3,386 EDU's (at the beginning of Phase II)

Mobility Hub at the Transit Station

- The project will construct a Mobility Hub in conjunction with the new Riverwalk Trolley Station. The hub will provide for multi-modal connectivity with space for private vehicle drop-off, rideshare services, dockless bike and scooter sharing, and intra-project shuttle services. The community serving retail use proposed within the Mixed-Use Core will be conveniently located within walking distance to the Mobility Hub patrons. A bike repair station is also proposed as a part of Mobility Hub.

Transit Subsidies

- The project will provide transit subsidies to both residents and employees. For residents, the project will provide a 25% subsidy. The subsidy value will be limited to the equivalent value of 25% of the cost of an MTS "Regional Adult Monthly/30-Day Pass" (currently $72 for a subsidy value of $18 per month). Subsidies will be available on a per unit basis to residential tenants and will be offered from the completion of the first dwelling unit until ten years after the opening of the Riverwalk Transit Station. The subsidy will be required of office and retail tenant employees as a lease condition.

Last Mile Transportation Options (one of the following at Owner's Discretion):

- Up to one shuttle vehicle serving up to 12 passengers. The shuttle will serve to connect office uses south of the river to the mobility hub at the Riverwalk Trolley Stop. Additionally, the shuttle will connect to the Fashion Valley Transit Center. The shuttle will be implemented upon construction of Riverwalk Phase 3 (south of the river). Hours of operation will be from 6:00 AM to 6:00 PM.
- As an alternative, an Autonomous Transportation Service Option may be implemented serving the same equivalent number of passengers via one or multiple vehicles and running during the same hours of operations and same conditions as above.
- As an alternative, on-demand Rideshare services may be utilized to serve the same goal via discount codes based on agreements between the employer and rideshare company which enable office tenants to reach the same destinations outlined above during the same hours of operation.

Active Transportation

- The project will construct bicycle facilities which include a combination of Class I paths, Class II buffered bike lanes and Class IV cycle tracks.
- The project will construct the San Diego River pathway within the site.

Marketing and Information

- The project will install Transit Boards in the office and residential lobbies
- The project will participate in the SANDAG iCommute Program (to be implemented through a lease provision)
- The project will provide SANDAG/MTS Information at Leasing Centers

Onsite Ride-Sharing, Car-Sharing and Bike or Scooter-Sharing Services

- The project will coordinate with ride-sharing services such as Uber, Lyft; car-sharing service providers such as Zip Car, Car2Go etc. and other providers for bike and scooter sharing on the project site and incentivize their use. The project will incorporate pick-up/drop-off zones into the site design to accommodate these ride-sharing services.

Curb Planning for Shared Mobility Vehicles

- As a part of the project site design, the project will implement curb management to accommodate shared bicycles, shared scooters, and drop-off zones at private drives.

Parking Management Plan

- The project will implement unbundled Parking for Residential
- The project will implement paid parking for Retail Uses and Visitors to Residential

Access to Services That Reduce The Need To Drive

- The project is a mixed-use development that will include retail services.

23.0 CONCLUSIONS

The Riverwalk Master Plan project is located at 1150 Fashion Valley Road, in the area that abuts Friars Road on the north; Fashion Valley Road on the east; a portion of Hotel Circle North on south; and privately-owned residential property to the west. The San Diego River and the Green Line Trolley traverse the project site in an east-west direction. The Green Line Trolley provides transit connections through Mission Valley to the Old Town multi-modal transit facility located in Old Town (west of the project site) and to San Diego State University, SDCCU Stadium, and the cities of La Mesa, El Cajon, and Santee located east of the project site.

The 195-acre project site is currently occupied by a 27-hole Riverwalk Golf Course and clubhouse building. The golf course operates under an existing Conditional Use Permit (CUP No. 94-0563).

The Riverwalk project proposes to redevelop the existing golf course as a modern live-work-play mixed-use neighborhood with a local and natural focus that showcases a large riverfront park. The intent is to create a sense of place both within the site boundaries and the surrounding community. Emphasis would be placed on mobility including a pedestrian focus, bicycle connectivity within and external to the project site, direct access to transit, and additional community roadways. The mix and quantity of land uses would change from what is approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of neighborhood retail space; 1,000,000 square feet of office; 97 acres of parks and open space that would serve the project and surrounding community and would implement the San Diego River Park Master Plan; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop/transit center within the development.

The Project Buildout is calculated to generate 37,222 net new cumulative ADT with 3,105 total AM peak hour trips (1,519 inbound / 1,586 outbound) and 3,906 total PM peak hour trips (1,973 inbound / 1,933 outbound). The Project Buildout is calculated to generate 41,186 driveway ADT with 3,224 total AM peak hour trips (1,591 inbound/ 1,633 outbound) and 4,302 total PM peak hour trips (2,171 inbound/ 2,131 outbound).

Finally, the Riverwalk project proposes to construct several transportation improvements that will be implemented consistent with the TIP, which are also consistent with the transportation improvements identified in the Mission Valley Community Plan. These improvements promote active transportation, including transit mobility. The list of transportation improvements are summarized in a Transportation Improvement Plan (TIP), which identifies the improvement location (i.e. intersection, street segment, freeway), the improvement description and an identified Equivalent Dwelling Unit (EDU) threshold for transportation improvements to be completed in conjunction with project build-out.

RIVERWALK
SAN DIEGO







MOBILITY ASSESSMENT – TECHNICAL APPENDICES

May 2020

URBAN SYSTEMS ASSOCIATES, INC.
PLANNING & TRAFFIC ENGINEERING

Hines

LINSCOTT LAW & GREENSPAN
engineers

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APPENDIX A

INTERSECTION METHODOLOGY

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service criteria are stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. **Table 1** summarizes the delay thresholds for signalized intersections.

Level of service A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of service B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

TABLE 1

LEVEL OF SERVICE THRESHOLDS FOR SIGNALIZED INTERSECTIONS

AVERAGE CONTROL DELAY PER VEHICLE (SECONDS/VEHICLE)			LEVEL OF SERVICE
0.0	≤	10.0	A
10.1	to	20.0	B
21.1	to	35.0	C
35.1	to	55.0	D
55.1	to	80.0	E
	≥	80.0	F

Level of service C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of service D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are more frequent.

Level of service E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of service F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. **Table 2** depicts the criteria, which are based on the average control delay for any particular minor movement.

TABLE 2

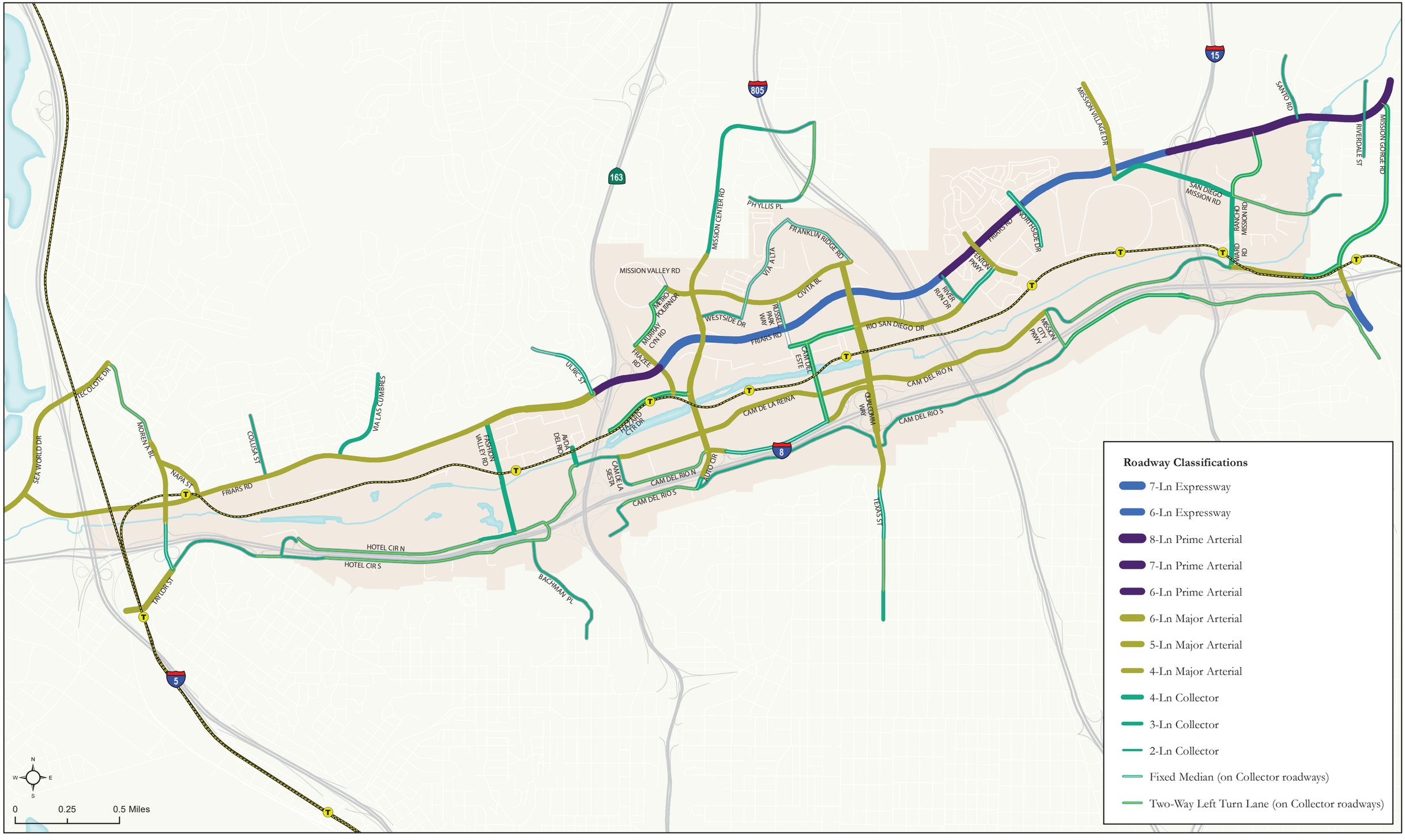
LEVEL OF SERVICE THRESHOLDS FOR UNSIGNALIZED INTERSECTIONS

AVERAGE CONTROL DELAY PER VEHICLE (SECONDS/VEHICLE)	LEVEL OF SERVICE	EXPECTED DELAY TO MINOR STREET TRAFFIC
0.0 ≤ 10.0	A	Little or no delay
10.1 to 15.0	B	Short traffic delays
15.1 to 25.0	C	Average traffic delays
25.1 to 35.0	D	Long traffic delays
35.1 to 50.0	E	Very long traffic delays
≥ 50.0	F	Severe congestion

Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

APPENDIX B

MISSION VALLEY COMMUNITY PLAN EXISTING ROADWAY FUNCTIONAL CLASSIFICATION



Mission Valley Community Plan Update
Traffic Impact Study

CHEN RYAN

Figure 3-1
Existing Roadway Functional Classification

APPENDIX C

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

MISSION VALLEY COMMUNITY PLAN UPDATE – EXISTING TRAFFIC COUNTS (YEAR 2015)

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Sea World Drive	LOCATION #:	7
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

		NORTHBOUND Sea World Drive			SOUTHBOUND Sea World Drive			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL X	NT 2	NR 1	SL 2	ST 2	SR X	EL X	ET X	ER X	WL 1.5	WT X	WR 1.5	TOTAL
WEEKDAY AM	7:00 AM		274	65	21	146					72		37	615
	7:15 AM		313	146	51	145					49		52	756
	7:30 AM		342	91	45	145					90		61	774
	7:45 AM		320	108	31	173					88		47	767
	8:00 AM		287	67	36	187					108		48	733
	8:15 AM		263	95	24	173					159		82	796
	8:30 AM		266	127	24	169					157		87	830
	8:45 AM		216	137	25	154					151		76	759
	VOLUMES	0	2,281	836	257	1,292	0	0	0	0	874	0	490	6,030
	APPROACH %	0%	73%	27%	17%	83%	0%	0%	0%	0%	64%	0%	36%	
	APP/DEPART	3,117	/	2,771	1,549	/	2,166	0	/	1,093	1,364	/	0	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	1,136	397	115	702	0	0	0	0	512	0	264	3,126
	APPROACH %	0%	74%	26%	14%	86%	0%	0%	0%	0%	66%	0%	34%	
	PEAK HR FACTOR		0.895			0.916			0.000			0.795		0.942
	APP/DEPART	1,533	/	1,400	817	/	1,214	0	/	512	776	/	0	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM		263	155	51	252					109		27	857
	4:15 PM		282	230	76	292					110		34	1,024
	4:30 PM		277	206	81	274					88		36	962
	4:45 PM		257	196	112	299					76		38	978
	5:00 PM		328	181	86	259					90		29	973
	5:15 PM		262	176	96	308					136		36	1,014
	5:30 PM		271	145	98	325					159		37	1,035
	5:45 PM		184	98	60	333					89		27	791
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	2,124	1,387	660	2,342	0	0	0	0	857	0	264	7,634
	APPROACH %	0%	60%	40%	22%	78%	0%	0%	0%	0%	76%	0%	24%	
	APP/DEPART	3,511	/	2,388	3,002	/	3,199	0	/	2,047	1,121	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	1,118	698	392	1,191	0	0	0	0	461	0	140	4,000
	APPROACH %	0%	62%	38%	25%	75%	0%	0%	0%	0%	77%	0%	23%	
	PEAK HR FACTOR		0.892			0.936			0.000			0.767		0.966
	APP/DEPART	1,816	/	1,258	1,583	/	1,652	0	/	1,090	601	/	0	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
			1	1
				0
				0
	2			2
	3			3
	2			2
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	7	0	1	8

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
0	1	0	0	1	7:00 AM
0	0	0	0	0	7:15 AM
0	0	0	0	0	7:30 AM
0	0	0	0	0	7:45 AM
0	0	0	0	0	8:00 AM
0	0	0	0	0	8:15 AM
0	0	0	0	0	8:30 AM
0	0	0	0	0	8:45 AM
				0	
				0	
	pm			0	
0	0	0	0	0	4:00 PM
0	0	0	0	0	4:15 PM
0	1	0	0	1	4:30 PM
0	0	0	0	0	4:45 PM
0	1	0	0	1	5:00 PM
0	0	0	0	0	5:15 PM
0	0	0	0	0	5:30 PM
0	0	0	0	0	5:45 PM
				0	
				0	
				0	
				0	
				0	
0	3	0	0	3	

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2			0								1
	4		2	0								2
	1			1								4
	2	1		3								0
	0	3		0								0
	1			0								1
	3			0								0
	1			0								0
												0
												0
			pm								pm	0
	0	1		1								0
	3			0								0
	1	1		1								0
	0			0								0
	1			0							2	2
	0			0								0
	1			0								0
	0			0							3	3
												0
												0
												0
												0
												6
0	20	6	2	6	0	0	0	0	13	0	0	19

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/10/15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Morena Boulevard
EAST & WEST: Taylor Street

PROJECT #: PDT15-0911-01
LOCATION #: 53
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Morena Boulevard			SOUTHBOUND Morena Boulevard			EASTBOUND Taylor Street			WESTBOUND Taylor Street			
	LANES:	NL 0	NT 0	NR 1	SL 1.5	ST 0.5	SR 1	EL 2	ET 1.5	ER 0.5	WL 1	WT 2	WR 0	TOTAL
WEEKDAY AM	7:00 AM	0	0	4	4	0	29	31	31	4	1	186	46	336
	7:15 AM	0	1	0	17	0	31	51	22	2	2	192	88	406
	7:30 AM	0	0	4	33	1	62	80	25	2	3	168	113	491
	7:45 AM	0	0	6	32	0	57	68	31	0	0	250	127	571
	8:00 AM	0	0	5	11	0	62	76	25	1	0	251	123	554
	8:15 AM	0	0	0	12	0	40	61	31	0	0	165	99	408
	8:30 AM	1	0	0	5	1	60	75	37	2	0	202	67	450
	8:45 AM	0	0	6	11	1	63	70	37	0	2	241	70	501
	VOLUMES	1	1	25	125	3	404	512	239	11	8	1,655	733	3,717
	APPROACH %	4%	4%	93%	23%	1%	76%	67%	31%	1%	0%	69%	31%	
	APP/DEPART	27	/	1,246	532	/	22	762	/	389	2,396	/	2,060	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	0	0	15	88	1	221	285	112	3	3	834	462	2,024
	APPROACH %	0%	0%	100%	28%	0%	71%	71%	28%	1%	0%	64%	36%	
	PEAK HR FACTOR		0.625			0.807			0.935			0.861		0.886
	APP/DEPART	15	/	747	310	/	7	400	/	215	1,299	/	1,055	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM	0	0	6	52	0	49	106	182	3	0	69	37	504
	4:15 PM	0	1	6	58	1	52	145	174	5	1	63	26	532
	4:30 PM	0	2	9	51	2	78	121	194	3	1	72	35	568
	4:45 PM	1	1	3	26	1	60	146	159	5	2	103	31	538
	5:00 PM	0	2	1	46	4	85	133	118	5	3	76	22	495
	5:15 PM	0	1	6	52	5	96	155	175	3	1	85	33	612
	5:30 PM	2	4	6	49	3	95	111	170	12	0	89	30	571
	5:45 PM	0	0	6	52	1	79	103	140	5	3	120	38	547
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	3	11	43	386	17	594	1,020	1,312	41	11	677	252	4,367
	APPROACH %	5%	19%	75%	39%	2%	60%	43%	55%	2%	1%	72%	27%	
	APP/DEPART	57	/	1,283	997	/	69	2,373	/	1,741	940	/	1,274	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	2	7	19	199	13	355	502	603	25	7	370	123	2,225
	APPROACH %	7%	25%	68%	35%	2%	63%	44%	53%	2%	1%	74%	25%	
	PEAK HR FACTOR		0.583			0.926			0.848			0.776		0.909
	APP/DEPART	28	/	632	567	/	45	1,130	/	821	500	/	727	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
			1	1
				0
				0
				0
				0
				0
			2	2
0	0	0	3	3
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
	2			2
	1			1
	2		1	3
			1	1
	1			1
	2			2
	1			1
	2			2
	1			1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	10	0	2	12

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	7	0	8
1	0	3	0	4
0	1	7	0	8
0	1	5	1	7
1	0	3	0	4
2	1	4	0	7
2	0	4	0	6
0	0	2	0	2
				0
	pm			0
1	2	2	0	5
0	1	5	0	6
0	0	2	0	2
2	0	7	0	9
0	1	3	0	4
1	4	2	0	7
0	0	2	0	2
1	0	1	1	3
				0
				0
				0
				0
				0
				0
12	11	59	2	84

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
					3	1					4	4
	1					2		1			1	2
											2	2
					1	1						0
			2			1					2	2
					1							0
						1					1	1
				1	1							0
												0
	pm											0
			1			1						0
						2					1	1
			2					2			1	3
			2		1						1	1
			2		1							0
			1		2						1	1
		1	1		2	1					1	1
												0
												0
												0
												0
												0
												0
												10
1	0	1	11	1	12	10	0	3	0	0	15	28

8

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9-10-15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Napa Street
EAST & WEST: Friars Road

PROJECT #: PDT15-0911-01
LOCATION #: 8
CONTROL: SIGNAL

NOTES:

AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Napa Street			SOUTHBOUND Napa Street			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL X	NT X	NR X	SL 1.5	ST X	SR 1.5	EL 1	ET 2	ER X	WL X	WT 2	WR 1	TOTAL
WEEKDAY AM	7:00 AM				18		7	24	55			86	87	277
	7:15 AM				35		9	52	110			117	104	427
	7:30 AM				45		10	51	103			123	136	468
	7:45 AM				40		17	41	83			122	155	458
	8:00 AM				55		20	34	73			162	165	509
	8:15 AM				53		23	35	72			209	207	599
	8:30 AM				48		16	68	78			233	187	630
	8:45 AM				50		27	80	86			183	175	601
	VOLUMES	0	0	0	344	0	129	385	660	0	0	1,235	1,216	3,969
	APPROACH %	0%	0%	0%	73%	0%	27%	37%	63%	0%	0%	50%	50%	
	APP/DEPART	0	/	1,601	473	/	0	1,045	/	1,004	2,451	/	1,364	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	0	0	206	0	86	217	309	0	0	787	734	2,339
	APPROACH %	0%	0%	0%	71%	0%	29%	41%	59%	0%	0%	52%	48%	
	PEAK HR FACTOR		0.000			0.948			0.792			0.905		0.928
	APP/DEPART	0	/	951	292	/	0	526	/	515	1,521	/	873	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM				92		45	25	198			80	61	501
	4:15 PM				128		35	10	272			81	66	592
	4:30 PM				131		43	35	251			83	75	618
	4:45 PM				118		26	32	274			83	103	636
	5:00 PM				142		41	40	219			92	77	611
	5:15 PM				140		54	30	255			108	79	666
	5:30 PM				123		66	32	201			117	91	630
	5:45 PM				90		34	18	142			80	79	443
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	964	0	344	222	1,812	0	0	724	631	4,697
	APPROACH %	0%	0%	0%	74%	0%	26%	11%	89%	0%	0%	53%	47%	
	APP/DEPART	0	/	853	1,308	/	0	2,034	/	2,776	1,355	/	1,068	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	523	0	187	134	949	0	0	400	350	2,543
	APPROACH %	0%	0%	0%	74%	0%	26%	12%	88%	0%	0%	53%	47%	
	PEAK HR FACTOR		0.000			0.915			0.885			0.901		0.955
	APP/DEPART	0	/	484	710	/	0	1,083	/	1,472	750	/	587	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
		1		1
		1		1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	2	0	2

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0		9	0	9
4		4	0	8
6		8	1	15
3		9	0	12
5		7	1	13
5		12	1	18
6		8	0	14
3		8	0	11
				0
		pm		0
6		10	0	16
1		5	0	6
7		16	0	23
6		7	2	15
12		10	0	22
4		10	1	15
1		9	0	10
3		4	5	12
				0
				0
				0
				0
				0
				0
72	0	136	11	219

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
			0				2			5		5
			1				1			3		3
			2				0			1		1
			0			1	0			1		1
			2				0			4		4
			1			1	0			1		1
			0			1	2			1		1
			5				1			0		0
												0
										pm		0
			1				1			2		2
			0		1	1	0			1		1
			0				1			0		0
			0				0			1		1
			1				1			1		1
			0				2			2	1	3
			1			1	1			1	1	2
			1			1	4			5		5
												0
												0
												0
												0
												0
												22
0	0	0	15	0	1	6	16	0	0	29	2	53

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9-10-15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Colusa Street
EAST & WEST: Friars Road

PROJECT #: PDT15-0911-01
LOCATION #: 9
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Colusa Street			SOUTHBOUND Colusa Street			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 0.5	NT 0.5	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
WEEKDAY AM	7:00 AM	18	2	2	11	0	5	6	61	3	0	152	10	270
	7:15 AM	6	2	8	14	1	16	7	93	2	2	185	9	345
	7:30 AM	14	0	6	18	0	18	7	135	6	6	227	18	455
	7:45 AM	12	0	11	18	0	10	8	109	0	2	241	20	431
	8:00 AM	17	1	4	11	0	12	6	91	6	2	319	19	488
	8:15 AM	12	1	7	12	1	3	5	82	3	1	410	28	565
	8:30 AM	14	2	8	16	0	12	9	77	6	2	453	18	617
	8:45 AM	10	1	15	16	1	5	19	132	4	8	339	16	566
	VOLUMES	103	9	61	116	3	81	67	780	30	23	2,326	138	3,737
	APPROACH %	60%	5%	35%	58%	2%	41%	8%	89%	3%	1%	94%	6%	
	APP/DEPART	173	/	214	200	/	56	877	/	957	2,487	/	2,510	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	53	5	34	55	2	32	39	382	19	13	1,521	81	2,236
	APPROACH %	58%	5%	37%	62%	2%	36%	9%	87%	4%	1%	94%	5%	
	PEAK HR FACTOR		0.885			0.795			0.710			0.854		0.906
	APP/DEPART	92	/	125	89	/	34	440	/	471	1,615	/	1,606	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM	3	0	7	21	6	8	12	273	11	3	126	5	475
	4:15 PM	5	0	0	23	1	13	7	300	9	7	156	14	535
	4:30 PM	2	0	2	15	2	12	15	385	13	13	125	7	591
	4:45 PM	4	0	2	26	0	7	14	372	14	12	149	15	615
	5:00 PM	10	1	4	30	1	11	14	350	10	4	155	12	602
	5:15 PM	5	0	3	42	4	11	10	321	8	7	156	13	580
	5:30 PM	9	0	5	41	4	20	18	332	11	11	172	5	628
	5:45 PM	3	0	2	16	2	11	9	235	9	6	142	11	446
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	41	1	25	214	20	93	99	2,568	85	63	1,181	82	4,472
	APPROACH %	61%	1%	37%	65%	6%	28%	4%	93%	3%	5%	89%	6%	
	APP/DEPART	67	/	182	327	/	168	2,752	/	2,807	1,326	/	1,315	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	28	1	14	139	9	49	56	1,375	43	34	632	45	2,425
	APPROACH %	65%	2%	33%	71%	5%	25%	4%	93%	3%	5%	89%	6%	
	PEAK HR FACTOR		0.717			0.758			0.921			0.945		0.965
	APP/DEPART	43	/	102	197	/	86	1,474	/	1,528	711	/	709	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
		1		1
1				1
		1		1
				0
		1		1
				0
1	0	3	0	4
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
		2		2
		0		0
		2		2
		3		3
		3		3
		2		2
		5		5
		1		1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	18	0	18

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
9	7	0	5	21
4	3	0	1	8
6	2	0	1	9
12	2	0	3	17
2	6	0	4	12
6	3	0	1	10
0	1	0	0	1
2	3	0	3	8
				0
	pm			0
0	2	0	1	3
1	2	0	0	3
1	1	0	0	2
3	2	0	0	5
2	5	0	3	10
3	4	0	2	9
1	3	0	2	6
3	8	0	3	14
				0
				0
				0
				0
				0
				0
55	54	0	29	138

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0			0			2		2
	0	0		0			5			4		4
	0	0		0			1			0		0
	0	0		0			2		1	1		2
	0	0		0			1			0		0
	0	0		0			1			0		0
	0	2		0			2			0		0
	0	0		0			0			0		0
												0
	pm						pm					0
	0	0		1			1			1		1
	0	0		0			2			0		0
	0	1		0			0			2		2
	0	0		0			1			0		0
	0	1		0			0			2		2
	0	1		0			2			0		0
	0	0		0			2			1		1
	0	0		0			4			1		1
												0
												0
												0
												0
												0
												9
0	0	5	1	1	0	0	24	0	1	14	0	24

10

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Via Las Cumbres	LOCATION #:	10
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Via Las Cumbres			SOUTHBOUND Via Las Cumbres			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 2	WR 1	TOTAL
WEEKDAY AM	7:00 AM				33		27	23	60			134	69	346
	7:15 AM				46		34	70	77			178	129	534
	7:30 AM				60		41	62	108			209	133	613
	7:45 AM				54		40	33	125			255	112	619
	8:00 AM				43		23	30	80			358	105	639
	8:15 AM				34		35	19	78			407	122	695
	8:30 AM				34		24	13	115			445	120	751
	8:45 AM				48		33	25	105			290	118	619
	VOLUMES	0	0	0	352	0	257	275	748	0	0	2,276	908	4,816
	APPROACH %	0%	0%	0%	58%	0%	42%	27%	73%	0%	0%	71%	29%	
	APP/DEPART	0	/	1,183	609	/	0	1,023	/	1,100	3,184	/	2,533	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	0	0	159	0	115	87	378	0	0	1,500	465	2,704
	APPROACH %	0%	0%	0%	58%	0%	42%	19%	81%	0%	0%	76%	24%	
	PEAK HR FACTOR		0.000			0.729			0.736			0.869		0.900
	APP/DEPART	0	/	552	274	/	0	465	/	537	1,965	/	1,615	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM				118		24	31	238			134	45	590
	4:15 PM				97		34	29	242			155	56	613
	4:30 PM				88		34	38	340			154	35	689
	4:45 PM				63		22	43	318			161	58	665
	5:00 PM				115		32	38	335			151	65	736
	5:15 PM				90		39	51	289			176	58	703
	5:30 PM				92		36	55	340			164	59	746
	5:45 PM				75		18	37	194			149	57	530
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	738	0	239	322	2,296	0	0	1,244	433	5,272
	APPROACH %	0%	0%	0%	76%	0%	24%	12%	88%	0%	0%	74%	26%	
	APP/DEPART	0	/	755	977	/	0	2,618	/	3,034	1,677	/	1,483	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	360	0	129	187	1,282	0	0	652	240	2,850
	APPROACH %	0%	0%	0%	74%	0%	26%	13%	87%	0%	0%	73%	27%	
	PEAK HR FACTOR		0.000			0.832			0.930			0.953		0.955
	APP/DEPART	0	/	427	489	/	0	1,469	/	1,642	892	/	781	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
	2			2
	1			1
				0
0	3	0	0	3
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
			1	1
				0
			1	1
				0
				0
				0
				0
	1			1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	1	0	2	3

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
2	0	0	1	3
6	0	0	0	6
4	0	0	0	4
2	0	0	0	2
5	0	0	0	5
0	0	0	0	0
				0
	PM			0
7	0	0	0	7
0	0	0	0	0
1	0	0	0	1
1	0	0	0	1
6	0	0	0	6
6	0	0	0	6
7	0	0	0	7
1	0	0	0	1
				0
				0
				0
				0
				0
				0
48	0	0	1	49

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			4			0		0
	0			0			2			0		0
	0			0			2			0		0
	0			0			3			7		7
	0			0			0			1		1
	0			0			2			0		0
	0			0			1			0		0
	0			0			0			0		0
												0
	PM						PM					0
	0			0			4			1		1
	0			0			2			0		0
	0			0			3			0		0
	0			0			0			2		2
	0			0			0			0		0
	0			0			0			1		1
	0			0			2			0		0
	0			0			0			0		0
												0
												0
												0
												0
												0
												12
0	0	0	0	0	0	0	25	0	0	12	0	24

54

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	I-8 Ramps	LOCATION #:	54
THURSDAY	EAST & WEST:	Taylor Street	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N / ◄ W / E ► / S ▼

	NORTHBOUND I-8 Ramps			SOUTHBOUND I-8 Ramps			EASTBOUND Taylor Street			WESTBOUND Taylor Street			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	X	2	X	1	1	1	X	X	1	1	
WEEKDAY AM													
7:00 AM				25		19	42	14			207	9	316
7:15 AM				25		34	31	13			234	7	344
7:30 AM				40		29	45	22			244	7	387
7:45 AM				40		28	53	23			352	12	508
8:00 AM				48		30	51	14			346	42	531
8:15 AM				57		28	35	31			354	4	509
8:30 AM				51		28	44	38			289	16	466
8:45 AM				59		29	44	32			199	4	367
VOLUMES	0	0	0	345	0	225	345	187	0	0	2,225	101	3,428
APPROACH %	0%	0%	0%	61%	0%	39%	65%	35%	0%	0%	96%	4%	
APP/DEPART	0	/	446	570	/	0	532	/	532	2,326	/	2,450	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	0	0	196	0	114	183	106	0	0	1,341	74	2,014
APPROACH %	0%	0%	0%	63%	0%	37%	63%	37%	0%	0%	95%	5%	
PEAK HR FACTOR		0.000			0.912			0.881			0.912		0.948
APP/DEPART	0	/	257	310	/	0	289	/	302	1,415	/	1,455	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM				75		12	162	73			78	34	434
4:15 PM				77		13	150	108			66	39	453
4:30 PM				84		15	160	52			89	42	442
4:45 PM				79		13	141	67			105	30	435
5:00 PM				69		16	151	47			87	57	427
5:15 PM				72		15	152	89			105	40	473
5:30 PM				72		17	153	108			97	29	476
5:45 PM				98		33	138	98			105	30	502
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	0	626	0	134	1,207	642	0	0	732	301	3,642
APPROACH %	0%	0%	0%	82%	0%	18%	65%	35%	0%	0%	71%	29%	
APP/DEPART	0	/	1,508	760	/	0	1,849	/	1,268	1,033	/	866	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	0	0	0	311	0	81	594	342	0	0	394	156	1,878
APPROACH %	0%	0%	0%	79%	0%	21%	63%	37%	0%	0%	72%	28%	
PEAK HR FACTOR		0.000			0.748			0.897			0.948		0.935
APP/DEPART	0	/	750	392	/	0	936	/	653	550	/	475	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
		0		0
		2		2
		0		0
		1		1
		1		1
		0		0
		2		2
		0		0
	PM			0
		0		0
		0		0
		0		0
		0		0
		0		0
		0		0
		0		0
		1		1
				0
				0
				0
				0
				0
				0
				0
0	0	7	0	7

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
							2					0
							1					0
							1					0
							1					0
							0					0
							0					0
							0					0
							0					0
	PM											0
							0					0
							2					0
							0					0
							0					0
							0					0
							4					0
							2					0
							1					0
												0
												0
												0
												0
												0
												0
												0
0	0	0	0	0	0	0	14	0	0	0	0	0

11

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Fashion Valley Road	LOCATION #:	11
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Fashion Valley Road			SOUTHBOUND Fashion Valley Road			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 0.5	NT 0.5	NR 1	SL 0	ST 1	SR 0	EL 1	ET 3	ER 0	WL 2	WT 2	WR 0	TOTAL
WEEKDAY AM	7:00 AM	29	0	20	7	0	0	1	93	21	23	151	0	345
	7:15 AM	25	0	15	1	0	3	1	132	16	29	228	0	450
	7:30 AM	51	0	14	6	1	2	2	153	20	23	279	2	553
	7:45 AM	38	0	21	3	1	1	1	209	38	42	305	0	659
	8:00 AM	59	0	15	3	1	1	0	127	26	43	331	0	606
	8:15 AM	109	0	21	3	0	2	1	123	20	41	379	1	700
	8:30 AM	70	1	19	5	0	1	0	133	31	47	458	3	768
	8:45 AM	42	0	26	6	1	1	1	155	26	42	373	4	677
	VOLUMES	423	1	151	34	4	11	7	1,125	198	290	2,504	10	4,758
	APPROACH %	74%	0%	26%	69%	8%	22%	1%	85%	15%	10%	89%	0%	
	APP/DEPART	575	/	18	49	/	492	1,330	/	1,310	2,804	/	2,938	0
	BEGIN PEAK HR	8:00 AM												
	VOLUMES	280	1	81	17	2	5	2	538	103	173	1,541	8	2,751
	APPROACH %	77%	0%	22%	71%	8%	21%	0%	84%	16%	10%	89%	0%	
	PEAK HR FACTOR	0.696			0.750			0.883			0.847			0.896
	APP/DEPART	362	/	11	24	/	278	643	/	636	1,722	/	1,826	0
WEEKDAY AM	11:00 AM	31	0	48	1	2	1	4	123	31	45	122	1	409
	11:15 AM	34	0	48	1	0	0	2	154	28	31	119	2	419
	11:30 AM	34	2	42	2	0	1	1	137	37	37	95	0	388
	11:45 AM	42	1	50	1	0	1	2	156	33	36	137	1	460
	12:00 PM	47	2	66	1	0	0	0	155	41	42	124	2	480
	12:15 PM	49	1	60	2	1	2	1	158	47	31	119	4	475
	12:30 PM	38	0	53	1	1	0	1	162	35	43	153	1	488
	12:45 PM	40	0	57	1	0	0	2	162	42	55	132	2	493
	VOLUMES	315	6	424	10	4	5	13	1,207	294	320	1,001	13	3,612
	APPROACH %	42%	1%	57%	53%	21%	26%	1%	80%	19%	24%	75%	1%	
	APP/DEPART	745	/	32	19	/	618	1,514	/	1,641	1,334	/	1,321	0
	BEGIN PEAK HR	12:00 PM												
	VOLUMES	174	3	236	5	2	2	4	637	165	171	528	9	1,936
	APPROACH %	42%	1%	57%	56%	22%	22%	0%	79%	20%	24%	75%	1%	
	PEAK HR FACTOR	0.898			0.450			0.978			0.898			0.982
	APP/DEPART	413	/	16	9	/	338	806	/	878	708	/	704	0
WEEKDAY PM	4:00 PM	37	0	66	1	0	3	1	351	55	34	156	2	706
	4:15 PM	49	3	81	2	1	1	1	374	64	44	181	0	801
	4:30 PM	56	4	90	2	1	0	0	368	45	25	155	2	748
	4:45 PM	49	0	64	1	0	1	1	375	69	45	189	5	799
	5:00 PM	68	1	77	1	1	1	3	346	72	55	187	2	814
	5:15 PM	64	2	65	1	2	0	1	404	92	45	178	2	856
	5:30 PM	59	2	83	3	0	0	2	344	79	52	185	4	813
	5:45 PM	51	0	69	0	1	0	5	295	51	41	178	5	696
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	433	12	595	11	6	6	14	2,857	527	341	1,409	22	6,233
	APPROACH %	42%	1%	57%	48%	26%	26%	0%	84%	16%	19%	80%	1%	
	APP/DEPART	1,040	/	48	23	/	874	3,398	/	3,463	1,772	/	1,848	0
	BEGIN PEAK HR	4:45 PM												
	VOLUMES	240	5	289	6	3	2	7	1,469	312	197	739	13	3,282
	APPROACH %	45%	1%	54%	55%	27%	18%	0%	82%	17%	21%	78%	1%	
	PEAK HR FACTOR	0.914			0.917			0.899			0.972			0.959
	APP/DEPART	534	/	25	11	/	512	1,788	/	1,764	949	/	981	0

U-TURNS

	NB X	SB X	EB X	WB X	TTL
7:00 AM			1		1
7:15 AM			1		1
7:30 AM			1		1
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
	0	0	3	0	3
11:00 AM			1		1
11:15 AM					0
11:30 AM					0
11:45 AM			1		1
12:00 PM				1	1
12:15 PM			1		1
12:30 PM					0
12:45 PM			3		3
	0	0	6	1	7
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM				1	1
5:00 PM			1		1
5:15 PM			1		1
5:30 PM			1		1
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
	0	0	3	1	4

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM	4		4	2	10
7:15 AM	5		3	1	9
7:30 AM	2	1	1		4
7:45 AM	6	3	3	1	13
8:00 AM	1	2	1		4
8:15 AM	2	1	3	1	7
8:30 AM	1		1	1	3
8:45 AM	4	2	2	1	9
11:00 AM		2	2	1	5
11:15 AM	2			1	3
11:30 AM	3	1	1		5
11:45 AM					0
12:00 PM			1		1
12:15 PM			4		4
12:30 PM	1	1		2	4
12:45 PM	1	1			2
4:00 PM	1	1	1	4	7
4:15 PM	1	3	1	4	9
4:30 PM	1			1	2
4:45 PM	2	1	1	2	6
5:00 PM	3	1	1	7	12
5:15 PM	4	2	2	2	10
5:30 PM		2		2	4
5:45 PM					0
	44	24	32	33	133

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM							2						0
7:15 AM													0
7:30 AM													0
7:45 AM													0
8:00 AM													0
8:15 AM							1	1			1		1
8:30 AM							1						0
8:45 AM							1	1					0
11:00 AM													0
11:15 AM													0
11:30 AM			1				1						0
11:45 AM							1						0
12:00 PM							1				1	1	2
12:15 PM													0
12:30 PM								2					0
12:45 PM							1	1				1	1
4:00 PM											1		1
4:15 PM			1										0
4:30 PM											1		1
4:45 PM								1					0
5:00 PM											2		2
5:15 PM								1			1		1
5:30 PM													0
5:45 PM									1				9
	0	0	2	0	0	0	9	7	1	0	7	2	18

12

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Via De La Moda	LOCATION #:	12
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Via De La Moda			SOUTHBOUND Via De La Moda			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 1	NT 0	NR 1	SL X	ST X	SR X	EL 1	ET 3	ER 0	WL 2	WT 2	WR X	TOTAL
WEEKDAY AM	7:00 AM	0	0	4					114	0	5	177		300
	7:15 AM	0	0	2					154	3	13	287		459
	7:30 AM	0	2	7					199	3	14	309		534
	7:45 AM	3	0	1					198	3	16	324		545
	8:00 AM	0	0	7					161	5	16	432		621
	8:15 AM	0	0	7					146	2	16	428		599
	8:30 AM	1	0	6					172	2	21	490		692
	8:45 AM	3	0	3					174	6	31	406		623
	VOLUMES	7	2	37	0	0	0	0	1,318	24	132	2,853	0	4,373
	APPROACH %	15%	4%	80%	0%	0%	0%	0%	98%	2%	4%	96%	0%	
	APP/DEPART	46	/	2	0	/	156	1,342	/	1,355	2,985	/	2,860	0
	BEGIN PEAK HR	8:00 AM												
	VOLUMES	4	0	23	0	0	0	0	653	15	84	1,756	0	2,535
	APPROACH %	15%	0%	85%	0%	0%	0%	0%	98%	2%	5%	95%	0%	
	PEAK HR FACTOR	0.964			0.000				0.928			0.900		0.916
	APP/DEPART	27	/	0	0	/	99	668	/	676	1,840	/	1,760	0
WEEKDAY AM	11:00 AM	9	0	52					168	12	83	161		485
	11:15 AM	7	0	47					180	15	74	130		453
	11:30 AM	7	0	56					158	11	80	119		431
	11:45 AM	13	0	66					200	13	75	141		508
	12:00 PM	14	0	54					220	21	84	161		554
	12:15 PM	9	0	65					190	13	91	133		501
	12:30 PM	11	0	65					223	11	79	158		547
	12:45 PM	21	0	55					224	11	97	185		593
	VOLUMES	91	0	460	0	0	0	0	1,563	107	663	1,188	0	4,072
	APPROACH %	17%	0%	83%	0%	0%	0%	0%	94%	6%	36%	64%	0%	
	APP/DEPART	551	/	0	0	/	770	1,670	/	2,023	1,851	/	1,279	0
	BEGIN PEAK HR	12:00 PM												
	VOLUMES	55	0	239	0	0	0	0	857	56	351	637	0	2,195
	APPROACH %	19%	0%	81%	0%	0%	0%	0%	94%	6%	36%	64%	0%	
	PEAK HR FACTOR	0.967			0.000				0.947			0.876		0.925
	APP/DEPART	294	/	0	0	/	407	913	/	1,096	988	/	692	0
WEEKDAY PM	4:00 PM	12	0	64					403	16	47	185		727
	4:15 PM	15	0	68					404	19	57	199		762
	4:30 PM	14	0	60					417	10	54	175		730
	4:45 PM	10	0	53					420	15	55	224		777
	5:00 PM	12	0	68					399	12	73	226		790
	5:15 PM	11	0	57					433	14	49	234		798
	5:30 PM	9	0	64					418	15	58	205		769
	5:45 PM	11	0	77					329	19	46	195		677
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	94	0	511	0	0	0	0	3,223	120	439	1,643	0	6,030
	APPROACH %	16%	0%	84%	0%	0%	0%	0%	96%	4%	21%	79%	0%	
	APP/DEPART	605	/	0	0	/	559	3,343	/	3,734	2,082	/	1,737	0
	BEGIN PEAK HR	4:45 PM												
	VOLUMES	42	0	242	0	0	0	0	1,670	56	235	889	0	3,134
	APPROACH %	15%	0%	85%	0%	0%	0%	0%	97%	3%	21%	79%	0%	
	PEAK HR FACTOR	0.807			0.000				0.965			0.940		0.982
	APP/DEPART	284	/	0	0	/	291	1,726	/	1,912	1,124	/	931	0

U-TURNS					
NB X	SB X	EB X	WB X	TTL	
		1	1	2	7:00 AM
		2	1	3	7:15 AM
		4	7	11	7:30 AM
		2	9	11	7:45 AM
			7	7	8:00 AM
		2	7	9	8:15 AM
		1	5	6	8:30 AM
		1	8	9	8:45 AM
0	0	13	45	58	
		1	19	20	11:00 AM
		5	14	19	11:15 AM
			20	20	11:30 AM
		3	17	20	11:45 AM
			30	30	12:00 PM
		3	22	25	12:15 PM
		2	27	29	12:30 PM
		1	28	29	12:45 PM
0	0	15	177	192	
1			11	12	4:00 PM
			13	13	4:15 PM
			15	15	4:30 PM
			11	11	4:45 PM
1		1	20	22	5:00 PM
		2	14	16	5:15 PM
		2	13	15	5:30 PM
		3	14	17	5:45 PM
2	0	8	111	121	

PEDESTRIAN CROSSINGS					
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
			5	5	7:00 AM
			1	1	7:15 AM
	3		7	10	7:30 AM
			6	6	7:45 AM
	1		1	2	8:00 AM
	5			5	8:15 AM
	1		3	4	8:30 AM
	1		5	6	8:45 AM
			2	2	11:00 AM
			3	3	11:15 AM
			1	1	11:30 AM
			2	2	11:45 AM
	1		1	2	12:00 PM
			2	2	12:15 PM
			2	2	12:30 PM
	1		2	3	12:45 PM
				0	4:00 PM
	1			1	4:15 PM
				0	4:30 PM
	1			1	4:45 PM
				0	5:00 PM
				0	5:15 PM
				0	5:30 PM
	1			1	5:45 PM
0	16	0	43	59	

BIKE MOVEMENTS														
NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
												0	7:00 AM	
1												0	7:15 AM	
							2			1		1	7:30 AM	
							3		1	1		2	7:45 AM	
							6					0	8:00 AM	
1							1			2		2	8:15 AM	
1									1	3		4	8:30 AM	
												0	8:45 AM	
							1		1	3		4	11:00 AM	
												0	11:15 AM	
1									2			2	11:30 AM	
							1		3			3	11:45 AM	
												0	12:00 PM	
							2			2		2	12:15 PM	
							1			2		2	12:30 PM	
							1					0	12:45 PM	
							2		1	4		5	4:00 PM	
1			1						1			1	4:15 PM	
1												0	4:30 PM	
							3		2	2		4	4:45 PM	
							3		1	2		3	5:00 PM	
1							4					0	5:15 PM	
2							2			4		4	5:30 PM	
							2					38	5:45 PM	
9	0	0	1	0	0	0	34	0	13	26	0	77		

13

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Avenida De Las Tiendas	LOCATION #:	13
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Avenida De Las Tiendas			SOUTHBOUND Avenida De Las Tiendas			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 1	NT 0.5	NR 1.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 0	WL 2	WT 3	WR 0	TOTAL
WEEKDAY AM	7:00 AM	1	0	3	4	0	0	0	113	1	22	188	1	333
	7:15 AM	1	0	1	8	0	1	0	154	0	20	308	0	493
	7:30 AM	0	0	6	10	0	1	0	188	1	19	314	0	539
	7:45 AM	0	0	3	11	0	2	0	212	3	44	341	2	618
	8:00 AM	1	0	4	8	0	0	0	159	5	27	428	0	632
	8:15 AM	1	0	6	8	0	2	0	153	5	32	461	2	670
	8:30 AM	1	0	4	6	0	1	0	164	4	38	508	0	726
	8:45 AM	0	0	1	5	0	0	0	173	7	62	442	0	690
	VOLUMES	5	0	28	60	0	7	0	1,316	26	264	2,990	5	4,701
	APPROACH %	15%	0%	85%	90%	0%	10%	0%	98%	2%	8%	92%	0%	
	APP/DEPART	33	/	5	67	/	290	1,342	/	1,404	3,259	/	3,002	0
	BEGIN PEAK HR	8:00 AM												
	VOLUMES	3	0	15	27	0	3	0	649	21	159	1,839	2	2,718
	APPROACH %	17%	0%	83%	90%	0%	10%	0%	97%	3%	8%	92%	0%	
	PEAK HR FACTOR	0.643			0.750				0.931			0.916		0.936
	APP/DEPART	18	/	2	30	/	180	670	/	691	2,000	/	1,845	0
WEEKDAY AM	11:00 AM	6	0	38	5	0	1	3	199	33	155	234	0	674
	11:15 AM	5	0	39	1	0	1	1	193	16	159	211	4	630
	11:30 AM	5	0	41	7	0	1	2	220	7	162	219	1	665
	11:45 AM	9	0	50	3	0	0	2	241	14	153	222	5	699
	12:00 PM	8	0	45	3	0	0	1	223	13	165	278	2	738
	12:15 PM	5	0	37	2	0	0	0	265	12	172	239	4	736
	12:30 PM	9	0	55	3	0	0	5	277	15	180	279	0	823
	12:45 PM	10	0	58	4	0	1	4	281	14	188	245	3	808
	VOLUMES	57	0	363	28	0	4	18	1,899	124	1,334	1,927	19	5,773
	APPROACH %	14%	0%	86%	88%	0%	13%	1%	93%	6%	41%	59%	1%	
	APP/DEPART	420	/	37	32	/	1,458	2,041	/	2,290	3,280	/	1,988	0
	BEGIN PEAK HR	12:00 PM												
	VOLUMES	32	0	195	12	0	1	10	1,046	54	705	1,041	9	3,105
	APPROACH %	14%	0%	86%	92%	0%	8%	1%	94%	5%	40%	59%	1%	
	PEAK HR FACTOR	0.835			0.650				0.928			0.956		0.943
	APP/DEPART	227	/	19	13	/	759	1,110	/	1,253	1,755	/	1,074	0
WEEKDAY PM	4:00 PM	8	0	59	7	0	0	4	425	12	118	242	1	876
	4:15 PM	11	1	63	4	0	0	3	482	15	123	250	2	954
	4:30 PM	9	0	69	2	0	2	6	526	18	121	226	7	986
	4:45 PM	10	1	61	6	0	0	4	443	11	128	279	3	946
	5:00 PM	6	0	68	4	0	0	5	471	8	121	271	7	961
	5:15 PM	12	0	77	6	0	1	7	516	10	122	273	10	1,034
	5:30 PM	6	0	54	12	0	2	5	427	14	142	258	9	929
	5:45 PM	6	0	59	2	0	1	3	394	21	127	239	11	863
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	68	2	510	43	0	6	37	3,684	109	1,002	2,038	50	7,549
	APPROACH %	12%	0%	88%	88%	0%	12%	1%	96%	3%	32%	66%	2%	
	APP/DEPART	580	/	89	49	/	1,111	3,830	/	4,237	3,090	/	2,112	0
	BEGIN PEAK HR	4:30 PM												
	VOLUMES	37	1	275	18	0	3	22	1,956	47	492	1,049	27	3,927
	APPROACH %	12%	0%	88%	86%	0%	14%	1%	97%	2%	31%	67%	2%	
	PEAK HR FACTOR	0.879			0.375				0.920			0.956		0.949
	APP/DEPART	313	/	50	21	/	539	2,025	/	2,249	1,568	/	1,089	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
		1	5	6
			9	9
			7	7
			16	16
			8	8
			11	11
			11	11
			18	18
0	0	1	85	86
			25	25
		1	30	31
			35	35
		2	32	34
			33	33
			32	32
		4	37	41
			32	32
0	0	7	256	263
		2	17	19
		3	19	22
		5	22	27
		4	24	28
		4	30	34
		8	17	25
		1	20	21
		3	18	21
0	0	30	167	197

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
7				0	7:00 AM
15			1	1	7:15 AM
30				0	7:30 AM
45			1	1	7:45 AM
8			1	1	8:00 AM
15				0	8:15 AM
30	1		2	3	8:30 AM
45				0	8:45 AM
11			1	1	11:00 AM
15	1		2	3	11:15 AM
30	1		2	3	11:30 AM
45	1		2	3	11:45 AM
12				0	12:00 PM
15				0	12:15 PM
30			2	2	12:30 PM
45				0	12:45 PM
4	1		4	5	4:00 PM
15			7	7	4:15 PM
30			1	1	4:30 PM
45			3	3	4:45 PM
5			1	1	5:00 PM
15	1		3	4	5:15 PM
30	1			1	5:30 PM
45			2	2	5:45 PM
1	6	0	35	42	

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
												0
							2			1		1
1							3		1			1
							5	1		1		2
							2		1			1
										2		2
							1	1		3		4
												0
									1	2		3
1							1					0
												0
							1		2	2		4
1							1			1		1
							2		1	2		3
										1		1
2							1		1	3		4
												0
									1			1
1	1						3			1		1
							2	1		1		2
							4					0
							2	1		3		4
							4					34
6	1	0	0	0	0	0	34	4	8	23	0	69

14

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/10/15	NORTH & SOUTH:	Ulric Street/SR-163 SB Ramps	LOCATION #:	14
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

WR IS TO ULRIC

AM PM MD OTHER OTHER

▲ N ◀ W E ▶ S ▼

		NORTHBOUND Ulric Street/SR-163 SB Ramps			SOUTHBOUND Ulric Street/SR-163 SB Ramps			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
WEEKDAY AM	7:00 AM												98	98
	7:15 AM												111	111
	7:30 AM												136	136
	7:45 AM												116	116
	8:00 AM												100	100
	8:15 AM												96	96
	8:30 AM												85	85
	8:45 AM												94	94
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	836	836
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	0	/	836	0	/	0	0	/	0	836	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	463	463
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.851		0.851
	APP/DEPART	0	/	463	0	/	0	0	/	0	463	/	0	0
WEEKDAY AM	11:00 AM												103	103
	11:15 AM												84	84
	11:30 AM												94	94
	11:45 AM												108	108
	12:00 PM												90	90
	12:15 PM												101	101
	12:30 PM												109	109
	12:45 PM												114	114
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	803	803
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	0	/	803	0	/	0	0	/	0	803	/	0	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	414	414
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.908		0.908
	APP/DEPART	0	/	414	0	/	0	0	/	0	414	/	0	0
WEEKDAY PM	4:00 PM												143	143
	4:15 PM												144	144
	4:30 PM												160	160
	4:45 PM												150	150
	5:00 PM												135	135
	5:15 PM												169	169
	5:30 PM												164	164
	5:45 PM												117	117
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	1,182	1,182
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	0	/	1,182	0	/	0	0	/	0	1,182	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	618	618
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.914		0.914
	APP/DEPART	0	/	618	0	/	0	0	/	0	618	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
		0	0	0	0

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
	0	0	0	0	0

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM											1		1
7:15 AM		1									1		1
7:30 AM													0
7:45 AM													0
8:00 AM													0
8:15 AM													0
8:30 AM													0
8:45 AM													0
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
4:00 PM													0
4:15 PM													0
4:30 PM													0
4:45 PM													0
5:00 PM													0
5:15 PM													0
5:30 PM													0
5:45 PM													0
	0	1	0	0	0	0	0	0	0	0	2	0	2

14

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Ulric Street/SR-163 SB Ramps	LOCATION #:	14
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

WR IS TO SB-ONRAMP

AM / PM / MD / OTHER / OTHER

▲ N / ◄ W / E ► / S ▼

		NORTHBOUND Ulric Street/SR-163 SB Ramps			SOUTHBOUND Ulric Street/SR-163 SB Ramps			EASTBOUND Friars Road			WESTBOUND Friars Road			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0.5	0.5	1	2	0	1	1	3	1	X	3	1	
WEEKDAY AM	7:00 AM	45	9	118	60	2	20	8	94	42		157	122	677
	7:15 AM	76	15	194	61	1	21	10	95	55		248	113	889
	7:30 AM	89	11	212	79	2	20	11	168	71		240	102	1,005
	7:45 AM	91	10	197	85	1	21	16	131	63		305	108	1,028
	8:00 AM	118	12	176	91	4	15	8	99	44		317	102	986
	8:15 AM	130	2	212	58	1	23	18	127	51		392	107	1,121
	8:30 AM	107	9	185	73	0	18	10	128	47		380	107	1,064
	8:45 AM	103	5	211	71	1	20	8	96	39		321	114	989
	VOLUMES	759	73	1,505	578	12	158	89	938	412	0	2,360	875	7,759
	APPROACH %	32%	3%	64%	77%	2%	21%	6%	65%	29%	0%	73%	27%	
	APP/DEPART	2,337	/	1,037	748	/	424	1,439	/	3,021	3,235	/	3,277	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	446	33	770	307	6	77	52	485	205	0	1,394	424	4,199
	APPROACH %	36%	3%	62%	79%	2%	20%	7%	65%	28%	0%	77%	23%	
	PEAK HR FACTOR		0.908			0.886			0.883			0.911		0.936
	APP/DEPART	1,249	/	509	390	/	211	742	/	1,562	1,818	/	1,917	0
WEEKDAY AM	11:00 AM	113	9	157	64	0	20	22	161	102		226	121	995
	11:15 AM	101	7	143	55	0	14	24	174	94		244	108	964
	11:30 AM	102	7	142	45	1	19	13	177	125		306	112	1,049
	11:45 AM	103	15	166	60	1	18	13	193	121		312	146	1,148
	12:00 PM	105	10	138	61	0	18	18	210	127		227	152	1,066
	12:15 PM	97	13	151	43	1	15	13	217	112		308	125	1,095
	12:30 PM	93	9	183	52	2	19	21	201	165		293	135	1,173
	12:45 PM	93	7	199	68	2	17	17	220	135		284	141	1,183
	VOLUMES	807	77	1,279	448	7	140	141	1,553	981	0	2,200	1,040	8,673
	APPROACH %	37%	4%	59%	75%	1%	24%	5%	58%	37%	0%	68%	32%	
	APP/DEPART	2,163	/	1,258	595	/	988	2,675	/	3,280	3,240	/	3,147	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	388	39	671	224	5	69	69	848	539	0	1,112	553	4,517
	APPROACH %	35%	4%	61%	75%	2%	23%	5%	58%	37%	0%	67%	33%	
	PEAK HR FACTOR		0.918			0.856			0.941			0.961		0.955
	APP/DEPART	1,098	/	661	298	/	544	1,456	/	1,743	1,665	/	1,569	0
WEEKDAY PM	4:00 PM	79	18	202	76	1	29	20	379	212		257	143	1,416
	4:15 PM	95	16	172	104	1	35	33	385	196		209	154	1,400
	4:30 PM	79	12	181	102	1	36	27	425	175		277	161	1,476
	4:45 PM	82	12	255	89	0	45	31	429	169		284	159	1,555
	5:00 PM	94	13	208	121	0	34	33	442	207		283	153	1,588
	5:15 PM	80	10	193	82	1	43	28	442	155		292	124	1,450
	5:30 PM	79	7	181	145	0	41	37	391	145		249	133	1,408
	5:45 PM	101	18	219	86	0	33	16	359	159		251	113	1,355
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	689	106	1,611	805	4	296	225	3,252	1,418	0	2,102	1,140	11,648
	APPROACH %	29%	4%	67%	73%	0%	27%	5%	66%	29%	0%	65%	35%	
	APP/DEPART	2,406	/	1,471	1,105	/	1,422	4,895	/	5,668	3,242	/	3,087	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	335	47	837	394	2	158	119	1,738	706	0	1,136	597	6,069
	APPROACH %	27%	4%	69%	71%	0%	29%	5%	68%	28%	0%	66%	34%	
	PEAK HR FACTOR		0.873			0.745			0.940			0.978		0.955
	APP/DEPART	1,219	/	763	554	/	708	2,563	/	2,969	1,733	/	1,629	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM			1		1
11:45 AM					0
12:00 PM			1		1
12:15 PM					0
12:30 PM			1		1
12:45 PM			1		1
	0	0	4	0	4
4:00 PM					0
4:15 PM					0
4:30 PM			2		2
4:45 PM			3		3
5:00 PM					0
5:15 PM			1		1
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
	0	0	6	0	6

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
				0	7:00 AM
	1			1	7:15 AM
				0	7:30 AM
				0	7:45 AM
				0	8:00 AM
				0	8:15 AM
	1			1	8:30 AM
				0	8:45 AM
		1		1	11:00 AM
	1	2		3	11:15 AM
				0	11:30 AM
				0	11:45 AM
				0	12:00 PM
				0	12:15 PM
				0	12:30 PM
				0	12:45 PM
	2			2	4:00 PM
				0	4:15 PM
		1	1	2	4:30 PM
				0	4:45 PM
				0	5:00 PM
				0	5:15 PM
				0	5:30 PM
				0	5:45 PM
0	5	4	1	10	

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM											1		1
7:15 AM											2		2
7:30 AM													0
7:45 AM													0
8:00 AM													0
8:15 AM											1		1
8:30 AM							1						0
8:45 AM													0
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM							1						0
12:00 PM													0
12:15 PM						1							0
12:30 PM													0
12:45 PM											1		1
4:00 PM													0
4:15 PM													0
4:30 PM						1		1			1		1
4:45 PM											2		2
5:00 PM						1					1		1
5:15 PM											1		1
5:30 PM						2							0
5:45 PM						1							7
	0	0	0	0	0	6	2	1	0	0	10	0	17

15

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/10/15	NORTH & SOUTH:	SR-163 NB Ramps	LOCATION #:	15
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND SR-163 NB Ramps			SOUTHBOUND SR-163 NB Ramps			EASTBOUND Friars Road			WESTBOUND Friars Road			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	1	X	X	1	1	3	X	X	2	1	
WEEKDAY AM													
7:00 AM			121			129	84	215			223	141	913
7:15 AM			168			194	91	248			281	152	1,134
7:30 AM			184			184	127	298			290	162	1,245
7:45 AM			191			177	126	297			349	188	1,328
8:00 AM			242			149	88	305			369	174	1,327
8:15 AM			218			175	105	277			385	152	1,312
8:30 AM			206			189	80	287			385	189	1,336
8:45 AM			189			181	92	275			319	144	1,200
VOLUMES	0	0	1,519	0	0	1,378	793	2,202	0	0	2,601	1,302	9,795
APPROACH %	0%	0%	100%	0%	0%	100%	26%	74%	0%	0%	67%	33%	
APP/DEPART	1,519	/	2,095	1,378	/	0	2,995	/	3,721	3,903	/	3,979	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	0	857	0	0	690	399	1,166	0	0	1,488	703	5,303
APPROACH %	0%	0%	100%	0%	0%	100%	25%	75%	0%	0%	68%	32%	
PEAK HR FACTOR		0.885			0.913			0.925			0.954		0.992
APP/DEPART	857	/	1,102	690	/	0	1,565	/	2,023	2,191	/	2,178	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM			121			189	148	518			336	219	1,531
4:15 PM			142			223	167	503			302	206	1,543
4:30 PM			138			242	155	541			352	218	1,646
4:45 PM			126			216	152	618			384	213	1,709
5:00 PM			142			248	131	613			336	221	1,691
5:15 PM			118			223	129	584			349	241	1,644
5:30 PM			141			216	109	594			332	219	1,611
5:45 PM			129			195	119	491			305	206	1,445
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	1,057	0	0	1,752	1,110	4,462	0	0	2,696	1,743	12,820
APPROACH %	0%	0%	100%	0%	0%	100%	20%	80%	0%	0%	61%	39%	
APP/DEPART	1,057	/	2,853	1,752	/	0	5,572	/	5,519	4,439	/	4,448	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	0	524	0	0	929	567	2,356	0	0	1,421	893	6,690
APPROACH %	0%	0%	100%	0%	0%	100%	19%	81%	0%	0%	61%	39%	
PEAK HR FACTOR		0.923			0.936			0.949			0.969		0.979
APP/DEPART	524	/	1,460	929	/	0	2,923	/	2,880	2,314	/	2,350	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
VOLUMES	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
VOLUMES	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
VOLUMES		0	0	0	0

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
				0	7:00 AM
				0	7:15 AM
				0	7:30 AM
				0	7:45 AM
				0	8:00 AM
				0	8:15 AM
				0	8:30 AM
				0	8:45 AM
				0	11:00 AM
				0	11:15 AM
				0	11:30 AM
				0	11:45 AM
				0	12:00 PM
				0	12:15 PM
				0	12:30 PM
				0	12:45 PM
				0	4:00 PM
				0	4:15 PM
				0	4:30 PM
				0	4:45 PM
				0	5:00 PM
				0	5:15 PM
				0	5:30 PM
				0	5:45 PM
0	0	0	0	0	

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM											1		1
7:15 AM											1		1
7:30 AM													0
7:45 AM													0
8:00 AM													0
8:15 AM													0
8:30 AM													0
8:45 AM													0
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
4:00 PM													0
4:15 PM													0
4:30 PM													0
4:45 PM													0
5:00 PM													0
5:15 PM													0
5:30 PM													0
5:45 PM													0
	0	0	0	0	0	0	0	0	0	0	2	0	2

16

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/10/15	NORTH & SOUTH:	Frazee Road	LOCATION #:	16
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Frazee Road			SOUTHBOUND Frazee Road			EASTBOUND Friars Road			WESTBOUND Friars Road			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	0	2	1	1	2	3	1	1	3	1	
WEEKDAY AM													
7:00 AM	30	7	3	2	3	37	112	129	63	4	235	14	639
7:15 AM	29	9	5	1	3	40	110	146	80	10	278	12	723
7:30 AM	33	17	8	5	5	49	132	186	90	8	439	16	988
7:45 AM	28	27	6	7	2	41	173	249	147	13	390	10	1,093
8:00 AM	31	30	8	8	9	67	162	214	110	10	429	11	1,089
8:15 AM	30	29	7	3	8	60	138	217	119	14	433	12	1,070
8:30 AM	39	25	7	7	11	57	173	206	104	9	423	10	1,071
8:45 AM	37	22	8	11	15	79	159	214	127	10	444	9	1,135
VOLUMES	257	166	52	44	56	430	1,159	1,561	840	78	3,071	94	7,808
APPROACH %	54%	35%	11%	8%	11%	81%	33%	44%	24%	2%	95%	3%	
APP/DEPART	475	/	1,419	530	/	974	3,560	/	1,657	3,243	/	3,758	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	137	106	30	29	43	263	632	851	460	43	1,729	42	4,365
APPROACH %	50%	39%	11%	9%	13%	79%	33%	44%	24%	2%	95%	2%	
PEAK HR FACTOR		0.961			0.798			0.972			0.979		0.961
APP/DEPART	273	/	780	335	/	546	1,943	/	910	1,814	/	2,129	0
WEEKDAY AM													
11:00 AM	44	16	17	33	24	110	104	271	140	21	225	11	1,016
11:15 AM	62	20	25	21	28	90	77	215	132	23	241	13	947
11:30 AM	75	16	27	19	24	102	95	240	102	37	244	9	990
11:45 AM	69	21	20	24	24	112	85	233	141	32	254	8	1,023
12:00 PM	82	28	26	16	32	114	98	232	102	22	274	8	1,034
12:15 PM	79	19	21	20	30	89	104	278	134	17	333	21	1,145
12:30 PM	88	21	18	23	36	125	112	245	109	25	289	9	1,100
12:45 PM	96	18	36	18	31	93	88	362	157	18	209	6	1,132
VOLUMES	595	159	190	174	229	835	763	2,076	1,017	195	2,069	85	8,387
APPROACH %	63%	17%	20%	14%	18%	67%	20%	54%	26%	8%	88%	4%	
APP/DEPART	944	/	1,007	1,238	/	1,441	3,856	/	2,440	2,349	/	3,499	0
BEGIN PEAK HR		12:00 PM											
VOLUMES	345	86	101	77	129	421	402	1,117	502	82	1,105	44	4,411
APPROACH %	65%	16%	19%	12%	21%	67%	20%	55%	25%	7%	90%	4%	
PEAK HR FACTOR		0.887			0.852			0.832			0.830		0.963
APP/DEPART	532	/	532	627	/	713	2,021	/	1,295	1,231	/	1,871	0
WEEKDAY PM													
4:00 PM	111	23	35	32	30	136	74	450	190	24	259	6	1,370
4:15 PM	59	13	31	28	21	136	88	484	174	19	278	8	1,339
4:30 PM	112	21	48	28	24	155	78	513	177	28	287	13	1,484
4:45 PM	114	25	52	37	16	152	89	506	178	30	302	11	1,512
5:00 PM	101	17	33	32	28	144	99	528	151	18	276	9	1,436
5:15 PM	98	20	41	39	18	145	98	500	170	21	290	10	1,450
5:30 PM	101	25	34	31	22	94	101	544	165	23	296	9	1,445
5:45 PM	91	14	37	26	10	105	90	451	175	18	256	6	1,279
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	787	158	311	253	169	1,067	717	3,976	1,380	181	2,244	72	11,315
APPROACH %	63%	13%	25%	17%	11%	72%	12%	65%	23%	7%	90%	3%	
APP/DEPART	1,256	/	947	1,489	/	1,730	6,073	/	4,540	2,497	/	4,098	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	425	83	174	136	86	596	364	2,047	676	97	1,155	43	5,882
APPROACH %	62%	12%	26%	17%	11%	73%	12%	66%	22%	7%	89%	3%	
PEAK HR FACTOR		0.893			0.988			0.953			0.944		0.973
APP/DEPART	682	/	490	818	/	859	3,087	/	2,357	1,295	/	2,176	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM			2		2
7:15 AM					0
7:30 AM			3		3
7:45 AM			4		4
8:00 AM			3		3
8:15 AM			4		4
8:30 AM			1		1
8:45 AM			5		5
VOLUMES	0	0	22	0	22
11:00 AM			7	6	13
11:15 AM			3	7	10
11:30 AM			8	9	17
11:45 AM			2	7	9
12:00 PM			1	2	3
12:15 PM			1	1	2
12:30 PM			5		5
12:45 PM			7		7
VOLUMES	0	0	34	32	66
4:00 PM			9		9
4:15 PM			14	4	18
4:30 PM			10	2	12
4:45 PM			8	3	11
5:00 PM			2	4	6
5:15 PM			4	2	6
5:30 PM			2	3	5
5:45 PM			3	2	5
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
VOLUMES	0	0	52	20	72

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
2	1	4		7	7:00 AM
	1	8		9	7:15 AM
		6		6	7:30 AM
	4	11		15	7:45 AM
1		13		14	8:00 AM
	2	6		8	8:15 AM
	1	2		3	8:30 AM
2		8		10	8:45 AM
	7	11		18	11:00 AM
		4		4	11:15 AM
2	1	8	1	12	11:30 AM
		6		6	11:45 AM
	1	3	3	7	12:00 PM
		4		4	12:15 PM
	1	3		4	12:30 PM
	1	5	1	7	12:45 PM
3			7	10	4:00 PM
2	4	4		10	4:15 PM
3	16	7		26	4:30 PM
3	3	6	1	13	4:45 PM
		10	1	11	5:00 PM
	4	17		21	5:15 PM
1	3	17		21	5:30 PM
1	3	9	2	15	5:45 PM
20	53	172	16	261	

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM												1	1
7:15 AM													0
7:30 AM													0
7:45 AM													0
8:00 AM		2											0
8:15 AM													0
8:30 AM													0
8:45 AM		1		2									0
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
4:00 PM													0
4:15 PM													0
4:30 PM					1								0
4:45 PM													0
5:00 PM		1			2								0
5:15 PM					1			1					0
5:30 PM		1											0
5:45 PM					1								0
	0	5	0	2	5	0	0	1	0	0	0	1	1

17

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/16/15	NORTH & SOUTH:	Mission Center Road	LOCATION #:	17
WEDNESDAY	EAST & WEST:	Friars Road WB Ramps	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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	NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND Friars Road WB Ramps			WESTBOUND Friars Road WB Ramps			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	X	X	2	1	X	X	X	1	1	1	
WEEKDAY AM													
7:00 AM	40	108			49	68				18	0	44	327
7:15 AM	41	115			58	56				20	0	67	357
7:30 AM	37	106			70	77				28	0	78	396
7:45 AM	28	121			88	78				38	0	84	437
8:00 AM	33	128			91	62				30	0	91	435
8:15 AM	41	113			98	60				39	0	80	431
8:30 AM	40	104			86	67				40	0	74	411
8:45 AM	33	94			92	66				27	0	62	374
VOLUMES	293	889	0	0	632	534	0	0	0	240	0	580	3,168
APPROACH %	25%	75%	0%	0%	54%	46%	0%	0%	0%	29%	0%	71%	
APP/DEPART	1,182	/	1,469	1,166	/	872	0	/	0	820	/	827	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	142	466	0	0	363	267	0	0	0	147	0	329	1,714
APPROACH %	23%	77%	0%	0%	58%	42%	0%	0%	0%	31%	0%	69%	
PEAK HR FACTOR		0.944			0.949			0.000			0.975		0.981
APP/DEPART	608	/	795	630	/	510	0	/	0	476	/	409	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM	66	138			188	59				38	0	65	554
4:15 PM	68	144			174	41				36	0	68	531
4:30 PM	58	152			232	45				38	0	78	603
4:45 PM	51	142			221	50				44	1	61	570
5:00 PM	62	178			260	75				46	2	70	693
5:15 PM	60	173			232	58				35	2	78	638
5:30 PM	70	161			222	53				45	1	54	606
5:45 PM	51	150			205	42				40	2	66	556
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	486	1,238	0	0	1,734	423	0	0	0	322	8	540	4,751
APPROACH %	28%	72%	0%	0%	80%	20%	0%	0%	0%	37%	1%	62%	
APP/DEPART	1,724	/	1,778	2,157	/	2,056	0	/	0	870	/	917	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	243	654	0	0	935	236	0	0	0	170	6	263	2,507
APPROACH %	27%	73%	0%	0%	80%	20%	0%	0%	0%	39%	1%	60%	
PEAK HR FACTOR		0.934			0.874			0.000			0.930		0.904
APP/DEPART	897	/	917	1,171	/	1,105	0	/	0	439	/	485	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

NB	SB	EB	WB	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

NB	SB	EB	WB	TTL
				0
				0
				0
				0
				0
	1			1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	1	0	0	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1	0	0	3	4
1	0	0	2	3
0	0	0	1	1
0	0	0	1	1
0	1	1	1	3
0	1	0	0	1
0	0	0	0	0
0	0	1	0	1
0	2	0	0	2
PM				0
0	2	1	1	4
0	0	0	3	3
0	1	0	0	1
1	0	0	0	1
1	0	0	2	3
1	0	1	1	3
2	0	2	1	5
0	1	1	1	3
				0
				0
				0
				0
				0
				0
7	8	7	17	39

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
	1			1								0
				1								0
	1											0
	1											0
												0
												0
												0
												0
PM												0
												0
												0
	1			1								0
												0
				1								0
	1			1								0
												0
												0
												0
												0
												0
												0
												0
												0
0	5	0	0	5	0	0	0	0	0	0	0	0

18

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9-16-15 WEDNESDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Mission Center Road
EAST & WEST: Friars Road EB Ramps

PROJECT #: PDT15-0911-01
LOCATION #: 18
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND Friars Road EB Ramps			WESTBOUND Friars Road EB Ramps			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL 1	ET 1	ER 1	WL X	WT X	WR X	TOTAL
WEEKDAY AM	7:00 AM		102	14	26	38		35	0	11				226
	7:15 AM		109	13	25	53		34	0	22				256
	7:30 AM		108	25	29	75		46	0	24				307
	7:45 AM		106	14	39	97		51	2	51				360
	8:00 AM		107	22	28	89		36	0	40				322
	8:15 AM		108	21	24	99		29	0	47				328
	8:30 AM		104	21	31	96		39	1	35				327
	8:45 AM		97	22	38	91		43	0	54				345
	VOLUMES	0	841	152	240	638	0	313	3	284	0	0	0	2,471
	APPROACH %	0%	85%	15%	27%	73%	0%	52%	1%	47%	0%	0%	0%	
	APP/DEPART	993	/	1,154	878	/	922	600	/	395	0	/	0	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	425	78	122	381	0	155	3	173	0	0	0	1,337
	APPROACH %	0%	84%	16%	24%	76%	0%	47%	1%	52%	0%	0%	0%	
	PEAK HR FACTOR		0.975			0.925			0.796			0.000		0.928
	APP/DEPART	503	/	580	503	/	554	331	/	203	0	/	0	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM		164	73	101	117		57	0	79				591
	4:15 PM		126	76	78	128		51	2	57				518
	4:30 PM		157	87	94	160		51	2	48				599
	4:45 PM		135	72	96	162		72	0	69				606
	5:00 PM		183	98	131	206		69	0	69				756
	5:15 PM		137	83	112	157		81	3	88				661
	5:30 PM		160	87	101	153		49	2	91				643
	5:45 PM		142	77	98	148		68	1	87				621
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	1,204	653	811	1,231	0	498	10	588	0	0	0	4,995
	APPROACH %	0%	65%	35%	40%	60%	0%	45%	1%	54%	0%	0%	0%	
	APP/DEPART	1,857	/	1,702	2,042	/	1,819	1,096	/	1,474	0	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	622	345	442	664	0	267	6	335	0	0	0	2,681
	APPROACH %	0%	64%	36%	40%	60%	0%	44%	1%	55%	0%	0%	0%	
	PEAK HR FACTOR		0.860			0.820			0.884			0.000		0.887
	APP/DEPART	967	/	889	1,106	/	999	608	/	793	0	/	0	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
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				0
0	0	0	0	0
				0
				0
				0
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				0
	1			1
				0
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				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	1	0	0	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
		0	2	2
		2	2	4
		1	3	4
		0	1	1
		0	1	1
		0	1	1
		0	0	0
		0	1	1
				0
PM				0
		3	1	4
		0	3	3
		1	3	4
		0	3	3
		1	0	1
		3	0	3
		3	0	3
		1	1	2
				0
				0
				0
				0
				0
				0
0	0	15	22	37

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0								0
	0			0								0
	0			0								0
	0			0								0
	0			0								0
	0			0								0
	0			1								0
	0			0								0
												0
PM												0
	0			0								0
	0			0								0
	0			0								0
	1			0								0
	0			0								0
	2			0								0
	0			0								0
	1			0								0
												0
												0
												0
												0
												0
												0
0	4	0	0	1	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/10/15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Mission Center Road
EAST & WEST: Hazard Center Drive

PROJECT #: PDT15-0911-01
LOCATION #: 38
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND Hazard Center Drive			WESTBOUND Hazard Center Drive			
	LANES:	NL 1	NT 1.5	NR 0.5	SL 1	ST 3	SR 0	EL 1.5	ET 0.5	ER 1	WL 0	WT 1	WR 0	TOTAL
WEEKDAY AM	7:00 AM	36	97	6	6	51	5	6	3	28	0	0	0	238
	7:15 AM	33	99	4	9	61	6	10	4	26	0	0	0	252
	7:30 AM	41	102	15	8	87	1	6	4	34	2	0	0	300
	7:45 AM	52	126	26	15	68	7	9	8	26	1	0	0	338
	8:00 AM	62	121	25	6	81	7	7	2	46	4	1	0	362
	8:15 AM	67	133	21	8	90	7	8	3	24	2	0	1	364
	8:30 AM	72	116	13	7	125	10	12	2	50	5	1	1	414
	8:45 AM	48	134	7	11	122	27	14	1	46	4	0	1	415
	VOLUMES	411	928	117	70	685	70	72	27	280	18	2	3	2,683
	APPROACH %	28%	64%	8%	8%	83%	8%	19%	7%	74%	78%	9%	13%	
	APP/DEPART	1,456	/	1,003	825	/	983	379	/	214	23	/	483	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	249	504	66	32	418	51	41	8	166	15	2	3	1,555
	APPROACH %	30%	62%	8%	6%	83%	10%	19%	4%	77%	75%	10%	15%	
	PEAK HR FACTOR		0.926			0.783			0.840			0.714		0.937
	APP/DEPART	819	/	548	501	/	599	215	/	106	20	/	302	0
WEEKDAY AM	11:00 AM	62	145	7	9	121	6	6	2	56	6	1	1	422
	11:15 AM	46	146	14	6	138	9	4	2	79	1	1	1	447
	11:30 AM	48	143	9	9	169	9	9	1	73	2	1	2	475
	11:45 AM	93	173	7	22	169	5	12	1	69	10	2	4	567
	12:00 PM	54	155	8	9	197	7	16	1	82	7	5	2	543
	12:15 PM	74	166	9	10	192	8	14	2	84	8	4	3	574
	12:30 PM	71	179	13	24	172	9	25	3	90	5	2	1	594
	12:45 PM	87	209	17	20	171	5	19	3	70	4	2	4	611
	VOLUMES	535	1,316	84	109	1,329	58	105	15	603	43	18	18	4,233
	APPROACH %	28%	68%	4%	7%	89%	4%	15%	2%	83%	54%	23%	23%	
	APP/DEPART	1,935	/	1,439	1,496	/	1,975	723	/	208	79	/	611	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	286	709	47	63	732	29	74	9	326	24	13	10	2,322
	APPROACH %	27%	68%	5%	8%	89%	4%	18%	2%	80%	51%	28%	21%	
	PEAK HR FACTOR		0.832			0.967			0.867			0.783		0.950
	APP/DEPART	1,042	/	793	824	/	1,082	409	/	119	47	/	328	0
WEEKDAY PM	4:00 PM	66	174	5	13	206	3	25	2	122	9	1	1	627
	4:15 PM	51	172	5	10	193	5	8	3	102	7	0	3	559
	4:30 PM	71	142	3	18	208	8	23	1	136	7	0	0	617
	4:45 PM	72	177	3	12	249	13	19	1	132	7	2	0	687
	5:00 PM	78	146	11	9	252	9	30	4	146	22	4	2	713
	5:15 PM	71	183	0	9	277	15	21	1	113	14	3	0	707
	5:30 PM	80	174	6	11	177	7	20	0	128	25	1	5	634
	5:45 PM	86	178	3	7	216	7	19	1	111	4	2	2	636
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	575	1,346	36	89	1,778	67	165	13	990	95	13	13	5,180
	APPROACH %	29%	69%	2%	5%	92%	3%	14%	1%	85%	79%	11%	11%	
	APP/DEPART	1,957	/	1,524	1,934	/	2,863	1,168	/	138	121	/	655	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	301	680	20	41	955	44	90	6	519	68	10	7	2,741
	APPROACH %	30%	68%	2%	4%	92%	4%	15%	1%	84%	80%	12%	8%	
	PEAK HR FACTOR		0.937			0.864			0.854			0.685		0.961
	APP/DEPART	1,001	/	777	1,040	/	1,542	615	/	67	85	/	355	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM	1	4			5
7:15 AM	2	6			8
7:30 AM	3	5			8
7:45 AM	1	6			7
8:00 AM	2	4			6
8:15 AM	4	5	2		11
8:30 AM	2	6	2		10
8:45 AM	4	8	1		13
	19	44	5	0	68
11:00 AM	9	7		1	17
11:15 AM	8	3		1	12
11:30 AM	14	5	1	1	21
11:45 AM	10	12			22
12:00 PM	5	5	1		11
12:15 PM	10	9			19
12:30 PM	13	17			30
12:45 PM	17	13	2		32
	86	71		3	164
4:00 PM	18	11	1		30
4:15 PM	15	10			25
4:30 PM	21	15			36
4:45 PM	17	11			28
5:00 PM	14	3			17
5:15 PM	18	9			27
5:30 PM	21	9			30
5:45 PM	25	6			31
	149	74	1	0	224

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7		7	2	2	11
15		4	2	3	9
30		3	2	3	8
45	1				1
8		1	1	2	4
15		8		4	12
30		4	1	2	7
45		3	3	2	8
11		7	4		11
15		3	3	5	11
30	1	1	4	2	8
45		5	6	3	14
12		5	2	5	12
15			1		1
30		5	2	5	12
45		6	1	3	10
4		4		3	7
15		5	3	3	11
30		2		2	4
45		2	2	3	7
5		3	1	4	8
15		3	2	3	8
30		7	2	6	15
45		1		2	3
	2	89	44	67	202

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7					1								0
15													0
30													0
45									1				1
8		1											0
15											5		5
30													0
45													0
11													0
15													0
30		1			1			1		1			1
45													0
12								1					0
15		2											0
30					1								0
45													0
4													0
15		2						1					0
30					1			1					0
45													0
5		1			1								0
15		1			1								0
30					1			1					0
45		1									1		1
	1	8	0	0	7	0	0	5	1	1	6	0	14

39

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Avenida Del Rio	LOCATION #:	39
THURSDAY	EAST & WEST:	Camino De La Riena	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Camino De La Riena			WESTBOUND Camino De La Riena			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM													
7:00 AM				5		1	1	27			33	14	81
7:15 AM				6		2	1	19			48	26	102
7:30 AM				14		1	5	35			58	24	137
7:45 AM				18		6	4	35			62	27	152
8:00 AM				11		3	10	46			104	47	221
8:15 AM				10		5	5	43			155	49	267
8:30 AM				18		7	8	46			151	46	276
8:45 AM				16		3	12	43			90	52	216
VOLUMES	0	0	0	98	0	28	46	294	0	0	701	285	1,452
APPROACH %	0%	0%	0%	78%	0%	22%	14%	86%	0%	0%	71%	29%	
APP/DEPART	0	/	331	126	/	0	340	/	392	986	/	729	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	0	0	0	55	0	18	35	178	0	0	500	194	980
APPROACH %	0%	0%	0%	75%	0%	25%	16%	84%	0%	0%	72%	28%	
PEAK HR FACTOR		0.000			0.730			0.951			0.850		0.888
APP/DEPART	0	/	229	73	/	0	213	/	233	694	/	518	0
WEEKDAY AM													
11:00 AM				40		9	21	55			40	67	232
11:15 AM				35		8	23	62			43	92	263
11:30 AM				40		16	22	49			42	76	245
11:45 AM				41		8	20	62			56	89	276
12:00 PM				46		17	24	78			51	79	295
12:15 PM				54		10	26	66			58	96	310
12:30 PM				58		22	23	64			69	97	333
12:45 PM				68		16	16	64			51	84	299
VOLUMES	0	0	0	382	0	106	175	500	0	0	410	680	2,253
APPROACH %	0%	0%	0%	78%	0%	22%	26%	74%	0%	0%	38%	62%	
APP/DEPART	0	/	855	488	/	0	675	/	882	1,090	/	516	0
BEGIN PEAK HR		12:00 PM											
VOLUMES	0	0	0	226	0	65	89	272	0	0	229	356	1,237
APPROACH %	0%	0%	0%	78%	0%	22%	25%	75%	0%	0%	39%	61%	
PEAK HR FACTOR		0.000			0.866			0.885			0.881		0.929
APP/DEPART	0	/	445	291	/	0	361	/	498	585	/	294	0
WEEKDAY PM													
4:00 PM				84		30	10	82			64	59	329
4:15 PM				70		17	17	81			61	79	325
4:30 PM				78		19	14	93			74	78	356
4:45 PM				87		8	15	111			68	73	362
5:00 PM				88		24	15	122			76	96	421
5:15 PM				94		17	16	102			80	77	386
5:30 PM				93		14	26	91			60	80	364
5:45 PM				71		20	25	93			42	79	330
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	0	665	0	149	138	775	0	0	525	621	2,873
APPROACH %	0%	0%	0%	82%	0%	18%	15%	85%	0%	0%	46%	54%	
APP/DEPART	0	/	759	814	/	0	913	/	1,440	1,146	/	674	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	0	0	362	0	63	72	426	0	0	284	326	1,533
APPROACH %	0%	0%	0%	85%	0%	15%	14%	86%	0%	0%	47%	53%	
PEAK HR FACTOR		0.000			0.949			0.909			0.887		0.910
APP/DEPART	0	/	398	425	/	0	498	/	788	610	/	347	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
VOLUMES	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
VOLUMES	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
VOLUMES	0	0	0	0	0

PEDESTRIAN CROSSINGS / **BIKE MOVEMENTS**

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7	2			2	4	7:00 AM				2		1					2	2	4
15	1			5	6	7:15 AM				1									0
30	1			8	9	7:30 AM							2						0
45				8	8	7:45 AM				2		1					1	2	3
8				2	2	8:00 AM				1		1		1					0
15	1			3	4	8:15 AM								1				3	3
30				4	4	8:30 AM								2			1		1
45				4	4	8:45 AM											1		1
11				2	2	11:00 AM													0
15				4	4	11:15 AM													0
30				5	5	11:30 AM						1							0
45				5	5	11:45 AM											1		1
12	1			24	25	12:00 PM											2		2
15	3			1	4	12:15 PM													0
30				5	5	12:30 PM													0
45	3				3	12:45 PM											2		2
4				2	2	4:00 PM				2		2		1			1		1
15	1				1	4:15 PM													0
30	1			1	2	4:30 PM							1				1		1
45				1	1	4:45 PM				1		1					2		2
5				3	3	5:00 PM				1							1	2	3
15				2	2	5:15 PM				1				1			3		3
30	2			1	3	5:30 PM				1				1			1	1	2
45	1			3	4	5:45 PM				1									25
	17	0	0	95	112		0	0	0	13	0	7	3	7	0	0	19	10	54

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/10/15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Mission Center Road
EAST & WEST: Camino De La Riena

PROJECT #: PDT15-0911-01
LOCATION #: 40
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND Camino De La Riena			WESTBOUND Camino De La Riena			
	LANES:	NL 2	NT 3	NR 0	SL 2	ST 3	SR 1	EL 2	ET 2	ER 0	WL 2	WT 2	WR 0	TOTAL
WEEKDAY AM	7:00 AM	10	97	9	10	52	12	12	13	9	19	24	22	289
	7:15 AM	15	82	10	19	53	10	22	10	12	18	35	29	315
	7:30 AM	31	109	10	15	63	33	10	17	12	18	36	40	394
	7:45 AM	27	144	20	22	57	34	17	16	11	18	40	44	450
	8:00 AM	36	134	20	16	74	14	8	12	9	30	59	55	467
	8:15 AM	53	148	14	29	56	27	24	20	24	20	63	60	538
	8:30 AM	42	121	18	37	94	46	25	26	8	13	91	50	571
	8:45 AM	29	125	18	46	109	31	21	14	10	22	89	36	550
	VOLUMES	243	960	119	194	558	207	139	128	95	158	437	336	3,574
	APPROACH %	18%	73%	9%	20%	58%	22%	38%	35%	26%	17%	47%	36%	
	APP/DEPART	1,322	/	1,435	959	/	811	362	/	441	931	/	887	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	160	528	70	128	333	118	78	72	51	85	302	201	2,126
	APPROACH %	21%	70%	9%	22%	58%	20%	39%	36%	25%	14%	51%	34%	
	PEAK HR FACTOR		0.881			0.778			0.739			0.955		0.931
	APP/DEPART	758	/	807	579	/	469	201	/	270	588	/	580	0
WEEKDAY AM	11:00 AM	56	107	56	57	78	32	52	59	42	65	54	66	724
	11:15 AM	61	105	71	92	100	29	42	78	51	62	85	56	832
	11:30 AM	40	113	68	70	130	40	48	48	33	78	45	57	770
	11:45 AM	59	129	51	92	113	54	52	81	43	78	77	78	907
	12:00 PM	42	122	66	81	165	57	61	76	52	69	57	72	920
	12:15 PM	46	104	55	101	100	54	61	104	44	90	86	72	917
	12:30 PM	45	131	52	102	146	37	65	85	50	74	67	88	942
	12:45 PM	48	130	57	90	103	46	68	83	68	94	79	84	950
	VOLUMES	397	941	476	685	935	349	449	614	383	610	550	573	6,962
	APPROACH %	22%	52%	26%	35%	47%	18%	31%	42%	26%	35%	32%	33%	
	APP/DEPART	1,814	/	1,963	1,969	/	1,928	1,446	/	1,775	1,733	/	1,296	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	181	487	230	374	514	194	255	348	214	327	289	316	3,729
	APPROACH %	20%	54%	26%	35%	48%	18%	31%	43%	26%	35%	31%	34%	
	PEAK HR FACTOR		0.955			0.893			0.933			0.907		0.981
	APP/DEPART	898	/	1,058	1,082	/	1,055	817	/	952	932	/	664	0
WEEKDAY PM	4:00 PM	49	96	32	92	178	51	58	94	47	63	57	65	882
	4:15 PM	36	106	47	92	162	57	58	95	50	51	57	67	878
	4:30 PM	50	88	30	108	185	56	47	95	44	52	51	59	865
	4:45 PM	40	116	34	121	173	62	48	105	57	68	79	60	963
	5:00 PM	51	123	38	98	234	55	57	113	59	65	72	55	1,020
	5:15 PM	51	109	43	109	223	73	63	122	48	70	70	84	1,065
	5:30 PM	52	106	30	99	209	65	55	106	55	86	63	72	998
	5:45 PM	46	104	35	114	178	47	55	112	59	70	52	75	947
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	375	848	289	833	1,542	466	441	842	419	525	501	537	7,618
	APPROACH %	25%	56%	19%	29%	54%	16%	26%	49%	25%	34%	32%	34%	
	APP/DEPART	1,512	/	1,826	2,841	/	2,486	1,702	/	1,964	1,563	/	1,342	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	194	454	145	427	839	255	223	446	219	289	284	271	4,046
	APPROACH %	24%	57%	18%	28%	55%	17%	25%	50%	25%	34%	34%	32%	
	PEAK HR FACTOR		0.935			0.939			0.953			0.942		0.950
	APP/DEPART	793	/	948	1,521	/	1,347	888	/	1,018	844	/	733	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM		1			1
7:15 AM					0
7:30 AM	1	1			2
7:45 AM	1	1			2
8:00 AM		2			2
8:15 AM		4			4
8:30 AM		6			6
8:45 AM	1	4			5
	3	19	0	0	22
11:00 AM		4			4
11:15 AM	1	7			8
11:30 AM	1	3			4
11:45 AM	2	4			6
12:00 PM	2	4			6
12:15 PM	1	15			16
12:30 PM	4	6			10
12:45 PM	2	8			10
	13	51	0	0	64
4:00 PM	3	3			6
4:15 PM	4	2			6
4:30 PM	3	9			12
4:45 PM		6			6
5:00 PM		6			6
5:15 PM		4			4
5:30 PM	1	5			6
5:45 PM	2	3			5
	13	38	0	0	51

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7	1		1	1	3
15	2	2		1	5
30	1	3			4
45		1	1	1	3
8	4	1	1	1	7
15	1	1	1		3
30		1	1	1	3
45		3	3	2	8
11		1	1	2	4
15	1	2	2		5
30	2		1		3
45			1		1
12	1	1	1		3
15	1	2			3
30	1	3	7	1	12
45	5	4		2	11
4	1	2	2		5
15	2	7	10	3	22
30	3	7		4	14
45	1	2	3	2	8
5	1	4	6	3	14
15	1	3	4	2	10
30	1	1	8		10
45	1	6	6		13
	31	57	60	26	174

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7					1			1			1		1
15											1		1
30								1					0
45					1			2			2		2
8								3					0
15													0
30			1										0
45													0
11													0
15													0
30					1								0
45								1		1			1
12													0
15								1			1		1
30													0
45											1	1	2
4					1						1		1
15				1				1					0
30								1			1		1
45											1		1
5						1							0
15								1			2		2
30		1								1	1		2
45								3					13
	0	1	1	1	4	1	0	15	0	2	12	1	28

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY		PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	I-8 WB Ramps		LOCATION #:	47
THURSDAY	EAST & WEST:	Hotel Circle North		CONTROL:	STOP

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND I-8 WB Ramps			SOUTHBOUND I-8 WB Ramps			EASTBOUND Hotel Circle North			WESTBOUND Hotel Circle North			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	1	0	0	1	1	1	1	0	
WEEKDAY AM													
7:00 AM	66	2	121	0	0	1	1	15	1	26	18	4	255
7:15 AM	70	3	142	2	0	0	1	28	2	25	29	5	307
7:30 AM	89	3	138	1	1	0	0	26	3	28	33	6	328
7:45 AM	91	3	175	1	0	0	0	35	2	19	39	5	370
8:00 AM	88	4	162	2	0	1	0	28	2	20	40	4	351
8:15 AM	94	4	184	3	1	0	0	20	1	28	44	2	381
8:30 AM	70	5	151	2	0	0	0	28	2	22	51	4	335
8:45 AM	88	1	160	1	0	0	0	38	1	24	42	3	358
VOLUMES	656	25	1,233	12	2	2	2	218	14	192	296	33	2,685
APPROACH %	34%	1%	64%	75%	13%	13%	1%	93%	6%	37%	57%	6%	
APP/DEPART	1,914	/	60	16	/	208	234	/	1,463	521	/	954	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	343	16	672	8	1	1	0	111	7	89	174	15	1,437
APPROACH %	33%	2%	65%	80%	10%	10%	0%	94%	6%	32%	63%	5%	
PEAK HR FACTOR		0.914			0.625			0.797			0.903		0.943
APP/DEPART	1,031	/	31	10	/	97	118	/	791	278	/	518	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM	40	1	105	2	0	0	0	61	3	70	18	2	302
4:15 PM	29	1	135	2	0	1	1	66	3	61	26	2	327
4:30 PM	35	2	135	0	0	0	1	91	2	80	29	2	377
4:45 PM	31	1	142	1	1	1	0	80	4	88	33	4	386
5:00 PM	33	0	121	2	0	0	0	74	5	78	28	2	343
5:15 PM	40	1	108	1	0	0	0	65	6	84	26	1	332
5:30 PM	36	2	116	2	0	0	0	55	5	74	44	2	336
5:45 PM	31	1	126	1	1	0	0	62	5	77	35	1	340
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	275	9	988	11	2	2	2	554	33	612	239	16	2,743
APPROACH %	22%	1%	78%	73%	13%	13%	0%	94%	6%	71%	28%	2%	
APP/DEPART	1,272	/	27	15	/	647	589	/	1,553	867	/	516	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	139	4	506	4	1	1	1	310	17	330	116	9	1,438
APPROACH %	21%	1%	78%	67%	17%	17%	0%	95%	5%	73%	25%	2%	
PEAK HR FACTOR		0.932			0.500			0.872			0.910		0.931
APP/DEPART	649	/	14	6	/	348	328	/	820	455	/	256	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
			1	1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	1	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
2	4	0	2	8
0	2	0	2	4
2	3	0	0	5
4	5	0	2	11
3	2	0	0	5
0	1	0	0	1
1	1	0	0	2
0	4	0	0	4
				0
	PM			0
3	1	0	1	5
1	0	0	0	1
0	1	0	0	1
3	1	0	0	4
1	1	0	0	2
3	0	0	0	3
5	0	0	1	6
6	5	0	4	15
				0
				0
				0
				0
				0
				0
34	31	0	12	77

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			0			1		1
	0			0			3			3		3
	0			0			2			3		3
	0			0			0			3		3
	0			0			0			2		2
	0			0			1			1		1
	0			0			0			0		0
	0			0			4			0		0
												0
	PM						PM					0
	0			0			0			0		0
	0			0			0			4		4
	0			0			1			0		0
	0			0			0			1		1
	0			0			0			1		1
0	0			0		1	2			0		0
0	0			0		1	0			5		5
	0			0			0			5		5
												0
												0
												0
												0
												0
												22
0	0	0	0	0	0	2	13	0	0	29	0	51

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	I-8 EB Ramps	LOCATION #:	56
THURSDAY	EAST & WEST:	Hotel Circle South	CONTROL:	STOP

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND I-8 EB Ramps			SOUTHBOUND I-8 EB Ramps			EASTBOUND Hotel Circle South			WESTBOUND Hotel Circle South			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM													
7:00 AM				34		5	34	13			35	79	200
7:15 AM				35		2	45	22			51	86	241
7:30 AM				54		6	41	14			46	124	285
7:45 AM				89		6	34	19			59	114	321
8:00 AM				61		6	37	24			79	78	285
8:15 AM				53		6	40	23			97	88	307
8:30 AM				44		5	51	21			121	88	330
8:45 AM				73		8	39	30			71	66	287
VOLUMES	0	0	0	443	0	44	321	166	0	0	559	723	2,256
APPROACH %	0%	0%	0%	91%	0%	9%	66%	34%	0%	0%	44%	56%	
APP/DEPART	0	/	1,044	487	/	0	487	/	609	1,282	/	603	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	0	0	247	0	23	162	87	0	0	356	368	1,243
APPROACH %	0%	0%	0%	91%	0%	9%	65%	35%	0%	0%	49%	51%	
PEAK HR FACTOR		0.000			0.711			0.865			0.866		0.942
APP/DEPART	0	/	530	270	/	0	249	/	334	724	/	379	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM				22		1	82	67			44	151	367
4:15 PM				24		8	89	58			44	173	396
4:30 PM				32		1	103	40			41	161	378
4:45 PM				21		6	89	63			54	165	398
5:00 PM				45		10	191	134			34	163	577
5:15 PM				35		4	107	58			34	156	394
5:30 PM				26		7	80	65			43	177	398
5:45 PM				33		6	73	82			48	154	396
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	0	238	0	43	814	567	0	0	342	1,300	3,304
APPROACH %	0%	0%	0%	85%	0%	15%	59%	41%	0%	0%	21%	79%	
APP/DEPART	0	/	2,114	281	/	0	1,381	/	805	1,642	/	385	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	0	0	127	0	27	467	320	0	0	165	661	1,767
APPROACH %	0%	0%	0%	82%	0%	18%	59%	41%	0%	0%	20%	80%	
PEAK HR FACTOR		0.000			0.700			0.605			0.939		0.766
APP/DEPART	0	/	1,128	154	/	0	787	/	447	826	/	192	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
			1	1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	1	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
				0
PM				0
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	1	0	2
0	0	0	0	0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
0	5	1	0	6

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			1			0		0
	0			0			2			0		0
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			1		1
	0			0			0			1		1
	0			0			0			1		1
												0
PM						PM						0
	0			0			0			1		1
	0			0			0			1		1
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			2		2
	0			0			3			0		0
	0			0			0			0		0
	0			0			0			1		1
												0
												0
												0
												0
												0
												8
0	0	0	0	0	0	0	6	0	0	8	0	16

48

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Fashion Valley Road	LOCATION #:	48
THURSDAY	EAST & WEST:	Hotel Circle North	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Fashion Valley Road			SOUTHBOUND Fashion Valley Road			EASTBOUND Hotel Circle North			WESTBOUND Hotel Circle North			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM	7:00 AM				25		9	31	94			24	17	200
	7:15 AM				13		12	42	115			41	21	244
	7:30 AM				24		9	38	131			46	21	269
	7:45 AM				26		20	72	168			39	32	357
	8:00 AM				24		21	61	132			28	20	286
	8:15 AM				32		25	82	137			77	37	390
	8:30 AM				35		20	64	135			59	20	333
	8:45 AM				24		22	55	145			45	23	314
	VOLUMES	0	0	0	203	0	138	445	1,057	0	0	359	191	2,393
	APPROACH %	0%	0%	0%	60%	0%	40%	30%	70%	0%	0%	65%	35%	
	APP/DEPART	0	/	636	341	/	0	1,502	/	1,260	550	/	497	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	0	0	117	0	86	279	572	0	0	203	109	1,366
	APPROACH %	0%	0%	0%	58%	0%	42%	33%	67%	0%	0%	65%	35%	
	PEAK HR FACTOR		0.000			0.890			0.886			0.684		0.876
	APP/DEPART	0	/	388	203	/	0	851	/	689	312	/	289	0
WEEKDAY AM	11:00 AM				28		20	69	76			37	32	262
	11:15 AM				25		40	73	69			47	26	280
	11:30 AM				18		35	73	76			41	39	282
	11:45 AM				23		28	91	85			52	36	315
	12:00 PM				39		30	73	84			41	43	310
	12:15 PM				28		34	74	91			48	33	308
	12:30 PM				30		33	72	85			51	35	306
	12:45 PM				35		46	103	75			53	35	347
	VOLUMES	0	0	0	226	0	266	628	641	0	0	370	279	2,410
	APPROACH %	0%	0%	0%	46%	0%	54%	49%	51%	0%	0%	57%	43%	
	APP/DEPART	0	/	907	492	/	0	1,269	/	867	649	/	636	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	0	0	0	132	0	143	322	335	0	0	193	146	1,271
	APPROACH %	0%	0%	0%	48%	0%	52%	49%	51%	0%	0%	57%	43%	
	PEAK HR FACTOR		0.000			0.849			0.923			0.963		0.916
	APP/DEPART	0	/	468	275	/	0	657	/	467	339	/	336	0
WEEKDAY PM	4:00 PM				45		41	74	104			52	35	351
	4:15 PM				40		53	85	119			56	26	379
	4:30 PM				53		36	112	139			61	41	442
	4:45 PM				45		41	96	113			76	39	410
	5:00 PM				62		69	68	124			74	31	428
	5:15 PM				49		50	76	80			76	36	367
	5:30 PM				65		37	82	108			70	37	399
	5:45 PM				64		43	75	103			65	36	386
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	423	0	370	668	890	0	0	530	281	3,162
	APPROACH %	0%	0%	0%	53%	0%	47%	43%	57%	0%	0%	65%	35%	
	APP/DEPART	0	/	949	793	/	0	1,558	/	1,313	811	/	900	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	0	0	0	200	0	199	361	495	0	0	267	137	1,659
	APPROACH %	0%	0%	0%	50%	0%	50%	42%	58%	0%	0%	66%	34%	
	PEAK HR FACTOR		0.000			0.761			0.853			0.878		0.938
	APP/DEPART	0	/	498	399	/	0	856	/	695	404	/	466	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM				2	2
7:15 AM					0
7:30 AM					0
7:45 AM				2	2
8:00 AM	2				2
8:15 AM					0
8:30 AM					0
8:45 AM					0
Total	2	0	0	4	6
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
Total	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
Total	0	0	0	0	0

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
				0	7:00 AM
2				2	7:15 AM
				0	7:30 AM
			2	2	7:45 AM
2				2	8:00 AM
				0	8:15 AM
3				3	8:30 AM
				0	8:45 AM
1				1	11:00 AM
				0	11:15 AM
				0	11:30 AM
				0	11:45 AM
1				1	12:00 PM
				0	12:15 PM
				0	12:30 PM
11				11	12:45 PM
3				3	4:00 PM
				0	4:15 PM
				0	4:30 PM
1				1	4:45 PM
1				1	5:00 PM
1				1	5:15 PM
7				7	5:30 PM
2				2	5:45 PM
35	0	0	2	37	

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM								1			1		1
7:15 AM						1							0
7:30 AM						1						2	2
7:45 AM						1	6	1			1	1	2
8:00 AM													0
8:15 AM						1					1		1
8:30 AM											1	2	3
8:45 AM												2	2
11:00 AM				1									0
11:15 AM				1			1					1	1
11:30 AM						1					1		1
11:45 AM											1	1	2
12:00 PM											1		1
12:15 PM													0
12:30 PM								1					0
12:45 PM													0
4:00 PM				1				1			3	2	5
4:15 PM				1			6						0
4:30 PM						1		2				1	1
4:45 PM								2				2	2
5:00 PM													0
5:15 PM											2		2
5:30 PM						1	1				1		1
5:45 PM				1									24
	0	0	0	5	0	7	14	8	0	0	13	14	51

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9-10-15 THURSDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: Bachman Place
EAST & WEST: Hotel Circle South

PROJECT #: PDT15-0911-01
LOCATION #: 57
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Bachman Place			SOUTHBOUND Bachman Place			EASTBOUND Hotel Circle South			WESTBOUND Hotel Circle South			
	LANES:	NL 1	NT X	NR 1	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 1	WT 1	WR X	TOTAL
WEEKDAY AM	7:00 AM	30		18					24	35	61	68		236
	7:15 AM	50		18					26	31	75	76		276
	7:30 AM	100		37					36	42	72	77		364
	7:45 AM	50		23					51	66	99	99		388
	8:00 AM	40		23					40	45	66	108		322
	8:15 AM	88		50					61	34	68	139		440
	8:30 AM	50		23					38	32	87	154		384
	8:45 AM	35		26					59	53	68	100		341
	VOLUMES	443	0	218	0	0	0	0	335	338	596	821	0	2,751
	APPROACH %	67%	0%	33%	0%	0%	0%	0%	50%	50%	42%	58%	0%	
	APP/DEPART	661	/	0	0	/	934	673	/	553	1,417	/	1,264	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	228	0	119	0	0	0	0	190	177	320	500	0	1,534
	APPROACH %	66%	0%	34%	0%	0%	0%	0%	52%	48%	39%	61%	0%	
	PEAK HR FACTOR		0.629			0.000			0.784			0.851		0.872
	APP/DEPART	347	/	0	0	/	497	367	/	309	820	/	728	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM	100		53					67	19	31	135		405
	4:15 PM	100		46					54	26	49	123		398
	4:30 PM	110		61					54	18	41	180		464
	4:45 PM	93		66					75	19	61	138		452
	5:00 PM	96		53					67	29	45	110		400
	5:15 PM	94		65					69	23	56	125		432
	5:30 PM	72		67					71	24	51	136		421
	5:45 PM	66		51					84	29	60	143		433
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	731	0	462	0	0	0	0	541	187	394	1,090	0	3,405
	APPROACH %	61%	0%	39%	0%	0%	0%	0%	74%	26%	27%	73%	0%	
	APP/DEPART	1,193	/	0	0	/	581	728	/	1,003	1,484	/	1,821	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	393	0	245	0	0	0	0	265	89	203	553	0	1,748
	APPROACH %	62%	0%	38%	0%	0%	0%	0%	75%	25%	27%	73%	0%	
	PEAK HR FACTOR		0.933			0.000			0.783			0.855		0.942
	APP/DEPART	638	/	0	0	/	292	354	/	510	756	/	946	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
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				0
				0
				0
				0
0	0	0	0	0

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
6	0	0	2	8
4	1	0	0	5
13	0	0	9	22
10	0	0	2	12
5	0	0	1	6
3	0	0	0	3
4	1	0	3	8
7	0	0	0	7
	PM			0
7	0	0	3	10
6	0	0	2	8
12	0	0	7	19
8	0	0	4	12
14	0	0	7	21
7	0	0	0	7
19	0	0	5	24
7	0	0	0	7
				0
				0
				0
				0
				0
				0
				0
132	2	0	45	179

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1		0			0			0		0
	0	1		0			0			0		0
	0	2		0			0			0		0
1	0	4		0			0	1	1	0		2
	0	1		0			0			0		0
	0	1		0			0	1		0		1
	0	1		0			0		1	0		1
	0			0			0	1		0		1
	PM											0
1	0											0
2	0	2		0			0			0		0
1	0			0			0			0		0
	0			0			0			0		0
1	0	2		0			0			0		0
2	0			0			0	1	1	1		3
	0			0			0		1	0		1
1	0			0			0	1		0		1
												0
												0
												0
												0
												0
												0
												0
												10
9	0	15	0	0	0	0	0	5	4	1	0	20

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Hotel Circle S @ Hotel Circle N

Date of Count: *Thursday, November 19, 2015*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *15-0452*



Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Hotel Circle S @ Hotel Circle N

AM Period (7:00 AM - 9:00 AM)							
	Southbound		Westbound			Eastbound	
	Right	Left	Right	Thru		Thru	Left	TOTAL
7:00 AM	164	19	14	24		17	22	260
7:15 AM	142	20	26	23		22	20	253
7:30 AM	168	22	24	21		29	35	299
7:45 AM	122	25	26	19		31	41	264
8:00 AM	169	31	24	19		20	41	304
8:15 AM	145	26	28	20		23	29	271
8:30 AM	136	45	25	20		37	35	298
8:45 AM	154	38	22	29		40	41	324
Total	1,200	226	189	175		219	264	2,273

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.92**

	Southbound		Westbound			Eastbound		TOTAL
	Right	Left	Right	Thru		Thru	Left	
Volume	604	140	99	88		120	146	1,197
PHF	0.89	0.78	0.88	0.76		0.75	0.89	0.92
Movement PHF	0.93			0.92		0.82		0.92

PM Period (4:00 PM - 6:00 PM)							
	Southbound		Westbound			Eastbound	
	Right	Left	Right	Thru		Thru	Left	TOTAL
4:00 PM	98	30	33	11		89	41	302
4:15 PM	93	36	24	15		97	63	328
4:30 PM	116	36	21	22		111	55	361
4:45 PM	117	38	17	16		99	66	353
5:00 PM	117	43	23	12		124	69	388
5:15 PM	129	39	14	17		93	70	362
5:30 PM	113	25	20	14		136	71	379
5:45 PM	127	45	23	20		119	52	386
Total	910	292	175	127		868	487	2,859

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.98**

	Southbound		Westbound			Eastbound		TOTAL
	Right	Left	Right	Thru		Thru	Left	
Volume	486	152	80	63		472	262	1515
PHF	0.94	0.844	0.87	0.788		0.868	0.923	0.98
Movement PHF	0.93			0.83		0.89		0.98

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Mission Center Rd	LOCATION #:	49
THURSDAY	EAST & WEST:	Camino Del Rio N.	CONTROL:	Signal

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Mission Center Rd			SOUTHBOUND Mission Center Rd			EASTBOUND Camino Del Rio N.			WESTBOUND Camino Del Rio N.			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	2	1	1	2	1	2	1	1	
WEEKDAY AM													
7:00 AM	15	30	40	30	38	3	0	8	12	44	61	88	369
7:15 AM	20	38	33	33	44	4	1	12	11	51	70	70	387
7:30 AM	26	44	38	28	51	5	0	18	11	54	50	111	436
7:45 AM	33	51	41	35	68	9	0	12	8	44	48	126	475
8:00 AM	45	65	54	31	65	8	1	19	15	51	40	115	509
8:15 AM	41	64	61	44	62	5	2	21	18	55	64	128	565
8:30 AM	35	62	68	35	68	5	0	16	20	62	69	121	561
8:45 AM	33	55	70	30	77	6	0	10	16	51	90	103	541
VOLUMES	248	409	405	266	473	45	4	116	111	412	492	862	3,843
APPROACH %	23%	39%	38%	34%	60%	6%	2%	50%	48%	23%	28%	49%	
APP/DEPART	1,062	/	1,275	784	/	996	231	/	787	1,766	/	785	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	154	246	253	140	272	24	3	66	69	219	263	467	2,176
APPROACH %	24%	38%	39%	32%	62%	6%	2%	48%	50%	23%	28%	49%	
PEAK HR FACTOR		0.983			0.965			0.841			0.941		0.963
APP/DEPART	653	/	716	436	/	560	138	/	459	949	/	441	0
WEEKDAY AM													
11:00 AM	30	77	77	66	105	10	3	44	28	51	55	121	667
11:15 AM	22	84	84	65	126	8	4	51	31	50	60	135	720
11:30 AM	28	94	95	54	144	9	2	68	33	44	45	141	757
11:45 AM	29	98	99	56	158	12	2	77	42	45	55	128	801
12:00 PM	33	111	103	65	184	6	4	58	28	51	55	135	833
12:15 PM	31	84	121	70	169	8	5	55	40	65	74	116	838
12:30 PM	25	95	116	65	188	9	2	68	32	65	68	132	865
12:45 PM	26	80	105	51	192	10	3	81	44	70	50	128	840
VOLUMES	224	723	800	492	1,266	72	25	502	278	441	462	1,036	6,321
APPROACH %	13%	41%	46%	27%	69%	4%	3%	62%	35%	23%	24%	53%	
APP/DEPART	1,747	/	1,784	1,830	/	1,985	805	/	1,794	1,939	/	758	0
BEGIN PEAK HR		12:00 PM											
VOLUMES	115	370	445	251	733	33	14	262	144	251	247	511	3,376
APPROACH %	12%	40%	48%	25%	72%	3%	3%	62%	34%	25%	24%	51%	
PEAK HR FACTOR		0.941			0.970			0.820			0.952		0.976
APP/DEPART	930	/	895	1,017	/	1,128	420	/	958	1,009	/	395	0
WEEKDAY PM													
4:00 PM	35	88	111	88	167	12	7	40	50	61	60	70	789
4:15 PM	40	80	108	70	184	18	8	55	50	70	68	111	862
4:30 PM	41	77	121	84	212	20	6	40	68	77	70	99	915
4:45 PM	35	80	132	95	208	16	5	35	70	65	54	105	900
5:00 PM	48	91	152	88	216	11	5	45	54	55	68	105	938
5:15 PM	42	70	131	84	222	9	3	51	55	54	70	99	890
5:30 PM	40	84	111	77	216	12	5	66	60	77	54	106	908
5:45 PM	31	81	121	84	184	15	4	32	51	70	56	111	840
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	312	651	987	670	1,609	113	43	364	458	529	500	806	7,042
APPROACH %	16%	33%	51%	28%	67%	5%	5%	42%	53%	29%	27%	44%	
APP/DEPART	1,950	/	1,500	2,392	/	2,596	865	/	2,021	1,835	/	925	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	166	318	536	351	858	56	19	171	247	251	262	408	3,643
APPROACH %	16%	31%	53%	28%	68%	4%	4%	39%	57%	27%	28%	44%	
PEAK HR FACTOR		0.876			0.991			0.834			0.936		0.971
APP/DEPART	1,020	/	745	1,265	/	1,356	437	/	1,058	921	/	484	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
VOLUMES	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
VOLUMES	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM				1	1
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
VOLUMES	0	0	0	1	1

PEDESTRIAN CROSSINGS / BIKE MOVEMENTS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
2	4	0	2	8	7:00 AM		0			1			0			0		0
0	2	0	2	4	7:15 AM		3			3			0			0		0
2	3	0	0	5	7:30 AM		2			3			0			0		0
4	5	0	2	11	7:45 AM		0			3			0			0		0
3	2	0	0	5	8:00 AM		0			2			0			0		0
0	1	0	0	1	8:15 AM		1			1			0			0		0
1	1	0	0	2	8:30 AM		0			0			0			0		0
0	4	0	0	4	8:45 AM		4			0			0			0		0
0	1	0	0	1	11:00 AM		0			0			0			0		0
1	2	0	0	3	11:15 AM		0			0			0			0		0
1	5	0	1	7	11:30 AM		1			0			0			0		0
1	4	0	0	5	11:45 AM	1	2			0			0			0		0
2	1	0	1	4	12:00 PM		1			0			0			0		0
0	3	0	0	3	12:15 PM	1	0			1			0			0		0
0	1	0	0	1	12:30 PM		1			2			0			0		0
0	0	0	0	0	12:45 PM		0			2			0			0		0
3	1	0	1	5	4:00 PM		0			0			0			0		0
1	0	0	0	1	4:15 PM		0			4			0			0		0
0	1	0	0	1	4:30 PM		1			0			0			0		0
3	1	0	0	4	4:45 PM		0			1			0			0		0
1	1	0	0	2	5:00 PM		0			1			0			0		0
3	0	0	0	3	5:15 PM	1	2			0			0			1		1
5	0	0	1	6	5:30 PM	1	0			5			0			1		1
6	5	0	4	15	5:45 PM		0			5			0			0		2
39	48	0	14	101		4	18	0	0	34	0	0	0	0	0	2	0	4

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/9/15	NORTH & SOUTH:	Mission Center Road	LOCATION #:	58
WEDNESDAY	EAST & WEST:	I-8 EB Ramps	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND I-8 EB Ramps			WESTBOUND I-8 EB Ramps			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	2	1	2	2	X	2	X	1	X	X	X	
WEEKDAY AM													
7:00 AM		40	18	56	41		38		68				261
7:15 AM		63	28	52	68		55		78				344
7:30 AM		82	37	50	50		65		93				377
7:45 AM		71	24	38	75		112		103				423
8:00 AM		57	28	59	69		86		101				400
8:15 AM		82	26	50	73		83		100				414
8:30 AM		94	30	75	62		79		97				437
8:45 AM		80	26	66	72		88		83				415
VOLUMES	0	569	217	446	510	0	606	0	723	0	0	0	3,071
APPROACH %	0%	72%	28%	47%	53%	0%	46%	0%	54%	0%	0%	0%	
APP/DEPART	786	/	1,175	956	/	1,233	1,329	/	663	0	/	0	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	304	108	222	279	0	360	0	401	0	0	0	1,674
APPROACH %	0%	74%	26%	44%	56%	0%	47%	0%	53%	0%	0%	0%	
PEAK HR FACTOR		0.831			0.914			0.885			0.000		0.958
APP/DEPART	412	/	664	501	/	680	761	/	330	0	/	0	0
WEEKDAY AM													
11:00 AM		101	30	113	84		188		66				582
11:15 AM		107	53	107	88		186		67				608
11:30 AM		99	42	162	91		172		79				645
11:45 AM		110	35	127	98		171		63				604
12:00 PM		118	39	173	99		192		51				672
12:15 PM		107	48	157	67		163		47				589
12:30 PM		112	29	110	84		131		60				526
12:45 PM		114	36	160	93		160		70				633
VOLUMES	0	868	312	1,109	704	0	1,363	0	503	0	0	0	4,859
APPROACH %	0%	74%	26%	61%	39%	0%	73%	0%	27%	0%	0%	0%	
APP/DEPART	1,180	/	2,231	1,813	/	1,207	1,866	/	1,421	0	/	0	0
BEGIN PEAK HR		11:15 AM											
VOLUMES	0	434	169	569	376	0	721	0	260	0	0	0	2,529
APPROACH %	0%	72%	28%	60%	40%	0%	73%	0%	27%	0%	0%	0%	
PEAK HR FACTOR		0.942			0.869			0.969			0.000		0.941
APP/DEPART	603	/	1,155	945	/	636	981	/	738	0	/	0	0
WEEKDAY PM													
4:00 PM		106	82	181	98		136		52				655
4:15 PM		105	63	193	81		163		77				682
4:30 PM		115	70	207	96		148		88				724
4:45 PM		90	70	194	97		159		89				699
5:00 PM		134	92	196	103		152		82				759
5:15 PM		118	70	192	90		141		68				679
5:30 PM		131	83	203	98		120		101				736
5:45 PM		120	58	136	94		165		94				667
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	919	588	1,502	757	0	1,184	0	651	0	0	0	5,601
APPROACH %	0%	61%	39%	66%	34%	0%	65%	0%	35%	0%	0%	0%	
APP/DEPART	1,507	/	2,103	2,259	/	1,408	1,835	/	2,090	0	/	0	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	473	315	785	388	0	572	0	340	0	0	0	2,873
APPROACH %	0%	60%	40%	67%	33%	0%	63%	0%	37%	0%	0%	0%	
PEAK HR FACTOR		0.872			0.974			0.880			0.000		0.946
APP/DEPART	788	/	1,045	1,173	/	728	912	/	1,100	0	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
	0	0	0	0	0

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7				2	2
					0
				5	5
				1	1
8				3	3
					0
				3	3
					0
11				3	3
					0
					0
				3	3
12					0
				1	1
				3	3
				4	4
4				6	6
				5	5
				6	6
				5	5
5				4	4
				3	3
				4	4
				10	10
	0	0	0	71	71

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
												0
												0
				1								0
												0
				1								0
												0
				1								0
												0
												0
				1								0
	1			2								0
												0
												0
												0
												0
				1								0
												0
												0
				1								0
												0
												0
				1								0
				1								0
0	1	0	0	10	0	0	0	0	0	0	0	0

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/10/15	NORTH & SOUTH:	Mission Center Road	LOCATION #:	59
THURSDAY	EAST & WEST:	Camino Del Rio South	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Mission Center Road			SOUTHBOUND Mission Center Road			EASTBOUND Camino Del Rio South			WESTBOUND Camino Del Rio South			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	0	1	0	1.5	0.5	1	1.5	1.5	0	0	2	0	
WEEKDAY AM	7:00 AM	2	1	0	47	8	67	32	4	0	1	13	19	194
	7:15 AM	0	3	0	57	12	62	44	4	1	0	5	39	227
	7:30 AM	1	8	2	59	11	89	50	3	1	3	15	48	290
	7:45 AM	2	3	2	53	14	92	44	5	0	6	15	38	274
	8:00 AM	0	2	0	70	21	105	47	7	0	1	20	42	315
	8:15 AM	1	6	0	58	21	90	50	4	2	3	25	46	306
	8:30 AM	1	0	1	55	13	74	43	7	0	5	28	67	294
	8:45 AM	0	3	0	79	21	77	57	9	3	1	21	68	339
	VOLUMES	7	26	5	478	121	656	367	43	7	20	142	367	2,239
	APPROACH %	18%	68%	13%	38%	10%	52%	88%	10%	2%	4%	27%	69%	
	APP/DEPART	38	/	760	1,255	/	148	417	/	526	529	/	805	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	2	11	1	262	76	346	197	27	5	10	94	223	1,254
	APPROACH %	14%	79%	7%	38%	11%	51%	86%	12%	2%	3%	29%	68%	
	PEAK HR FACTOR		0.500			0.872			0.830			0.818		0.925
	APP/DEPART	14	/	431	684	/	91	229	/	290	327	/	442	0
WEEKDAY AM	11:00 AM	0	13	0	81	12	73	59	13	0	0	10	56	317
	11:15 AM	2	12	0	66	15	69	81	14	2	2	17	81	361
	11:30 AM	0	3	3	86	6	74	69	12	2	1	10	59	325
	11:45 AM	0	7	3	62	12	83	63	7	1	2	16	72	328
	12:00 PM	0	5	2	66	8	71	85	13	2	3	9	72	336
	12:15 PM	3	8	0	54	4	59	82	10	2	5	15	70	312
	12:30 PM	0	8	2	86	11	63	85	14	3	2	17	56	347
	12:45 PM	0	6	2	98	15	87	80	13	3	2	13	70	389
	VOLUMES	5	62	12	599	83	579	604	96	15	17	107	536	2,715
	APPROACH %	6%	78%	15%	48%	7%	46%	84%	13%	2%	3%	16%	81%	
	APP/DEPART	79	/	1,202	1,261	/	115	715	/	707	660	/	691	0
	BEGIN PEAK HR		12:00 PM											
	VOLUMES	3	27	6	304	38	280	332	50	10	12	54	268	1,384
	APPROACH %	8%	75%	17%	49%	6%	45%	85%	13%	3%	4%	16%	80%	
	PEAK HR FACTOR		0.818			0.778			0.961			0.928		0.889
	APP/DEPART	36	/	627	622	/	60	392	/	360	334	/	337	0
WEEKDAY PM	4:00 PM	1	6	0	90	5	58	110	20	2	1	10	61	364
	4:15 PM	0	12	2	83	4	64	112	13	2	1	14	55	362
	4:30 PM	2	4	1	84	4	80	120	13	8	2	13	75	406
	4:45 PM	0	4	3	108	7	76	85	8	1	1	13	64	370
	5:00 PM	1	16	6	104	5	86	139	27	0	2	11	72	469
	5:15 PM	1	5	3	72	8	61	121	22	2	1	20	68	384
	5:30 PM	1	2	1	126	4	58	120	18	1	0	17	66	414
	5:45 PM	0	3	1	100	8	80	114	12	3	1	19	78	419
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	6	52	17	767	45	563	921	133	19	9	117	539	3,188
	APPROACH %	8%	69%	23%	56%	3%	41%	86%	12%	2%	1%	18%	81%	
	APP/DEPART	75	/	1,512	1,375	/	73	1,073	/	917	665	/	686	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	3	26	11	402	25	285	494	79	6	4	67	284	1,686
	APPROACH %	8%	65%	28%	56%	4%	40%	85%	14%	1%	1%	19%	80%	
	PEAK HR FACTOR		0.435			0.913			0.872			0.906		0.899
	APP/DEPART	40	/	804	712	/	35	579	/	492	355	/	355	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
	1			1
				0
			1	1
				0
	1			1
				0
				0
				0
0	2	0	1	3
				0
				0
	1			1
				0
				0
	2			2
				0
	1			1
0	4	0	0	4
				0
	1			1
				0
				0
				0
				0
				0
	1			1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	2	0	0	2

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
			1	1
			1	1
			1	1
			1	1
				0
				0
				0
			1	1
				0
				0
				0
				0
			2	2
				0
				0
			3	3
			1	1
				0
			1	1
			2	2
				0
			6	6
			2	2
0	0	0	22	22

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
			2									0
	1				1							0
												0
												0
												0
					2							0
												0
												0
												0
			1									0
					1							0
	1											0
					1							0
												0
0	2	0	3	0	5	0	0	0	0	0	0	0

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/16/15	NORTH & SOUTH:	Qualcomm Way	LOCATION #:	19
WEDNESDAY	EAST & WEST:	Friars Road WB Ramps	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N / ◄ W / E ► / S ▼

	NORTHBOUND Qualcomm Way			SOUTHBOUND Qualcomm Way			EASTBOUND Friars Road WB Ramps			WESTBOUND Friars Road WB Ramps			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	X	X	1	0	X	X	X	2	0	0	
WEEKDAY AM													
7:00 AM	79	2			2	1				29	0	2	115
7:15 AM	107	1			1	0				22	0	1	132
7:30 AM	84	7			4	0				41	0	0	136
7:45 AM	126	2			6	0				39	0	1	174
8:00 AM	120	1			4	1				49	0	0	175
8:15 AM	119	4			6	0				39	1	0	169
8:30 AM	105	1			4	0				55	0	2	167
8:45 AM	113	4			0	4				30	2	3	156
VOLUMES	853	22	0	0	27	6	0	0	0	304	0	9	1,224
APPROACH %	97%	3%	0%	0%	82%	18%	0%	0%	0%	97%	0%	3%	
APP/DEPART	875	/	31	33	/	331	0	/	0	313	/	859	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	470	8	0	0	20	1	0	0	0	182	1	3	685
APPROACH %	98%	2%	0%	0%	95%	5%	0%	0%	0%	98%	1%	2%	
PEAK HR FACTOR		0.934			0.875			0.000			0.816		0.979
APP/DEPART	478	/	11	21	/	202	0	/	0	186	/	472	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM	93	0			2	0				67	1	0	163
4:15 PM	103	2			2	1				78	3	0	189
4:30 PM	129	2			3	0				97	1	0	232
4:45 PM	106	2			1	0				86	3	0	198
5:00 PM	130	1			2	3				86	0	0	222
5:15 PM	107	2			1	0				97	1	0	208
5:30 PM	106	0			0	0				79	0	0	185
5:45 PM	102	2			0	3				95	1	1	204
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	876	11	0	0	11	7	0	0	0	685	10	1	1,601
APPROACH %	99%	1%	0%	0%	61%	39%	0%	0%	0%	98%	1%	0%	
APP/DEPART	887	/	12	18	/	696	0	/	0	696	/	893	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	472	7	0	0	7	3	0	0	0	366	5	0	860
APPROACH %	99%	1%	0%	0%	70%	30%	0%	0%	0%	99%	1%	0%	
PEAK HR FACTOR		0.914			0.500			0.000			0.946		0.927
APP/DEPART	479	/	7	10	/	373	0	/	0	371	/	480	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
1				1
				0
				0
				0
1	0	0	0	1
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
1				1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
1	0	0	0	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
	NO PEDS			0
				0
				0
PM				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
												0
1												0
												0
									2			2
												0
												0
												0
												0
												0
												0
												2
1	0	0	0	0	0	0	0	0	2	0	0	4

20

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9/16/15	NORTH & SOUTH:	Qualcomm Way	LOCATION #:	20
WEDNESDAY	EAST & WEST:	Friars Road EB Ramps	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Qualcomm Way			SOUTHBOUND Qualcomm Way			EASTBOUND Friars Road EB Ramps			WESTBOUND Friars Road EB Ramps			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	2	1	1	2	X	0.5	0.5	1	X	X	X	
WEEKDAY AM													
7:00 AM		69	35	0	31		13	0	17				165
7:15 AM		80	37	1	22		20	0	18				178
7:30 AM		83	50	0	44		8	0	24				209
7:45 AM		122	47	0	50		13	0	25				257
8:00 AM		109	43	1	50		16	0	30				249
8:15 AM		107	48	0	38		13	0	36				242
8:30 AM		87	49	3	50		8	0	27				224
8:45 AM		106	47	0	38		12	0	37				240
VOLUMES	0	763	356	5	323	0	103	0	214	0	0	0	1,764
APPROACH %	0%	68%	32%	2%	98%	0%	32%	0%	68%	0%	0%	0%	
APP/DEPART	1,119	/	866	328	/	537	317	/	361	0	/	0	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	425	187	4	188	0	50	0	118	0	0	0	972
APPROACH %	0%	69%	31%	2%	98%	0%	30%	0%	70%	0%	0%	0%	
PEAK HR FACTOR		0.905			0.906			0.857			0.000		0.946
APP/DEPART	612	/	475	192	/	306	168	/	191	0	/	0	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM		96	105	4	66		7	3	56				337
4:15 PM		92	78	1	81		13	0	69				334
4:30 PM		118	98	2	97		9	3	79				406
4:45 PM		92	97	1	81		12	0	69				352
5:00 PM		133	65	2	93		9	2	78				382
5:15 PM		95	66	0	102		15	1	79				358
5:30 PM		89	76	0	84		12	0	64				325
5:45 PM		97	71	3	87		7	1	62				328
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	812	656	13	691	0	84	10	556	0	0	0	2,822
APPROACH %	0%	55%	45%	2%	98%	0%	13%	2%	86%	0%	0%	0%	
APP/DEPART	1,468	/	896	704	/	1,247	650	/	679	0	/	0	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	438	326	5	373	0	45	6	305	0	0	0	1,498
APPROACH %	0%	57%	43%	1%	99%	0%	13%	2%	86%	0%	0%	0%	
PEAK HR FACTOR		0.884			0.926			0.937			0.000		0.922
APP/DEPART	764	/	483	378	/	678	356	/	337	0	/	0	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
VOLUMES	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
VOLUMES	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
VOLUMES	0	0	0	0	0

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
1		2		3
				0
		1		1
				0
				0
				0
				0
PM				0
				0
				0
				0
				0
				0
				0
1				1
		1		1
				0
				0
				0
				0
				0
				0
				0
				0
2	0	4	0	6

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
												0
												0
				1								0
												0
												0
												0
												0
PM												0
												0
												0
				1								0
												0
												0
												0
												0
							2					0
												0
												0
												0
												0
												0
												0
												0
												0
0	0	0	0	2	0	0	2	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9-16-15 WEDNESDAY

LOCATION: MISSION VALLEY
NORTH & SOUTH: River Run Drive
EAST & WEST: Friars Road

PROJECT #: PDT15-0911-01
LOCATION #: 21
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND River Run Drive			SOUTHBOUND River Run Drive			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 1	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
WEEKDAY AM	7:00 AM	21	7	9	1	1	3	12	115	8	21	312	30	540
	7:15 AM	26	10	10	0	0	2	20	126	4	33	305	41	577
	7:30 AM	33	11	15	1	0	2	18	151	5	38	355	50	679
	7:45 AM	38	9	19	2	1	4	26	169	11	41	364	58	742
	8:00 AM	31	12	20	2	1	2	21	141	12	40	375	42	699
	8:15 AM	25	15	11	1	2	6	18	184	10	29	336	28	665
	8:30 AM	20	8	11	2	1	2	12	165	8	34	342	33	638
	8:45 AM	18	7	8	3	0	1	12	155	9	28	310	28	579
	VOLUMES	212	79	103	12	6	22	139	1,206	67	264	2,699	310	5,119
	APPROACH %	54%	20%	26%	30%	15%	55%	10%	85%	5%	8%	82%	9%	
	APP/DEPART	394	/	528	40	/	337	1,412	/	1,321	3,273	/	2,933	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	127	47	65	6	4	14	83	645	38	148	1,430	178	2,785
	APPROACH %	53%	20%	27%	25%	17%	58%	11%	84%	5%	8%	81%	10%	
	PEAK HR FACTOR		0.905			0.667			0.903			0.948		0.938
	APP/DEPART	239	/	308	24	/	190	766	/	716	1,756	/	1,571	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM	16	0	26	56	1	20	12	428	20	13	234	6	832
	4:15 PM	6	4	18	31	0	15	7	481	14	9	250	4	839
	4:30 PM	13	0	35	68	0	34	8	509	13	17	236	5	938
	4:45 PM	15	1	19	39	0	30	5	440	25	11	277	1	863
	5:00 PM	5	1	31	34	1	11	3	458	21	15	302	4	886
	5:15 PM	12	1	27	27	1	9	5	507	19	16	296	10	930
	5:30 PM	8	2	18	17	1	9	5	546	34	15	302	6	963
	5:45 PM	12	1	15	6	0	10	6	371	22	13	282	4	742
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	87	10	189	278	4	138	51	3,740	168	109	2,179	40	6,993
	APPROACH %	30%	3%	66%	66%	1%	33%	1%	94%	4%	5%	94%	2%	
	APP/DEPART	286	/	101	420	/	281	3,959	/	4,207	2,328	/	2,404	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	40	5	95	117	3	59	18	1,951	99	57	1,177	21	3,642
	APPROACH %	29%	4%	68%	65%	2%	33%	1%	94%	5%	5%	94%	2%	
	PEAK HR FACTOR		0.875			0.649			0.884			0.971		0.945
	APP/DEPART	140	/	44	179	/	159	2,068	/	2,163	1,255	/	1,276	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
			2	2
		2		2
		2		2
			1	1
		3	1	4
		1		1
		1		1
		1		1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	10	4	14

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	1	0	0	1
1	0	2	0	3
1	2	14	3	20
0	0	2	6	8
1	0	0	0	1
0	0	1	0	1
0	1	1	0	2
0	0	0	0	0
				0
0	0	0	0	0
0	0	3	0	3
0	0	3	0	3
0	1	3	1	5
1	1	2	0	4
2	1	1	2	6
0	0	1	4	5
1	0	0	1	2
				0
				0
				0
				0
				0
				0
7	7	33	17	64

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0		1	1			0	1		0		1
	0			0			0			0		0
	1			0			0			0		0
	0			0			2			0		0
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			0		0
	1			0			0			0		0
												0
	0			0			0			0		0
	0			0			1			0		0
	0			1			2			0		0
	1		1	0		1	0			1		1
	1			0			1			0		0
	0		1	1			0			0		0
	0			0			0			0		0
												0
												0
												0
												0
												0
												0
												0
												1
0	4	0	3	3	0	1	6	1	0	1	0	3

WEDNESDAY - SEPTEMBER 16, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Sea World Drive From Mission Bay Parkway to Friars Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			20		24			12:00			245		262		
00:15			26		21			12:15			251		254		
00:30			20		18			12:30			268		251		
00:45			15	81	22	85	166	12:45			277	1041	242	1009	2050
01:00			18		16			13:00			242		222		
01:15			11		11			13:15			256		218		
01:30			12		15			13:30			242		213		
01:45			9	50	19	61	111	13:45			266	1006	214	867	1873
02:00			9		10			14:00			284		252		
02:15			10		5			14:15			251		266		
02:30			5		4			14:30			288		251		
02:45			4	28	6	25	53	14:45			313	1136	284	1053	2189
03:00			6		9			15:00			305		295		
03:15			7		5			15:15			284		316		
03:30			5		4			15:30			216		333		
03:45			4	22	8	26	48	15:45			322	1127	342	1286	2413
04:00			6		7			16:00			342		326		
04:15			9		9			16:15			449		352		
04:30			18		5			16:30			519		366		
04:45			20	53	10	31	84	16:45			488	1798	375	1419	3217
05:00			21		11			17:00			503		395		
05:15			44		33			17:15			404		345		
05:30			68		41			17:30			416		355		
05:45			70	203	55	140	343	17:45			402	1725	333	1428	3153
06:00			84		68			18:00			352		318		
06:15			121		111			18:15			362		321		
06:30			184		105			18:30			284		333		
06:45			229	618	161	445	1063	18:45			212	1210	318	1290	2500
07:00			335		184			19:00			184		282		
07:15			451		212			19:15			161		262		
07:30			405		218			19:30			121		181		
07:45			424	1615	251	865	2480	19:45			135	601	151	876	1477
08:00			384		289			20:00			101		141		
08:15			370		292			20:15			88		131		
08:30			316		315			20:30			95		111		
08:45			384	1454	333	1229	2683	20:45			70	354	111	494	848
09:00			351		191			21:00			65		126		
09:15			305		222			21:15			77		132		
09:30			288		216			21:30			54		108		
09:45			274	1218	203	832	2050	21:45			65	261	99	465	726
10:00			265		241			22:00			95		70		
10:15			218		222			22:15			65		65		
10:30			219		218			22:30			35		88		
10:45			222	924	241	922	1846	22:45			44	239	70	293	532
11:00			235		262			23:00			51		65		
11:15			242		251			23:15			40		44		
11:30			255		268			23:30			35		35		
11:45			235	967	274	1055	2022	23:45			28	154	28	172	326
Total Vol.			7233		5716		**12949**				10652		10652		**21304**

Daily Totals

NB	SB	EB	WB	Combined
		17885	16368	**34253**

	AM			PM		
Split %	55.9%	44.1%	**37.8%**	50.0%	50.0%	**62.2%**
Peak Hour	07:15	08:00	**08:00**	16:15	16:15	**16:15**
Volume	1664	1229	**2683**	1959	1488	**3447**
P.H.F.	0.92	0.92	**0.94**	0.94	0.94	**0.96**

2

THURSDAY - SEPTEMBER 17, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Sea World Drive From Mission Bay Parkway to Friars Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			21		28			12:00			245		284		
00:15			23		24			12:15			268		262		
00:30			18		25			12:30			285		242		
00:45			20	82	20	97	179	12:45			295	1093	235	1023	2116
01:00			16		19			13:00			255		242		
01:15			19		22			13:15			268		222		
01:30			11		16			13:30			242		295		
01:45			15	61	11	68	129	13:45			255	1020	262	1021	2041
02:00			11		8			14:00			313		242		
02:15			9		7			14:15			318		235		
02:30			5		9			14:30			305		244		
02:45			4	29	5	29	58	14:45			252	1188	289	1010	2198
03:00			8		4			15:00			269		312		
03:15			6		5			15:15			295		333		
03:30			8		8			15:30			298		385		
03:45			7	29	9	26	55	15:45			242	1104	362	1392	2496
04:00			9		9			16:00			315		387		
04:15			5		10			16:15			388		342		
04:30			4		11			16:30			398		399		
04:45			18	36	15	45	81	16:45			445	1546	422	1550	3096
05:00			20		18			17:00			484		404		
05:15			33		26			17:15			505		384		
05:30			45		35			17:30			464		342		
05:45			51	149	44	123	272	17:45			418	1871	316	1446	3317
06:00			68		51			18:00			389		333		
06:15			77		68			18:15			326		318		
06:30			151		121			18:30			284		305		
06:45			212	508	145	385	893	18:45			222	1221	284	1240	2461
07:00			295		212			19:00			170		270		
07:15			345		252			19:15			142		268		
07:30			444		268			19:30			111		208		
07:45			419	1503	277	1009	2512	19:45			98	521	184	930	1451
08:00			425		298			20:00			80		144		
08:15			365		305			20:15			70		152		
08:30			313		311			20:30			65		132		
08:45			305	1408	275	1189	2597	20:45			66	281	111	539	820
09:00			333		265			21:00			70		108		
09:15			316		219			21:15			54		99		
09:30			289		235			21:30			55		80		
09:45			299	1237	216	935	2172	21:45			46	225	70	357	582
10:00			235		222			22:00			42		84		
10:15			245		214			22:15			68		65		
10:30			222		235			22:30			70		45		
10:45			236	938	242	913	1851	22:45			54	234	35	229	463
11:00			268		252			23:00			22		41		
11:15			245		268			23:15			35		32		
11:30			245		275			23:30			40		22		
11:45			244	1002	254	1049	2051	23:45			28	125	28	123	248
Total Vol.				6982		5868	**12850**					10429		10860	**21289**

Daily Totals

NB	SB	EB	WB	Combined
		17411	16728	**34139**

	AM			PM		
Split %	54.3%	45.7%	**37.6%**	49.0%	51.0%	**62.4%**
Peak Hour	07:30	07:45	**07:30**	16:45	16:30	**16:45**
Volume	1653	1191	**2801**	1898	1609	**3450**
P.H.F.	0.93	0.96	**0.97**	0.94	0.95	**0.97**

WEDNESDAY - SEPTEMBER 16, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Sea World Drive From I-5 SB Ramps to Friars Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			15		20			12:00			210		198		
00:15			18		18			12:15			205		216		
00:30			21		11			12:30			218		205		
00:45			22	76	15	64	140	12:45			235	868	218	837	1705
01:00			16		19			13:00			222		222		
01:15			19		16			13:15			216		213		
01:30			10		11			13:30			205		205		
01:45			11	56	8	54	110	13:45			216	859	184	824	1683
02:00			15		9			14:00			222		195		
02:15			8		5			14:15			218		177		
02:30			9		4			14:30			226		212		
02:45			10	42	5	23	65	14:45			235	901	235	819	1720
03:00			5		6			15:00			242		284		
03:15			4		8			15:15			268		292		
03:30			6		9			15:30			277		312		
03:45			9	24	10	33	57	15:45			284	1071	318	1206	2277
04:00			12		11			16:00			262		333		
04:15			11		8			16:15			305		342		
04:30			18		9			16:30			311		352		
04:45			22	63	15	43	106	16:45			318	1196	388	1415	2611
05:00			28		18			17:00			352		410		
05:15			26		26			17:15			262		398		
05:30			51		33			17:30			275		362		
05:45			66	171	31	108	279	17:45			255	1144	350	1520	2664
06:00			91		45			18:00			266		312		
06:15			121		88			18:15			242		318		
06:30			215		121			18:30			222		305		
06:45			222	649	135	389	1038	18:45			205	935	295	1230	2165
07:00			269		168			19:00			180		288		
07:15			315		175			19:15			111		202		
07:30			336		191			19:30			105		188		
07:45			345	1265	184	718	1983	19:45			121	517	191	869	1386
08:00			368		222			20:00			103		141		
08:15			352		219			20:15			88		135		
08:30			342		205			20:30			95		111		
08:45			333	1395	184	830	2225	20:45			70	356	116	503	859
09:00			318		161			21:00			65		101		
09:15			284		177			21:15			70		116		
09:30			295		151			21:30			54		90		
09:45			205	1102	168	657	1759	21:45			66	255	84	391	646
10:00			212		184			22:00			66		70		
10:15			188		191			22:15			70		55		
10:30			191		215			22:30			54		68		
10:45			170	761	222	812	1573	22:45			55	245	70	263	508
11:00			155		235			23:00			51		54		
11:15			196		218			23:15			40		40		
11:30			177		242			23:30			32		32		
11:45			195	723	216	911	1634	23:45			21	144	22	148	292
Total Vol.				6327		4642	**10969**					8491		10025	**18516**

Daily Totals

NB	SB	EB	WB	Combined
		14818	14667	**29485**

	AM			PM		
Split %	57.7%	42.3%	**37.2%**	45.9%	54.1%	**62.8%**
Peak Hour	07:45	10:45	**07:45**	16:15	16:45	**16:30**
Volume	1407	917	**2237**	1286	1558	**2791**
P.H.F.	0.96	0.95	**0.95**	0.91	0.95	**0.92**

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THURSDAY - SEPTEMBER 17, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Sea World Drive From I-5 SB Ramps to Friars Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			20		24			12:00			235		215		
00:15			22		21			12:15			215		208		
00:30			16		20			12:30			222		222		
00:45			11	69	16	81	150	12:45			219	891	213	858	1749
01:00			15		11			13:00			222		242		
01:15			19		15			13:15			242		262		
01:30			20		18			13:30			216		241		
01:45			11	65	20	64	129	13:45			189	869	221	966	1835
02:00			8		11			14:00			191		218		
02:15			7		9			14:15			189		208		
02:30			9		10			14:30			213		219		
02:45			5	29	5	35	64	14:45			214	807	235	880	1687
03:00			4		4			15:00			206		242		
03:15			6		6			15:15			235		318		
03:30			5		7			15:30			241		333		
03:45			7	22	8	25	47	15:45			288	970	326	1219	2189
04:00			9		9			16:00			262		342		
04:15			12		5			16:15			295		396		
04:30			18		8			16:30			305		398		
04:45			22	61	9	31	92	16:45			289	1151	405	1541	2692
05:00			35		9			17:00			299		391		
05:15			31		18			17:15			305		406		
05:30			44		28			17:30			288		411		
05:45			51	161	21	76	237	17:45			216	1108	365	1573	2681
06:00			84		35			18:00			242		319		
06:15			91		55			18:15			251		284		
06:30			184		89			18:30			219		292		
06:45			265	624	129	308	932	18:45			202	914	266	1161	2075
07:00			305		135			19:00			216		242		
07:15			351		168			19:15			184		244		
07:30			408		181			19:30			135		222		
07:45			340	1404	212	696	2100	19:45			140	675	174	882	1557
08:00			319		232			20:00			111		151		
08:15			342		222			20:15			90		105		
08:30			355		219			20:30			80		112		
08:45			312	1328	189	862	2190	20:45			70	351	135	503	854
09:00			305		188			21:00			65		88		
09:15			333		175			21:15			88		95		
09:30			284		162			21:30			81		70		
09:45			242	1164	151	676	1840	21:45			70	304	65	318	622
10:00			262		144			22:00			54		77		
10:15			222		184			22:15			42		54		
10:30			202		174			22:30			35		55		
10:45			184	870	213	715	1585	22:45			40	171	40	226	397
11:00			161		215			23:00			35		41		
11:15			151		208			23:15			22		44		
11:30			177		216			23:30			29		32		
11:45			184	673	222	861	1534	23:45			26	112	28	145	257
Total Vol.			6470		4430	**10900**					8323		10272		**18595**

Daily Totals

NB	SB	EB	WB	Combined
		14793	14702	**29495**

	AM			PM		
Split %	59.4%	40.6%	**37.0%**	44.8%	55.2%	**63.0%**
Peak Hour	07:15	07:45	**07:30**	16:30	16:45	**16:30**
Volume	1418	885	**2256**	1198	1613	**2798**
P.H.F.	0.87	0.95	**0.96**	0.98	0.98	**0.98**

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WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Tecolote Rd, from I-5 NB ramps to I-5 SB ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			35		3			12:00			295		126		
00:15			25		12			12:15			361		163		
00:30			23		2			12:30			275		133		
00:45			13	96	9	26	122	12:45			332	1263	150	572	1835
01:00			12		3			13:00			310		193		
01:15			10		10			13:15			334		160		
01:30			17		11			13:30			294		115		
01:45			14	53	12	36	89	13:45			307	1245	148	616	1861
02:00			12		10			14:00			313		124		
02:15			12		8			14:15			320		136		
02:30			16		8			14:30			324		140		
02:45			6	46	5	31	77	14:45			338	1295	188	588	1883
03:00			9		6			15:00			322		219		
03:15			7		5			15:15			310		146		
03:30			8		7			15:30			352		142		
03:45			11	35	7	25	60	15:45			336	1320	135	642	1962
04:00			10		10			16:00			330		155		
04:15			16		8			16:15			343		164		
04:30			28		27			16:30			353		158		
04:45			30	84	30	75	159	16:45			388	1414	174	651	2065
05:00			33		33			17:00			348		193		
05:15			69		57			17:15			375		158		
05:30			85		75			17:30			336		170		
05:45			91	278	81	246	524	17:45			369	1428	153	674	2102
06:00			104		88			18:00			288		151		
06:15			196		180			18:15			325		156		
06:30			237		229			18:30			314		124		
06:45			309	846	259	756	1602	18:45			255	1182	141	572	1754
07:00			332		312			19:00			249		117		
07:15			403		338			19:15			237		134		
07:30			460		364			19:30			234		121		
07:45			507	1702	330	1344	3046	19:45			264	984	133	505	1489
08:00			425		301			20:00			217		99		
08:15			450		303			20:15			206		107		
08:30			452		306			20:30			150		57		
08:45			368	1695	249	1159	2854	20:45			160	733	69	332	1065
09:00			308		265			21:00			121		86		
09:15			290		227			21:15			153		58		
09:30			337		250			21:30			142		82		
09:45			311	1246	227	969	2215	21:45			92	508	45	271	779
10:00			255		216			22:00			93		45		
10:15			287		207			22:15			89		35		
10:30			320		238			22:30			95		32		
10:45			304	1166	198	859	2025	22:45			60	337	20	132	469
11:00			275		170			23:00			65		17		
11:15			329		219			23:15			53		24		
11:30			323		231			23:30			40		14		
11:45			305	1232	120	740	1972	23:45			39	197	10	65	262
Total Vol.				8479		6266	**14745**					11906		5620	**17526**

Daily Totals

NB	SB	EB	WB	Combined
		20385	11886	**32271**

	AM			PM		
Split %	57.5%	42.5%	**45.7%**	67.9%	32.1%	**54.3%**
Peak Hour	07:30	07:00	**07:30**	16:30	14:45	**16:30**
Volume	1842	1344	**3140**	1464	695	**2147**
P.H.F.	0.91	0.92	**0.94**	0.94	0.79	**0.96**

4

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Tecolote Rd, from I-5 NB ramps to I-5 SB ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			29		10			12:00			318		142		
00:15			23		10			12:15			331		138		
00:30			24		3			12:30			314		131		
00:45			19	95	10	33	128	12:45			359	1322	132	543	1865
01:00			15		5			13:00			289		124		
01:15			16		7			13:15			319		157		
01:30			13		10			13:30			297		138		
01:45			11	55	6	28	83	13:45			297	1202	135	554	1756
02:00			13		8			14:00			358		123		
02:15			6		7			14:15			307		143		
02:30			15		9			14:30			312		126		
02:45			4	38	8	32	70	14:45			325	1302	185	577	1879
03:00			8		6			15:00			342		183		
03:15			7		2			15:15			337		152		
03:30			7		5			15:30			378		164		
03:45			20	42	10	23	65	15:45			353	1410	187	686	2096
04:00			13		4			16:00			333		177		
04:15			19		12			16:15			328		180		
04:30			29		20			16:30			342		186		
04:45			42	103	23	59	162	16:45			305	1308	208	751	2059
05:00			32		20			17:00			388		187		
05:15			48		24			17:15			365		183		
05:30			88		40			17:30			288		172		
05:45			118	286	42	126	412	17:45			361	1402	164	706	2108
06:00			109		58			18:00			278		153		
06:15			153		69			18:15			304		154		
06:30			257		82			18:30			278		151		
06:45			263	782	108	317	1099	18:45			247	1107	144	602	1709
07:00			344		99			19:00			223		133		
07:15			338		86			19:15			241		95		
07:30			441		103			19:30			260		73		
07:45			405	1528	146	434	1962	19:45			235	959	80	381	1340
08:00			361		187			20:00			161		96		
08:15			388		136			20:15			144		66		
08:30			366		130			20:30			143		73		
08:45			381	1496	154	607	2103	20:45			174	622	70	305	927
09:00			328		139			21:00			148		72		
09:15			324		144			21:15			141		57		
09:30			332		142			21:30			118		44		
09:45			294	1278	151	576	1854	21:45			114	521	47	220	741
10:00			293		141			22:00			111		32		
10:15			314		149			22:15			91		45		
10:30			267		141			22:30			84		32		
10:45			253	1127	133	564	1691	22:45			68	354	27	136	490
11:00			284		125			23:00			59		23		
11:15			310		147			23:15			56		17		
11:30			323		156			23:30			38		20		
11:45			308	1225	167	595	1820	23:45			31	184	12	72	256
Total Vol.				8055		3394	**11449**					11693		5533	**17226**

Daily Totals

NB	SB	EB	WB	Combined
		19748	8927	**28675**

	AM			PM		
Split %	70.4%	29.6%	**39.9%**	67.9%	32.1%	**60.1%**
Peak Hour	07:30	11:15	**07:30**	15:00	16:30	**16:30**
Volume	1595	612	**2167**	1410	764	**2164**
P.H.F.	0.90	0.92	**0.98**	0.93	0.92	**0.94**

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WEDNESDAY - SEPTEMBER 16, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Tecolote Road From Morena Boulevard to I-5 NB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			21		20			12:00			165		142		
00:15			18		15			12:15			177		151		
00:30			20		18			12:30			184		162		
00:45			16	75	20	73	148	12:45			161	687	155	610	1297
01:00			11		15			13:00			135		174		
01:15			9		11			13:15			142		184		
01:30			10		9			13:30			151		165		
01:45			5	35	12	47	82	13:45			168	596	170	693	1289
02:00			4		16			14:00			178		154		
02:15			4		8			14:15			156		142		
02:30			2		9			14:30			184		161		
02:45			3	13	5	38	51	14:45			167	685	175	632	1317
03:00			5		4			15:00			184		161		
03:15			4		5			15:15			191		155		
03:30			5		6			15:30			212		184		
03:45			6	20	5	20	40	15:45			205	792	192	692	1484
04:00			4		6			16:00			235		205		
04:15			5		5			16:15			288		268		
04:30			6		11			16:30			262		251		
04:45			5	20	15	37	57	16:45			312	1097	235	959	2056
05:00			11		15			17:00			295		244		
05:15			16		16			17:15			262		262		
05:30			20		22			17:30			218		212		
05:45			15	62	32	85	147	17:45			222	997	218	936	1933
06:00			21		40			18:00			213		216		
06:15			35		84			18:15			222		205		
06:30			70		111			18:30			205		181		
06:45			88	214	161	396	610	18:45			181	821	191	793	1614
07:00			115		191			19:00			174		165		
07:15			128		218			19:15			165		141		
07:30			191		235			19:30			177		155		
07:45			288	722	262	906	1628	19:45			184	700	162	623	1323
08:00			188		288			20:00			105		135		
08:15			191		222			20:15			121		108		
08:30			216		218			20:30			130		111		
08:45			205	800	221	949	1749	20:45			118	474	88	442	916
09:00			206		218			21:00			94		90		
09:15			184		222			21:15			90		70		
09:30			135		206			21:30			88		65		
09:45			141	666	219	865	1531	21:45			70	342	55	280	622
10:00			121		203			22:00			65		40		
10:15			135		184			22:15			77		35		
10:30			142		126			22:30			54		22		
10:45			122	520	135	648	1168	22:45			35	231	22	119	350
11:00			135		141			23:00			22		28		
11:15			148		151			23:15			26		29		
11:30			156		126			23:30			20		20		
11:45			141	580	135	553	1133	23:45			19	87	18	95	182
Total Vol.			3727		4617		**8344**				7509		6874		**14383**

Daily Totals

NB	SB	EB	WB	Combined
		11236	11491	**22727**

	AM			PM		
Split %	44.7%	55.3%	**36.7%**	52.2%	47.8%	**63.3%**
Peak Hour	07:45	07:30	**07:45**	16:15	16:15	**16:15**
Volume	883	1007	**1873**	1157	998	**2155**
P.H.F.	0.77	0.87	**0.85**	0.93	0.93	**0.97**

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THURSDAY - SEPTEMBER 17, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Tecolote Road From Morena Boulevard to I-5 NB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			20		28			12:00			141		158		
00:15			22		20			12:15			156		195		
00:30			16		19			12:30			161		170		
00:45			18	76	20	87	163	12:45			133	591	141	664	1255
01:00			20		16			13:00			149		151		
01:15			15		15			13:15			165		165		
01:30			11		18			13:30			170		135		
01:45			9	55	11	60	115	13:45			184	668	141	592	1260
02:00			5		9			14:00			151		188		
02:15			4		5			14:15			142		140		
02:30			6		4			14:30			135		133		
02:45			5	20	5	23	43	14:45			155	583	158	619	1202
03:00			4		9			15:00			151		199		
03:15			6		10			15:15			168		184		
03:30			5		5			15:30			177		170		
03:45			4	19	4	28	47	15:45			184	680	161	714	1394
04:00			9		6			16:00			262		205		
04:15			11		2			16:15			235		284		
04:30			12		6			16:30			284		251		
04:45			15	47	12	26	73	16:45			295	1076	262	1002	2078
05:00			12		18			17:00			316		242		
05:15			22		22			17:15			288		215		
05:30			36		28			17:30			284		232		
05:45			44	114	34	102	216	17:45			235	1123	205	894	2017
06:00			51		44			18:00			213		184		
06:15			68		68			18:15			242		191		
06:30			70		70			18:30			222		161		
06:45			98	287	121	303	590	18:45			219	896	144	680	1576
07:00			121		170			19:00			205		155		
07:15			135		212			19:15			170		141		
07:30			145		242			19:30			142		128		
07:45			189	590	266	890	1480	19:45			135	652	135	559	1211
08:00			191		242			20:00			111		118		
08:15			174		232			20:15			98		121		
08:30			195		222			20:30			70		106		
08:45			170	730	205	901	1631	20:45			88	367	77	422	789
09:00			161		219			21:00			70		84		
09:15			170		235			21:15			65		68		
09:30			151		242			21:30			66		77		
09:45			148	630	235	931	1561	21:45			50	251	80	309	560
10:00			156		205			22:00			40		54		
10:15			128		184			22:15			35		40		
10:30			122		162			22:30			33		35		
10:45			135	541	111	662	1203	22:45			28	136	28	157	293
11:00			142		135			23:00			21		22		
11:15			165		141			23:15			19		19		
11:30			150		120			23:30			20		20		
11:45			149	606	166	562	1168	23:45			22	82	23	84	166
Total Vol.			3715		4575		**8290**				7105		6696		**13801**

Daily Totals

NB	SB	EB	WB	Combined
		10820	11271	**22091**

	AM			PM		
Split %	44.8%	55.2%	**37.5%**	51.5%	48.5%	**62.5%**
Peak Hour	07:45	07:30	**07:45**	16:30	16:15	**16:15**
Volume	749	982	**1711**	1183	1039	**2169**
P.H.F.	0.96	0.92	**0.94**	0.94	0.91	**0.97**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Sea World Dr & Napa St

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,572	5,956	13,528

AM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0		13		14		27	
00:15	0		0		13		5		18	
00:30	0		0		9		6		15	
00:45	0		0		6	41	4	29	10	70
01:00	0		0		3		5		8	
01:15	0		0		5		1		6	
01:30	0		0		1		4		5	
01:45	0		0		6	15	1	11	7	26
02:00	0		0		0		4		4	
02:15	0		0		6		0		6	
02:30	0		0		2		1		3	
02:45	0		0		4	12	2	7	6	19
03:00	0		0		3		1		4	
03:15	0		0		5		2		7	
03:30	0		0		2		3		5	
03:45	0		0		4	14	2	8	6	22
04:00	0		0		5		4		9	
04:15	0		0		7		5		12	
04:30	0		0		9		7		16	
04:45	0		0		6	27	4	20	10	47
05:00	0		0		17		14		31	
05:15	0		0		20		21		41	
05:30	0		0		21		36		57	
05:45	0		0		22	80	27	98	49	178
06:00	0		0		19		30		49	
06:15	0		0		31		56		87	
06:30	0		0		37		81		118	
06:45	0		0		56	143	93	260	149	403
07:00	0		0		62		113		175	
07:15	0		0		105		118		223	
07:30	0		0		150		123		273	
07:45	0		0		104	421	109	463	213	884
08:00	0		0		141		100		241	
08:15	0		0		132		94		226	
08:30	0		0		149		114		263	
08:45	0		0		94	516	126	434	220	950
09:00	0		0		71		78		149	
09:15	0		0		93		50		143	
09:30	0		0		122		65		187	
09:45	0		0		72	358	62	255	134	613
10:00	0		0		83		64		147	
10:15	0		0		60		60		120	
10:30	0		0		87		73		160	
10:45	0		0		88	318	68	265	156	583
11:00	0		0		74		78		152	
11:15	0		0		84		64		148	
11:30	0		0		90		89		179	
11:45	0		0		92	340	89	320	181	660
TOTALS						2285		2170		4455
SPLIT %						51.3%		48.7%		32.9%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	0		0		108		85		193	
12:15	0		0		94		99		193	
12:30	0		0		119		86		205	
12:45	0		0		89	410	72	342	161	752
13:00	0		0		80		89		169	
13:15	0		0		67		76		143	
13:30	0		0		89		77		166	
13:45	0		0		103	339	77	319	180	658
14:00	0		0		76		85		161	
14:15	0		0		86		114		200	
14:30	0		0		96		90		186	
14:45	0		0		136	394	84	373	220	767
15:00	0		0		119		85		204	
15:15	0		0		185		98		283	
15:30	0		0		213		78		291	
15:45	0		0		186	703	98	359	284	1062
16:00	0		0		221		106		327	
16:15	0		0		257		113		370	
16:30	0		0		275		118		393	
16:45	0		0		267	1020	100	437	367	1457
17:00	0		0		258		103		361	
17:15	0		0		255		166		421	
17:30	0		0		256		140		396	
17:45	0		0		178	947	122	531	300	1478
18:00	0		0		133		111		244	
18:15	0		0		130		122		252	
18:30	0		0		141		125		266	
18:45	0		0		91	495	112	470	203	965
19:00	0		0		81		98		179	
19:15	0		0		83		71		154	
19:30	0		0		100		78		178	
19:45	0		0		130	394	84	331	214	725
20:00	0		0		95		85		180	
20:15	0		0		59		68		127	
20:30	0		0		60		60		120	
20:45	0		0		43	257	54	267	97	524
21:00	0		0		47		67		114	
21:15	0		0		45		44		89	
21:30	0		0		24		38		62	
21:45	0		0		37	153	40	189	77	342
22:00	0		0		37		43		80	
22:15	0		0		26		24		50	
22:30	0		0		22		21		43	
22:45	0		0		22	107	25	113	47	220
23:00	0		0		17		16		33	
23:15	0		0		18		18		36	
23:30	0		0		21		13		34	
23:45	0		0		12	68	8	55	20	123
TOTALS						5287		3786		9073
SPLIT %						58.3%		41.7%		67.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,572	5,956	13,528

AM Peak Hour			07:30	07:00	07:30
AM Pk Volume			527	463	953
Pk Hr Factor			0.878	0.941	0.873
7 - 9 Volume	0	0	937	897	1834
7 - 9 Peak Hour			07:30	07:00	07:30
7 - 9 Pk Volume	0	0	527	463	953
Pk Hr Factor	0.000	0.000	0.878	0.941	0.873

PM Peak Hour			16:15	17:15	16:45
PM Pk Volume			1036	539	1545
Pk Hr Factor			0.970	0.960	0.917
4 - 6 Volume	0	0	1967	968	2935
4 - 6 Peak Hour			16:15	17:00	16:45
4 - 6 Pk Volume	0	0	1057	531	1545
Pk Hr Factor	0.000	0.000	0.961	0.800	0.917

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Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Sea World Dr & Napa St

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,415	6,358	13,773

AM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0		9		7		16	
00:15	0		0		12		7		19	
00:30	0		0		10		2		12	
00:45	0		0		5	36	4	20	9	56
01:00	0		0		1		3		4	
01:15	0		0		5		4		9	
01:30	0		0		5		1		6	
01:45	0		0		11	22	1	9	12	31
02:00	0		0		2		1		3	
02:15	0		0		4		7		11	
02:30	0		0		4		3		7	
02:45	0		0		2	12	0	11	2	23
03:00	0		0		4		1		5	
03:15	0		0		2		1		3	
03:30	0		0		3		4		7	
03:45	0		0		1	10	4	10	5	20
04:00	0		0		3		2		5	
04:15	0		0		7		4		11	
04:30	0		0		4		7		11	
04:45	0		0		16	30	6	19	22	49
05:00	0		0		14		16		30	
05:15	0		0		21		19		40	
05:30	0		0		10		23		33	
05:45	0		0		14	59	21	79	35	138
06:00	0		0		27		42		69	
06:15	0		0		30		49		79	
06:30	0		0		43		79		122	
06:45	0		0		51	151	101	271	152	422
07:00	0		0		101		81		182	
07:15	0		0		192		120		312	
07:30	0		0		118		126		244	
07:45	0		0		129	540	121	448	250	988
08:00	0		0		94		196		290	
08:15	0		0		114		226		340	
08:30	0		0		167		220		387	
08:45	0		0		132	507	188	830	320	1337
09:00	0		0		73		102		175	
09:15	0		0		76		88		164	
09:30	0		0		93		63		156	
09:45	0		0		91	333	61	314	152	647
10:00	0		0		104		71		175	
10:15	0		0		91		60		151	
10:30	0		0		86		56		142	
10:45	0		0		70	351	79	266	149	617
11:00	0		0		80		48		128	
11:15	0		0		68		79		147	
11:30	0		0		64		46		110	
11:45	0		0		110	322	69	242	179	564
TOTALS						2373		2519		4892
SPLIT %						48.5%		51.5%		35.5%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	0		0		87		106		193	
12:15	0		0		67		98		165	
12:30	0		0		84		77		161	
12:45	0		0		80	318	90	371	170	689
13:00	0		0		76		71		147	
13:15	0		0		90		81		171	
13:30	0		0		100		90		190	
13:45	0		0		108	374	72	314	180	688
14:00	0		0		109		89		198	
14:15	0		0		86		88		174	
14:30	0		0		99		88		187	
14:45	0		0		109	403	93	358	202	761
15:00	0		0		147		87		234	
15:15	0		0		143		85		228	
15:30	0		0		184		107		291	
15:45	0		0		173	647	122	401	295	1048
16:00	0		0		233		132		365	
16:15	0		0		274		112		386	
16:30	0		0		303		112		415	
16:45	0		0		290	1100	100	456	390	1556
17:00	0		0		250		146		396	
17:15	0		0		262		161		423	
17:30	0		0		207		151		358	
17:45	0		0		123	842	105	563	228	1405
18:00	0		0		120		96		216	
18:15	0		0		102		108		210	
18:30	0		0		117		95		212	
18:45	0		0		87	426	108	407	195	833
19:00	0		0		97		93		190	
19:15	0		0		86		91		177	
19:30	0		0		80		69		149	
19:45	0		0		72	335	45	298	117	633
20:00	0		0		58		52		110	
20:15	0		0		56		67		123	
20:30	0		0		60		65		125	
20:45	0		0		64	238	65	249	129	487
21:00	0		0		52		57		109	
21:15	0		0		34		46		80	
21:30	0		0		38		49		87	
21:45	0		0		46	170	48	200	94	370
22:00	0		0		40		50		90	
22:15	0		0		29		37		66	
22:30	0		0		26		35		61	
22:45	0		0		24	119	26	148	50	267
23:00	0		0		29		32		61	
23:15	0		0		15		18		33	
23:30	0		0		16		14		30	
23:45	0		0		10	70	10	74	20	144
TOTALS						5042		3839		8881
SPLIT %						56.8%		43.2%		64.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,415	6,358	13,773

AM Peak Hour			07:00	08:00	08:00
AM Pk Volume			540	830	1337
Pk Hr Factor			0.703	0.918	0.864
7 - 9 Volume	0	0	1047	1278	2325
7 - 9 Peak Hour			07:00	08:00	08:00
7 - 9 Pk Volume	0	0	540	830	1337
Pk Hr Factor	0.000	0.000	0.703	0.918	0.864

PM Peak Hour			16:15	17:00	16:30
PM Pk Volume			1009	563	1624
Pk Hr Factor			0.870	0.762	0.960
4 - 6 Volume	0	0	1942	1019	2961
4 - 6 Peak Hour			16:15	17:00	16:30
4 - 6 Pk Volume	0	0	1117	563	1624
Pk Hr Factor	0.000	0.000	0.922	0.874	0.960

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Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Napa St & Colusa St

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_010

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,064	8,947	19,011

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	17		11		28		12:00	0	0	120		132		252	
00:15	0	0	10		11		21		12:15	0	0	137		145		282	
00:30	0	0	10		5		15		12:30	0	0	114		131		245	
00:45	0	0	4	41	4	31	8	72	12:45	0	0	142	513	120	528	262	1041
01:00	0	0	5		6		11		13:00	0	0	139		143		282	
01:15	0	0	3		4		7		13:15	0	0	123		130		253	
01:30	0	0	2		6		8		13:30	0	0	122		113		235	
01:45	0	0	8	18	3	19	11	37	13:45	0	0	130	514	115	501	245	1015
02:00	0	0	1		2		3		14:00	0	0	109		128		237	
02:15	0	0	6		3		9		14:15	0	0	122		130		252	
02:30	0	0	2		1		3		14:30	0	0	154		139		293	
02:45	0	0	7	16	2	8	9	24	14:45	0	0	184	569	118	515	302	1084
03:00	0	0	2		3		5		15:00	0	0	164		110		274	
03:15	0	0	7		2		9		15:15	0	0	207		142		349	
03:30	0	0	6		6		12		15:30	0	0	287		127		414	
03:45	0	0	11	26	3	14	14	40	15:45	0	0	280	938	137	516	417	1454
04:00	0	0	9		8		17		16:00	0	0	282		138		420	
04:15	0	0	16		7		23		16:15	0	0	345		148		493	
04:30	0	0	13		17		30		16:30	0	0	343		160		503	
04:45	0	0	21	59	16	48	37	107	16:45	0	0	351	1321	159	605	510	1926
05:00	0	0	39		21		60		17:00	0	0	344		166		510	
05:15	0	0	40		34		74		17:15	0	0	365		184		549	
05:30	0	0	35		48		83		17:30	0	0	334		146		480	
05:45	0	0	28	142	44	147	72	289	17:45	0	0	254	1297	176	672	430	1969
06:00	0	0	31		56		87		18:00	0	0	201		179		380	
06:15	0	0	59		99		158		18:15	0	0	196		159		355	
06:30	0	0	56		134		190		18:30	0	0	180		144		324	
06:45	0	0	76	222	176	465	252	687	18:45	0	0	150	727	118	600	268	1327
07:00	0	0	68		185		253		19:00	0	0	129		127		256	
07:15	0	0	100		247		347		19:15	0	0	128		92		220	
07:30	0	0	116		247		363		19:30	0	0	133		99		232	
07:45	0	0	127	411	199	878	326	1289	19:45	0	0	156	546	93	411	249	957
08:00	0	0	126		231		357		20:00	0	0	124		105		229	
08:15	0	0	142		206		348		20:15	0	0	88		65		153	
08:30	0	0	140		196		336		20:30	0	0	78		72		150	
08:45	0	0	127	535	204	837	331	1372	20:45	0	0	65	355	58	300	123	655
09:00	0	0	105		160		265		21:00	0	0	63		88		151	
09:15	0	0	105		109		214		21:15	0	0	57		55		112	
09:30	0	0	137		117		254		21:30	0	0	42		56		98	
09:45	0	0	98	445	101	487	199	932	21:45	0	0	43	205	44	243	87	448
10:00	0	0	120		108		228		22:00	0	0	54		33		87	
10:15	0	0	98		103		201		22:15	0	0	29		28		57	
10:30	0	0	115		123		238		22:30	0	0	33		23		56	
10:45	0	0	90	423	112	446	202	869	22:45	0	0	18	134	21	105	39	239
11:00	0	0	120		109		229		23:00	0	0	20		19		39	
11:15	0	0	134		128		262		23:15	0	0	24		20		44	
11:30	0	0	137		144		281		23:30	0	0	23		14		37	
11:45	0	0	136	527	130	511	266	1038	23:45	0	0	13	80	7	60	20	140
TOTALS				2865		3891		6756	TOTALS				7199		5056		12255
SPLIT %				42.4%		57.6%		35.5%	SPLIT %				58.7%		41.3%		64.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,064	8,947	19,011

AM Peak Hour			07:45	07:15	07:30	PM Peak Hour			16:30	17:15	16:30
AM Pk Volume			535	924	1394	PM Pk Volume			1297	685	2072
Pk Hr Factor			0.942	0.935	0.960	Pk Hr Factor			0.888	0.919	0.944
7 - 9 Volume	0	0	946	1715	2661	4 - 6 Volume	0	0	2618	1277	3895
7 - 9 Peak Hour			07:45	07:15	07:30	4 - 6 Peak Hour			16:30	17:00	16:30
7 - 9 Pk Volume	0	0	535	924	1394	4 - 6 Pk Volume	0	0	1403	672	2072
Pk Hr Factor	0.000	0.000	0.942	0.935	0.960	Pk Hr Factor	0.000	0.000	0.961	0.913	0.944

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Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Napa St & Colusa St

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_010

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,951	9,368	19,319

AM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0		11		8		19	
00:15	0		0		14		7		21	
00:30	0		0		13		6		19	
00:45	0		0		4	42	5	26	9	68
01:00	0		0		2		4		6	
01:15	0		0		5		10		15	
01:30	0		0		7		6		13	
01:45	0		0		10	24	2	22	12	46
02:00	0		0		3		5		8	
02:15	0		0		3		7		10	
02:30	0		0		4		3		7	
02:45	0		0		3	13	0	15	3	28
03:00	0		0		5		4		9	
03:15	0		0		2		2		4	
03:30	0		0		8		7		15	
03:45	0		0		6	21	10	23	16	44
04:00	0		0		11		5		16	
04:15	0		0		13		9		22	
04:30	0		0		9		13		22	
04:45	0		0		26	59	7	34	33	93
05:00	0		0		26		26		52	
05:15	0		0		34		27		61	
05:30	0		0		25		46		71	
05:45	0		0		21	106	41	140	62	246
06:00	0		0		42		73		115	
06:15	0		0		42		85		127	
06:30	0		0		52		135		187	
06:45	0		0		61	197	157	450	218	647
07:00	0		0		105		172		277	
07:15	0		0		159		233		392	
07:30	0		0		139		245		384	
07:45	0		0		139	542	255	905	394	1447
08:00	0		0		113		364		477	
08:15	0		0		108		307		415	
08:30	0		0		129		187		316	
08:45	0		0		132	482	249	1107	381	1589
09:00	0		0		102		167		269	
09:15	0		0		98		128		226	
09:30	0		0		120		121		241	
09:45	0		0		119	439	99	515	218	954
10:00	0		0		131		117		248	
10:15	0		0		117		90		207	
10:30	0		0		125		103		228	
10:45	0		0		112	485	111	421	223	906
11:00	0		0		122		125		247	
11:15	0		0		126		136		262	
11:30	0		0		125		97		222	
11:45	0		0		130	503	131	489	261	992
TOTALS						2913		4147		7060
SPLIT %						41.3%		58.7%		36.5%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	0		0		126		152		278	
12:15	0		0		110		135		245	
12:30	0		0		133		128		261	
12:45	0		0		129	498	135	550	264	1048
13:00	0		0		118		116		234	
13:15	0		0		124		138		262	
13:30	0		0		135		147		282	
13:45	0		0		129	506	107	508	236	1014
14:00	0		0		138		120		258	
14:15	0		0		127		128		255	
14:30	0		0		155		106		261	
14:45	0		0		156	576	116	470	272	1046
15:00	0		0		173		132		305	
15:15	0		0		177		147		324	
15:30	0		0		248		163		411	
15:45	0		0		306	904	126	568	432	1472
16:00	0		0		309		148		457	
16:15	0		0		383		151		534	
16:30	0		0		382		150		532	
16:45	0		0		360	1434	174	623	534	2057
17:00	0		0		319		187		506	
17:15	0		0		367		183		550	
17:30	0		0		296		184		480	
17:45	0		0		205	1187	130	684	335	1871
18:00	0		0		204		147		351	
18:15	0		0		155		164		319	
18:30	0		0		171		137		308	
18:45	0		0		133	663	121	569	254	1232
19:00	0		0		127		109		236	
19:15	0		0		134		103		237	
19:30	0		0		110		98		208	
19:45	0		0		94	465	84	394	178	859
20:00	0		0		102		75		177	
20:15	0		0		77		74		151	
20:30	0		0		78		90		168	
20:45	0		0		87	344	77	316	164	660
21:00	0		0		77		74		151	
21:15	0		0		51		62		113	
21:30	0		0		45		59		104	
21:45	0		0		59	232	64	259	123	491
22:00	0		0		50		69		119	
22:15	0		0		37		39		76	
22:30	0		0		25		38		63	
22:45	0		0		22	134	41	187	63	321
23:00	0		0		36		30		66	
23:15	0		0		21		27		48	
23:30	0		0		25		25		50	
23:45	0		0		13	95	11	93	24	188
TOTALS						7038		5221		12259
SPLIT %						57.4%		42.6%		63.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,951	9,368	19,319

AM Peak Hour			07:15	07:30	07:30
AM Pk Volume			550	1171	1670
Pk Hr Factor			0.865	0.804	0.875
7 - 9 Volume	0	0	1024	2012	3036
7 - 9 Peak Hour			07:15	07:30	07:30
7 - 9 Pk Volume	0	0	550	1171	1670
Pk Hr Factor	0.000	0.000	0.865	0.804	0.875

PM Peak Hour			16:15	16:45	16:30
PM Pk Volume			1342	728	2122
Pk Hr Factor			0.914	0.875	0.965
4 - 6 Volume	0	0	2621	1307	3928
4 - 6 Peak Hour			16:15	16:45	16:30
4 - 6 Pk Volume	0	0	1444	728	2122
Pk Hr Factor	0.000	0.000	0.943	0.973	0.965

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Via Las Cumbres & Fashion Valley Rd

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_012

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,154	11,223	21,377

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			16		19		35		12:00			221		146		367	
00:15			21		18		39		12:15			229		147		376	
00:30			9		10		19		12:30			196		182		378	
00:45			8	54	4	51	12	105	12:45			211	857	186	661	397	1518
01:00			9		11		20		13:00			202		140		342	
01:15			5		7		12		13:15			184		178		362	
01:30			7		5		12		13:30			167		158		325	
01:45			5	26	7	30	12	56	13:45			157	710	139	615	296	1325
02:00			3		5		8		14:00			150		168		318	
02:15			3		5		8		14:15			158		162		320	
02:30			2		3		5		14:30			161		157		318	
02:45			5	13	2	15	7	28	14:45			179	648	156	643	335	1291
03:00			3		6		9		15:00			160		150		310	
03:15			3		4		7		15:15			196		183		379	
03:30			4		6		10		15:30			250		200		450	
03:45			2	12	7	23	9	35	15:45			238	844	167	700	405	1544
04:00			5		6		11		16:00			331		168		499	
04:15			4		11		15		16:15			204		210		414	
04:30			4		11		15		16:30			186		201		387	
04:45			18	31	18	46	36	77	16:45			209	930	217	796	426	1726
05:00			21		18		39		17:00			248		194		442	
05:15			15		39		54		17:15			230		226		456	
05:30			33		39		72		17:30			192		206		398	
05:45			35	104	56	152	91	256	17:45			170	840	201	827	371	1667
06:00			45		50		95		18:00			151		212		363	
06:15			54		75		129		18:15			129		188		317	
06:30			92		106		198		18:30			134		171		305	
06:45			116	307	148	379	264	686	18:45			116	530	158	729	274	1259
07:00			142		203		345		19:00			99		147		246	
07:15			133		273		406		19:15			83		145		228	
07:30			173		298		471		19:30			61		116		177	
07:45			202	650	286	1060	488	1710	19:45			66	309	138	546	204	855
08:00			166		255		421		20:00			67		130		197	
08:15			161		289		450		20:15			57		123		180	
08:30			174		306		480		20:30			54		104		158	
08:45			181	682	252	1102	433	1784	20:45			54	232	107	464	161	696
09:00			144		204		348		21:00			43		110		153	
09:15			134		148		282		21:15			40		94		134	
09:30			191		140		331		21:30			42		97		139	
09:45			188	657	115	607	303	1264	21:45			42	167	87	388	129	555
10:00			170		127		297		22:00			32		68		100	
10:15			175		108		283		22:15			28		52		80	
10:30			202		140		342		22:30			21		53		74	
10:45			190	737	112	487	302	1224	22:45			18	99	26	199	44	298
11:00			153		143		296		23:00			14		26		40	
11:15			195		143		338		23:15			9		40		49	
11:30			152		155		307		23:30			9		29		38	
11:45			177	677	145	586	322	1263	23:45			6	38	22	117	28	155
TOTALS				3950		4538		**8488**	**TOTALS**				6204		6685		**12889**
SPLIT %				46.5%		53.5%		**39.7%**	**SPLIT %**				48.1%		51.9%		**60.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,154	11,223	21,377

AM Peak Hour			11:45	07:45	**07:45**	**PM Peak Hour**			15:30	17:15	**15:30**
AM Pk Volume			823	1136	**1839**	**PM Pk Volume**			1023	845	**1768**
Pk Hr Factor			0.898	0.928	**0.942**	**Pk Hr Factor**			0.773	0.935	**0.886**
7 - 9 Volume	0	0	1332	2162	**3494**	**4 - 6 Volume**	0	0	1770	1623	**3393**
7 - 9 Peak Hour			07:45	07:45	**07:45**	**4 - 6 Peak Hour**			16:00	16:45	**16:00**
7 - 9 Pk Volume	0	0	703	1136	**1839**	**4 - 6 Pk Volume**	0	0	930	843	**1726**
Pk Hr Factor	0.000	0.000	0.870	0.928	**0.942**	**Pk Hr Factor**	0.000	0.000	0.702	0.933	**0.865**

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Via Las Cumbres & Fashion Valley Rd

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_012

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,933	12,233	23,166

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			15		18		33		12:00			225		166		391	
00:15			13		17		30		12:15			260		150		410	
00:30			10		17		27		12:30			219		108		327	
00:45			11	49	8	60	19	109	12:45			248	952	180	604	428	1556
01:00			10		11		21		13:00			234		165		399	
01:15			12		13		25		13:15			199		174		373	
01:30			12		11		23		13:30			176		184		360	
01:45			4	38	7	42	11	80	13:45			160	769	184	707	344	1476
02:00			5		7		12		14:00			176		165		341	
02:15			6		8		14		14:15			187		152		339	
02:30			4		7		11		14:30			193		145		338	
02:45			7	22	5	27	12	49	14:45			181	737	157	619	338	1356
03:00			6		5		11		15:00			197		175		372	
03:15			4		2		6		15:15			211		166		377	
03:30			4		13		17		15:30			246		206		452	
03:45			6	20	6	26	12	46	15:45			276	930	168	715	444	1645
04:00			6		6		12		16:00			337		180		517	
04:15			6		10		16		16:15			226		191		417	
04:30			2		12		14		16:30			196		187		383	
04:45			20	34	26	54	46	88	16:45			198	957	220	778	418	1735
05:00			26		18		44		17:00			227		210		437	
05:15			19		34		53		17:15			229		233		462	
05:30			42		44		86		17:30			207		225		432	
05:45			39	126	36	132	75	258	17:45			185	848	186	854	371	1702
06:00			44		60		104		18:00			144		208		352	
06:15			59		66		125		18:15			123		191		314	
06:30			91		99		190		18:30			144		167		311	
06:45			121	315	160	385	281	700	18:45			136	547	158	724	294	1271
07:00			135		185		320		19:00			110		153		263	
07:15			133		284		417		19:15			90		144		234	
07:30			163		335		498		19:30			95		148		243	
07:45			236	667	337	1141	573	1808	19:45			78	373	119	564	197	937
08:00			158		415		573		20:00			63		112		175	
08:15			175		502		677		20:15			62		112		174	
08:30			183		483		666		20:30			57		134		191	
08:45			201	717	423	1823	624	2540	20:45			64	246	106	464	170	710
09:00			157		258		415		21:00			43		129		172	
09:15			160		170		330		21:15			48		90		138	
09:30			214		131		345		21:30			46		104		150	
09:45			192	723	113	672	305	1395	21:45			38	175	78	401	116	576
10:00			175		123		298		22:00			26		88		114	
10:15			204		128		332		22:15			32		56		88	
10:30			237		106		343		22:30			22		66		88	
10:45			187	803	127	484	314	1287	22:45			16	96	54	264	70	360
11:00			183		153		336		23:00			17		43		60	
11:15			193		137		330		23:15			8		33		41	
11:30			173		118		291		23:30			12		25		37	
11:45			196	745	167	575	363	1320	23:45			7	44	17	118	24	162
TOTALS				4259		5421		9680	TOTALS				6674		6812		13486
SPLIT %				44.0%		56.0%		41.8%	SPLIT %				49.5%		50.5%		58.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,933	12,233	23,166

AM Peak Hour			11:45	08:00	08:00	PM Peak Hour			15:30	16:45	15:30
AM Pk Volume			900	1823	2540	PM Pk Volume			1085	888	1830
Pk Hr Factor			0.865	0.908	0.938	Pk Hr Factor			0.805	0.953	0.885
7 - 9 Volume	0	0	1384	2964	4348	4 - 6 Volume	0	0	1805	1632	3437
7 - 9 Peak Hour			07:45	08:00	08:00	4 - 6 Peak Hour			16:00	16:45	16:45
7 - 9 Pk Volume	0	0	752	1823	2540	4 - 6 Pk Volume	0	0	957	888	1749
Pk Hr Factor	0.000	0.000	0.797	0.908	0.938	Pk Hr Factor	0.000	0.000	0.710	0.953	0.946

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Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Fashion Valley Rd & Via De La Moda

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,917	11,723	25,640

AM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0		34		28		62	
00:15	0		0		22		22		44	
00:30	0		0		11		15		26	
00:45	0		0		8	75	14	79	22	154
01:00	0		0		6		17		23	
01:15	0		0		15		10		25	
01:30	0		0		11		2		13	
01:45	0		0		7	39	8	37	15	76
02:00	0		0		4		8		12	
02:15	0		0		4		4		8	
02:30	0		0		6		4		10	
02:45	0		0		7	21	6	22	13	43
03:00	0		0		4		4		8	
03:15	0		0		7		7		14	
03:30	0		0		7		13		20	
03:45	0		0		3	21	9	33	12	54
04:00	0		0		6		7		13	
04:15	0		0		4		9		13	
04:30	0		0		9		18		27	
04:45	0		0		25	44	22	56	47	100
05:00	0		0		31		33		64	
05:15	0		0		38		46		84	
05:30	0		0		53		46		99	
05:45	0		0		57	179	83	208	140	387
06:00	0		0		67		73		140	
06:15	0		0		71		86		157	
06:30	0		0		124		114		238	
06:45	0		0		140	402	189	462	329	864
07:00	0		0		126		214		340	
07:15	0		0		157		268		425	
07:30	0		0		182		281		463	
07:45	0		0		152	617	274	1037	426	1654
08:00	0		0		154		305		459	
08:15	0		0		153		270		423	
08:30	0		0		166		278		444	
08:45	0		0		149	622	204	1057	353	1679
09:00	0		0		115		176		291	
09:15	0		0		147		162		309	
09:30	0		0		162		152		314	
09:45	0		0		149	573	141	631	290	1204
10:00	0		0		163		123		286	
10:15	0		0		174		125		299	
10:30	0		0		199		146		345	
10:45	0		0		179	715	156	550	335	1265
11:00	0		0		190		163		353	
11:15	0		0		202		140		342	
11:30	0		0		201		163		364	
11:45	0		0		220	813	157	623	377	1436
TOTALS						4121		4795		8916
SPLIT %						46.2%		53.8%		34.8%

PM Period	NB		SB		EB		WB		TOTAL	
12:00	0		0		187		162		349	
12:15	0		0		218		171		389	
12:30	0		0		200		196		396	
12:45	0		0		205	810	168	697	373	1507
13:00	0		0		225		149		374	
13:15	0		0		201		183		384	
13:30	0		0		200		149		349	
13:45	0		0		185	811	153	634	338	1445
14:00	0		0		183		174		357	
14:15	0		0		212		145		357	
14:30	0		0		220		178		398	
14:45	0		0		216	831	170	667	386	1498
15:00	0		0		263		192		455	
15:15	0		0		258		185		443	
15:30	0		0		306		189		495	
15:45	0		0		315	1142	169	735	484	1877
16:00	0		0		344		183		527	
16:15	0		0		352		213		565	
16:30	0		0		378		211		589	
16:45	0		0		387	1461	199	806	586	2267
17:00	0		0		423		219		642	
17:15	0		0		402		226		628	
17:30	0		0		408		209		617	
17:45	0		0		310	1543	230	884	540	2427
18:00	0		0		289		187		476	
18:15	0		0		247		176		423	
18:30	0		0		241		188		429	
18:45	0		0		217	994	167	718	384	1712
19:00	0		0		208		152		360	
19:15	0		0		201		141		342	
19:30	0		0		199		130		329	
19:45	0		0		217	825	130	553	347	1378
20:00	0		0		175		132		307	
20:15	0		0		137		139		276	
20:30	0		0		137		128		265	
20:45	0		0		144	593	110	509	254	1102
21:00	0		0		110		107		217	
21:15	0		0		121		95		216	
21:30	0		0		71		95		166	
21:45	0		0		90	392	100	397	190	789
22:00	0		0		102		63		165	
22:15	0		0		66		57		123	
22:30	0		0		46		38		84	
22:45	0		0		43	257	46	204	89	461
23:00	0		0		35		38		73	
23:15	0		0		41		45		86	
23:30	0		0		32		17		49	
23:45	0		0		29	137	24	124	53	261
TOTALS						9796		6928		16724
SPLIT %						58.6%		41.4%		65.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,917	11,723	25,640

AM Peak Hour			11:30	07:30	07:15
AM Pk Volume			826	1130	1773
Pk Hr Factor			0.691	0.926	0.957
7 - 9 Volume	0	0	1239	2094	3333
7 - 9 Peak Hour			07:15	07:30	07:15
7 - 9 Pk Volume	0	0	645	1130	1773
Pk Hr Factor	0.000	0.000	0.886	0.926	0.957

PM Peak Hour			16:45	17:00	16:45
PM Pk Volume			1409	884	2473
Pk Hr Factor			0.863	0.872	0.963
4 - 6 Volume	0	0	3004	1690	4694
4 - 6 Peak Hour			16:45	17:00	16:45
4 - 6 Pk Volume	0	0	1620	884	2473
Pk Hr Factor	0.000	0.000	0.957	0.961	0.963

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Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Friars Rd Bet. Fashion Valley Rd & Via De La Moda

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,122	12,427	26,549

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	18		20		38		12:00	0	0	226		170		396	
00:15	0	0	19		20		39		12:15	0	0	200		168		368	
00:30	0	0	9		21		30		12:30	0	0	230		171		401	
00:45	0	0	12	58	9	70	21	128	12:45	0	0	208	864	206	715	414	1579
01:00	0	0	14		16		30		13:00	0	0	235		149		384	
01:15	0	0	11		12		23		13:15	0	0	193		169		362	
01:30	0	0	10		15		25		13:30	0	0	206		192		398	
01:45	0	0	5	40	11	54	16	94	13:45	0	0	201	835	173	683	374	1518
02:00	0	0	10		9		19		14:00	0	0	224		179		403	
02:15	0	0	4		8		12		14:15	0	0	211		167		378	
02:30	0	0	4		5		9		14:30	0	0	205		145		350	
02:45	0	0	4	22	4	26	8	48	14:45	0	0	222	862	178	669	400	1531
03:00	0	0	4		4		8		15:00	0	0	241		188		429	
03:15	0	0	5		12		17		15:15	0	0	229		183		412	
03:30	0	0	11		11		22		15:30	0	0	330		183		513	
03:45	0	0	7	27	10	37	17	64	15:45	0	0	342	1142	165	719	507	1861
04:00	0	0	9		5		14		16:00	0	0	423		199		622	
04:15	0	0	7		11		18		16:15	0	0	433		201		634	
04:30	0	0	15		21		36		16:30	0	0	426		214		640	
04:45	0	0	19	50	19	56	38	106	16:45	0	0	403	1685	220	834	623	2519
05:00	0	0	27		36		63		17:00	0	0	404		235		639	
05:15	0	0	36		41		77		17:15	0	0	409		222		631	
05:30	0	0	55		42		97		17:30	0	0	381		202		583	
05:45	0	0	69	187	56	175	125	362	17:45	0	0	269	1463	196	855	465	2318
06:00	0	0	68		68		136		18:00	0	0	308		168		476	
06:15	0	0	65		93		158		18:15	0	0	223		215		438	
06:30	0	0	129		126		255		18:30	0	0	232		212		444	
06:45	0	0	102	364	194	481	296	845	18:45	0	0	183	946	168	763	351	1709
07:00	0	0	149		212		361		19:00	0	0	239		157		396	
07:15	0	0	154		302		456		19:15	0	0	181		137		318	
07:30	0	0	217		301		518		19:30	0	0	180		134		314	
07:45	0	0	175	695	330	1145	505	1840	19:45	0	0	143	743	154	582	297	1325
08:00	0	0	148		348		496		20:00	0	0	166		110		276	
08:15	0	0	151		387		538		20:15	0	0	136		118		254	
08:30	0	0	183		352		535		20:30	0	0	160		124		284	
08:45	0	0	144	626	313	1400	457	2026	20:45	0	0	160	622	116	468	276	1090
09:00	0	0	161		202		363		21:00	0	0	136		122		258	
09:15	0	0	180		158		338		21:15	0	0	101		105		206	
09:30	0	0	181		162		343		21:30	0	0	102		94		196	
09:45	0	0	153	675	151	673	304	1348	21:45	0	0	93	432	71	392	164	824
10:00	0	0	154		149		303		22:00	0	0	60		85		145	
10:15	0	0	176		140		316		22:15	0	0	67		69		136	
10:30	0	0	174		154		328		22:30	0	0	57		60		117	
10:45	0	0	182	686	153	596	335	1282	22:45	0	0	49	233	62	276	111	509
11:00	0	0	170		157		327		23:00	0	0	45		41		86	
11:15	0	0	190		137		327		23:15	0	0	26		42		68	
11:30	0	0	176		173		349		23:30	0	0	28		32		60	
11:45	0	0	206	742	149	616	355	1358	23:45	0	0	24	123	27	142	51	265
TOTALS				4172		5329		9501	TOTALS				9950		7098		17048
SPLIT %				43.9%		56.1%		35.8%	SPLIT %				58.4%		41.6%		64.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,122	12,427	26,549

AM Peak Hour			11:45	07:45	07:45	PM Peak Hour			16:00	16:30	16:15
AM Pk Volume			862	1417	2074	PM Pk Volume			1642	891	2536
Pk Hr Factor			0.478	0.915	0.964	Pk Hr Factor			0.964	0.910	0.991
7 - 9 Volume	0	0	1321	2545	3866	4 - 6 Volume	0	0	3148	1689	4837
7 - 9 Peak Hour			07:00	07:45	07:45	4 - 6 Peak Hour			16:00	16:30	16:15
7 - 9 Pk Volume	0	0	695	1417	2074	4 - 6 Pk Volume	0	0	1685	891	2536
Pk Hr Factor	0.000	0.000	0.801	0.915	0.964	Pk Hr Factor	0.000	0.000	0.973	0.948	0.991

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Fashion Valley Dwy & Avenida De Las Tiendas

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_015

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	12,805	12,991	25,796

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			18		19		37		12:00			208		194		402	
00:15			17		20		37		12:15			238		240		478	
00:30			10		13		23		12:30			248		279		527	
00:45			3	48	9	61	12	109	12:45			234	928	237	950	471	1878
01:00			4		12		16		13:00			239		210		449	
01:15			4		9		13		13:15			250		221		471	
01:30			10		12		22		13:30			217		201		418	
01:45			3	21	7	40	10	61	13:45			218	924	198	830	416	1754
02:00			3		7		10		14:00			234		196		430	
02:15			0		5		5		14:15			253		198		451	
02:30			1		4		5		14:30			267		187		454	
02:45			3	7	7	23	10	30	14:45			237	991	196	777	433	1768
03:00			6		5		11		15:00			247		180		427	
03:15			2		7		9		15:15			230		201		431	
03:30			3		6		9		15:30			284		216		500	
03:45			4	15	12	30	16	45	15:45			309	1070	206	803	515	1873
04:00			2		11		13		16:00			341		186		527	
04:15			3		8		11		16:15			389		221		610	
04:30			7		11		18		16:30			282		220		502	
04:45			10	22	28	58	38	80	16:45			302	1314	220	847	522	2161
05:00			17		23		40		17:00			346		246		592	
05:15			25		47		72		17:15			366		250		616	
05:30			20		42		62		17:30			310		252		562	
05:45			37	99	73	185	110	284	17:45			285	1307	254	1002	539	2309
06:00			54		56		110		18:00			248		211		459	
06:15			69		81		150		18:15			210		199		409	
06:30			95		112		207		18:30			218		176		394	
06:45			124	342	149	398	273	740	18:45			179	855	178	764	357	1619
07:00			127		171		298		19:00			185		177		362	
07:15			139		231		370		19:15			179		149		328	
07:30			170		255		425		19:30			132		155		287	
07:45			190	626	273	930	463	1556	19:45			156	652	152	633	308	1285
08:00			135		265		400		20:00			131		144		275	
08:15			155		272		427		20:15			136		125		261	
08:30			148		313		461		20:30			100		108		208	
08:45			151	589	264	1114	415	1703	20:45			107	474	117	494	224	968
09:00			123		185		308		21:00			101		102		203	
09:15			123		171		294		21:15			92		80		172	
09:30			152		182		334		21:30			94		88		182	
09:45			146	544	203	741	349	1285	21:45			64	351	88	358	152	709
10:00			143		200		343		22:00			79		68		147	
10:15			159		185		344		22:15			41		51		92	
10:30			199		195		394		22:30			31		57		88	
10:45			159	660	187	767	346	1427	22:45			23	174	25	201	48	375
11:00			151		198		349		23:00			23		31		54	
11:15			183		240		423		23:15			12		37		49	
11:30			187		214		401		23:30			20		25		45	
11:45			203	724	207	859	410	1583	23:45			13	68	33	126	46	194
TOTALS				3697		5206		8903	TOTALS				9108		7785		16893
SPLIT %				41.5%		58.5%		34.5%	SPLIT %				53.9%		46.1%		65.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	12,805	12,991	25,796

AM Peak Hour			11:45	07:45	11:45	PM Peak Hour			16:45	17:00	17:00
AM Pk Volume			897	1123	1817	PM Pk Volume			1324	1002	2309
Pk Hr Factor			0.904	0.897	0.862	Pk Hr Factor			0.904	0.986	0.937
7 - 9 Volume	0	0	1215	2044	3259	4 - 6 Volume	0	0	2621	1849	4470
7 - 9 Peak Hour			07:30	07:45	07:45	4 - 6 Peak Hour			16:45	17:00	17:00
7 - 9 Pk Volume	0	0	650	1123	1751	4 - 6 Pk Volume	0	0	1324	1002	2309
Pk Hr Factor	0.000	0.000	0.855	0.897	0.945	Pk Hr Factor	0.000	0.000	0.904	0.986	0.937

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Fashion Valley Dwy & Avenida De Las Tiendas

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_015

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,570	14,287	27,857

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			12		35		47		12:00			243		249		492	
00:15			13		16		29		12:15			236		231		467	
00:30			9		17		26		12:30			275		251		526	
00:45			3	37	12	80	15	117	12:45			251	1005	247	978	498	1983
01:00			6		14		20		13:00			226		228		454	
01:15			6		15		21		13:15			272		228		500	
01:30			4		15		19		13:30			208		188		396	
01:45			3	19	6	50	9	69	13:45			243	949	202	846	445	1795
02:00			2		11		13		14:00			255		220		475	
02:15			2		7		9		14:15			286		212		498	
02:30			2		8		10		14:30			301		169		470	
02:45			2	8	6	32	8	40	14:45			263	1105	193	794	456	1899
03:00			4		8		12		15:00			218		197		415	
03:15			3		4		7		15:15			225		189		414	
03:30			5		14		19		15:30			307		215		522	
03:45			6	18	19	45	25	63	15:45			323	1073	217	818	540	1891
04:00			3		8		11		16:00			381		206		587	
04:15			4		10		14		16:15			382		247		629	
04:30			9		15		24		16:30			305		206		511	
04:45			13	29	30	63	43	92	16:45			306	1374	262	921	568	2295
05:00			22		23		45		17:00			342		259		601	
05:15			24		34		58		17:15			340		263		603	
05:30			16		54		70		17:30			367		282		649	
05:45			41	103	59	170	100	273	17:45			320	1369	225	1029	545	2398
06:00			50		70		120		18:00			282		233		515	
06:15			61		83		144		18:15			249		214		463	
06:30			97		103		200		18:30			192		210		402	
06:45			146	354	161	417	307	771	18:45			196	919	185	842	381	1761
07:00			116		171		287		19:00			206		175		381	
07:15			131		267		398		19:15			213		167		380	
07:30			186		286		472		19:30			138		162		300	
07:45			218	651	307	1031	525	1682	19:45			146	703	142	646	288	1349
08:00			141		360		501		20:00			147		129		276	
08:15			173		418		591		20:15			121		117		238	
08:30			150		442		592		20:30			92		126		218	
08:45			160	624	410	1630	570	2254	20:45			128	488	114	486	242	974
09:00			129		261		390		21:00			113		112		225	
09:15			146		219		365		21:15			106		89		195	
09:30			141		189		330		21:30			113		97		210	
09:45			174	590	212	881	386	1471	21:45			72	404	64	362	136	766
10:00			151		214		365		22:00			95		83		178	
10:15			160		177		337		22:15			50		87		137	
10:30			196		186		382		22:30			37		76		113	
10:45			176	683	232	809	408	1492	22:45			38	220	64	310	102	530
11:00			169		214		383		23:00			33		57		90	
11:15			212		211		423		23:15			15		58		73	
11:30			191		206		397		23:30			24		42		66	
11:45			186	758	229	860	415	1618	23:45			15	87	30	187	45	274
TOTALS				3874		6068		9942	TOTALS				9696		8219		17915
SPLIT %				39.0%		61.0%		35.7%	SPLIT %				54.1%		45.9%		64.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	13,570	14,287	27,857

AM Peak Hour			11:45	08:00	08:00	PM Peak Hour			15:30	16:45	16:45
AM Pk Volume			940	1630	2254	PM Pk Volume			1393	1066	2421
Pk Hr Factor			0.855	0.922	0.952	Pk Hr Factor			0.912	0.945	0.933
7 - 9 Volume	0	0	1275	2661	3936	4 - 6 Volume	0	0	2743	1950	4693
7 - 9 Peak Hour			07:30	08:00	08:00	4 - 6 Peak Hour			16:00	16:45	16:45
7 - 9 Pk Volume	0	0	718	1630	2254	4 - 6 Pk Volume	0	0	1374	1066	2421
Pk Hr Factor	0.000	0.000	0.823	0.922	0.952	Pk Hr Factor	0.000	0.000	0.899	0.945	0.933

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From Avenida De Las Tiendas to Ulric Street/SR-163 SB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			33		18			12:00			284		426		
00:15			28		20			12:15			318		418		
00:30			20		15			12:30			333		466		
00:45			18	99	19	72	171	12:45			325	1260	418	1728	2988
01:00			19		11			13:00			333		405		
01:15			11		16			13:15			305		384		
01:30			8		12			13:30			365		365		
01:45			9	47	8	47	94	13:45			384	1387	333	1487	2874
02:00			10		9			14:00			388		305		
02:15			5		10			14:15			366		299		
02:30			4		11			14:30			399		313		
02:45			6	25	8	38	63	14:45			406	1559	305	1222	2781
03:00			5		9			15:00			421		326		
03:15			9		10			15:15			444		333		
03:30			10		7			15:30			405		315		
03:45			5	29	15	41	70	15:45			415	1685	342	1316	3001
04:00			4		18			16:00			495		366		
04:15			9		22			16:15			556		375		
04:30			15		23			16:30			598		352		
04:45			22	50	44	107	157	16:45			515	2164	415	1508	3672
05:00			35		51			17:00			544		388		
05:15			40		68			17:15			605		412		
05:30			51		70			17:30			488		406		
05:45			68	194	84	273	467	17:45			468	2105	384	1590	3695
06:00			77		91			18:00			444		355		
06:15			84		121			18:15			404		342		
06:30			121		145			18:30			323		318		
06:45			135	417	222	579	996	18:45			318	1489	326	1341	2830
07:00			151		235			19:00			284		316		
07:15			184		315			19:15			299		305		
07:30			235		342			19:30			242		284		
07:45			219	789	375	1267	2056	19:45			222	1047	222	1127	2174
08:00			211		354			20:00			218		205		
08:15			205		318			20:15			205		161		
08:30			189		333			20:30			184		141		
08:45			191	796	305	1310	2106	20:45			161	768	108	615	1383
09:00			184		284			21:00			132		88		
09:15			122		262			21:15			141		70		
09:30			135		242			21:30			151		65		
09:45			141	582	251	1039	1621	21:45			166	590	77	300	890
10:00			168		284			22:00			122		54		
10:15			184		275			22:15			108		40		
10:30			195		312			22:30			88		35		
10:45			206	753	333	1204	1957	22:45			70	388	28	157	545
11:00			235		390			23:00			65		33		
11:15			254		377			23:15			44		31		
11:30			295		388			23:30			45		28		
11:45			265	1049	388	1543	2592	23:45			35	189	26	118	307
Total Vol.				4830		7520	**12350**					14631		12509	**27140**

Daily Totals

NB	SB	EB	WB	Combined
		19461	20029	**39490**

	AM			PM		
Split %	39.1%	60.9%	**31.3%**	53.9%	46.1%	**68.7%**
Peak Hour	11:45	11:45	**11:45**	16:30	12:00	**16:30**
Volume	1200	1698	**2898**	2262	1728	**3829**
P.H.F.	0.90	0.91	**0.91**	0.93	0.93	**0.94**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From Avenida De Las Tiendas to Ulric Street/SR-163 SB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			40		33			12:00			270		418		
00:15			22		28			12:15			315		435		
00:30			28		20			12:30			333		466		
00:45			20	110	19	100	210	12:45			341	1259	419	1738	2997
01:00			19		22			13:00			333		404		
01:15			22		28			13:15			305		388		
01:30			16		20			13:30			318		366		
01:45			11	68	15	85	153	13:45			326	1282	318	1476	2758
02:00			15		11			14:00			333		333		
02:15			9		9			14:15			305		313		
02:30			12		12			14:30			315		342		
02:45			8	44	16	48	92	14:45			366	1319	326	1314	2633
03:00			9		11			15:00			395		352		
03:15			11		11			15:15			384		368		
03:30			8		8			15:30			406		340		
03:45			4	32	9	39	71	15:45			425	1610	333	1393	3003
04:00			9		10			16:00			488		366		
04:15			11		35			16:15			529		384		
04:30			16		44			16:30			615		365		
04:45			28	64	51	140	204	16:45			503	2135	444	1559	3694
05:00			35		68			17:00			555		370		
05:15			44		70			17:15			569		415		
05:30			68		88			17:30			532		406		
05:45			84	231	99	325	556	17:45			550	2206	384	1575	3781
06:00			90		70			18:00			506		395		
06:15			91		118			18:15			444		362		
06:30			130		165			18:30			465		336		
06:45			148	459	242	595	1054	18:45			403	1818	348	1441	3259
07:00			131		222			19:00			362		312		
07:15			188		335			19:15			284		290		
07:30			215		341			19:30			262		270		
07:45			228	762	388	1286	2048	19:45			270	1178	252	1124	2302
08:00			178		465			20:00			262		222		
08:15			161		512			20:15			200		166		
08:30			184		541			20:30			213		168		
08:45			188	711	506	2024	2735	20:45			154	829	151	707	1536
09:00			181		448			21:00			140		108		
09:15			155		445			21:15			111		88		
09:30			145		352			21:30			126		95		
09:45			155	636	318	1563	2199	21:45			115	492	78	369	861
10:00			162		333			22:00			105		85		
10:15			131		284			22:15			88		60		
10:30			184		262			22:30			91		40		
10:45			222	699	318	1197	1896	22:45			70	354	32	217	571
11:00			244		399			23:00			66		22		
11:15			238		384			23:15			77		29		
11:30			266		365			23:30			54		20		
11:45			298	1046	395	1543	2589	23:45			33	230	32	103	333
Total Vol.				4862		8945	**13807**					14712		13016	**27728**

Daily Totals

NB	SB	EB	WB	Combined
		19574	21961	**41535**

	AM			PM		
Split %	35.2%	64.8%	**33.2%**	53.1%	46.9%	**66.8%**
Peak Hour	11:45	08:00	**11:45**	16:30	12:00	**16:30**
Volume	1216	2024	**2930**	2242	1738	**3836**
P.H.F.	0.91	0.94	**0.92**	0.91	0.93	**0.97**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From Ulric Street/SR-163 SB Ramps to SR-163 NB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			40		38			12:00			412		418		
00:15			30		40			12:15			444		435		
00:30			22		28			12:30			462		403		
00:45			20	112	21	127	239	12:45			451	1769	456	1712	3481
01:00			18		22			13:00			484		474		
01:15			20		19			13:15			474		435		
01:30			16		20			13:30			454		405		
01:45			19	73	16	77	150	13:45			444	1856	444	1758	3614
02:00			10		11			14:00			406		425		
02:15			11		15			14:15			416		408		
02:30			15		19			14:30			403		384		
02:45			18	54	11	56	110	14:45			421	1646	425	1642	3288
03:00			10		8			15:00			433		444		
03:15			9		9			15:15			451		415		
03:30			5		11			15:30			505		515		
03:45			4	28	18	46	74	15:45			519	1908	535	1909	3817
04:00			9		21			16:00			535		546		
04:15			22		16			16:15			666		515		
04:30			31		19			16:30			635		544		
04:45			25	87	44	100	187	16:45			718	2554	568	2173	4727
05:00			44		51			17:00			726		518		
05:15			50		68			17:15			655		535		
05:30			88		77			17:30			689		555		
05:45			121	303	91	287	590	17:45			622	2692	518	2126	4818
06:00			162		154			18:00			519		404		
06:15			229		168			18:15			544		421		
06:30			252		235			18:30			484		405		
06:45			284	927	319	876	1803	18:45			435	1982	384	1614	3596
07:00			313		305			19:00			435		388		
07:15			333		342			19:15			444		384		
07:30			356		451			19:30			318		291		
07:45			419	1421	505	1603	3024	19:45			365	1562	262	1325	2887
08:00			405		516			20:00			305		270		
08:15			384		518			20:15			284		284		
08:30			362		566			20:30			184		235		
08:45			342	1493	489	2089	3582	20:45			165	938	222	1011	1949
09:00			333		404			21:00			177		206		
09:15			342		323			21:15			191		213		
09:30			325		333			21:30			165		141		
09:45			319	1319	342	1402	2721	21:45			135	668	111	671	1339
10:00			305		333			22:00			105		105		
10:15			332		318			22:15			88		98		
10:30			368		365			22:30			90		105		
10:45			370	1375	388	1404	2779	22:45			70	353	84	392	745
11:00			355		419			23:00			65		70		
11:15			345		416			23:15			77		65		
11:30			405		444			23:30			54		44		
11:45			419	1524	435	1714	3238	23:45			42	238	35	214	452
Total Vol.				8716		9781	**18497**					18166		16547	**34713**

Daily Totals

NB	SB	EB	WB	Combined
		26882	26328	**53210**

	AM			PM		
Split %	47.1%	52.9%	**34.8%**	52.3%	47.7%	**65.2%**
Peak Hour	11:45	07:45	**07:45**	16:45	16:45	**16:45**
Volume	1737	2105	**3675**	2788	2176	**4964**
P.H.F.	0.94	0.93	**0.99**	0.96	0.96	**0.97**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From Ulric Street/SR-163 SB Ramps to SR-163 NB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			35		41			12:00			389		398		
00:15			28		40			12:15			416		415		
00:30			21		35			12:30			400		444		
00:45			19	103	33	149	252	12:45			414	1619	413	1670	3289
01:00			20		28			13:00			462		454		
01:15			22		20			13:15			435		456		
01:30			15		19			13:30			444		404		
01:45			18	75	20	87	162	13:45			405	1746	399	1713	3459
02:00			20		16			14:00			389		384		
02:15			13		18			14:15			388		388		
02:30			11		22			14:30			399		389		
02:45			15	59	13	69	128	14:45			349	1525	412	1573	3098
03:00			11		14			15:00			396		406		
03:15			16		10			15:15			419		428		
03:30			10		8			15:30			444		484		
03:45			8	45	9	41	86	15:45			511	1770	454	1772	3542
04:00			9		15			16:00			635		512		
04:15			15		18			16:15			684		621		
04:30			45		22			16:30			698		588		
04:45			51	120	35	90	210	16:45			715	2732	615	2336	5068
05:00			44		55			17:00			788		659		
05:15			68		70			17:15			715		592		
05:30			70		84			17:30			705		561		
05:45			109	291	99	308	599	17:45			598	2806	503	2315	5121
06:00			165		128			18:00			555		484		
06:15			210		141			18:15			505		444		
06:30			284		219			18:30			464		412		
06:45			319	978	235	723	1701	18:45			444	1968	382	1722	3690
07:00			305		362			19:00			404		355		
07:15			310		469			19:15			419		362		
07:30			416		484			19:30			318		333		
07:45			421	1452	515	1830	3282	19:45			306	1447	280	1330	2777
08:00			395		505			20:00			377		295		
08:15			399		568			20:15			295		212		
08:30			366		578			20:30			215		211		
08:45			352	1512	505	2156	3668	20:45			205	1092	205	923	2015
09:00			349		404			21:00			180		210		
09:15			363		384			21:15			174		184		
09:30			377		316			21:30			111		151		
09:45			326	1415	333	1437	2852	21:45			141	606	144	689	1295
10:00			309		318			22:00			135		101		
10:15			328		342			22:15			95		106		
10:30			316		355			22:30			77		84		
10:45			342	1295	362	1377	2672	22:45			68	375	70	361	736
11:00			362		380			23:00			51		40		
11:15			355		411			23:15			44		35		
11:30			384		400			23:30			40		42		
11:45			391	1492	416	1607	3099	23:45			38	173	31	148	321
Total Vol.			8837		9874		**18711**				17859		16552		**34411**

Daily Totals

NB	SB	EB	WB	Combined
		26696	26426	**53122**

	AM			PM		
Split %	47.2%	52.8%	**35.2%**	51.9%	48.1%	**64.8%**
Peak Hour	07:30	07:45	**07:45**	16:45	16:15	**16:30**
Volume	1631	2166	**3747**	2923	2483	**5370**
P.H.F.	0.97	0.94	**0.97**	0.93	0.94	**0.93**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From SR-163 NB Ramps to Frazee Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			55		40			12:00			354		338		
00:15			42		45			12:15			345		345		
00:30			35		50			12:30			362		395		
00:45			40	172	40	175	347	12:45			384	1445	404	1482	2927
01:00			28		35			13:00			333		419		
01:15			29		44			13:15			342		403		
01:30			20		41			13:30			384		416		
01:45			19	96	28	148	244	13:45			395	1454	365	1603	3057
02:00			20		21			14:00			419		377		
02:15			16		19			14:15			465		384		
02:30			11		20			14:30			444		395		
02:45			15	62	16	76	138	14:45			428	1756	384	1540	3296
03:00			16		18			15:00			495		410		
03:15			11		22			15:15			513		464		
03:30			18		19			15:30			542		444		
03:45			35	80	21	80	160	15:45			513	2063	451	1769	3832
04:00			44		35			16:00			618		484		
04:15			51		40			16:15			605		526		
04:30			68		44			16:30			666		555		
04:45			78	241	51	170	411	16:45			712	2601	562	2127	4728
05:00			81		90			17:00			745		598		
05:15			94		77			17:15			698		568		
05:30			111		126			17:30			642		542		
05:45			151	437	159	452	889	17:45			625	2710	509	2217	4927
06:00			184		219			18:00			626		444		
06:15			235		205			18:15			584		416		
06:30			222		222			18:30			505		406		
06:45			295	936	284	930	1866	18:45			484	2199	384	1650	3849
07:00			319		351			19:00			395		395		
07:15			421		428			19:15			384		384		
07:30			488		465			19:30			305		388		
07:45			461	1689	555	1799	3488	19:45			322	1406	352	1519	2925
08:00			568		518			20:00			284		313		
08:15			505		542			20:15			268		305		
08:30			518		506			20:30			222		284		
08:45			451	2042	513	2079	4121	20:45			248	1022	262	1164	2186
09:00			419		484			21:00			219		222		
09:15			405		405			21:15			180		216		
09:30			384		362			21:30			121		200		
09:45			352	1560	385	1636	3196	21:45			105	625	180	818	1443
10:00			333		333			22:00			111		165		
10:15			318		319			22:15			80		70		
10:30			305		326			22:30			70		54		
10:45			342	1298	333	1311	2609	22:45			54	315	44	333	648
11:00			316		315			23:00			55		40		
11:15			342		342			23:15			35		35		
11:30			313		348			23:30			42		40		
11:45			333	1304	326	1331	2635	23:45			38	170	44	159	329
Total Vol.			9917		10187		**20104**				17766		16381		**34147**

Daily Totals

NB	SB	EB	WB	Combined
		27683	26568	**54251**

	AM			PM		
Split %	49.3%	50.7%	**37.1%**	52.0%	48.0%	**62.9%**
Peak Hour	07:45	07:45	**07:45**	16:30	16:30	**16:30**
Volume	2052	2121	**4173**	2821	2283	**5104**
P.H.F.	0.90	0.96	**0.96**	0.95	0.95	**0.95**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Friars Road, From SR-163 NB Ramps to Frazee Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			44		50			12:00			368		384		
00:15			32		44			12:15			377		362		
00:30			34		51			12:30			384		374		
00:45			28	138	28	173	311	12:45			336	1465	385	1505	2970
01:00			22		21			13:00			315		391		
01:15			21		35			13:15			363		416		
01:30			23		33			13:30			315		444		
01:45			15	81	41	130	211	13:45			345	1338	405	1656	2994
02:00			19		28			14:00			395		384		
02:15			11		20			14:15			345		412		
02:30			11		16			14:30			384		406		
02:45			15	56	18	82	138	14:45			416	1540	418	1620	3160
03:00			18		20			15:00			405		409		
03:15			19		19			15:15			425		424		
03:30			15		15			15:30			456		468		
03:45			11	63	11	65	128	15:45			484	1770	474	1775	3545
04:00			19		31			16:00			615		525		
04:15			44		28			16:15			666		526		
04:30			35		41			16:30			681		566		
04:45			68	166	55	155	321	16:45			715	2677	603	2220	4897
05:00			70		68			17:00			542		574		
05:15			84		84			17:15			409		535		
05:30			91		111			17:30			689		541		
05:45			141	386	145	408	794	17:45			621	2261	513	2163	4424
06:00			162		235			18:00			584		484		
06:15			191		242			18:15			519		461		
06:30			235		252			18:30			506		444		
06:45			256	844	268	997	1841	18:45			516	2125	419	1808	3933
07:00			342		351			19:00			425		406		
07:15			428		444			19:15			404		385		
07:30			451		485			19:30			385		333		
07:45			513	1734	513	1793	3527	19:45			345	1559	346	1470	3029
08:00			568		562			20:00			318		319		
08:15			488		551			20:15			288		303		
08:30			492		589			20:30			265		316		
08:45			461	2009	477	2179	4188	20:45			248	1119	284	1222	2341
09:00			411		413			21:00			235		219		
09:15			408		444			21:15			222		235		
09:30			416		385			21:30			184		221		
09:45			404	1639	333	1575	3214	21:45			116	757	202	877	1634
10:00			358		345			22:00			97		155		
10:15			342		328			22:15			84		80		
10:30			333		306			22:30			88		91		
10:45			316	1349	345	1324	2673	22:45			70	339	54	380	719
11:00			305		355			23:00			54		40		
11:15			318		352			23:15			44		33		
11:30			363		368			23:30			48		42		
11:45			312	1298	345	1420	2718	23:45			35	181	32	147	328
Total Vol.				9763		10301	**20064**					17131		16843	**33974**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			26894	27144	**54038**

	AM			PM		
Split %	48.7%	51.3%	**37.1%**	50.4%	49.6%	**62.9%**
Peak Hour	07:45	07:45	**07:45**	16:00	16:30	**16:00**
Volume	2061	2215	**4276**	2677	2278	**4897**
P.H.F.	0.91	0.94	**0.95**	0.94	0.94	**0.93**

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Frazee Rd & Mission Center Rd

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_019

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	22,226	19,885	42,111

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			47		18		65		12:00			353		342		695	
00:15			23		22		45		12:15			344		363		707	
00:30			19		17		36		12:30			388		396		784	
00:45			22	111	12	69	34	180	12:45			355	1440	324	1425	679	2865
01:00			18		14		32		13:00			380		317		697	
01:15			8		10		18		13:15			376		291		667	
01:30			20		12		32		13:30			359		314		673	
01:45			13	59	10	46	23	105	13:45			347	1462	300	1222	647	2684
02:00			13		9		22		14:00			331		313		644	
02:15			12		3		15		14:15			346		291		637	
02:30			13		6		19		14:30			360		310		670	
02:45			13	51	8	26	21	77	14:45			383	1420	333	1247	716	2667
03:00			13		7		20		15:00			400		318		718	
03:15			10		6		16		15:15			438		341		779	
03:30			11		7		18		15:30			539		311		850	
03:45			8	42	21	41	29	83	15:45			514	1891	300	1270	814	3161
04:00			10		19		29		16:00			561		343		904	
04:15			4		28		32		16:15			552		343		895	
04:30			12		42		54		16:30			506		323		829	
04:45			13	39	48	137	61	176	16:45			571	2190	364	1373	935	3563
05:00			18		63		81		17:00			575		373		948	
05:15			39		65		104		17:15			595		354		949	
05:30			53		91		144		17:30			563		348		911	
05:45			80	190	112	331	192	521	17:45			521	2254	314	1389	835	3643
06:00			69		132		201		18:00			545		283		828	
06:15			88		170		258		18:15			440		301		741	
06:30			125		266		391		18:30			403		289		692	
06:45			145	427	300	868	445	1295	18:45			382	1770	253	1126	635	2896
07:00			147		392		539		19:00			365		259		624	
07:15			220		427		647		19:15			333		252		585	
07:30			280		455		735		19:30			335		239		574	
07:45			270	917	429	1703	699	2620	19:45			313	1346	240	990	553	2336
08:00			232		435		667		20:00			252		198		450	
08:15			217		444		661		20:15			253		208		461	
08:30			253		366		619		20:30			193		185		378	
08:45			241	943	341	1586	582	2529	20:45			199	897	156	747	355	1644
09:00			225		256		481		21:00			214		134		348	
09:15			266		254		520		21:15			188		136		324	
09:30			231		268		499		21:30			154		166		320	
09:45			275	997	234	1012	509	2009	21:45			140	696	108	544	248	1240
10:00			228		237		465		22:00			136		95		231	
10:15			305		224		529		22:15			131		86		217	
10:30			312		284		596		22:30			83		47		130	
10:45			272	1117	289	1034	561	2151	22:45			90	440	46	274	136	714
11:00			305		287		592		23:00			75		46		121	
11:15			312		298		610		23:15			58		35		93	
11:30			342		330		672		23:30			50		44		94	
11:45			343	1302	351	1266	694	2568	23:45			42	225	34	159	76	384
TOTALS				6195		8119		14314	TOTALS				16031		11766		27797
SPLIT %				43.3%		56.7%		34.0%	SPLIT %				57.7%		42.3%		66.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	22,226	19,885	42,111

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			1428	1763	2880	PM Pk Volume			2304	1439	3743
Pk Hr Factor			0.920	0.969	0.918	Pk Hr Factor			0.968	0.964	0.986
7 - 9 Volume	0	0	1860	3289	5149	4 - 6 Volume	0	0	4444	2762	7206
7 - 9 Peak Hour			07:15	07:30	07:30	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	1002	1763	2762	4 - 6 Pk Volume	0	0	2304	1439	3743
Pk Hr Factor	0.000	0.000	0.895	0.969	0.939	Pk Hr Factor	0.000	0.000	0.968	0.964	0.986

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Frazee Rd & Mission Center Rd

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_019

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	22,677	20,773	43,450

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			38		28		66		12:00			307		332		639	
00:15			38		29		67		12:15			357		368		725	
00:30			37		29		66		12:30			378		349		727	
00:45			33	146	19	105	52	251	12:45			414	1456	369	1418	783	2874
01:00			25		25		50		13:00			424		335		759	
01:15			29		22		51		13:15			404		322		726	
01:30			18		28		46		13:30			343		339		682	
01:45			23	95	22	97	45	192	13:45			339	1510	337	1333	676	2843
02:00			20		20		40		14:00			365		353		718	
02:15			20		8		28		14:15			381		308		689	
02:30			11		6		17		14:30			375		345		720	
02:45			14	65	5	39	19	104	14:45			356	1477	327	1333	683	2810
03:00			10		7		17		15:00			426		372		798	
03:15			8		10		18		15:15			376		366		742	
03:30			11		14		25		15:30			460		371		831	
03:45			14	43	8	39	22	82	15:45			541	1803	285	1394	826	3197
04:00			6		17		23		16:00			563		331		894	
04:15			8		23		31		16:15			559		322		881	
04:30			10		44		54		16:30			621		362		983	
04:45			25	49	44	128	69	177	16:45			596	2339	357	1372	953	3711
05:00			15		54		69		17:00			579		365		944	
05:15			28		74		102		17:15			591		363		954	
05:30			50		88		138		17:30			631		323		954	
05:45			79	172	85	301	164	473	17:45			516	2317	295	1346	811	3663
06:00			76		127		203		18:00			484		308		792	
06:15			83		177		260		18:15			390		293		683	
06:30			146		242		388		18:30			372		260		632	
06:45			161	466	287	833	448	1299	18:45			321	1567	246	1107	567	2674
07:00			151		360		511		19:00			352		217		569	
07:15			198		453		651		19:15			304		227		531	
07:30			272		472		744		19:30			323		246		569	
07:45			308	929	482	1767	790	2696	19:45			275	1254	224	914	499	2168
08:00			223		539		762		20:00			269		207		476	
08:15			276		562		838		20:15			239		183		422	
08:30			256		506		762		20:30			207		191		398	
08:45			251	1006	474	2081	725	3087	20:45			199	914	173	754	372	1668
09:00			237		306		543		21:00			214		133		347	
09:15			264		291		555		21:15			162		122		284	
09:30			277		257		534		21:30			167		117		284	
09:45			254	1032	251	1105	505	2137	21:45			154	697	87	459	241	1156
10:00			278		232		510		22:00			160		120		280	
10:15			283		249		532		22:15			143		83		226	
10:30			277		291		568		22:30			124		72		196	
10:45			292	1130	293	1065	585	2195	22:45			117	544	56	331	173	875
11:00			331		312		643		23:00			110		51		161	
11:15			342		299		641		23:15			86		49		135	
11:30			349		310		659		23:30			92		38		130	
11:45			303	1325	361	1282	664	2607	23:45			53	341	32	170	85	511
TOTALS				6458		8842		15300	TOTALS				16219		11931		28150
SPLIT %				42.2%		57.8%		35.2%	SPLIT %				57.6%		42.4%		64.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	22,677	20,773	43,450

AM Peak Hour			11:45	07:45	07:45	PM Peak Hour			16:45	16:30	16:30
AM Pk Volume			1345	2089	3152	PM Pk Volume			2397	1447	3834
Pk Hr Factor			0.890	0.929	0.940	Pk Hr Factor			0.950	0.991	0.975
7 - 9 Volume	0	0	1935	3848	5783	4 - 6 Volume	0	0	4656	2718	7374
7 - 9 Peak Hour			07:30	07:45	07:45	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	1079	2089	3152	4 - 6 Pk Volume	0	0	2397	1447	3834
Pk Hr Factor	0.000	0.000	0.876	0.929	0.940	Pk Hr Factor	0.000	0.000	0.950	0.991	0.975

Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Qualcomm Wy & River Run Dr

Day: Wednesday
Date: 9/16/2015

City: San Diego
Project #: CA15_4269_021

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,346	13,821	33,167

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			20		15		35		12:00			358		239		597	
00:15			15		18		33		12:15			363		218		581	
00:30			10		10		20		12:30			326		219		545	
00:45			8	53	12	55	20	108	12:45			343	1390	220	896	563	2286
01:00			10		6		16		13:00			345		249		594	
01:15			6		10		16		13:15			322		239		561	
01:30			6		4		10		13:30			336		222		558	
01:45			14	36	6	26	20	62	13:45			337	1340	240	950	577	2290
02:00			12		3		15		14:00			327		210		537	
02:15			6		7		13		14:15			365		218		583	
02:30			8		7		15		14:30			366		255		621	
02:45			7	33	7	24	14	57	14:45			341	1399	212	895	553	2294
03:00			8		7		15		15:00			389		236		625	
03:15			5		5		10		15:15			391		222		613	
03:30			10		6		16		15:30			424		210		634	
03:45			8	31	9	27	17	58	15:45			437	1641	237	905	674	2546
04:00			12		10		22		16:00			503		226		729	
04:15			6		26		32		16:15			445		218		663	
04:30			11		19		30		16:30			505		269		774	
04:45			10	39	29	84	39	123	16:45			496	1949	232	945	728	2894
05:00			10		33		43		17:00			529		295		824	
05:15			22		35		57		17:15			500		259		759	
05:30			32		65		97		17:30			513		230		743	
05:45			36	100	80	213	116	313	17:45			470	2012	234	1018	704	3030
06:00			51		108		159		18:00			480		235		715	
06:15			60		112		172		18:15			421		204		625	
06:30			74		149		223		18:30			423		197		620	
06:45			113	298	187	556	300	854	18:45			331	1655	195	831	526	2486
07:00			120		245		365		19:00			331		170		501	
07:15			147		253		400		19:15			309		143		452	
07:30			174		290		464		19:30			303		175		478	
07:45			184	625	302	1090	486	1715	19:45			282	1225	126	614	408	1839
08:00			191		324		515		20:00			258		133		391	
08:15			161		311		472		20:15			253		119		372	
08:30			161		281		442		20:30			193		126		319	
08:45			199	712	226	1142	425	1854	20:45			164	868	108	486	272	1354
09:00			149		186		335		21:00			179		89		268	
09:15			155		215		370		21:15			157		77		234	
09:30			189		221		410		21:30			127		67		194	
09:45			208	701	203	825	411	1526	21:45			119	582	79	312	198	894
10:00			234		219		453		22:00			112		66		178	
10:15			250		192		442		22:15			79		51		130	
10:30			245		179		424		22:30			75		40		115	
10:45			257	986	187	777	444	1763	22:45			46	312	39	196	85	508
11:00			275		203		478		23:00			50		26		76	
11:15			269		216		485		23:15			52		15		67	
11:30			292		234		526		23:30			54		21		75	
11:45			322	1158	220	873	542	2031	23:45			45	201	19	81	64	282
TOTALS				4772		5692		10464	TOTALS				14574		8129		22703
SPLIT %				45.6%		54.4%		31.5%	SPLIT %				64.2%		35.8%		68.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,346	13,821	33,167

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour			16:45	16:30	16:30
AM Pk Volume			1369	1227	2265	PM Pk Volume			2038	1055	3085
Pk Hr Factor			0.943	0.947	0.948	Pk Hr Factor			0.963	0.894	0.936
7 - 9 Volume	0	0	1337	2232	3569	4 - 6 Volume	0	0	3961	1963	5924
7 - 9 Peak Hour			08:00	07:30	07:30	4 - 6 Peak Hour			16:45	16:30	16:30
7 - 9 Pk Volume	0	0	712	1227	1937	4 - 6 Pk Volume	0	0	2038	1055	3085
Pk Hr Factor	0.000	0.000	0.894	0.947	0.940	Pk Hr Factor	0.000	0.000	0.963	0.894	0.936

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Prepared by NDS/ATD

VOLUME

Friars Rd Bet. Qualcomm Wy & River Run Dr

Day: Thursday
Date: 9/17/2015

City: San Diego
Project #: CA15_4269_021

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,264	14,063	33,327

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			42		13		55		12:00			337		250		587	
00:15			36		17		53		12:15			336		241		577	
00:30			34		10		44		12:30			337		244		581	
00:45			20	132	10	50	30	182	12:45			348	1358	229	964	577	2322
01:00			20		12		32		13:00			330		229		559	
01:15			17		8		25		13:15			313		219		532	
01:30			16		18		34		13:30			335		232		567	
01:45			21	74	6	44	27	118	13:45			306	1284	201	881	507	2165
02:00			20		8		28		14:00			319		222		541	
02:15			7		8		15		14:15			353		245		598	
02:30			16		6		22		14:30			368		231		599	
02:45			7	50	2	24	9	74	14:45			322	1362	216	914	538	2276
03:00			6		11		17		15:00			368		212		580	
03:15			8		3		11		15:15			382		238		620	
03:30			16		8		24		15:30			422		267		689	
03:45			9	39	6	28	15	67	15:45			381	1553	230	947	611	2500
04:00			7		11		18		16:00			470		246		716	
04:15			4		18		22		16:15			466		221		687	
04:30			10		16		26		16:30			458		276		734	
04:45			12	33	19	64	31	97	16:45			503	1897	256	999	759	2896
05:00			11		32		43		17:00			517		283		800	
05:15			20		32		52		17:15			486		276		762	
05:30			37		58		95		17:30			538		246		784	
05:45			44	112	77	199	121	311	17:45			483	2024	226	1031	709	3055
06:00			60		103		163		18:00			473		258		731	
06:15			65		131		196		18:15			425		218		643	
06:30			79		157		236		18:30			384		209		593	
06:45			112	316	209	600	321	916	18:45			320	1602	176	861	496	2463
07:00			109		244		353		19:00			320		183		503	
07:15			147		259		406		19:15			312		180		492	
07:30			153		306		459		19:30			280		147		427	
07:45			207	616	321	1130	528	1746	19:45			256	1168	172	682	428	1850
08:00			169		346		515		20:00			210		126		336	
08:15			170		295		465		20:15			215		111		326	
08:30			146		246		392		20:30			209		84		293	
08:45			156	641	226	1113	382	1754	20:45			177	811	82	403	259	1214
09:00			168		201		369		21:00			217		91		308	
09:15			167		198		365		21:15			147		68		215	
09:30			213		168		381		21:30			143		68		211	
09:45			197	745	179	746	376	1491	21:45			109	616	60	287	169	903
10:00			223		202		425		22:00			141		43		184	
10:15			228		202		430		22:15			106		47		153	
10:30			253		218		471		22:30			84		36		120	
10:45			268	972	246	868	514	1840	22:45			52	383	42	168	94	551
11:00			285		221		506		23:00			68		29		97	
11:15			302		202		504		23:15			66		33		99	
11:30			315		259		574		23:30			50		27		77	
11:45			341	1243	277	959	618	2202	23:45			49	233	12	101	61	334
TOTALS				4973		5825		**10798**	**TOTALS**				14291		8238		**22529**
SPLIT %				46.1%		53.9%		**32.4%**	**SPLIT %**				63.4%		36.6%		**67.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	19,264	14,063	33,327

AM Peak Hour			11:45	07:30	**11:45**	**PM Peak Hour**			16:45	16:30	**16:45**
AM Pk Volume			1351	1268	**2363**	**PM Pk Volume**			2044	1091	**3105**
Pk Hr Factor			0.990	0.916	**0.956**	**Pk Hr Factor**			0.950	0.964	**0.970**
7 - 9 Volume	0	0	1257	2243	**3500**	**4 - 6 Volume**	0	0	3921	2030	**5951**
7 - 9 Peak Hour			07:30	07:30	**07:30**	**4 - 6 Peak Hour**			16:45	16:30	**16:45**
7 - 9 Pk Volume	0	0	699	1268	**1967**	**4 - 6 Pk Volume**	0	0	2044	1091	**3105**
Pk Hr Factor	0.000	0.000	0.844	0.916	**0.931**	**Pk Hr Factor**	0.000	0.000	0.950	0.964	**0.970**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From Hotel Circle Place to I-8 WB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			4		11			12:00			49		60		
00:15			5		9			12:15			69		52		
00:30			4		6			12:30			41		58		
00:45			6	19	5	31	50	12:45			46	205	44	214	419
01:00			6		6			13:00			54		40		
01:15			3		5			13:15			48		58		
01:30			2		6			13:30			44		50		
01:45			2	13	2	19	32	13:45			42	188	41	189	377
02:00			2		4			14:00			54		39		
02:15			2		3			14:15			45		47		
02:30			0		2			14:30			62		36		
02:45			1	5	3	12	17	14:45			50	211	58	180	391
03:00			3		3			15:00			49		43		
03:15			3		1			15:15			71		39		
03:30			2		1			15:30			64		52		
03:45			2	10	3	8	18	15:45			62	246	53	187	433
04:00			0		2			16:00			66		46		
04:15			3		4			16:15			62		57		
04:30			6		4			16:30			68		54		
04:45			5	14	7	17	31	16:45			57	253	58	215	468
05:00			10		6			17:00			75		43		
05:15			3		2			17:15			66		56		
05:30			10		6			17:30			70		40		
05:45			11	34	10	24	58	17:45			56	267	54	193	460
06:00			16		10			18:00			74		47		
06:15			11		16			18:15			61		46		
06:30			11		24			18:30			49		44		
06:45			21	59	47	97	156	18:45			39	223	53	190	413
07:00			19		92			19:00			46		37		
07:15			27		119			19:15			26		38		
07:30			42		98			19:30			30		31		
07:45			37	125	100	409	534	19:45			23	125	29	135	260
08:00			26		84			20:00			19		31		
08:15			29		81			20:15			21		31		
08:30			26		75			20:30			12		26		
08:45			24	105	74	314	419	20:45			13	65	32	120	185
09:00			24		64			21:00			17		30		
09:15			25		39			21:15			8		34		
09:30			38		38			21:30			19		17		
09:45			34	121	52	193	314	21:45			18	62	19	100	162
10:00			40		44			22:00			11		15		
10:15			35		44			22:15			10		22		
10:30			38		45			22:30			10		14		
10:45			45	158	44	177	335	22:45			9	40	16	67	107
11:00			47		35			23:00			8		11		
11:15			43		49			23:15			11		2		
11:30			54		41			23:30			5		9		
11:45			74	218	44	169	387	23:45			7	31	10	32	63
Total Vol.				881		1470	**2351**					1916		1822	**3738**

Daily Totals

NB	SB	EB	WB	Combined
		2797	3292	**6089**

	AM			PM		
Split %	37.5%	62.5%	**38.6%**	51.3%	48.7%	**61.4%**
Peak Hour	11:30	07:00	**07:00**	16:45	16:00	**16:30**
Volume	246	409	**534**	268	215	**477**
P.H.F.	0.83	0.86	**0.91**	0.89	0.93	**0.98**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From Hotel Circle Place to I-8 WB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			5		12			12:00			53		51		
00:15			9		4			12:15			55		47		
00:30			7		5			12:30			40		52		
00:45			4	25	5	26	51	12:45			63	211	61	211	422
01:00			3		5			13:00			48		59		
01:15			2		5			13:15			67		57		
01:30			1		5			13:30			61		36		
01:45			4	10	3	18	28	13:45			48	224	51	203	427
02:00			1		0			14:00			45		48		
02:15			5		4			14:15			43		40		
02:30			1		2			14:30			46		46		
02:45			5	12	5	11	23	14:45			44	178	46	180	358
03:00			2		5			15:00			52		47		
03:15			2		4			15:15			63		44		
03:30			2		1			15:30			65		65		
03:45			3	9	1	11	20	15:45			61	241	57	213	454
04:00			2		1			16:00			69		56		
04:15			5		5			16:15			71		49		
04:30			7		4			16:30			104		61		
04:45			2	16	5	15	31	16:45			64	308	61	227	535
05:00			6		5			17:00			88		68		
05:15			10		2			17:15			64		69		
05:30			11		8			17:30			70		88		
05:45			13	40	11	26	66	17:45			66	288	69	294	582
06:00			12		8			18:00			58		45		
06:15			20		10			18:15			46		44		
06:30			15		29			18:30			42		59		
06:45			21	68	65	112	180	18:45			42	188	38	186	374
07:00			18		83			19:00			45		56		
07:15			33		100			19:15			56		44		
07:30			31		128			19:30			31		40		
07:45			35	117	138	449	566	19:45			25	157	35	175	332
08:00			36		141			20:00			23		32		
08:15			28		144			20:15			30		40		
08:30			33		118			20:30			19		29		
08:45			34	131	130	533	664	20:45			19	91	26	127	218
09:00			30		121			21:00			26		33		
09:15			48		57			21:15			25		15		
09:30			22		44			21:30			20		31		
09:45			25	125	53	275	400	21:45			16	87	25	104	191
10:00			48		43			22:00			14		20		
10:15			45		46			22:15			18		21		
10:30			41		40			22:30			13		13		
10:45			46	180	41	170	350	22:45			13	58	12	66	124
11:00			44		42			23:00			17		13		
11:15			53		45			23:15			11		20		
11:30			57		49			23:30			8		16		
11:45			59	213	67	203	416	23:45			10	46	13	62	108
Total Vol.				946		1849	**2795**					2077		2048	**4125**

Daily Totals

NB	SB	EB	WB	Combined
		3023	3897	**6920**

	AM			PM		
Split %	33.8%	66.2%	**40.4%**	50.4%	49.6%	**59.6%**
Peak Hour	11:30	07:30	**07:30**	16:15	17:00	**17:00**
Volume	224	551	**681**	327	294	**582**
P.H.F.	0.95	0.96	**0.96**	0.79	0.84	**0.92**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From I-8 WB Ramps to Fashion Valley Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			15		4			12:00			167		108		
00:15			16		15			12:15			197		85		
00:30			9		5			12:30			162		90		
00:45			19	59	4	28	87	12:45			203	729	76	359	1088
01:00			17		7			13:00			185		79		
01:15			18		7			13:15			179		100		
01:30			5		7			13:30			154		86		
01:45			7	47	4	25	72	13:45			157	675	85	350	1025
02:00			13		3			14:00			140		88		
02:15			9		2			14:15			154		81		
02:30			2		1			14:30			186		68		
02:45			5	29	4	10	39	14:45			158	638	86	323	961
03:00			8		2			15:00			151		84		
03:15			6		7			15:15			174		68		
03:30			10		4			15:30			184		73		
03:45			15	39	3	16	55	15:45			186	695	88	313	1008
04:00			6		4			16:00			173		83		
04:15			10		4			16:15			158		88		
04:30			17		11			16:30			198		93		
04:45			26	59	3	22	81	16:45			182	711	105	369	1080
05:00			28		6			17:00			182		91		
05:15			40		9			17:15			180		113		
05:30			54		14			17:30			180		108		
05:45			85	207	14	43	250	17:45			174	716	92	404	1120
06:00			78		18			18:00			180		99		
06:15			80		25			18:15			179		86		
06:30			116		45			18:30			175		70		
06:45			166	440	27	115	555	18:45			165	699	96	351	1050
07:00			140		31			19:00			137		71		
07:15			148		44			19:15			111		69		
07:30			173		45			19:30			112		62		
07:45			197	658	41	161	819	19:45			87	447	65	267	714
08:00			201		56			20:00			92		71		
08:15			178		46			20:15			110		59		
08:30			174		51			20:30			80		36		
08:45			180	733	51	204	937	20:45			71	353	37	203	556
09:00			162		51			21:00			69		54		
09:15			117		50			21:15			89		50		
09:30			136		56			21:30			64		49		
09:45			148	563	46	203	766	21:45			66	288	35	188	476
10:00			118		58			22:00			59		34		
10:15			143		59			22:15			51		19		
10:30			129		63			22:30			68		20		
10:45			166	556	75	255	811	22:45			54	232	17	90	322
11:00			152		70			23:00			34		11		
11:15			144		67			23:15			40		12		
11:30			174		68			23:30			30		7		
11:45			197	667	76	281	948	23:45			17	121	7	37	158
Total Vol.			4057		1363	**5420**					6304		3254		**9558**

Daily Totals

NB	SB	EB	WB	Combined
		10361	4617	**14978**

	AM			PM		
Split %	74.9%	25.1%	**36.2%**	66.0%	34.0%	**63.8%**
Peak Hour	07:45	11:45	**11:45**	12:15	16:45	**16:30**
Volume	750	359	**1082**	747	417	**1144**
P.H.F.	0.93	0.83	**0.96**	0.92	0.92	**0.98**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From I-8 WB Ramps to Fashion Valley Road

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			19		11			12:00			173		67		
00:15			26		12			12:15			174		86		
00:30			20		8			12:30			162		81		
00:45			17	82	6	37	119	12:45			175	684	100	334	1018
01:00			10		7			13:00			181		95		
01:15			15		3			13:15			208		106		
01:30			13		4			13:30			180		86		
01:45			8	46	4	18	64	13:45			162	731	85	372	1103
02:00			14		4			14:00			145		78		
02:15			9		4			14:15			146		76		
02:30			6		7			14:30			165		89		
02:45			10	39	1	16	55	14:45			188	644	85	328	972
03:00			8		3			15:00			171		92		
03:15			9		7			15:15			189		74		
03:30			11		2			15:30			157		79		
03:45			18	46	3	15	61	15:45			201	718	87	332	1050
04:00			7		3			16:00			185		95		
04:15			15		5			16:15			201		111		
04:30			21		6			16:30			213		95		
04:45			25	68	11	25	93	16:45			242	841	122	423	1264
05:00			33		6			17:00			205		135		
05:15			43		5			17:15			188		137		
05:30			53		12			17:30			191		106		
05:45			91	220	16	39	259	17:45			198	782	114	492	1274
06:00			72		23			18:00			196		89		
06:15			99		21			18:15			182		95		
06:30			129		37			18:30			157		93		
06:45			166	466	22	103	569	18:45			161	696	89	366	1062
07:00			137		44			19:00			133		73		
07:15			153		51			19:15			139		87		
07:30			161		68			19:30			94		65		
07:45			227	678	60	223	901	19:45			89	455	64	289	744
08:00			203		70			20:00			93		59		
08:15			226		74			20:15			85		64		
08:30			195		71			20:30			84		62		
08:45			190	814	65	280	1094	20:45			72	334	57	242	576
09:00			191		95			21:00			73		56		
09:15			186		64			21:15			88		44		
09:30			147		56			21:30			74		39		
09:45			156	680	72	287	967	21:45			73	308	39	178	486
10:00			155		62			22:00			67		28		
10:15			124		58			22:15			59		37		
10:30			152		57			22:30			51		24		
10:45			169	600	48	225	825	22:45			43	220	20	109	329
11:00			146		61			23:00			41		21		
11:15			145		86			23:15			37		23		
11:30			152		69			23:30			24		22		
11:45			182	625	90	306	931	23:45			35	137	15	81	218
Total Vol.			4364		1574		**5938**				6550		3546		**10096**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			10914	5120	**16034**
	AM			**PM**	
Split %	73.5%	26.5%	**37.0%**	64.9%	35.1%	**63.0%**
Peak Hour	07:45	11:45	**07:45**	16:15	16:45	**16:30**
Volume	851	324	**1126**	861	500	**1337**
P.H.F.	0.94	0.90	**0.94**	0.89	0.91	**0.92**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From Fashion Valley Road to Camino De La Reina

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			7		9			12:00			108		80		
00:15			9		9			12:15			121		77		
00:30			5		5			12:30			116		84		
00:45			4	25	4	27	52	12:45			103	448	95	336	784
01:00			3		6			13:00			99		99		
01:15			3		5			13:15			91		105		
01:30			5		3			13:30			84		84		
01:45			4	15	2	16	31	13:45			88	362	77	365	727
02:00			2		2			14:00			94		84		
02:15			1		1			14:15			97		99		
02:30			0		0			14:30			95		95		
02:45			1	4	1	4	8	14:45			105	391	84	362	753
03:00			0		2			15:00			84		78		
03:15			0		1			15:15			81		88		
03:30			0		0			15:30			94		84		
03:45			1	1	0	3	4	15:45			121	380	70	320	700
04:00			2		3			16:00			135		68		
04:15			1		2			16:15			141		105		
04:30			3		4			16:30			195		111		
04:45			5	11	6	15	26	16:45			191	662	116	400	1062
05:00			4		9			17:00			205		128		
05:15			6		8			17:15			184		135		
05:30			9		9			17:30			170		105		
05:45			12	31	12	38	69	17:45			155	714	84	452	1166
06:00			28		8			18:00			149		99		
06:15			44		12			18:15			151		95		
06:30			51		18			18:30			140		101		
06:45			50	173	26	64	237	18:45			132	572	105	400	972
07:00			94		45			19:00			111		88		
07:15			126		51			19:15			116		70		
07:30			135		68			19:30			80		65		
07:45			148	503	77	241	744	19:45			95	402	88	311	713
08:00			185		51			20:00			70		75		
08:15			195		90			20:15			65		50		
08:30			168		99			20:30			88		46		
08:45			184	732	84	324	1056	20:45			70	293	65	236	529
09:00			162		84			21:00			70		33		
09:15			151		70			21:15			65		42		
09:30			144		77			21:30			33		28		
09:45			111	568	54	285	853	21:45			35	203	30	133	336
10:00			105		59			22:00			28		26		
10:15			90		55			22:15			21		18		
10:30			84		68			22:30			19		22		
10:45			70	349	70	252	601	22:45			20	88	20	86	174
11:00			88		77			23:00			15		19		
11:15			84		84			23:15			11		5		
11:30			84		54			23:30			8		11		
11:45			96	352	95	310	662	23:45			9	43	8	43	86
Total Vol.			2764		1579		**4343**				4558		3444		**8002**

Daily Totals

NB	SB	EB	WB	Combined
		7322	5023	**12345**

	AM			PM		
Split %	63.6%	36.4%	**35.2%**	57.0%	43.0%	**64.8%**
Peak Hour	08:00	08:15	**08:15**	16:30	16:30	**16:30**
Volume	732	357	**1066**	775	490	**1265**
P.H.F.	0.94	0.90	**0.94**	0.95	0.91	**0.95**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle North, From Fashion Valley Road to Camino De La Reina

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			8		7			12:00			121		81		
00:15			10		7			12:15			128		77		
00:30			4		6			12:30			106		89		
00:45			5	27	5	25	52	12:45			111	466	91	338	804
01:00			6		4			13:00			114		70		
01:15			4		5			13:15			103		84		
01:30			3		6			13:30			98		95		
01:45			2	15	6	21	36	13:45			91	406	88	337	743
02:00			5		2			14:00			90		70		
02:15			4		0			14:15			84		98		
02:30			0		1			14:30			95		78		
02:45			2	11	2	5	16	14:45			99	368	88	334	702
03:00			1		1			15:00			80		81		
03:15			5		0			15:15			98		98		
03:30			1		0			15:30			122		68		
03:45			0	7	1	2	9	15:45			135	435	70	317	752
04:00			3		2			16:00			151		88		
04:15			5		2			16:15			168		91		
04:30			6		1			16:30			189		105		
04:45			5	19	2	7	26	16:45			166	674	121	405	1079
05:00			10		3			17:00			192		106		
05:15			19		4			17:15			135		123		
05:30			21		5			17:30			168		101		
05:45			28	78	9	21	99	17:45			166	661	111	441	1102
06:00			40		15			18:00			141		108		
06:15			51		11			18:15			162		116		
06:30			65		19			18:30			135		111		
06:45			88	244	33	78	322	18:45			141	579	99	434	1013
07:00			121		50			19:00			106		91		
07:15			135		58			19:15			88		105		
07:30			141		66			19:30			95		84		
07:45			191	588	78	252	840	19:45			70	359	70	350	709
08:00			168		51			20:00			65		71		
08:15			166		115			20:15			66		77		
08:30			184		88			20:30			51		51		
08:45			166	684	74	328	1012	20:45			40	222	50	249	471
09:00			158		68			21:00			35		40		
09:15			162		70			21:15			32		33		
09:30			135		54			21:30			28		38		
09:45			114	569	66	258	827	21:45			20	115	54	165	280
10:00			108		68			22:00			19		40		
10:15			98		60			22:15			20		32		
10:30			91		84			22:30			16		28		
10:45			88	385	84	296	681	22:45			11	66	16	116	182
11:00			108		77			23:00			15		18		
11:15			91		80			23:15			8		11		
11:30			106		81			23:30			9		9		
11:45			111	416	82	320	736	23:45			12	44	5	43	87
Total Vol.				3043		1613	**4656**					4395		3529	**7924**

	AM			PM		
Split %	65.4%	34.6%	**37.0%**	55.5%	44.5%	**63.0%**
Peak Hour	07:45	08:15	**07:45**	16:15	16:30	**16:15**
Volume	709	345	**1041**	715	455	**1138**
P.H.F.	0.93	0.75	**0.93**	0.93	0.92	**0.95**

Daily Totals

NB	SB	EB	WB	Combined
		7438	5142	**12580**

Prepared by NDS/ATD

VOLUME

Camino Del Rio North Bet. Camino De La Siesta & Mission Center Rd

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_052

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,293	2,995	5,288

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			5		2		7		12:00			44		53		97	
00:15			2		0		2		12:15			46		52		98	
00:30			5		1		6		12:30			39		55		94	
00:45			1	13	2	5	3	18	12:45			27	156	67	227	94	383
01:00			3		1		4		13:00			51		61		112	
01:15			0		1		1		13:15			39		56		95	
01:30			0		1		1		13:30			32		67		99	
01:45			1	4	1	4	2	8	13:45			35	157	59	243	94	400
02:00			1		2		3		14:00			53		55		108	
02:15			1		1		2		14:15			38		46		84	
02:30			0		7		7		14:30			32		53		85	
02:45			4	6	0	10	4	16	14:45			31	154	57	211	88	365
03:00			4		0		4		15:00			53		38		91	
03:15			1		0		1		15:15			51		50		101	
03:30			0		0		0		15:30			48		49		97	
03:45			1	6	1	1	2	7	15:45			31	183	40	177	71	360
04:00			2		0		2		16:00			64		59		123	
04:15			0		2		2		16:15			64		42		106	
04:30			1		2		3		16:30			70		49		119	
04:45			3	6	4	8	7	14	16:45			63	261	35	185	98	446
05:00			1		5		6		17:00			116		43		159	
05:15			1		5		6		17:15			73		49		122	
05:30			3		8		11		17:30			63		49		112	
05:45			0	5	12	30	12	35	17:45			58	310	40	181	98	491
06:00			5		22		27		18:00			57		37		94	
06:15			6		22		28		18:15			39		36		75	
06:30			12		22		34		18:30			43		33		76	
06:45			7	30	44	110	51	140	18:45			42	181	35	141	77	322
07:00			14		31		45		19:00			38		39		77	
07:15			15		39		54		19:15			21		28		49	
07:30			15		32		47		19:30			32		30		62	
07:45			10	54	81	183	91	237	19:45			27	118	36	133	63	251
08:00			19		70		89		20:00			29		21		50	
08:15			19		82		101		20:15			26		25		51	
08:30			31		66		97		20:30			16		17		33	
08:45			15	84	84	302	99	386	20:45			20	91	25	88	45	179
09:00			24		87		111		21:00			24		9		33	
09:15			27		71		98		21:15			32		12		44	
09:30			21		60		81		21:30			25		9		34	
09:45			17	89	52	270	69	359	21:45			14	95	8	38	22	133
10:00			16		52		68		22:00			13		9		22	
10:15			31		35		66		22:15			7		8		15	
10:30			26		54		80		22:30			5		5		10	
10:45			22	95	57	198	79	293	22:45			9	34	5	27	14	61
11:00			33		41		74		23:00			6		7		13	
11:15			35		60		95		23:15			10		2		12	
11:30			38		44		82		23:30			3		6		9	
11:45			31	137	62	207	93	344	23:45			5	24	1	16	6	40
TOTALS				529		1328		**1857**	**TOTALS**				1764		1667		**3431**
SPLIT %				28.5%		71.5%		**35.1%**	**SPLIT %**				51.4%		48.6%		**64.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,293	2,995	5,288

AM Peak Hour			11:45	08:15	**08:15**	**PM Peak Hour**			16:30	12:45	**16:30**
AM Pk Volume			160	319	**408**	**PM Pk Volume**			322	251	**498**
Pk Hr Factor			0.870	0.917	**0.919**	**Pk Hr Factor**			0.694	0.937	**0.783**
7 - 9 Volume	0	0	138	485	**623**	**4 - 6 Volume**	0	0	571	366	**937**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			16:30	16:00	**16:30**
7 - 9 Pk Volume	0	0	84	302	**386**	**4 - 6 Pk Volume**	0	0	322	185	**498**
Pk Hr Factor	0.000	0.000	0.677	0.899	**0.955**	**Pk Hr Factor**	0.000	0.000	0.694	0.784	**0.783**

Prepared by NDS/ATD

VOLUME

Camino Del Rio North Bet. Camino De La Siesta & Mission Center Rd

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_052

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,403	3,168	5,571

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		4		10		12:00			48		52		100	
00:15			7		4		11		12:15			45		50		95	
00:30			5		2		7		12:30			44		72		116	
00:45			1	19	4	14	5	33	12:45			57	194	68	242	125	436
01:00			3		1		4		13:00			43		68		111	
01:15			0		1		1		13:15			40		65		105	
01:30			0		2		2		13:30			38		81		119	
01:45			4	7	3	7	7	14	13:45			43	164	46	260	89	424
02:00			1		3		4		14:00			41		61		102	
02:15			1		2		3		14:15			44		57		101	
02:30			0		1		1		14:30			53		76		129	
02:45			1	3	3	9	4	12	14:45			41	179	68	262	109	441
03:00			1		0		1		15:00			42		35		77	
03:15			2		2		4		15:15			30		47		77	
03:30			3		1		4		15:30			61		43		104	
03:45			1	7	2	5	3	12	15:45			45	178	47	172	92	350
04:00			2		0		2		16:00			70		42		112	
04:15			1		4		5		16:15			59		51		110	
04:30			0		2		2		16:30			86		46		132	
04:45			2	5	3	9	5	14	16:45			62	277	39	178	101	455
05:00			1		4		5		17:00			121		58		179	
05:15			3		1		4		17:15			92		57		149	
05:30			2		9		11		17:30			77		39		116	
05:45			4	10	10	24	14	34	17:45			57	347	40	194	97	541
06:00			4		15		19		18:00			59		35		94	
06:15			4		16		20		18:15			48		38		86	
06:30			7		31		38		18:30			35		31		66	
06:45			6	21	50	112	56	133	18:45			38	180	32	136	70	316
07:00			14		26		40		19:00			30		28		58	
07:15			15		37		52		19:15			30		29		59	
07:30			11		35		46		19:30			29		30		59	
07:45			15	55	83	181	98	236	19:45			22	111	37	124	59	235
08:00			20		87		107		20:00			30		33		63	
08:15			11		111		122		20:15			24		22		46	
08:30			22		91		113		20:30			20		16		36	
08:45			14	67	92	381	106	448	20:45			20	94	17	88	37	182
09:00			21		80		101		21:00			17		22		39	
09:15			18		78		96		21:15			29		11		40	
09:30			26		65		91		21:30			29		7		36	
09:45			19	84	75	298	94	382	21:45			19	94	7	47	26	141
10:00			30		44		74		22:00			11		10		21	
10:15			28		44		72		22:15			28		5		33	
10:30			28		47		75		22:30			10		12		22	
10:45			23	109	42	177	65	286	22:45			5	54	10	37	15	91
11:00			34		43		77		23:00			8		5		13	
11:15			22		51		73		23:15			8		5		13	
11:30			30		39		69		23:30			6		2		8	
11:45			28	114	63	196	91	310	23:45			8	30	3	15	11	45
TOTALS				501		1413		**1914**	**TOTALS**				1902		1755		**3657**
SPLIT %				26.2%		73.8%		**34.4%**	**SPLIT %**				52.0%		48.0%		**65.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,403	3,168	5,571

AM Peak Hour			11:45	08:00	**08:00**	**PM Peak Hour**			16:30	12:45	**16:30**
AM Pk Volume			165	381	**448**	**PM Pk Volume**			361	282	**561**
Pk Hr Factor			0.859	0.858	**0.918**	**Pk Hr Factor**			0.746	0.870	**0.784**
7 - 9 Volume	0	0	122	562	**684**	**4 - 6 Volume**	0	0	624	372	**996**
7 - 9 Peak Hour			07:45	08:00	**08:00**	**4 - 6 Peak Hour**			16:30	16:30	**16:30**
7 - 9 Pk Volume	0	0	68	381	**448**	**4 - 6 Pk Volume**	0	0	361	200	**561**
Pk Hr Factor	0.000	0.000	0.773	0.858	**0.918**	**Pk Hr Factor**	0.000	0.000	0.746	0.862	**0.784**

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Fashion Valley Rd & Avenida Del Rio

Day: Wednesday
Date: 9/16/2015

City: San Diego
Project #: CA15_4269_047

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,284	4,020	8,304

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		6		12		12:00			72		69		141	
00:15			4		6		10		12:15			99		70		169	
00:30			5		5		10		12:30			85		74		159	
00:45			2	17	3	20	5	37	12:45			77	333	79	292	156	625
01:00			1		5		6		13:00			89		72		161	
01:15			1		0		1		13:15			89		74		163	
01:30			2		1		3		13:30			77		64		141	
01:45			1	5	3	9	4	14	13:45			78	333	88	298	166	631
02:00			1		3		4		14:00			77		78		155	
02:15			1		1		2		14:15			78		81		159	
02:30			2		2		4		14:30			87		63		150	
02:45			2	6	0	6	2	12	14:45			66	308	66	288	132	596
03:00			1		0		1		15:00			78		79		157	
03:15			5		4		9		15:15			96		91		187	
03:30			2		5		7		15:30			78		63		141	
03:45			0	8	1	10	1	18	15:45			87	339	57	290	144	629
04:00			0		3		3		16:00			84		83		167	
04:15			2		2		4		16:15			65		87		152	
04:30			3		1		4		16:30			97		98		195	
04:45			1	6	2	8	3	14	16:45			94	340	106	374	200	714
05:00			6		0		6		17:00			118		111		229	
05:15			7		5		12		17:15			103		120		223	
05:30			2		5		7		17:30			100		105		205	
05:45			10	25	6	16	16	41	17:45			87	408	81	417	168	825
06:00			11		20		31		18:00			112		93		205	
06:15			20		15		35		18:15			78		81		159	
06:30			13		32		45		18:30			73		90		163	
06:45			24	68	29	96	53	164	18:45			62	325	67	331	129	656
07:00			34		40		74		19:00			66		70		136	
07:15			27		38		65		19:15			58		65		123	
07:30			49		54		103		19:30			51		55		106	
07:45			53	163	50	182	103	345	19:45			39	214	55	245	94	459
08:00			63		52		115		20:00			34		46		80	
08:15			78		60		138		20:15			49		52		101	
08:30			76		45		121		20:30			28		46		74	
08:45			61	278	43	200	104	478	20:45			17	128	39	183	56	311
09:00			67		42		109		21:00			19		40		59	
09:15			48		35		83		21:15			14		25		39	
09:30			58		28		86		21:30			10		32		42	
09:45			75	248	30	135	105	383	21:45			19	62	26	123	45	185
10:00			65		31		96		22:00			20		29		49	
10:15			67		36		103		22:15			12		14		26	
10:30			77		42		119		22:30			12		12		24	
10:45			78	287	45	154	123	441	22:45			8	52	17	72	25	124
11:00			77		46		123		23:00			10		8		18	
11:15			75		52		127		23:15			3		14		17	
11:30			81		59		140		23:30			6		7		13	
11:45			75	308	79	236	154	544	23:45			4	23	6	35	10	58
TOTALS				1419		1072		2491	TOTALS				2865		2948		5813
SPLIT %				57.0%		43.0%		30.0%	SPLIT %				49.3%		50.7%		70.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,284	4,020	8,304

AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			331	292	623	PM Pk Volume			415	442	857
Pk Hr Factor			0.836	0.924	0.922	Pk Hr Factor			0.879	0.921	0.936
7 - 9 Volume	0	0	441	382	823	4 - 6 Volume	0	0	748	791	1539
7 - 9 Peak Hour			08:00	07:30	08:00	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	278	216	478	4 - 6 Pk Volume	0	0	415	442	857
Pk Hr Factor	0.000	0.000	0.891	0.900	0.866	Pk Hr Factor	0.000	0.000	0.879	0.921	0.936

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Fashion Valley Rd & Avenida Del Rio

Day: Thursday
Date: 9/17/2015

City: San Diego
Project #: CA15_4269_047

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,450	4,213	8,663

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			7		7		14		12:00			87		67		154	
00:15			5		4		9		12:15			91		91		182	
00:30			6		3		9		12:30			83		95		178	
00:45			6	24	4	18	10	42	12:45			78	339	79	332	157	671
01:00			1		0		1		13:00			64		87		151	
01:15			1		3		4		13:15			100		95		195	
01:30			0		2		2		13:30			96		88		184	
01:45			0	2	1	6	1	8	13:45			85	345	69	339	154	684
02:00			3		4		7		14:00			78		86		164	
02:15			1		2		3		14:15			68		76		144	
02:30			0		0		0		14:30			68		65		133	
02:45			4	8	0	6	4	14	14:45			93	307	63	290	156	597
03:00			4		3		7		15:00			60		91		151	
03:15			5		4		9		15:15			92		83		175	
03:30			5		1		6		15:30			89		72		161	
03:45			1	15	2	10	3	25	15:45			95	336	79	325	174	661
04:00			2		2		4		16:00			93		87		180	
04:15			2		3		5		16:15			91		88		179	
04:30			5		3		8		16:30			107		87		194	
04:45			0	9	1	9	1	18	16:45			114	405	98	360	212	765
05:00			2		2		4		17:00			106		98		204	
05:15			2		4		6		17:15			111		93		204	
05:30			8		8		16		17:30			103		102		205	
05:45			8	20	13	27	21	47	17:45			112	432	100	393	212	825
06:00			19		18		37		18:00			89		95		184	
06:15			22		19		41		18:15			75		87		162	
06:30			14		23		37		18:30			66		77		143	
06:45			33	88	26	86	59	174	18:45			58	288	81	340	139	628
07:00			34		40		74		19:00			48		61		109	
07:15			26		47		73		19:15			44		51		95	
07:30			41		38		79		19:30			64		55		119	
07:45			56	157	58	183	114	340	19:45			41	197	55	222	96	419
08:00			93		36		129		20:00			48		52		100	
08:15			66		73		139		20:15			37		48		85	
08:30			78		54		132		20:30			39		48		87	
08:45			64	301	38	201	102	502	20:45			16	140	40	188	56	328
09:00			89		42		131		21:00			37		61		98	
09:15			59		31		90		21:15			24		57		81	
09:30			60		40		100		21:30			16		38		54	
09:45			64	272	40	153	104	425	21:45			12	89	32	188	44	277
10:00			83		39		122		22:00			8		19		27	
10:15			71		49		120		22:15			8		16		24	
10:30			51		46		97		22:30			17		26		43	
10:45			81	286	47	181	128	467	22:45			7	40	22	83	29	123
11:00			85		59		144		23:00			13		9		22	
11:15			80		58		138		23:15			9		11		20	
11:30			68		55		123		23:30			6		8		14	
11:45			80	313	61	233	141	546	23:45			9	37	12	40	21	77
TOTALS				1495		1113		**2608**	**TOTALS**				2955		3100		**6055**
SPLIT %				57.3%		42.7%		**30.1%**	**SPLIT %**				48.8%		51.2%		**69.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,450	4,213	8,663

AM Peak Hour			11:45	11:45	**11:45**	**PM Peak Hour**			16:30	17:00	**16:45**
AM Pk Volume			341	314	**655**	**PM Pk Volume**			438	393	**825**
Pk Hr Factor			0.937	0.826	**0.900**	**Pk Hr Factor**			0.961	0.963	**0.973**
7 - 9 Volume	0	0	458	384	**842**	**4 - 6 Volume**	0	0	837	753	**1590**
7 - 9 Peak Hour			08:00	07:45	**07:45**	**4 - 6 Peak Hour**			16:30	17:00	**16:45**
7 - 9 Pk Volume	0	0	301	221	**514**	**4 - 6 Pk Volume**	0	0	438	393	**825**
Pk Hr Factor	0.000	0.000	0.809	0.757	**0.924**	**Pk Hr Factor**	0.000	0.000	0.961	0.963	**0.973**

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Avenida Del Rio & Camino De La Siesta

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_048

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,260	6,729	12,989

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		8		19		12:00			124		139		263	
00:15			5		5		10		12:15			124		142		266	
00:30			5		3		8		12:30			116		133		249	
00:45			2	23	5	21	7	44	12:45			89	453	165	579	254	1032
01:00			8		3		11		13:00			138		138		276	
01:15			2		5		7		13:15			127		139		266	
01:30			4		1		5		13:30			121		154		275	
01:45			1	15	0	9	1	24	13:45			109	495	131	562	240	1057
02:00			1		3		4		14:00			137		108		245	
02:15			1		2		3		14:15			125		105		230	
02:30			3		0		3		14:30			122		124		246	
02:45			2	7	1	6	3	13	14:45			99	483	119	456	218	939
03:00			1		0		1		15:00			121		101		222	
03:15			1		1		2		15:15			129		114		243	
03:30			1		0		1		15:30			115		123		238	
03:45			0	3	3	4	3	7	15:45			129	494	109	447	238	941
04:00			0		0		0		16:00			139		113		252	
04:15			1		2		3		16:15			132		125		257	
04:30			2		2		4		16:30			179		130		309	
04:45			3	6	8	12	11	18	16:45			148	598	135	503	283	1101
05:00			4		5		9		17:00			192		149		341	
05:15			3		13		16		17:15			181		148		329	
05:30			4		14		18		17:30			170		156		326	
05:45			6	17	27	59	33	76	17:45			159	702	139	592	298	1294
06:00			18		26		44		18:00			159		132		291	
06:15			18		23		41		18:15			132		104		236	
06:30			15		45		60		18:30			131		128		259	
06:45			22	73	69	163	91	236	18:45			115	537	132	496	247	1033
07:00			24		58		82		19:00			113		98		211	
07:15			22		77		99		19:15			100		108		208	
07:30			32		75		107		19:30			97		96		193	
07:45			46	124	95	305	141	429	19:45			83	393	87	389	170	782
08:00			54		74		128		20:00			81		75		156	
08:15			49		93		142		20:15			98		80		178	
08:30			55		88		143		20:30			85		72		157	
08:45			55	213	109	364	164	577	20:45			60	324	56	283	116	607
09:00			39		96		135		21:00			92		46		138	
09:15			54		91		145		21:15			74		32		106	
09:30			50		81		131		21:30			54		28		82	
09:45			67	210	97	365	164	575	21:45			44	264	26	132	70	396
10:00			65		79		144		22:00			33		34		67	
10:15			65		75		140		22:15			22		18		40	
10:30			75		102		177		22:30			22		14		36	
10:45			75	280	125	381	200	661	22:45			22	99	17	83	39	182
11:00			94		122		216		23:00			20		12		32	
11:15			99		119		218		23:15			11		7		18	
11:30			98		102		200		23:30			11		7		18	
11:45			106	397	144	487	250	884	23:45			8	50	5	31	13	81
TOTALS				1368		2176		**3544**	**TOTALS**				4892		4553		**9445**
SPLIT %				38.6%		61.4%		**27.3%**	**SPLIT %**				51.8%		48.2%		**72.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,260	6,729	12,989

AM Peak Hour			11:45	11:45	**11:45**	**PM Peak Hour**			17:00	12:45	**17:00**
AM Pk Volume			470	558	**1028**	**PM Pk Volume**			702	596	**1294**
Pk Hr Factor			0.948	0.969	**0.966**	**Pk Hr Factor**			0.914	0.903	**0.949**
7 - 9 Volume	0	0	337	669	**1006**	**4 - 6 Volume**	0	0	1300	1095	**2395**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			17:00	17:00	**17:00**
7 - 9 Pk Volume	0	0	213	364	**577**	**4 - 6 Pk Volume**	0	0	702	592	**1294**
Pk Hr Factor	0.000	0.000	0.968	0.835	**0.880**	**Pk Hr Factor**	0.000	0.000	0.914	0.949	**0.949**

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Avenida Del Rio & Camino De La Siesta

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_048

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,611	7,125	13,736

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			13		12		25		12:00			113		125		238	
00:15			15		7		22		12:15			135		140		275	
00:30			12		6		18		12:30			130		151		281	
00:45			6	46	7	32	13	78	12:45			134	512	153	569	287	1081
01:00			2		6		8		13:00			124		137		261	
01:15			1		4		5		13:15			125		157		282	
01:30			0		2		2		13:30			140		134		274	
01:45			1	4	0	12	1	16	13:45			118	507	126	554	244	1061
02:00			4		0		4		14:00			119		128		247	
02:15			2		3		5		14:15			136		123		259	
02:30			3		1		4		14:30			127		144		271	
02:45			3	12	3	7	6	19	14:45			117	499	126	521	243	1020
03:00			2		0		2		15:00			92		131		223	
03:15			1		4		5		15:15			142		106		248	
03:30			2		1		3		15:30			130		95		225	
03:45			2	7	3	8	5	15	15:45			140	504	125	457	265	961
04:00			1		1		2		16:00			151		118		269	
04:15			3		2		5		16:15			165		121		286	
04:30			1		4		5		16:30			175		130		305	
04:45			2	7	6	13	8	20	16:45			194	685	143	512	337	1197
05:00			3		5		8		17:00			202		159		361	
05:15			6		10		16		17:15			198		147		345	
05:30			5		15		20		17:30			195		129		324	
05:45			4	18	23	53	27	71	17:45			156	751	128	563	284	1314
06:00			19		23		42		18:00			147		127		274	
06:15			24		31		55		18:15			127		109		236	
06:30			15		45		60		18:30			119		104		223	
06:45			27	85	48	147	75	232	18:45			97	490	119	459	216	949
07:00			29		54		83		19:00			111		114		225	
07:15			22		70		92		19:15			102		108		210	
07:30			34		73		107		19:30			109		90		199	
07:45			34	119	101	298	135	417	19:45			86	408	89	401	175	809
08:00			69		128		197		20:00			106		83		189	
08:15			38		198		236		20:15			83		75		158	
08:30			59		196		255		20:30			75		54		129	
08:45			44	210	161	683	205	893	20:45			70	334	75	287	145	621
09:00			67		109		176		21:00			100		61		161	
09:15			53		113		166		21:15			73		36		109	
09:30			58		81		139		21:30			62		26		88	
09:45			68	246	93	396	161	642	21:45			51	286	34	157	85	443
10:00			77		74		151		22:00			33		20		53	
10:15			72		99		171		22:15			42		25		67	
10:30			74		100		174		22:30			29		16		45	
10:45			87	310	102	375	189	685	22:45			19	123	17	78	36	201
11:00			93		107		200		23:00			22		17		39	
11:15			99		134		233		23:15			25		15		40	
11:30			89		104		193		23:30			13		8		21	
11:45			98	379	147	492	245	871	23:45			9	69	11	51	20	120
TOTALS				1443		2516		3959	TOTALS				5168		4609		9777
SPLIT %				36.4%		63.6%		28.8%	SPLIT %				52.9%		47.1%		71.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,611	7,125	13,736

AM Peak Hour				11:45		08:00		11:45	PM Peak Hour				16:45		12:30		16:45
AM Pk Volume				476		683		1039	PM Pk Volume				789		598		1367
Pk Hr Factor				0.881		0.862		0.924	Pk Hr Factor				0.976		0.952		0.947
7 - 9 Volume	0	0		329		981		1310	4 - 6 Volume	0	0		1436		1075		2511
7 - 9 Peak Hour				08:00		08:00		08:00	4 - 6 Peak Hour				16:45		16:30		16:45
7 - 9 Pk Volume	0	0		210		683		893	4 - 6 Pk Volume	0	0		789		579		1367
Pk Hr Factor	0.000	0.000		0.761		0.862		0.875	Pk Hr Factor	0.000	0.000		0.976		0.910		0.947

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Camino De La Siesta & Mission Center Rd

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_049

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,748	4,805	10,553

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		6		14		12:00			124		95		219	
00:15			4		5		9		12:15			124		94		218	
00:30			4		3		7		12:30			114		93		207	
00:45			2	18	5	19	7	37	12:45			85	447	110	392	195	839
01:00			6		2		8		13:00			132		102		234	
01:15			4		4		8		13:15			112		97		209	
01:30			4		1		5		13:30			114		108		222	
01:45			1	15	0	7	1	22	13:45			89	447	92	399	181	846
02:00			1		3		4		14:00			135		78		213	
02:15			1		2		3		14:15			114		72		186	
02:30			3		1		4		14:30			121		88		209	
02:45			0	5	2	8	2	13	14:45			104	474	84	322	188	796
03:00			1		1		2		15:00			108		62		170	
03:15			2		2		4		15:15			109		89		198	
03:30			1		0		1		15:30			111		82		193	
03:45			0	4	2	5	2	9	15:45			118	446	83	316	201	762
04:00			0		0		0		16:00			142		68		210	
04:15			1		1		2		16:15			119		68		187	
04:30			1		3		4		16:30			164		85		249	
04:45			5	7	6	10	11	17	16:45			134	559	88	309	222	868
05:00			2		3		5		17:00			181		85		266	
05:15			2		6		8		17:15			156		104		260	
05:30			5		12		17		17:30			164		93		257	
05:45			4	13	21	42	25	55	17:45			145	646	90	372	235	1018
06:00			14		23		37		18:00			146		76		222	
06:15			13		22		35		18:15			116		70		186	
06:30			16		31		47		18:30			124		80		204	
06:45			17	60	51	127	68	187	18:45			101	487	85	311	186	798
07:00			16		53		69		19:00			111		62		173	
07:15			23		65		88		19:15			91		73		164	
07:30			30		75		105		19:30			85		66		151	
07:45			29	98	82	275	111	373	19:45			63	350	51	252	114	602
08:00			37		56		93		20:00			74		53		127	
08:15			40		69		109		20:15			83		55		138	
08:30			41		68		109		20:30			73		54		127	
08:45			39	157	67	260	106	417	20:45			55	285	38	200	93	485
09:00			39		60		99		21:00			69		39		108	
09:15			45		56		101		21:15			51		31		82	
09:30			56		69		125		21:30			37		25		62	
09:45			66	206	73	258	139	464	21:45			36	193	25	120	61	313
10:00			72		75		147		22:00			27		29		56	
10:15			65		78		143		22:15			20		16		36	
10:30			81		77		158		22:30			19		16		35	
10:45			81	299	99	329	180	628	22:45			16	82	14	75	30	157
11:00			87		104		191		23:00			16		9		25	
11:15			105		84		189		23:15			12		7		19	
11:30			106		84		190		23:30			9		7		16	
11:45			109	407	97	369	206	776	23:45			6	43	5	28	11	71
TOTALS				1289		1709		2998	TOTALS				4459		3096		7555
SPLIT %				43.0%		57.0%		28.4%	SPLIT %				59.0%		41.0%		71.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,748	4,805	10,553

AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			17:00	12:45	17:00
AM Pk Volume			471	379	850	PM Pk Volume			646	417	1018
Pk Hr Factor			0.950	0.977	0.970	Pk Hr Factor			0.892	0.948	0.957
7 - 9 Volume	0	0	255	535	790	4 - 6 Volume	0	0	1205	681	1886
7 - 9 Peak Hour			08:00	07:30	07:45	4 - 6 Peak Hour			17:00	17:00	17:00
7 - 9 Pk Volume	0	0	157	282	422	4 - 6 Pk Volume	0	0	646	372	1018
Pk Hr Factor	0.000	0.000	0.957	0.860	0.950	Pk Hr Factor	0.000	0.000	0.892	0.894	0.957

Prepared by NDS/ATD

VOLUME

Camino De La Reina Bet. Camino De La Siesta & Mission Center Rd

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_049

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,894	5,012	10,906

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			9		9		18		12:00			123		82		205	
00:15			12		8		20		12:15			128		105		233	
00:30			6		5		11		12:30			117		106		223	
00:45			6	33	3	25	9	58	12:45			110	478	104	397	214	875
01:00			0		6		6		13:00			111		99		210	
01:15			2		5		7		13:15			120		94		214	
01:30			1		1		2		13:30			129		98		227	
01:45			0	3	2	14	2	17	13:45			110	470	91	382	201	852
02:00			8		1		9		14:00			109		95		204	
02:15			2		3		5		14:15			112		77		189	
02:30			2		1		3		14:30			112		95		207	
02:45			3	15	2	7	5	22	14:45			106	439	90	357	196	796
03:00			2		0		2		15:00			92		99		191	
03:15			2		2		4		15:15			124		80		204	
03:30			1		0		1		15:30			141		65		206	
03:45			3	8	1	3	4	11	15:45			124	481	78	322	202	803
04:00			1		1		2		16:00			119		71		190	
04:15			3		0		3		16:15			148		82		230	
04:30			1		3		4		16:30			157		86		243	
04:45			3	8	3	7	6	15	16:45			161	585	96	335	257	920
05:00			2		3		5		17:00			182		97		279	
05:15			5		7		12		17:15			180		126		306	
05:30			5		12		17		17:30			181		103		284	
05:45			2	14	15	37	17	51	17:45			141	684	70	396	211	1080
06:00			17		19		36		18:00			125		76		201	
06:15			20		24		44		18:15			112		73		185	
06:30			15		32		47		18:30			110		82		192	
06:45			22	74	33	108	55	182	18:45			81	428	83	314	164	742
07:00			27		43		70		19:00			104		87		191	
07:15			27		56		83		19:15			94		84		178	
07:30			28		74		102		19:30			90		67		157	
07:45			29	111	77	250	106	361	19:45			80	368	53	291	133	659
08:00			48		99		147		20:00			90		53		143	
08:15			35		120		155		20:15			74		49		123	
08:30			35		148		183		20:30			67		43		110	
08:45			33	151	107	474	140	625	20:45			60	291	59	204	119	495
09:00			50		83		133		21:00			86		47		133	
09:15			47		67		114		21:15			56		34		90	
09:30			45		53		98		21:30			43		24		67	
09:45			72	214	48	251	120	465	21:45			38	223	33	138	71	361
10:00			64		58		122		22:00			27		16		43	
10:15			77		80		157		22:15			17		24		41	
10:30			69		62		131		22:30			23		13		36	
10:45			84	294	64	264	148	558	22:45			11	78	14	67	25	145
11:00			98		79		177		23:00			19		15		34	
11:15			96		88		184		23:15			22		12		34	
11:30			92		61		153		23:30			10		7		17	
11:45			103	389	98	326	201	715	23:45			4	55	9	43	13	98
TOTALS				1314		1766		3080	TOTALS				4580		3246		7826
SPLIT %				42.7%		57.3%		28.2%	SPLIT %				58.5%		41.5%		71.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,894	5,012	10,906

AM Peak Hour			11:45	08:00	11:45	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			471	474	862	PM Pk Volume			704	422	1126
Pk Hr Factor			0.920	0.801	0.925	Pk Hr Factor			0.967	0.837	0.920
7 - 9 Volume	0	0	262	724	986	4 - 6 Volume	0	0	1269	731	2000
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	151	474	625	4 - 6 Pk Volume	0	0	704	422	1126
Pk Hr Factor	0.000	0.000	0.786	0.801	0.854	Pk Hr Factor	0.000	0.000	0.967	0.837	0.920

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From Morena Bouelvard to Pacific Highway

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			15		12			12:00			121		168		
00:15			9		11			12:15			160		142		
00:30			12		8			12:30			88		116		
00:45			7	43	9	40	83	12:45			172	541	121	547	1088
01:00			12		2			13:00			160		132		
01:15			5		3			13:15			150		108		
01:30			5		5			13:30			161		115		
01:45			4	26	0	10	36	13:45			122	593	68	423	1016
02:00			3		3			14:00			167		94		
02:15			4		1			14:15			134		89		
02:30			3		3			14:30			128		85		
02:45			1	11	1	8	19	14:45			166	595	60	328	923
03:00			4		3			15:00			178		83		
03:15			3		2			15:15			172		73		
03:30			3		1			15:30			267		95		
03:45			5	15	1	7	22	15:45			234	851	79	330	1181
04:00			2		6			16:00			301		108		
04:15			7		5			16:15			316		121		
04:30			5		7			16:30			305		151		
04:45			6	20	11	29	49	16:45			284	1206	168	548	1754
05:00			13		20			17:00			316		177		
05:15			10		22			17:15			315		184		
05:30			24		30			17:30			288		195		
05:45			30	77	55	127	204	17:45			295	1214	188	744	1958
06:00			28		53			18:00			226		168		
06:15			38		70			18:15			152		174		
06:30			41		76			18:30			149		151		
06:45			53	160	131	330	490	18:45			118	645	111	604	1249
07:00			55		189			19:00			132		106		
07:15			87		196			19:15			114		88		
07:30			121		226			19:30			88		68		
07:45			126	389	305	916	1305	19:45			96	430	77	339	769
08:00			89		288			20:00			112		84		
08:15			116		264			20:15			90		53		
08:30			121		219			20:30			88		50		
08:45			95	421	288	1059	1480	20:45			81	371	56	243	614
09:00			110		219			21:00			80		40		
09:15			108		203			21:15			71		39		
09:30			119		184			21:30			74		41		
09:45			96	433	184	790	1223	21:45			55	280	27	147	427
10:00			109		191			22:00			51		23		
10:15			116		165			22:15			52		30		
10:30			148		166			22:30			27		20		
10:45			131	504	178	700	1204	22:45			35	165	19	92	257
11:00			123		151			23:00			30		13		
11:15			119		168			23:15			24		13		
11:30			150		142			23:30			29		13		
11:45			143	535	151	612	1147	23:45			16	99	12	51	150
Total Vol.			2634		4628		**7262**				6990		4396		**11386**

Daily Totals

NB	SB	EB	WB	Combined
		9624	9024	**18648**

	AM			PM		
Split %	36.3%	63.7%	**38.9%**	61.4%	38.6%	**61.1%**
Peak Hour	11:30	07:30	**07:30**	16:15	17:00	**17:00**
Volume	574	1083	**1535**	1221	744	**1958**
P.H.F.	0.90	0.89	**0.89**	0.97	0.95	**0.98**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From Morena Bouelvard to Pacific Highway

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			18		15			12:00			119		105		
00:15			9		12			12:15			174		92		
00:30			5		11			12:30			133		108		
00:45			3	35	16	54	89	12:45			198	624	101	406	1030
01:00			18		9			13:00			159		77		
01:15			10		3			13:15			161		90		
01:30			5		2			13:30			156		88		
01:45			6	39	0	14	53	13:45			135	611	48	303	914
02:00			4		2			14:00			155		87		
02:15			7		2			14:15			97		52		
02:30			4		4			14:30			210		72		
02:45			4	19	1	9	28	14:45			126	588	50	261	849
03:00			5		1			15:00			199		87		
03:15			2		1			15:15			158		67		
03:30			5		4			15:30			292		154		
03:45			6	18	2	8	26	15:45			259	908	92	400	1308
04:00			5		0			16:00			288		115		
04:15			7		7			16:15			321		121		
04:30			2		12			16:30			305		168		
04:45			16	30	10	29	59	16:45			318	1232	177	581	1813
05:00			13		13			17:00			268		165		
05:15			12		18			17:15			319		184		
05:30			16		31			17:30			305		191		
05:45			30	71	49	111	182	17:45			252	1144	188	728	1872
06:00			36		88			18:00			184		181		
06:15			27		116			18:15			195		195		
06:30			42		126			18:30			151		145		
06:45			36	141	184	514	655	18:45			162	692	151	672	1364
07:00			63		218			19:00			135		126		
07:15			86		235			19:15			142		135		
07:30			108		232			19:30			122		105		
07:45			91	348	318	1003	1351	19:45			116	515	111	477	992
08:00			111		325			20:00			121		89		
08:15			91		221			20:15			103		90		
08:30			109		248			20:30			88		70		
08:45			106	417	316	1110	1527	20:45			95	407	65	314	721
09:00			108		295			21:00			70		77		
09:15			112		262			21:15			65		84		
09:30			127		205			21:30			66		65		
09:45			117	464	181	943	1407	21:45			61	262	35	261	523
10:00			105		196			22:00			51		40		
10:15			121		184			22:15			50		32		
10:30			117		195			22:30			40		28		
10:45			99	442	161	736	1178	22:45			35	176	19	119	295
11:00			120		142			23:00			22		20		
11:15			124		135			23:15			18		16		
11:30			154		141			23:30			16		18		
11:45			155	553	126	544	1097	23:45			11	67	12	66	133
Total Vol.			2577		5075		**7652**				7226		4588		**11814**

	AM			PM		
Split %	33.7%	66.3%	**39.3%**	61.2%	38.8%	**60.7%**
Peak Hour	11:30	08:30	**08:30**	16:00	17:30	**16:45**
Volume	602	1121	**1556**	1232	755	**1927**
P.H.F.	0.86	0.89	**0.92**	0.96	0.97	**0.96**

Daily Totals

NB	SB	EB	WB	Combined
		9803	9663	**19466**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From I-8 EB Ramps to Morena Boulevard

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			9		17			12:00			83		188		
00:15			9		14			12:15			97		165		
00:30			3		13			12:30			83		170		
00:45			11	32	18	62	94	12:45			106	369	151	674	1043
01:00			5		9			13:00			105		131		
01:15			2		8			13:15			128		128		
01:30			4		10			13:30			149		106		
01:45			4	15	7	34	49	13:45			99	481	88	453	934
02:00			2		5			14:00			131		95		
02:15			5		10			14:15			118		88		
02:30			3		5			14:30			186		95		
02:45			2	12	7	27	39	14:45			126	561	87	365	926
03:00			4		10			15:00			205		95		
03:15			2		7			15:15			210		77		
03:30			2		3			15:30			311		98		
03:45			2	10	4	24	34	15:45			227	953	91	361	1314
04:00			3		13			16:00			284		106		
04:15			5		16			16:15			262		99		
04:30			3		14			16:30			277		105		
04:45			3	14	25	68	82	16:45			208	1031	131	441	1472
05:00			3		30			17:00			191		108		
05:15			9		44			17:15			242		126		
05:30			10		56			17:30			238		120		
05:45			8	30	87	217	247	17:45			206	877	155	509	1386
06:00			18		104			18:00			198		121		
06:15			17		132			18:15			129		106		
06:30			24		155			18:30			104		131		
06:45			38	97	276	667	764	18:45			101	532	105	463	995
07:00			33		264			19:00			92		88		
07:15			55		313			19:15			102		70		
07:30			63		328			19:30			72		65		
07:45			73	224	300	1205	1429	19:45			73	339	88	311	650
08:00			85		265			20:00			101		70		
08:15			71		237			20:15			76		65		
08:30			58		306			20:30			62		35		
08:45			51	265	266	1074	1339	20:45			93	332	40	210	542
09:00			70		220			21:00			101		44		
09:15			76		196			21:15			61		41		
09:30			70		181			21:30			74		35		
09:45			64	280	196	793	1073	21:45			51	287	28	148	435
10:00			63		156			22:00			60		21		
10:15			76		168			22:15			53		33		
10:30			80		193			22:30			39		31		
10:45			69	288	183	700	988	22:45			13	165	28	113	278
11:00			99		197			23:00			30		22		
11:15			82		185			23:15			14		16		
11:30			85		197			23:30			20		18		
11:45			85	351	197	776	1127	23:45			14	78	20	76	154
Total Vol.				1618		5647	**7265**					6005		4124	**10129**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
			7623	9771	**17394**
			PM		
Split %			59.3%	40.7%	**58.2%**
Peak Hour			15:30	12:00	**15:30**
Volume			1084	674	**1478**
P.H.F.			0.87	0.90	**0.90**

	AM		
Split %	22.3%	77.7%	**41.8%**
Peak Hour	11:00	07:15	**07:15**
Volume	351	1206	**1482**
P.H.F.	0.89	0.92	**0.95**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From I-8 EB Ramps to Morena Boulevard

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			12		20			12:00			103		178		
00:15			11		16			12:15			121		195		
00:30			15		11			12:30			106		184		
00:45			9	47	15	62	109	12:45			115	445	177	734	1179
01:00			7		11			13:00			128		165		
01:15			5		8			13:15			135		158		
01:30			9		9			13:30			141		111		
01:45			6	27	9	37	64	13:45			111	515	126	560	1075
02:00			5		12			14:00			128		135		
02:15			4		5			14:15			151		105		
02:30			8		6			14:30			165		88		
02:45			4	21	8	31	52	14:45			184	628	95	423	1051
03:00			9		4			15:00			191		99		
03:15			9		9			15:15			223		84		
03:30			5		8			15:30			298		106		
03:45			4	27	9	30	57	15:45			278	990	111	400	1390
04:00			3		10			16:00			251		116		
04:15			5		15			16:15			239		88		
04:30			8		18			16:30			251		116		
04:45			7	23	21	64	87	16:45			206	947	138	458	1405
05:00			9		33			17:00			184		105		
05:15			5		48			17:15			215		126		
05:30			8		51			17:30			232		128		
05:45			12	34	77	209	243	17:45			206	837	155	514	1351
06:00			18		121			18:00			195		121		
06:15			22		135			18:15			206		106		
06:30			21		142			18:30			181		111		
06:45			35	96	217	615	711	18:45			170	752	126	464	1216
07:00			44		238			19:00			154		105		
07:15			40		284			19:15			165		88		
07:30			68		281			19:30			106		98		
07:45			70	222	329	1132	1354	19:45			89	514	70	361	875
08:00			44		368			20:00			95		65		
08:15			51		284			20:15			96		77		
08:30			50		262			20:30			80		84		
08:45			49	194	315	1229	1423	20:45			70	341	70	296	637
09:00			61		219			21:00			65		65		
09:15			77		184			21:15			55		55		
09:30			84		186			21:30			40		40		
09:45			65	287	177	766	1053	21:45			35	195	35	195	390
10:00			70		151			22:00			33		28		
10:15			54		145			22:15			28		33		
10:30			88		162			22:30			20		31		
10:45			95	307	174	632	939	22:45			16	97	28	120	217
11:00			95		184			23:00			15		20		
11:15			78		155			23:15			25		16		
11:30			98		168			23:30			19		28		
11:45			91	362	191	698	1060	23:45			20	79	15	79	158
Total Vol.				1647		5505	**7152**					6340		4604	**10944**

Daily Totals

NB	SB	EB	WB	Combined
		7987	10109	**18096**

	AM			PM		
Split %	23.0%	77.0%	**39.5%**	57.9%	42.1%	**60.5%**
Peak Hour	11:45	07:15	**07:30**	15:30	12:00	**15:30**
Volume	421	1262	**1495**	1066	734	**1487**
P.H.F.	0.87	0.86	**0.91**	0.89	0.94	**0.92**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From Hotel Circle South to I-8 EB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			14		7			12:00			124		75		
00:15			19		5			12:15			145		65		
00:30			12		14			12:30			121		83		
00:45			21	66	5	31	97	12:45			146	536	72	295	831
01:00			8		3			13:00			179		44		
01:15			14		4			13:15			141		66		
01:30			4		11			13:30			152		48		
01:45			8	34	1	19	53	13:45			151	623	46	204	827
02:00			9		4			14:00			89		54		
02:15			5		6			14:15			145		40		
02:30			5		3			14:30			179		43		
02:45			2	21	6	19	40	14:45			152	565	50	187	752
03:00			5		4			15:00			155		62		
03:15			8		5			15:15			219		43		
03:30			7		2			15:30			196		38		
03:45			6	26	3	14	40	15:45			181	751	49	192	943
04:00			2		11			16:00			234		40		
04:15			3		9			16:15			222		48		
04:30			7		12			16:30			223		53		
04:45			7	19	18	50	69	16:45			198	877	65	206	1083
05:00			5		22			17:00			229		79		
05:15			8		33			17:15			239		41		
05:30			11		48			17:30			236		46		
05:45			13	37	71	174	211	17:45			237	941	36	202	1143
06:00			32		85			18:00			214		44		
06:15			24		107			18:15			140		49		
06:30			32		133			18:30			111		60		
06:45			48	136	230	555	691	18:45			112	577	69	222	799
07:00			54		201			19:00			131		60		
07:15			66		242			19:15			86		48		
07:30			56		237			19:30			95		40		
07:45			96	272	179	859	1131	19:45			93	405	39	187	592
08:00			81		137			20:00			118		20		
08:15			77		139			20:15			100		29		
08:30			84		170			20:30			96		23		
08:45			94	336	143	589	925	20:45			74	388	25	97	485
09:00			88		121			21:00			79		27		
09:15			85		89			21:15			89		17		
09:30			86		78			21:30			78		15		
09:45			98	357	94	382	739	21:45			74	320	10	69	389
10:00			104		63			22:00			62		12		
10:15			95		70			22:15			47		16		
10:30			105		73			22:30			45		14		
10:45			108	412	79	285	697	22:45			39	193	3	45	238
11:00			121		66			23:00			48		12		
11:15			122		51			23:15			28		8		
11:30			115		70			23:30			30		14		
11:45			130	488	69	256	744	23:45			26	132	10	44	176
Total Vol.				2204		3233	**5437**					6308		1950	**8258**

Daily Totals

NB	SB	EB	WB	Combined
		8512	5183	**13695**

	AM			PM		
Split %	40.5%	59.5%	**39.7%**	76.4%	23.6%	**60.3%**
Peak Hour	11:45	06:45	**06:45**	17:00	12:00	**17:00**
Volume	520	910	**1134**	941	295	**1143**
P.H.F.	0.90	0.94	**0.92**	0.98	0.89	**0.93**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Taylor Street, From Hotel Circle South to I-8 EB Ramps

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			23		2			12:00			137		100		
00:15			23		9			12:15			111		90		
00:30			11		10			12:30			129		66		
00:45			17	74	8	29	103	12:45			150	527	86	342	869
01:00			19		2			13:00			150		73		
01:15			11		1			13:15			147		66		
01:30			4		3			13:30			125		80		
01:45			11	45	5	11	56	13:45			127	549	42	261	810
02:00			3		3			14:00			127		57		
02:15			6		8			14:15			150		66		
02:30			8		4			14:30			183		65		
02:45			4	21	2	17	38	14:45			172	632	64	252	884
03:00			3		1			15:00			125		59		
03:15			2		1			15:15			199		58		
03:30			7		10			15:30			185		66		
03:45			8	20	1	13	33	15:45			260	769	23	206	975
04:00			4		5			16:00			212		44		
04:15			11		8			16:15			258		34		
04:30			6		18			16:30			197		76		
04:45			4	25	15	46	71	16:45			213	880	62	216	1096
05:00			12		20			17:00			176		93		
05:15			15		30			17:15			233		80		
05:30			9		51			17:30			259		55		
05:45			20	56	91	192	248	17:45			270	938	62	290	1228
06:00			24		73			18:00			209		63		
06:15			39		101			18:15			127		73		
06:30			42		121			18:30			103		88		
06:45			46	151	189	484	635	18:45			133	572	65	289	861
07:00			49		208			19:00			105		56		
07:15			51		231			19:15			130		44		
07:30			81		244			19:30			130		52		
07:45			75	256	329	1012	1268	19:45			98	463	37	189	652
08:00			83		340			20:00			128		32		
08:15			110		325			20:15			101		34		
08:30			112		272			20:30			104		23		
08:45			119	424	172	1109	1533	20:45			93	426	26	115	541
09:00			97		190			21:00			77		27		
09:15			75		123			21:15			65		24		
09:30			112		94			21:30			83		27		
09:45			84	368	102	509	877	21:45			56	281	35	113	394
10:00			101		94			22:00			58		16		
10:15			85		85			22:15			55		26		
10:30			96		63			22:30			52		8		
10:45			115	397	88	330	727	22:45			45	210	9	59	269
11:00			94		87			23:00			45		15		
11:15			115		90			23:15			48		3		
11:30			133		58			23:30			27		10		
11:45			124	466	76	311	777	23:45			25	145	6	34	179
Total Vol.				2303		4063	**6366**					6392		2366	**8758**

	AM			PM		
				Daily Totals		
	NB	SB	EB	WB	**Combined**	
			8695	6429	**15124**	
Split %	36.2%	63.8%	**42.1%**	73.0%	27.0%	**57.9%**
Peak Hour	11:15	07:45	**07:45**	17:15	12:00	**17:15**
Volume	509	1266	**1646**	971	342	**1231**
P.H.F.	0.93	0.93	**0.95**	0.90	0.86	**0.93**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle South, From I-8 EB Ramps to Bachman Place

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			18		34			12:00			73		185		
00:15			9		32			12:15			101		156		
00:30			10		11			12:30			86		134		
00:45			11	48	20	97	145	12:45			88	348	165	640	988
01:00			6		25			13:00			109		172		
01:15			5		18			13:15			107		173		
01:30			6		12			13:30			92		165		
01:45			8	25	17	72	97	13:45			109	417	151	661	1078
02:00			5		14			14:00			70		191		
02:15			6		6			14:15			87		176		
02:30			2		5			14:30			87		191		
02:45			6	19	8	33	52	14:45			95	339	161	719	1058
03:00			5		11			15:00			83		207		
03:15			6		7			15:15			91		217		
03:30			6		13			15:30			67		227		
03:45			3	20	6	37	57	15:45			67	308	188	839	1147
04:00			8		12			16:00			87		257		
04:15			5		11			16:15			68		247		
04:30			6		15			16:30			84		258		
04:45			5	24	14	52	76	16:45			68	307	301	1063	1370
05:00			8		23			17:00			89		279		
05:15			14		27			17:15			91		290		
05:30			12		23			17:30			76		229		
05:45			29	63	49	122	185	17:45			102	358	226	1024	1382
06:00			18		50			18:00			97		248		
06:15			37		53			18:15			82		213		
06:30			56		78			18:30			79		194		
06:45			71	182	91	272	454	18:45			104	362	199	854	1216
07:00			57		147			19:00			67		190		
07:15			67		146			19:15			82		186		
07:30			66		192			19:30			73		233		
07:45			94	284	188	673	957	19:45			69	291	170	779	1070
08:00			79		163			20:00			68		162		
08:15			84		121			20:15			69		180		
08:30			71		150			20:30			45		118		
08:45			81	315	155	589	904	20:45			48	230	100	560	790
09:00			64		150			21:00			48		138		
09:15			61		112			21:15			42		132		
09:30			66		111			21:30			31		111		
09:45			74	265	122	495	760	21:45			39	160	107	488	648
10:00			99		114			22:00			60		124		
10:15			81		132			22:15			34		71		
10:30			84		102			22:30			22		78		
10:45			67	331	135	483	814	22:45			22	138	68	341	479
11:00			90		149			23:00			33		76		
11:15			90		131			23:15			27		62		
11:30			74		111			23:30			15		55		
11:45			88	342	137	528	870	23:45			13	88	33	226	314
Total Vol.			1918		3453		**5371**				3346		8194		**11540**

Daily Totals

NB	SB	EB	WB	Combined
		5264	11647	**16911**

	AM			PM		
Split %	35.7%	64.3%	**31.8%**	29.0%	71.0%	**68.2%**
Peak Hour	11:45	07:15	**07:15**	13:00	16:30	**16:30**
Volume	348	689	**995**	417	1128	**1460**
P.H.F.	0.86	0.90	**0.88**	0.96	0.94	**0.96**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle South, From I-8 EB Ramps to Bachman Place

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			18		35			12:00			100		172		
00:15			12		40			12:15			95		170		
00:30			14		29			12:30			104		162		
00:45			10	54	21	125	179	12:45			90	389	152	656	1045
01:00			8		23			13:00			92		196		
01:15			6		15			13:15			103		176		
01:30			8		17			13:30			104		178		
01:45			4	26	14	69	95	13:45			105	404	174	724	1128
02:00			6		15			14:00			76		208		
02:15			6		13			14:15			83		177		
02:30			4		8			14:30			80		238		
02:45			6	22	5	41	63	14:45			102	341	218	841	1182
03:00			5		13			15:00			83		203		
03:15			5		13			15:15			98		229		
03:30			2		6			15:30			84		238		
03:45			4	16	15	47	63	15:45			88	353	256	926	1279
04:00			4		9			16:00			80		231		
04:15			5		10			16:15			88		225		
04:30			5		18			16:30			70		298		
04:45			7	21	15	52	73	16:45			91	329	235	989	1318
05:00			13		23			17:00			98		205		
05:15			11		32			17:15			91		219		
05:30			16		46			17:30			98		202		
05:45			23	63	47	148	211	17:45			105	392	208	834	1226
06:00			30		58			18:00			112		216		
06:15			43		74			18:15			88		186		
06:30			49		81			18:30			98		215		
06:45			70	192	96	309	501	18:45			115	413	227	844	1257
07:00			58		90			19:00			60		192		
07:15			51		121			19:15			74		186		
07:30			77		168			19:30			73		204		
07:45			115	301	158	537	838	19:45			78	285	186	768	1053
08:00			81		151			20:00			72		157		
08:15			90		218			20:15			66		130		
08:30			80		209			20:30			61		117		
08:45			105	356	141	719	1075	20:45			47	246	133	537	783
09:00			86		143			21:00			60		125		
09:15			72		149			21:15			44		130		
09:30			70		138			21:30			65		134		
09:45			63	291	115	545	836	21:45			36	205	110	499	704
10:00			77		127			22:00			23		91		
10:15			71		147			22:15			39		102		
10:30			78		140			22:30			33		92		
10:45			83	309	136	550	859	22:45			29	124	75	360	484
11:00			75		126			23:00			33		74		
11:15			94		127			23:15			24		67		
11:30			81		130			23:30			19		67		
11:45			91	341	150	533	874	23:45			21	97	52	260	357
Total Vol.			1992		3675		**5667**				3578		8238		**11816**

Daily Totals

NB	SB	EB	WB	Combined
		5570	11913	**17483**

	AM			PM		
Split %	35.2%	64.8%	**32.4%**	30.3%	69.7%	**67.6%**
Peak Hour	11:45	07:45	**07:45**	18:00	15:45	**15:45**
Volume	390	736	**1102**	413	1010	**1336**
P.H.F.	0.94	0.84	**0.89**	0.90	0.85	**0.91**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle South, From Bachman Place to Hotel Circle North

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			12		28			12:00			70		141		
00:15			9		33			12:15			94		155		
00:30			12		12			12:30			94		135		
00:45			8	41	18	91	132	12:45			91	349	141	572	921
01:00			6		21			13:00			105		121		
01:15			8		20			13:15			111		165		
01:30			5		14			13:30			106		151		
01:45			4	23	16	71	94	13:45			98	420	148	585	1005
02:00			6		12			14:00			94		125		
02:15			5		8			14:15			81		151		
02:30			4		7			14:30			70		141		
02:45			6	21	7	34	55	14:45			84	329	128	545	874
03:00			2		10			15:00			88		131		
03:15			6		8			15:15			95		143		
03:30			5		11			15:30			66		151		
03:45			4	17	7	36	53	15:45			68	317	142	567	884
04:00			8		10			16:00			108		161		
04:15			7		12			16:15			111		184		
04:30			5		13			16:30			116		213		
04:45			6	26	15	50	76	16:45			148	483	205	763	1246
05:00			8		21			17:00			121		165		
05:15			12		28			17:15			138		184		
05:30			13		24			17:30			131		184		
05:45			22	55	44	117	172	17:45			142	532	206	739	1271
06:00			24		51			18:00			115		202		
06:15			31		55			18:15			126		184		
06:30			50		70			18:30			103		161		
06:45			66	171	99	275	446	18:45			121	465	184	731	1196
07:00			50		121			19:00			88		151		
07:15			48		162			19:15			95		162		
07:30			70		158			19:30			84		184		
07:45			78	246	191	632	878	19:45			91	358	151	648	1006
08:00			61		184			20:00			65		125		
08:15			105		206			20:15			77		135		
08:30			68		244			20:30			84		88		
08:45			81	315	160	794	1109	20:45			65	291	70	418	709
09:00			61		141			21:00			55		98		
09:15			60		128			21:15			54		105		
09:30			61		106			21:30			35		88		
09:45			88	270	121	496	766	21:45			42	186	70	361	547
10:00			91		115			22:00			88		65		
10:15			80		131			22:15			65		66		
10:30			77		118			22:30			45		42		
10:45			68	316	141	505	821	22:45			35	233	35	208	441
11:00			84		140			23:00			42		44		
11:15			81		128			23:15			21		51		
11:30			84		122			23:30			15		40		
11:45			81	330	131	521	851	23:45			19	97	28	163	260
Total Vol.			1831		3622		**5453**				4060		6300		**10360**

Daily Totals

NB	SB	EB	WB	Combined
		5891	9922	**15813**

	AM			PM		
Split %	33.6%	66.4%	**34.5%**	39.2%	60.8%	**65.5%**
Peak Hour	11:45	07:45	**07:45**	16:45	17:15	**17:15**
Volume	339	825	**1137**	538	776	**1302**
P.H.F.	0.90	0.85	**0.91**	0.91	0.94	**0.94**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Hotel Circle South, From Bachman Place to Hotel Circle North

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			11		21			12:00			81		131		
00:15			18		30			12:15			70		158		
00:30			9		15			12:30			66		125		
00:45			12	50	18	84	134	12:45			68	285	144	558	843
01:00			5		22			13:00			78		118		
01:15			6		26			13:15			95		141		
01:30			8		21			13:30			88		158		
01:45			7	26	18	87	113	13:45			95	356	165	582	938
02:00			9		20			14:00			105		114		
02:15			5		11			14:15			84		105		
02:30			4		8			14:30			70		125		
02:45			5	23	9	48	71	14:45			88	347	126	470	817
03:00			6		5			15:00			84		138		
03:15			9		4			15:15			95		128		
03:30			8		8			15:30			77		168		
03:45			9	32	9	26	58	15:45			84	340	151	585	925
04:00			5		10			16:00			105		188		
04:15			4		10			16:15			121		184		
04:30			6		11			16:30			116		216		
04:45			9	24	15	46	70	16:45			121	463	205	793	1256
05:00			10		18			17:00			142		223		
05:15			5		21			17:15			144		208		
05:30			15		25			17:30			151		184		
05:45			18	48	33	97	145	17:45			125	562	191	806	1368
06:00			22		45			18:00			115		165		
06:15			26		51			18:15			108		174		
06:30			41		88			18:30			98		178		
06:45			55	144	81	265	409	18:45			105	426	151	668	1094
07:00			51		114			19:00			111		124		
07:15			68		151			19:15			88		135		
07:30			70		168			19:30			70		145		
07:45			84	273	155	588	861	19:45			65	334	144	548	882
08:00			88		195			20:00			77		128		
08:15			105		215			20:15			84		105		
08:30			88		205			20:30			84		116		
08:45			70	351	195	810	1161	20:45			84	329	88	437	766
09:00			66		161			21:00			65		95		
09:15			54		151			21:15			40		70		
09:30			48		141			21:30			35		68		
09:45			88	256	111	564	820	21:45			33	173	77	310	483
10:00			70		105			22:00			32		84		
10:15			65		141			22:15			28		65		
10:30			77		125			22:30			26		35		
10:45			84	296	125	496	792	22:45			30	116	32	216	332
11:00			81		135			23:00			25		28		
11:15			98		111			23:15			20		21		
11:30			65		128			23:30			18		33		
11:45			77	321	114	488	809	23:45			15	78	32	114	192
Total Vol.				1844		3599	**5443**					3809		6087	**9896**

Daily Totals

NB	SB	EB	WB	Combined
		5653	9686	**15339**

	AM			PM		
Split %	33.9%	66.1%	**35.5%**	38.5%	61.5%	**64.5%**
Peak Hour	07:45	08:00	**08:00**	17:00	16:30	**16:45**
Volume	365	810	**1161**	562	852	**1378**
P.H.F.	0.87	0.94	**0.91**	0.93	0.96	**0.94**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Morena Boulevard, From West Morena Boulevard to Linda Vista Road

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	10		10					12:00	151		157				
00:15	15		8					12:15	154		160				
00:30	7		7					12:30	139		139				
00:45	6	38	11	36			74	12:45	150	594	153	609			1203
01:00	6		7					13:00	142		164				
01:15	5		7					13:15	127		172				
01:30	6		15					13:30	153		164				
01:45	13	30	5	34			64	13:45	128	550	160	660			1210
02:00	3		3					14:00	125		146				
02:15	5		1					14:15	122		155				
02:30	1		5					14:30	119		135				
02:45	5	14	3	12			26	14:45	126	492	169	605			1097
03:00	4		7					15:00	137		158				
03:15	6		4					15:15	123		173				
03:30	6		3					15:30	119		196				
03:45	8	24	5	19			43	15:45	124	503	203	730			1233
04:00	2		5					16:00	107		225				
04:15	17		5					16:15	110		206				
04:30	9		8					16:30	96		264				
04:45	22	50	14	32			82	16:45	125	438	201	896			1334
05:00	16		16					17:00	124		263				
05:15	35		22					17:15	94		230				
05:30	30		25					17:30	90		236				
05:45	48	129	30	93			222	17:45	111	419	214	943			1362
06:00	60		28					18:00	85		195				
06:15	70		34					18:15	103		151				
06:30	130		56					18:30	100		152				
06:45	180	440	53	171			611	18:45	104	392	116	614			1006
07:00	200		60					19:00	97		140				
07:15	251		76					19:15	67		85				
07:30	274		89					19:30	66		88				
07:45	345	1070	102	327			1397	19:45	46	276	91	404			680
08:00	320		108					20:00	53		73				
08:15	261		108					20:15	43		62				
08:30	252		96					20:30	58		78				
08:45	251	1084	118	430			1514	20:45	52	206	74	287			493
09:00	197		122					21:00	31		63				
09:15	172		119					21:15	55		53				
09:30	154		107					21:30	38		47				
09:45	128	651	107	455			1106	21:45	29	153	42	205			358
10:00	136		115					22:00	50		37				
10:15	151		110					22:15	28		37				
10:30	134		143					22:30	18		50				
10:45	134	555	126	494			1049	22:45	20	116	32	156			272
11:00	118		131					23:00	20		52				
11:15	145		139					23:15	9		23				
11:30	124		148					23:30	13		20				
11:45	146	533	130	548			1081	23:45	11	53	9	104			157
Total Vol.		4618		2651			**7269**			4192		6213			**10405**

Daily Totals

NB	SB	EB	WB	**Combined**
8810	8864			**17674**

	AM			**PM**		
Split %	63.5%	36.5%	**41.1%**	40.3%	59.7%	**58.9%**
Peak Hour	07:30	11:30	**07:30**	12:00	16:30	**16:30**
Volume	1200	595	**1607**	594	958	**1397**
P.H.F.	0.87	0.93	**0.90**	0.95	0.91	**0.90**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Morena Boulevard, From West Morena Boulevard to Linda Vista Road

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	17		19					12:00	142		162				
00:15	9		16					12:15	149		165				
00:30	8		8					12:30	132		171				
00:45	6	40	14	57			97	12:45	147	570	159	657			1227
01:00	3		14					13:00	144		161				
01:15	8		8					13:15	136		157				
01:30	7		13					13:30	144		121				
01:45	5	23	5	40			63	13:45	145	569	142	581			1150
02:00	9		5					14:00	143		148				
02:15	3		10					14:15	132		138				
02:30	2		2					14:30	115		178				
02:45	5	19	6	23			42	14:45	144	534	173	637			1171
03:00	5		7					15:00	126		180				
03:15	4		6					15:15	134		164				
03:30	9		4					15:30	115		256				
03:45	6	24	3	20			44	15:45	119	494	205	805			1299
04:00	5		6					16:00	112		237				
04:15	12		12					16:15	95		204				
04:30	14		9					16:30	96		263				
04:45	17	48	9	36			84	16:45	133	436	231	935			1371
05:00	15		13					17:00	117		286				
05:15	26		22					17:15	112		268				
05:30	32		25					17:30	90		240				
05:45	45	118	28	88			206	17:45	113	432	215	1009			1441
06:00	71		39					18:00	87		208				
06:15	80		31					18:15	110		160				
06:30	110		46					18:30	85		146				
06:45	196	457	50	166			623	18:45	87	369	102	616			985
07:00	208		75					19:00	70		153				
07:15	240		78					19:15	79		104				
07:30	239		85					19:30	68		98				
07:45	222	909	105	343			1252	19:45	62	279	74	429			708
08:00	208		96					20:00	63		70				
08:15	202		99					20:15	60		55				
08:30	244		88					20:30	55		58				
08:45	283	937	128	411			1348	20:45	47	225	69	252			477
09:00	241		140					21:00	44		70				
09:15	185		139					21:15	34		46				
09:30	152		120					21:30	28		46				
09:45	152	730	116	515			1245	21:45	58	164	46	208			372
10:00	145		124					22:00	39		47				
10:15	126		128					22:15	28		49				
10:30	112		126					22:30	24		34				
10:45	112	495	153	531			1026	22:45	15	106	29	159			265
11:00	118		146					23:00	23		26				
11:15	144		148					23:15	17		37				
11:30	127		152					23:30	16		16				
11:45	154	543	141	587			1130	23:45	20	76	19	98			174
Total Vol.		4343		2817			**7160**			4254		6386			**10640**

Daily Totals

NB	SB	EB	WB	**Combined**
8597	9203			**17800**

	AM			**PM**		
Split %	60.7%	39.3%	**40.2%**	40.0%	60.0%	**59.8%**
Peak Hour	08:15	11:45	**08:30**	12:15	16:30	**16:30**
Volume	970	639	**1448**	572	1048	**1506**
P.H.F.	0.86	0.93	**0.88**	0.96	0.92	**0.93**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Morena Boulevard, From Linda Vista Road to I-8 WB Offramp

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	28		36					12:00	281		355				
00:15	30		27					12:15	318		383				
00:30	24		23					12:30	306		318				
00:45	16	98	20	106			204	12:45	324	1229	311	1367			2596
01:00	21		20					13:00	317		349				
01:15	13		20					13:15	291		356				
01:30	19		30					13:30	330		350				
01:45	21	74	16	86			160	13:45	254	1192	320	1375			2567
02:00	9		14					14:00	285		295				
02:15	7		7					14:15	249		382				
02:30	12		22					14:30	282		372				
02:45	9	37	11	54			91	14:45	299	1115	392	1441			2556
03:00	7		16					15:00	317		406				
03:15	10		13					15:15	346		394				
03:30	17		11					15:30	329		425				
03:45	16	50	16	56			106	15:45	317	1309	457	1682			2991
04:00	15		12					16:00	326		497				
04:15	34		17					16:15	311		448				
04:30	26		37					16:30	281		479				
04:45	58	133	53	119			252	16:45	321	1239	463	1887			3126
05:00	55		45					17:00	360		546				
05:15	86		65					17:15	343		477				
05:30	111		68					17:30	258		531				
05:45	129	381	100	278			659	17:45	305	1266	525	2079			3345
06:00	148		122					18:00	248		447				
06:15	154		123					18:15	248		369				
06:30	209		181					18:30	252		391				
06:45	278	789	223	649			1438	18:45	253	1001	326	1533			2534
07:00	309		226					19:00	218		391				
07:15	385		283					19:15	209		327				
07:30	441		304					19:30	185		277				
07:45	544	1679	316	1129			2808	19:45	167	779	220	1215			1994
08:00	499		322					20:00	144		222				
08:15	444		332					20:15	157		223				
08:30	506		320					20:30	174		248				
08:45	499	1948	326	1300			3248	20:45	178	653	241	934			1587
09:00	349		302					21:00	130		226				
09:15	338		261					21:15	145		161				
09:30	343		238					21:30	127		160				
09:45	300	1330	251	1052			2382	21:45	118	520	119	666			1186
10:00	249		254					22:00	120		123				
10:15	261		250					22:15	95		100				
10:30	283		297					22:30	70		103				
10:45	254	1047	262	1063			2110	22:45	86	371	116	442			813
11:00	244		284					23:00	77		103				
11:15	266		324					23:15	62		64				
11:30	288		302					23:30	44		60				
11:45	317	1115	279	1189			2304	23:45	44	227	45	272			499
Total Vol.		8681		7081			**15762**			10901		14893			**25794**

Daily Totals

NB	SB	EB	WB	**Combined**
19582	21974			**41556**

	AM			**PM**		
Split %	55.1%	44.9%	**37.9%**	42.3%	57.7%	**62.1%**
Peak Hour	07:45	11:45	**07:45**	15:15	17:00	**17:00**
Volume	1993	1335	**3283**	1318	2079	**3345**
P.H.F.	0.92	0.87	**0.95**	0.95	0.95	**0.92**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Morena Boulevard, From Linda Vista Road to I-8 WB Offramp

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	38		36					12:00	298		405				
00:15	27		44					12:15	336		429				
00:30	28		25					12:30	301		410				
00:45	22	115	33	138			253	12:45	346	1281	354	1598			2879
01:00	26		22					13:00	328		332				
01:15	16		21					13:15	316		334				
01:30	14		21					13:30	317		336				
01:45	15	71	19	83			154	13:45	337	1298	326	1328			2626
02:00	22		22					14:00	329		324				
02:15	10		18					14:15	302		361				
02:30	9		27					14:30	280		410				
02:45	9	50	12	79			129	14:45	337	1248	328	1423			2671
03:00	12		11					15:00	294		446				
03:15	10		10					15:15	326		378				
03:30	16		13					15:30	307		486				
03:45	15	53	10	44			97	15:45	287	1214	388	1698			2912
04:00	13		18					16:00	324		490				
04:15	28		33					16:15	303		467				
04:30	35		28					16:30	288		492				
04:45	63	139	33	112			251	16:45	364	1279	466	1915			3194
05:00	63		51					17:00	336		563				
05:15	81		68					17:15	370		556				
05:30	86		73					17:30	300		563				
05:45	141	371	100	292			663	17:45	337	1343	492	2174			3517
06:00	151		130					18:00	257		470				
06:15	151		143					18:15	301		353				
06:30	195		157					18:30	235		352				
06:45	302	799	212	642			1441	18:45	246	1039	338	1513			2552
07:00	325		243					19:00	181		397				
07:15	429		289					19:15	220		318				
07:30	466		346					19:30	198		323				
07:45	370	1590	397	1275			2865	19:45	211	810	222	1260			2070
08:00	353		301					20:00	187		236				
08:15	367		303					20:15	152		201				
08:30	422		359					20:30	173		177				
08:45	491	1633	326	1289			2922	20:45	127	639	201	815			1454
09:00	426		323					21:00	157		248				
09:15	338		309					21:15	114		202				
09:30	299		255					21:30	125		153				
09:45	299	1362	272	1159			2521	21:45	123	519	158	761			1280
10:00	285		244					22:00	118		144				
10:15	270		269					22:15	100		133				
10:30	249		280					22:30	90		86				
10:45	260	1064	313	1106			2170	22:45	72	380	80	443			823
11:00	250		280					23:00	79		90				
11:15	284		291					23:15	78		83				
11:30	267		313					23:30	54		63				
11:45	295	1096	323	1207			2303	23:45	49	260	65	301			561
Total Vol.		8343		7426			**15769**			11310		15229			**26539**

Daily Totals

NB	SB	EB	WB	**Combined**
19653	22655			**42308**

	AM			**PM**		
Split %	52.9%	47.1%	**37.3%**	42.6%	57.4%	**62.7%**
Peak Hour	08:15	11:45	**08:15**	16:45	17:00	**16:45**
Volume	1706	1567	**3017**	1370	2174	**3518**
P.H.F.	0.87	0.91	**0.92**	0.97	0.97	**0.95**

THURSDAY - SEPTEMBER 10, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Napa Street, From Morena Boulevard to Friars Road

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	7		7					12:00	102		118				
00:15	6		11					12:15	106		93				
00:30	12		4					12:30	111		115				
00:45	6	31	3	25			56	12:45	98	417	101	427			844
01:00	2		5					13:00	88		100				
01:15	3		2					13:15	103		90				
01:30	12		2					13:30	84		70				
01:45	11	28	4	13			41	13:45	66	341	92	352			693
02:00	5		3					14:00	91		90				
02:15	8		2					14:15	84		112				
02:30	2		3					14:30	70		92				
02:45	1	16	2	10			26	14:45	65	310	105	399			709
03:00	6		2					15:00	77		107				
03:15	5		1					15:15	90		99				
03:30	6		5					15:30	88		111				
03:45	5	22	6	14			36	15:45	90	345	169	486			831
04:00	12		11					16:00	88		141				
04:15	6		13					16:15	90		168				
04:30	8		8					16:30	121		177				
04:45	9	35	15	47			82	16:45	144	443	151	637			1080
05:00	10		19					17:00	126		188				
05:15	12		26					17:15	115		198				
05:30	32		23					17:30	126		88				
05:45	40	94	20	88			182	17:45	88	455	128	602			1057
06:00	55		33					18:00	90		121				
06:15	65		29					18:15	88		128				
06:30	70		35					18:30	80		125				
06:45	88	278	45	142			420	18:45	70	328	95	469			797
07:00	115		38					19:00	65		129				
07:15	168		41					19:15	88		99				
07:30	188		57					19:30	70		85				
07:45	205	676	65	201			877	19:45	65	288	80	393			681
08:00	222		77					20:00	55		60				
08:15	251		76					20:15	65		93				
08:30	266		72					20:30	54		60				
08:45	268	1007	71	296			1303	20:45	66	240	47	260			500
09:00	181		79					21:00	40		66				
09:15	121		70					21:15	35		51				
09:30	106		73					21:30	28		31				
09:45	111	519	65	287			806	21:45	23	126	35	183			309
10:00	121		77					22:00	22		48				
10:15	106		92					22:15	40		30				
10:30	88		82					22:30	32		36				
10:45	90	405	97	348			753	22:45	25	119	27	141			260
11:00	80		72					23:00	15		18				
11:15	106		100					23:15	18		20				
11:30	111		71					23:30	20		19				
11:45	105	402	110	353			755	23:45	14	67	6	63			130
Total Vol.		3513		1824			**5337**			3479		4412			**7891**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
	6992	6236			**13228**

	AM			**PM**		
Split %	65.8%	34.2%	**40.3%**	44.1%	55.9%	**59.7%**
Peak Hour	08:00	11:45	**08:00**	16:45	16:30	**16:30**
Volume	1007	436	**1303**	511	714	**1220**
P.H.F.	0.94	0.92	**0.96**	0.87	0.90	**0.97**

WEDNESDAY - SEPTEMBER 9, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Napa Street, From Morena Boulevard to Friars Road

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	8		10					12:00	106		80				
00:15	5		7					12:15	121		107				
00:30	13		7					12:30	108		63				
00:45	5	31	6	30			61	12:45	89	424	116	366			790
01:00	10		6					13:00	90		94				
01:15	2		3					13:15	84		91				
01:30	6		2					13:30	86		111				
01:45	6	24	4	15			39	13:45	66	326	83	379			705
02:00	4		3					14:00	80		99				
02:15	4		2					14:15	70		75				
02:30	4		0					14:30	105		99				
02:45	2	14	4	9			23	14:45	111	366	133	406			772
03:00	4		4					15:00	90		116				
03:15	5		0					15:15	70		116				
03:30	6		11					15:30	65		128				
03:45	6	21	3	18			39	15:45	77	302	160	520			822
04:00	1		11					16:00	88		141				
04:15	7		10					16:15	90		184				
04:30	17		6					16:30	105		188				
04:45	23	48	18	45			93	16:45	121	404	151	664			1068
05:00	15		21					17:00	135		195				
05:15	32		31					17:15	106		206				
05:30	35		37					17:30	121		193				
05:45	36	118	19	108			226	17:45	88	450	159	753			1203
06:00	63		28					18:00	98		136				
06:15	72		40					18:15	103		124				
06:30	114		46					18:30	88		130				
06:45	160	409	36	150			559	18:45	70	359	124	514			873
07:00	105		51					19:00	65		131				
07:15	166		43					19:15	70		97				
07:30	189		48					19:30	54		83				
07:45	215	675	66	208			883	19:45	88	277	67	378			655
08:00	222		61					20:00	65		80				
08:15	242		72					20:15	70		79				
08:30	265		80					20:30	54		71				
08:45	251	980	85	298			1278	20:45	55	244	73	303			547
09:00	182		64					21:00	40		64				
09:15	157		65					21:15	35		49				
09:30	157		66					21:30	28		34				
09:45	121	617	77	272			889	21:45	29	132	40	187			319
10:00	108		81					22:00	30		40				
10:15	88		78					22:15	26		38				
10:30	98		69					22:30	22		21				
10:45	77	371	61	289			660	22:45	18	96	22	121			217
11:00	84		80					23:00	20		21				
11:15	98		102					23:15	15		19				
11:30	103		104					23:30	19		23				
11:45	111	396	86	372			768	23:45	16	70	10	73			143
Total Vol.		3704		1814			**5518**			3450		4664			**8114**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
	7154	6478			**13632**

	AM			PM		
Split %	67.1%	32.9%	**40.5%**	42.5%	57.5%	**59.5%**
Peak Hour	08:00	11:30	**08:00**	16:45	17:00	**16:45**
Volume	980	377	**1278**	483	753	**1228**
P.H.F.	0.92	0.88	**0.93**	0.87	0.91	**0.93**

WEDNESDAY - SEPTEMBER 16, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Frazee Road, From Friars Road to Hazard Center Drive

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	21		24					12:00	142		151				
00:15	24		25					12:15	133		166				
00:30	16		21					12:30	128		184				
00:45	18	79	16	86			165	12:45	162	565	195	696			1261
01:00	20		20					13:00	145		167				
01:15	16		9					13:15	151		166				
01:30	11		10					13:30	111		170				
01:45	16	63	18	57			120	13:45	126	533	154	657			1190
02:00	9		16					14:00	135		162				
02:15	12		8					14:15	141		142				
02:30	5		9					14:30	128		155				
02:45	10	36	12	45			81	14:45	141	545	141	600			1145
03:00	5		5					15:00	126		165				
03:15	4		4					15:15	133		184				
03:30	6		9					15:30	145		174				
03:45	3	18	5	23			41	15:45	151	555	182	705			1260
04:00	5		10					16:00	158		218				
04:15	5		9					16:15	144		235				
04:30	6		8					16:30	184		245				
04:45	12	28	11	38			66	16:45	195	681	222	920			1601
05:00	11		20					17:00	162		206				
05:15	15		16					17:15	199		219				
05:30	20		28					17:30	168		205				
05:45	16	62	33	97			159	17:45	144	673	213	843			1516
06:00	21		31					18:00	126		222				
06:15	28		40					18:15	131		218				
06:30	35		51					18:30	125		184				
06:45	41	125	70	192			317	18:45	105	487	195	819			1306
07:00	50		88					19:00	84		162				
07:15	46		91					19:15	95		151				
07:30	51		90					19:30	106		142				
07:45	66	213	151	420			633	19:45	111	396	135	590			986
08:00	70		142					20:00	95		145				
08:15	68		162					20:15	87		156				
08:30	74		135					20:30	70		122				
08:45	66	278	144	583			861	20:45	65	317	106	529			846
09:00	61		116					21:00	70		88				
09:15	66		126					21:15	54		95				
09:30	51		131					21:30	55		70				
09:45	68	246	105	478			724	21:45	62	241	65	318			559
10:00	77		116					22:00	62		84				
10:15	84		108					22:15	40		55				
10:30	95		126					22:30	32		51				
10:45	65	321	142	492			813	22:45	28	162	40	230			392
11:00	84		168					23:00	22		35				
11:15	91		177					23:15	16		42				
11:30	121		184					23:30	19		25				
11:45	106	402	195	724			1126	23:45	20	77	22	124			201
Total Vol.		1871		3235			**5106**			5232		7031			**12263**

Daily Totals

NB	SB	EB	WB	**Combined**
7103	10266			**17369**

	AM			**PM**		
Split %	36.6%	63.4%	**29.4%**	42.7%	57.3%	**70.6%**
Peak Hour	11:45	11:00	**11:45**	16:30	16:00	**16:30**
Volume	509	724	**1205**	740	920	**1632**
P.H.F.	0.90	0.93	**0.97**	0.90	0.94	**0.95**

THURSDAY - SEPTEMBER 17, 2015 CITY: MISSION VALLEY PROJECT: PDT15-0911-01

Frazee Road, From Friars Road to Hazard Center Drive

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	18		21					12:00	148		142				
00:15	26		28					12:15	151		174				
00:30	20		20					12:30	126		177				
00:45	24	88	19	88			176	12:45	144	569	151	644			1213
01:00	16		20					13:00	162		166				
01:15	11		15					13:15	135		184				
01:30	15		18					13:30	128		155				
01:45	19	61	21	74			135	13:45	121	546	142	647			1193
02:00	10		16					14:00	141		135				
02:15	8		11					14:15	144		144				
02:30	4		15					14:30	162		151				
02:45	9	31	19	61			92	14:45	177	624	128	558			1182
03:00	10		10					15:00	165		141				
03:15	5		5					15:15	142		162				
03:30	4		4					15:30	168		184				
03:45	6	25	9	28			53	15:45	174	649	177	664			1313
04:00	9		5					16:00	161		189				
04:15	9		4					16:15	188		191				
04:30	5		9					16:30	174		216				
04:45	4	27	8	26			53	16:45	189	712	235	831			1543
05:00	18		15					17:00	203		214				
05:15	25		22					17:15	165		222				
05:30	26		26					17:30	177		219				
05:45	22	91	33	96			187	17:45	154	699	184	839			1538
06:00	19		48					18:00	135		196				
06:15	25		55					18:15	104		162				
06:30	35		56					18:30	116		177				
06:45	45	124	68	227			351	18:45	111	466	184	719			1185
07:00	51		70					19:00	104		162				
07:15	66		84					19:15	98		135				
07:30	70		121					19:30	91		141				
07:45	65	252	111	386			638	19:45	70	363	111	549			912
08:00	88		145					20:00	65		108				
08:15	84		151					20:15	66		116				
08:30	70		133					20:30	70		104				
08:45	71	313	121	550			863	20:45	54	255	88	416			671
09:00	55		105					21:00	55		90				
09:15	40		135					21:15	62		75				
09:30	35		111					21:30	35		51				
09:45	41	171	105	456			627	21:45	41	193	40	256			449
10:00	68		94					22:00	25		44				
10:15	77		116					22:15	33		65				
10:30	84		132					22:30	31		35				
10:45	111	340	114	456			796	22:45	20	109	28	172			281
11:00	108		142					23:00	18		26				
11:15	130		135					23:15	19		32				
11:30	121		168					23:30	20		22				
11:45	111	470	174	619			1089	23:45	16	73	28	108			181
Total Vol.		1993		3067			**5060**			5258		6403			**11661**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
	7251	9470			**16721**

	AM			**PM**		
Split %	39.4%	60.6%	**30.3%**	45.1%	54.9%	**69.7%**
Peak Hour	11:45	11:45	**11:45**	16:15	16:45	**16:45**
Volume	536	667	**1203**	754	890	**1624**
P.H.F.	0.89	0.94	**0.93**	0.98	0.95	**0.96**

Prepared by NDS/ATD

VOLUME

Mission Center Rd Bet. Mission Center Ct & Hazard Center Dr

Day: Wednesday
Date: 9/9/2015

City: San Diego
Project #: CA15_4269_097

DAILY TOTALS	NB	SB	EB	WB	Total
	10,561	8,752	0	0	19,313

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	20		18				38		12:00	183		196				379	
00:15	9		12				21		12:15	210		186				396	
00:30	13		5				18		12:30	220		177				397	
00:45	7	49	7	42			14	91	12:45	231	844	179	738			410	1582
01:00	7		12				19		13:00	181		161				342	
01:15	7		9				16		13:15	232		179				411	
01:30	9		3				12		13:30	186		152				338	
01:45	7	30	2	26			9	56	13:45	177	776	145	637			322	1413
02:00	8		1				9		14:00	219		150				369	
02:15	3		4				7		14:15	189		150				339	
02:30	1		4				5		14:30	175		156				331	
02:45	6	18	3	12			9	30	14:45	159	742	179	635			338	1377
03:00	9		4				13		15:00	182		150				332	
03:15	1		3				4		15:15	181		176				357	
03:30	4		2				6		15:30	188		172				360	
03:45	6	20	7	16			13	36	15:45	175	726	159	657			334	1383
04:00	5		1				6		16:00	206		194				400	
04:15	6		6				12		16:15	186		190				376	
04:30	10		9				19		16:30	183		160				343	
04:45	11	32	11	27			22	59	16:45	211	786	175	719			386	1505
05:00	14		8				22		17:00	163		269				432	
05:15	15		12				27		17:15	214		213				427	
05:30	35		15				50		17:30	208		193				401	
05:45	36	100	25	60			61	160	17:45	162	747	176	851			338	1598
06:00	38		24				62		18:00	160		169				329	
06:15	57		21				78		18:15	179		154				333	
06:30	68		46				114		18:30	166		148				314	
06:45	88	251	42	133			130	384	18:45	141	646	143	614			284	1260
07:00	107		66				173		19:00	171		106				277	
07:15	96		61				157		19:15	151		123				274	
07:30	129		72				201		19:30	143		121				264	
07:45	129	461	108	307			237	768	19:45	159	624	94	444			253	1068
08:00	150		88				238		20:00	129		116				245	
08:15	124		101				225		20:15	136		93				229	
08:30	130		110				240		20:30	147		87				234	
08:45	149	553	112	411			261	964	20:45	113	525	64	360			177	885
09:00	146		87				233		21:00	119		71				190	
09:15	140		97				237		21:15	126		65				191	
09:30	114		100				214		21:30	98		59				157	
09:45	144	544	109	393			253	937	21:45	80	423	38	233			118	656
10:00	113		125				238		22:00	71		44				115	
10:15	128		117				245		22:15	67		38				105	
10:30	132		150				282		22:30	64		28				92	
10:45	177	550	153	545			330	1095	22:45	43	245	35	145			78	390
11:00	157		153				310		23:00	38		27				65	
11:15	175		130				305		23:15	43		33				76	
11:30	199		162				361		23:30	36		26				62	
11:45	187	718	192	637			379	1355	23:45	34	151	24	110			58	261
TOTALS		3326		2609				5935	TOTALS		7235		6143				13378
SPLIT %		56.0%		44.0%				30.7%	SPLIT %		54.1%		45.9%				69.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,561	8,752	0	0	19,313

AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	12:30	17:00			16:45
AM Pk Volume	800	751			1551	PM Pk Volume	864	851			1646
Pk Hr Factor	0.909	0.958			0.977	Pk Hr Factor	0.931	0.791			0.953
7 - 9 Volume	1014	718	0	0	1732	4 - 6 Volume	1533	1570	0	0	3103
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:45	17:00			16:45
7 - 9 Pk Volume	553	411	0	0	964	4 - 6 Pk Volume	796	851	0	0	1646
Pk Hr Factor	0.922	0.917	0.000	0.000	0.923	Pk Hr Factor	0.930	0.791	0.000	0.000	0.953

Prepared by NDS/ATD

VOLUME

Mission Center Rd Bet. Mission Center Ct & Hazard Center Dr

Day: Thursday
Date: 9/10/2015

City: San Diego
Project #: CA15_4269_097

DAILY TOTALS	NB	SB	EB	WB	Total
	10,689	8,888	0	0	19,577

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	35		24						59		12:00	175		209						384	
00:15	22		10						32		12:15	212		170						382	
00:30	15		18						33		12:30	218		172						390	
00:45	21	93	21	73					42	166	12:45	249	854	153	704					402	1558
01:00	13		17						30		13:00	229		176						405	
01:15	13		14						27		13:15	216		145						361	
01:30	16		18						34		13:30	212		158						370	
01:45	19	61	29	78					48	139	13:45	169	826	119	598					288	1424
02:00	10		13						23		14:00	208		142						350	
02:15	7		9						16		14:15	189		142						331	
02:30	7		6						13		14:30	175		166						341	
02:45	6	30	7	35					13	65	14:45	184	756	139	589					323	1345
03:00	4		2						6		15:00	163		179						342	
03:15	2		4						6		15:15	171		143						314	
03:30	5		7						12		15:30	190		201						391	
03:45	7	18	4	17					11	35	15:45	208	732	193	716					401	1448
04:00	3		2						5		16:00	212		188						400	
04:15	4		2						6		16:15	195		196						391	
04:30	4		9						13		16:30	175		200						375	
04:45	10	21	8	21					18	42	16:45	199	781	220	804					419	1585
05:00	9		5						14		17:00	187		262						449	
05:15	22		5						27		17:15	218		236						454	
05:30	24		13						37		17:30	208		184						392	
05:45	33	88	27	50					60	138	17:45	204	817	176	858					380	1675
06:00	59		21						80		18:00	175		159						334	
06:15	59		34						93		18:15	194		153						347	
06:30	77		48						125		18:30	160		127						287	
06:45	97	292	42	145					139	437	18:45	156	685	119	558					275	1243
07:00	103		56						159		19:00	131		118						249	
07:15	118		66						184		19:15	124		103						227	
07:30	114		83						197		19:30	155		89						244	
07:45	138	473	83	288					221	761	19:45	145	555	111	421					256	976
08:00	132		90						222		20:00	136		85						221	
08:15	155		100						255		20:15	110		95						205	
08:30	135		143						278		20:30	138		76						214	
08:45	161	583	144	477					305	1060	20:45	126	510	84	340					210	850
09:00	159		92						251		21:00	115		70						185	
09:15	120		100						220		21:15	83		66						149	
09:30	124		115						239		21:30	107		78						185	
09:45	132	535	116	423					248	958	21:45	69	374	51	265					120	639
10:00	137		129						266		22:00	71		54						125	
10:15	146		121						267		22:15	55		58						113	
10:30	138		122						260		22:30	48		51						99	
10:45	155	576	122	494					277	1070	22:45	40	214	41	204					81	418
11:00	169		137						306		23:00	38		41						79	
11:15	150		138						288		23:15	42		30						72	
11:30	154		179						333		23:30	33		20						53	
11:45	201	674	168	622					369	1296	23:45	28	141	17	108					45	249
TOTALS		3444		2723						6167	TOTALS		7245		6165						13410
SPLIT %		55.8%		44.2%						31.5%	SPLIT %		54.0%		46.0%						68.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,689	8,888	0	0	19,577

AM Peak Hour	11:45	11:30			11:45	PM Peak Hour	12:30	16:30			16:45
AM Pk Volume	806	726			1525	PM Pk Volume	912	918			1714
Pk Hr Factor	0.924	0.868			0.978	Pk Hr Factor	0.916	0.876			0.944
7 - 9 Volume	1056	765	0	0	1821	4 - 6 Volume	1598	1662	0	0	3260
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	17:00	16:30			16:45
7 - 9 Pk Volume	583	477	0	0	1060	4 - 6 Pk Volume	817	918	0	0	1714
Pk Hr Factor	0.905	0.828	0.000	0.000	0.869	Pk Hr Factor	0.937	0.876	0.000	0.000	0.944

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Prepared by NDS/ATD

VOLUME

Mission Center Rd Bet. Hazard Center Dr & Camino De La Riena

Day: Wednesday
Date: 9/16/2015

City: San Diego
Project #: CA15_4269_098

DAILY TOTALS	NB	SB	EB	WB	Total
	15,871	11,234	0	0	27,105

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	29		45						74		12:00	302		203						505	
00:15	20		33						53		12:15	337		204						541	
00:30	24		33						57		12:30	312		201						513	
00:45	25	98	27	138					52	236	12:45	322	1273	202	810					524	2083
01:00	11		18						29		13:00	342		207						549	
01:15	16		16						32		13:15	315		189						504	
01:30	2		17						19		13:30	318		196						514	
01:45	11	40	20	71					31	111	13:45	302	1277	174	766					476	2043
02:00	5		15						20		14:00	299		192						491	
02:15	6		10						16		14:15	278		184						462	
02:30	3		8						11		14:30	225		176						401	
02:45	7	21	8	41					15	62	14:45	273	1075	175	727					448	1802
03:00	2		7						9		15:00	264		222						486	
03:15	9		10						19		15:15	269		194						463	
03:30	9		5						14		15:30	296		243						539	
03:45	6	26	4	26					10	52	15:45	283	1112	225	884					508	1996
04:00	9		4						13		16:00	285		226						511	
04:15	5		6						11		16:15	297		210						507	
04:30	15		7						22		16:30	302		258						560	
04:45	18	47	10	27					28	74	16:45	311	1195	245	939					556	2134
05:00	23		8						31		17:00	289		312						601	
05:15	27		12						39		17:15	323		240						563	
05:30	28		15						43		17:30	295		259						554	
05:45	63	141	22	57					85	198	17:45	297	1204	249	1060					546	2264
06:00	56		28						84		18:00	238		213						451	
06:15	72		31						103		18:15	279		211						490	
06:30	102		54						156		18:30	222		176						398	
06:45	120	350	64	177					184	527	18:45	231	970	189	789					420	1759
07:00	145		90						235		19:00	243		165						408	
07:15	129		82						211		19:15	253		172						425	
07:30	199		109						308		19:30	234		149						383	
07:45	201	674	144	425					345	1099	19:45	227	957	179	665					406	1622
08:00	198		104						302		20:00	209		140						349	
08:15	204		101						305		20:15	213		137						350	
08:30	189		123						312		20:30	213		115						328	
08:45	200	791	115	443					315	1234	20:45	175	810	123	515					298	1325
09:00	194		107						301		21:00	156		153						309	
09:15	221		110						331		21:15	134		108						242	
09:30	225		125						350		21:30	116		121						237	
09:45	211	851	149	491					360	1342	21:45	115	521	65	447					180	968
10:00	180		150						330		22:00	100		84						184	
10:15	221		162						383		22:15	90		70						160	
10:30	206		134						340		22:30	59		62						121	
10:45	252	859	129	575					381	1434	22:45	54	303	50	266					104	569
11:00	248		192						440		23:00	51		40						91	
11:15	284		171						455		23:15	42		37						79	
11:30	277		188						465		23:30	28		36						64	
11:45	307	1116	196	747					503	1863	23:45	39	160	35	148					74	308
TOTALS		5014		3218						8232	TOTALS		10857		8016						18873
SPLIT %		60.9%		39.1%						30.4%	SPLIT %		57.5%		42.5%						69.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	15,871	11,234	0	0	27,105

AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	12:15	17:00			16:30
AM Pk Volume	1258	804			2062	PM Pk Volume	1313	1060			2280
Pk Hr Factor	0.933	0.985			0.953	Pk Hr Factor	0.960	0.849			0.948
7 - 9 Volume	1465	868	0	0	2333	4 - 6 Volume	2399	1999	0	0	4398
7 - 9 Peak Hour	07:30	07:45			07:45	4 - 6 Peak Hour	16:30	17:00			16:30
7 - 9 Pk Volume	802	472	0	0	1264	4 - 6 Pk Volume	1225	1060	0	0	2280
Pk Hr Factor	0.983	0.819	0.000	0.000	0.916	Pk Hr Factor	0.948	0.849	0.000	0.000	0.948

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Prepared by NDS/ATD

VOLUME

Mission Center Rd Bet. Hazard Center Dr & Camino De La Riena

Day: Thursday
Date: 9/17/2015

City: San Diego
Project #: CA15_4269_098

DAILY TOTALS	NB	SB	EB	WB	Total
	15,722	11,298	0	0	27,020

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	37		27						64		12:00	349		195						544	
00:15	25		36						61		12:15	318		198						516	
00:30	33		19						52		12:30	357		214						571	
00:45	23	118	27	109					50	227	12:45	362	1386	194	801					556	2187
01:00	12		22						34		13:00	342		196						538	
01:15	16		21						37		13:15	325		182						507	
01:30	19		30						49		13:30	315		199						514	
01:45	21	68	34	107					55	175	13:45	321	1303	190	767					511	2070
02:00	19		22						41		14:00	248		176						424	
02:15	1		18						19		14:15	276		178						454	
02:30	4		13						17		14:30	254		177						431	
02:45	10	34	9	62					19	96	14:45	262	1040	188	719					450	1759
03:00	7		5						12		15:00	261		202						463	
03:15	9		12						21		15:15	276		198						474	
03:30	9		10						19		15:30	243		235						478	
03:45	9	34	5	32					14	66	15:45	250	1030	227	862					477	1892
04:00	3		7						10		16:00	262		231						493	
04:15	10		4						14		16:15	243		204						447	
04:30	7		10						17		16:30	236		251						487	
04:45	21	41	13	34					34	75	16:45	261	1002	233	919					494	1921
05:00	27		10						37		17:00	270		296						566	
05:15	28		17						45		17:15	289		268						557	
05:30	27		13						40		17:30	314		274						588	
05:45	63	145	30	70					93	215	17:45	288	1161	207	1045					495	2206
06:00	62		32						94		18:00	256		220						476	
06:15	79		38						117		18:15	303		212						515	
06:30	131		68						199		18:30	274		202						476	
06:45	143	415	58	196					201	611	18:45	230	1063	190	824					420	1887
07:00	140		86						226		19:00	254		177						431	
07:15	184		83						267		19:15	234		159						393	
07:30	152		99						251		19:30	190		138						328	
07:45	249	725	128	396					377	1121	19:45	214	892	161	635					375	1527
08:00	203		97						300		20:00	229		144						373	
08:15	210		115						325		20:15	192		122						314	
08:30	207		102						309		20:30	155		115						270	
08:45	222	842	119	433					341	1275	20:45	158	734	140	521					298	1255
09:00	243		119						362		21:00	139		149						288	
09:15	183		119						302		21:15	146		128						274	
09:30	188		127						315		21:30	120		113						233	
09:45	236	850	128	493					364	1343	21:45	90	495	81	471					171	966
10:00	185		139						324		22:00	79		100						179	
10:15	207		152						359		22:15	61		71						132	
10:30	282		149						431		22:30	66		59						125	
10:45	251	925	169	609					420	1534	22:45	44	250	58	288					102	538
11:00	227		159						386		23:00	28		62						90	
11:15	225		179						404		23:15	50		41						91	
11:30	269		178						447		23:30	34		31						65	
11:45	301	1022	200	716					501	1738	23:45	35	147	55	189					90	336
TOTALS		5219		3257						**8476**	**TOTALS**		10503		8041						**18544**
SPLIT %		61.6%		38.4%						**31.4%**	**SPLIT %**		56.6%		43.4%						**68.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	15,722	11,298	0	0	27,020

AM Peak Hour	11:45	11:45			**11:45**	**PM Peak Hour**	12:00	16:45			**17:00**
AM Pk Volume	1325	807			**2132**	**PM Pk Volume**	1386	1071			**2206**
Pk Hr Factor	0.928	0.943			**0.933**	**Pk Hr Factor**	0.957	0.905			**0.938**
7 - 9 Volume	1567	829	0	0	**2396**	**4 - 6 Volume**	2163	1964	0	0	**4127**
7 - 9 Peak Hour	07:45	07:45			**07:45**	**4 - 6 Peak Hour**	17:00	16:45			**17:00**
7 - 9 Pk Volume	869	442	0	0	**1311**	**4 - 6 Pk Volume**	1161	1071	0	0	**2206**
Pk Hr Factor	0.872	0.863	0.000	0.000	**0.869**	**Pk Hr Factor**	0.924	0.905	0.000	0.000	**0.938**

RIVERWALK PROJECT – EXISTING TRAFFIC COUNTS (YEAR 2017)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Sea World Wy
EAST & WEST: Sea World Dr

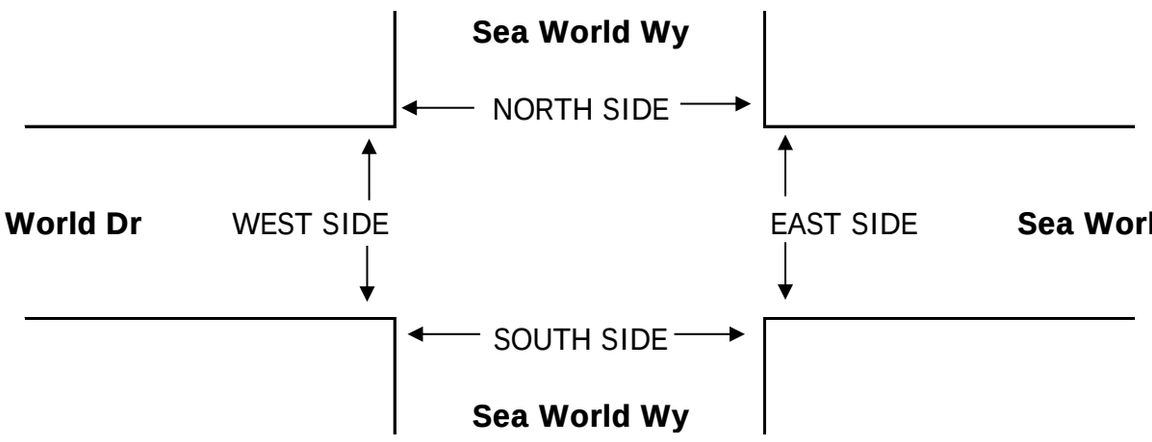
PROJECT #: PTD17-0908-02
LOCATION #: 1
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

		NORTHBOUND Sea World Wy			SOUTHBOUND Sea World Wy			EASTBOUND Sea World Dr			WESTBOUND Sea World Dr				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 2	ST X	SR 2	EL 1	ET 2	ER X	WL 1	WT 3	WR 0	TOTAL	NB X	SB X	EB X	WB 1	TTL
AM	7:00 AM				1		2	0	273		0	197	0	473					0
	7:15 AM				0		0	1	320		1	175	0	497			1	1	2
	7:30 AM				1		0	4	396		0	178	0	579			3		3
	7:45 AM				2		0	1	370		0	206	0	579			1		1
	8:00 AM				0		0	5	372		0	171	0	548			3		3
	8:15 AM				1		1	1	374		0	216	0	593			1		1
	8:30 AM				0		1	2	368		1	203	0	575			1	1	2
	8:45 AM				0		0	1	322		1	229	0	553			1	1	2
	VOLUMES	0	0	0	5	0	4	15	2,795	0	3	1,575	0	4,397	0	0	11	3	14
	APPROACH %	0%	0%	0%	56%	0%	44%	1%	99%	0%	0%	100%	0%						
	APP/DEPART	0	/	15	9	/	3	2,810	/	2,800	1,578	/	1,579	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	0	0	0	4	0	1	11	1,512	0	0	771	0	2,299					
	APPROACH %	0%	0%	0%	80%	0%	20%	1%	99%	0%	0%	100%	0%						
	PEAK HR FACTOR		0.000			0.625			0.952			0.892		0.969					
	APP/DEPART	0	/	11	5	/	0	1,523	/	1,516	771	/	772	0					
PM	4:00 PM				38		7	6	430		1	400	0	882			6	1	7
	4:15 PM				49		13	4	382		0	353	0	801			4		4
	4:30 PM				52		24	2	429		1	326	1	835			2	1	3
	4:45 PM				52		22	10	428		0	345	0	857			10		10
	5:00 PM				84		33	11	440		0	349	0	917			11		11
	5:15 PM				99		50	9	483		0	362	0	1,003			9		9
	5:30 PM				68		27	15	453		1	393	0	957			15	1	16
	5:45 PM				30		16	13	408		0	406	0	873			13		13
	VOLUMES	0	0	0	472	0	192	70	3,453	0	3	2,934	1	7,125	0	0	70	3	73
	APPROACH %	0%	0%	0%	71%	0%	29%	2%	98%	0%	0%	100%	0%						
	APP/DEPART	0	/	71	664	/	3	3,523	/	3,925	2,938	/	3,126	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	0	0	281	0	126	48	1,784	0	1	1,510	0	3,750					
	APPROACH %	0%	0%	0%	69%	0%	31%	3%	97%	0%	0%	100%	0%						
	PEAK HR FACTOR		0.000			0.683			0.931			0.930		0.935					
	APP/DEPART	0	/	48	407	/	1	1,832	/	2,065	1,511	/	1,636	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0	1				1
	7:30 AM					0					0	1				1
	7:45 AM					0					0	2			1	3
	8:00 AM					0					0	1				1
	8:15 AM	2				2					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	2	0	0	0	2	0	0	0	0	0	5	0	0	1	6
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM	2				2					0				1	1
	4:45 PM					0					0				1	1
	5:00 PM					0					0	2			1	3
	5:15 PM					0					0	2				2
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	2	0	0	0	2	0	0	0	0	0	4	0	0	3	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

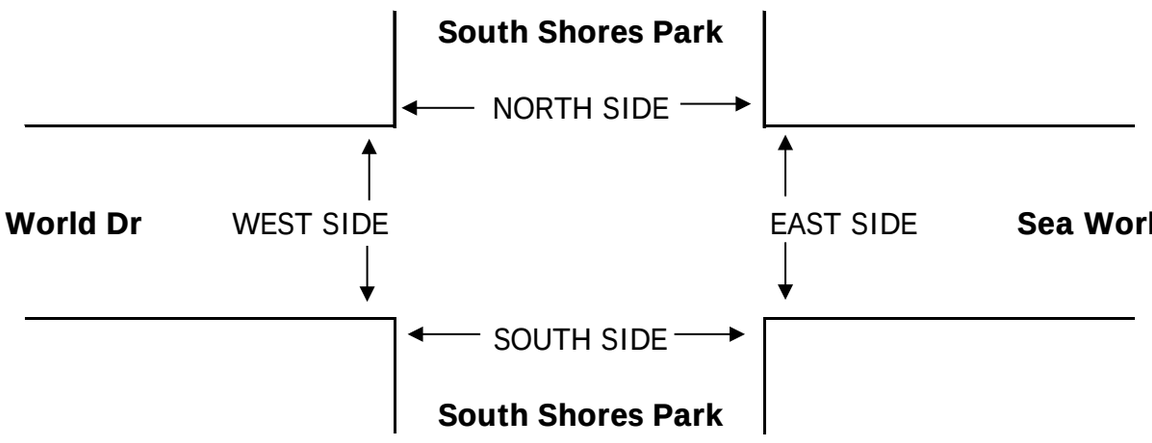
LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: South Shores Park
EAST & WEST: Sea World Dr

PROJECT #: PTD17-0908-02
LOCATION #: 2
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND South Shores Park			SOUTHBOUND South Shores Park			EASTBOUND Sea World Dr			WESTBOUND Sea World Dr				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 1.5	ST 0	SR 0.5	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	0	0	2	1	3	3	273	0	0	197	8	487			1		1
	7:15 AM	1	0	0	5	0	2	1	311	3	0	182	9	514			1		1
	7:30 AM	0	0	1	6	0	3	6	392	1	0	186	7	602			1		1
	7:45 AM	0	2	0	6	0	3	7	358	1	0	210	10	597					0
	8:00 AM	1	0	2	4	0	4	3	368	0	0	197	7	586					0
	8:15 AM	0	0	0	3	0	3	5	359	0	0	181	19	570					0
	8:30 AM	1	0	0	8	0	5	7	360	1	3	219	13	617				1	1
	8:45 AM	0	0	1	3	0	4	5	343	0	2	221	10	589				2	2
	VOLUMES	3	2	4	37	1	27	37	2,764	6	5	1,593	83	4,562	0	0	3	3	6
	APPROACH %	33%	22%	44%	57%	2%	42%	1%	98%	0%	0%	95%	5%						
	APP/DEPART	9	/	122	65	/	12	2,807	/	2,805	1,681	/	1,623	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	2	2	2	21	0	15	22	1,445	2	3	807	49	2,370					
	APPROACH %	33%	33%	33%	58%	0%	42%	1%	98%	0%	0%	94%	6%						
	PEAK HR FACTOR		0.500			0.692			0.990			0.914		0.960					
	APP/DEPART	6	/	73	36	/	5	1,469	/	1,468	859	/	824	0					
PM	4:00 PM	3	0	1	1	0	2	4	451	2	2	393	5	864			3	1	4
	4:15 PM	0	0	1	4	0	3	6	432	0	3	377	4	830			2	2	4
	4:30 PM	1	0	1	1	0	1	0	462	0	0	331	0	797					0
	4:45 PM	1	0	1	3	0	5	6	489	0	4	350	10	869				2	2
	5:00 PM	0	0	0	3	0	0	2	516	1	2	352	6	882				2	2
	5:15 PM	0	0	0	4	2	2	1	592	7	2	363	13	986			1	1	2
	5:30 PM	1	0	3	5	0	0	2	493	2	4	394	5	909				4	4
	5:45 PM	0	0	0	7	0	3	2	455	3	4	389	0	863				4	4
	VOLUMES	6	0	7	28	2	16	23	3,890	15	21	2,949	43	7,000	0	0	6	16	22
	APPROACH %	46%	0%	54%	61%	4%	35%	1%	99%	0%	1%	98%	1%						
	APP/DEPART	13	/	66	46	/	38	3,928	/	3,925	3,013	/	2,971	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	2	0	4	15	2	7	11	2,090	10	12	1,459	34	3,646					
	APPROACH %	33%	0%	67%	63%	8%	29%	1%	99%	0%	1%	97%	2%						
	PEAK HR FACTOR		0.375			0.750			0.880			0.934		0.924					
	APP/DEPART	6	/	45	24	/	24	2,111	/	2,109	1,505	/	1,468	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1				1					0				1	1
	7:15 AM					0					0		1		4	5
	7:30 AM					0					0				1	1
	7:45 AM					0					0					0
	8:00 AM					0					0	1			7	8
	8:15 AM					0					0				4	4
	8:30 AM					0					0				7	7
	8:45 AM					0					0				2	2
	TOTAL	1	0	0	0	1	0	0	0	0	0	1	1	0	26	28
PM	4:00 PM					0					0	1	3		8	12
	4:15 PM					0					0	3	4		3	10
	4:30 PM					0					0	2			4	6
	4:45 PM					0					0				4	4
	5:00 PM					0					0	2	1	1	2	6
	5:15 PM					0					0	1	2		5	8
	5:30 PM					0					0		1			1
	5:45 PM					0					0		1		5	6
	TOTAL	0	0	0	0	0	0	0	0	0	0	9	12	1	31	53

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: E. Mission Bay
EAST & WEST: Sea World Dr

PROJECT #: PTD17-0908-02
LOCATION #: 3
CONTROL: SIGNAL

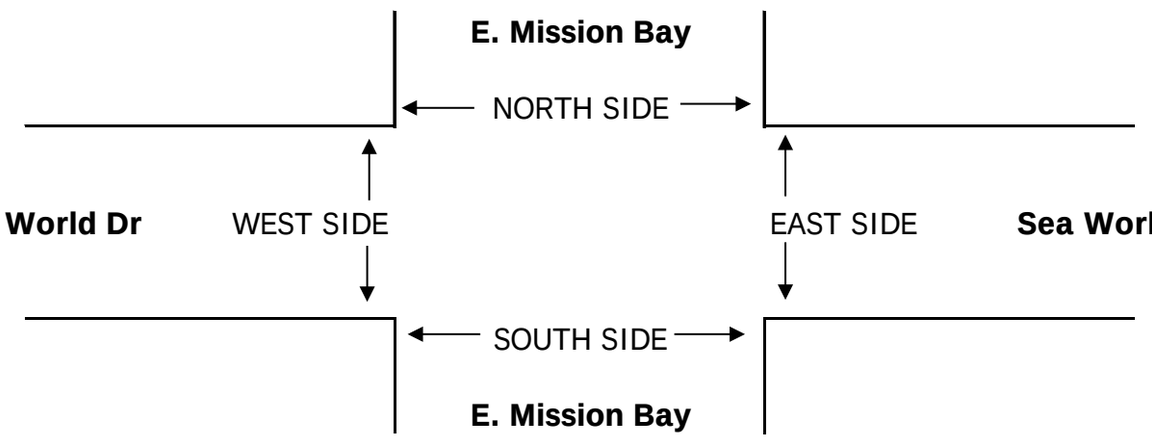
NOTES:

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		NORTHBOUND E. Mission Bay			SOUTHBOUND E. Mission Bay			EASTBOUND Sea World Dr			WESTBOUND Sea World Dr				U-TURNS				
	LANES:	NL 2	NT 2	NR 0	SL 1	ST 2	SR 1	EL 2	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	14	16	12	7	13	18	235	6	30	150	22	523					0
	7:15 AM	4	25	20	13	11	11	35	265	9	33	133	25	584					0
	7:30 AM	3	27	38	13	8	20	31	277	17	31	136	19	620					0
	7:45 AM	11	44	23	11	18	17	42	235	21	36	174	27	659					0
	8:00 AM	6	28	18	10	14	19	49	255	21	21	137	48	626					0
	8:15 AM	8	17	24	16	5	21	48	235	13	30	184	63	664					0
	8:30 AM	4	8	29	13	17	25	38	233	6	45	145	43	606					0
	8:45 AM	4	23	23	22	9	22	50	232	6	21	170	48	630					0
	VOLUMES	40	186	191	110	89	148	311	1,967	99	247	1,229	295	4,912	0	0	0	0	0
	APPROACH %	10%	45%	46%	32%	26%	43%	13%	83%	4%	14%	69%	17%						
	APP/DEPART	417	/	792	347	/	435	2,377	/	2,268	1,771	/	1,417	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	28	116	103	50	45	77	170	1,002	72	118	631	157	2,569					
	APPROACH %	11%	47%	42%	29%	26%	45%	14%	81%	6%	13%	70%	17%						
	PEAK HR FACTOR		0.792			0.935			0.957			0.818		0.967					
	APP/DEPART	247	/	443	172	/	235	1,244	/	1,155	906	/	736	0					
PM	4:00 PM	21	15	44	43	20	53	21	240	18	24	306	35	840					0
	4:15 PM	24	20	48	23	18	58	23	231	18	27	277	47	814					0
	4:30 PM	34	15	46	42	26	58	23	234	14	23	267	25	807					0
	4:45 PM	27	13	41	30	25	45	25	255	32	30	260	36	819					0
	5:00 PM	31	10	59	39	24	61	36	271	46	33	246	34	890					0
	5:15 PM	20	13	38	30	33	57	35	288	52	34	289	45	934					0
	5:30 PM	18	12	29	46	48	80	37	282	53	45	250	29	929					0
	5:45 PM	14	19	38	41	37	57	29	268	46	27	277	28	881					0
	VOLUMES	189	117	343	294	231	469	229	2,069	279	243	2,172	279	6,914	0	0	0	0	0
	APPROACH %	29%	18%	53%	30%	23%	47%	9%	80%	11%	9%	81%	10%						
	APP/DEPART	649	/	625	994	/	753	2,577	/	2,706	2,694	/	2,830	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	83	54	164	156	142	255	137	1,109	197	139	1,062	136	3,634					
	APPROACH %	28%	18%	54%	28%	26%	46%	9%	77%	14%	10%	79%	10%						
	PEAK HR FACTOR		0.753			0.795			0.962			0.908		0.973					
	APP/DEPART	301	/	327	553	/	478	1,443	/	1,429	1,337	/	1,400	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0			3	2	5
	7:15 AM					0					0		1	3	1	5
	7:30 AM					0					0			3	1	4
	7:45 AM					0					0	1	2	5	2	10
	8:00 AM					0					0			6		6
	8:15 AM					0					0		1	1	2	4
	8:30 AM					0					0		1	3	3	7
	8:45 AM					0					0			5	10	15
	TOTAL	0	0	0	0	0	0	0	0	0	0	1	5	29	21	56
PM	4:00 PM				1	1					0		2		3	5
	4:15 PM					0					0	1	1	1	3	6
	4:30 PM					0					0	1	1	14	5	21
	4:45 PM					0					0			2	1	3
	5:00 PM					0					0		2	2	3	7
	5:15 PM			1		1					0			7	2	9
	5:30 PM					0					0			3		3
	5:45 PM					0					0		1	5	5	11
	TOTAL	0	0	1	1	2	0	0	0	0	0	2	7	34	22	65

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:				
9/6/17	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
WEDNESDAY	NORTH & SOUTH:	Morena Blvd.	LOCATION #:	6
	EAST & WEST:	Ashton St.	CONTROL:	SIGNAL

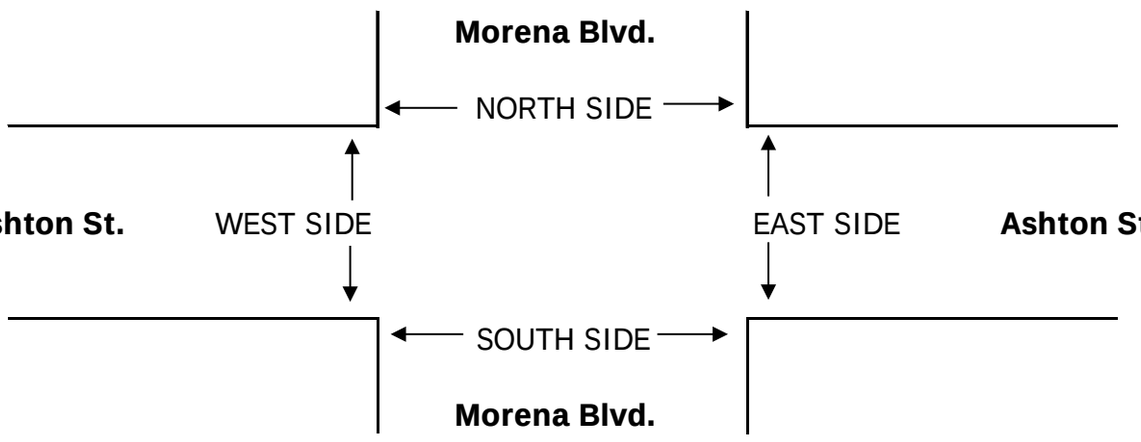
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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND Ashton St.			WESTBOUND Ashton St.				U-TURNS				
	LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0.5	WT X	WR 0.5	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM		155	3	1	66					5		6	236					0
	7:15 AM		221	5	2	103					11		9	351					0
	7:30 AM		221	6	0	100					7		4	338					0
	7:45 AM		251	8	0	109					10		12	390					0
	8:00 AM		276	6	6	117					8		8	421					0
	8:15 AM		325	7	3	92					14		6	447					0
	8:30 AM		306	9	3	124					14		13	469					0
	8:45 AM		292	5	4	123					3		8	435					0
	VOLUMES	0	2,047	49	19	834	0	0	0	0	72	0	66	3,087	0	0	0	0	0
	APPROACH %	0%	98%	2%	2%	98%	0%	0%	0%	0%	52%	0%	48%						
	APP/DEPART	2,096	/	2,113	853	/	906	0	/	68	138	/	0	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	1,199	27	16	456	0	0	0	0	39	0	35	1,772					
	APPROACH %	0%	98%	2%	3%	97%	0%	0%	0%	0%	53%	0%	47%						
	PEAK HR FACTOR		0.923			0.929			0.000			0.685		0.945					
	APP/DEPART	1,226	/	1,234	472	/	495	0	/	43	74	/	0	0					
PM	4:00 PM		140	18	11	274					19		4	466					0
	4:15 PM		141	17	7	248					10		11	434					0
	4:30 PM		139	20	11	285					13		4	472					0
	4:45 PM		146	22	11	257					19		8	463					0
	5:00 PM		155	19	11	298					15		7	505					0
	5:15 PM		146	24	4	315					10		12	511					0
	5:30 PM		148	17	8	305					13		7	498					0
	5:45 PM		130	21	8	282					9		10	460					0
	VOLUMES	0	1,145	158	71	2,264	0	0	0	0	108	0	63	3,809	0	0	0	0	0
	APPROACH %	0%	88%	12%	3%	97%	0%	0%	0%	0%	63%	0%	37%						
	APP/DEPART	1,303	/	1,208	2,335	/	2,372	0	/	229	171	/	0	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	595	82	34	1,175	0	0	0	0	57	0	34	1,977					
	APPROACH %	0%	88%	12%	3%	97%	0%	0%	0%	0%	63%	0%	37%						
	PEAK HR FACTOR		0.973			0.947			0.000			0.843		0.967					
	APP/DEPART	677	/	629	1,209	/	1,232	0	/	116	91	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM			2		2					0	1		1		2
	7:15 AM					0					0			3	1	4
	7:30 AM			2		2					0			2	1	3
	7:45 AM					0					0					0
	8:00 AM			3		3					0			3	1	4
	8:15 AM					0					0			1	1	2
	8:30 AM			2		2					0					0
	8:45 AM			3		3					0					0
	TOTAL	0	0	12	0	12	0	0	0	0	0	1	0	10	4	15
PM	4:00 PM					0					0			1		1
	4:15 PM					0					0					0
	4:30 PM			2		2					0					0
	4:45 PM			2		2					0				1	1
	5:00 PM			3		3					0				3	3
	5:15 PM					0					0					0
	5:30 PM					0					0			1	1	2
	5:45 PM			2		2					0			1		1
	TOTAL	0	0	9	0	9	0	0	0	0	0	0	0	3	5	8

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/6/17	NORTH & SOUTH:	W. Morena Blvd.	LOCATION #:	5
WEDNESDAY	EAST & WEST:	Morena Blvd.	CONTROL:	SIGNAL

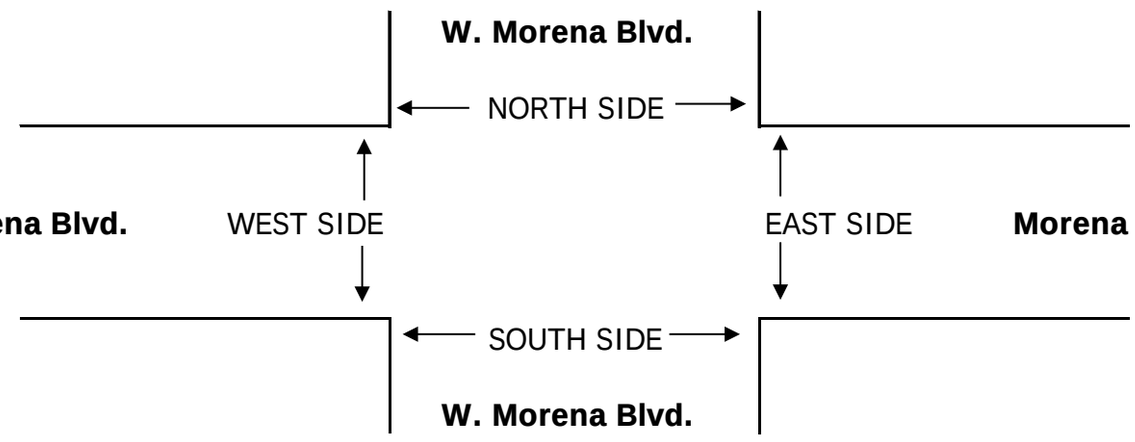
NOTES:

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		NORTHBOUND W. Morena Blvd.			SOUTHBOUND W. Morena Blvd.			EASTBOUND Morena Blvd.			WESTBOUND Morena Blvd.				U-TURNS				
	LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM		95	4	12	55					1		56	223					0
	7:15 AM		159	2	25	96					4		74	360					0
	7:30 AM		167	6	23	84					3		75	358					0
	7:45 AM		183	5	25	86					4		88	391					0
	8:00 AM		168	8	30	100					4		117	427					0
	8:15 AM		205	6	33	80					5		128	457					0
	8:30 AM		210	0	33	87					3		112	445			1		1
	8:45 AM		212	2	34	110					4		101	463					0
	VOLUMES	0	1,399	33	215	698	0	0	0	0	28	0	751	3,124	0	0	1	0	1
	APPROACH %	0%	98%	2%	24%	76%	0%	0%	0%	0%	4%	0%	96%						
	APP/DEPART	1,432	/	2,150	913	/	726	0	/	248	779	/	0	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	795	16	130	377	0	0	0	0	16	0	458	1,792					
	APPROACH %	0%	98%	2%	26%	74%	0%	0%	0%	0%	3%	0%	97%						
	PEAK HR FACTOR		0.947			0.880			0.000			0.891		0.968					
	APP/DEPART	811	/	1,253	507	/	393	0	/	146	474	/	0	0					
PM	4:00 PM		95	8	50	243					5		65	466					0
	4:15 PM		90	7	46	226					3		58	430					0
	4:30 PM		95	6	53	243					12		64	473					0
	4:45 PM		113	12	45	223					8		67	468					0
	5:00 PM		95	8	62	229					10		76	480					0
	5:15 PM		92	9	59	227					6		90	483					0
	5:30 PM		101	5	51	271					2		73	503					0
	5:45 PM		90	4	58	260					6		63	481					0
	VOLUMES	0	771	59	424	1,922	0	0	0	0	52	0	556	3,784	0	0	0	0	0
	APPROACH %	0%	93%	7%	18%	82%	0%	0%	0%	0%	9%	0%	91%						
	APP/DEPART	830	/	1,327	2,346	/	1,974	0	/	483	608	/	0	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	378	26	230	987	0	0	0	0	24	0	302	1,947					
	APPROACH %	0%	94%	6%	19%	81%	0%	0%	0%	0%	7%	0%	93%						
	PEAK HR FACTOR		0.953			0.945			0.000			0.849		0.968					
	APP/DEPART	404	/	680	1,217	/	1,011	0	/	256	326	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0			1		1
	7:15 AM					0					0	1		2		3
	7:30 AM			1		1					0			2		2
	7:45 AM			1		1					0		1	2	1	4
	8:00 AM					0					0			6		6
	8:15 AM					0					0			1		1
	8:30 AM			1		1					0			1		1
	8:45 AM					0					0					0
	TOTAL	0	0	3	0	3	0	0	0	0	0	1	1	15	1	18
PM	4:00 PM					0					0			1		1
	4:15 PM			2		2					0					0
	4:30 PM					0					0			0		0
	4:45 PM					0					0			0		0
	5:00 PM					0					0			0		0
	5:15 PM					0					0					0
	5:30 PM					0					0	1		1		2
	5:45 PM					0					0					0
	TOTAL	0	0	2	0	2	0	0	0	0	0	1	0	2	0	3

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Morena Blvd.
EAST & WEST: Vega St.
PROJECT #: PTD17-0908-02
LOCATION #: 7
CONTROL: SIGNAL

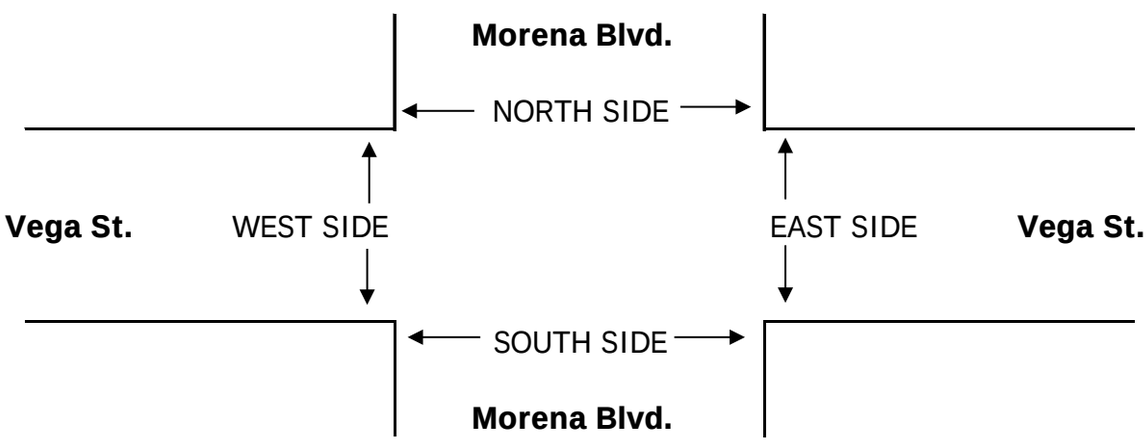
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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND Vega St.			WESTBOUND Vega St.				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	3	89	4	4	54	2	3	1	0	0	0	1	161		2			2
	7:15 AM	0	154	0	1	82	1	2	0	0	2	0	3	245					0
	7:30 AM	4	164	4	6	78	0	0	1	0	1	0	4	262	2	3			5
	7:45 AM	3	187	5	5	80	2	2	0	0	0	0	0	284					0
	8:00 AM	2	155	5	1	82	2	3	0	0	1	0	2	253					0
	8:15 AM	1	210	2	7	76	1	3	2	0	2	0	3	307					0
	8:30 AM	2	208	2	4	81	1	1	1	1	3	0	6	310	1				1
	8:45 AM	3	184	4	6	97	1	0	0	0	1	0	3	299	2				2
	VOLUMES	18	1,351	26	34	630	10	14	5	1	10	0	22	2,121	5	5	0	0	10
	APPROACH %	1%	97%	2%	5%	93%	1%	70%	25%	5%	31%	0%	69%						
	APP/DEPART	1,395	/	1,387	674	/	641	20	/	65	32	/	28	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	8	757	13	18	336	5	7	3	1	7	0	14	1,169					
	APPROACH %	1%	97%	2%	5%	94%	1%	64%	27%	9%	33%	0%	67%						
	PEAK HR FACTOR		0.913			0.863			0.550			0.583		0.943					
	APP/DEPART	778	/	778	359	/	344	11	/	34	21	/	13	0					
PM	4:00 PM	6	98	4	7	225	4	0	1	0	7	1	4	357	2				2
	4:15 PM	6	79	4	6	211	2	6	0	1	5	3	2	325	1	1			2
	4:30 PM	13	93	5	1	227	5	3	0	1	7	1	5	361	10				10
	4:45 PM	9	92	4	5	214	4	7	0	0	3	2	7	347	3	1			4
	5:00 PM	8	92	6	5	265	3	4	0	1	7	0	5	396	3	2			5
	5:15 PM	4	90	4	7	249	4	4	0	0	1	1	7	371	2				2
	5:30 PM	4	83	2	4	266	4	5	0	1	6	2	7	384					0
	5:45 PM	5	92	1	6	232	2	2	0	2	7	2	3	354	1	2			3
	VOLUMES	55	719	30	41	1,889	28	31	1	6	43	12	40	2,895	22	6	0	0	28
	APPROACH %	7%	89%	4%	2%	96%	1%	82%	3%	16%	45%	13%	42%						
	APP/DEPART	804	/	790	1,958	/	1,938	38	/	72	95	/	95	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	21	357	13	22	1,012	13	15	0	4	21	5	22	1,505					
	APPROACH %	5%	91%	3%	2%	97%	1%	79%	0%	21%	44%	10%	46%						
	PEAK HR FACTOR		0.922			0.955			0.792			0.800		0.950					
	APP/DEPART	391	/	394	1,047	/	1,037	19	/	35	48	/	39	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM				1	1					0					0
	7:15 AM					0					0			2	1	3
	7:30 AM					0					0			3	1	4
	7:45 AM					0					0			1	2	3
	8:00 AM					0					0			3	2	5
	8:15 AM					0					0				1	1
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	1	1	0	0	0	0	0	0	0	9	7	16
PM	4:00 PM		1		1	2					0					0
	4:15 PM		1		1	2					0			1		1
	4:30 PM	1				1					0					0
	4:45 PM					0					0				1	1
	5:00 PM				1	1					0					0
	5:15 PM		1			1					0					0
	5:30 PM					0					0			2	1	3
	5:45 PM					0					0					0
	TOTAL	1	3	0	3	7	0	0	0	0	0	0	0	3	2	5

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

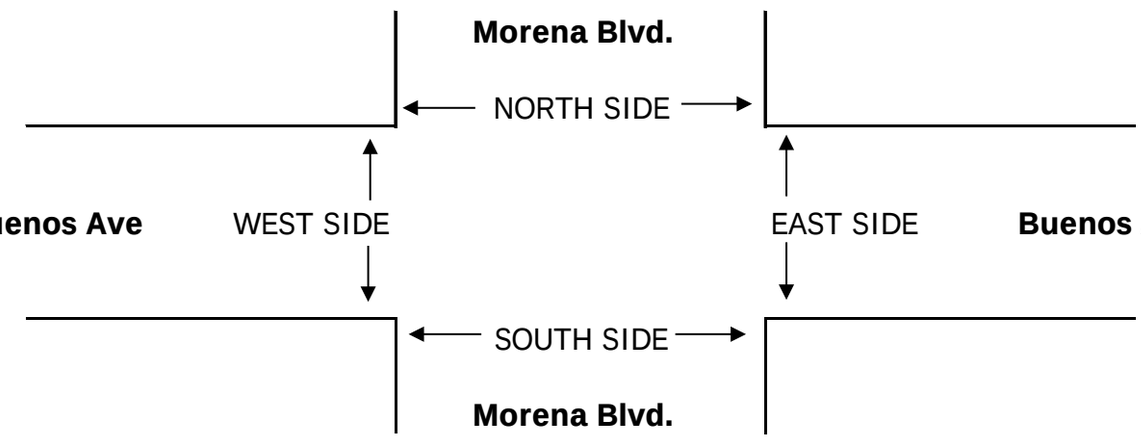
LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Morena Blvd.
EAST & WEST: Buenos Ave
PROJECT #: PTD17-0908-02
LOCATION #: 8
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER

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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND Buenos Ave			WESTBOUND Buenos Ave				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	28	87	6	3	50	1	2	4	5	0	3	3	192					0
	7:15 AM	24	146	9	6	79	6	2	2	5	2	6	2	289	1	2			3
	7:30 AM	19	147	10	2	75	3	2	3	4	1	2	3	271	1				1
	7:45 AM	39	183	10	6	82	1	5	5	9	1	7	4	352					0
	8:00 AM	15	155	14	6	95	2	4	4	11	2	6	1	315	1				1
	8:15 AM	22	199	9	1	75	2	1	3	9	3	4	6	334	2	1			3
	8:30 AM	20	215	10	5	77	3	2	4	15	4	5	5	365					0
	8:45 AM	28	182	13	3	100	3	4	5	9	4	9	4	364	2				2
	VOLUMES	195	1,314	81	32	633	21	22	30	67	17	42	28	2,482	7	3	0	0	10
	APPROACH %	12%	83%	5%	5%	92%	3%	18%	25%	56%	20%	48%	32%						
	APP/DEPART	1,590	/	1,364	686	/	717	119	/	143	87	/	258	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	85	751	46	15	347	10	11	16	44	13	24	16	1,378					
	APPROACH %	10%	85%	5%	4%	93%	3%	15%	23%	62%	25%	45%	30%						
	PEAK HR FACTOR		0.900			0.877			0.845			0.779		0.944					
	APP/DEPART	882	/	778	372	/	404	71	/	77	53	/	119	0					
PM	4:00 PM	11	93	4	7	242	1	6	3	23	8	5	5	408	2	1			3
	4:15 PM	12	83	7	8	218	7	3	2	33	8	12	4	397	4	1			5
	4:30 PM	10	91	8	14	247	13	9	4	48	8	6	8	466		3			3
	4:45 PM	10	104	10	10	222	13	3	7	33	5	7	10	434	2				2
	5:00 PM	7	82	9	7	278	1	9	7	44	9	5	14	472	3	1			4
	5:15 PM	16	90	4	7	261	8	6	7	23	5	5	8	440	4	3			7
	5:30 PM	7	82	4	6	276	3	6	5	15	5	0	6	415	1	3			4
	5:45 PM	17	81	7	12	239	1	7	2	32	9	3	9	419	6				6
	VOLUMES	90	706	53	71	1,983	47	49	37	251	57	43	64	3,451	22	12	0	0	34
	APPROACH %	11%	83%	6%	3%	94%	2%	15%	11%	74%	35%	26%	39%						
	APP/DEPART	849	/	819	2,101	/	2,291	337	/	161	164	/	180	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	43	367	31	38	1,008	35	27	25	148	27	23	40	1,812					
	APPROACH %	10%	83%	7%	4%	93%	3%	14%	13%	74%	30%	26%	44%						
	PEAK HR FACTOR		0.889			0.945			0.820			0.804		0.960					
	APP/DEPART	441	/	434	1,081	/	1,183	200	/	94	90	/	101	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM				1	1					0					0
	7:30 AM					0					0			2		2
	7:45 AM	1	2			3					0				1	1
	8:00 AM					0					0					0
	8:15 AM		1		1	2					0				2	2
	8:30 AM					0					0					0
	8:45 AM		3		1	4					0					0
	TOTAL	1	6	0	3	10	0	0	0	0	0	0	0	2	3	5
PM	4:00 PM		1	1	1	3					0				1	1
	4:15 PM		2	2		4					0					0
	4:30 PM		1	1	1	3					0	1				1
	4:45 PM		1	1		2					0					0
	5:00 PM		4			4					0					0
	5:15 PM					0					0				2	2
	5:30 PM	1	2			3					0					0
	5:45 PM		2	2		4					0					0
	TOTAL	1	13	7	2	23	0	0	0	0	0	1	0	0	3	4

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Morena Blvd.
EAST & WEST: W. Morena Blvd.

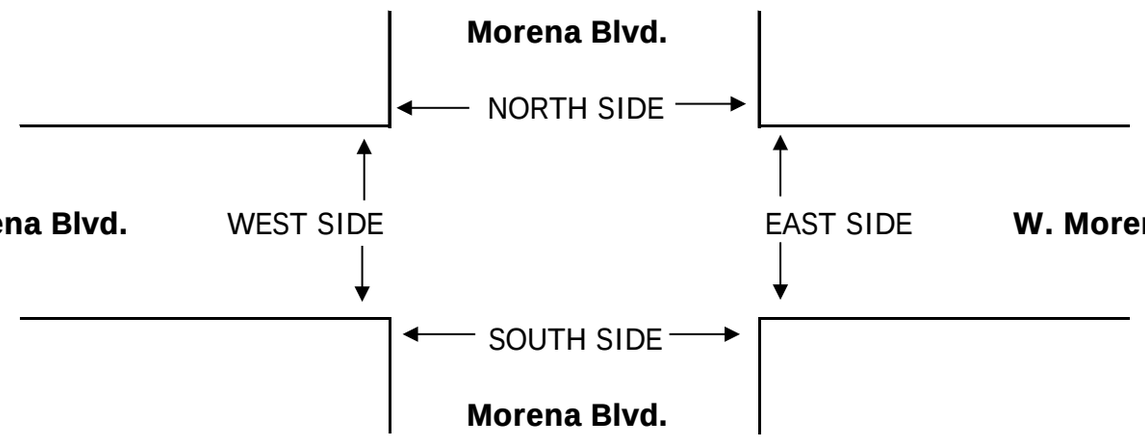
PROJECT #: PTD17-0908-02
LOCATION #: 4
CONTROL: SIGNAL

NOTES:
INCLUDE BIKE / PED

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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND W. Morena Blvd.			WESTBOUND W. Morena Blvd.				U-TURNS				
	LANES:	NL X	NT 2	NR 1	SL X	ST 2	SR X	EL X	ET X	ER X	WL 2	WT X	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM		115	40		55					65		0	275					0
	7:15 AM		179	149		82					79		0	489					0
	7:30 AM		180	140		77					112		0	509					0
	7:45 AM		233	170		97					114		0	614					0
	8:00 AM		182	143		109					131		0	565					0
	8:15 AM		243	158		93					100		0	594					0
	8:30 AM		234	145		98					105		1	583					0
	8:45 AM		217	161		111					106		1	596					0
	VOLUMES	0	1,583	1,106	0	722	0	0	0	0	812	0	2	4,225	0	0	0	0	0
	APPROACH %	0%	59%	41%	0%	100%	0%	0%	0%	0%	100%	0%	0%						
	APP/DEPART	2,689	/	1,585	722	/	1,534	0	/	1,106	814	/	0	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	892	616	0	397	0	0	0	0	450	0	1	2,356					
	APPROACH %	0%	59%	41%	0%	100%	0%	0%	0%	0%	100%	0%	0%						
	PEAK HR FACTOR		0.935			0.911			0.000			0.861		0.959					
	APP/DEPART	1,508	/	893	397	/	847	0	/	616	451	/	0	0					
PM	4:00 PM		104	158		278					171		2	713					0
	4:15 PM		96	149		234					156		3	638					0
	4:30 PM		106	148		298					183		0	735					0
	4:45 PM		121	127		284					152		1	685					0
	5:00 PM		94	143		307					208		3	755					0
	5:15 PM		107	167		279					170		1	724					0
	5:30 PM		99	150		301					152		0	702					0
	5:45 PM		93	118		269					112		1	593					0
	VOLUMES	0	820	1,160	0	2,250	0	0	0	0	1,304	0	11	5,545	0	0	0	0	0
	APPROACH %	0%	41%	59%	0%	100%	0%	0%	0%	0%	99%	0%	1%						
	APP/DEPART	1,980	/	831	2,250	/	3,554	0	/	1,160	1,315	/	0	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	428	585	0	1,168	0	0	0	0	713	0	5	2,899					
	APPROACH %	0%	42%	58%	0%	100%	0%	0%	0%	0%	99%	0%	1%						
	PEAK HR FACTOR		0.924			0.951			0.000			0.851		0.960					
	APP/DEPART	1,013	/	433	1,168	/	1,881	0	/	585	718	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0	2				2
	7:15 AM					0					0	1				1
	7:30 AM					0					0	2				2
	7:45 AM					0					0					0
	8:00 AM					0					0	6				6
	8:15 AM					0					0	1	1		1	3
	8:30 AM					0					0	1	1		1	3
	8:45 AM					0					0				2	2
	TOTAL	0	0	0	0	0	0	0	0	0	0	13	2	0	4	19
PM	4:00 PM					0					0				1	1
	4:15 PM					0					0		2		1	3
	4:30 PM					0					0	1				1
	4:45 PM					0					0					0
	5:00 PM					0					0	2				2
	5:15 PM					0					0	1				1
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	4	2	0	2	8

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Morena Blvd.
EAST & WEST: Sherman St. / Napa St

PROJECT #: PTD17-0908-02
LOCATION #: 9
CONTROL: SIGNAL

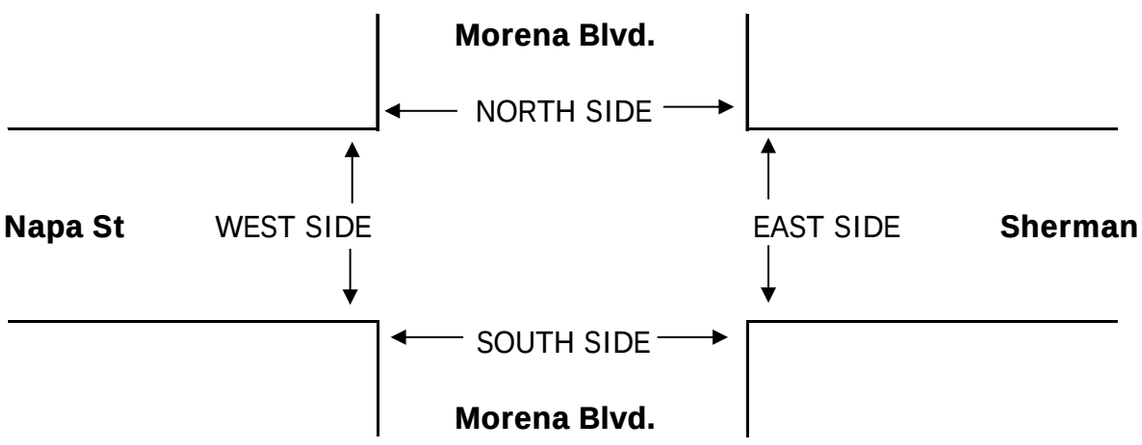
NOTES:

INCLUDE BIKE / PED

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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND Sherman St. / Napa St			WESTBOUND Sherman St. / Napa St				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 2	ST 2	SR 0	EL 1	ET 1	ER 0	WL 0	WT 1	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	31	130	6	57	57	9	6	4	4	1	4	207	516					0
	7:15 AM	34	195	6	79	80	10	6	3	6	1	6	263	689					0
	7:30 AM	42	193	0	106	76	8	4	4	8	1	8	252	702					0
	7:45 AM	28	255	1	105	85	12	5	3	14	1	9	284	802					0
	8:00 AM	24	195	14	122	102	10	4	7	8	2	4	254	746					0
	8:15 AM	28	276	8	102	90	3	10	4	10	3	7	247	788		1			1
	8:30 AM	24	235	6	103	92	11	3	4	14	0	7	288	787					0
	8:45 AM	28	217	6	118	94	10	8	7	17	4	7	310	826					0
	VOLUMES	239	1,696	47	792	676	73	46	36	81	13	52	2,105	5,856	0	1	0	0	1
	APPROACH %	12%	86%	2%	51%	44%	5%	28%	22%	50%	1%	2%	97%						
	APP/DEPART	1,982	/	3,847	1,541	/	770	163	/	875	2,170	/	364	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	104	923	34	445	378	34	25	22	49	9	25	1,099	3,147					
	APPROACH %	10%	87%	3%	52%	44%	4%	26%	23%	51%	1%	2%	97%						
	PEAK HR FACTOR		0.850			0.916			0.750			0.882		0.952					
	APP/DEPART	1,061	/	2,047	857	/	436	96	/	501	1,133	/	163	0					
PM	4:00 PM	16	151	6	189	260	12	18	9	50	29	4	171	915					0
	4:15 PM	17	188	5	164	211	11	12	3	32	6	6	141	796					0
	4:30 PM	12	83	6	179	275	3	17	6	37	6	3	149	776					0
	4:45 PM	21	135	7	170	252	8	3	6	24	1	3	157	787					0
	5:00 PM	10	74	3	173	280	6	15	9	34	10	4	140	758					0
	5:15 PM	10	83	5	190	277	9	6	9	26	8	6	185	814		1			1
	5:30 PM	8	79	2	181	277	5	4	3	17	8	3	165	752		1			1
	5:45 PM	13	72	2	122	230	8	3	3	24	0	6	135	618					0
	VOLUMES	107	865	36	1,368	2,062	62	78	48	244	68	35	1,243	6,216	0	2	0	0	2
	APPROACH %	11%	86%	4%	39%	59%	2%	21%	13%	66%	5%	3%	92%						
	APP/DEPART	1,008	/	2,186	3,492	/	2,374	370	/	1,452	1,346	/	204	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	66	557	24	702	998	34	50	24	143	42	16	618	3,274					
	APPROACH %	10%	86%	4%	40%	58%	2%	23%	11%	66%	6%	2%	91%						
	PEAK HR FACTOR		0.770			0.940			0.705			0.828		0.895					
	APP/DEPART	647	/	1,225	1,734	/	1,183	217	/	750	676	/	116	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM		4	2	1	7					0			1	1	2
	7:15 AM		1			1					0					0
	7:30 AM		4	3	1	8					0			2		2
	7:45 AM		6		1	7					0		1	2	1	4
	8:00 AM		5	3	3	11					0				2	2
	8:15 AM		4		5	9					0			1		1
	8:30 AM		3	1		4					0					0
	8:45 AM		2			2					0					0
	TOTAL	0	29	9	11	49	0	0	0	0	0	0	1	6	4	11
PM	4:00 PM		6	3	1	10					0			1		1
	4:15 PM		5	3	3	11					0				1	1
	4:30 PM		12	1	5	18					0					0
	4:45 PM		4	4	2	10					0					0
	5:00 PM		4	7	1	12					0			2		2
	5:15 PM		4	3	3	10					0			1	1	2
	5:30 PM		4	1	2	7					0				1	1
	5:45 PM		2	3	2	7					0			3		3
	TOTAL	0	41	25	19	85	0	0	0	0	0	0	0	7	3	10

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Morena Blvd.
EAST & WEST: Linda Vista Rd

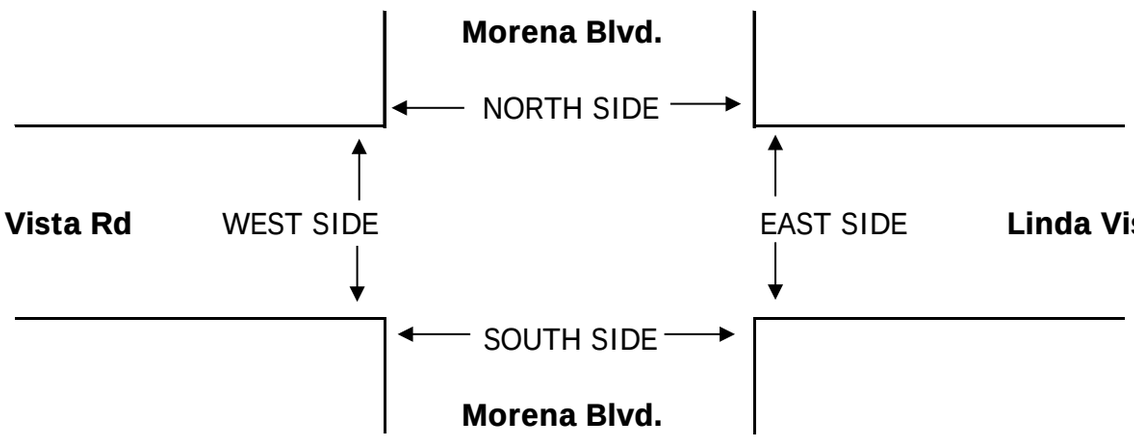
PROJECT #: PTD17-0908-02
LOCATION #: 10
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND Morena Blvd.			SOUTHBOUND Morena Blvd.			EASTBOUND Linda Vista Rd			WESTBOUND Linda Vista Rd				U-TURNS				
	LANES:	NL X	NT 2	NR 1	SL X	ST 2	SR X	EL X	ET X	ER X	WL 2	WT X	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM		166	136		49					149		1	501					0
	7:15 AM		239	177		85					134		1	636					0
	7:30 AM		249	196		81					163		1	690					0
	7:45 AM		276	217		97					200		2	792					0
	8:00 AM		221	213		106					157		1	698					0
	8:15 AM		285	276		94					134		0	789					0
	8:30 AM		280	259		93					203		3	838					0
	8:45 AM		250	213		108					159		1	731					0
	VOLUMES	0	1,966	1,687	0	713	0	0	0	0	1,299	0	10	5,675	0	0	0	0	0
	APPROACH %	0%	54%	46%	0%	100%	0%	0%	0%	0%	99%	0%	1%						
	APP/DEPART	3,653	/	1,976	713	/	2,012	0	/	1,687	1,309	/	0	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	1,062	965	0	390	0	0	0	0	694	0	6	3,117					
	APPROACH %	0%	52%	48%	0%	100%	0%	0%	0%	0%	99%	0%	1%						
	PEAK HR FACTOR		0.903			0.920			0.000			0.850		0.930					
	APP/DEPART	2,027	/	1,068	390	/	1,084	0	/	965	700	/	0	0					
PM	4:00 PM		96	202		300					228		4	830					0
	4:15 PM		92	206		235					195		10	738					0
	4:30 PM		108	198		315					215		4	840					0
	4:45 PM		95	166		296					225		5	787					0
	5:00 PM		91	198		302					253		2	846					0
	5:15 PM		96	222		306					263		2	889					0
	5:30 PM		83	190		309					251		3	836					0
	5:45 PM		81	170		299					240		3	793					0
	VOLUMES	0	742	1,552	0	2,362	0	0	0	0	1,870	0	33	6,559	0	0	0	0	0
	APPROACH %	0%	32%	68%	0%	100%	0%	0%	0%	0%	98%	0%	2%						
	APP/DEPART	2,294	/	775	2,362	/	4,232	0	/	1,552	1,903	/	0	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	351	780	0	1,216	0	0	0	0	1,007	0	10	3,364					
	APPROACH %	0%	31%	69%	0%	100%	0%	0%	0%	0%	99%	0%	1%						
	PEAK HR FACTOR		0.889			0.984			0.000			0.959		0.946					
	APP/DEPART	1,131	/	361	1,216	/	2,223	0	/	780	1,017	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM			4		4					0					0
	7:15 AM	3				3					0					0
	7:30 AM					0					0	1				1
	7:45 AM			3		3					0					0
	8:00 AM	1		2		3					0	1				1
	8:15 AM			4		4					0					0
	8:30 AM			1		1					0					0
	8:45 AM	2		2		4					0					0
	TOTAL	6	0	16	0	22	0	0	0	0	0	2	0	0	0	2
PM	4:00 PM	1		5		6					0			1		1
	4:15 PM			4		4					0					0
	4:30 PM			5		5					0					0
	4:45 PM			3		3					0					0
	5:00 PM			3		3					0					0
	5:15 PM			2		2					0					0
	5:30 PM			2		2					0			1		1
	5:45 PM	1		3		4					0			1		1
	TOTAL	2	0	27	0	29	0	0	0	0	0	0	0	3	0	3

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Taylor St.
EAST & WEST: Sunset St

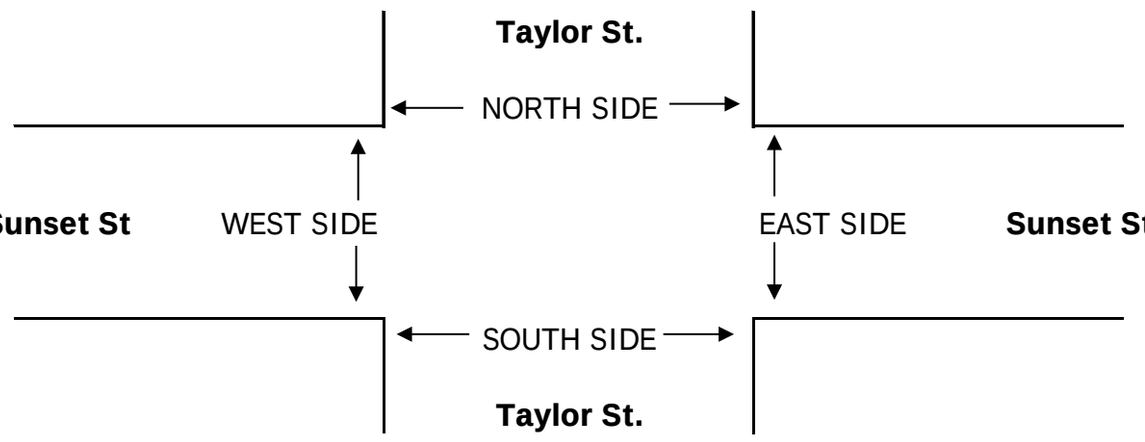
PROJECT #: PTD17-0908-02
LOCATION #: 12
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND Taylor St.			SOUTHBOUND Taylor St.			EASTBOUND Sunset St			WESTBOUND Sunset St				U-TURNS				
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 0.5	ET 0.5	ER 1	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	8	49	0	0	102	30	6	0	1	0	0	0	196					0
	7:15 AM	5	63	0	0	123	21	4	0	3	0	0	0	219					0
	7:30 AM	18	106	0	0	104	38	5	0	8	0	0	0	279					0
	7:45 AM	11	99	1	1	146	36	8	0	6	0	0	0	308		1			1
	8:00 AM	10	99	1	6	120	42	5	0	5	0	0	0	288		1			1
	8:15 AM	15	118	0	0	117	33	12	0	8	0	0	0	303					0
	8:30 AM	14	127	0	0	102	29	10	0	5	0	0	0	287					0
	8:45 AM	15	115	0	0	128	17	10	0	5	0	0	0	290					0
	VOLUMES	96	776	2	7	942	246	60	0	41	0	0	0	2,170	0	2	0	0	2
	APPROACH %	11%	89%	0%	1%	79%	21%	59%	0%	41%	0%	0%	0%						
	APP/DEPART	874	/	836	1,195	/	983	101	/	9	0	/	342	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	50	443	2	7	485	140	35	0	24	0	0	0	1,186					
	APPROACH %	10%	89%	0%	1%	77%	22%	59%	0%	41%	0%	0%	0%						
	PEAK HR FACTOR		0.878			0.863			0.738			0.000		0.963					
	APP/DEPART	495	/	478	632	/	509	59	/	9	0	/	190	0					
PM	4:00 PM	2	306	0	1	110	8	28	0	8	0	0	0	463					0
	4:15 PM	9	289	0	1	89	10	29	0	10	0	0	0	437	1	1			2
	4:30 PM	4	293	0	2	127	6	36	0	17	0	0	0	485					0
	4:45 PM	10	322	0	0	171	7	24	0	6	0	0	0	540					0
	5:00 PM	7	261	0	2	135	7	43	0	16	1	0	0	472					0
	5:15 PM	11	333	0	0	164	11	21	0	19	1	0	0	560					0
	5:30 PM	8	268	0	0	162	6	20	0	14	0	0	0	478					0
	5:45 PM	6	268	0	0	139	5	18	0	9	1	0	0	446	1				1
	VOLUMES	57	2,340	0	6	1,097	60	219	0	99	3	0	0	3,881	2	1	0	0	3
	APPROACH %	2%	98%	0%	1%	94%	5%	69%	0%	31%	100%	0%	0%						
	APP/DEPART	2,397	/	2,559	1,163	/	1,199	318	/	6	3	/	117	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	32	1,209	0	4	597	31	124	0	58	2	0	0	2,057					
	APPROACH %	3%	97%	0%	1%	94%	5%	68%	0%	32%	100%	0%	0%						
	PEAK HR FACTOR		0.902			0.888			0.771			0.500		0.918					
	APP/DEPART	1,241	/	1,333	632	/	657	182	/	4	2	/	63	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1			5	6					0			1	1	2
	7:15 AM	2		3		5					0			1	2	3
	7:30 AM	1			1	2					0			1	5	6
	7:45 AM			2		2					0			2	4	6
	8:00 AM	2		5		7					0			1	4	5
	8:15 AM	1		3	1	5					0			1	2	3
	8:30 AM	1		3	2	6					0	1		1		2
	8:45 AM			4	2	6					0			1		1
	TOTAL	8	0	20	11	39	0	0	0	0	0	1	0	9	18	28
PM	4:00 PM	9		14	6	29					0				2	2
	4:15 PM			4	2	6					0				3	3
	4:30 PM	1		4	3	8					0			1	1	2
	4:45 PM	6		10	1	17					0				1	1
	5:00 PM	4		10	1	15					0			1	2	3
	5:15 PM	2		3	6	11					0			1	2	3
	5:30 PM	5		13	1	19					0			3	5	8
	5:45 PM	5		7	2	14					0					0
	TOTAL	32	0	65	22	119	0	0	0	0	0	0	0	6	16	22

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Taylor St.
EAST & WEST: Juan St

PROJECT #: PTD17-0908-02
LOCATION #: 14
CONTROL: SIGNAL

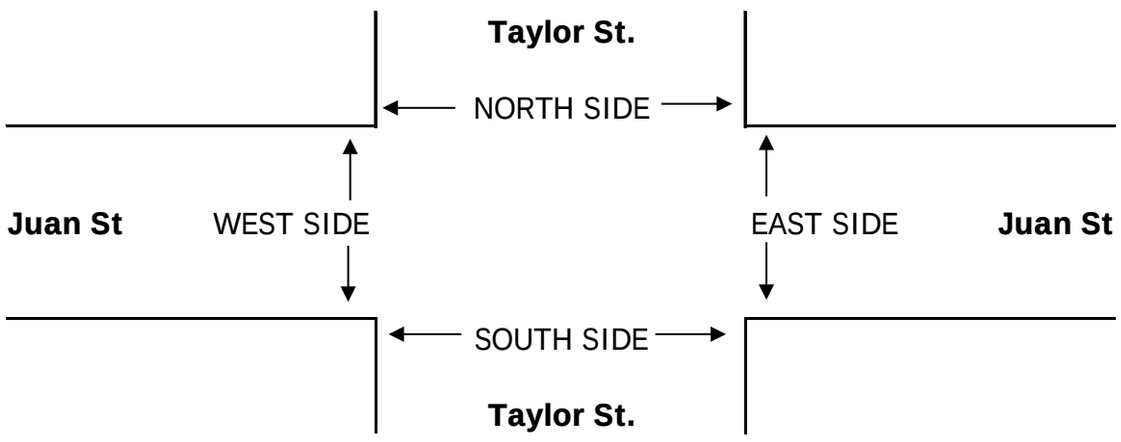
NOTES:

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		NORTHBOUND Taylor St.			SOUTHBOUND Taylor St.			EASTBOUND Juan St			WESTBOUND Juan St				U-TURNS				
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	7	39	5	13	89	2	2	0	0	12	0	13	182	2				2
	7:15 AM	3	59	5	11	110	3	1	0	0	9	0	11	212	1				1
	7:30 AM	1	85	7	9	97	4	1	0	0	14	0	31	249	1				1
	7:45 AM	6	85	5	24	127	3	1	0	0	8	0	27	286	3				3
	8:00 AM	5	77	7	14	104	3	3	0	1	13	0	33	260	3				3
	8:15 AM	9	87	6	19	104	2	1	0	0	6	0	41	275	3				3
	8:30 AM	2	108	12	17	93	1	1	0	0	16	0	31	281	1				1
	8:45 AM	5	91	6	20	112	2	0	0	1	9	1	31	278					0
	VOLUMES	38	631	53	127	836	20	10	0	2	87	1	218	2,023	14	0	0	0	14
	APPROACH %	5%	87%	7%	13%	85%	2%	83%	0%	17%	28%	0%	71%						
	APP/DEPART	722	/	859	983	/	925	12	/	180	306	/	59	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	22	357	30	74	428	9	6	0	1	43	0	132	1,102					
	APPROACH %	5%	87%	7%	14%	84%	2%	86%	0%	14%	25%	0%	75%						
	PEAK HR FACTOR		0.838			0.830			0.438			0.931		0.963					
	APP/DEPART	409	/	495	511	/	472	7	/	104	175	/	31	0					
PM	4:00 PM	3	279	14	26	88	2	5	0	2	19	2	51	491					0
	4:15 PM	3	285	15	19	80	2	4	1	0	21	1	49	480		1			1
	4:30 PM	5	236	18	29	117	2	6	1	3	18	0	48	483					0
	4:45 PM	6	238	23	51	115	1	2	0	1	18	0	51	506		1			1
	5:00 PM	4	235	11	30	119	1	6	2	1	12	1	36	458					0
	5:15 PM	1	245	25	52	123	3	4	2	1	21	1	57	535					0
	5:30 PM	1	200	19	36	135	0	2	0	1	22	1	49	466					0
	5:45 PM	4	226	17	42	113	0	1	0	1	15	0	38	457		2			2
	VOLUMES	27	1,944	142	285	890	11	30	6	10	146	6	379	3,876	0	4	0	0	4
	APPROACH %	1%	92%	7%	24%	75%	1%	65%	13%	22%	27%	1%	71%						
	APP/DEPART	2,113	/	2,353	1,186	/	1,046	46	/	433	531	/	44	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	16	954	77	162	474	7	18	5	6	69	2	192	1,982					
	APPROACH %	2%	91%	7%	25%	74%	1%	62%	17%	21%	26%	1%	73%						
	PEAK HR FACTOR		0.966			0.903			0.725			0.832		0.926					
	APP/DEPART	1,047	/	1,164	643	/	549	29	/	244	263	/	25	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM		2	1	1	4					0					0
	7:15 AM					0					0					0
	7:30 AM		2		1	3					0				1	1
	7:45 AM		3	3	1	7					0					0
	8:00 AM		5	1	2	8					0					0
	8:15 AM		3	1		4					0					0
	8:30 AM		7	2	3	12					0			1		1
	8:45 AM	1	1	4	1	7					0					0
	TOTAL	1	23	12	9	45	0	0	0	0	0	0	0	1	1	2
PM	4:00 PM	3		5	4	12					0			2	1	3
	4:15 PM		3	5	3	11					0				4	4
	4:30 PM	1	1	4	4	10					0			1	2	3
	4:45 PM		3	3	1	7					0		1		2	3
	5:00 PM	3	4		4	11					0	1	2	1	4	8
	5:15 PM	1	5	5	3	14					0				1	1
	5:30 PM	1	3	3	3	10					0			2	2	4
	5:45 PM	1		10		11					0				1	1
	TOTAL	10	19	35	22	86	0	0	0	0	0	1	3	6	17	27

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Napa st.
EAST & WEST: Linda Vista Rd

PROJECT #: PTD17-0908-02
LOCATION #: 13
CONTROL: SIGNAL

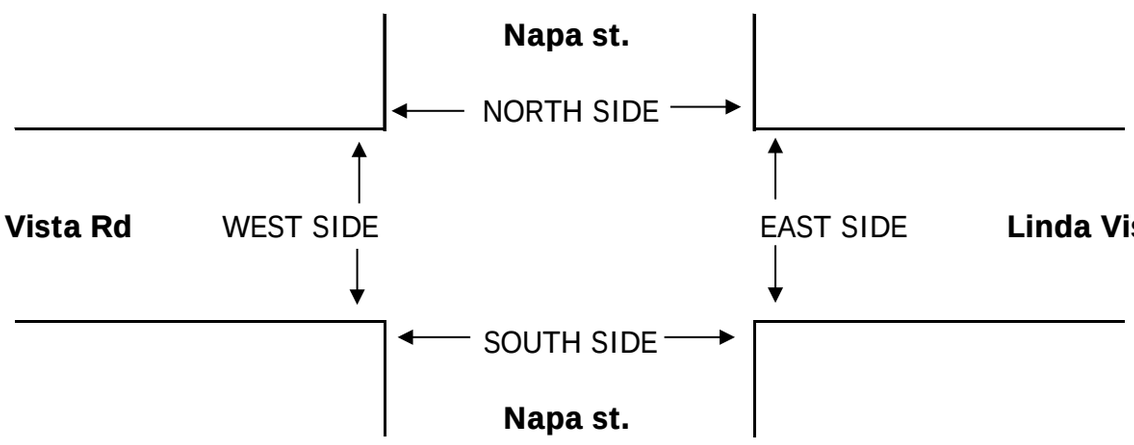
NOTES:

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		NORTHBOUND Napa st.			SOUTHBOUND Napa st.			EASTBOUND Linda Vista Rd			WESTBOUND Linda Vista Rd				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1.5	ET 0.5	ER 0	WL 1.5	WT 1.5	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	59	43	13	34	25	2	6	94	35	10	98	56	475	1				1
	7:15 AM	62	57	16	59	21	3	4	132	22	13	66	81	536					0
	7:30 AM	68	55	39	75	24	1	7	151	25	11	95	71	622	1				1
	7:45 AM	73	68	27	81	34	1	8	158	40	12	128	75	705					0
	8:00 AM	64	71	22	84	46	3	3	152	42	6	98	61	652	1				1
	8:15 AM	47	63	38	79	35	3	15	206	36	14	87	65	688	1				1
	8:30 AM	53	68	72	71	31	4	4	201	31	18	140	89	782					0
	8:45 AM	59	62	35	81	47	1	5	58	35	14	95	89	581					0
	VOLUMES	485	487	262	564	263	18	52	1,152	266	98	807	587	5,041	4	0	0	0	4
	APPROACH %	39%	39%	21%	67%	31%	2%	4%	78%	18%	7%	54%	39%						
	APP/DEPART	1,234	/	1,126	845	/	627	1,470	/	1,978	1,492	/	1,310	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	237	270	159	315	146	11	30	717	149	50	453	290	2,827					
	APPROACH %	36%	41%	24%	67%	31%	2%	3%	80%	17%	6%	57%	37%						
	PEAK HR FACTOR		0.863			0.887			0.872			0.803		0.904					
	APP/DEPART	666	/	590	472	/	345	896	/	1,191	793	/	701	0					
PM	4:00 PM	45	48	23	98	92	5	16	145	42	49	186	99	848	2				2
	4:15 PM	53	61	21	110	79	5	5	142	57	27	141	82	783	1				1
	4:30 PM	43	58	13	98	88	2	7	137	63	43	174	96	822	2				2
	4:45 PM	56	55	13	100	84	5	12	117	49	38	154	86	769	2				2
	5:00 PM	79	62	32	98	69	3	10	156	54	37	191	90	881					0
	5:15 PM	54	56	24	101	84	4	12	151	52	43	177	85	843	1				1
	5:30 PM	70	72	22	99	77	1	9	126	49	47	195	88	855	1				1
	5:45 PM	50	52	22	82	74	4	6	127	46	48	191	82	784					0
	VOLUMES	450	464	170	786	647	29	77	1,101	412	332	1,409	708	6,585	9	0	0	0	9
	APPROACH %	42%	43%	16%	54%	44%	2%	5%	69%	26%	14%	58%	29%						
	APP/DEPART	1,084	/	1,249	1,462	/	1,391	1,590	/	2,057	2,449	/	1,888	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	253	242	100	380	304	12	37	560	201	175	754	345	3,363					
	APPROACH %	43%	41%	17%	55%	44%	2%	5%	70%	25%	14%	59%	27%						
	PEAK HR FACTOR		0.860			0.921			0.907			0.965		0.954					
	APP/DEPART	595	/	624	696	/	680	798	/	1,040	1,274	/	1,019	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM			4	3	7					0					0
	7:15 AM		4		10	14					0		1			1
	7:30 AM	6	6	5	9	26					0		3			3
	7:45 AM			4	3	7					0			1		1
	8:00 AM	2	7	4	7	20					0		1			1
	8:15 AM	1	3	2	13	19					0		2	2		4
	8:30 AM	3	9	8	9	29					0			2		2
	8:45 AM	4	5	6	10	25					0					0
	TOTAL	16	34	33	64	147	0	0	0	0	0	0	7	5	0	12
PM	4:00 PM	5	7	2	14	28					0		2			2
	4:15 PM	4	11	4	11	30					0		1	2		3
	4:30 PM	6	12	3	45	66					0		3			3
	4:45 PM	4	6	1	19	30					0					0
	5:00 PM	3	6	3	11	23					0		2			2
	5:15 PM	2	8	1	15	26					0	1				1
	5:30 PM		4		9	13					0	1	2	2		5
	5:45 PM	3	5	2	8	18					0					0
	TOTAL	27	59	16	132	234	0	0	0	0	0	2	10	4	0	16

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Napa St
EAST & WEST: Riley St.

PROJECT #: PTD17-0908-02
LOCATION #: 15
CONTROL: SIGNAL

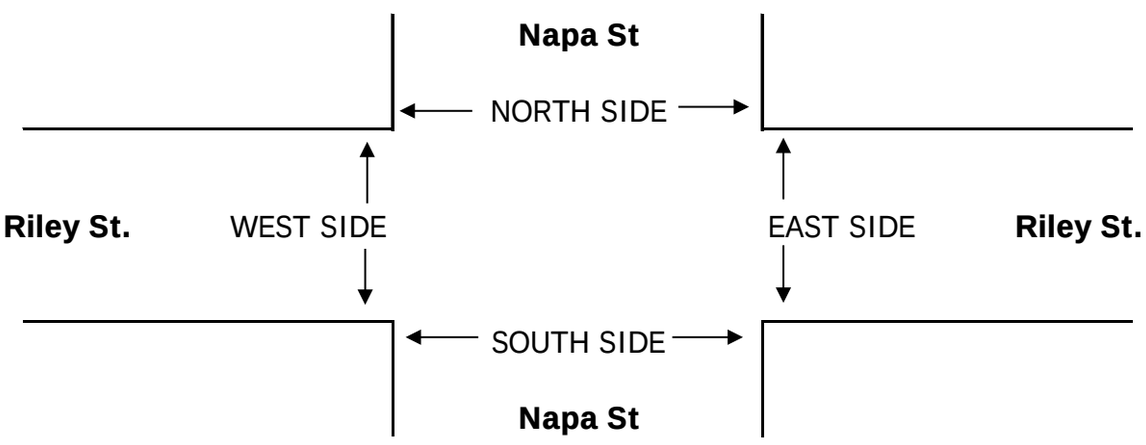
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		NORTHBOUND Napa St			SOUTHBOUND Napa St			EASTBOUND Riley St.			WESTBOUND Riley St.				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	9	80	2	15	52	13	18	3	7	1	2	9	211		4			4
	7:15 AM	6	101	2	6	38	11	15	1	6	2	1	13	202					0
	7:30 AM	7	123	4	10	40	12	30	7	7	3	3	15	261		3			3
	7:45 AM	4	145	8	10	71	14	20	2	6	0	4	14	298		5			5
	8:00 AM	8	109	4	11	66	15	18	4	8	1	1	13	258		4			4
	8:15 AM	9	119	7	11	53	22	30	5	9	1	3	6	275		6			6
	8:30 AM	10	153	19	12	57	13	27	4	6	1	0	9	311		5			5
	8:45 AM	11	126	10	9	69	9	15	2	4	2	2	12	271					0
	VOLUMES	64	956	56	84	446	109	173	28	53	11	16	91	2,087	0	27	0	0	27
	APPROACH %	6%	89%	5%	13%	70%	17%	68%	11%	21%	9%	14%	77%						
	APP/DEPART	1,076	/	1,220	639	/	510	254	/	168	118	/	189	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	31	526	38	44	247	64	95	15	29	3	8	42	1,142					
	APPROACH %	5%	88%	6%	12%	70%	18%	68%	11%	21%	6%	15%	79%						
	PEAK HR FACTOR		0.817			0.934			0.790			0.736		0.918					
	APP/DEPART	595	/	663	355	/	279	139	/	97	53	/	103	0					
PM	4:00 PM	10	89	5	6	127	33	22	4	14	13	2	21	346					0
	4:15 PM	12	86	2	9	136	32	19	1	15	4	2	18	336		1			1
	4:30 PM	11	93	4	17	140	39	14	4	18	3	2	12	357		4			4
	4:45 PM	11	87	1	9	124	37	19	3	20	9	1	10	331		2			2
	5:00 PM	5	101	3	17	133	19	35	8	14	5	0	15	355		5			5
	5:15 PM	12	101	10	10	160	23	18	6	13	6	3	17	379		1			1
	5:30 PM	12	96	10	9	157	22	39	5	18	12	8	14	402		2			2
	5:45 PM	9	78	4	15	130	17	22	0	14	5	2	13	309		2			2
	VOLUMES	82	731	39	92	1,107	222	188	31	126	57	20	120	2,815	0	17	0	0	17
	APPROACH %	10%	86%	5%	6%	78%	16%	54%	9%	37%	29%	10%	61%						
	APP/DEPART	852	/	1,039	1,421	/	1,290	345	/	162	197	/	324	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	40	385	24	45	574	101	111	22	65	32	12	56	1,467					
	APPROACH %	9%	86%	5%	6%	80%	14%	56%	11%	33%	32%	12%	56%						
	PEAK HR FACTOR		0.913			0.933			0.798			0.735		0.912					
	APP/DEPART	449	/	552	720	/	671	198	/	91	100	/	153	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0	1	1			2
	7:15 AM		1		4	5					0			1		1
	7:30 AM	4	1		2	7					0			3		3
	7:45 AM	2	1	3		6					0			2		2
	8:00 AM	1	2		1	4					0			2		2
	8:15 AM		3		2	5					0					0
	8:30 AM	2	3	1	1	7					0			1	2	3
	8:45 AM	1	1	2		4					0	1			1	2
	TOTAL	10	12	6	10	38	0	0	0	0	0	2	1	9	3	15
PM	4:00 PM	3	1	2		6					0					0
	4:15 PM	2		1	1	4					0			3		3
	4:30 PM		2	1	4	7					0			1		1
	4:45 PM	1		5	2	8					0				1	1
	5:00 PM	3		4		7					0			1	1	2
	5:15 PM	3	2		1	6					0			2	4	6
	5:30 PM	4		3	3	10					0			1	1	2
	5:45 PM	3	2	4	2	11					0				2	2
	TOTAL	19	7	20	13	59	0	0	0	0	0	0	0	8	9	17

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Goshen St
EAST & WEST: Friars Rd.

PROJECT #: PTD17-0908-02
LOCATION #: 17
CONTROL: 1-WAY STOP (SB)

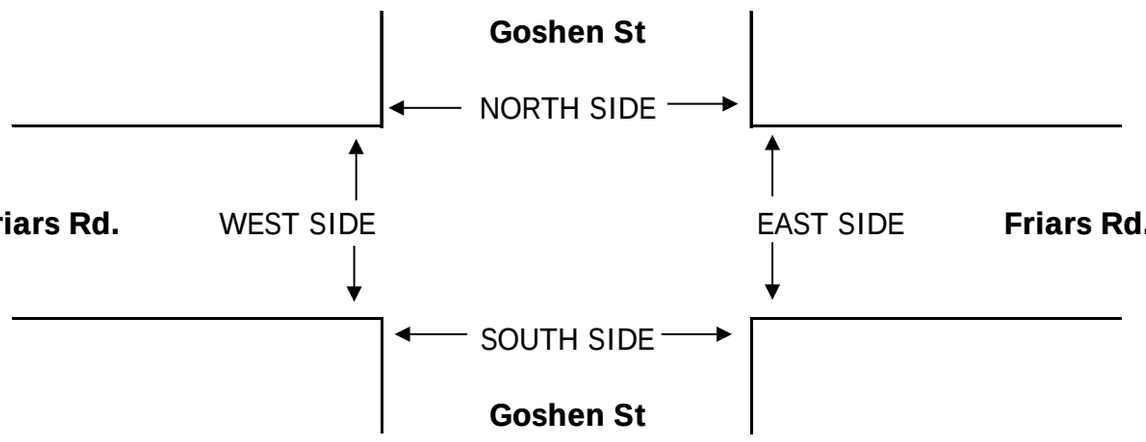
NOTES:

INCLUDE BIKE / PED

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		NORTHBOUND Goshen St			SOUTHBOUND Goshen St			EASTBOUND Friars Rd.			WESTBOUND Friars Rd.				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0.5	ST X	SR 0.5	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM				7		4	7	105			161	2	286					0
	7:15 AM				9		5	9	99			184	2	308					0
	7:30 AM				12		5	12	116			189	4	338					0
	7:45 AM				11		6	11	108			205	6	347					0
	8:00 AM				8		7	8	105			184	6	318					0
	8:15 AM				9		9	9	121			202	9	359					0
	8:30 AM				10		5	12	135			219	12	393					0
	8:45 AM				11		5	12	122			188	8	346					0
	VOLUMES	0	0	0	77	0	46	80	911	0	0	1,532	49	2,695	0	0	0	0	0
	APPROACH %	0%	0%	0%	63%	0%	37%	8%	92%	0%	0%	97%	3%						
	APP/DEPART	0	/	129	123	/	0	991	/	988	1,581	/	1,578	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	0	0	38	0	27	40	469	0	0	810	33	1,417					
	APPROACH %	0%	0%	0%	58%	0%	42%	8%	92%	0%	0%	96%	4%						
	PEAK HR FACTOR		0.000			0.903			0.866			0.912		0.901					
	APP/DEPART	0	/	73	65	/	0	509	/	507	843	/	837	0					
PM	4:00 PM				12		10	11	284			168	11	496					0
	4:15 PM				11		8	8	292			151	8	478					0
	4:30 PM				16		6	9	333			188	9	561					0
	4:45 PM				11		5	9	318			184	10	537					0
	5:00 PM				8		5	5	335			195	12	560					0
	5:15 PM				9		5	4	342			206	11	577					0
	5:30 PM				5		6	6	336			184	9	546					0
	5:45 PM				4		4	7	284			166	9	474					0
	VOLUMES	0	0	0	76	0	49	59	2,524	0	0	1,442	79	4,229	0	0	0	0	0
	APPROACH %	0%	0%	0%	61%	0%	39%	2%	98%	0%	0%	95%	5%						
	APP/DEPART	0	/	138	125	/	0	2,583	/	2,600	1,521	/	1,491	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	44	0	21	27	1,328	0	0	773	42	2,235					
	APPROACH %	0%	0%	0%	68%	0%	32%	2%	98%	0%	0%	95%	5%						
	PEAK HR FACTOR		0.000			0.739			0.979			0.939		0.968					
	APP/DEPART	0	/	69	65	/	0	1,355	/	1,372	815	/	794	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	2				2					0					0
	7:15 AM	2				2					0					0
	7:30 AM	6				6					0	1				1
	7:45 AM	7				7					0	1				1
	8:00 AM	5				5					0	2				2
	8:15 AM	4				4					0	3				3
	8:30 AM	5				5					0	3				3
	8:45 AM	6				6					0	2				2
	TOTAL	37	0	0	0	37	0	0	0	0	0	12	0	0	0	12
PM	4:00 PM	1				1					0					0
	4:15 PM	1				1					0	1				1
	4:30 PM	6				6					0	1				1
	4:45 PM	8				8					0	1			1	2
	5:00 PM	4				4					0	2				2
	5:15 PM	5				5					0	3				3
	5:30 PM	5				5					0	3				3
	5:45 PM	6				6					0	2				2
	TOTAL	36	0	0	0	36	0	0	0	0	0	13	0	0	1	14

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

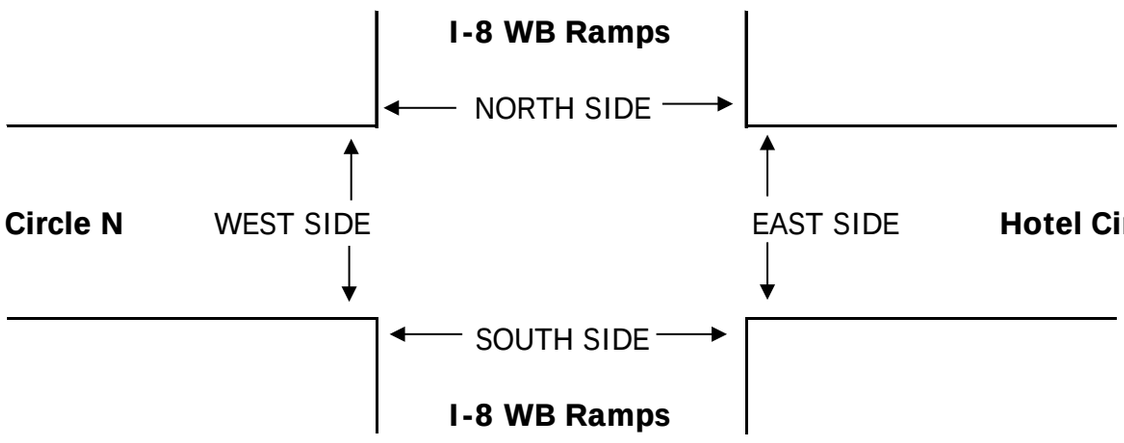
LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: I-8 WB Ramps
EAST & WEST: Hotel Circle N

PROJECT #: PTD17-0908-02
LOCATION #: 19
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND I-8 WB Ramps			SOUTHBOUND I-8 WB Ramps			EASTBOUND Hotel Circle N			WESTBOUND Hotel Circle N				U-TURNS				
	LANES:	NL 0	NT 2	NR 1	SL 1	ST X	SR 1	EL X	ET X	ER X	WL X	WT 1	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	2	158	12	22		21					51	33	299					0
	7:15 AM	2	188	12	28		28					50	33	341					0
	7:30 AM	4	235	11	44		22					55	48	419					0
	7:45 AM	2	242	16	48		25					65	88	486					0
	8:00 AM	2	226	18	37		21					51	95	450					0
	8:15 AM	2	208	11	43		33					50	46	393					0
	8:30 AM	4	195	17	33		48					45	51	393					0
	8:45 AM	4	161	12	39		44					37	44	341					0
	VOLUMES	22	1,613	109	294	0	242	0	0	0	0	404	438	3,122	0	0	0	0	0
	APPROACH %	1%	92%	6%	55%	0%	45%	0%	0%	0%	0%	48%	52%						
	APP/DEPART	1,744	/	2,051	536	/	0	0	/	403	842	/	668	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	10	911	56	172	0	101	0	0	0	0	221	277	1,748					
	APPROACH %	1%	93%	6%	63%	0%	37%	0%	0%	0%	0%	44%	56%						
	PEAK HR FACTOR		0.939			0.898			0.000			0.814		0.899					
	APP/DEPART	977	/	1,188	273	/	0	0	/	228	498	/	332	0					
PM	4:00 PM	2	88	21	40		30					33	44	258					0
	4:15 PM	1	77	30	41		30					31	40	250					0
	4:30 PM	1	68	33	55		33					30	46	266					0
	4:45 PM	1	88	28	60		28					28	48	281					0
	5:00 PM	1	95	21	55		29					44	51	296					0
	5:15 PM	1	110	22	68		33					41	50	325					0
	5:30 PM	2	108	26	51		31					32	43	293					0
	5:45 PM	0	98	22	55		30					33	44	282					0
	VOLUMES	9	732	203	425	0	244	0	0	0	0	272	366	2,251	0	0	0	0	0
	APPROACH %	1%	78%	22%	64%	0%	36%	0%	0%	0%	0%	43%	57%						
	APP/DEPART	944	/	1,098	669	/	0	0	/	628	638	/	525	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	4	411	91	229	0	123	0	0	0	0	150	188	1,196					
	APPROACH %	1%	81%	18%	65%	0%	35%	0%	0%	0%	0%	44%	56%						
	PEAK HR FACTOR		0.930			0.871			0.000			0.889		0.920					
	APP/DEPART	506	/	599	352	/	0	0	/	320	338	/	277	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Hotel Circle Place
EAST & WEST: Hotel Circle N

PROJECT #: PTD17-0908-02
LOCATION #: 20
CONTROL: SIGNAL

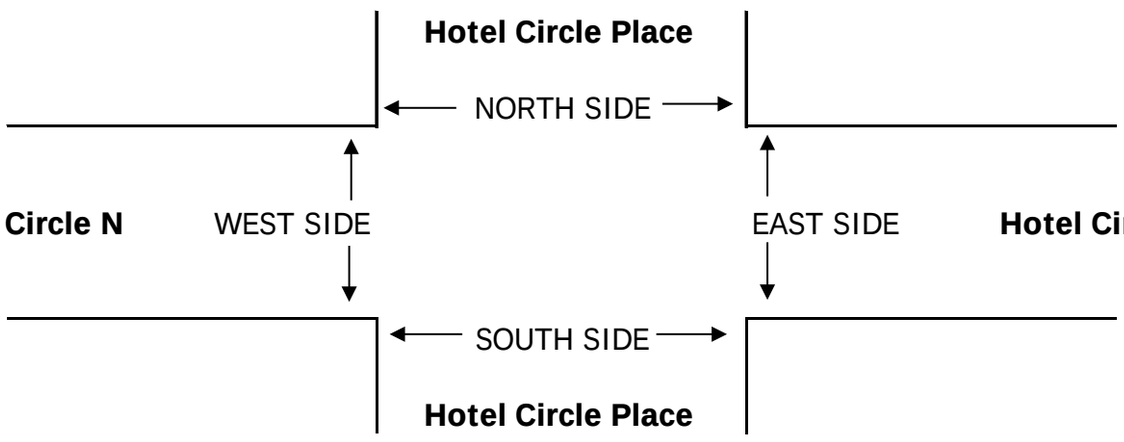
NOTES:

INCLUDE BIKE / PED

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		NORTHBOUND Hotel Circle Place			SOUTHBOUND Hotel Circle Place			EASTBOUND Hotel Circle N			WESTBOUND Hotel Circle N				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	70	4	2	0	0	10	6	2	28	0	4	0	126					0
	7:15 AM	60	6	4	0	1	8	9	2	33	0	1	0	124			1		1
	7:30 AM	105	11	0	0	1	12	9	4	45	0	2	1	190			1		1
	7:45 AM	135	8	1	0	2	15	10	6	41	1	0	0	219			2		2
	8:00 AM	144	9	1	1	7	11	12	8	35	1	2	0	231					0
	8:15 AM	80	10	2	0	4	9	10	9	32	2	4	1	163					0
	8:30 AM	77	5	4	1	5	10	8	9	33	0	1	0	153			2		2
	8:45 AM	65	4	4	0	6	5	11	12	27	0	0	0	134					0
	VOLUMES	736	57	18	2	26	80	75	52	274	4	14	2	1,340	0	0	6	0	6
	APPROACH %	91%	7%	2%	2%	24%	74%	19%	13%	68%	20%	70%	10%						
	APP/DEPART	811	/	134	108	/	304	401	/	72	20	/	830	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	464	38	4	1	14	47	41	27	153	4	8	2	803					
	APPROACH %	92%	8%	1%	2%	23%	76%	19%	12%	69%	29%	57%	14%						
	PEAK HR FACTOR		0.821			0.816			0.953			0.500		0.869					
	APP/DEPART	506	/	81	62	/	171	221	/	32	14	/	519	0					
PM	4:00 PM	55	5	4	0	9	6	8	9	41	1	6	0	144					0
	4:15 PM	51	8	5	0	5	7	7	10	55	1	9	0	158					0
	4:30 PM	50	8	4	0	5	7	9	5	68	1	9	0	166			2		2
	4:45 PM	68	7	8	1	5	9	9	4	70	0	9	1	191			1		1
	5:00 PM	70	9	5	0	0	10	15	4	55	4	12	0	184					0
	5:15 PM	68	10	1	0	8	12	18	9	51	2	11	1	191					0
	5:30 PM	51	5	4	0	9	11	20	2	68	1	11	0	182			1		1
	5:45 PM	55	4	1	1	4	18	11	2	66	0	8	0	170					0
	VOLUMES	468	56	32	2	45	80	97	45	474	10	75	2	1,386	0	0	4	0	4
	APPROACH %	84%	10%	6%	2%	35%	63%	16%	7%	77%	11%	86%	2%						
	APP/DEPART	556	/	155	127	/	529	616	/	79	87	/	623	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	257	31	18	1	22	42	62	19	244	7	43	2	748					
	APPROACH %	84%	10%	6%	2%	34%	65%	19%	6%	75%	13%	83%	4%						
	PEAK HR FACTOR		0.911			0.813			0.903			0.813		0.979					
	APP/DEPART	306	/	95	65	/	273	325	/	38	52	/	342	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM			1		1					0					0
	7:30 AM			1		1					0					0
	7:45 AM			1		1					0					0
	8:00 AM			2		2					0			2		2
	8:15 AM			1		1					0			1		1
	8:30 AM			2		2					0			2		2
	8:45 AM			3		3					0					0
	TOTAL	0	0	11	0	11	0	0	0	0	0	0	0	5	0	5
PM	4:00 PM			1		1					0					0
	4:15 PM			1		1					0					0
	4:30 PM			1		1					0					0
	4:45 PM			1		1					0			2		2
	5:00 PM			2		2					0			2		2
	5:15 PM			3		3					0			2		2
	5:30 PM					0					0			1		1
	5:45 PM			3		3					0					0
	TOTAL	0	0	12	0	12	0	0	0	0	0	0	0	7	0	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Via Las Cumbres
EAST & WEST: Linda Vista Rd

PROJECT #: PTD17-0908-02
LOCATION #: 21
CONTROL: SIGNAL

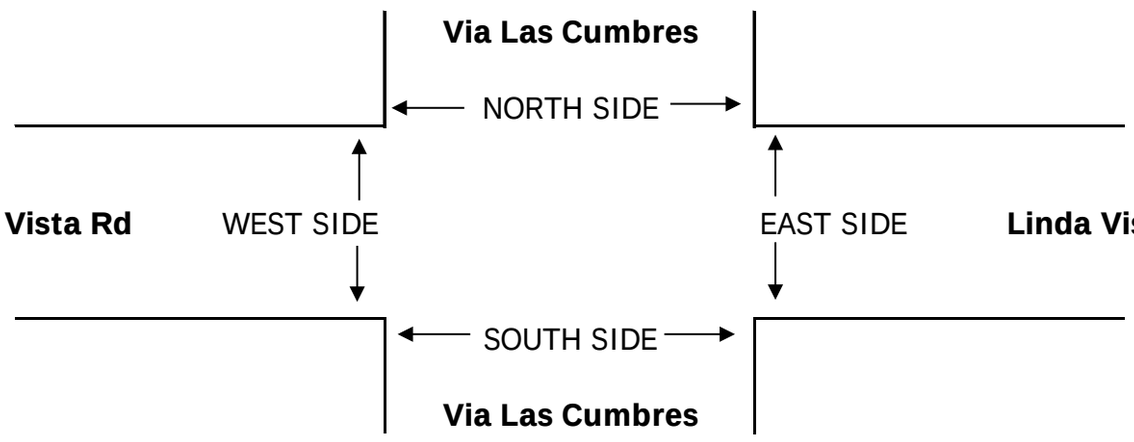
NOTES:
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		NORTHBOUND Via Las Cumbres			SOUTHBOUND Via Las Cumbres			EASTBOUND Linda Vista Rd			WESTBOUND Linda Vista Rd			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	25	3	28	5	16	15	7	54	9	18	104	0	284
	7:15 AM	46	10	35	9	7	13	3	66	8	31	137	5	370
	7:30 AM	69	7	46	13	12	19	4	103	17	22	123	3	438
	7:45 AM	61	7	33	6	13	15	9	86	24	24	176	5	459
	8:00 AM	49	3	49	4	4	8	1	103	16	30	147	1	415
	8:15 AM	71	8	63	8	7	14	7	132	15	41	170	9	545
	8:30 AM	74	7	59	13	7	14	8	109	15	41	205	4	556
	8:45 AM	52	7	28	3	9	5	7	71	14	26	161	9	392
	VOLUMES	447	52	341	61	75	103	46	724	118	233	1,223	36	3,459
	APPROACH %	53%	6%	41%	26%	31%	43%	5%	82%	13%	16%	82%	2%	
	APP/DEPART	840	/	134	239	/	426	888	/	1,126	1,492	/	1,773	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	255	25	204	31	31	51	25	430	70	136	698	19	1,975
	APPROACH %	53%	5%	42%	27%	27%	45%	5%	82%	13%	16%	82%	2%	
	PEAK HR FACTOR		0.852			0.831			0.852			0.853		0.888
	APP/DEPART	484	/	69	113	/	237	525	/	665	853	/	1,004	0
PM	4:00 PM	33	9	43	4	12	7	11	170	60	40	147	7	543
	4:15 PM	22	7	38	7	7	5	13	153	44	47	170	7	520
	4:30 PM	25	9	42	3	7	6	9	116	59	43	175	9	503
	4:45 PM	42	8	40	6	9	13	11	138	55	36	164	11	533
	5:00 PM	25	10	34	4	6	5	10	148	68	44	167	10	531
	5:15 PM	31	6	45	5	14	8	9	186	90	42	203	7	646
	5:30 PM	24	8	50	1	8	8	13	175	81	61	165	10	604
	5:45 PM	21	8	48	11	6	9	17	138	45	57	178	9	547
	VOLUMES	223	65	340	41	69	61	93	1,224	502	370	1,369	70	4,427
	APPROACH %	36%	10%	54%	24%	40%	36%	5%	67%	28%	20%	76%	4%	
	APP/DEPART	628	/	228	171	/	941	1,819	/	1,605	1,809	/	1,653	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	101	32	177	21	34	30	49	647	284	204	713	36	2,328
	APPROACH %	33%	10%	57%	25%	40%	35%	5%	66%	29%	21%	75%	4%	
	PEAK HR FACTOR		0.945			0.787			0.860			0.945		0.901
	APP/DEPART	310	/	117	85	/	522	980	/	845	953	/	844	0

U-TURNS					
NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0



		PEDESTRIAN CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM	3	2	1		6
	7:15 AM	1	2	5	1	9
	7:30 AM	1	2	5	3	11
	7:45 AM	5	2	2		9
	8:00 AM	4	2	2		8
	8:15 AM	3	1	1	2	7
	8:30 AM	1		3	4	8
	8:45 AM		5		2	7
	TOTAL	18	16	19	12	65
PM	4:00 PM	1	1		1	3
	4:15 PM		5		1	6
	4:30 PM	1	1	22	2	26
	4:45 PM	1	3	2	1	7
	5:00 PM	3	2	2	1	8
	5:15 PM	7	4	5		16
	5:30 PM	2	2	1	3	8
	5:45 PM	1	2	1		4
	TOTAL	16	20	33	9	78

PEDESTRIAN ACTIVATIONS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
3				3
1				1
2	1			3
				0
1	1			2
3				3
1	1			2
6	2			8
17	5	0	0	22
2				2
	2			2
1	2			3
	3			3
1				1
2	4			6
1	6			7
1	2			3
8	19	0	0	27

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:				
9/6/17	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
WEDNESDAY	NORTH & SOUTH:	Linda Vista Rd	LOCATION #:	22
	EAST & WEST:	Alcala Knolls	CONTROL:	SIGNAL

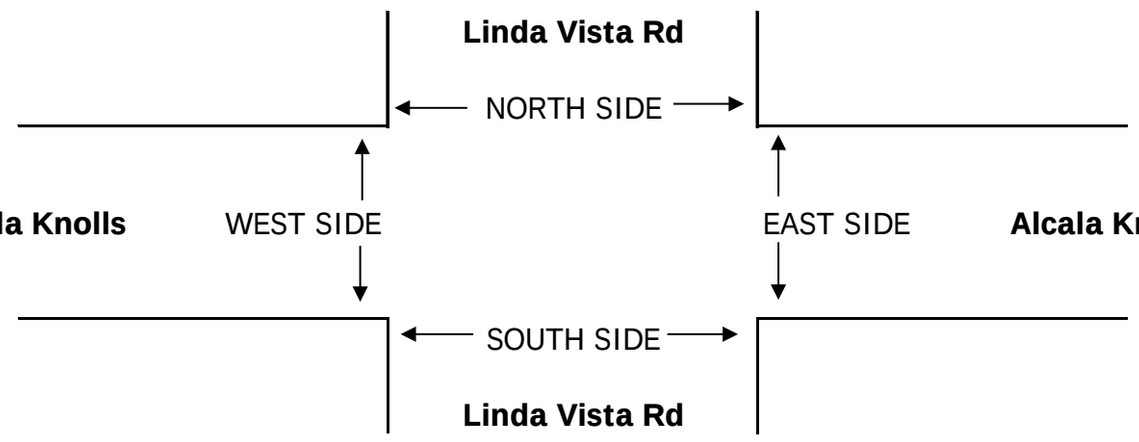
NOTES:

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		NORTHBOUND Linda Vista Rd			SOUTHBOUND Linda Vista Rd			EASTBOUND Alcala Knolls			WESTBOUND Alcala Knolls				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	4	66	2	3	107	5	2	0	7	14	1	7	218					0
	7:15 AM	2	81	7	3	168	4	2	0	6	11	0	4	288					0
	7:30 AM	5	117	9	6	150	0	2	0	6	13	0	3	311					0
	7:45 AM	4	106	2	7	109	2	4	0	8	12	1	4	259					0
	8:00 AM	4	136	7	12	158	4	2	0	7	29	0	8	367					0
	8:15 AM	8	175	0	33	163	8	2	1	14	41	0	20	465					0
	8:30 AM	12	177	1	23	175	8	4	2	14	55	2	21	494					0
	8:45 AM	9	85	1	7	148	14	1	0	12	28	5	6	316					0
	VOLUMES	48	943	29	94	1,178	45	19	3	74	203	9	73	2,718	0	0	0	0	0
	APPROACH %	5%	92%	3%	7%	89%	3%	20%	3%	77%	71%	3%	26%						
	APP/DEPART	1,020	/	1,035	1,317	/	1,455	96	/	126	285	/	102	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	33	573	9	75	644	34	9	3	47	153	7	55	1,642					
	APPROACH %	5%	93%	1%	10%	86%	5%	15%	5%	80%	71%	3%	26%						
	PEAK HR FACTOR		0.809			0.914			0.738			0.689		0.831					
	APP/DEPART	615	/	637	753	/	844	59	/	87	215	/	74	0					
PM	4:00 PM	12	203	9	2	148	2	2	0	12	14	0	13	417					0
	4:15 PM	1	191	4	8	204	4	6	0	9	12	0	11	450		1			1
	4:30 PM	6	185	4	4	200	2	3	0	8	15	0	4	431					0
	4:45 PM	7	187	4	2	197	1	5	0	3	3	0	4	413					0
	5:00 PM	4	201	3	3	205	4	1	0	5	4	0	1	431					0
	5:15 PM	10	214	4	6	230	0	1	0	2	12	0	7	486					0
	5:30 PM	8	221	9	8	214	3	4	1	2	16	1	10	497					0
	5:45 PM	10	191	10	4	236	1	2	0	8	4	0	9	475					0
	VOLUMES	58	1,593	47	37	1,634	17	24	1	49	80	1	59	3,600	0	1	0	0	1
	APPROACH %	3%	94%	3%	2%	97%	1%	32%	1%	66%	57%	1%	42%						
	APP/DEPART	1,698	/	1,676	1,688	/	1,763	74	/	85	140	/	76	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	32	827	26	21	885	8	8	1	17	36	1	27	1,889					
	APPROACH %	4%	93%	3%	2%	97%	1%	31%	4%	65%	56%	2%	42%						
	PEAK HR FACTOR		0.930			0.948			0.650			0.593		0.950					
	APP/DEPART	885	/	862	914	/	938	26	/	48	64	/	41	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	5	2	4	5	16					0					0
	7:15 AM	2	4	9	4	19					0					0
	7:30 AM		8	2		10					0					0
	7:45 AM	4	8	2	4	18					0			3		3
	8:00 AM	4	2			6					0			2		2
	8:15 AM	4	1			5					0			2		2
	8:30 AM	1	10	1	3	15					0			1		1
	8:45 AM	4	19	4	4	31					0				1	1
	TOTAL	24	54	22	20	120	0	0	0	0	0	0	0	8	1	9
PM	4:00 PM	4	2	5	2	13					0				1	1
	4:15 PM	2	3	5	1	11					0					0
	4:30 PM	1		6		7					0			2		2
	4:45 PM	3	3	3	1	10					0			3		3
	5:00 PM	6		3		9					0					0
	5:15 PM	1		5		6					0			2		2
	5:30 PM	2	1	1	1	5					0			5		5
	5:45 PM	2	3	3		8					0			2	1	3
	TOTAL	21	12	31	5	69	0	0	0	0	0	0	0	14	2	16

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Linda Vista Rd
EAST & WEST: Glidden

PROJECT #: PTD17-0908-02
LOCATION #: 23
CONTROL: SIGNAL

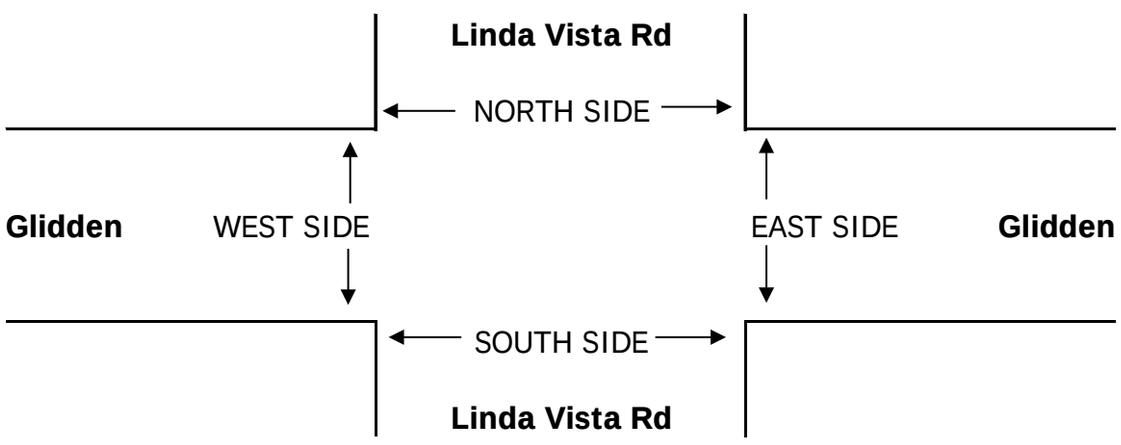
NOTES:

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		NORTHBOUND Linda Vista Rd			SOUTHBOUND Linda Vista Rd			EASTBOUND Glidden			WESTBOUND Glidden				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	62	4	1	107	7	6	0	4	4	10	0	205					0
	7:15 AM	2	97	6	0	142	7	7	1	4	12	0	5	283					0
	7:30 AM	2	114	12	3	135	15	15	2	4	16	0	18	336					0
	7:45 AM	1	102	12	7	156	8	13	0	7	22	3	27	358					0
	8:00 AM	5	129	6	4	169	5	9	0	8	6	0	8	349					0
	8:15 AM	6	117	9	9	185	9	10	0	11	11	0	9	376					0
	8:30 AM	5	140	3	2	204	1	7	0	4	9	0	2	377					0
	8:45 AM	3	91	4	4	141	6	9	1	6	6	0	6	277					0
	VOLUMES	24	852	56	30	1,239	58	76	4	48	86	13	75	2,561	0	0	0	0	0
	APPROACH %	3%	91%	6%	2%	93%	4%	59%	3%	38%	49%	7%	43%						
	APP/DEPART	932	/	1,003	1,327	/	1,373	128	/	90	174	/	95	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	17	488	30	22	714	23	39	0	30	48	3	46	1,460					
	APPROACH %	3%	91%	6%	3%	94%	3%	57%	0%	43%	49%	3%	47%						
	PEAK HR FACTOR		0.904			0.917			0.821			0.466		0.968					
	APP/DEPART	535	/	573	759	/	792	69	/	52	97	/	43	0					
PM	4:00 PM	5	197	7	8	147	3	13	3	3	3	1	2	392					0
	4:15 PM	2	192	6	9	212	11	9	0	3	6	0	6	456					0
	4:30 PM	6	169	7	8	208	10	8	0	2	8	1	6	433					0
	4:45 PM	9	165	8	6	190	6	5	1	2	5	0	10	407	1				1
	5:00 PM	2	174	7	6	205	8	11	2	2	6	0	8	431					0
	5:15 PM	7	226	4	11	256	7	7	0	4	8	1	6	537	1				1
	5:30 PM	7	211	7	12	213	8	6	0	5	9	2	7	487					0
	5:45 PM	12	172	5	4	256	4	8	1	5	9	0	8	484					0
	VOLUMES	50	1,506	51	64	1,687	57	67	7	26	54	5	53	3,627	2	0	0	0	2
	APPROACH %	3%	94%	3%	4%	93%	3%	67%	7%	26%	48%	4%	47%						
	APP/DEPART	1,607	/	1,626	1,808	/	1,767	100	/	122	112	/	112	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	28	783	23	33	930	27	32	3	16	32	3	29	1,939					
	APPROACH %	3%	94%	3%	3%	94%	3%	63%	6%	31%	50%	5%	45%						
	PEAK HR FACTOR		0.880			0.903			0.850			0.889		0.903					
	APP/DEPART	834	/	844	990	/	978	51	/	59	64	/	58	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM				1	1					0					0
	7:15 AM		2	1	4	7					0				1	1
	7:30 AM			3	1	4					0				2	2
	7:45 AM	1		3	1	5					0			3		3
	8:00 AM		1		3	4					0			1		1
	8:15 AM		2	1	4	7					0					0
	8:30 AM	2	1	1	3	7					0			1	1	2
	8:45 AM	1	1	3		5					0			2		2
	TOTAL	4	7	12	17	40	0	0	0	0	0	0	0	7	4	11
PM	4:00 PM	2		3	4	9					0					0
	4:15 PM		2		3	5					0			2	1	3
	4:30 PM	2	1	1	2	6					0				2	2
	4:45 PM	1	1	2		4					0			2		2
	5:00 PM		1	4	1	6					0					0
	5:15 PM	1			2	3					0			1		1
	5:30 PM	1		3		4					0			6	1	7
	5:45 PM	1	3	2	1	7					0			2	1	3
	TOTAL	8	8	15	13	44	0	0	0	0	0	0	0	13	5	18

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/6/17 WEDNESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Linda Vista Rd
EAST & WEST: Kramer St

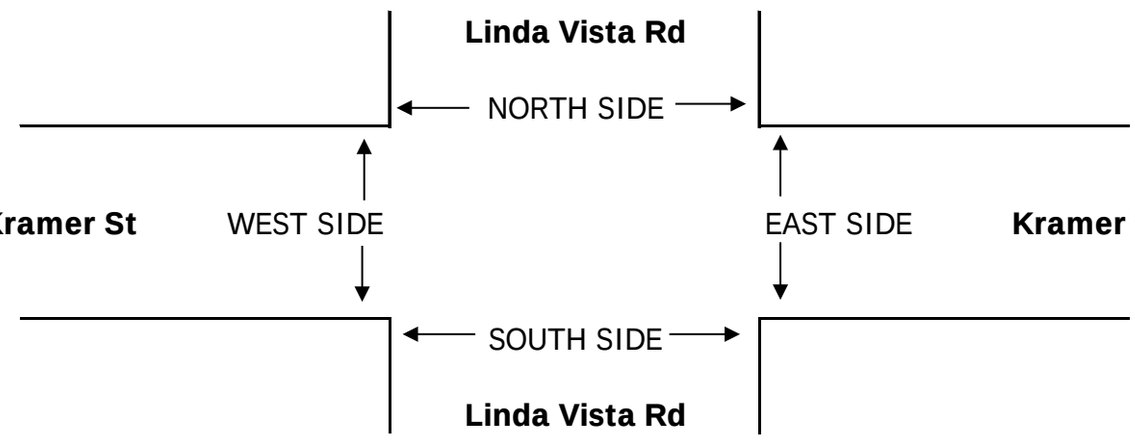
PROJECT #: PTD17-0908-02
LOCATION #: 26
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND Linda Vista Rd			SOUTHBOUND Linda Vista Rd			EASTBOUND Kramer St			WESTBOUND Kramer St				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	1	64	9	2	88	2	4	3	11	13	2	3	202					0
	7:15 AM	0	100	9	11	128	2	7	11	10	14	1	8	301					0
	7:30 AM	8	122	15	30	122	2	6	34	6	10	4	8	367					0
	7:45 AM	4	126	13	9	134	3	6	8	11	19	10	13	356					0
	8:00 AM	6	116	16	6	132	0	12	5	13	16	6	12	340					0
	8:15 AM	1	125	13	2	164	3	3	1	6	25	1	6	350					0
	8:30 AM	3	119	20	0	196	1	5	4	11	15	1	6	381					0
	8:45 AM	1	95	13	4	136	4	1	4	3	9	0	1	271					0
	VOLUMES	24	867	108	64	1,100	17	44	70	71	121	25	57	2,568	0	0	0	0	0
	APPROACH %	2%	87%	11%	5%	93%	1%	24%	38%	38%	60%	12%	28%						
	APP/DEPART	999	/	968	1,181	/	1,292	185	/	242	203	/	66	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	14	486	62	17	626	7	26	18	41	75	18	37	1,427					
	APPROACH %	2%	86%	11%	3%	96%	1%	31%	21%	48%	58%	14%	28%						
	PEAK HR FACTOR		0.983			0.825			0.708			0.774		0.936					
	APP/DEPART	562	/	549	650	/	742	85	/	97	130	/	39	0					
PM	4:00 PM	4	187	16	9	145	4	2	5	5	7	3	7	394					0
	4:15 PM	8	192	29	3	220	3	4	1	2	13	3	5	483					0
	4:30 PM	5	178	16	7	214	3	4	5	8	9	6	3	458					0
	4:45 PM	7	170	12	11	190	1	1	4	7	8	3	9	423		1			1
	5:00 PM	9	165	15	8	200	3	3	9	5	13	3	5	438		1			1
	5:15 PM	7	222	20	9	221	3	2	7	6	14	7	4	522					0
	5:30 PM	7	183	21	10	232	4	4	5	4	10	1	6	487					0
	5:45 PM	3	174	11	7	242	2	2	3	2	12	3	3	464					0
	VOLUMES	50	1,471	140	64	1,664	23	22	39	39	86	29	42	3,669	0	2	0	0	2
	APPROACH %	3%	89%	8%	4%	95%	1%	22%	39%	39%	55%	18%	27%						
	APP/DEPART	1,661	/	1,535	1,751	/	1,789	100	/	243	157	/	102	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	26	744	67	34	895	12	11	24	17	49	14	18	1,911					
	APPROACH %	3%	89%	8%	4%	95%	1%	21%	46%	33%	60%	17%	22%						
	PEAK HR FACTOR		0.840			0.937			0.765			0.810		0.915					
	APP/DEPART	837	/	773	941	/	961	52	/	125	81	/	52	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM		1	4		5					0					0
	7:15 AM	5	1	4		10					0					0
	7:30 AM	17	2		3	22					0			1	1	2
	7:45 AM	6	1	1	1	9					0				3	3
	8:00 AM	2		2		4					0				1	1
	8:15 AM			3	2	5					0				1	1
	8:30 AM				1	1					0					0
	8:45 AM	1		2	2	5					0			2		2
	TOTAL	31	5	16	9	61	0	0	0	0	0	0	0	3	6	9
PM	4:00 PM		3	3		6					0			1		1
	4:15 PM	1		1	2	4					0			1	1	2
	4:30 PM			1	4	5					0			1	1	2
	4:45 PM	4			1	5					0				3	3
	5:00 PM	1		1		2					0					0
	5:15 PM		1			1					0					0
	5:30 PM		1			1					0					0
	5:45 PM			1		1					0					0
	TOTAL	6	5	7	7	25	0	0	0	0	0	0	0	3	5	8

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Avenida Del Rio
EAST & WEST: Friars Rd

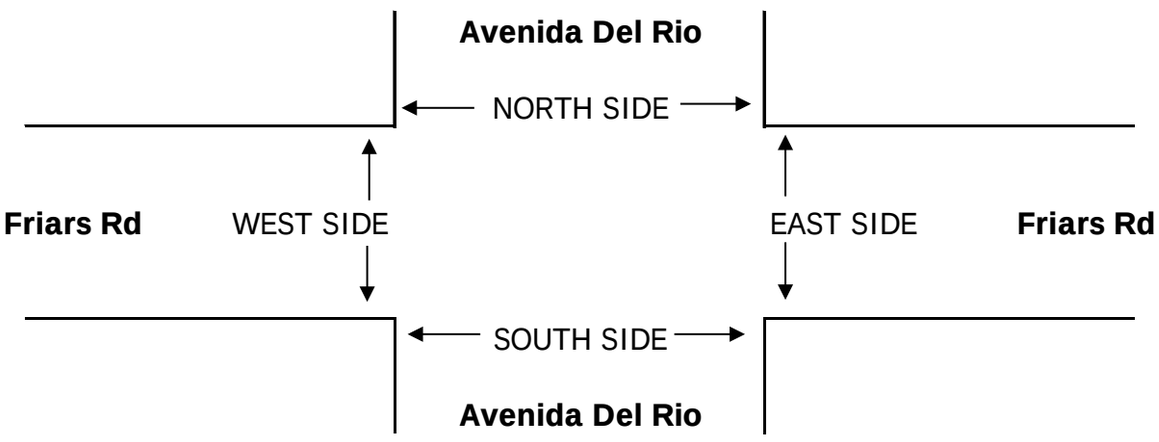
PROJECT #: PTD17-0908-02
LOCATION #: 28
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Friars Rd			WESTBOUND Friars Rd				U-TURNS				
	LANES:	NL X	NT X	NR 1	SL X	ST X	SR X	EL X	ET 3	ER 0	WL X	WT 5	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM			12					145	12		280		449					0
	7:15 AM			9					178	9		333		529					0
	7:30 AM			12					217	12		345		586					0
	7:45 AM			11					205	11		368		595					0
	8:00 AM			15					189	15		416		635					0
	8:15 AM			9					206	9		442		666					0
	8:30 AM			10					184	19		474		687					0
	8:45 AM			9					191	16		484		700					0
	VOLUMES	0	0	87	0	0	0	0	1,515	103	0	3,142	0	4,847	0	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	94%	6%	0%	100%	0%						
	APP/DEPART	87	/	0	0	/	103	1,618	/	1,602	3,142	/	3,142	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	43	0	0	0	0	770	59	0	1,816	0	2,688					
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	93%	7%	0%	100%	0%						
	PEAK HR FACTOR		0.717			0.000			0.964			0.938		0.960					
	APP/DEPART	43	/	0	0	/	59	829	/	813	1,816	/	1,816	0					
PM	4:00 PM			68					489	28		370		955					0
	4:15 PM			77					551	21		388		1,037					0
	4:30 PM			98					535	22		384		1,039					0
	4:45 PM			80					509	30		444		1,063					0
	5:00 PM			80					526	33		435		1,074					0
	5:15 PM			88					555	28		406		1,077					0
	5:30 PM			74					509	28		419		1,030					0
	5:45 PM			74					498	20		421		1,013					0
	VOLUMES	0	0	639	0	0	0	0	4,172	210	0	3,267	0	8,288	0	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	95%	5%	0%	100%	0%						
	APP/DEPART	639	/	0	0	/	210	4,382	/	4,811	3,267	/	3,267	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	346	0	0	0	0	2,125	113	0	1,669	0	4,253					
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	95%	5%	0%	100%	0%						
	PEAK HR FACTOR		0.883			0.000			0.960			0.940		0.987					
	APP/DEPART	346	/	0	0	/	113	2,238	/	2,471	1,669	/	1,669	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0		1			1
	7:30 AM		2			2					0					0
	7:45 AM					0					0					0
	8:00 AM		2			2					0					0
	8:15 AM		2			2					0		1			1
	8:30 AM		3			3					0		2			2
	8:45 AM		1			1					0					0
	TOTAL	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4
PM	4:00 PM					0					0					0
	4:15 PM		5			5					0					0
	4:30 PM		2			2					0					0
	4:45 PM					0					0					0
	5:00 PM		3			3					0		1			1
	5:15 PM		3			3					0		1			1
	5:30 PM		4			4					0		2			2
	5:45 PM					0					0					0
	TOTAL	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Ulric St.
EAST & WEST: SR-163 SB On-Ramp

PROJECT #: PTD17-0908-02
LOCATION #: 40
CONTROL: SIGNAL

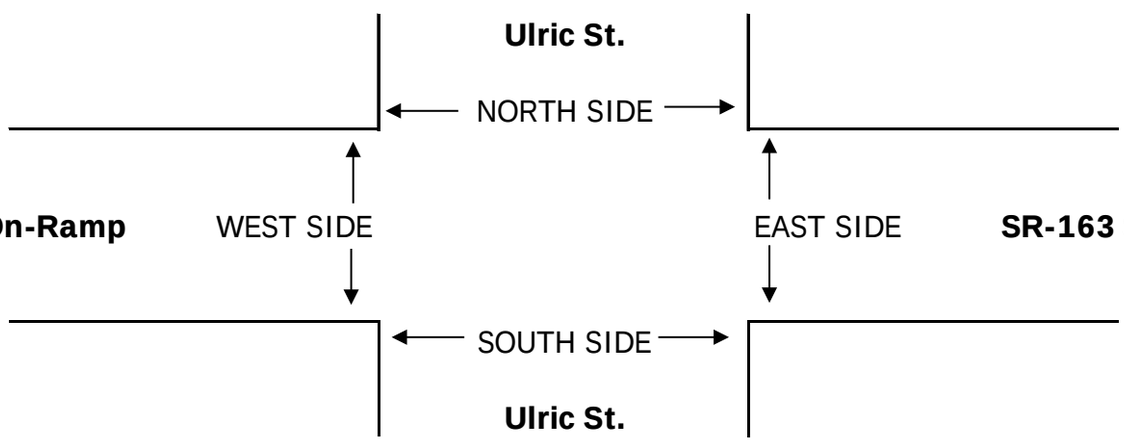
NOTES:

INCLUDE BIKE / PED

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	NORTHBOUND Ulric St.			SOUTHBOUND Ulric St.			EASTBOUND SR-163 SB On-Ramp			WESTBOUND SR-163 SB On-Ramp				U-TURNS				
LANES:	NL X	NT 2	NR X	SL 1	ST 2	SR X	EL X	ET X	ER X	WL X	WT X	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
7:00 AM		105		121	70							105	401					0
7:15 AM		121		116	84							121	442					0
7:30 AM		151		111	97							111	470					0
7:45 AM		168		135	103							135	541					0
8:00 AM		151		124	111							141	527					0
8:15 AM		144		111	111							111	477					0
8:30 AM		121		108	80							108	417					0
8:45 AM		111		111	77							91	390					0
AM VOLUMES	0	1,072	0	937	733	0	0	0	0	0	0	923	3,665	0	0	0	0	0
AM APPROACH %	0%	100%	0%	56%	44%	0%	0%	0%	0%	0%	0%	100%						
AM APP/DEPART	1,072	/	1,995	1,670	/	733	0	/	937	923	/	0	0					
AM BEGIN PEAK HR		7:30 AM																
AM VOLUMES	0	614	0	481	422	0	0	0	0	0	0	498	2,015					
AM APPROACH %	0%	100%	0%	53%	47%	0%	0%	0%	0%	0%	0%	100%						
AM PEAK HR FACTOR		0.914			0.949			0.000			0.883		0.931					
AM APP/DEPART	614	/	1,112	903	/	422	0	/	481	498	/	0	0					
4:00 PM		189		70	81							134	474					0
4:15 PM		205		84	94							151	534					0
4:30 PM		219		91	111							177	598					0
4:45 PM		212		84	128							161	585					0
5:00 PM		218		98	135							154	605					0
5:15 PM		206		111	168							155	640					0
5:30 PM		184		103	177							141	605					0
5:45 PM		194		94	151							107	546					0
PM VOLUMES	0	1,627	0	735	1,045	0	0	0	0	0	0	1,180	4,587	0	0	0	0	0
PM APPROACH %	0%	100%	0%	41%	59%	0%	0%	0%	0%	0%	0%	100%						
PM APP/DEPART	1,627	/	2,807	1,780	/	1,045	0	/	735	1,180	/	0	0					
PM BEGIN PEAK HR		4:45 PM																
PM VOLUMES	0	820	0	396	608	0	0	0	0	0	0	611	2,435					
PM APPROACH %	0%	100%	0%	39%	61%	0%	0%	0%	0%	0%	0%	100%						
PM PEAK HR FACTOR		0.940			0.896			0.000			0.949		0.951					
PM APP/DEPART	820	/	1,431	1,004	/	608	0	/	396	611	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM			1		1					0			2		2
	8:00 AM					0					0			1		1
	8:15 AM			1		1					0			1		1
	8:30 AM			2		2					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	4	0	4	0	0	0	0	0	0	0	4	0	4
PM	4:00 PM					0					0					0
	4:15 PM					0					0			1		1
	4:30 PM			1		1					0					0
	4:45 PM					0					0			1		1
	5:00 PM			1		1					0			2		2
	5:15 PM			2		2					0			2		2
	5:30 PM					0					0					0
	5:45 PM			1		1					0					0
	TOTAL	0	0	5	0	5	0	0	0	0	0	0	0	6	0	6

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:				
9/12/17	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
TUESDAY	NORTH & SOUTH:	Fashion Valley Rd	LOCATION #:	30
	EAST & WEST:	Fashion Valley Drwy	CONTROL:	SIGNAL

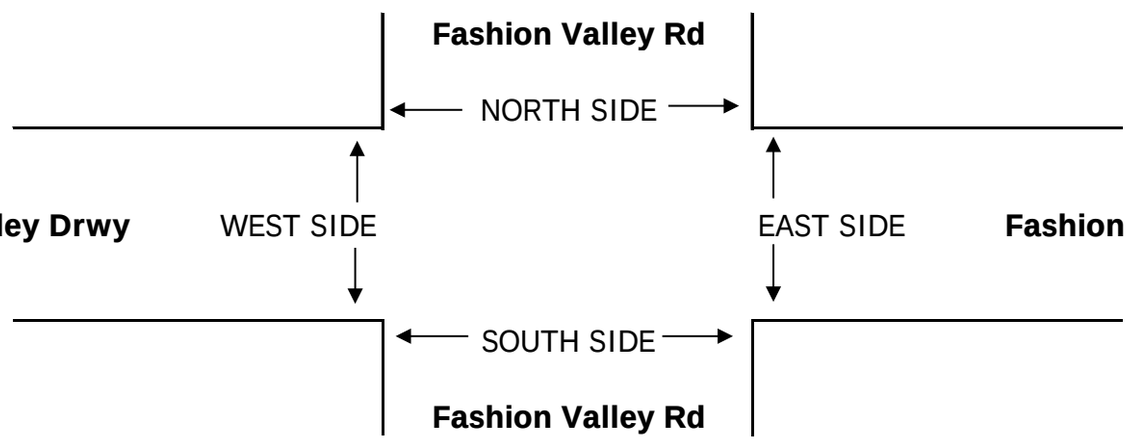
NOTES:

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		NORTHBOUND Fashion Valley Rd			SOUTHBOUND Fashion Valley Rd			EASTBOUND Fashion Valley Drwy			WESTBOUND Fashion Valley Drwy				U-TURNS				
	LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM		50	7	18	40					0		9	124					0
	7:15 AM		55	9	20	41					0		9	134					0
	7:30 AM		68	12	16	51					0		12	159					0
	7:45 AM		70	11	11	55					0		8	155					0
	8:00 AM		65	9	15	68					1		9	167					0
	8:15 AM		66	10	19	70					1		10	176					0
	8:30 AM		70	8	20	68					2		3	171					0
	8:45 AM		77	9	11	55					0		8	160					0
	VOLUMES	0	521	75	130	448	0	0	0	0	4	0	68	1,246	0	0	0	0	0
	APPROACH %	0%	87%	13%	22%	78%	0%	0%	0%	0%	6%	0%	94%						
	APP/DEPART	596	/	589	578	/	452	0	/	205	72	/	0	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	278	36	65	261	0	0	0	0	4	0	30	674					
	APPROACH %	0%	89%	11%	20%	80%	0%	0%	0%	0%	12%	0%	88%						
	PEAK HR FACTOR		0.913			0.916			0.000			0.773		0.957					
	APP/DEPART	314	/	308	326	/	265	0	/	101	34	/	0	0					
PM	4:00 PM		84	22	28	84					3		38	259					0
	4:15 PM		91	28	21	81					7		44	272					0
	4:30 PM		121	30	23	88					9		51	322					0
	4:45 PM		135	33	33	90					5		58	354					0
	5:00 PM		141	28	34	121					5		60	389					0
	5:15 PM		111	21	31	105					9		51	328					0
	5:30 PM		109	22	30	111					5		44	321					0
	5:45 PM		108	19	28	108					7		41	311					0
	VOLUMES	0	900	203	228	788	0	0	0	0	50	0	387	2,556	0	0	0	0	0
	APPROACH %	0%	82%	18%	22%	78%	0%	0%	0%	0%	11%	0%	89%						
	APP/DEPART	1,103	/	1,287	1,016	/	838	0	/	431	437	/	0	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	508	112	121	404	0	0	0	0	28	0	220	1,393					
	APPROACH %	0%	82%	18%	23%	77%	0%	0%	0%	0%	11%	0%	89%						
	PEAK HR FACTOR		0.917			0.847			0.000			0.954		0.895					
	APP/DEPART	620	/	728	525	/	432	0	/	233	248	/	0	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM			1		1					0	1			1	2
	7:30 AM			3		3					0				1	1
	7:45 AM					0					0					0
	8:00 AM			4		4					0				1	1
	8:15 AM			5		5					0					0
	8:30 AM			6		6					0				2	2
	8:45 AM			5		5					0					0
	TOTAL	0	0	24	0	24	0	0	0	0	0	1	0	0	5	6
PM	4:00 PM			8		8					0					0
	4:15 PM			9		9					0					0
	4:30 PM			12		12					0				2	2
	4:45 PM			11		11					0				1	1
	5:00 PM			9		9					0	1			1	2
	5:15 PM			12		12					0					0
	5:30 PM			15		15					0	1				1
	5:45 PM			9		9					0					0
	TOTAL	0	0	85	0	85	0	0	0	0	0	2	0	0	4	6

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Fashion Valley Rd
EAST & WEST: Riverwalk Dr.

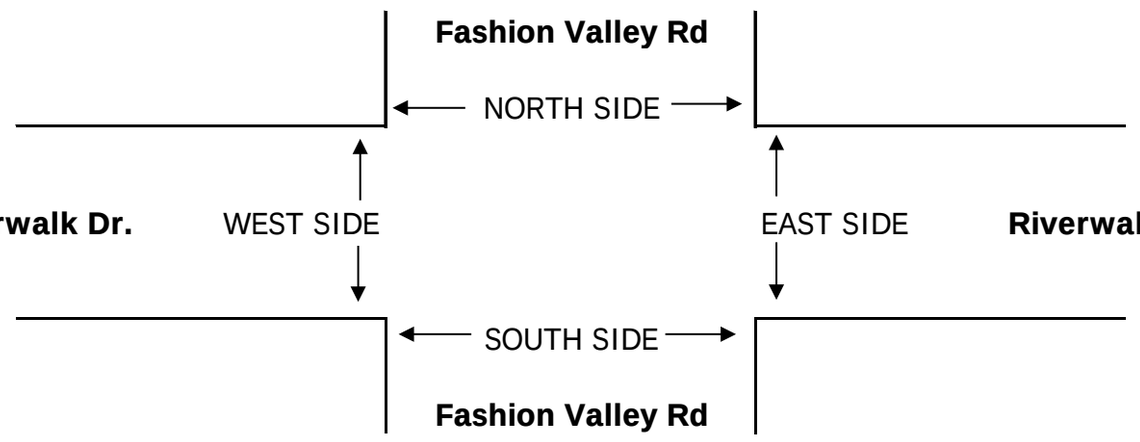
PROJECT #: PTD17-0908-02
LOCATION #: 31
CONTROL: SIGNAL

NOTES:

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		NORTHBOUND Fashion Valley Rd			SOUTHBOUND Fashion Valley Rd			EASTBOUND Riverwalk Dr.			WESTBOUND Riverwalk Dr.				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	12	40	7	9	28	3	0	0	0	4	0	15	118					0
	7:15 AM	9	55	9	12	30	4	0	2	2	9	0	18	150					0
	7:30 AM	6	68	12	11	24	4	0	0	1	9	2	20	157					0
	7:45 AM	15	62	11	5	44	6	0	2	3	12	2	16	178					0
	8:00 AM	11	50	15	6	49	9	1	1	1	15	0	19	177					0
	8:15 AM	16	55	9	9	46	6	1	1	3	11	3	22	182					0
	8:30 AM	8	58	5	12	39	6	0	1	2	16	3	28	178					0
	8:45 AM	9	51	18	13	37	5	2	0	2	9	1	21	168					0
	VOLUMES	86	439	86	77	297	43	4	7	14	85	11	159	1,308	0	0	0	0	0
	APPROACH %	14%	72%	14%	18%	71%	10%	16%	28%	56%	33%	4%	62%						
	APP/DEPART	611	/	602	417	/	396	25	/	170	255	/	140	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	50	225	40	32	178	27	2	5	9	54	8	85	715					
	APPROACH %	16%	71%	13%	14%	75%	11%	13%	31%	56%	37%	5%	58%						
	PEAK HR FACTOR		0.895			0.926			0.800			0.782		0.982					
	APP/DEPART	315	/	312	237	/	241	16	/	77	147	/	85	0					
PM	4:00 PM	4	60	38	18	50	8	7	0	2	33	1	33	254					0
	4:15 PM	6	68	33	22	58	12	9	0	4	37	3	31	283					0
	4:30 PM	9	77	36	26	66	11	12	1	5	40	2	40	325					0
	4:45 PM	12	105	28	31	70	8	5	1	6	68	1	51	386					0
	5:00 PM	11	135	33	33	81	4	8	2	9	45	2	51	414					0
	5:15 PM	15	104	28	37	77	7	6	1	12	51	4	40	382					0
	5:30 PM	15	90	21	30	70	9	9	3	11	55	2	35	350					0
	5:45 PM	18	99	26	24	65	5	12	4	15	34	0	37	339					0
	VOLUMES	90	738	243	221	537	64	68	12	64	363	15	318	2,733	0	0	0	0	0
	APPROACH %	8%	69%	23%	27%	65%	8%	47%	8%	44%	52%	2%	46%						
	APP/DEPART	1,071	/	1,124	822	/	964	144	/	476	696	/	169	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	53	434	110	131	298	28	28	7	38	219	9	177	1,532					
	APPROACH %	9%	73%	18%	29%	65%	6%	38%	10%	52%	54%	2%	44%						
	PEAK HR FACTOR		0.834			0.944			0.793			0.844		0.925					
	APP/DEPART	597	/	639	457	/	555	73	/	248	405	/	90	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1				1					0					0
	7:15 AM			2		2					0	1		1		2
	7:30 AM		1	6	3	10					0				2	2
	7:45 AM			7	2	9					0				1	1
	8:00 AM	2		8	1	11					0			3		3
	8:15 AM		1	5		6					0	1		1	1	3
	8:30 AM	1		9	1	11					0			2	1	3
	8:45 AM			3		3					0					0
	TOTAL	4	2	40	7	53	0	0	0	0	0	2	0	7	5	14
PM	4:00 PM			8		8					0					0
	4:15 PM			9	1	10					0			1		1
	4:30 PM	1		12	3	16					0		1	1	2	4
	4:45 PM			11		11					0	1		2	1	4
	5:00 PM	1		15	2	18					0					0
	5:15 PM	2		12	1	15					0	1		3	1	5
	5:30 PM			9		9					0			4		4
	5:45 PM	1		5	1	7					0			2		2
	TOTAL	5	0	81	8	94	0	0	0	0	0	2	1	13	4	20

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Avenida Del Rio
EAST & WEST: Riverwalk Dr

PROJECT #: PTD17-0908-02
LOCATION #: 32
CONTROL: SIGNAL

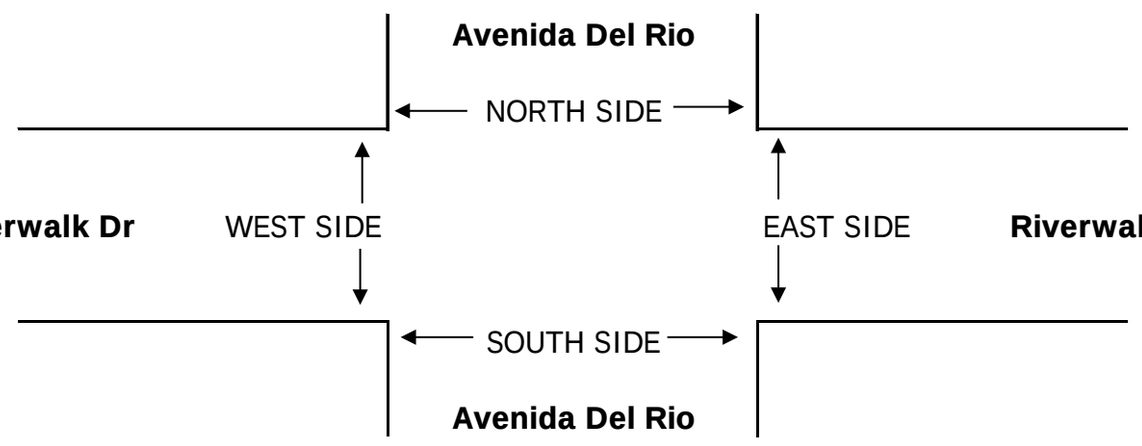
NOTES: INCLUDE BIKE / PED

AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Riverwalk Dr			WESTBOUND Riverwalk Dr			
	LANES:	NL 1	NT X	NR 1	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL
AM	7:00 AM	20		12					4	12	4	4		56
	7:15 AM	22		11					6	11	7	2		59
	7:30 AM	28		9					6	10	5	2		60
	7:45 AM	21		10					6	15	5	2		59
	8:00 AM	30		8					9	19	4	4		74
	8:15 AM	31		9					12	20	6	6		84
	8:30 AM	33		11					8	15	8	5		80
	8:45 AM	41		15					9	22	9	2		98
	VOLUMES	226	0	85	0	0	0	0	60	124	48	27	0	570
	APPROACH %	73%	0%	27%	0%	0%	0%	0%	33%	67%	64%	36%	0%	
	APP/DEPART	311	/	0	0	/	172	184	/	145	75	/	253	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	135	0	43	0	0	0	0	38	76	27	17	0	336
	APPROACH %	76%	0%	24%	0%	0%	0%	0%	33%	67%	61%	39%	0%	
	PEAK HR FACTOR		0.795			0.000			0.891			0.846		0.857
	APP/DEPART	178	/	0	0	/	103	114	/	81	44	/	152	0
PM	4:00 PM	60		28					12	68	33	9		210
	4:15 PM	88		33					15	70	38	12		256
	4:30 PM	84		35					19	84	30	11		263
	4:45 PM	90		33					11	81	33	8		256
	5:00 PM	70		41					9	88	38	9		255
	5:15 PM	65		40					9	70	31	10		225
	5:30 PM	66		41					12	65	37	12		233
	5:45 PM	61		37					11	66	28	11		214
	VOLUMES	584	0	288	0	0	0	0	98	592	268	82	0	1,912
	APPROACH %	67%	0%	33%	0%	0%	0%	0%	14%	86%	77%	23%	0%	
	APP/DEPART	872	/	0	0	/	860	690	/	386	350	/	666	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	332	0	142	0	0	0	0	54	323	139	40	0	1,030
	APPROACH %	70%	0%	30%	0%	0%	0%	0%	14%	86%	78%	22%	0%	
	PEAK HR FACTOR		0.963			0.000			0.915			0.895		0.979
	APP/DEPART	474	/	0	0	/	462	377	/	196	179	/	372	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0



		PEDESTRIAN CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
AM	7:00 AM					0
	7:15 AM					0
	7:30 AM					0
	7:45 AM		1			1
	8:00 AM				1	1
	8:15 AM		1			1
	8:30 AM				1	1
	8:45 AM		2			2
	TOTAL	0	4	0	2	6
PM	4:00 PM					0
	4:15 PM					0
	4:30 PM		3		3	6
	4:45 PM		3			3
	5:00 PM		1		4	5
	5:15 PM		4			4
	5:30 PM		5		2	7
	5:45 PM		2		2	4
	TOTAL	0	18	0	11	29

PEDESTRIAN ACTIVATIONS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
				0
				0
				0
				0
	1			1
			1	1
				0
				0
0	1	0	1	2
				0
				0
			1	1
				0
	1		1	2
				0
	2			2
				0
0	3	0	2	5

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Hazard Center W. Dwy
EAST & WEST: Hazard Center Dr

PROJECT #: PTD17-0908-02
LOCATION #: 33
CONTROL: SIGNAL

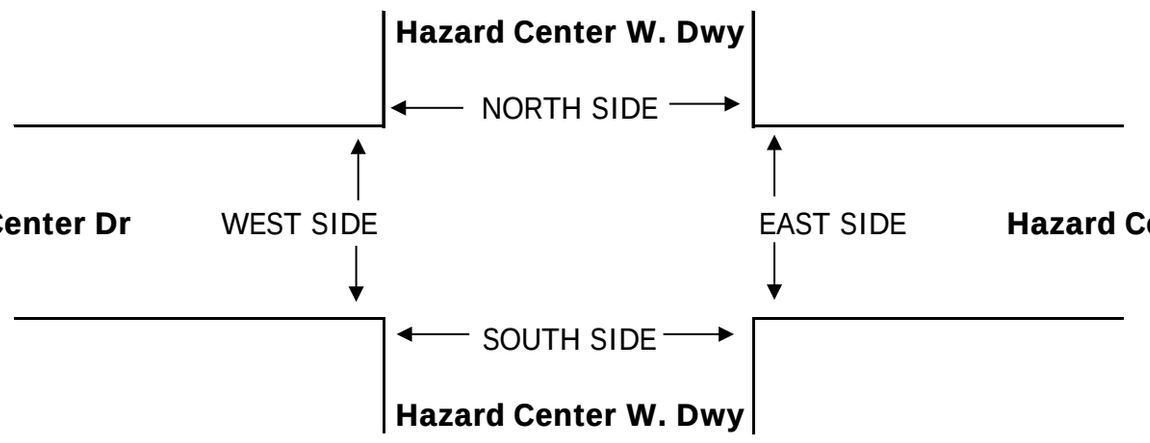
NOTES:

INCLUDE BIKE / PED

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		NORTHBOUND Hazard Center W. Dwy			SOUTHBOUND Hazard Center W. Dwy			EASTBOUND Hazard Center Dr			WESTBOUND Hazard Center Dr				U-TURNS				
	LANES:	NL 1	NT 0.5	NR 0.5	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	0	0	7	0	0	0	1	0	0	4	3	15					0
	7:15 AM	0	0	1	9	0	0	0	0	0	0	2	6	18					0
	7:30 AM	0	0	1	12	0	0	0	1	0	0	1	9	24					0
	7:45 AM	0	0	2	11	0	0	0	2	0	0	3	12	30					0
	8:00 AM	0	1	3	15	0	1	1	4	0	0	4	11	40					0
	8:15 AM	0	0	4	9	0	2	0	6	0	1	5	8	35				1	1
	8:30 AM	0	0	6	9	0	1	1	5	0	0	6	9	37					0
	8:45 AM	0	0	5	8	0	0	0	5	0	1	8	10	37				1	1
	VOLUMES	0	1	22	80	0	4	2	24	0	2	33	68	236	0	0	0	2	2
	APPROACH %	0%	4%	96%	95%	0%	5%	8%	92%	0%	2%	32%	66%						
	APP/DEPART	23	/	71	84	/	2	26	/	126	103	/	37	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	1	18	41	0	4	2	20	0	2	23	38	149					
	APPROACH %	0%	5%	95%	91%	0%	9%	9%	91%	0%	3%	37%	60%						
	PEAK HR FACTOR		0.792			0.703			0.917			0.829		0.931					
	APP/DEPART	19	/	41	45	/	2	22	/	79	63	/	27	0					
PM	4:00 PM	0	0	0	16	0	0	0	4	0	0	5	8	33					0
	4:15 PM	0	0	4	11	0	1	0	3	0	1	9	9	38					0
	4:30 PM	0	0	4	15	0	0	0	2	0	2	9	12	44					0
	4:45 PM	0	0	2	19	0	0	1	2	0	0	12	15	51				1	1
	5:00 PM	0	0	4	11	0	1	2	4	0	0	11	19	52				1	1
	5:15 PM	0	0	2	8	0	1	2	9	0	1	8	20	51				2	2
	5:30 PM	0	1	4	9	0	2	0	7	0	0	9	14	46					0
	5:45 PM	0	0	6	10	0	2	1	11	0	3	15	19	67				1	1
	VOLUMES	0	1	26	99	0	7	6	42	0	7	78	116	382	0	0	0	5	5
	APPROACH %	0%	4%	96%	93%	0%	7%	13%	88%	0%	3%	39%	58%						
	APP/DEPART	27	/	123	106	/	7	48	/	167	201	/	85	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	1	16	38	0	6	5	31	0	4	43	72	216					
	APPROACH %	0%	6%	94%	86%	0%	14%	14%	86%	0%	3%	36%	61%						
	PEAK HR FACTOR		0.708			0.917			0.750			0.804		0.806					
	APP/DEPART	17	/	78	44	/	4	36	/	85	119	/	49	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM	1				1					0					0
	7:45 AM				3	3					0	2				2
	8:00 AM	2			3	5					0					0
	8:15 AM	1		1		2					0	1	1			2
	8:30 AM	3			1	4					0					0
	8:45 AM					0					0					0
	TOTAL	7	0	1	7	15	0	0	0	0	0	3	1	0	0	4
PM	4:00 PM	3				3					0					0
	4:15 PM					0					0					0
	4:30 PM	2			2	4					0					0
	4:45 PM	2	1			3					0	1				1
	5:00 PM	1	1		1	3					0	1				1
	5:15 PM				1	1					0	2	2	1		5
	5:30 PM	2				2					0					0
	5:45 PM					0					0					0
	TOTAL	10	2	0	4	16	0	0	0	0	0	4	2	1	0	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Hazard Center E. Dwy
EAST & WEST: Hazard Center Dr

PROJECT #: PTD17-0908-02
LOCATION #: 34
CONTROL: SIGNAL

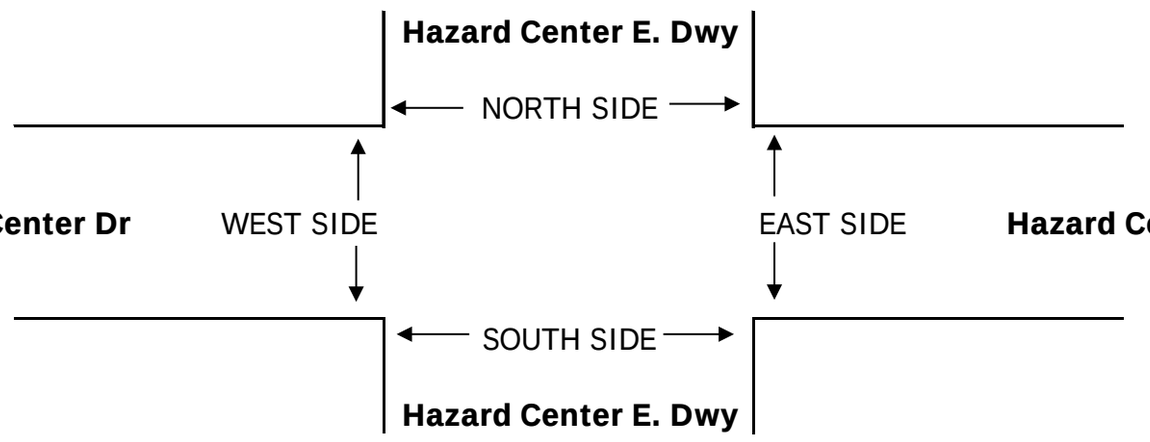
NOTES:

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		NORTHBOUND Hazard Center E. Dwy			SOUTHBOUND Hazard Center E. Dwy			EASTBOUND Hazard Center Dr			WESTBOUND Hazard Center Dr				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	0	9	7	0	0	0	22	0	1	8	3	50					0
	7:15 AM	0	0	5	3	0	0	0	28	0	0	9	4	49					0
	7:30 AM	1	0	8	8	0	0	1	21	0	1	12	6	58				3	3
	7:45 AM	1	0	7	12	0	2	0	20	0	2	8	6	58					0
	8:00 AM	0	1	9	4	0	1	0	16	0	1	8	5	45				2	2
	8:15 AM	0	0	9	5	0	1	2	19	0	0	9	9	54				1	1
	8:30 AM	2	2	5	8	0	0	0	20	0	1	7	8	53				2	2
	8:45 AM	0	0	4	9	0	0	0	22	0	0	9	7	51				1	1
	VOLUMES	4	3	56	56	0	4	3	168	0	6	70	48	418	0	0	0	9	9
	APPROACH %	6%	5%	89%	93%	0%	7%	2%	98%	0%	5%	56%	39%						
	APP/DEPART	63	/	54	60	/	6	171	/	280	124	/	78	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	2	1	33	29	0	4	3	76	0	4	37	26	215					
	APPROACH %	6%	3%	92%	88%	0%	12%	4%	96%	0%	6%	55%	39%						
	PEAK HR FACTOR		0.900			0.589			0.705			0.882		0.927					
	APP/DEPART	36	/	30	33	/	4	79	/	138	67	/	43	0					
PM	4:00 PM	0	0	1	21	0	1	0	18	0	6	18	10	75				4	4
	4:15 PM	1	0	2	33	0	0	0	22	0	9	28	9	104				3	3
	4:30 PM	0	0	2	45	1	0	1	28	0	9	33	11	130				2	2
	4:45 PM	0	0	4	51	0	0	1	30	0	10	35	8	139				2	2
	5:00 PM	0	0	6	68	1	0	0	31	0	8	31	9	154				4	4
	5:15 PM	0	0	9	77	0	3	0	35	0	7	25	10	166				8	8
	5:30 PM	0	0	5	54	0	1	0	33	1	8	26	7	135				7	7
	5:45 PM	0	0	5	44	0	2	1	28	1	8	33	12	134				5	5
	VOLUMES	1	0	34	393	2	7	3	225	2	65	229	76	1,037	0	0	0	35	35
	APPROACH %	3%	0%	97%	98%	0%	2%	1%	98%	1%	18%	62%	21%						
	APP/DEPART	35	/	79	402	/	69	230	/	652	370	/	237	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	24	250	1	4	1	129	1	33	117	34	594					
	APPROACH %	0%	0%	100%	98%	0%	2%	1%	98%	1%	18%	64%	18%						
	PEAK HR FACTOR		0.667			0.797			0.936			0.868		0.895					
	APP/DEPART	24	/	35	255	/	35	131	/	403	184	/	121	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1	9		4	14					0					0
	7:15 AM	5	5		6	16					0					0
	7:30 AM	2	12	1	6	21					0					0
	7:45 AM		15		3	18	1	1			2					0
	8:00 AM	2	19	1	9	31	1	1			2					0
	8:15 AM	4	11	2	12	29		3			3					0
	8:30 AM	6	5		11	22		2		1	3					0
	8:45 AM	5	9		8	22					0					0
	TOTAL	25	85	4	59	173	2	7	0	1	10	0	0	0	0	0
PM	4:00 PM	5	6		12	23					0					0
	4:15 PM	3	5	1	18	27		2			2					0
	4:30 PM	5	5		19	29		2			2					0
	4:45 PM	4	5	1	20	30	2		1	1	4					0
	5:00 PM	5	8	2	11	26	1	4	1	1	7					0
	5:15 PM	8	9	2	8	27		5			5					0
	5:30 PM	12	12	3	9	36	1	2			3					0
	5:45 PM	3	11		9	23		1			1					0
	TOTAL	45	61	9	106	221	4	16	2	2	24	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Frazee Rd
EAST & WEST: Hazard Center Dr.

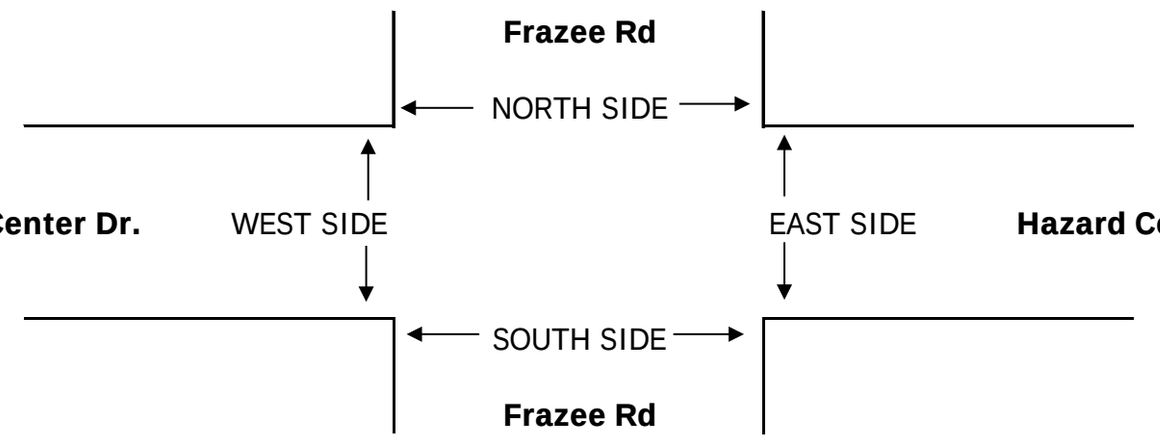
PROJECT #: PTD17-0908-02
LOCATION #: 36
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

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		NORTHBOUND Frazee Rd			SOUTHBOUND Frazee Rd			EASTBOUND Hazard Center Dr.			WESTBOUND Hazard Center Dr.				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	5	22	3	9	44	3	15	1	9	1	4	11	127					0
	7:15 AM	8	28	3	12	55	4	22	1	10	2	1	18	164		1			1
	7:30 AM	9	30	3	11	58	4	28	2	8	2	3	20	178					0
	7:45 AM	10	33	4	18	60	6	21	4	9	4	3	16	188		1			1
	8:00 AM	5	38	5	19	77	8	28	2	7	2	0	22	213		2			2
	8:15 AM	5	30	5	22	78	5	22	1	5	1	1	16	191		9			9
	8:30 AM	9	28	2	21	54	5	19	1	8	1	1	19	168		5			5
	8:45 AM	12	36	5	28	55	5	20	2	9	2	4	20	198		9			9
	VOLUMES	63	245	30	140	481	40	175	14	65	15	17	142	1,427	0	27	0	0	27
	APPROACH %	19%	72%	9%	21%	73%	6%	69%	6%	26%	9%	10%	82%						
	APP/DEPART	338	/	562	661	/	561	254	/	184	174	/	120	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	31	132	17	90	264	23	89	6	29	6	6	77	770					
	APPROACH %	17%	73%	9%	24%	70%	6%	72%	5%	23%	7%	7%	87%						
	PEAK HR FACTOR		0.849			0.898			0.816			0.856		0.904					
	APP/DEPART	180	/	298	377	/	299	124	/	113	89	/	60	0					
PM	4:00 PM	8	40	4	48	70	12	33	1	15	3	4	18	256					0
	4:15 PM	9	44	5	50	88	18	45	3	18	4	5	23	312		1			1
	4:30 PM	10	48	6	44	94	22	51	1	22	4	5	33	340		1			1
	4:45 PM	5	51	6	58	121	26	55	1	26	5	2	31	387		2			2
	5:00 PM	4	66	8	40	108	28	40	0	27	6	8	33	368		3			3
	5:15 PM	9	68	5	51	116	27	68	1	24	2	6	38	415		5			5
	5:30 PM	12	54	5	55	103	21	44	4	22	9	5	28	362					0
	5:45 PM	11	55	5	41	114	26	34	5	19	0	1	27	338		6			6
	VOLUMES	68	426	44	387	814	180	370	16	173	33	36	231	2,778	0	18	0	0	18
	APPROACH %	13%	79%	8%	28%	59%	13%	66%	3%	31%	11%	12%	77%						
	APP/DEPART	538	/	1,027	1,381	/	1,020	559	/	447	300	/	284	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	30	239	24	204	448	102	207	6	99	22	21	130	1,532					
	APPROACH %	10%	82%	8%	27%	59%	14%	66%	2%	32%	13%	12%	75%						
	PEAK HR FACTOR		0.893			0.920			0.839			0.920		0.923					
	APP/DEPART	293	/	576	754	/	569	312	/	234	173	/	153	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM			3	1	4					0					0
	7:15 AM	2	3	3		8					0					0
	7:30 AM	2			4	6					0					0
	7:45 AM	6	4		5	15					0				1	1
	8:00 AM	8	4	4	3	19					0					0
	8:15 AM	7	5	5		17					0				1	1
	8:30 AM	9	8		1	18					0					0
	8:45 AM	2	9	5	1	17					0				2	2
	TOTAL	36	33	20	15	104	0	0	0	0	0	0	0	0	4	4
PM	4:00 PM		8	6		14					0					0
	4:15 PM	1	12			13					0			2		2
	4:30 PM		8	7	1	16					0			2		2
	4:45 PM	1	9	8		18					0				2	2
	5:00 PM	2	12	9	1	24					0				1	1
	5:15 PM		11	5		16					0					0
	5:30 PM	4	8	10		22					0				1	1
	5:45 PM	2	8	5		15					0					0
	TOTAL	10	76	50	2	138	0	0	0	0	0	0	0	4	4	8

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

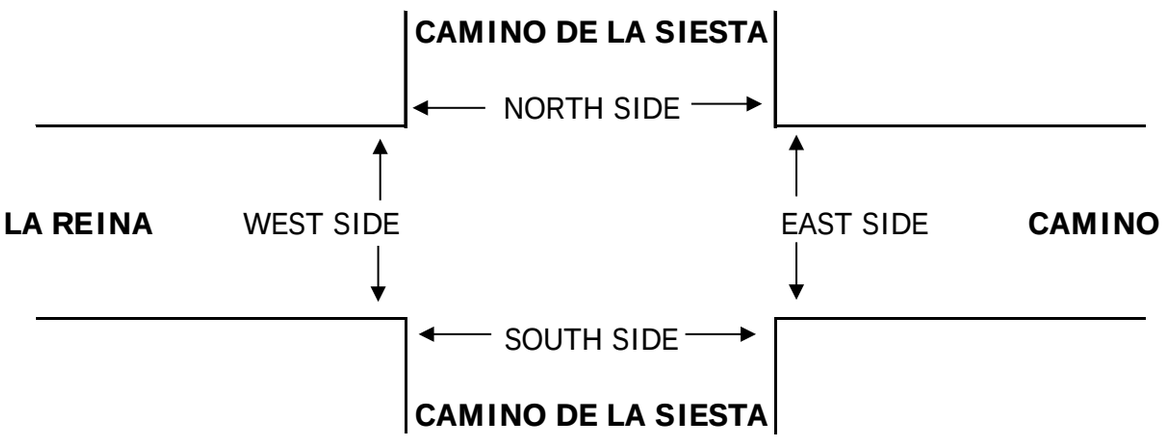
DATE:	LOCATION:	MISSION VALLEY - MILLINNUM II	PROJECT #:	PTD17-0616-01
6/14/17	NORTH & SOUTH:	CAMINO DE LA SIESTA	LOCATION #:	1
WEDNESDAY	EAST & WEST:	CAMINO DE LA REINA	CONTROL:	SIGNAL

NOTES:

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		NORTHBOUND CAMINO DE LA SIESTA			SOUTHBOUND CAMINO DE LA SIESTA			EASTBOUND CAMINO DE LA REINA			WESTBOUND CAMINO DE LA REINA				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	7	0	10	1	1	5	0	15	8	16	41	3	107				2	2
	7:15 AM	7	0	6	2	4	3	0	30	13	15	48	2	130				4	4
	7:30 AM	12	0	1	5	1	3	0	24	11	24	68	1	150				3	3
	7:45 AM	13	0	2	3	2	2	0	37	17	24	58	1	159				1	1
	8:00 AM	12	0	5	6	0	3	0	34	21	21	64	0	166				1	1
	8:15 AM	12	0	14	3	1	0	0	31	21	20	64	3	169				4	4
	8:30 AM	20	1	15	2	4	2	0	37	13	18	46	0	158				4	4
	8:45 AM	16	1	15	1	3	2	0	37	22	23	57	0	177				3	3
	VOLUMES	99	2	68	23	16	20	0	245	126	161	446	10	1,216	0	0	0	22	22
	APPROACH %	59%	1%	40%	39%	27%	34%	0%	66%	34%	26%	72%	2%						
	APP/DEPART	169	/	12	59	/	303	371	/	336	617	/	565	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	60	2	49	12	8	7	0	139	77	82	231	3	670					
	APPROACH %	54%	2%	44%	44%	30%	26%	0%	64%	36%	26%	73%	1%						
	PEAK HR FACTOR		0.771			0.750			0.915			0.908		0.946					
	APP/DEPART	111	/	5	27	/	167	216	/	200	316	/	298	0					
PM	4:00 PM	31	1	20	2	1	1	0	135	35	8	90	3	327			1	1	2
	4:15 PM	26	1	18	0	0	0	0	144	26	4	95	3	317			1	2	3
	4:30 PM	33	3	15	1	1	3	1	138	41	10	83	3	332				5	5
	4:45 PM	31	2	13	4	1	1	0	134	47	9	104	4	350				3	3
	5:00 PM	49	1	23	2	1	1	0	164	31	3	100	1	376					0
	5:15 PM	39	2	14	2	0	1	1	140	35	5	90	6	335				1	1
	5:30 PM	50	1	12	1	0	0	1	186	31	5	96	11	394				3	3
	5:45 PM	28	4	16	1	2	0	2	156	29	6	101	5	350				4	4
	VOLUMES	287	15	131	13	6	7	5	1,197	275	50	759	36	2,781	0	0	2	19	21
	APPROACH %	66%	3%	30%	50%	23%	27%	0%	81%	19%	6%	90%	4%						
	APP/DEPART	433	/	56	26	/	331	1,477	/	1,341	845	/	1,053	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	166	8	65	6	3	2	4	646	126	19	387	23	1,455					
	APPROACH %	69%	3%	27%	55%	27%	18%	1%	83%	16%	4%	90%	5%						
	PEAK HR FACTOR		0.818			0.458			0.890			0.917		0.923					
	APP/DEPART	239	/	35	11	/	148	776	/	717	429	/	555	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0	3	1			4
	7:15 AM		1			1					0	2				2
	7:30 AM		1	1	1	3					0	2				2
	7:45 AM					0					0	3	1			4
	8:00 AM					0					0	1				1
	8:15 AM					0					0	4				4
	8:30 AM					0					0	2	2			4
	8:45 AM					0					0		4			4
	TOTAL	0	2	1	1	4	0	0	0	0	0	17	8	0	0	25
PM	4:00 PM					0					0		3			3
	4:15 PM		1	1		2					0	2	2	2		6
	4:30 PM			1		1					0					0
	4:45 PM			1		1					0		2			2
	5:00 PM			1		1					0	2	1			3
	5:15 PM					0					0	2		1		3
	5:30 PM		1	1		2					0	2				2
	5:45 PM		2	5		7					0		1			1
	TOTAL	0	4	10	0	14	0	0	0	0	0	8	9	3	0	20

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 6/14/17 WEDNESDAY

LOCATION: MISSION VALLEY - MILLINNUM II
NORTH & SOUTH: CAMINO DE LA ARROYO
EAST & WEST: CAMINO DE LA REINA

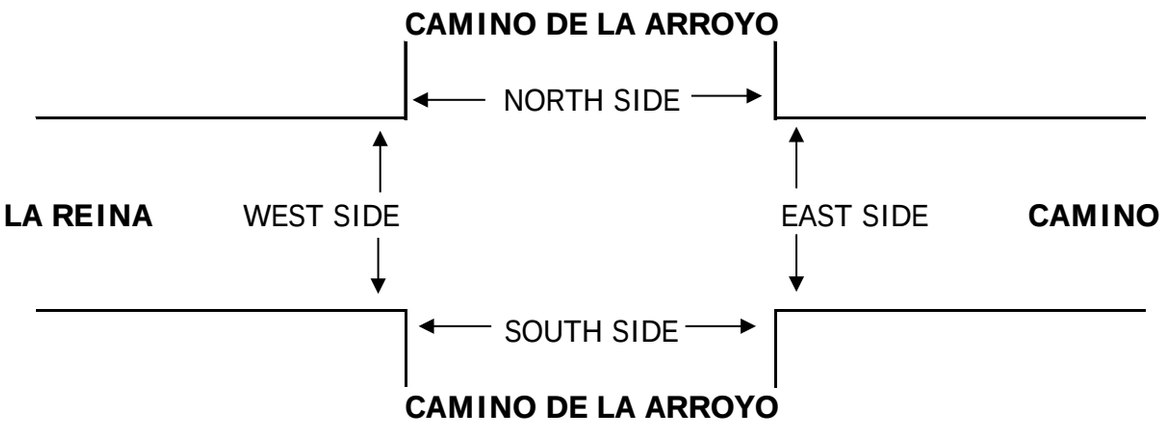
PROJECT #: PTD17-0616-01
LOCATION #: 2
CONTROL: STOP (NB)

NOTES:

AM / PM / MD / OTHER / OTHER

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S ▼

		NORTHBOUND CAMINO DE LA ARROYO			SOUTHBOUND CAMINO DE LA ARROYO			EASTBOUND CAMINO DE LA REINA			WESTBOUND CAMINO DE LA REINA				U-TURNS				
	LANES:	NL 0.5	NT X	NR 0.5	SL X	ST X	SR X	EL X	ET 2	ER 0	WL 1	WT 2	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	1		9					15	3	13	52		93		1		9	10
	7:15 AM	3		6					40	1	12	52		114				7	7
	7:30 AM	1		6					35	0	18	87		147				12	12
	7:45 AM	0		5					35	1	11	78		130				5	5
	8:00 AM	0		4					42	0	14	85		145				6	6
	8:15 AM	0		4					48	0	15	72		139				10	10
	8:30 AM	1		9					49	1	16	68		144				6	6
	8:45 AM	0		10					47	4	17	76		154				6	6
	VOLUMES	6	0	53	0	0	0	0	311	10	116	570	0	1,066	0	1	0	61	62
	APPROACH %	10%	0%	90%	0%	0%	0%	0%	97%	3%	17%	83%	0%						
	APP/DEPART	59	/	0	0	/	126	321	/	364	686	/	576	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	1	0	27	0	0	0	0	186	5	62	301	0	582					
	APPROACH %	4%	0%	96%	0%	0%	0%	0%	97%	3%	17%	83%	0%						
	PEAK HR FACTOR		0.700			0.000			0.936			0.917		0.945					
	APP/DEPART	28	/	0	0	/	67	191	/	213	363	/	302	0					
PM	4:00 PM	1		10					161	0	12	91		275				3	3
	4:15 PM	3		9					156	1	11	98		278				4	4
	4:30 PM	4		9					167	2	10	96		288				6	6
	4:45 PM	2		6					150	1	10	113		282				6	6
	5:00 PM	1		9					177	2	7	114		310				6	6
	5:15 PM	0		6					161	1	14	108		290				7	7
	5:30 PM	1		9					192	6	18	105		331				13	13
	5:45 PM	0		8					167	1	9	101		286				7	7
	VOLUMES	12	0	66	0	0	0	0	1,331	14	91	826	0	2,340	0	0	0	52	52
	APPROACH %	15%	0%	85%	0%	0%	0%	0%	99%	1%	10%	90%	0%						
	APP/DEPART	78	/	0	0	/	105	1,345	/	1,397	917	/	838	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	2	0	32	0	0	0	0	697	10	48	428	0	1,217					
	APPROACH %	6%	0%	94%	0%	0%	0%	0%	99%	1%	10%	90%	0%						
	PEAK HR FACTOR		0.850			0.000			0.893			0.967		0.919					
	APP/DEPART	34	/	0	0	/	58	707	/	729	476	/	430	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0		1		1	2
	7:15 AM					0					0		2			2
	7:30 AM					0					0					0
	7:45 AM				1	1					0					0
	8:00 AM		1			1					0					0
	8:15 AM		2		1	3					0					0
	8:30 AM					0					0		3			3
	8:45 AM					0					0		2			2
	TOTAL	0	3	0	2	5	0	0	0	0	0	0	8	0	1	9
PM	4:00 PM				1	1					0		2			2
	4:15 PM		2			2					0		2			2
	4:30 PM		2			2					0		1			1
	4:45 PM		2		1	3					0		1	1		2
	5:00 PM					0					0		2			2
	5:15 PM					0					0					0
	5:30 PM					0					0		1			1
	5:45 PM		2			2					0		1			1
	TOTAL	0	8	0	2	10	0	0	0	0	0	0	10	1	0	11

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE: 9/12/17 TUESDAY

LOCATION: MISSION VALLEY - SAN DIEGO
NORTH & SOUTH: Shopping Center Drwy
EAST & WEST: Camino De La Reina

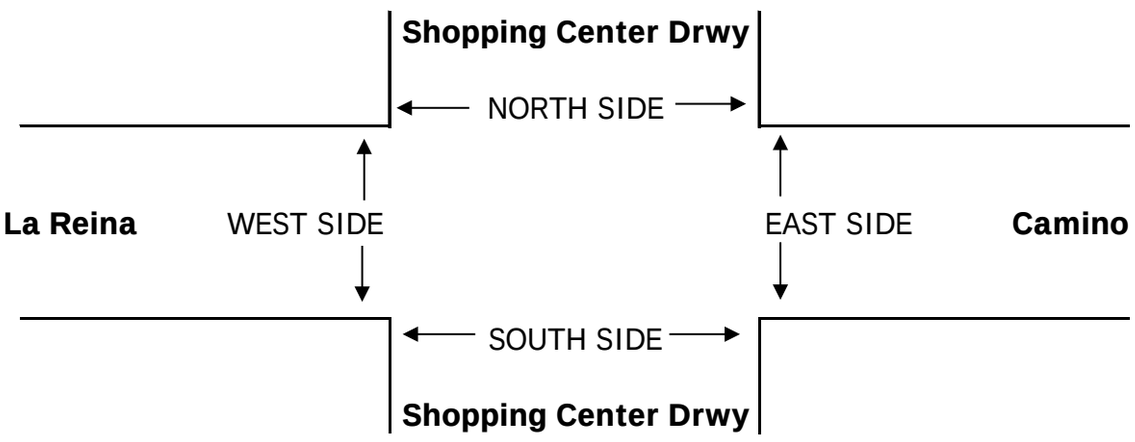
PROJECT #: PTD17-0908-02
LOCATION #: 38
CONTROL: SIGNAL

NOTES: INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER

N ▲ S ▼ E ► ◄ W

		NORTHBOUND Shopping Center Drwy			SOUTHBOUND Shopping Center Drwy			EASTBOUND Camino De La Reina			WESTBOUND Camino De La Reina				U-TURNS				
	LANES:	NL 1	NT 0.5	NR 0.5	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	4	0	4	9	0	0	0	28	4	11	51	0	111			2		2
	7:15 AM	3	0	5	12	0	0	1	33	3	9	55	0	121				1	1
	7:30 AM	5	0	5	12	1	1	1	38	3	18	67	1	152				1	1
	7:45 AM	6	0	6	9	0	2	2	40	4	20	80	2	171			3		3
	8:00 AM	6	1	8	8	1	3	1	41	6	22	84	2	183			1		1
	8:15 AM	8	0	9	9	2	3	2	44	8	28	75	2	190			1	1	2
	8:30 AM	7	2	12	3	0	2	2	32	9	18	84	3	174				2	2
	8:45 AM	5	0	18	4	0	1	0	29	9	19	70	1	156					0
	VOLUMES	44	3	67	66	4	12	9	285	46	145	566	11	1,258	0	0	7	5	12
	APPROACH %	39%	3%	59%	80%	5%	15%	3%	84%	14%	20%	78%	2%						
	APP/DEPART	114	/	23	82	/	195	340	/	418	722	/	622	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	27	3	35	29	3	10	7	157	27	88	323	9	718					
	APPROACH %	42%	5%	54%	69%	7%	24%	4%	82%	14%	21%	77%	2%						
	PEAK HR FACTOR		0.774			0.750			0.884			0.972		0.945					
	APP/DEPART	65	/	19	42	/	118	191	/	221	420	/	360	0					
PM	4:00 PM	9	0	60	4	0	4	5	109	10	51	101	4	357				2	2
	4:15 PM	12	1	61	2	0	3	5	121	12	55	121	6	399			4	1	5
	4:30 PM	18	1	77	2	1	1	9	135	19	58	113	7	441			6	1	7
	4:45 PM	20	2	68	4	1	0	12	142	12	55	135	9	460			5	3	8
	5:00 PM	16	0	74	5	2	4	11	168	11	59	141	12	503			8		8
	5:15 PM	22	2	58	6	2	5	8	177	18	60	111	11	480			6	1	7
	5:30 PM	19	1	59	6	3	6	9	151	20	61	125	8	468			5	1	6
	5:45 PM	15	3	61	5	1	5	12	144	22	42	107	5	422			2		2
	VOLUMES	131	10	518	34	10	28	71	1,147	124	441	954	62	3,530	0	0	36	9	45
	APPROACH %	20%	2%	79%	47%	14%	39%	5%	85%	9%	30%	65%	4%						
	APP/DEPART	659	/	143	72	/	575	1,342	/	1,699	1,457	/	1,113	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	77	5	259	21	8	15	40	638	61	235	512	40	1,911					
	APPROACH %	23%	1%	76%	48%	18%	34%	5%	86%	8%	30%	65%	5%						
	PEAK HR FACTOR		0.947			0.733			0.910			0.928		0.950					
	APP/DEPART	341	/	85	44	/	304	739	/	918	787	/	604	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM		2			2					0	1		1		2
	7:30 AM	1		1		2					0		2			2
	7:45 AM	1		1		2					0	1		1		2
	8:00 AM	3		2		5					0	1	1			2
	8:15 AM	2	2	3		7					0	3	1			4
	8:30 AM		1		2	3					0	1			1	2
	8:45 AM	4	1	1		6					0	2				2
	TOTAL	11	6	8	2	27	0	0	0	0	0	9	4	2	1	16
PM	4:00 PM					0					0					0
	4:15 PM	1	2	1	2	6					0	1			1	2
	4:30 PM	2		1	1	4					0	1	1		1	3
	4:45 PM	6	5			11					0	2			2	4
	5:00 PM	5	4		1	10					0	2	1			3
	5:15 PM	8	4	3	1	16					0		2			2
	5:30 PM	9	3	4	2	18					0	1	2	1		4
	5:45 PM	5		1		6					0			1		1
	TOTAL	36	18	10	7	71	0	0	0	0	0	7	6	2	4	19

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

SEA WORLD BTN SOUTH SHORES PARK & SEA WORLD WAY

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			25		24			12:00			238		247		
00:15			18		27			12:15			259		233		
00:30			31		26			12:30			262		214		
00:45			16	90	8	85	175	12:45			253	1012	223	917	1929
01:00			10		13			13:00			229		233		
01:15			18		10			13:15			232		243		
01:30			19		4			13:30			257		248		
01:45			15	62	9	36	98	13:45			250	968	193	917	1885
02:00			16		10			14:00			258		230		
02:15			16		7			14:15			259		249		
02:30			8		4			14:30			248		259		
02:45			6	46	5	26	72	14:45			250	1015	287	1025	2040
03:00			3		7			15:00			305		324		
03:15			11		3			15:15			329		283		
03:30			7		4			15:30			380		311		
03:45			10	31	8	22	53	15:45			447	1461	350	1268	2729
04:00			9		10			16:00			440		384		
04:15			20		9			16:15			439		348		
04:30			22		27			16:30			434		305		
04:45			38	89	27	73	162	16:45			477	1790	319	1356	3146
05:00			43		27			17:00			506		338		
05:15			56		35			17:15			590		349		
05:30			86		64			17:30			477		363		
05:45			93	278	96	222	500	17:45			452	2025	367	1417	3442
06:00			122		73			18:00			354		360		
06:15			172		108			18:15			317		341		
06:30			222		124			18:30			248		342		
06:45			248	764	164	469	1233	18:45			235	1154	385	1428	2582
07:00			271		196			19:00			198		338		
07:15			308		180			19:15			224		251		
07:30			389		184			19:30			188		241		
07:45			356	1324	202	762	2086	19:45			215	825	207	1037	1862
08:00			362		184			20:00			235		208		
08:15			352		186			20:15			202		178		
08:30			352		212			20:30			171		130		
08:45			338	1404	215	797	2201	20:45			176	784	133	649	1433
09:00			263		230			21:00			178		119		
09:15			265		168			21:15			135		141		
09:30			274		196			21:30			119		113		
09:45			240	1042	204	798	1840	21:45			100	532	112	485	1017
10:00			224		229			22:00			82		93		
10:15			243		234			22:15			113		64		
10:30			212		229			22:30			93		71		
10:45			246	925	244	936	1861	22:45			69	357	63	291	648
11:00			207		240			23:00			62		47		
11:15			209		238			23:15			41		41		
11:30			203		233			23:30			37		37		
11:45			200	819	234	945	1764	23:45			28	168	23	148	316
Total Vol.				6874		5171	**12045**					12091		10938	**23029**

Daily Totals

NB	SB	EB	WB	Combined
		18965	16109	**35074**

	AM			PM		
Split %	57.1%	42.9%	**34.3%**	52.5%	47.5%	**65.7%**
Peak Hour	07:30	10:45	**07:30**	16:45	17:15	**17:00**
Volume	1459	955	**2215**	2050	1439	**3442**
P.H.F.	0.94	0.98	**0.97**	0.87	0.98	**0.92**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

LINDA VISTA BTN MORENA & NAPA

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			19		21			12:00			186		167		
00:15			15		22			12:15			218		239		
00:30			17		9			12:30			239		217		
00:45			7	58	21	73	131	12:45			216	859	199	822	1681
01:00			17		16			13:00			187		214		
01:15			6		8			13:15			197		172		
01:30			9		9			13:30			169		197		
01:45			7	39	8	41	80	13:45			201	754	189	772	1526
02:00			6		6			14:00			170		240		
02:15			9		5			14:15			164		237		
02:30			3		17			14:30			191		257		
02:45			6	24	3	31	55	14:45			178	703	211	945	1648
03:00			4		5			15:00			209		272		
03:15			7		5			15:15			242		256		
03:30			7		11			15:30			216		240		
03:45			12	30	5	26	56	15:45			247	914	243	1011	1925
04:00			13		13			16:00			204		279		
04:15			16		19			16:15			225		205		
04:30			20		19			16:30			216		226		
04:45			31	80	22	73	153	16:45			184	829	235	945	1774
05:00			43		24			17:00			227		288		
05:15			59		45			17:15			223		245		
05:30			68		61			17:30			201		266		
05:45			76	246	55	185	431	17:45			182	833	240	1039	1872
06:00			71		89			18:00			139		222		
06:15			86		76			18:15			198		219		
06:30			100		136			18:30			144		205		
06:45			148	405	148	449	854	18:45			140	621	181	827	1448
07:00			147		171			19:00			127		161		
07:15			175		160			19:15			149		177		
07:30			197		189			19:30			147		184		
07:45			228	747	223	743	1490	19:45			117	540	151	673	1213
08:00			214		192			20:00			135		161		
08:15			270		146			20:15			119		131		
08:30			255		202			20:30			112		109		
08:45			222	961	181	721	1682	20:45			110	476	110	511	987
09:00			189		191			21:00			95		113		
09:15			200		120			21:15			86		86		
09:30			223		138			21:30			68		90		
09:45			204	816	151	600	1416	21:45			70	319	84	373	692
10:00			142		166			22:00			60		65		
10:15			161		135			22:15			62		57		
10:30			179		162			22:30			59		50		
10:45			152	634	138	601	1235	22:45			49	230	43	215	445
11:00			138		145			23:00			50		41		
11:15			167		157			23:15			42		36		
11:30			202		172			23:30			30		34		
11:45			194	701	170	644	1345	23:45			30	152	28	139	291
Total Vol.				4741		4187	**8928**					7230		8272	**15502**

Daily Totals

NB	SB	EB	WB	Combined
		11971	12459	**24430**

	AM			PM		
Split %	53.1%	46.9%	**36.5%**	46.6%	53.4%	**63.5%**
Peak Hour	07:45	11:45	**07:45**	15:00	17:00	**15:15**
Volume	967	793	**1730**	914	1039	**1927**
P.H.F.	0.90	0.83	**0.95**	0.93	0.90	**0.97**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

LINDA VISTA BTN VIA LAS CUMBRES & ALCALA KNOLLS

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	19		18					12:00	135		108				
00:15	20		20					12:15	114		121				
00:30	18		11					12:30	141		116				
00:45	8	65	9	58			123	12:45	121	511	103	448			959
01:00	9		10					13:00	135		114				
01:15	10		8					13:15	116		121				
01:30	7		8					13:30	125		116				
01:45	5	31	5	31			62	13:45	114	490	105	456			946
02:00	7		4					14:00	128		119				
02:15	8		5					14:15	111		124				
02:30	9		4					14:30	121		114				
02:45	6	30	6	19			49	14:45	133	493	128	485			978
03:00	7		6					15:00	177		135				
03:15	3		3					15:15	181		141				
03:30	5		7					15:30	197		151				
03:45	4	19	8	24			43	15:45	144	699	168	595			1294
04:00	5		9					16:00	221		188				
04:15	2		10					16:15	208		216				
04:30	6		9					16:30	191		235				
04:45	2	15	18	46			61	16:45	205	825	205	844			1669
05:00	6		21					17:00	206		228				
05:15	19		19					17:15	226		252				
05:30	15		33					17:30	244		233				
05:45	22	62	38	111			173	17:45	205	881	250	963			1844
06:00	28		42					18:00	184		221				
06:15	38		55					18:15	135		208				
06:30	44		70					18:30	141		131				
06:45	80	190	111	278			468	18:45	122	582	135	695			1277
07:00	80		122					19:00	135		108				
07:15	88		169					19:15	144		109				
07:30	121		177					19:30	122		88				
07:45	133	422	135	603			1025	19:45	116	517	90	395			912
08:00	128		198					20:00	108		70				
08:15	268		212					20:15	99		65				
08:30	289		235					20:30	80		55				
08:45	90	775	190	835			1610	20:45	77	364	58	248			612
09:00	88		151					21:00	80		60				
09:15	90		121					21:15	65		35				
09:30	84		128					21:30	54		44				
09:45	94	356	105	505			861	21:45	66	265	42	181			446
10:00	95		116					22:00	58		35				
10:15	105		131					22:15	65		38				
10:30	105		105					22:30	51		28				
10:45	111	416	105	457			873	22:45	40	214	33	134			348
11:00	105		88					23:00	35		28				
11:15	111		90					23:15	28		21				
11:30	121		70					23:30	22		19				
11:45	106	443	121	369			812	23:45	30	115	20	88			203
Total Vol.		2824		3336			**6160**		5956		5532				**11488**

Daily Totals

NB	SB	EB	WB	**Combined**
8780	8868			**17648**

	AM			**PM**		
Split %	45.8%	54.2%	**34.9%**	51.8%	48.2%	**65.1%**
Peak Hour	07:45	08:00	**08:00**	16:45	17:00	**17:00**
Volume	818	835	**1610**	881	963	**1844**
P.H.F.	0.71	0.89	**0.77**	0.95	0.96	**0.96**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

LINDA VISTA BTN ALCALA KNOLLS & GLIDDEN

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	13		10					12:00	126		112				
00:15	13		11					12:15	92		116				
00:30	13		3					12:30	124		93				
00:45	5	44	4	28			72	12:45	104	446	131	452			898
01:00	5		7					13:00	127		113				
01:15	7		3					13:15	105		98				
01:30	8		4					13:30	127		89				
01:45	3	23	2	16			39	13:45	103	462	98	398			860
02:00	6		3					14:00	114		109				
02:15	8		1					14:15	109		95				
02:30	6		4					14:30	125		93				
02:45	5	25	2	10			35	14:45	112	460	90	387			847
03:00	2		7					15:00	177		112				
03:15	2		2					15:15	181		134				
03:30	1		9					15:30	197		147				
03:45	6	11	4	22			33	15:45	144	699	151	544			1243
04:00	5		5					16:00	220		145				
04:15	2		11					16:15	206		207				
04:30	6		19					16:30	191		209				
04:45	0	13	20	55			68	16:45	205	822	186	747			1569
05:00	4		15					17:00	208		200				
05:15	18		23					17:15	219		239				
05:30	10		35					17:30	235		210				
05:45	17	49	33	106			155	17:45	205	867	252	901			1768
06:00	22		54					18:00	175		200				
06:15	32		51					18:15	128		180				
06:30	39		78					18:30	127		116				
06:45	70	163	102	285			448	18:45	128	558	117	613			1171
07:00	66		118					19:00	114		85				
07:15	101		168					19:15	123		91				
07:30	122		166					19:30	111		73				
07:45	119	408	121	573			981	19:45	108	456	64	313			769
08:00	158		168					20:00	124		52				
08:15	188		215					20:15	86		62				
08:30	205		205					20:30	70		61				
08:45	99	650	166	754			1404	20:45	67	347	51	226			573
09:00	76		100					21:00	62		47				
09:15	88		104					21:15	61		36				
09:30	78		98					21:30	59		43				
09:45	78	320	98	400			720	21:45	44	226	32	158			384
10:00	82		96					22:00	53		34				
10:15	82		85					22:15	46		30				
10:30	91		84					22:30	41		24				
10:45	84	339	92	357			696	22:45	35	175	27	115			290
11:00	99		71					23:00	28		11				
11:15	99		70					23:15	31		17				
11:30	109		85					23:30	24		9				
11:45	105	412	111	337			749	23:45	22	105	13	50			155
Total Vol.		2457		2943			**5400**			5623		4904			**10527**

Daily Totals

NB	SB	EB	WB	**Combined**
8080	7847			**15927**

	AM			PM		
Split %	45.5%	54.5%	**33.9%**	53.4%	46.6%	**66.1%**
Peak Hour	07:45	08:00	**08:00**	16:45	17:00	**17:00**
Volume	670	754	**1404**	867	901	**1768**
P.H.F.	0.82	0.88	**0.86**	0.97	0.89	**0.97**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

LINDA VISTA BTN GLIDDEN & KRAMER

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	14		11					12:00	147		106				
00:15	12		15					12:15	101		125				
00:30	14		9					12:30	122		97				
00:45	5	45	9	44			89	12:45	127	497	125	453			950
01:00	4		5					13:00	128		123				
01:15	8		4					13:15	117		115				
01:30	8		5					13:30	124		92				
01:45	2	22	5	19			41	13:45	107	476	113	443			919
02:00	7		6					14:00	116		124				
02:15	9		3					14:15	109		101				
02:30	7		4					14:30	128		103				
02:45	5	28	3	16			44	14:45	119	472	111	439			911
03:00	2		7					15:00	170		136				
03:15	3		4					15:15	184		141				
03:30	1		7					15:30	190		162				
03:45	9	15	5	23			38	15:45	153	697	165	604			1301
04:00	6		5					16:00	211		158				
04:15	2		10					16:15	224		231				
04:30	12		15					16:30	178		229				
04:45	4	24	19	49			73	16:45	181	794	202	820			1614
05:00	6		14					17:00	190		217				
05:15	21		27					17:15	244		269				
05:30	16		34					17:30	233		230				
05:45	21	64	31	106			170	17:45	174	841	274	990			1831
06:00	26		52					18:00	177		212				
06:15	36		55					18:15	141		201				
06:30	48		78					18:30	139		137				
06:45	76	186	101	286			472	18:45	133	590	131	681			1271
07:00	75		113					19:00	110		98				
07:15	105		157					19:15	120		115				
07:30	144		150					19:30	117		96				
07:45	146	470	170	590			1060	19:45	103	450	79	388			838
08:00	139		177					20:00	118		73				
08:15	129		202					20:15	95		81				
08:30	149		213					20:30	65		77				
08:45	109	526	154	746			1272	20:45	76	354	61	292			646
09:00	88		119					21:00	63		66				
09:15	90		98					21:15	58		51				
09:30	76		105					21:30	72		40				
09:45	98	352	106	428			780	21:45	42	235	46	203			438
10:00	85		99					22:00	58		42				
10:15	99		93					22:15	41		38				
10:30	95		84					22:30	47		34				
10:45	94	373	100	376			749	22:45	37	183	36	150			333
11:00	106		82					23:00	34		23				
11:15	109		82					23:15	26		21				
11:30	115		89					23:30	24		12				
11:45	106	436	116	369			805	23:45	22	106	23	79			185
Total Vol.		2541		3052			**5593**			5695		5542			**11237**

Daily Totals

NB	SB	EB	WB	**Combined**
8236	8594			**16830**

	AM			PM		
Split %	45.4%	54.6%	**33.2%**	50.7%	49.3%	**66.8%**
Peak Hour	07:45	07:45	**07:45**	16:45	17:00	**17:00**
Volume	563	762	**1325**	848	990	**1831**
P.H.F.	0.94	0.89	**0.92**	0.88	0.90	**0.89**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

TAYLOR BTN I-8 WB RAMPS & HOTEL CIRCLE S.

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	15		22					12:00	111		125				
00:15	19		19					12:15	78		101				
00:30	20		20					12:30	72		116				
00:45	11	65	16	77			142	12:45	75	336	109	451			787
01:00	9		11					13:00	80		110				
01:15	12		9					13:15	71		112				
01:30	5		10					13:30	83		106				
01:45	9	35	5	35			70	13:45	74	308	101	429			737
02:00	10		4					14:00	81		102				
02:15	5		1					14:15	82		96				
02:30	4		1					14:30	76		97				
02:45	3	22	4	10			32	14:45	77	316	111	406			722
03:00	2		0					15:00	92		120				
03:15	1		0					15:15	79		102				
03:30	0		1					15:30	72		106				
03:45	1	4	0	1			5	15:45	75	318	139	467			785
04:00	2		2					16:00	71		120				
04:15	1		4					16:15	75		132				
04:30	2		5					16:30	89		127				
04:45	4	9	12	23			32	16:45	96	331	138	517			848
05:00	5		9					17:00	85		144				
05:15	10		16					17:15	108		168				
05:30	9		25					17:30	85		144				
05:45	11	35	66	116			151	17:45	88	366	120	576			942
06:00	16		80					18:00	76		119				
06:15	18		90					18:15	90		115				
06:30	32		111					18:30	60		100				
06:45	40	106	166	447			553	18:45	55	281	90	424			705
07:00	55		205					19:00	65		74				
07:15	68		219					19:15	48		71				
07:30	77		288					19:30	64		72				
07:45	71	271	313	1025			1296	19:45	60	237	59	276			513
08:00	58		335					20:00	48		65				
08:15	77		268					20:15	44		58				
08:30	84		251					20:30	35		51				
08:45	90	309	214	1068			1377	20:45	32	159	46	220			379
09:00	84		184					21:00	36		44				
09:15	60		161					21:15	29		54				
09:30	67		144					21:30	31		46				
09:45	82	293	121	610			903	21:45	22	118	26	170			288
10:00	66		100					22:00	20		38				
10:15	68		114					22:15	29		37				
10:30	79		111					22:30	30		39				
10:45	95	308	98	423			731	22:45	11	90	43	157			247
11:00	75		104					23:00	15		23				
11:15	67		99					23:15	15		22				
11:30	77		112					23:30	13		26				
11:45	85	304	109	424			728	23:45	15	58	19	90			148
Total Vol.		1761		4259			**6020**			2918		4183			**7101**

	Daily Totals				
	NB	SB	EB	WB	**Combined**
	4679	8442			**13121**

	AM			**PM**		
Split %	29.3%	70.7%	**45.9%**	41.1%	58.9%	**54.1%**
Peak Hour	11:30	07:30	**07:30**	16:30	16:45	**16:45**
Volume	351	1204	**1487**	378	594	**968**
P.H.F.	0.79	0.90	**0.95**	0.92	0.88	**0.88**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

W. MORENA BTN MORENA BLVD & VEGA

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	9		8					12:00	86		80				
00:15	3		3					12:15	83		77				
00:30	3		1					12:30	94		84				
00:45	4	19	6	18			37	12:45	101	364	95	336			700
01:00	3		5					13:00	73		115				
01:15	6		4					13:15	80		128				
01:30	3		2					13:30	63		90				
01:45	2	14	3	14			28	13:45	67	283	90	423			706
02:00	3		2					14:00	76		65				
02:15	2		0					14:15	74		101				
02:30	0		1					14:30	73		105				
02:45	2	7	3	6			13	14:45	92	315	90	361			676
03:00	0		0					15:00	82		116				
03:15	0		0					15:15	92		108				
03:30	0		0					15:30	91		168				
03:45	0	0	2	2			2	15:45	90	355	188	580			935
04:00	1		3					16:00	107		235				
04:15	2		3					16:15	92		219				
04:30	3		6					16:30	101		242				
04:45	4	10	7	19			29	16:45	106	406	226	922			1328
05:00	2		10					17:00	108		284				
05:15	5		26					17:15	100		266				
05:30	10		13					17:30	102		288				
05:45	57	74	15	64			138	17:45	93	403	251	1089			1492
06:00	18		19					18:00	79		226				
06:15	28		31					18:15	68		168				
06:30	57		48					18:30	80		151				
06:45	77	180	55	153			333	18:45	55	282	144	689			971
07:00	98		61					19:00	69		111				
07:15	168		89					19:15	58		80				
07:30	186		89					19:30	55		70				
07:45	192	644	99	338			982	19:45	42	224	51	312			536
08:00	195		90					20:00	47		44				
08:15	215		89					20:15	31		51				
08:30	233		92					20:30	32		50				
08:45	195	838	108	379			1217	20:45	36	146	42	187			333
09:00	101		88					21:00	38		31				
09:15	87		91					21:15	27		33				
09:30	77		70					21:30	29		28				
09:45	70	335	68	317			652	21:45	32	126	15	107			233
10:00	47		70					22:00	17		12				
10:15	87		77					22:15	11		11				
10:30	79		81					22:30	11		19				
10:45	62	275	80	308			583	22:45	12	51	16	58			109
11:00	71		78					23:00	10		12				
11:15	72		91					23:15	8		11				
11:30	78		88					23:30	9		7				
11:45	89	310	91	348			658	23:45	3	30	4	34			64
Total Vol.		2706		1966			**4672**			2985		5098			**8083**

Daily Totals

NB	SB	EB	WB	Combined
5691	7064			**12755**

	AM			PM		
Split %	57.9%	42.1%	**36.6%**	36.9%	63.1%	**63.4%**
Peak Hour	08:00	08:00	**08:00**	16:45	17:00	**17:00**
Volume	838	379	**1217**	416	1089	**1492**
P.H.F.	0.90	0.88	**0.94**	0.96	0.95	**0.95**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

W. MORENA BTN VEGA & BUENOS

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	10		7					12:00	87		92				
00:15	3		2					12:15	93		64				
00:30	2		1					12:30	100		110				
00:45	4	19	6	16			35	12:45	104	384	102	368			752
01:00	3		4					13:00	72		121				
01:15	3		4					13:15	97		127				
01:30	2		3					13:30	76		95				
01:45	2	10	2	13			23	13:45	89	334	90	433			767
02:00	1		2					14:00	68		77				
02:15	2		0					14:15	78		105				
02:30	2		4					14:30	75		102				
02:45	1	6	3	9			15	14:45	97	318	94	378			696
03:00	0		0					15:00	87		120				
03:15	1		0					15:15	88		114				
03:30	0		1					15:30	89		181				
03:45	3	4	2	3			7	15:45	91	355	187	602			957
04:00	1		3					16:00	103		238				
04:15	2		4					16:15	92		222				
04:30	7		5					16:30	105		235				
04:45	4	14	6	18			32	16:45	110	410	223	918			1328
05:00	3		7					17:00	100		272				
05:15	11		14					17:15	100		243				
05:30	14		13					17:30	91		266				
05:45	24	52	17	51			103	17:45	89	380	236	1017			1397
06:00	19		17					18:00	74		208				
06:15	31		22					18:15	66		177				
06:30	62		46					18:30	72		146				
06:45	85	197	54	139			336	18:45	60	272	151	682			954
07:00	94		52					19:00	64		113				
07:15	164		86					19:15	58		83				
07:30	157		82					19:30	62		72				
07:45	196	611	86	306			917	19:45	44	228	59	327			555
08:00	158		103					20:00	47		45				
08:15	214		80					20:15	41		55				
08:30	218		85					20:30	36		46				
08:45	186	776	107	375			1151	20:45	39	163	40	186			349
09:00	102		113					21:00	39		30				
09:15	90		95					21:15	30		34				
09:30	84		68					21:30	27		21				
09:45	79	355	76	352			707	21:45	32	128	14	99			227
10:00	66		68					22:00	17		15				
10:15	86		70					22:15	11		12				
10:30	84		94					22:30	10		24				
10:45	72	308	71	303			611	22:45	11	49	13	64			113
11:00	77		79					23:00	11		12				
11:15	73		92					23:15	6		15				
11:30	77		85					23:30	9		8				
11:45	99	326	94	350			676	23:45	3	29	3	38			67
Total Vol.		2678		1935			**4613**		3050		5112				**8162**

Daily Totals

NB	SB	EB	WB	Combined
5728	7047			**12775**

	AM			PM		
Split %	58.1%	41.9%	**36.1%**	37.4%	62.6%	**63.9%**
Peak Hour	07:45	08:30	**08:00**	16:30	17:00	**16:45**
Volume	786	400	**1151**	415	1017	**1405**
P.H.F.	0.90	0.88	**0.95**	0.94	0.93	**0.94**

WEDNESDAY - SEPTEMBER 6TH, 2017 CITY: MISSION VALLEY PROJECT: PTD17-0908-02

W. MORENA BTN BUENOS & MORENA

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	9		8					12:00	126		124				
00:15	4		2					12:15	123		94				
00:30	4		1					12:30	124		133				
00:45	4	21	6	17			38	12:45	122	495	124	475			970
01:00	3		6					13:00	113		141				
01:15	3		4					13:15	113		147				
01:30	3		3					13:30	108		114				
01:45	3	12	2	15			27	13:45	108	442	122	524			966
02:00	1		3					14:00	99		113				
02:15	2		0					14:15	113		124				
02:30	1		2					14:30	88		122				
02:45	1	5	4	9			14	14:45	110	410	122	481			891
03:00	1		0					15:00	104		147				
03:15	2		1					15:15	117		138				
03:30	2		1					15:30	107		208				
03:45	5	10	2	4			14	15:45	106	434	214	707			1141
04:00	5		4					16:00	105		275				
04:15	5		4					16:15	107		244				
04:30	8		6					16:30	101		274				
04:45	3	21	9	23			44	16:45	123	436	240	1033			1469
05:00	10		9					17:00	97		305				
05:15	17		14					17:15	105		268				
05:30	21		17					17:30	102		296				
05:45	37	85	30	70			155	17:45	95	399	261	1130			1529
06:00	26		19					18:00	86		224				
06:15	51		30					18:15	74		197				
06:30	69		52					18:30	68		177				
06:45	103	249	54	155			404	18:45	72	300	157	755			1055
07:00	137		55					19:00	75		123				
07:15	186		89					19:15	58		95				
07:30	177		85					19:30	68		76				
07:45	230	730	93	322			1052	19:45	55	256	74	368			624
08:00	183		111					20:00	52		68				
08:15	242		91					20:15	48		63				
08:30	241		99					20:30	34		45				
08:45	207	873	115	416			1289	20:45	39	173	49	225			398
09:00	141		115					21:00	35		46				
09:15	124		105					21:15	31		41				
09:30	92		91					21:30	33		25				
09:45	112	469	87	398			867	21:45	26	125	18	130			255
10:00	96		86					22:00	19		19				
10:15	118		91					22:15	11		12				
10:30	113		120					22:30	11		24				
10:45	104	431	95	392			823	22:45	11	52	18	73			125
11:00	109		96					23:00	13		13				
11:15	89		107					23:15	6		15				
11:30	95		112					23:30	7		9				
11:45	135	428	111	426			854	23:45	3	29	2	39			68
Total Vol.		3334		2247			**5581**			3551		5940			**9491**

Daily Totals

NB	SB	EB	WB	**Combined**
6885	8187			**15072**

	AM			PM		
Split %	59.7%	40.3%	**37.0%**	37.4%	62.6%	**63.0%**
Peak Hour	07:45	11:45	**07:45**	12:00	17:00	**16:45**
Volume	896	462	**1290**	495	1130	**1536**
P.H.F.	0.93	0.87	**0.95**	0.99	0.93	**0.96**

TRAFFIC COUNT VALIDATION

Existing Intersection Volume Comparison (Validation)

ID	Intersection	Control	Peak	Riverwalk Counts (Year 2017)													MVCP ECR Counts (Year 2015)												DELTA
				NB-L	NB-T	NB-R	SB-L	SB-T	SB-R	EB-L	EB-T	EB-R	WB-L	WB-T	WB-R	Total Volume	NB-L	NB-T	NB-R	SB-L	SB-T	SB-R	EB-L	EB-T	EB-R	WB-L	WB-T	WB-R	Total Volume	
17	Friars Rd. - Napa St.	Signalized	AM	0	0	0	189	0	58	184	358	0	0	323	381	1,493	0	0	0	206	0	86	217	309	0	0	787	734	2,339	-36.2%
			PM	0	0	0	511	0	132	148	1,048	0	0	360	283	2,482	0	0	0	523	0	187	134	949	0	0	400	350	2,543	-2.4%
28	Friars Rd. - Fashion Valley Rd.	Signalized	AM	246	0	78	17	5	7	9	571	132	207	1,422	11	2,705	280	1	81	17	2	5	2	538	103	173	1,541	8	2,751	-1.7%
			PM	226	10	285	14	3	5	4	1,535	283	175	799	23	3,362	240	5	289	6	3	2	7	1,469	312	197	739	13	3,282	2.4%
29	Friars Rd. - Via De La Moda	Signalized	AM	6	2	33	0	0	0	0	695	16	82	1,664	0	2,498	4	0	23	0	0	0	0	653	15	84	1,756	0	2,535	-1.5%
			PM	57	3	258	0	0	0	0	1,666	69	279	934	0	3,266	42	0	242	0	0	0	0	1,670	56	235	889	0	3,134	4.2%
30	Friars Rd. - Avenida De Las Tiendas	Signalized	AM	2	1	27	38	0	6	3	787	24	162	1,751	4	2,805	3	0	15	27	0	3	0	649	21	159	1,839	2	2,718	3.2%
			PM	44	1	276	19	0	5	28	2,019	37	569	1,133	22	4,153	37	1	275	18	0	3	22	1,956	47	492	1,049	27	3,927	5.8%
35	Friars Rd. - Frazee Rd.	Signalized	AM	184	125	83	30	28	243	601	918	441	37	1,662	58	4,410	137	106	30	29	43	263	632	851	460	43	1,729	42	4,365	1.0%
			PM	448	99	179	160	95	603	415	2,120	642	120	1,261	43	6,185	425	83	174	136	86	596	364	2,047	676	97	1,155	43	5,882	5.2%
50	I-8 WB Ramps - Hotel Circle N.	Unsignalized	AM	346	10	700	5	1	0	0	116	9	117	149	21	1,474	343	16	672	8	1	1	0	111	7	89	174	15	1,437	2.6%
			PM	162	7	515	4	1	0	1	334	23	340	109	13	1,509	139	4	506	4	1	1	1	310	17	330	116	9	1,438	4.9%
53	Hotel Circle S. - Bachman Pl.	Signalized	AM	288	0	114	0	0	0	0	179	190	304	329	0	1,404	228	0	119	0	0	0	0	190	177	320	500	0	1,534	-8.5%
			PM	369	0	262	0	0	0	0	309	141	252	598	0	1,931	393	0	245	0	0	0	0	265	89	203	553	0	1,748	10.5%
Overall Average AM Peak																													***-5.9%***
Overall Average PM Peak																													***4.4%***
Overall Average (AM + PM) Peaks																													***-0.7%***

Legend

NB-L = northbound left
NB-T= northbound through
NB-R= northbound right
SB-L= southbound left
SB-T= southbound through
SB-R= southbound right
EB-L= eastbound left
EB-T= eastbound through
EB-R= eastbound right
WB-L= westbound left
WB-T= westbound through
WB-R= westbound right
Delta equals Validation Total Volume - ECR Total Volumes divided by ECR Total

MV CP ECR = Mission Valley Community Plan Existing Conditions Report

Existing Street Segment Count Validation

Road	Segment	Year 2017 Counts ADT	MV ECR Year 2015 ADT	Change in Volume (Year 2017 to Year 2015)
Friars Rd.	Colusa St. - Goshen St.	19,750	19,200	2.9%
	Goshen St. - Via Las Cumbres	19,750	19,200	2.9%
	Mission Center Rd. - Qualcomm Wy.	36,050	37,050	-2.7%
Hotel Circle N.	I-8 WB Ramps - Fashion Valley Rd.	15,680	15,510	1.1%
	Fashion Valley Rd. - Camino De La Reina	13,560	12,460	8.8%
Hotel Circle S.	Bachman Pl. - I-8 EB Ramps	14,150	17,200	-17.7%
Camino De La Reina	Camino De La Siesta - Camino Del Arroyo	12,430	10,730	15.8%
	Camino Del Arroyo - Shopping Center Drwy.	13,120	10,730	22.3%
Fashion Valley Rd.	Friars Rd. - Riverwalk Dr.	10,540	9,980	5.6%
Fashion Valley Rd.	Riverwalk Drive to Hotel Circle North	10,560	9,980	5.8%
Sea World Dr.	I-5 SB Ramps - I-5 NB Ramps	25,930	30,470	-14.9%
Napa St.	Morena Blvd. - Linda Vista Rd.	15,450	13,430	15.0%
	Linda Vista Rd. - Riley St.	15,440	13,430	15.0%
	Overall Average			5%

APPENDIX D

EXISTING INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Existing AM
02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	512	264	1136	397	115	702
Future Volume (veh/h)	512	264	1136	397	115	702
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	545	12	1209	0	122	747
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	677	301	1790	1099	202	2229
Arrive On Green	0.19	0.19	0.50	0.00	0.06	0.63
Sat Flow, veh/h	3563	1585	3647	1585	3456	3647
Grp Volume(v), veh/h	545	12	1209	0	122	747
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1728	1777
Q Serve(g_s), s	9.9	0.4	17.4	0.0	2.3	6.7
Cycle Q Clear(g_c), s	9.9	0.4	17.4	0.0	2.3	6.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	677	301	1790	1099	202	2229
V/C Ratio(X)	0.81	0.04	0.68	0.00	0.60	0.34
Avail Cap(c_a), veh/h	1566	697	2924	1605	489	3700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	22.4	12.7	0.0	31.1	6.0
Incr Delay (d2), s/veh	0.9	0.0	0.6	0.0	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.1	5.4	0.0	1.0	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.1	22.4	13.3	0.0	32.2	6.2
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	557		1209			869
Approach Delay, s/veh	27.0		13.3			9.8
Approach LOS	C		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	8.4	40.4				48.7	19.1
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	9.6	55.8				* 71	29.8
Max Q Clear Time (g_c+I1), s	4.3	19.4				8.7	11.9
Green Ext Time (p_c), s	0.1	14.8				13.9	1.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

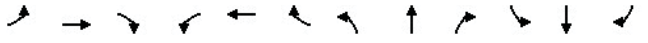
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Existing AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	77	28	116	103	170	1002	72	118	631	157
Future Volume (veh/h)	50	45	77	28	116	103	170	1002	72	118	631	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	50	86	31	129	114	189	1113	80	131	701	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	226	182	45	205	161	271	1930	881	94	1838	868
Arrive On Green	0.04	0.12	0.12	0.03	0.11	0.11	0.08	0.54	0.54	0.05	0.52	0.52
Sat Flow, veh/h	3456	1870	1505	1781	1870	1473	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	56	50	86	31	129	114	189	1113	80	131	701	174
Grp Sat Flow(s),veh/h/ln	1728	1870	1505	1781	1870	1473	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	1.2	1.8	4.0	1.3	5.0	5.7	4.0	15.8	1.8	4.0	9.0	4.2
Cycle Q Clear(g_c), s	1.2	1.8	4.0	1.3	5.0	5.7	4.0	15.8	1.8	4.0	9.0	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	226	182	45	205	161	271	1930	881	94	1838	868
V/C Ratio(X)	0.44	0.22	0.47	0.69	0.63	0.71	0.70	0.58	0.09	1.40	0.38	0.20
Avail Cap(c_a), veh/h	241	764	615	108	737	580	291	1930	881	94	1838	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	30.1	31.1	36.7	32.3	32.6	34.1	11.5	7.5	35.9	11.0	8.5
Incr Delay (d2), s/veh	0.9	0.5	1.9	6.8	1.2	2.1	5.2	1.3	0.2	230.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.8	1.5	0.6	2.3	2.1	1.9	5.8	0.6	7.7	3.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	30.6	33.0	43.4	33.5	34.7	39.3	12.8	7.7	266.0	11.6	9.0
LnGrp LOS	D	C	C	D	C	C	D	B	A	F	B	A
Approach Vol, veh/h		192			274			1382			1006	
Approach Delay, s/veh		33.5			35.1			16.1			44.3	
Approach LOS		C			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	46.5	6.3	14.7	10.3	44.6	7.2	13.8
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	41.2	4.6	* 31	6.4	* 39	5.3	29.9
Max Q Clear Time (g_c+I1), s	6.0	17.8	3.3	6.0	6.0	11.0	3.2	7.7
Green Ext Time (p_c), s	0.0	13.4	0.0	0.5	0.0	9.1	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1373	0	317	238	0	0	0	0	261	1	685
Future Volume (veh/h)	0	1373	0	317	238	0	0	0	0	261	1	685
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1430	0	330	248	0				272	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1556	694	417	2184	0				457	2	
Arrive On Green	0.00	0.44	0.00	0.12	0.61	0.00				0.26	0.26	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1775	7	1585
Grp Volume(v), veh/h	0	1430	0	330	248	0				273	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1782	0	1585
Q Serve(g_s), s	0.0	28.4	0.0	7.0	2.2	0.0				10.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.4	0.0	7.0	2.2	0.0				10.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1556	694	417	2184	0				459	0	
V/C Ratio(X)	0.00	0.92	0.00	0.79	0.11	0.00				0.60	0.00	
Avail Cap(c_a), veh/h	0	1616	721	447	2274	0				459	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.52	0.52	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.8	0.0	32.1	6.0	0.0				24.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.4	0.0	4.8	0.0	0.0				1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	0.0	3.1	0.7	0.0				4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	28.2	0.0	36.8	6.0	0.0				25.9	0.0	0.0
LnGrp LOS	A	C	A	D	A	A				C	A	
Approach Vol, veh/h		1430			578						273	A
Approach Delay, s/veh		28.2			23.6						25.9	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.3	37.8		23.9		51.1						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 9.7	34.1		17.4		48.0						
Max Q Clear Time (g_c+I1), s	9.0	30.4		12.1		4.2						
Green Ext Time (p_c), s	0.1	2.5		0.3		1.1						

Intersection Summary			
HCM 6th Ctrl Delay		26.8	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1063	552	0	0	478	476	72	25	247	0	0	0
Future Volume (veh/h)	1063	552	0	0	478	476	72	25	247	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1119	581	0	0	503	501	76	26	260			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1222	2617	0	0	580	518	173	59	204			
Arrive On Green	0.35	0.74	0.00	0.00	0.33	0.33	0.13	0.13	0.13			
Sat Flow, veh/h	3456	3647	0	0	1870	1585	1344	460	1585			
Grp Volume(v), veh/h	1119	581	0	0	503	501	102	0	260			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1803	0	1585			
Q Serve(g_s), s	23.2	3.9	0.0	0.0	19.9	23.3	3.9	0.0	9.7			
Cycle Q Clear(g_c), s	23.2	3.9	0.0	0.0	19.9	23.3	3.9	0.0	9.7			
Prop In Lane	1.00		0.00	0.00		1.00	0.75		1.00			
Lane Grp Cap(c), veh/h	1222	2617	0	0	580	518	233	0	204			
V/C Ratio(X)	0.92	0.22	0.00	0.00	0.87	0.97	0.44	0.00	1.27			
Avail Cap(c_a), veh/h	1281	2677	0	0	580	518	233	0	204			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.45	0.45	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.2	3.1	0.0	0.0	23.7	24.9	30.2	0.0	32.7			
Incr Delay (d2), s/veh	5.1	0.0	0.0	0.0	12.6	31.1	0.5	0.0	154.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.6	0.9	0.0	0.0	9.8	12.6	1.7	0.0	16.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	3.1	0.0	0.0	36.3	56.0	30.6	0.0	187.4			
LnGrp LOS	C	A	A	A	D	E	C	A	F			
Approach Vol, veh/h		1700			1004			362				
Approach Delay, s/veh		19.7			46.1			143.2				
Approach LOS		B			D			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		60.7		14.3	30.7	30.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		56.5		8.4	* 28	24.5						
Max Q Clear Time (g_c+I1), s		5.9		11.7	25.2	25.3						
Green Ext Time (p_c), s		2.9		0.0	1.3	0.0						

Intersection Summary			
HCM 6th Ctrl Delay		42.9	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	430	70	136	698	19	255	25	204	31	31	51
Future Volume (veh/h)	25	430	70	136	698	19	255	25	204	31	31	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	478	78	151	776	21	283	28	227	34	34	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	1462	624	172	1719	47	311	524	588	43	243	200
Arrive On Green	0.02	0.41	0.41	0.10	0.49	0.49	0.17	0.28	0.28	0.02	0.13	0.13
Sat Flow, veh/h	1781	3554	1516	1781	3531	96	1781	1870	1553	1781	1870	1541
Grp Volume(v), veh/h	28	478	78	151	390	407	283	28	227	34	34	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1516	1781	1777	1850	1781	1870	1553	1781	1870	1541
Q Serve(g_s), s	1.7	10.1	3.5	9.2	15.9	15.9	17.2	1.2	11.7	2.1	1.8	3.7
Cycle Q Clear(g_c), s	1.7	10.1	3.5	9.2	15.9	15.9	17.2	1.2	11.7	2.1	1.8	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	37	1462	624	172	865	900	311	524	588	43	243	200
V/C Ratio(X)	0.75	0.33	0.13	0.88	0.45	0.45	0.91	0.05	0.39	0.79	0.14	0.28
Avail Cap(c_a), veh/h	97	1462	624	172	865	900	317	663	703	102	442	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	22.0	20.1	49.1	18.6	18.6	44.6	28.9	25.0	53.4	42.4	43.2
Incr Delay (d2), s/veh	10.7	0.6	0.4	35.9	1.7	1.6	28.0	0.0	0.2	11.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	1.3	5.8	6.8	7.1	9.9	0.5	4.3	1.1	0.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	22.6	20.5	85.0	20.3	20.2	72.6	29.0	25.2	65.0	42.5	43.5
LnGrp LOS	E	C	C	F	C	C	E	C	C	E	D	D
Approach Vol, veh/h		584			948			538			125	
Approach Delay, s/veh		24.3			30.5			50.3			49.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.9	23.6	19.5	6.7	60.2	7.0	36.0
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	10.6	* 34	19.6	* 26	6.0	38.0	6.3	39.0
Max Q Clear Time (g_c+I1), s	11.2	12.1	19.2	5.7	3.7	17.9	4.1	13.7
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.4	0.0	0.5

Intersection Summary		
HCM 6th Ctrl Delay	34.8	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	112	3	3	834	462	0	0	15	88	1	221
Future Volume (vph)	285	112	3	3	834	462	0	0	15	88	1	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (prot)	3433	3524		1750	3330				1520	1681	1687	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (perm)	3433	3524		1750	3330				1520	1681	1687	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	317	124	3	3	927	513	0	0	17	98	1	246
RTOR Reduction (vph)	0	1	0	0	48	0	0	0	17	0	0	160
Lane Group Flow (vph)	317	126	0	3	1392	0	0	0	0	49	50	86
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	14.7	76.5		0.8	62.6				2.1	30.2	30.2	44.9
Effective Green, g (s)	14.7	76.5		0.8	62.6				2.1	30.2	30.2	44.9
Actuated g/C Ratio	0.11	0.60		0.01	0.49				0.02	0.24	0.24	0.35
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	393	2102		10	1626				24	395	397	549
v/s Ratio Prot	c0.09	0.04		0.00	c0.42					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.81	0.06		0.30	0.86				0.01	0.12	0.13	0.16
Uniform Delay, d1	55.4	10.8		63.4	28.8				62.0	38.6	38.6	28.6
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	0.0		6.1	6.0				0.2	0.6	0.7	0.0
Delay (s)	66.2	10.8		69.5	34.9				62.2	39.2	39.3	28.7
Level of Service	E	B		E	C				E	D	D	C
Approach Delay (s)		50.4			35.0			62.2			31.7	
Approach LOS		D			C			E			C	

Intersection Summary				
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	128.2	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	83.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	217	309	787	734	206	86
Future Volume (vph)	217	309	787	734	206	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1547	3424	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1547	3424	1418
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	233	332	846	789	222	92
RTOR Reduction (vph)	0	0	0	394	3	71
Lane Group Flow (vph)	233	332	846	395	228	12
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	16.0	51.0	31.0	43.6	12.6	12.6
Effective Green, g (s)	16.0	51.0	31.0	43.6	12.6	12.6
Actuated g/C Ratio	0.18	0.59	0.36	0.50	0.14	0.14
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	325	2072	1259	774	495	205
v/s Ratio Prot	c0.13	0.09	c0.24	c0.07	0.07	
v/s Ratio Perm				0.18		0.01
v/c Ratio	0.72	0.16	0.67	0.51	0.46	0.06
Uniform Delay, d1	33.4	8.3	23.7	14.6	34.1	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.2	1.6	1.1	1.4	0.3
Delay (s)	39.6	8.4	25.4	15.7	35.6	32.4
Level of Service	D	A	C	B	D	C
Approach Delay (s)		21.3	20.7		34.7	
Approach LOS		C	C		C	

Intersection Summary				
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	18.9	
Intersection Capacity Utilization	67.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	382	19	13	1521	81	53	5	34	55	2	32
Future Volume (veh/h)	39	382	19	13	1521	81	53	5	34	55	2	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	424	14	14	1690	81	59	6	0	61	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	2043	67	111	2112	101	252	21	183	288	216	0
Arrive On Green	0.03	0.58	0.58	0.06	0.61	0.61	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3506	116	1781	3451	164	1253	179	1585	1386	1870	0
Grp Volume(v), veh/h	43	214	224	14	865	906	65	0	0	61	2	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1845	1781	1777	1839	1432	0	1585	1386	1870	0
Q Serve(g_s), s	1.5	3.7	3.7	0.5	23.5	24.1	2.4	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	1.5	3.7	3.7	0.5	23.5	24.1	2.6	0.0	0.0	2.0	0.1	0.0
Prop In Lane	1.00		0.06	1.00		0.09	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	60	1035	1075	111	1087	1125	273	0	183	288	216	0
V/C Ratio(X)	0.72	0.21	0.21	0.13	0.80	0.81	0.24	0.00	0.00	0.21	0.01	0.00
Avail Cap(c_a), veh/h	111	1035	1075	446	1104	1142	797	0	769	800	907	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.6	6.3	6.3	28.3	9.4	9.5	26.2	0.0	0.0	25.9	25.0	0.0
Incr Delay (d2), s/veh	6.0	0.5	0.4	0.2	6.0	6.1	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.1	1.1	0.2	7.4	7.9	0.9	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	6.8	6.8	28.5	15.4	15.6	26.3	0.0	0.0	26.1	25.0	0.0
LnGrp LOS	D	A	A	C	B	B	C	A	A	C	C	A
Approach Vol, veh/h		481			1785			65			63	
Approach Delay, s/veh		9.4			15.6			26.3			26.0	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	43.3		12.3	6.5	45.1		12.3				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	2.5	5.7		4.0	3.5	26.1		4.6				
Green Ext Time (p_c), s	0.0	5.7		0.1	0.0	13.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	14.9	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	469	810	33	38	27
Future Vol, veh/h	40	469	810	33	38	27
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	510	880	36	41	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	953	0	-	0	1276	495
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	341	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	717	-	-	-	158	520
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	695	-	-	-	139	504
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	695	-	-	-	310
HCM Lane V/C Ratio	0.063	-	-	-	0.228
HCM Control Delay (s)	10.5	-	-	-	20
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	378	0	0	1500	465	0	0	0	159	0	115
Future Volume (veh/h)	87	378	0	0	1500	465	0	0	0	159	0	115
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	97	420	0	0	1667	346				177	0	0
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	123	2698	0	0	2281	988				214	0	190
Arrive On Green	0.07	0.76	0.00	0.00	0.64	0.64				0.12	0.00	0.00
Sat Flow, veh/h	1781	3647	0	0	3647	1539				1781	0	1585
Grp Volume(v), veh/h	97	420	0	0	1667	346				177	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1539				1781	0	1585
Q Serve(g_s), s	4.9	2.9	0.0	0.0	28.8	9.5				8.8	0.0	0.0
Cycle Q Clear(g_c), s	4.9	2.9	0.0	0.0	28.8	9.5				8.8	0.0	0.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	123	2698	0	0	2281	988				214	0	190
V/C Ratio(X)	0.79	0.16	0.00	0.00	0.73	0.35				0.83	0.00	0.00
Avail Cap(c_a), veh/h	149	2698	0	0	2281	988				625	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	41.8	3.0	0.0	0.0	11.0	7.5				39.2	0.0	0.0
Incr Delay (d2), s/veh	16.7	0.1	0.0	0.0	2.1	1.0				3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.6	0.0	0.0	9.3	2.7				4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.5	3.1	0.0	0.0	13.1	8.5				42.3	0.0	0.0
LnGrp LOS	E	A	A	A	B	A				D	A	A
Approach Vol, veh/h		517			2013						177	
Approach Delay, s/veh		13.5			12.3						42.3	
Approach LOS		B			B						D	

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		75.1		16.0	10.7	64.4			
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9			
Max Green Setting (Gmax), s		* 69		32.0	7.6	57.0			
Max Q Clear Time (g_c+I1), s		4.9		10.8	6.9	30.8			
Green Ext Time (p_c), s		2.1		0.2	0.0	12.6			

Intersection Summary		
HCM 6th Ctrl Delay		14.5
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	538	103	173	1541	8	280	1	81	17	2	5
Future Volume (veh/h)	2	538	103	173	1541	8	280	1	81	17	2	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	598	64	192	1712	8	311	1	46	19	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	2062	218	204	1804	8	580	2	622	294	28	0
Arrive On Green	0.00	0.44	0.44	0.12	0.99	0.99	0.34	0.34	0.34	0.34	0.34	0.00
Sat Flow, veh/h	1781	4679	495	3456	3627	17	1537	5	1575	692	83	0
Grp Volume(v), veh/h	2	433	229	192	838	882	312	0	46	21	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1770	1728	1777	1867	1542	0	1575	775	0	0
Q Serve(g_s), s	0.1	9.1	9.3	6.2	5.0	5.1	0.0	0.0	2.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	9.1	9.3	6.2	5.0	5.1	16.9	0.0	2.0	18.0	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.01	1.00		1.00	0.90		0.00
Lane Grp Cap(c), veh/h	4	1500	780	204	884	928	582	0	622	322	0	0
V/C Ratio(X)	0.52	0.29	0.29	0.94	0.95	0.95	0.54	0.00	0.07	0.07	0.00	0.00
Avail Cap(c_a), veh/h	65	1599	831	204	884	928	582	0	622	322	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.99	0.00	0.99	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.8	20.1	20.1	49.2	0.2	0.2	30.3	0.0	21.1	34.8	0.0	0.0
Incr Delay (d2), s/veh	35.2	0.1	0.2	36.3	15.2	14.8	3.5	0.0	0.2	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.4	3.7	3.5	3.8	3.9	7.4	0.0	0.8	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	20.2	20.3	85.5	15.4	15.0	33.8	0.0	21.4	35.2	0.0	0.0
LnGrp LOS	F	C	C	F	B	B	C	A	C	D	A	A
Approach Vol, veh/h		664			1912			358			21	
Approach Delay, s/veh		20.4			22.2			32.2			35.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	55.2		42.5	4.6	61.6		42.5				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	6.6	52.6		37.6	4.1	* 56		37.6				
Max Q Clear Time (g_c+I1), s	8.2	11.3		20.0	2.1	7.1		18.9				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	24.8		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		23.1	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing AM
03/18/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	653	15	84	1756	4	23
Future Volume (veh/h)	0	653	15	84	1756	4	23
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		710	12	91	1909	4	0
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		4278	72	143	3228	7	7
Arrive On Green		1.00	1.00	0.04	0.91	0.00	0.00
Sat Flow, veh/h		5337	87	3456	3647	1781	1585
Grp Volume(v), veh/h		467	255	91	1909	4	0
Grp Sat Flow(s),veh/h/ln		1702	1852	1728	1777	1781	1585
Q Serve(g_s), s		0.0	0.0	2.9	11.9	0.3	0.0
Cycle Q Clear(g_c), s		0.0	0.0	2.9	11.9	0.3	0.0
Prop In Lane			0.05	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2817	1533	143	3228	7	7
V/C Ratio(X)		0.17	0.17	0.64	0.59	0.54	0.00
Avail Cap(c_a), veh/h		2817	1533	210	3228	493	439
HCM Platoon Ratio		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.97	0.97	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	52.9	1.0	55.7	0.0
Incr Delay (d2), s/veh		0.1	0.2	1.8	0.8	20.5	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.0	0.1	1.3	0.4	0.2	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		0.1	0.2	54.6	1.8	76.2	0.0
LnGrp LOS		A	A	D	A	E	A
Approach Vol, veh/h		722			2000	4	
Approach Delay, s/veh		0.2			4.2	76.2	
Approach LOS		A			A	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.0	98.1				107.1		4.9
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	6.8	60.0				* 63		31.0
Max Q Clear Time (g_c+I1), s	4.9	2.0				13.9		2.3
Green Ext Time (p_c), s	0.0	6.2				30.4		0.0

Intersection Summary			
HCM 6th Ctrl Delay		3.3	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	649	21	159	1839	2	3	0	15	27	0	3
Future Volume (veh/h)	0	649	21	159	1839	2	3	0	15	27	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	690	22	169	1956	2	3	0	16	29	0	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3806	121	233	4508	5	134	0	163	136	0	81
Arrive On Green	0.00	0.75	0.75	0.07	0.86	0.86	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1781	5081	162	3456	5268	5	1390	0	3115	1374	0	1558
Grp Volume(v), veh/h	0	462	250	169	1264	694	3	0	16	29	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1838	1728	1702	1869	1390	0	1558	1374	0	1558
Q Serve(g_s), s	0.0	4.4	4.4	5.4	9.5	9.5	0.2	0.0	0.5	2.3	0.0	0.2
Cycle Q Clear(g_c), s	0.0	4.4	4.4	5.4	9.5	9.5	0.4	0.0	0.5	2.3	0.0	0.2
Prop In Lane	1.00		0.09	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	2550	1377	233	2913	1600	134	0	163	136	0	81
V/C Ratio(X)	0.00	0.18	0.18	0.72	0.43	0.43	0.02	0.00	0.10	0.21	0.00	0.04
Avail Cap(c_a), veh/h	64	2550	1377	543	2913	1600	435	0	837	433	0	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.1	4.1	51.2	1.9	1.9	50.6	0.0	50.6	51.4	0.0	50.4
Incr Delay (d2), s/veh	0.0	0.2	0.3	1.6	0.5	0.9	0.0	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	1.3	2.3	1.1	1.4	0.1	0.0	0.2	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.2	4.4	52.8	2.3	2.7	50.6	0.0	50.7	51.7	0.0	50.5
LnGrp LOS	A	A	A	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		712			2127			19			32	
Approach Delay, s/veh		4.3			6.5			50.7			51.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	89.3		10.7	0.0	101.3		10.7				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	17.6	49.6		30.1	4.0	* 63		30.1				
Max Q Clear Time (g_c+I1), s	7.4	6.4		4.3	0.0	11.5		2.5				
Green Ext Time (p_c), s	0.2	6.0		0.0	0.0	28.4		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		6.7
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	770	59	0	1816	0	43
Future Vol, veh/h	770	59	0	1816	0	43
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	856	66	0	2018	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	471
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	461
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	456
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

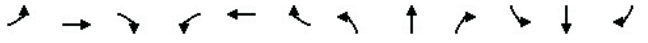
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	456	-	-	-
HCM Lane V/C Ratio	0.105	-	-	-
HCM Control Delay (s)	13.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	614	0	481	422
Future Volume (Veh/h)	0	0	614	0	481	422
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	667	0	523	459
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	1942	334			667	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1942	334			667	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			43	
cM capacity (veh/h)	25	662			919	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	445	222	523	230	230
Volume Left	0	0	523	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	919	1700	1700
Volume to Capacity	0.26	0.13	0.57	0.14	0.14
Queue Length 95th (ft)	0	0	92	0	0
Control Delay (s)	0.0	0.0	14.0	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		7.4		
Approach LOS					

Intersection Summary				
Average Delay		4.4		
Intersection Capacity Utilization		50.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	485	205	0	1394	463	446	33	770	307	0	77
Future Volume (vph)	52	485	205	0	1394	463	446	33	770	307	0	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.0	4.0		7.0	7.0	4.6	4.6	4.0	4.6		4.6
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		0.99	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1551		4778	1345	1681	1697	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1551		4778	1345	1681	1697	1564	3433		1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	55	516	218	0	1483	493	474	35	819	327	0	82
RTOR Reduction (vph)	0	0	0	0	2	58	0	0	0	0	0	66
Lane Group Flow (vph)	55	516	218	0	1535	381	256	253	819	327	0	16
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1			1			1
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	12.0	71.9	140.0		55.7	55.7	25.4	25.4	140.0	26.5		26.5
Effective Green, g (s)	12.0	71.9	140.0		55.7	55.7	25.4	25.4	140.0	26.5		26.5
Actuated g/C Ratio	0.09	0.51	1.00		0.40	0.40	0.18	0.18	1.00	0.19		0.19
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	151	2611	1551		1900	535	304	307	1564	649		299
v/s Ratio Prot	0.03	0.10			c0.32					0.10		0.01
v/s Ratio Perm			0.14			0.28	c0.15	0.15	c0.52			
v/c Ratio	0.36	0.20	0.14		0.81	0.71	0.84	0.82	0.52	0.50		0.05
Uniform Delay, d1	60.4	18.4	0.0		37.4	35.4	55.4	55.1	0.0	50.9		46.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.5	0.2	0.2		3.8	7.9	23.7	21.6	1.3	0.2		0.0
Delay (s)	60.9	18.6	0.2		41.2	43.3	79.0	76.7	1.3	51.1		46.5
Level of Service	E	B	A		D	D	E	E	A	D		D
Approach Delay (s)		16.5			41.7			30.6			50.2	
Approach LOS		B			D			C			D	

Intersection Summary					
HCM 2000 Control Delay		34.8	HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.76			
Actuated Cycle Length (s)		140.0	Sum of lost time (s)		20.4
Intersection Capacity Utilization		72.8%	ICU Level of Service		C
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing AM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	1166	0	0	1488	703	0	0	857	0	0	690
Future Volume (veh/h)	399	1166	0	0	1488	703	0	0	857	0	0	690
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	420	1227	0	0	1566	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	445	5391	0	0	2412							
Arrive On Green	0.25	0.96	0.00	0.00	0.68	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	420	1227	0	0	1566	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	32.4	1.5	0.0	0.0	35.4	0.0						
Cycle Q Clear(g_c), s	32.4	1.5	0.0	0.0	35.4	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	445	5391	0	0	2412							
V/C Ratio(X)	0.94	0.23	0.00	0.00	0.65							
Avail Cap(c_a), veh/h	744	5391	0	0	2412							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	51.6	0.1	0.0	0.0	12.9	0.0						
Incr Delay (d2), s/veh	9.4	0.1	0.0	0.0	1.4	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	15.2	0.0	0.0	0.0	13.9	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.2	0.0	0.0	14.3	0.0						
LnGrp LOS	E	A	A	A	B							
Approach Vol, veh/h		1647			1566	A						
Approach Delay, s/veh		15.7			14.3							
Approach LOS		B			B							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		140.0			39.5	100.5						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		134.5			58.5	71.5						
Max Q Clear Time (g_c+I1), s		3.5			34.4	37.4						
Green Ext Time (p_c), s		6.3			0.6	10.9						

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	632	851	460	43	1729	42	137	106	30	29	43	263
Future Volume (veh/h)	632	851	460	43	1729	42	137	106	30	29	43	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	658	886	479	45	1801	44	143	110	31	30	0	304
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	660	2682	821	58	1874	572	194	717	194	107	0	719
Arrive On Green	0.19	0.53	0.53	0.03	0.37	0.37	0.06	0.26	0.26	0.03	0.00	0.24
Sat Flow, veh/h	3456	5106	1562	1781	5106	1559	3456	2743	741	3563	0	3053
Grp Volume(v), veh/h	658	886	479	45	1801	44	143	70	71	30	0	304
Grp Sat Flow(s),veh/h/ln	1728	1702	1562	1781	1702	1559	1728	1777	1707	1781	0	1526
Q Serve(g_s), s	25.5	13.4	28.1	3.4	46.3	2.5	5.5	4.0	4.3	1.1	0.0	11.3
Cycle Q Clear(g_c), s	25.5	13.4	28.1	3.4	46.3	2.5	5.5	4.0	4.3	1.1	0.0	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	660	2682	821	58	1874	572	194	464	446	107	0	719
V/C Ratio(X)	1.00	0.33	0.58	0.78	0.96	0.08	0.74	0.15	0.16	0.28	0.00	0.42
Avail Cap(c_a), veh/h	660	2682	821	125	1874	572	291	649	624	159	0	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.2	18.3	21.8	64.4	41.5	27.6	62.3	38.1	38.2	63.6	0.0	43.5
Incr Delay (d2), s/veh	34.3	0.3	3.0	8.0	13.4	0.3	3.0	0.1	0.1	0.8	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	5.1	10.9	1.6	20.9	1.0	2.5	1.8	1.8	0.5	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	18.6	24.8	72.4	55.0	27.9	65.3	38.1	38.2	64.4	0.0	43.8
LnGrp LOS	F	B	C	E	D	C	E	D	D	E	A	D
Approach Vol, veh/h		2023			1890			284			334	
Approach Delay, s/veh		42.8			54.7			51.8			45.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	76.9	11.9	36.5	30.0	55.7	8.4	39.9				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.4	* 66	11.3	43.7	25.6	49.2	6.0	49.0				
Max Q Clear Time (g_c+I1), s	5.4	30.1	7.5	13.3	27.5	48.3	3.1	6.3				
Green Ext Time (p_c), s	0.0	13.4	0.1	0.9	0.0	0.9	0.0	0.5				

Intersection Summary	
HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	329	142	466	0	0	363	267
Future Volume (veh/h)	0	0	0	147	0	329	142	466	0	0	363	267
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				155	0	346	149	491	0	0	382	281
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				913	0	398	218	2201	0	0	1803	800
Arrive On Green				0.26	0.00	0.26	0.13	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				155	0	346	149	491	0	0	382	281
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1578
Q Serve(g_s), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.3	9.6
Cycle Q Clear(g_c), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.3	9.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				913	0	398	218	2201	0	0	1803	800
V/C Ratio(X)				0.17	0.00	0.87	0.68	0.22	0.00	0.00	0.21	0.35
Avail Cap(c_a), veh/h				1429	0	624	407	2201	0	0	1803	800
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.0	0.0	32.0	38.5	0.0	0.0	0.0	12.2	13.3
Incr Delay (d2), s/veh				0.1	0.0	8.0	1.4	0.2	0.0	0.0	0.3	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	7.6	1.5	0.1	0.0	0.0	2.1	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.1	0.0	40.0	39.8	0.2	0.0	0.0	12.5	14.5
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					501			640			663	
Approach Delay, s/veh					35.7			9.5			13.3	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.0			10.1	52.0		28.0				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 44			10.6	27.7		36.1				
Max Q Clear Time (g_c+I1), s		2.0			5.7	11.6		21.2				
Green Ext Time (p_c), s		3.1			0.1	5.4		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		18.2	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	3	173	0	0	0	0	425	78	122	381	0
Future Volume (veh/h)	155	3	173	0	0	0	0	425	78	122	381	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	169	0	0				0	457	56	131	410	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	390	0	174				0	2121	259	198	2742	0
Arrive On Green	0.11	0.00	0.00				0.00	0.67	0.67	0.11	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3282	389	3456	3647	0
Grp Volume(v), veh/h	169	0	0				0	254	259	131	410	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1800	1728	1777	0
Q Serve(g_s), s	4.0	0.0	0.0				0.0	5.0	5.1	3.3	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0				0.0	5.0	5.1	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.22	1.00		0.00
Lane Grp Cap(c), veh/h	390	0	174				0	1182	1198	198	2742	0
V/C Ratio(X)	0.43	0.00	0.00				0.00	0.21	0.22	0.66	0.15	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1182	1198	445	2742	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	37.5	0.0	0.0				0.0	5.9	5.9	39.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0				0.0	0.4	0.4	1.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0				0.0	1.8	1.8	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	0.0	0.0				0.0	6.3	6.3	40.4	0.1	0.0
LnGrp LOS	D	A	A				A	A	A	D	A	A
Approach Vol, veh/h		169						513			541	
Approach Delay, s/veh		38.2						6.3			9.9	
Approach LOS		D						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.6	65.7		14.8		75.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	5.3	7.1		6.0		2.0						
Green Ext Time (p_c), s	0.1	4.8		0.5		3.7						

Intersection Summary			
HCM 6th Ctrl Delay		12.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	182	1	3	470	8	0	0	20	1
Future Volume (veh/h)	0	0	0	182	1	3	470	8	0	0	20	1
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				190	0	0	480	8	0	0	20	1
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				266	140	0	527	2933	0	0	2394	118
Arrive On Green				0.07	0.00	0.00	0.30	0.83	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	5153	245
Grp Volume(v), veh/h				190	0	0	480	8	0	0	14	7
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1826
Q Serve(g_s), s				5.2	0.0	0.0	26.0	0.0	0.0	0.0	0.2	0.2
Cycle Q Clear(g_c), s				5.2	0.0	0.0	26.0	0.0	0.0	0.0	0.2	0.2
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.13
Lane Grp Cap(c), veh/h				266	140	0	527	2933	0	0	1635	877
V/C Ratio(X)				0.71	0.00	0.00	0.91	0.00	0.00	0.00	0.01	0.01
Avail Cap(c_a), veh/h				1001	526	0	732	2933	0	0	1635	877
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.2	0.0	0.0	33.9	1.5	0.0	0.0	13.6	13.6
Incr Delay (d2), s/veh				1.3	0.0	0.0	12.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	12.8	0.0	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.6	0.0	0.0	46.5	1.5	0.0	0.0	13.6	13.6
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					190			488			21	
Approach Delay, s/veh					46.6			45.8			13.6	
Approach LOS					D			D			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	87.6		34.5	53.1		12.4						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	61.9		41.1	* 16		28.1						
Max Q Clear Time (g_c+I1), s	2.0		28.0	2.2		7.2						
Green Ext Time (p_c), s	0.0		1.6	0.0		0.3						

Intersection Summary		
HCM 6th Ctrl Delay		45.0
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	0	118	0	0	0	0	425	187	4	188	0
Future Volume (veh/h)	50	0	118	0	0	0	0	425	187	4	188	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	53	0	124				0	447	197	4	198	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	203	0	179				0	2495	1088	8	2705	0
Arrive On Green	0.11	0.00	0.11				0.00	0.70	0.70	0.00	0.76	0.00
Sat Flow, veh/h	1781	0	1573				0	3647	1550	1781	3647	0
Grp Volume(v), veh/h	53	0	124				0	447	197	4	198	0
Grp Sat Flow(s),veh/h/ln	1781	0	1573				0	1777	1550	1781	1777	0
Q Serve(g_s), s	2.2	0.0	6.1				0.0	3.4	3.5	0.2	1.1	0.0
Cycle Q Clear(g_c), s	2.2	0.0	6.1				0.0	3.4	3.5	0.2	1.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	203	0	179				0	2495	1088	8	2705	0
V/C Ratio(X)	0.26	0.00	0.69				0.00	0.18	0.18	0.53	0.07	0.00
Avail Cap(c_a), veh/h	782	0	690				0	2495	1088	125	2705	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	32.4	0.0	34.1				0.0	4.1	4.1	39.7	2.4	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.8				0.0	0.2	0.4	18.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.3				0.0	1.0	1.0	0.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	35.9				0.0	4.2	4.4	58.2	2.5	0.0
LnGrp LOS	C	A	D				A	A	A	E	A	A
Approach Vol, veh/h		177						644			202	
Approach Delay, s/veh		34.9						4.3			3.6	
Approach LOS		C						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.7	61.3		14.0		66.0						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	5.6	24.9		35.1		* 35						
Max Q Clear Time (g_c+I1), s	2.2	5.5		8.1		3.1						
Green Ext Time (p_c), s	0.0	4.1		0.3		0.8						

Intersection Summary		
HCM 6th Ctrl Delay		9.4
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	645	38	148	1430	178	127	47	65	6	4	14
Future Volume (veh/h)	78	645	38	148	1430	178	127	47	65	6	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	83	686	40	157	1521	189	135	50	69	6	4	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	2457	142	185	2497	310	277	105	126	131	98	290
Arrive On Green	0.06	0.48	0.48	0.10	0.52	0.52	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5126	297	1853	4783	594	786	355	426	320	331	977
Grp Volume(v), veh/h	83	473	253	157	1125	585	254	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1883	1853	1770	1837	1567	0	0	1628	0	0
Q Serve(g_s), s	5.5	10.0	10.1	10.4	27.8	27.9	15.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	10.0	10.1	10.4	27.8	27.9	16.8	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.32	0.53		0.27	0.24		0.60
Lane Grp Cap(c), veh/h	106	1697	903	185	1848	959	509	0	0	519	0	0
V/C Ratio(X)	0.78	0.28	0.28	0.85	0.61	0.61	0.50	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	202	1697	903	305	1848	959	509	0	0	519	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.2	19.6	19.6	55.3	20.9	20.9	36.7	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.4	0.8	5.4	1.5	2.9	3.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.1	4.4	5.0	11.1	12.0	7.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	20.0	20.4	60.7	22.4	23.8	40.2	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	E	B	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		809			1867			254			25	
Approach Delay, s/veh		24.5			26.1			40.2			31.5	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	66.1		42.0	11.5	71.5		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	12.4	12.1		3.3	7.5	29.9		18.8				
Green Ext Time (p_c), s	0.1	16.4		0.1	0.0	26.3		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	5	9	54	8	85	50	225	40	32	178	27
Future Volume (veh/h)	2	5	9	54	8	85	50	225	40	32	178	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	5	9	55	8	87	51	230	41	33	182	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	58	84	196	23	139	65	1948	340	47	1966	296
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.04	0.65	0.65	0.03	0.64	0.64
Sat Flow, veh/h	80	644	931	1216	255	1547	1781	3000	524	1781	3075	463
Grp Volume(v), veh/h	16	0	0	63	0	87	51	134	137	33	104	106
Grp Sat Flow(s),veh/h/ln	1656	0	0	1471	0	1547	1781	1777	1747	1781	1777	1762
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	4.2	2.2	2.2	2.3	1.4	1.7	1.8
Cycle Q Clear(g_c), s	0.7	0.0	0.0	3.1	0.0	4.2	2.2	2.2	2.3	1.4	1.7	1.8
Prop In Lane	0.12		0.56	0.87		1.00	1.00		0.30	1.00		0.26
Lane Grp Cap(c), veh/h	201	0	0	219	0	139	65	1154	1134	47	1136	1126
V/C Ratio(X)	0.08	0.00	0.00	0.29	0.00	0.63	0.79	0.12	0.12	0.71	0.09	0.09
Avail Cap(c_a), veh/h	514	0	0	499	0	441	163	1154	1134	138	1136	1126
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	33.5	0.0	34.0	37.1	5.2	5.2	37.5	5.4	5.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	9.5	7.8	0.2	0.2	7.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.2	0.0	1.9	1.1	0.7	0.8	0.7	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	0.0	35.0	0.0	43.5	44.9	5.4	5.4	44.5	5.5	5.5
LnGrp LOS	C	A	A	C	A	D	D	A	A	D	A	A
Approach Vol, veh/h		16			150			322			243	
Approach Delay, s/veh		32.5			39.9			11.6			10.8	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	57.3		13.9	7.2	56.5		13.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	6.0	48.7		22.1	7.1	* 50		22.1				
Max Q Clear Time (g_c+I1), s	3.4	4.3		2.7	4.2	3.8		6.2				
Green Ext Time (p_c), s	0.0	1.3		0.0	0.0	1.1		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	76	27	17	135	43
Future Vol, veh/h	38	76	27	17	135	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	84	30	19	150	48
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	7.8	8	9.1
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	61%
Vol Thru, %	0%	0%	33%	39%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	43	114	44
LT Vol	135	0	0	27
Through Vol	0	0	38	17
RT Vol	0	43	76	0
Lane Flow Rate	150	48	127	49
Geometry Grp	7	7	2	2
Degree of Util (X)	0.222	0.055	0.144	0.064
Departure Headway (Hd)	5.338	4.135	4.106	4.704
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	665	851	878	765
Service Time	3.138	1.934	2.109	2.71
HCM Lane V/C Ratio	0.226	0.056	0.145	0.064
HCM Control Delay	9.7	7.2	7.8	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0.5	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	20	0	0	23	38	0	1	18	41	0	4
Future Volume (vph)	2	20	0	0	23	38	0	1	18	41	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Lane Util. Factor	1.00	0.95			0.95			1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.98			0.99		1.00		0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.91			0.86		1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95		1.00
Satd. Flow (prot)	1765	3539			3157			1577		1769		1563
Flt Permitted	1.00	1.00			1.00			1.00		1.00		1.00
Satd. Flow (perm)	1858	3539			3157			1577		1862		1563
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	2	22	0	0	25	41	0	1	19	44	0	4
RTOR Reduction (vph)	0	0	0	0	37	0	0	15	0	0	0	3
Lane Group Flow (vph)	2	22	0	0	29	0	0	5	0	44	0	1
Confl. Peds. (#/hr)	6					6	4		1	1		4
Confl. Bikes (#/hr)			1			1						
Turn Type	Perm	NA			NA		Perm	NA		Perm		Perm
Protected Phases		2			6			8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	1.3	1.3			1.3			2.9		2.0		2.0
Effective Green, g (s)	1.3	1.3			1.3			2.9		2.0		2.0
Actuated g/C Ratio	0.10	0.10			0.10			0.22		0.15		0.15
Clearance Time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0		2.0		2.0
Lane Grp Cap (vph)	184	351			313			349		284		238
v/s Ratio Prot		0.01			c0.01			0.00				
v/s Ratio Perm	0.00									c0.02		0.00
v/c Ratio	0.01	0.06			0.09			0.01		0.15		0.00
Uniform Delay, d1	5.3	5.3			5.4			4.0		4.8		4.7
Progression Factor	1.00	1.00			1.00			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.1			0.1			0.0		0.1		0.0
Delay (s)	5.3	5.4			5.5			4.0		4.9		4.7
Level of Service	A	A			A			A		A		A
Approach Delay (s)		5.4			5.5			4.0			4.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	13.1	Sum of lost time (s)	9.8
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

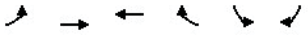
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	76	0	4	37	26	2	1	33	29	0	4
Future Volume (veh/h)	3	76	0	4	37	26	2	1	33	29	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	0.95		1.00	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	82	0	4	40	0	2	1	0	31	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	651	1523	0	624	1523	0	537	252	0	742	0	0
Arrive On Green	0.43	0.43	0.00	0.43	0.43	0.00	0.46	0.46	0.00	0.46	0.00	0.00
Sat Flow, veh/h	1299	3647	0	1255	3647	0	987	552	0	1398	0	0
Grp Volume(v), veh/h	3	82	0	4	40	0	3	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1299	1777	0	1255	1777	0	1538	0	0	1398	0	0
Q Serve(g_s), s	0.1	0.9	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.9	0.0	1.1	0.5	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.67		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	651	1523	0	624	1523	0	789	0	0	742	0	0
V/C Ratio(X)	0.00	0.05	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	651	1523	0	624	1523	0	789	0	0	742	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.7	11.7	0.0	12.0	11.6	0.0	10.3	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	11.8	0.0	12.0	11.6	0.0	10.3	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	B	A	A	B	A	A
Approach Vol, veh/h		85			44			3			31	
Approach Delay, s/veh		11.8			11.6			10.3			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	2.9	2.8	3.1	2.1
Green Ext Time (p_c), s	0.4	0.1	0.1	0.0

Intersection Summary		
HCM 6th Ctrl Delay	11.5	
HCM 6th LOS	B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	6	6	77	90	23
Future Volume (vph)	89	6	6	77	90	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.86		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	2979		1770	1520
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	2979		1770	1520
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	99	7	7	86	100	26
RTOR Reduction (vph)	0	0	65	0	0	24
Lane Group Flow (vph)	99	7	28	0	100	2
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.1	20.1	11.6		4.1	4.1
Effective Green, g (s)	4.1	20.1	11.6		4.1	4.1
Actuated g/C Ratio	0.09	0.42	0.24		0.09	0.09
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	152	1497	727		152	131
v/s Ratio Prot	c0.06	0.00	c0.01		c0.06	
v/s Ratio Perm						0.00
v/c Ratio	0.65	0.00	0.04		0.66	0.02
Uniform Delay, d1	21.0	7.9	13.7		21.0	19.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.4	0.0	0.0		7.6	0.0
Delay (s)	28.4	7.9	13.7		28.6	19.9
Level of Service	C	A	B		C	B
Approach Delay (s)		27.0	13.7		26.8	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	21.7
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Existing AM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	8	166	15	2	3	249	504	66	32	418	51
Future Volume (veh/h)	41	8	166	15	2	3	249	504	66	32	418	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	50	0	83	16	2	0	265	536	59	34	445	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	409	0	174	23	3	0	317	2282	250	44	3050	270
Arrive On Green	0.11	0.00	0.11	0.01	0.01	0.00	0.09	0.71	0.71	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1519	1592	199	0	3456	3226	354	1781	4767	422
Grp Volume(v), veh/h	50	0	83	18	0	0	265	294	301	34	316	169
Grp Sat Flow(s),veh/h/ln	1781	0	1519	1791	0	0	1728	1777	1804	1781	1702	1785
Q Serve(g_s), s	1.8	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.2	5.3
Cycle Q Clear(g_c), s	1.8	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.2	5.3
Prop In Lane	1.00		1.00	0.89		0.00	1.00		0.20	1.00		0.24
Lane Grp Cap(c), veh/h	409	0	174	26	0	0	317	1256	1275	44	2178	1142
V/C Ratio(X)	0.12	0.00	0.48	0.70	0.00	0.00	0.84	0.23	0.24	0.78	0.15	0.15
Avail Cap(c_a), veh/h	1122	0	478	385	0	0	484	1256	1275	160	2178	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	0.0	58.0	68.7	0.0	0.0	62.5	7.2	7.2	67.9	10.0	10.0
Incr Delay (d2), s/veh	0.2	0.0	2.6	12.0	0.0	0.0	4.5	0.4	0.4	10.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.9	0.7	0.0	0.0	4.9	3.1	3.2	1.3	2.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	0.0	60.6	80.6	0.0	0.0	67.1	7.6	7.6	78.5	10.2	10.3
LnGrp LOS	E	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		133			18			860			519	
Approach Delay, s/veh		58.8			80.6			26.0			14.7	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	104.3		21.0	17.3	94.9		6.9				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	12.6	33.7		44.1	19.6	26.7		30.1				
Max Q Clear Time (g_c+I1), s	4.7	10.2		9.2	12.6	7.3		3.4				
Green Ext Time (p_c), s	0.0	6.7		0.6	0.3	4.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			25.6
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Existing AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	178	500	194	55	18
Future Volume (veh/h)	35	178	500	194	55	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	198	556	0	61	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	53	1180	1016	1241	426	379
Arrive On Green	0.03	0.63	0.54	0.00	0.24	0.00
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	39	198	556	0	61	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	1.6	3.3	14.6	0.0	2.0	0.0
Cycle Q Clear(g_c), s	1.6	3.3	14.6	0.0	2.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	53	1180	1016	1241	426	379
V/C Ratio(X)	0.74	0.17	0.55	0.00	0.14	0.00
Avail Cap(c_a), veh/h	155	1288	1016	1241	426	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	5.8	11.2	0.0	22.7	0.0
Incr Delay (d2), s/veh	7.3	0.0	2.1	0.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	5.9	0.0	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	5.8	13.3	0.0	23.4	0.0
LnGrp LOS	D	A	B	A	C	A
Approach Vol, veh/h		237	556		61	
Approach Delay, s/veh		12.0	13.3		23.4	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.6		23.0	6.6	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		5.3		4.0	3.6	16.6
Green Ext Time (p_c), s		0.8		0.0	0.0	2.4

Intersection Summary			
HCM 6th Ctrl Delay			13.7
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	139	77	82	231	3	60	2	49	12	8	7
Future Volume (veh/h)	0	139	77	82	231	3	60	2	49	12	8	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	146	0	86	243	1	63	2	0	13	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1039	0	111	1529	6	712	797	0	482	277	0
Arrive On Green	0.00	0.29	0.00	0.06	0.42	0.42	0.43	0.43	0.00	0.43	0.43	0.00
Sat Flow, veh/h	0	3741	0	1781	3629	15	1407	1870	0	923	650	0
Grp Volume(v), veh/h	0	146	0	86	119	125	63	2	0	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	0	1781	1777	1867	1407	1870	0	1573	0	0
Q Serve(g_s), s	0.0	2.0	0.0	3.1	2.7	2.7	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.0	0.0	3.1	2.7	2.7	1.6	0.0	0.0	0.4	0.0	0.0
Prop In Lane	0.00		0.00	1.00		0.01	1.00		0.00	0.62		0.00
Lane Grp Cap(c), veh/h	0	1039	0	111	749	787	712	797	0	759	0	0
V/C Ratio(X)	0.00	0.14	0.00	0.78	0.16	0.16	0.09	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	1039	0	233	866	910	712	797	0	759	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.2	0.0	30.4	11.8	11.8	11.3	10.8	0.0	10.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	4.4	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.0	1.4	1.0	1.0	0.5	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.4	0.0	34.7	11.9	11.9	11.3	10.8	0.0	11.0	0.0	0.0
LnGrp LOS	A	B	A	C	B	B	B	B	A	B	A	A
Approach Vol, veh/h		146			330			65			21	
Approach Delay, s/veh		17.4			17.8			11.3			11.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.5	24.3		32.9		32.8		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	8.6	* 19		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	5.1	4.0		2.4		4.7		3.6				
Green Ext Time (p_c), s	0.0	0.6		0.1		1.2		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		16.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	186	5	62	301	1	27
Future Vol, veh/h	186	5	62	301	1	27
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	196	5	65	317	1	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	204	0	492	104
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1365	-	506	931
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1362	-	480	929
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	929	-	-	1362	-
HCM Lane V/C Ratio	0.002	0.031	-	-	0.048	-
HCM Control Delay (s)	12.5	9	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Existing AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	157	27	88	323	9	27	3	35	29	3	10
Future Volume (veh/h)	7	157	27	88	323	9	27	3	35	29	3	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	165	28	93	340	9	28	3	37	31	3	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	716	119	118	911	24	870	67	832	613	66	198
Arrive On Green	0.04	0.24	0.24	0.07	0.26	0.26	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1781	3032	503	1781	3533	93	1395	120	1479	968	118	351
Grp Volume(v), veh/h	7	95	98	93	171	178	28	0	40	45	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1758	1781	1777	1849	1395	0	1599	1437	0	0
Q Serve(g_s), s	0.3	3.8	4.0	4.6	7.0	7.0	0.0	0.0	1.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	3.8	4.0	4.6	7.0	7.0	0.6	0.0	1.0	1.1	0.0	0.0
Prop In Lane	1.00		0.29	1.00		0.05	1.00		0.93	0.69		0.24
Lane Grp Cap(c), veh/h	80	420	415	118	458	477	870	0	899	876	0	0
V/C Ratio(X)	0.09	0.23	0.24	0.78	0.37	0.37	0.03	0.00	0.04	0.05	0.00	0.00
Avail Cap(c_a), veh/h	140	420	415	140	458	477	870	0	899	876	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.7	27.4	27.5	40.9	27.1	27.1	8.7	0.0	8.7	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.3	1.3	17.8	0.5	0.5	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.8	1.8	2.6	3.0	3.1	0.2	0.0	0.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	28.7	28.8	58.7	27.6	27.6	8.7	0.0	8.8	8.9	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		200			442			68			45	
Approach Delay, s/veh		29.2			34.1			8.8			8.9	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	25.0		54.0	8.0	26.9		54.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	21.0		50.0	7.0	21.0		50.0				
Max Q Clear Time (g_c+I1), s	6.6	6.0		3.1	2.3	9.0		3.0				
Green Ext Time (p_c), s	0.0	0.9		0.2	0.0	1.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	72	51	85	302	201	160	528	70	128	333	118
Future Volume (veh/h)	78	72	51	85	302	201	160	528	70	128	333	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	77	0	91	325	84	172	568	56	138	358	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	629	0	137	502	128	221	2809	274	188	2984	926
Arrive On Green	0.04	0.18	0.00	0.04	0.18	0.18	0.13	1.00	1.00	0.05	0.58	0.00
Sat Flow, veh/h	3456	3647	0	3456	2798	712	3456	4729	461	3456	5106	1585
Grp Volume(v), veh/h	84	77	0	91	204	205	172	407	217	138	358	0
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1728	1777	1734	1728	1702	1786	1728	1702	1585
Q Serve(g_s), s	3.4	2.6	0.0	3.6	14.9	15.4	6.7	0.0	0.0	5.5	4.4	0.0
Cycle Q Clear(g_c), s	3.4	2.6	0.0	3.6	14.9	15.4	6.7	0.0	0.0	5.5	4.4	0.0
Prop In Lane	1.00		0.00	1.00		0.41	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	128	629	0	137	319	311	221	2022	1061	188	2984	926
V/C Ratio(X)	0.65	0.12	0.00	0.67	0.64	0.66	0.78	0.20	0.20	0.74	0.12	0.00
Avail Cap(c_a), veh/h	286	1221	0	311	623	608	459	2022	1061	385	2984	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.5	48.5	0.0	66.3	53.3	53.4	60.1	0.0	0.0	65.2	13.0	0.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	2.1	4.1	4.5	1.9	0.2	0.4	2.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.2	0.0	1.6	7.1	7.1	2.9	0.1	0.1	2.5	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	48.5	0.0	68.4	57.4	58.0	62.0	0.2	0.4	67.3	13.1	0.0
LnGrp LOS	E	D	A	E	E	E	E	A	A	E	B	A
Approach Vol, veh/h		161			500			796			496	
Approach Delay, s/veh		59.0			59.6			13.6			28.2	
Approach LOS		E			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	88.4	9.9	29.7	13.3	87.0	9.6	30.0				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	18.6	* 42	11.6	49.1				
Max Q Clear Time (g_c+I1), s	7.5	2.0	5.6	4.6	8.7	6.4	5.4	17.4				
Green Ext Time (p_c), s	0.1	8.2	0.1	0.5	0.2	4.6	0.1	4.8				
Intersection Summary												
HCM 6th Ctrl Delay			32.8									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	66	69	219	263	467	154	246	253	140	272	24
Future Volume (veh/h)	3	66	69	219	263	467	154	246	253	140	272	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	69	0	228	274	0	160	256	0	146	283	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	358		281	335	283	211	2221		198	2208	985
Arrive On Green	0.00	0.10	0.00	0.08	0.18	0.00	0.06	0.63	0.00	0.08	0.83	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	3	69	0	228	274	0	160	256	0	146	283	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	2.5	0.0	9.1	19.7	0.0	6.4	4.1	0.0	5.8	2.2	0.0
Cycle Q Clear(g_c), s	0.2	2.5	0.0	9.1	19.7	0.0	6.4	4.1	0.0	5.8	2.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	6	358		281	335	283	211	2221		198	2208	985
V/C Ratio(X)	0.54	0.19		0.81	0.82	0.00	0.76	0.12		0.74	0.13	0.00
Avail Cap(c_a), veh/h	71	1145		533	811	687	410	2221		385	2208	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.96	0.96	0.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	69.7	57.7	0.0	63.2	55.3	0.0	64.7	10.6	0.0	63.6	4.8	0.0
Incr Delay (d2), s/veh	26.4	0.3	0.0	2.2	1.9	0.0	2.0	0.1	0.0	5.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	4.1	9.5	0.0	2.9	1.6	0.0	2.7	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.0	58.0	0.0	65.4	57.2	0.0	66.8	10.7	0.0	68.9	4.9	0.0
LnGrp LOS	F	E		E	E	A	E	B		E	A	A
Approach Vol, veh/h		72	A		502			416	A		429	
Approach Delay, s/veh		59.6			60.9			32.3			26.7	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	92.4	15.8	19.4	12.9	91.9	4.8	30.3
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	15.6	39.1	21.6	* 45	16.6	38.1	5.6	60.7
Max Q Clear Time (g_c+I1), s	7.8	6.1	11.1	4.5	8.4	4.2	2.2	21.7
Green Ext Time (p_c), s	0.2	1.1	0.3	0.4	0.2	3.1	0.0	1.1

Intersection Summary		
HCM 6th Ctrl Delay	42.1	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	0	401	0	0	0	0	304	108	222	279	0
Future Volume (vph)	360	0	401	0	0	0	0	304	108	222	279	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3361	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3361	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	0	418	0	0	0	0	317	112	231	291	0
RTOR Reduction (vph)	0	0	281	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	375	0	137	0	0	0	0	317	40	169	353	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	45.9		45.9					49.0	49.0	26.8	26.8	
Effective Green, g (s)	45.9		45.9					49.0	49.0	26.8	26.8	
Actuated g/C Ratio	0.33		0.33					0.35	0.35	0.19	0.19	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1125		518					1238	554	308	643	
v/s Ratio Prot	c0.11							c0.09		0.10	c0.11	
v/s Ratio Perm			0.09						0.02			
v/c Ratio	0.33		0.26					0.26	0.07	0.55	0.55	
Uniform Delay, d1	35.5		34.6					32.5	30.3	51.1	51.1	
Progression Factor	1.00		1.00					0.56	0.03	1.05	1.05	
Incremental Delay, d2	0.8		1.2					0.0	0.0	2.5	1.2	
Delay (s)	36.3		35.9					18.4	1.0	56.0	54.7	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		36.1			0.0			13.8			55.1	
Approach LOS		D			A			B			E	

Intersection Summary					
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.37				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	53.5%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	27	5	10	94	223	2	11	1	262	76	346
Future Volume (vph)	197	27	5	10	94	223	2	11	1	262	76	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3249			3522	1583		1834		1681	1722	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3249			3522	1583		1834		1681	1722	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	212	29	5	11	101	240	2	12	1	282	82	372
RTOR Reduction (vph)	0	2	0	0	0	97	0	1	0	0	0	192
Lane Group Flow (vph)	106	138	0	0	112	143	0	14	0	180	184	180
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.9	26.9			16.0	83.6		5.1		67.6	67.6	67.6
Effective Green, g (s)	26.9	26.9			16.0	83.6		5.1		67.6	67.6	67.6
Actuated g/C Ratio	0.19	0.19			0.11	0.60		0.04		0.48	0.48	0.48
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	309	624			402	945		66		811	831	754
v/s Ratio Prot	c0.07	0.04			c0.03	0.07		c0.01		0.11	0.11	
v/s Ratio Perm						0.02						c0.12
v/c Ratio	0.34	0.22			0.28	0.15		0.21		0.22	0.22	0.24
Uniform Delay, d1	48.9	47.7			56.7	12.5		65.5		21.0	21.0	21.2
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.67	0.67	1.34
Incremental Delay, d2	3.0	0.8			1.7	0.3		7.2		0.6	0.6	0.7
Delay (s)	51.9	48.5			58.4	12.8		72.7		14.6	14.6	29.0
Level of Service	D	D			E	B		E		B	B	C
Approach Delay (s)		50.0			27.3			72.7			21.9	
Approach LOS		D			C			E			C	

Intersection Summary				
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	106	1341	74	196	114
Future Volume (veh/h)	183	106	1341	74	196	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	112	1412	0	206	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	1443	2078		301	345
Arrive On Green	0.13	0.77	0.58	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	193	112	1412	0	206	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	7.9	1.1	20.4	0.0	4.3	4.0
Cycle Q Clear(g_c), s	7.9	1.1	20.4	0.0	4.3	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	232	1443	2078		301	345
V/C Ratio(X)	0.83	0.08	0.68		0.68	0.30
Avail Cap(c_a), veh/h	283	1443	2078		1027	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	2.1	10.6	0.0	33.0	24.3
Incr Delay (d2), s/veh	13.5	0.1	1.8	0.0	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.3	7.2	0.0	1.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	2.2	12.4	0.0	34.0	24.5
LnGrp LOS	D	A	B		C	C
Approach Vol, veh/h		305	1412	A	308	
Approach Delay, s/veh		29.3	12.4		30.8	
Approach LOS		C	B		C	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	62.4		12.0	13.9	48.5
Change Period (Y+Rc), s	5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s	57.4		22.1	* 12	41.4
Max Q Clear Time (g_c+I1), s	3.1		6.3	9.9	22.4
Green Ext Time (p_c), s	0.4		0.2	0.0	7.6

Intersection Summary		
HCM 6th Ctrl Delay	17.8	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis — Existing AM
46: Hotel Circle Place/Hotel Circle N. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Future Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	51	504	41	4	45	29	166	4	9	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	67	504	45	240	15
Volume Left (vph)	1	504	0	45	4
Volume Right (vph)	51	0	4	166	2
Hadj (s)	-0.42	0.53	-0.03	-0.34	0.01
Departure Headway (s)	5.1	5.8	5.3	5.3	6.1
Degree Utilization, x	0.10	0.82	0.07	0.35	0.03
Capacity (veh/h)	644	608	668	627	537
Control Delay (s)	8.7	28.5	7.4	11.1	9.2
Approach Delay (s)	8.7	26.7		11.1	9.2
Approach LOS	A	D		B	A

Intersection Summary					
Delay			20.7		
Level of Service			C		
Intersection Capacity Utilization			54.5%	ICU Level of Service	A
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary — Existing AM
47: I-8 WB Ramp — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Future Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	191	0	0	0	1012	62				0	246	308
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	242	0		0	1923	858				0	0	0
Arrive On Green	0.14	0.00	0.00	0.00	0.54	0.54				0.00	0.00	0.00
Sat Flow, veh/h	1781	191		0	3647	1585					0	
Grp Volume(v), veh/h	191	17.7		0	1012	62					0.0	
Grp Sat Flow(s),veh/h/ln	1781	B		0	1777	1585						
Q Serve(g_s), s	3.2			0.0	5.7	0.6						
Cycle Q Clear(g_c), s	3.2			0.0	5.7	0.6						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	242			0	1923	858						
V/C Ratio(X)	0.79			0.00	0.53	0.07						
Avail Cap(c_a), veh/h	345			0	4590	2047						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	12.9			0.0	4.6	3.4						
Incr Delay (d2), s/veh	4.7			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.3			0.0	0.8	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7			0.0	4.8	3.4						
LnGrp LOS	B			A	A	A						
Approach Vol, veh/h					1074							
Approach Delay, s/veh					4.7							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.2	21.8				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							6.0	40.0				
Max Q Clear Time (g_c+I1), s							5.2	7.7				
Green Ext Time (p_c), s							0.0	9.1				

Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	47.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	111	7	89	174	15	343	16	672	8	1	1
Future Vol, veh/h	0	111	7	89	174	15	343	16	672	8	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	118	7	95	185	16	365	17	715	9	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

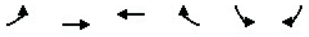
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	12.6	14	60.3	10.5
HCM LOS	B	B	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	80%
Vol Thru, %	0%	2%	100%	0%	0%	92%	10%
Vol Right, %	0%	98%	0%	100%	0%	8%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	688	111	7	89	189	10
LT Vol	343	0	0	0	89	0	8
Through Vol	0	16	111	0	0	174	1
RT Vol	0	672	0	7	0	15	1
Lane Flow Rate	365	732	118	7	95	201	11
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.659	1.08	0.242	0.014	0.2	0.393	0.021
Departure Headway (Hd)	6.504	5.31	7.671	6.953	7.877	7.309	7.378
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	558	688	471	518	458	495	488
Service Time	4.204	3.01	5.371	4.653	5.577	5.009	5.378
HCM Lane V/C Ratio	0.654	1.064	0.251	0.014	0.207	0.406	0.023
HCM Control Delay	20.9	79.9	12.8	9.8	12.5	14.7	10.5
HCM Lane LOS	C	F	B	A	B	B	B
HCM 95th-tile Q	4.8	20.3	0.9	0	0.7	1.9	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	279	572	203	109	117	86
Future Volume (veh/h)	279	572	203	109	117	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	636	226	121	130	96
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	396	1107	449	367	215	191
Arrive On Green	0.22	0.59	0.24	0.24	0.12	0.12
Sat Flow, veh/h	1781	1870	1870	1530	1781	1585
Grp Volume(v), veh/h	310	636	226	121	130	96
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1530	1781	1585
Q Serve(g_s), s	5.6	7.2	3.6	2.2	2.4	1.9
Cycle Q Clear(g_c), s	5.6	7.2	3.6	2.2	2.4	1.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	396	1107	449	367	215	191
V/C Ratio(X)	0.78	0.57	0.50	0.33	0.61	0.50
Avail Cap(c_a), veh/h	1340	2808	1160	949	1000	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	4.3	11.2	10.7	14.2	14.0
Incr Delay (d2), s/veh	1.3	0.4	1.2	0.7	1.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.1	1.3	0.6	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.7	4.7	12.4	11.4	15.2	14.8
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		946	347		226	
Approach Delay, s/veh		7.7	12.0		15.0	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		25.0		9.0	12.0	13.1
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	25.6	21.1
Max Q Clear Time (g_c+I1), s		9.2		4.4	7.6	5.6
Green Ext Time (p_c), s		4.6		0.3	0.4	2.1

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	146	120	88	99	140	604
Future Volume (veh/h)	146	120	88	99	140	604
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	159	130	96	108	152	657
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	207	791	196	221	778	693
Arrive On Green	0.12	0.42	0.24	0.24	0.44	0.44
Sat Flow, veh/h	1781	1870	804	904	1781	1585
Grp Volume(v), veh/h	159	130	0	204	152	657
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1708	1781	1585
Q Serve(g_s), s	6.1	3.0	0.0	7.2	3.7	27.9
Cycle Q Clear(g_c), s	6.1	3.0	0.0	7.2	3.7	27.9
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	207	791	0	417	778	693
V/C Ratio(X)	0.77	0.16	0.00	0.49	0.20	0.95
Avail Cap(c_a), veh/h	396	990	0	417	841	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	12.5	0.0	22.8	12.1	19.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	4.1	0.0	19.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.2	0.0	3.2	1.4	23.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.3	12.6	0.0	26.8	12.2	38.9
LnGrp LOS	C	B	A	C	B	D
Approach Vol, veh/h		289	204		809	
Approach Delay, s/veh		23.4	26.8		33.9	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		35.5	12.6	22.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		37.1		33.1	15.6	17.1
Max Q Clear Time (g_c+I1), s		5.0		29.9	8.1	9.2
Green Ext Time (p_c), s		0.5		0.7	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

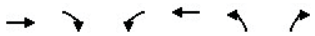
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	87	356	368	247	23
Future Vol, veh/h	162	87	356	368	247	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	172	93	379	391	263	24
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	12.7	17.3	18.1
HCM LOS	B	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	87	356	368	247	23
LT Vol	162	0	0	0	247	0
Through Vol	0	87	356	0	0	0
RT Vol	0	0	0	368	0	23
Lane Flow Rate	172	93	379	391	263	24
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.343	0.171	0.64	0.584	0.546	0.043
Departure Headway (Hd)	7.159	6.649	6.081	5.37	7.486	6.268
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	537	591	669	481	570
Service Time	4.929	4.418	3.837	3.126	5.242	4.023
HCM Lane V/C Ratio	0.344	0.173	0.641	0.584	0.547	0.042
HCM Control Delay	13.7	10.8	19.1	15.5	18.9	9.3
HCM Lane LOS	B	B	C	C	C	A
HCM 95th-tile Q	1.5	0.6	4.5	3.8	3.2	0.1

HCM 6th Signalized Intersection Summary
52: Bachman Place & Hotel Circle S.

Existing AM
02/27/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	190	177	320	500	228	119
Future Volume (veh/h)	190	177	320	500	228	119
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	197	356	556	253	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	321	299	402	1196	428	381
Arrive On Green	0.36	0.36	0.23	0.64	0.24	0.24
Sat Flow, veh/h	889	830	1781	1870	1781	1585
Grp Volume(v), veh/h	0	408	356	556	253	132
Grp Sat Flow(s),veh/h/ln	0	1720	1781	1870	1781	1585
Q Serve(g_s), s	0.0	14.9	14.5	11.4	9.4	5.2
Cycle Q Clear(g_c), s	0.0	14.9	14.5	11.4	9.4	5.2
Prop In Lane		0.48	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	620	402	1196	428	381
V/C Ratio(X)	0.00	0.66	0.89	0.46	0.59	0.35
Avail Cap(c_a), veh/h	0	620	523	1324	428	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	20.1	28.1	6.9	25.2	23.6
Incr Delay (d2), s/veh	0.0	5.4	12.7	0.4	5.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.5	7.3	3.8	4.5	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	25.5	40.8	7.3	31.1	26.0
LnGrp LOS	A	C	D	A	C	C
Approach Vol, veh/h	408			912	385	
Approach Delay, s/veh	25.5			20.4	29.3	
Approach LOS	C			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	20.9	32.0				52.9	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	22.0	27.0				53.0	18.0
Max Q Clear Time (g_c+I1), s	16.5	16.9				13.4	11.4
Green Ext Time (p_c), s	0.4	2.3				5.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Existing PM
02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	461	140	1118	698	392	1191
Future Volume (veh/h)	461	140	1118	698	392	1191
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	475	10	1153	686	404	1228
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	704	313	1677	1045	528	2389
Arrive On Green	0.20	0.20	0.47	0.47	0.15	0.67
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	475	10	1153	686	404	1228
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	8.3	0.3	17.1	17.7	7.6	11.7
Cycle Q Clear(g_c), s	8.3	0.3	17.1	17.7	7.6	11.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	704	313	1677	1045	528	2389
V/C Ratio(X)	0.67	0.03	0.69	0.66	0.76	0.51
Avail Cap(c_a), veh/h	1539	685	1830	1112	716	2776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	21.9	13.9	6.6	27.5	5.5
Incr Delay (d2), s/veh	0.4	0.0	1.1	1.5	2.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.1	5.7	8.3	3.1	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.5	21.9	15.1	8.1	29.6	6.0
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	485		1839			1632
Approach Delay, s/veh	25.5		12.5			11.8
Approach LOS	C		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.3	35.9				50.2	17.4
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	13.6	32.6				* 51	27.0
Max Q Clear Time (g_c+I1), s	9.6	19.7				13.7	10.3
Green Ext Time (p_c), s	0.4	10.0				22.5	0.8

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	142	255	83	54	164	137	1109	197	139	1062	136
Future Volume (veh/h)	156	142	255	83	54	164	137	1109	197	139	1062	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	158	149	92	60	182	152	1232	136	154	1180	151
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	322	262	108	316	252	242	1830	860	95	1766	872
Arrive On Green	0.07	0.17	0.17	0.06	0.17	0.17	0.07	0.52	0.50	0.05	0.50	0.49
Sat Flow, veh/h	3456	1870	1518	1781	1870	1492	3456	3554	1545	1781	3554	1565
Grp Volume(v), veh/h	173	158	149	92	60	182	152	1232	136	154	1180	151
Grp Sat Flow(s),veh/h/ln	1728	1870	1518	1781	1870	1492	1728	1777	1545	1781	1777	1565
Q Serve(g_s), s	4.0	6.3	7.4	4.2	2.3	9.5	3.5	21.2	3.5	4.4	20.6	3.9
Cycle Q Clear(g_c), s	4.0	6.3	7.4	4.2	2.3	9.5	3.5	21.2	3.5	4.4	20.6	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	322	262	108	316	252	242	1830	860	95	1766	872
V/C Ratio(X)	0.72	0.49	0.57	0.85	0.19	0.72	0.63	0.67	0.16	1.62	0.67	0.17
Avail Cap(c_a), veh/h	239	728	591	108	712	568	285	1830	860	95	1766	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	30.9	31.3	38.4	29.5	32.5	37.3	14.9	9.0	39.1	15.6	9.0
Incr Delay (d2), s/veh	9.1	1.2	1.9	42.7	0.1	1.5	1.8	2.0	0.4	322.5	2.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.9	2.8	3.1	1.0	3.4	1.5	8.3	1.2	10.4	8.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	32.0	33.3	81.1	29.6	34.0	39.1	16.9	9.4	361.6	17.6	9.4
LnGrp LOS	D	C	C	F	C	C	D	B	A	F	B	A
Approach Vol, veh/h		480			334			1520			1485	
Approach Delay, s/veh		37.7			46.2			18.4			52.5	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	46.5	9.0	18.6	9.8	45.1	9.7	17.9
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	41.2	4.6	* 31	6.4	* 39	5.3	29.9
Max Q Clear Time (g_c+I1), s	6.4	23.2	6.2	9.4	5.5	22.6	6.0	11.5
Green Ext Time (p_c), s	0.0	12.4	0.0	1.4	0.0	10.9	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1037	4	268	488	0	0	0	0	271	5	1236
Future Volume (veh/h)	0	1037	4	268	488	0	0	0	0	271	5	1236
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1080	4	279	508	0				282	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1246	556	356	1761	0				715	13	
Arrive On Green	0.00	0.35	0.35	0.10	0.50	0.00				0.41	0.41	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1752	31	1585
Grp Volume(v), veh/h	0	1080	4	279	508	0				287	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	28.3	0.2	7.9	8.4	0.0				11.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.3	0.2	7.9	8.4	0.0				11.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1246	556	356	1761	0				728	0	
V/C Ratio(X)	0.00	0.87	0.01	0.78	0.29	0.00				0.39	0.00	
Avail Cap(c_a), veh/h	0	1564	697	511	2239	0				728	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.62	0.62	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	30.3	21.1	43.8	14.8	0.0				20.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.8	0.0	3.2	0.0	0.0				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	0.1	3.5	3.3	0.0				4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.1	21.1	46.9	14.9	0.0				21.0	0.0	0.0
LnGrp LOS	A	C	C	D	B	A				C	A	
Approach Vol, veh/h		1084			787						287	A
Approach Delay, s/veh		34.0			26.2						21.0	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.5	40.1		45.4		54.6		
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0		
Max Green Setting (Gmax), s	* 15	44.0		27.4		63.0		
Max Q Clear Time (g_c+I1), s	9.9	30.3		13.4		10.4		
Green Ext Time (p_c), s	0.4	4.7		0.5		2.5		

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	786	575	0	0	531	433	233	17	500	0	0	0
Future Volume (veh/h)	786	575	0	0	531	433	233	17	500	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	819	599	0	0	553	228	243	18	365			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	902	1993	0	0	633	260	562	42	536			
Arrive On Green	0.26	0.56	0.00	0.00	0.26	0.26	0.34	0.34	0.34			
Sat Flow, veh/h	3456	3647	0	0	2549	1010	1664	123	1585			
Grp Volume(v), veh/h	819	599	0	0	400	381	261	0	365			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1689	1787	0	1585			
Q Serve(g_s), s	23.0	8.9	0.0	0.0	21.5	21.6	11.3	0.0	19.8			
Cycle Q Clear(g_c), s	23.0	8.9	0.0	0.0	21.5	21.6	11.3	0.0	19.8			
Prop In Lane	1.00		0.00	0.00		0.60	0.93		1.00			
Lane Grp Cap(c), veh/h	902	1993	0	0	458	435	604	0	536			
V/C Ratio(X)	0.91	0.30	0.00	0.00	0.87	0.88	0.43	0.00	0.68			
Avail Cap(c_a), veh/h	975	2257	0	0	553	525	604	0	536			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.80	0.80	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.8	11.6	0.0	0.0	35.5	35.6	25.7	0.0	28.5			
Incr Delay (d2), s/veh	9.6	0.0	0.0	0.0	11.0	11.9	0.2	0.0	2.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	10.7	3.4	0.0	0.0	10.6	10.2	4.8	0.0	17.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	11.6	0.0	0.0	46.6	47.5	25.8	0.0	31.4			
LnGrp LOS	D	B	A	A	D	D	C	A	C			
Approach Vol, veh/h		1418			781			626				
Approach Delay, s/veh		31.1			47.0			29.1				
Approach LOS		C			D			C				

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	61.6	38.4	30.3	31.3
Change Period (Y+Rc), s	5.5	4.6	* 4.2	5.5
Max Green Setting (Gmax), s	63.5	26.4	* 28	31.1
Max Q Clear Time (g_c+I1), s	10.9	21.8	25.0	23.6
Green Ext Time (p_c), s	3.0	0.5	1.2	2.1

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	647	284	204	713	36	101	32	177	21	34	30
Future Volume (veh/h)	49	647	284	204	713	36	101	32	177	21	34	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	719	316	227	792	40	112	36	197	23	38	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1656	697	262	1971	100	144	405	550	39	289	241
Arrive On Green	0.04	0.47	0.47	0.15	0.57	0.55	0.08	0.22	0.21	0.02	0.15	0.15
Sat Flow, veh/h	1781	3554	1497	1781	3437	174	1781	1870	1510	1781	1870	1557
Grp Volume(v), veh/h	54	719	316	227	409	423	112	36	197	23	38	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1497	1781	1777	1834	1781	1870	1510	1781	1870	1557
Q Serve(g_s), s	3.3	14.9	15.7	13.7	14.0	14.1	6.8	1.7	10.6	1.4	1.9	2.0
Cycle Q Clear(g_c), s	3.3	14.9	15.7	13.7	14.0	14.1	6.8	1.7	10.6	1.4	1.9	2.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	1656	697	262	1019	1052	144	405	550	39	289	241
V/C Ratio(X)	0.71	0.43	0.45	0.86	0.40	0.40	0.78	0.09	0.36	0.59	0.13	0.14
Avail Cap(c_a), veh/h	144	1656	697	324	1019	1052	178	570	682	71	457	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	19.7	19.9	45.8	13.0	13.1	49.6	34.4	26.2	53.3	40.1	40.1
Incr Delay (d2), s/veh	4.5	0.8	2.1	15.7	1.2	1.1	12.2	0.0	0.1	5.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.2	5.8	7.2	5.7	6.0	3.5	0.8	3.8	0.7	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	20.5	22.0	61.5	14.2	14.2	61.8	34.5	26.3	58.4	40.2	40.2
LnGrp LOS	E	C	C	E	B	B	E	C	C	E	D	D
Approach Vol, veh/h		1089			1059			345			94	
Approach Delay, s/veh		22.7			24.4			38.7			44.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	55.5	12.9	21.3	8.7	67.1	6.4	27.8
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	19.6	* 34	10.6	* 26	8.5	44.5	4.0	32.3
Max Q Clear Time (g_c+I1), s	15.7	17.7	8.8	4.0	5.3	16.1	3.4	12.6
Green Ext Time (p_c), s	0.1	4.0	0.0	0.1	0.0	3.9	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	603	25	7	370	123	0	0	19	199	13	355
Future Volume (vph)	502	603	25	7	370	123	0	0	19	199	13	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3511		1770	3391				1525	1681	1695	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3511		1770	3391				1525	1681	1695	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	558	670	28	8	411	137	0	0	21	221	14	394
RTOR Reduction (vph)	0	2	0	0	28	0	0	0	21	0	0	193
Lane Group Flow (vph)	558	696	0	8	520	0	0	0	0	117	118	201
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.4	43.0		0.7	26.3				2.1	30.1	30.1	47.5
Effective Green, g (s)	17.8	43.9		1.1	27.2				2.1	31.4	31.4	48.3
Actuated g/C Ratio	0.19	0.46		0.01	0.29				0.02	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	646	1631		20	976				33	558	563	802
v/s Ratio Prot	c0.16	0.20		0.00	c0.15					0.07	0.07	c0.05
v/s Ratio Perm									c0.00			0.08
v/c Ratio	0.86	0.43		0.40	0.53				0.01	0.21	0.21	0.25
Uniform Delay, d1	37.2	16.9		46.4	28.3				45.2	22.6	22.6	13.0
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	0.2		4.7	2.1				0.2	0.9	0.8	0.1
Delay (s)	48.4	17.1		51.1	30.4				45.4	23.5	23.5	13.0
Level of Service	D	B		D	C				D	C	C	B
Approach Delay (s)		31.0			30.7			45.4			16.9	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	134	949	400	350	523	187
Future Volume (vph)	134	949	400	350	523	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1544	3426	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1544	3426	1417
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	140	989	417	365	545	195
RTOR Reduction (vph)	0	0	0	150	2	96
Lane Group Flow (vph)	140	989	417	215	563	79
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	10.9	50.4	35.5	51.0	15.5	15.5
Effective Green, g (s)	11.3	52.4	37.1	52.8	16.4	16.4
Actuated g/C Ratio	0.13	0.58	0.41	0.59	0.18	0.18
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	222	2067	1463	908	626	259
v/s Ratio Prot	c0.08	c0.28	0.12	0.04	c0.16	
v/s Ratio Perm				0.10		0.06
v/c Ratio	0.63	0.48	0.29	0.24	0.90	0.31
Uniform Delay, d1	37.2	10.8	17.5	8.8	35.8	31.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.8	0.2	0.3	16.6	1.4
Delay (s)	41.5	11.6	17.6	9.1	52.4	33.1
Level of Service	D	B	B	A	D	C
Approach Delay (s)		15.3	13.7		47.9	
Approach LOS		B	B		D	

Intersection Summary				
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	51.5%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1375	43	34	632	45	28	1	14	139	9	49
Future Volume (veh/h)	56	1375	43	34	632	45	28	1	14	139	9	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	1418	40	35	652	35	29	1	0	143	9	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	1849	52	138	1913	103	364	11	286	387	338	0
Arrive On Green	0.05	0.52	0.49	0.08	0.56	0.52	0.18	0.18	0.00	0.18	0.18	0.00
Sat Flow, veh/h	1781	3525	99	1781	3427	184	1326	58	1585	1401	1870	0
Grp Volume(v), veh/h	58	714	744	35	338	349	30	0	0	143	9	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1848	1781	1777	1834	1384	0	1585	1401	1870	0
Q Serve(g_s), s	1.8	18.1	18.2	1.0	5.9	5.9	0.9	0.0	0.0	3.8	0.2	0.0
Cycle Q Clear(g_c), s	1.8	18.1	18.2	1.0	5.9	5.9	1.1	0.0	0.0	4.9	0.2	0.0
Prop In Lane	1.00		0.05	1.00		0.10	0.97		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	88	932	969	138	992	1024	375	0	286	387	338	0
V/C Ratio(X)	0.66	0.77	0.77	0.25	0.34	0.34	0.08	0.00	0.00	0.37	0.03	0.00
Avail Cap(c_a), veh/h	138	932	969	516	1309	1351	912	0	893	924	1054	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	10.7	10.8	24.6	6.8	6.9	19.5	0.0	0.0	20.9	19.1	0.0
Incr Delay (d2), s/veh	3.1	6.0	5.8	0.4	0.9	0.9	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.2	6.5	0.4	1.7	1.7	0.3	0.0	0.0	1.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	16.7	16.6	24.9	7.7	7.8	19.6	0.0	0.0	21.2	19.1	0.0
LnGrp LOS	C	B	B	C	A	A	B	A	A	C	B	A
Approach Vol, veh/h		1516			722			30			152	
Approach Delay, s/veh		17.1			8.6			19.6			21.0	
Approach LOS		B			A			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.0		14.2	6.8	35.6		14.2				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	3.0	20.2		6.9	3.8	7.9		3.1				
Green Ext Time (p_c), s	0.0	7.1		0.2	0.0	11.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		14.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1328	773	42	44	21
Future Vol, veh/h	27	1328	773	42	44	21
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	1443	840	46	48	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	922	0	-	0	1680	479
Stage 1	-	-	-	-	899	-
Stage 2	-	-	-	-	781	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	736	-	-	-	86	533
Stage 1	-	-	-	-	358	-
Stage 2	-	-	-	-	412	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	78	517
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	400	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	245
HCM Lane V/C Ratio	0.041	-	-	-	0.288
HCM Control Delay (s)	10.3	-	-	-	25.5
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	1282	0	0	652	240	0	0	0	360	0	129
Future Volume (veh/h)	187	1282	0	0	652	240	0	0	0	360	0	129
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	197	1349	0	0	686	115				379	0	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	196	2175	0	0	1571	670				461	0	410
Arrive On Green	0.11	0.61	0.00	0.00	0.44	0.44				0.26	0.00	0.26
Sat Flow, veh/h	1781	3647	0	0	3647	1514				1781	0	1585
Grp Volume(v), veh/h	197	1349	0	0	686	115				379	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1514				1781	0	1585
Q Serve(g_s), s	7.0	15.1	0.0	0.0	8.5	2.9				12.7	0.0	1.8
Cycle Q Clear(g_c), s	7.0	15.1	0.0	0.0	8.5	2.9				12.7	0.0	1.8
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	196	2175	0	0	1571	670				461	0	410
V/C Ratio(X)	1.00	0.62	0.00	0.00	0.44	0.17				0.82	0.00	0.14
Avail Cap(c_a), veh/h	196	2175	0	0	1571	670				928	0	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	28.3	7.7	0.0	0.0	12.3	10.7				22.2	0.0	18.1
Incr Delay (d2), s/veh	65.3	1.3	0.0	0.0	0.9	0.6				1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	4.0	0.0	0.0	2.9	0.9				5.1	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.6	9.0	0.0	0.0	13.1	11.3				23.6	0.0	18.2
LnGrp LOS	F	A	A	A	B	B				C	A	B
Approach Vol, veh/h		1546			801						438	
Approach Delay, s/veh		19.8			12.9						22.9	
Approach LOS		B			B						C	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		43.1		20.5	11.0	32.1						
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9						
Max Green Setting (Gmax), s		* 37		32.0	6.6	26.0						
Max Q Clear Time (g_c+I1), s		17.1		14.7	9.0	10.5						
Green Ext Time (p_c), s		7.6		0.6	0.0	3.3						

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1469	312	197	739	13	240	5	289	6	3	2
Future Volume (veh/h)	7	1469	312	197	739	13	240	5	289	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1530	325	205	770	14	250	5	301	6	3	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	1614	341	273	1600	29	533	10	748	185	90	52
Arrive On Green	0.01	0.38	0.37	0.03	0.15	0.14	0.40	0.40	0.40	0.40	0.40	0.39
Sat Flow, veh/h	1781	4206	888	3456	3568	65	1199	24	1569	359	225	130
Grp Volume(v), veh/h	7	1237	618	205	383	401	255	0	301	11	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1690	1728	1777	1856	1223	0	1569	714	0	0
Q Serve(g_s), s	0.5	47.8	48.4	8.0	26.9	26.9	0.0	0.0	16.9	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.5	47.8	48.4	8.0	26.9	26.9	26.8	0.0	16.9	27.1	0.0	0.0
Prop In Lane	1.00		0.53	1.00		0.03	0.98		1.00	0.55		0.18
Lane Grp Cap(c), veh/h	17	1306	649	273	797	833	543	0	748	327	0	0
V/C Ratio(X)	0.40	0.95	0.95	0.75	0.48	0.48	0.47	0.00	0.40	0.03	0.00	0.00
Avail Cap(c_a), veh/h	111	1306	649	966	797	833	543	0	748	327	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	0.94	0.00	0.94	1.00	0.00	0.00
Uniform Delay (d), s/veh	66.9	40.6	41.2	64.9	43.4	43.4	32.5	0.0	23.1	27.0	0.0	0.0
Incr Delay (d2), s/veh	5.5	14.1	24.4	1.5	2.0	1.9	2.7	0.0	1.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	21.7	23.8	3.7	13.2	13.8	7.1	0.0	6.6	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.4	54.7	65.6	66.4	45.4	45.3	35.2	0.0	24.6	27.2	0.0	0.0
LnGrp LOS	E	D	E	E	D	D	D	A	C	C	A	A
Approach Vol, veh/h		1862			989			556			11	
Approach Delay, s/veh		58.4			49.7			29.5			27.2	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	56.2		58.5	5.3	65.6		58.5				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	37.6	29.6		53.6	8.1	* 60		53.6				
Max Q Clear Time (g_c+I1), s	10.0	50.4		29.1	2.5	28.9		28.8				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	6.4		1.7				

Intersection Summary			
HCM 6th Ctrl Delay		51.1	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1670	56	235	889	42	242
Future Volume (veh/h)	0	1670	56	235	889	42	242
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		1704	45	240	907	43	170
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		3683	97	229	2898	223	198
Arrive On Green		1.00	1.00	0.07	0.82	0.12	0.12
Sat Flow, veh/h		5279	135	3456	3647	1781	1585
Grp Volume(v), veh/h		1135	614	240	907	43	170
Grp Sat Flow(s),veh/h/ln		1702	1842	1728	1777	1781	1585
Q Serve(g_s), s		0.0	0.0	9.0	8.6	2.9	14.3
Cycle Q Clear(g_c), s		0.0	0.0	9.0	8.6	2.9	14.3
Prop In Lane			0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2453	1327	229	2898	223	198
V/C Ratio(X)		0.46	0.46	1.05	0.31	0.19	0.86
Avail Cap(c_a), veh/h		2453	1327	229	2898	440	392
HCM Platoon Ratio		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.62	0.62	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	0.0	63.5	3.1	53.4	58.3
Incr Delay (d2), s/veh		0.4	0.7	73.1	0.3	0.2	4.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.1	0.3	6.2	2.2	1.3	6.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		0.4	0.7	136.6	3.4	53.5	62.5
LnGrp LOS		A	A	F	A	D	E
Approach Vol, veh/h		1749			1147	213	
Approach Delay, s/veh		0.5			31.3	60.7	
Approach LOS		A			C	E	

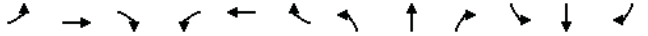
Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.0	102.0				115.0		21.0
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	8.6	80.0				* 80		33.2
Max Q Clear Time (g_c+I1), s	11.0	2.0				10.6		16.3
Green Ext Time (p_c), s	0.0	26.0				9.7		0.3

Intersection Summary		
HCM 6th Ctrl Delay		16.0
HCM 6th LOS		B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1956	47	492	1049	27	37	1	275	18	0	3
Future Volume (veh/h)	22	1956	47	492	1049	27	37	1	275	18	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	2059	49	518	1104	28	39	0	290	19	0	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	3229	77	570	3961	100	213	0	363	179	0	181
Arrive On Green	0.02	0.63	0.62	0.33	1.00	1.00	0.12	0.00	0.12	0.12	0.00	0.11
Sat Flow, veh/h	1781	5128	122	3456	5118	130	1385	0	3105	1074	0	1551
Grp Volume(v), veh/h	23	1366	742	518	734	398	39	0	290	19	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1728	1702	1844	1385	0	1553	1074	0	1551
Q Serve(g_s), s	1.7	33.7	33.9	19.5	0.0	0.0	3.5	0.0	12.4	2.2	0.0	0.2
Cycle Q Clear(g_c), s	1.7	33.7	33.9	19.5	0.0	0.0	3.7	0.0	12.4	2.2	0.0	0.2
Prop In Lane	1.00		0.07	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	2143	1162	570	2635	1427	213	0	363	179	0	181
V/C Ratio(X)	0.65	0.64	0.64	0.91	0.28	0.28	0.18	0.00	0.80	0.11	0.00	0.02
Avail Cap(c_a), veh/h	83	2143	1162	686	2635	1427	366	0	708	298	0	353
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	15.6	15.6	44.6	0.0	0.0	54.8	0.0	58.5	54.0	0.0	53.5
Incr Delay (d2), s/veh	7.0	1.5	2.7	13.0	0.3	0.5	0.2	0.0	1.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	12.3	13.8	7.8	0.1	0.2	1.2	0.0	4.9	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	17.0	18.3	57.6	0.3	0.5	54.9	0.0	60.0	54.1	0.0	53.5
LnGrp LOS	E	B	B	E	A	A	D	A	E	D	A	D
Approach Vol, veh/h		2131			1650			329			22	
Approach Delay, s/veh		18.1			18.3			59.4			54.0	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.4	89.6		19.9	6.7	109.4		19.9				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	26.6	64.6		30.1	5.9	* 85		30.1				
Max Q Clear Time (g_c+I1), s	21.5	35.9		4.2	3.7	2.0		14.4				
Green Ext Time (p_c), s	0.5	20.8		0.0	0.0	12.4		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		21.7
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	72.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2125	113	0	1669	0	346
Future Vol, veh/h	2125	113	0	1669	0	346
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2361	126	0	1854	0	384

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1261
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 138
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 136
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 892.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	136	-	-	-
HCM Lane V/C Ratio	2.827	-	-	-
HCM Control Delay (s)	$ 892.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	35.2	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	820	0	396	608
Future Volume (Veh/h)	0	0	820	0	396	608
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	891	0	430	661
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2082	446			891	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2082	446			891	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			43	
cM capacity (veh/h)	20	560			757	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	594	297	430	330	330
Volume Left	0	0	430	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	757	1700	1700
Volume to Capacity	0.35	0.17	0.57	0.19	0.19
Queue Length 95th (ft)	0	0	91	0	0
Control Delay (s)	0.0	0.0	15.8	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		6.2		
Approach LOS					

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	51.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1738	706	0	1136	618	335	47	837	394	0	158
Future Volume (vph)	119	1738	706	0	1136	618	335	47	837	394	0	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1550		4806	1362	1677	1702	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1550		4806	1362	1677	1702	1564	3433		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	1829	743	0	1196	651	353	49	881	415	0	166
RTOR Reduction (vph)	0	0	0	0	0	107	0	0	0	0	0	131
Lane Group Flow (vph)	125	1829	743	0	1196	544	201	201	881	415	0	35
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)			2						1			5
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	15.0	75.5	136.0		56.3	56.3	16.4	16.4	136.0	27.9		27.9
Effective Green, g (s)	15.2	78.5	136.0		59.3	59.3	17.0	17.0	136.0	28.5		28.5
Actuated g/C Ratio	0.11	0.58	1.00		0.44	0.44	0.12	0.12	1.00	0.21		0.21
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	197	2935	1550		2095	593	209	212	1564	719		331
v/s Ratio Prot	0.07	0.36			0.25					0.12		0.02
v/s Ratio Perm			0.48			c0.40	c0.12	0.12	c0.56			
v/c Ratio	0.63	0.62	0.48		0.57	0.92	0.96	0.95	0.56	0.58		0.11
Uniform Delay, d1	57.7	19.0	0.0		28.8	36.1	59.2	59.1	0.0	48.3		43.4
Progression Factor	1.17	1.10	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.2	0.9	0.9		1.1	21.5	53.0	49.6	1.5	0.7		0.1
Delay (s)	71.7	21.7	0.9		29.9	57.6	112.2	108.7	1.5	49.0		43.5
Level of Service	E	C	A		C	E	F	F	A	D		D
Approach Delay (s)		18.3			39.7			35.6			47.5	
Approach LOS		B			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	66.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	567	2356	0	0	1421	893	0	0	524	0	0	929
Future Volume (veh/h)	567	2356	0	0	1421	893	0	0	524	0	0	929
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	597	2480	0	0	1496	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	622	5405	0	0	2104							
Arrive On Green	0.35	0.96	0.00	0.00	0.59	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	597	2480	0	0	1496	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	44.6	4.0	0.0	0.0	40.3	0.0						
Cycle Q Clear(g_c), s	44.6	4.0	0.0	0.0	40.3	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	622	5405	0	0	2104							
V/C Ratio(X)	0.96	0.46	0.00	0.00	0.71							
Avail Cap(c_a), veh/h	655	5405	0	0	2104							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	43.3	0.2	0.0	0.0	19.5	0.0						
Incr Delay (d2), s/veh	23.8	0.3	0.0	0.0	2.1	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	23.0	0.1	0.0	0.0	16.8	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	0.4	0.0	0.0	21.6	0.0						
LnGrp LOS	E	A	A	A	C							
Approach Vol, veh/h		3077			1496	A						
Approach Delay, s/veh		13.4			21.6							
Approach LOS		B			C							

Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		136.0			51.5	84.5						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		130.5			49.5	76.5						
Max Q Clear Time (g_c+I1), s		6.0			46.6	42.3						
Green Ext Time (p_c), s		25.7			0.4	10.2						

Intersection Summary		
HCM 6th Ctrl Delay	16.1	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	364	2047	676	97	1155	43	425	83	174	136	86	596
Future Volume (veh/h)	364	2047	676	97	1155	43	425	83	174	136	86	596
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	375	2110	697	100	1191	44	438	86	179	140	0	673
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	2266	684	118	2000	610	481	587	498	168	0	707
Arrive On Green	0.12	0.44	0.44	0.07	0.39	0.39	0.14	0.33	0.32	0.05	0.00	0.24
Sat Flow, veh/h	3456	5106	1541	1781	5106	1557	3456	1777	1508	3563	0	2965
Grp Volume(v), veh/h	375	2110	697	100	1191	44	438	86	179	140	0	673
Grp Sat Flow(s),veh/h/ln	1728	1702	1541	1781	1702	1557	1728	1777	1508	1781	0	1482
Q Serve(g_s), s	16.1	59.2	67.0	8.4	27.9	2.7	18.9	5.1	13.7	5.9	0.0	33.8
Cycle Q Clear(g_c), s	16.1	59.2	67.0	8.4	27.9	2.7	18.9	5.1	13.7	5.9	0.0	33.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	2266	684	118	2000	610	481	587	498	168	0	707
V/C Ratio(X)	0.87	0.93	1.02	0.85	0.60	0.07	0.91	0.15	0.36	0.84	0.00	0.95
Avail Cap(c_a), veh/h	552	2266	684	118	2000	610	481	587	498	168	0	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.9	39.8	42.0	69.7	36.4	28.8	64.1	35.6	38.8	71.4	0.0	56.7
Incr Delay (d2), s/veh	9.7	8.5	39.4	39.0	1.3	0.2	21.2	0.0	0.2	28.1	0.0	22.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	25.5	32.6	5.0	11.6	1.1	9.7	2.3	5.2	3.4	0.0	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.6	48.3	81.4	108.7	37.8	29.0	85.3	35.6	38.9	99.5	0.0	79.3
LnGrp LOS	E	D	F	F	D	C	F	D	D	F	A	E
Approach Vol, veh/h		3182			1335			703			813	
Approach Delay, s/veh		58.6			42.8			67.4			82.8	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	72.0	25.0	40.0	22.9	63.1	11.1	53.9
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	9.6	* 66	20.6	35.1	23.7	50.4	6.7	49.0
Max Q Clear Time (g_c+I1), s	10.4	69.0	20.9	35.8	18.1	29.9	7.9	15.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.4	11.7	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	59.4
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	170	6	263	243	654	0	0	935	236
Future Volume (veh/h)	0	0	0	170	6	263	243	654	0	0	935	236
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				194	0	292	270	727	0	0	1039	262
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				795	0	346	346	2464	0	0	2010	892
Arrive On Green				0.22	0.00	0.22	0.13	0.92	0.00	0.00	0.57	0.57
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				194	0	292	270	727	0	0	1039	262
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1577
Q Serve(g_s), s				4.8	0.0	19.4	8.2	2.4	0.0	0.0	19.4	9.3
Cycle Q Clear(g_c), s				4.8	0.0	19.4	8.2	2.4	0.0	0.0	19.4	9.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				795	0	346	346	2464	0	0	2010	892
V/C Ratio(X)				0.24	0.00	0.84	0.78	0.29	0.00	0.00	0.52	0.29
Avail Cap(c_a), veh/h				1056	0	460	512	2464	0	0	2010	892
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.79	0.79	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.5	0.0	40.1	45.7	1.4	0.0	0.0	14.4	12.2
Incr Delay (d2), s/veh				0.2	0.0	10.4	1.9	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	8.1	3.5	0.7	0.0	0.0	7.7	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	50.5	47.5	1.6	0.0	0.0	15.4	13.1
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					486			997			1301	
Approach Delay, s/veh					44.2			14.0			14.9	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		79.9			14.8	65.1		28.1
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 67			15.6	45.7		31.1
Max Q Clear Time (g_c+I1), s		4.4			10.2	21.4		21.4
Green Ext Time (p_c), s		5.1			0.3	14.9		1.2

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	6	335	0	0	0	0	622	345	442	664	0
Future Volume (veh/h)	267	6	335	0	0	0	0	622	345	442	664	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	302	0	98				0	691	252	491	738	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	426	0	190				0	1534	559	551	2865	0
Arrive On Green	0.12	0.00	0.12				0.00	0.60	0.59	0.32	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2643	930	3456	3647	0
Grp Volume(v), veh/h	302	0	98				0	481	462	491	738	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	8.8	0.0	6.3				0.0	16.0	16.2	14.6	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	6.3				0.0	16.0	16.2	14.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.55	1.00		0.00
Lane Grp Cap(c), veh/h	426	0	190				0	1069	1024	551	2865	0
V/C Ratio(X)	0.71	0.00	0.52				0.00	0.45	0.45	0.89	0.26	0.00
Avail Cap(c_a), veh/h	960	0	427				0	1069	1024	723	2865	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	45.7	0.0	44.6				0.0	11.8	12.0	35.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.2				0.0	1.4	1.4	8.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	2.5				0.0	6.4	6.3	5.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	0.0	46.8				0.0	13.1	13.4	44.2	0.2	0.0
LnGrp LOS	D	A	D				A	B	B	D	A	A
Approach Vol, veh/h		400						943			1229	
Approach Delay, s/veh		47.6						13.3			17.8	
Approach LOS		D						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	21.6	69.5		16.9		91.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	16.6	18.2		10.8		2.0						
Green Ext Time (p_c), s	0.6	9.5		1.2		7.7						

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	366	5	0	472	7	0	0	7	3
Future Volume (veh/h)	0	0	0	366	5	0	472	7	0	0	7	3
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				398	0	0	508	8	0	0	8	3
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				510	268	0	566	2761	0	0	1576	527
Arrive On Green				0.14	0.00	0.00	0.32	0.78	0.00	0.00	0.42	0.41
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3950	1265
Grp Volume(v), veh/h				398	0	0	508	8	0	0	7	4
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1643
Q Serve(g_s), s				10.8	0.0	0.0	27.2	0.1	0.0	0.0	0.1	0.1
Cycle Q Clear(g_c), s				10.8	0.0	0.0	27.2	0.1	0.0	0.0	0.1	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.77
Lane Grp Cap(c), veh/h				510	268	0	566	2761	0	0	1419	685
V/C Ratio(X)				0.78	0.00	0.00	0.90	0.00	0.00	0.00	0.01	0.01
Avail Cap(c_a), veh/h				1033	542	0	745	2761	0	0	1419	685
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	0.0	32.5	2.5	0.0	0.0	17.0	17.2
Incr Delay (d2), s/veh				1.0	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	0.0	13.2	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.3	0.0	0.0	44.0	2.5	0.0	0.0	17.0	17.3
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					398			516			11	
Approach Delay, s/veh					42.3			43.4			17.1	
Approach LOS					D			D			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.7			35.8	45.9		18.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		61.9			40.9	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.1			29.2	2.1		12.8				
Green Ext Time (p_c), s		0.0			1.7	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	6	305	0	0	0	0	438	326	5	373	0
Future Volume (veh/h)	45	6	305	0	0	0	0	438	326	5	373	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	49	7	332				0	476	354	5	405	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	373	53	377				0	2249	1003	16	2417	0
Arrive On Green	0.24	0.24	0.24				0.00	0.63	0.63	0.00	0.22	0.00
Sat Flow, veh/h	1568	224	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	56	0	332				0	476	354	5	405	0
Grp Sat Flow(s),veh/h/ln	1792	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	2.5	0.0	20.2				0.0	5.7	10.6	0.3	9.2	0.0
Cycle Q Clear(g_c), s	2.5	0.0	20.2				0.0	5.7	10.6	0.3	9.2	0.0
Prop In Lane	0.87		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	426	0	377				0	2249	1003	16	2417	0
V/C Ratio(X)	0.13	0.00	0.88				0.00	0.21	0.35	0.31	0.17	0.00
Avail Cap(c_a), veh/h	788	0	697				0	2249	1003	107	2417	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.75	0.75	0.00
Uniform Delay (d), s/veh	30.0	0.0	36.7				0.0	7.8	8.7	49.5	16.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	2.7				0.0	0.2	1.0	2.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	7.7				0.0	2.1	3.6	0.1	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	39.4				0.0	8.0	9.6	52.4	16.1	0.0
LnGrp LOS	C	A	D				A	A	A	D	B	A
Approach Vol, veh/h		388						830			410	
Approach Delay, s/veh		38.1						8.7			16.5	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	4.9	67.3		27.8		72.2
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	5.6	36.9		43.1		* 47
Max Q Clear Time (g_c+I1), s	2.3	12.6		22.2		11.2
Green Ext Time (p_c), s	0.0	5.5		0.7		1.9

Intersection Summary			
HCM 6th Ctrl Delay			17.7
HCM 6th LOS			B

Notes

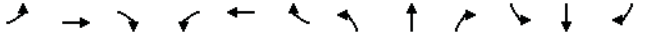
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1951	99	57	1177	21	40	5	95	117	3	59
Future Volume (veh/h)	18	1951	99	57	1177	21	40	5	95	117	3	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	20	2168	110	63	1308	23	44	6	106	130	3	66
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	3093	156	87	3363	59	138	35	295	274	15	121
Arrive On Green	0.02	0.60	0.58	0.05	0.63	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5177	261	1853	5374	94	391	130	1105	861	56	455
Grp Volume(v), veh/h	20	1479	799	63	862	469	156	0	0	199	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1898	1853	1770	1928	1626	0	0	1373	0	0
Q Serve(g_s), s	1.4	39.0	39.6	4.5	16.2	16.3	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	39.0	39.6	4.5	16.2	16.3	10.0	0.0	0.0	17.6	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.28		0.68	0.65		0.33
Lane Grp Cap(c), veh/h	34	2115	1134	87	2216	1207	468	0	0	410	0	0
V/C Ratio(X)	0.58	0.70	0.70	0.72	0.39	0.39	0.33	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	82	2115	1134	198	2216	1207	468	0	0	410	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	18.8	19.0	63.5	12.5	12.5	40.2	0.0	0.0	43.0	0.0	0.0
Incr Delay (d2), s/veh	5.6	1.9	3.7	4.2	0.5	0.9	1.9	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.2	17.2	2.2	6.1	6.8	4.5	0.0	0.0	6.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	20.7	22.7	67.7	13.0	13.5	42.1	0.0	0.0	47.1	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2298			1394			156			199	
Approach Delay, s/veh		21.9			15.6			42.1			47.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	84.7		40.0	6.5	88.5		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	6.5	41.6		19.6	3.4	18.3		12.0
Green Ext Time (p_c), s	0.0	28.3		1.2	0.0	40.3		0.7

Intersection Summary			
HCM 6th Ctrl Delay			21.7
HCM 6th LOS			C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	38	219	9	177	53	434	110	131	298	28
Future Volume (veh/h)	28	7	38	219	9	177	53	434	110	131	298	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	8	41	235	10	190	57	467	118	141	320	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	32	34	285	9	408	81	1453	363	154	1780	165
Arrive On Green	0.23	0.26	0.23	0.26	0.26	0.26	0.05	0.53	0.49	0.09	0.55	0.54
Sat Flow, veh/h	0	121	131	805	34	1558	1781	2767	692	1781	3265	303
Grp Volume(v), veh/h	79	0	0	245	0	190	57	298	287	141	173	177
Grp Sat Flow(s),veh/h/ln	252	0	0	840	0	1558	1781	1777	1682	1781	1777	1791
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	9.7	3.0	9.1	9.5	7.5	4.7	4.8
Cycle Q Clear(g_c), s	22.0	0.0	0.0	24.9	0.0	9.7	3.0	9.1	9.5	7.5	4.7	4.8
Prop In Lane	0.38		0.52	0.96		1.00	1.00		0.41	1.00		0.17
Lane Grp Cap(c), veh/h	111	0	0	294	0	408	81	933	883	154	969	977
V/C Ratio(X)	0.71	0.00	0.00	0.83	0.00	0.47	0.71	0.32	0.32	0.92	0.18	0.18
Avail Cap(c_a), veh/h	111	0	0	294	0	408	161	933	883	154	969	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	0.0	37.1	0.0	29.5	44.7	12.9	13.3	43.1	10.9	10.9
Incr Delay (d2), s/veh	17.0	0.0	0.0	19.7	0.0	1.8	4.2	0.9	1.0	48.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	7.4	0.0	3.8	1.4	3.7	3.7	5.3	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	0.0	56.9	0.0	31.2	48.9	13.8	14.3	91.0	11.3	11.3
LnGrp LOS	D	A	A	E	A	C	D	B	B	F	B	B
Approach Vol, veh/h		79			435			642			491	
Approach Delay, s/veh		48.2			45.7			17.1			34.2	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	53.9		28.9	8.3	57.8		28.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	7.8	47.0		22.0	8.2	* 49		22.0				
Max Q Clear Time (g_c+I1), s	9.5	11.5		24.0	5.0	6.8		26.9				
Green Ext Time (p_c), s	0.0	3.0		0.0	0.0	2.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		31.2	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	323	139	40	332	142
Future Vol, veh/h	54	323	139	40	332	142
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	330	142	41	339	145
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	14	11.7	16.4
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	78%
Vol Thru, %	0%	0%	14%	22%
Vol Right, %	0%	100%	86%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	332	142	377	179
LT Vol	332	0	0	139
Through Vol	0	0	54	40
RT Vol	0	142	323	0
Lane Flow Rate	339	145	385	183
Geometry Grp	7	7	2	2
Degree of Util (X)	0.617	0.215	0.543	0.306
Departure Headway (Hd)	6.56	5.344	5.085	6.032
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	552	671	708	595
Service Time	4.294	3.078	3.126	4.079
HCM Lane V/C Ratio	0.614	0.216	0.544	0.308
HCM Control Delay	19.3	9.5	14	11.7
HCM Lane LOS	C	A	B	B
HCM 95th-tile Q	4.2	0.8	3.3	1.3

HCM Signalized Intersection Capacity Analysis
33: Hazard Center West Drwy. & Hazard Center Dr.

Existing PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	31	0	0	43	72	0	1	16	38	0	6
Future Volume (vph)	5	31	0	0	43	72	0	1	16	38	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.9	4.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.98			0.99			1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.91			0.86			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			0.95	1.00
Satd. Flow (prot)	1767	3539			3156			1578			1770	1564
Flt Permitted	0.89	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	1653	3539			3156			1578			1863	1564
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	34	0	0	48	80	0	1	18	42	0	7
RTOR Reduction (vph)	0	0	0	0	57	0	0	15	0	0	0	6
Lane Group Flow (vph)	6	34	0	0	71	0	0	4	0	0	42	1
Confl. Peds. (#/hr)	3		1	1		3	2					2
Confl. Bikes (#/hr)			2			3			1			
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	3.6	3.6			3.6			2.9			2.0	2.0
Effective Green, g (s)	4.5	4.5			4.5			2.9			2.0	2.9
Actuated g/C Ratio	0.29	0.29			0.29			0.19			0.13	0.19
Clearance Time (s)	4.9	4.9			4.9			4.0			4.9	4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0			2.0	2.0
Lane Grp Cap (vph)	483	1034			922			297			241	294
v/s Ratio Prot		0.01			c0.02			0.00				
v/s Ratio Perm	0.00										c0.02	0.00
v/c Ratio	0.01	0.03			0.08			0.01			0.17	0.00
Uniform Delay, d1	3.9	3.9			3.9			5.1			6.0	5.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.0	0.0			0.0			0.0			0.1	0.0
Delay (s)	3.9	3.9			4.0			5.1			6.1	5.1
Level of Service	A	A			A			A			A	A
Approach Delay (s)		3.9			4.0			5.1			5.9	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.11			
Actuated Cycle Length (s)	15.4	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	23.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

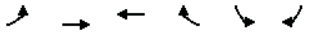
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	129	1	33	117	34	0	0	24	250	1	4
Future Volume (veh/h)	1	129	1	33	117	34	0	0	24	250	1	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		1.00	0.96		1.00	1.00		1.00	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	143	0	37	130	0	0	0	0	278	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	489	1218	0	481	1218	0	0	1015	0	842	3	8
Arrive On Green	0.34	0.34	0.00	0.34	0.34	0.00	0.00	0.00	0.00	0.54	0.54	0.54
Sat Flow, veh/h	1214	3647	0	1200	3647	0	0	1870	0	1362	6	15
Grp Volume(v), veh/h	1	143	0	37	130	0	0	0	0	282	0	0
Grp Sat Flow(s),veh/h/ln	1214	1777	0	1200	1777	0	0	1870	0	1383	0	0
Q Serve(g_s), s	0.0	1.9	0.0	1.5	1.7	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	1.8	1.9	0.0	3.5	1.7	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.00		0.00	0.99		0.01
Lane Grp Cap(c), veh/h	489	1218	0	481	1218	0	0	1015	0	853	0	0
V/C Ratio(X)	0.00	0.12	0.00	0.08	0.11	0.00	0.00	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	489	1218	0	481	1218	0	0	1015	0	853	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.3	15.7	0.0	16.9	15.7	0.0	0.0	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.2	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.0	0.4	0.7	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	15.9	0.0	17.2	15.9	0.0	0.0	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach Vol, veh/h		144			167			0			282	
Approach Delay, s/veh		15.9			16.2			0.0			10.2	
Approach LOS		B			B						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	28.0	42.0	28.0	42.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	38.0	24.0	38.0
Max Q Clear Time (g_c+I1), s	3.9	10.2	5.5	0.0
Green Ext Time (p_c), s	0.6	1.1	0.6	0.0

Intersection Summary		
HCM 6th Ctrl Delay	13.3	
HCM 6th LOS	B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	207	6	21	130	204	102
Future Volume (vph)	207	6	21	130	204	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3037		1770	1554
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3037		1770	1554
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	230	7	23	144	227	113
RTOR Reduction (vph)	0	0	110	0	0	92
Lane Group Flow (vph)	230	7	57	0	227	21
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.3	32.1	15.4		12.3	12.3
Effective Green, g (s)	12.7	33.0	16.3		12.7	12.7
Actuated g/C Ratio	0.18	0.48	0.24		0.18	0.18
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	326	1695	718		326	286
v/s Ratio Prot	c0.13	0.00	c0.02		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.00	0.08		0.70	0.07
Uniform Delay, d1	26.3	9.4	20.5		26.3	23.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.6	0.0	0.1		5.1	0.0
Delay (s)	31.9	9.4	20.5		31.4	23.3
Level of Service	C	A	C		C	C
Approach Delay (s)		31.3	20.5		28.7	
Approach LOS		C	C		C	

Intersection Summary				
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



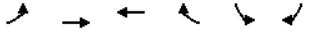
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	6	519	68	10	7	301	680	20	41	955	44
Future Volume (veh/h)	90	6	519	68	10	7	301	680	20	41	955	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	0	205	71	10	5	314	708	19	43	995	41
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	610	0	260	88	12	6	364	2175	58	55	2721	112
Arrive On Green	0.17	0.00	0.17	0.06	0.06	0.06	0.11	0.62	0.61	0.03	0.54	0.53
Sat Flow, veh/h	3563	0	1519	1459	205	103	3456	3532	95	1781	5028	207
Grp Volume(v), veh/h	98	0	205	86	0	0	314	356	371	43	673	363
Grp Sat Flow(s),veh/h/ln	1781	0	1519	1767	0	0	1728	1777	1849	1781	1702	1831
Q Serve(g_s), s	3.5	0.0	19.4	7.2	0.0	0.0	13.4	14.4	14.5	3.6	17.0	17.0
Cycle Q Clear(g_c), s	3.5	0.0	19.4	7.2	0.0	0.0	13.4	14.4	14.5	3.6	17.0	17.0
Prop In Lane	1.00		1.00	0.83		0.06	1.00		0.05	1.00		0.11
Lane Grp Cap(c), veh/h	610	0	260	107	0	0	364	1095	1139	55	1842	991
V/C Ratio(X)	0.16	0.00	0.79	0.81	0.00	0.00	0.86	0.33	0.33	0.78	0.37	0.37
Avail Cap(c_a), veh/h	1237	0	528	178	0	0	521	1095	1139	102	1842	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.00	0.69	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	0.0	59.6	69.6	0.0	0.0	66.0	13.8	13.9	72.1	19.7	19.7
Incr Delay (d2), s/veh	0.1	0.0	4.7	5.3	0.0	0.0	7.5	0.8	0.8	8.3	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	7.8	3.4	0.0	0.0	6.3	6.1	6.3	1.8	7.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	64.3	74.9	0.0	0.0	73.5	14.6	14.6	80.5	20.2	20.8
LnGrp LOS	D	A	E	E	A	A	E	B	B	F	C	C
Approach Vol, veh/h		303			86			1041			1079	
Approach Delay, s/veh		60.7			74.9			32.4			22.8	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	96.4		30.6	20.2	85.3		14.0				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	8.6	54.7		52.1	22.6	40.7		15.1				
Max Q Clear Time (g_c+I1), s	5.6	16.5		21.4	15.4	19.0		9.2				
Green Ext Time (p_c), s	0.0	10.0		1.5	0.4	11.4		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

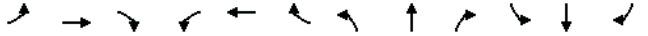
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	426	284	326	362	63
Future Volume (veh/h)	72	426	284	326	362	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	468	312	0	398	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	110	1221	1009	1242	435	387
Arrive On Green	0.06	0.65	0.54	0.00	0.24	0.00
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	79	468	312	0	398	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	3.4	9.0	7.2	0.0	16.9	0.0
Cycle Q Clear(g_c), s	3.4	9.0	7.2	0.0	16.9	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	110	1221	1009	1242	435	387
V/C Ratio(X)	0.72	0.38	0.31	0.00	0.92	0.00
Avail Cap(c_a), veh/h	160	1274	1009	1242	435	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	6.2	9.9	0.0	28.6	0.0
Incr Delay (d2), s/veh	3.2	0.1	0.8	0.0	26.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.9	2.9	0.0	10.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.1	6.3	10.7	0.0	55.0	0.0
LnGrp LOS	D	A	B	A	E	A
Approach Vol, veh/h		547	312		398	
Approach Delay, s/veh		11.0	10.7		55.0	
Approach LOS		B	B		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		54.8		23.0	8.8	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		11.0		18.9	5.4	9.2
Green Ext Time (p_c), s		2.0		0.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	646	126	19	387	23	166	8	65	6	3	2
Future Volume (veh/h)	0	646	126	19	387	23	166	8	65	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	702	137	21	421	25	180	9	71	7	3	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1079	211	45	1543	91	719	76	603	423	177	103
Arrive On Green	0.00	0.37	0.35	0.03	0.45	0.44	0.43	0.43	0.41	0.43	0.43	0.41
Sat Flow, veh/h	0	3044	575	1781	3403	201	1405	179	1409	792	414	241
Grp Volume(v), veh/h	0	423	416	21	219	227	180	0	80	12	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1748	1781	1777	1827	1405	0	1587	1447	0	0
Q Serve(g_s), s	0.0	13.4	13.4	0.8	5.2	5.2	3.0	0.0	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	13.4	13.4	0.8	5.2	5.2	5.0	0.0	2.1	2.1	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.11	1.00		0.89	0.58		0.17
Lane Grp Cap(c), veh/h	0	650	640	45	806	828	719	0	680	704	0	0
V/C Ratio(X)	0.00	0.65	0.65	0.47	0.27	0.27	0.25	0.00	0.12	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	650	640	116	871	896	719	0	680	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.8	17.9	32.5	11.5	11.6	12.4	0.0	11.9	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.0	5.1	2.8	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	5.9	0.4	1.9	1.9	1.6	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.8	23.0	35.2	11.7	11.7	12.6	0.0	12.0	11.2	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		839			467			260			12	
Approach Delay, s/veh		22.9			12.7			12.4			11.2	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	28.9		32.9		34.6		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	2.8	15.4		4.1		7.2		7.0				
Green Ext Time (p_c), s	0.0	3.0		0.0		2.4		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	697	10	48	428	2	32
Future Vol, veh/h	697	10	48	428	2	32
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	758	11	52	465	2	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	771	0	1103	387
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	337	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	840	-	206	611
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	695	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	839	-	193	610
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	695	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	193	610	-	-	839	-
HCM Lane V/C Ratio	0.011	0.057	-	-	0.062	-
HCM Control Delay (s)	23.9	11.3	-	-	9.6	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	638	61	235	512	40	77	5	259	21	8	15
Future Volume (veh/h)	40	638	61	235	512	40	77	5	259	21	8	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	672	64	247	539	42	81	5	273	22	8	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1434	136	196	1686	131	464	9	505	171	68	99
Arrive On Green	0.04	0.44	0.44	0.11	0.51	0.51	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3260	310	1781	3326	258	1381	28	1532	356	205	299
Grp Volume(v), veh/h	42	366	370	247	287	294	81	0	278	46	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1793	1781	1777	1808	1381	0	1560	859	0	0
Q Serve(g_s), s	2.3	14.5	14.6	11.0	9.5	9.6	0.0	0.0	14.5	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.3	14.5	14.6	11.0	9.5	9.6	6.2	0.0	14.5	15.0	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.14	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	77	782	789	196	901	916	464	0	515	337	0	0
V/C Ratio(X)	0.55	0.47	0.47	1.26	0.32	0.32	0.17	0.00	0.54	0.14	0.00	0.00
Avail Cap(c_a), veh/h	107	782	789	196	901	916	464	0	515	337	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.9	19.7	19.8	44.5	14.5	14.5	24.5	0.0	27.3	23.8	0.0	0.0
Incr Delay (d2), s/veh	2.2	2.0	2.0	151.6	0.2	0.2	0.8	0.0	4.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.3	6.3	13.1	3.8	3.8	1.5	0.0	5.9	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	21.8	21.8	196.1	14.7	14.7	25.3	0.0	31.3	24.7	0.0	0.0
LnGrp LOS	D	C	C	F	B	B	C	A	C	C	A	A
Approach Vol, veh/h		778			828			359			46	
Approach Delay, s/veh		23.2			68.8			30.0			24.7	
Approach LOS		C			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	48.0		37.0	8.3	54.7		37.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	11.0	44.0		33.0	6.0	49.0		33.0				
Max Q Clear Time (g_c+I1), s	13.0	16.6		17.0	4.3	11.6		16.5				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	4.0		1.2				

Intersection Summary		
HCM 6th Ctrl Delay	43.2	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	446	219	289	284	271	194	454	145	427	839	255
Future Volume (veh/h)	223	446	219	289	284	271	194	454	145	427	839	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	469	171	304	299	106	204	478	99	449	883	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	570	206	362	635	220	265	1765	355	512	2491	773
Arrive On Green	0.09	0.22	0.22	0.10	0.25	0.24	0.05	0.28	0.27	0.15	0.49	0.00
Sat Flow, veh/h	3456	2536	917	3456	2568	889	3456	4239	853	3456	5106	1585
Grp Volume(v), veh/h	235	327	313	304	205	200	204	381	196	449	883	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1676	1728	1777	1680	1728	1702	1688	1728	1702	1585
Q Serve(g_s), s	10.0	26.3	26.7	13.0	14.7	15.3	8.7	13.1	13.7	19.1	16.1	0.0
Cycle Q Clear(g_c), s	10.0	26.3	26.7	13.0	14.7	15.3	8.7	13.1	13.7	19.1	16.1	0.0
Prop In Lane	1.00		0.55	1.00		0.53	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	294	399	377	362	439	415	265	1417	703	512	2491	773
V/C Ratio(X)	0.80	0.82	0.83	0.84	0.47	0.48	0.77	0.27	0.28	0.88	0.35	0.00
Avail Cap(c_a), veh/h	576	569	536	507	538	509	760	1417	703	783	2491	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	0.00
Uniform Delay (d), s/veh	67.4	55.2	55.6	65.9	48.0	48.6	69.8	36.3	36.6	62.5	23.8	0.0
Incr Delay (d2), s/veh	1.7	5.7	6.6	6.4	1.5	1.7	1.6	0.4	0.9	4.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	12.4	12.0	6.1	6.8	6.7	4.0	5.9	6.2	8.8	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	61.0	62.2	72.3	49.5	50.3	71.5	36.7	37.5	67.5	24.2	0.0
LnGrp LOS	E	E	E	E	D	D	E	D	D	E	C	A
Approach Vol, veh/h		875			709			781			1332	
Approach Delay, s/veh		63.6			59.5			46.0			38.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.2	66.3	19.7	37.7	15.5	77.1	16.8	40.7
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	33.6	28.8	21.6	47.1	32.6	* 30	24.6	44.1
Max Q Clear Time (g_c+I1), s	21.1	15.7	15.0	28.7	10.7	18.1	12.0	17.3
Green Ext Time (p_c), s	0.8	4.7	0.3	4.0	0.3	6.9	0.3	4.6

Intersection Summary	
HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Existing PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	171	247	251	262	408	166	318	536	351	858	56
Future Volume (veh/h)	19	171	247	251	262	408	166	318	536	351	858	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	176	0	259	270	421	171	328	0	362	885	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	695		316	509	422	226	1712		421	1913	853
Arrive On Green	0.02	0.20	0.00	0.09	0.27	0.27	0.07	0.48	0.00	0.24	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1553	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	176	0	259	270	421	171	328	0	362	885	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1553	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.7	6.3	0.0	11.0	18.4	40.6	7.3	7.9	0.0	15.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	6.3	0.0	11.0	18.4	40.6	7.3	7.9	0.0	15.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	695		316	509	422	226	1712		421	1913	853
V/C Ratio(X)	0.63	0.25		0.82	0.53	1.00	0.76	0.19		0.86	0.46	0.00
Avail Cap(c_a), veh/h	74	695		461	509	422	323	1712		599	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.80	0.80	0.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	73.2	51.1	0.0	66.9	46.5	54.5	68.9	22.2	0.0	55.5	0.0	0.0
Incr Delay (d2), s/veh	7.5	0.2	0.0	4.8	0.5	42.9	2.6	0.2	0.0	7.7	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	0.0	5.1	8.7	20.9	3.3	3.4	0.0	6.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	51.2	0.0	71.7	47.0	97.4	71.6	22.4	0.0	63.1	0.7	0.0
LnGrp LOS	F	D		E	D	F	E	C		E	A	A
Approach Vol, veh/h		196	A		950			499	A		1247	
Approach Delay, s/veh		54.3			76.1			39.2			18.8	
Approach LOS		D			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	76.2	17.7	33.7	13.8	84.7	6.7	44.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	25.6	60.1	19.6	* 26	13.6	72.1	5.8	39.5
Max Q Clear Time (g_c+I1), s	17.0	9.9	13.0	8.3	9.3	2.0	3.7	42.6
Green Ext Time (p_c), s	0.9	1.5	0.3	0.9	0.1	14.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	572	0	340	0	0	0	0	473	315	785	388	0
Future Volume (vph)	572	0	340	0	0	0	0	473	315	785	388	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3307	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3307	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	602	0	358	0	0	0	0	498	332	826	408	0
RTOR Reduction (vph)	0	0	272	0	0	0	0	0	210	0	0	0
Lane Group Flow (vph)	602	0	86	0	0	0	0	498	122	413	821	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	34.5		34.5					54.0	54.0	43.2	43.2	
Effective Green, g (s)	36.1		36.1					55.0	55.0	44.8	44.8	
Actuated g/C Ratio	0.24		0.24					0.37	0.37	0.30	0.30	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	826		380					1297	580	480	987	
v/s Ratio Prot	c0.18							c0.14		c0.26	0.25	
v/s Ratio Perm			0.05						0.08			
v/c Ratio	0.73		0.23					0.38	0.21	0.86	0.83	
Uniform Delay, d1	52.4		45.7					35.0	32.6	49.6	49.1	
Progression Factor	1.00		1.00					0.38	0.02	0.90	0.90	
Incremental Delay, d2	5.6		1.4					0.1	0.1	13.7	5.7	
Delay (s)	58.0		47.1					13.4	0.8	58.4	50.1	
Level of Service	E		D					B	A	E	D	
Approach Delay (s)		54.0			0.0			8.3			52.9	
Approach LOS		D			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	66.9%	ICU Level of Service	C	
Analysis Period (min)	15			

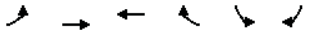
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	494	79	6	4	67	284	3	26	11	402	25	285
Future Volume (vph)	494	79	6	4	67	284	3	26	11	402	25	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (prot)	1610	3259			3530	1583		1780		1681	1695	1583
Flt Permitted	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (perm)	1610	3259			3530	1583		1780		1681	1695	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	549	88	7	4	74	316	3	29	12	447	28	317
RTOR Reduction (vph)	0	1	0	0	0	59	0	9	0	0	0	165
Lane Group Flow (vph)	274	369	0	0	78	257	0	35	0	237	238	152
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	31.9	31.9			16.0	86.4		7.3		70.4	70.4	70.4
Effective Green, g (s)	33.5	33.5			17.6	86.4		8.8		72.0	72.0	72.0
Actuated g/C Ratio	0.22	0.22			0.12	0.58		0.06		0.48	0.48	0.48
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	359	727			414	911		104		806	813	759
v/s Ratio Prot	c0.17	0.11			0.02	c0.13		c0.02		c0.14	0.14	
v/s Ratio Perm						0.03						0.10
v/c Ratio	0.76	0.51			0.19	0.28		0.33		0.29	0.29	0.20
Uniform Delay, d1	54.5	51.0			59.8	16.1		67.8		23.6	23.6	22.4
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.50	0.50	0.36
Incremental Delay, d2	14.3	2.5			1.0	0.8		8.4		0.7	0.7	0.4
Delay (s)	68.8	53.6			60.8	16.9		76.2		12.5	12.5	8.5
Level of Service	E	D			E	B		E		B	B	A
Approach Delay (s)		60.0			25.6			76.2			10.9	
Approach LOS		E			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	48.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	594	342	394	156	311	81
Future Volume (veh/h)	594	342	394	156	311	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	632	364	419	0	331	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	658	1499	1407		436	766
Arrive On Green	0.37	0.80	0.40	0.00	0.13	0.00
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	632	364	419	0	331	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	38.3	5.3	8.9	0.0	10.2	0.0
Cycle Q Clear(g_c), s	38.3	5.3	8.9	0.0	10.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	658	1499	1407		436	766
V/C Ratio(X)	0.96	0.24	0.30		0.76	0.00
Avail Cap(c_a), veh/h	855	1499	1407		735	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	2.7	22.8	0.0	46.6	0.0
Incr Delay (d2), s/veh	17.5	0.4	0.5	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.3	1.6	3.8	0.0	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.6	3.1	23.4	0.0	47.7	0.0
LnGrp LOS	D	A	C		D	A
Approach Vol, veh/h		996	419	A	331	
Approach Delay, s/veh		33.8	23.4		47.7	
Approach LOS		C	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.5		17.9	44.8	47.7
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		87.5		22.0	* 53	30.5
Max Q Clear Time (g_c+I1), s		7.3		12.2	40.3	10.9
Green Ext Time (p_c), s		1.5		0.2	0.3	1.8

Intersection Summary						
HCM 6th Ctrl Delay			34.0			
HCM 6th LOS			C			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

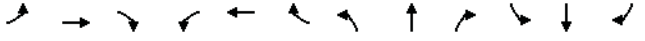
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Future Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	46	279	34	20	67	21	265	8	47	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	71	279	54	353	57
Volume Left (vph)	1	279	0	67	8
Volume Right (vph)	46	0	20	265	2
Hadj (s)	-0.35	0.53	-0.23	-0.38	0.04
Departure Headway (s)	5.3	6.2	5.4	4.8	5.6
Degree Utilization, x	0.10	0.48	0.08	0.47	0.09
Capacity (veh/h)	612	557	631	722	575
Control Delay (s)	8.9	13.6	7.7	11.9	9.2
Approach Delay (s)	8.9	12.6		11.9	9.2
Approach LOS	A	B		B	A

Intersection Summary					
Delay		11.7			
Level of Service		B			
Intersection Capacity Utilization		53.7%	ICU Level of Service		A
Analysis Period (min)		15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Future Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	254	0	0	0	457	101				0	167	209
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	414	0		0	1393	621				0	0	0
Arrive On Green	0.23	0.00	0.00	0.00	0.39	0.39				0.00	0.17	0.17
Sat Flow, veh/h	1781	254		0	3647	1585					0	
Grp Volume(v), veh/h	254	6.5		0	457	101					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	2.2			0.0	1.6	0.7						
Cycle Q Clear(g_c), s	2.2			0.0	1.6	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	414			0	1393	621						
V/C Ratio(X)	0.61			0.00	0.33	0.16						
Avail Cap(c_a), veh/h	3344			0	1642	732						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	5.9			0.0	3.7	3.4						
Incr Delay (d2), s/veh	0.5			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.3			0.0	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5			0.0	3.8	3.5						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					558							
Approach Delay, s/veh					3.8							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							8.5	8.8				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							32.0	5.0				
Max Q Clear Time (g_c+I1), s							4.2	3.6				
Green Ext Time (p_c), s							0.1	0.5				

Intersection Summary												
HCM 6th Ctrl Delay			4.6									
HCM 6th LOS			A									

Notes

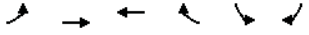
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	39.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	310	17	330	116	9	139	4	506	4	1	1
Future Vol, veh/h	1	310	17	330	116	9	139	4	506	4	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	333	18	355	125	10	149	4	544	4	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	26.8	28.6	53.3	12.5
HCM LOS	D	D	F	B

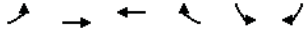
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	67%
Vol Thru, %	0%	1%	100%	0%	0%	93%	17%
Vol Right, %	0%	99%	0%	100%	0%	7%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	510	311	17	330	125	6
LT Vol	139	0	1	0	330	0	4
Through Vol	0	4	310	0	0	116	1
RT Vol	0	506	0	17	0	9	1
Lane Flow Rate	149	548	334	18	355	134	6
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.323	1.001	0.713	0.036	0.784	0.276	0.016
Departure Headway (Hd)	7.791	6.57	7.827	7.065	8.107	7.54	9.347
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	463	554	465	507	451	480	385
Service Time	5.5	4.279	5.527	4.802	5.807	5.24	7.347
HCM Lane V/C Ratio	0.322	0.989	0.718	0.036	0.787	0.279	0.016
HCM Control Delay	14.2	63.9	27.7	10.1	34.5	13.1	12.5
HCM Lane LOS	B	F	D	B	D	B	B
HCM 95th-tile Q	1.4	14.4	5.6	0.1	6.9	1.1	0



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	495	267	137	200	199
Future Volume (veh/h)	361	495	267	137	200	199
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	384	527	284	146	213	212
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	474	1153	485	410	359	319
Arrive On Green	0.27	0.62	0.26	0.26	0.20	0.20
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	384	527	284	146	213	212
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	8.9	6.6	5.8	3.3	4.8	5.4
Cycle Q Clear(g_c), s	8.9	6.6	5.8	3.3	4.8	5.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	474	1153	485	410	359	319
V/C Ratio(X)	0.81	0.46	0.59	0.36	0.59	0.66
Avail Cap(c_a), veh/h	1054	2214	937	791	811	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	4.5	14.2	13.3	15.9	16.2
Incr Delay (d2), s/veh	1.3	0.3	1.5	0.7	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	1.4	2.3	1.1	1.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.4	4.8	15.7	14.0	16.5	17.1
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		911	430		425	
Approach Delay, s/veh		9.7	15.2		16.8	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		31.1		12.9	15.7	15.4
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	25.6	21.1
Max Q Clear Time (g_c+I1), s		8.6		7.4	10.9	7.8
Green Ext Time (p_c), s		3.6		0.6	0.5	2.5

Intersection Summary			
HCM 6th Ctrl Delay		12.7	
HCM 6th LOS		B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	262	472	63	80	152	486
Future Volume (veh/h)	262	472	63	80	152	486
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	524	70	89	169	540
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	346	951	192	245	672	598
Arrive On Green	0.19	0.51	0.26	0.24	0.38	0.38
Sat Flow, veh/h	1781	1870	748	951	1781	1585
Grp Volume(v), veh/h	291	524	0	159	169	540
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1699	1781	1585
Q Serve(g_s), s	11.0	13.4	0.0	5.4	4.6	22.5
Cycle Q Clear(g_c), s	11.0	13.4	0.0	5.4	4.6	22.5
Prop In Lane	1.00			0.56	1.00	1.00
Lane Grp Cap(c), veh/h	346	951	0	437	672	598
V/C Ratio(X)	0.84	0.55	0.00	0.36	0.25	0.90
Avail Cap(c_a), veh/h	433	1042	0	437	840	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	11.7	0.0	21.5	15.0	20.6
Incr Delay (d2), s/veh	9.7	0.2	0.0	2.3	0.1	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	4.9	0.0	2.3	1.7	18.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.9	11.9	0.0	23.9	15.1	31.5
LnGrp LOS	D	B	A	C	B	C
Approach Vol, veh/h		815	159		709	
Approach Delay, s/veh		20.8	23.9		27.6	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		39.6		30.4	17.6	22.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		38.1		32.1	16.6	17.1
Max Q Clear Time (g_c+I1), s		15.4		24.5	13.0	7.4
Green Ext Time (p_c), s		2.2		1.0	0.2	0.4

Intersection Summary			
HCM 6th Ctrl Delay		24.0	
HCM 6th LOS		C	

Intersection	
Intersection Delay, s/veh	67.9
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	320	165	661	127	27
Future Vol, veh/h	467	320	165	661	127	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	519	356	183	734	141	30
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	43.7	100.9	14.9
HCM LOS	E	F	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	467	320	165	661	127	27
LT Vol	467	0	0	0	127	0
Through Vol	0	320	165	0	0	0
RT Vol	0	0	0	661	0	27
Lane Flow Rate	519	356	183	734	141	30
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.977	0.62	0.334	1.193	0.33	0.06
Departure Headway (Hd)	7.027	6.518	6.562	5.85	8.844	7.604
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	558	550	624	409	474
Service Time	4.727	4.218	4.284	3.572	6.544	5.304
HCM Lane V/C Ratio	1	0.638	0.333	1.176	0.345	0.063
HCM Control Delay	60.4	19.3	12.6	123	15.8	10.8
HCM Lane LOS	F	C	B	F	C	B
HCM 95th-tile Q	13	4.2	1.5	25.5	1.4	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	265	89	203	553	393	245
Future Volume (veh/h)	265	89	203	553	393	245
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	282	95	216	588	418	261
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	447	150	259	996	642	571
Arrive On Green	0.33	0.32	0.15	0.53	0.36	0.36
Sat Flow, veh/h	1338	451	1781	1870	1781	1585
Grp Volume(v), veh/h	0	377	216	588	418	261
Grp Sat Flow(s),veh/h/ln	0	1789	1781	1870	1781	1585
Q Serve(g_s), s	0.0	13.4	8.8	16.0	14.7	9.4
Cycle Q Clear(g_c), s	0.0	13.4	8.8	16.0	14.7	9.4
Prop In Lane		0.25	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	597	259	996	642	571
V/C Ratio(X)	0.00	0.63	0.83	0.59	0.65	0.46
Avail Cap(c_a), veh/h	0	597	381	1124	642	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.2	31.1	11.9	20.0	18.3
Incr Delay (d2), s/veh	0.0	5.0	8.2	0.8	5.1	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.1	4.2	6.1	6.6	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	26.2	39.3	12.7	25.1	21.0
LnGrp LOS	A	C	D	B	C	C
Approach Vol, veh/h	377			804	679	
Approach Delay, s/veh	26.2			19.9	23.5	
Approach LOS	C			B	C	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.9	29.0			43.9	31.0
Change Period (Y+Rc), s	4.0	5.0			5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0			44.0	27.0
Max Q Clear Time (g_c+I1), s	10.8	15.4			18.0	16.7
Green Ext Time (p_c), s	0.2	1.8			5.5	1.3

Intersection Summary			
HCM 6th Ctrl Delay		22.5	
HCM 6th LOS		C	

APPENDIX E

EXISTING FREEWAY ANALYSIS CALCULATION SHEETS AND RAMP METER OBSERVATIONS AND CALTRANS RATES

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3860	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1016
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5720	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2050
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5640	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1187
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8370	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1781
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.7
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5720	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1521
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8500	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1789
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6180	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1315
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9180	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1594
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_P), pc/h/ln	1383
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9450	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1969
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6820	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1451
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10130	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2089
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9160	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2013
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7050	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1484
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8540	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1599
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6580	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9310	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1981
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7230	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1883
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7960	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2853
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6180	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1084
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8420	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2216
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.08
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6540	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2247
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5710	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1518
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4780	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1695
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1740
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6990	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1456
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8470	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2161
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7100	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1479
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9160	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1889
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7670	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1332
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9420	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1942
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7890	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1644
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10100	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2082
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8470	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1765
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8160	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1793
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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Project Information

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Jurisdiction	I-5 North of Sea World Drive SB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9750	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2010
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1364
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9090	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7300	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1521
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7750	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1998
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6240	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2122
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.5
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

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Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6620	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1199
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1704
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

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Jurisdiction	SR163 South of I-8 SB – Ex PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7010	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2409
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Ramp Meter Observations

I-5 Northbound On-Ramp / Sea World Drive

Date: Wednesday, September 11, 2019

Time Period: AM Peak Hour (7:30am – 8:30am)

Time	Number of Cars	Wait Time
7:30am	6	32 seconds
7:40am	2	16 seconds
7:50am	2	14 seconds
8:00am	1	6 seconds
8:10am	5	26 seconds
8:20am	8	40 seconds
8:30am	5	28 seconds

Max Queue: 245 feet

Max Delay: 40 seconds

Date: Tuesday, September 10, 2019

Time Period: PM Peak Hour (4:30pm – 5:30pm)

Time	Number of Cars	Wait Time
4:30pm	2	15 seconds
4:40am	6	30 seconds
4:50am	6	28 seconds
5:00am	2	13 seconds
5:10am	2	12 seconds
5:20am	1	8 seconds
5:30am	2	15 seconds

Max Queue: 170 feet

Max Delay: 30 seconds

Location (I.D.)	Route	Dir	Period	Cars per green	Sec./ Cycle	(per lane) Veh./hr	Total # lanes	HOV
Sea World Dr (16210)	5	NB	0530 - 0630	2	7.2 - 10.5	996 - 684	2	No
			0630 - 0930		7.5	965		
			1500 - 1830		7.4	972		
			1830 - 1900		7.2 - 10.9	996 - 660		
Sea World Dr (16201)	5	SB	0530 - 0930	1	6.3 - 11.3	570 - 318	2	Lt
(not communicating since 12/2/14			1500 - 1900		6.3 - 11.3	570 - 318		

due to construction)

The meters normally operate in a traffic responsive mode.
There are 15 separate rates or steps between the slowest and the fastest discharge rate that depend on the mainlane volumes.

APPENDIX F

MXD MODEL STUDY SITES INFORMATION AND CALCULATIONS; LEVI-CUSHMAN TRIP GENERATION







TRIP GENERATION FOR SMART GROWTH

PLANNING TOOLS FOR THE SAN DIEGO REGION

June 2010

SANDAG

Table 1 shows the SANDAG raw trips, the Mixed-Use Method's count predictions, and the actual external vehicle trip counts. Detail behind the SANDAG raw trips calculations is provided in Appendix B.

Table 1
Mixed-Use Method Analysis for SANDAG Sites

Site Name	Location	SANDAG Raw Trips[1]	Mixed-Use Method Trip Reduction Percentage	Mixed-Use Method Net Trips[2]	External Vehicle Trip Counts[3]	Percent Deviation between Mixed-Use Method and External Vehicle Counts
Rio Vista Station Village	San Diego	6,689	17%	5,538	5,307	4%
La Mesa Village Plaza	La Mesa	5,681	20%	4,539	4,280	6%
Uptown Center	San Diego	20,214	15%	17,097	16,886	1%
The Village at Morena Linda Vista	San Diego	6,375	26%	5,251	4,712	11%
Hazard Center	San Diego	15,051	12%	13,214	11,644	13%
Heritage Center at Otay Ranch	Chula Vista	10,505	7%	9,730	7,935	23%

(1) Using San Diego *Traffic Generators* Trip Rates; see Appendix B for details
(2) Application of Fehr & Peers Mixed Use Trip Generation Reduction Percentages to (1)
(3) Actual counts
Source: Fehr & Peers, 2009

Based on the results shown in the table above, the Mixed-Use Method is an excellent predictor of external vehicle trips generated by smart growth development, tending to be slightly conservative, but without overestimating smart growth trips to the same degree as conventional trip generation methods. In all cases listed in Table 1, the Mixed-Use Method results in an estimation of external vehicle trips that is below the levels of estimated trip generation using raw trips alone and at or above the level of trips that were determined through actual counts. On average, the *San Diego Traffic Generators* trip generation rates for suburban development would overestimate traffic from the six sites by 29 percent, while the Mixed-Use Method reduces the average overestimate to 9 percent.

Additional Comments

The 20 larger SGOA sites analyzed in Figure 1 provide data for both validation of the Mixed-Use Method and for future refinements. It should be noted that the method's underestimation of trip reduction is most noticeable when it comes to the transit trips component, and additional data could help improve future versions of the Mixed-Use Method. Data collection at additional sites in urban locations with high transit usage is recommended in order to uncover statistically significant variables that are related to the "distance to transit" characteristic. This will help subsequent versions of the method to do a better job of capturing the beneficial aspects of a TOD site's proximity to transit.

Project Phase I

MIXED USE TRIP GENERATION MODEL V4 - INPUT

All shaded cells are inputs
Regular inputs (project-specific)
Inputs that may depend on regional values from census data, travel demand model, etc…
Treat like other inputs, but please send values and source to Mark Feldman so that a library of values can be compiled in future versions!

Section 1 - General Site Information

Site Name: Riverwalk Phase I

Geographic

		Notes / Instructions
Developed Area (in acres)	27.5	Include streets, ROW, parking lots, pocket parks. Do not include open space, vacant lots.
Number of Intersections	3	Count intersections either within or adjacent to the project site, and major project site access points to the street system (signalized or unsignalized).

Land Use - Surrounding Area

Employment within one mile of the MXD	19,503	Do not include employment within the MXD itself
Employment within a 30 minute Transit Trip (Door-to-door)	544,625	Include employment within the MXD itself This can be a difficult number to get - some suggestions are in the instructions tab in "disclaimers and warnings"

Site Demographics

Enter Population Directly?	No	If "No", will apply average HH size factors (in section 2) to dwelling units below
Population		You do not need to enter population here. It will be calculated based on dwelling units below and average HH sizes in section 2.
Average Vehicles Owned per Dwelling Unit	1.77	For guidance, one can look up Census 2000 Summary File 3 block group data for the closest block group to the site, at the URL indicated to the right, choosing table H44 when it prompts you for a table: http://factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF3_U&_lang=en&_ts=257951516373

Section 2 - Variable Modeling Parameters

Conversion Factors

		Source:	What does this input affect?
Average Household Size			
Estate, Urban or Rural	3.2	n/a - no SFDUs	
Single Family Detached	3.2	n/a - no SFDUs	
Condominium	2.34	n/a - no Apts	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Apartment	2.34	n/a - no Apts	
Mobile Home (Family)	2.5	n/a - no mobile homes	
Jobs per ksf			
Retail	2.0	ITE Trip Generation Manual	
Office	3.0	ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Light Industrial	1.0	ITE Trip Generation Manual	
Manufacturing	0.5	ITE Trip Generation Manual	
Warehousing	1.0	ITE Trip Generation Manual	
Misc. Uses	2.0	ITE Trip Generation Manual	
Jobs from ITE rates per other unit		Source	
Jobs per Hotel Room	0.50	ITE Trip Generation Manual	
Jobs per Movie Screen	4.00	ITE Trip Generation Manual	
Grade School Jobs per student	0.10	ITE Trip Generation Manual	Used to compute site employment for these land uses which are typically expressed in other units
High School / Middle School Jobs per Student	0.10	ITE Trip Generation Manual	
College Jobs per student	0.25	ITE Trip Generation Manual	

Average Trip Lengths (in miles)

Source: PSRC Travel Model Documentation, Cambridge Systematics, 2007.

	HBW	HBO	NHB	
External Trips	12.92	6.58	6.75	
Intra-site Trips	0.25	0.25	0.25	Used for VMT calculations only

Trip Purpose Splits by Land Use Type

This will affect the final results significantly. Keep "Use NCHRP on "Yes" unless you have reliable splits which have been QA/QCd

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab.
If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

		Productions			Attractions			
DAILY	**Use NCHRP?**	**HBW**	**HBO**	**NHB**	**HBW**	**HBO**	**NHB**	**Source (if not using NCHRP):**
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS

Enter the percent of these that occur…

		Source for this information:
Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	This only affects VMT calculations
Completely outside the Project Site	60%	

SITE-SPECIFIC INTERNALIZATION

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "raw" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the raw trips.

Site-Specific Internalization Percentages

Land Use	Use Site Specific Internalization?	% of Attractions which come from internal locations			Please note sources here: (important! These shouldn't just be guesses!)
		HBW	HBO	NHB	
Residential	No		50%	5%	
Retail (applies to "local-serving" retail only, see below)	No	36%	100%	100%	not needed
Office	No	36%	76%	81%	
Industrial	No	36%	76%	81%	
School	No	36%	100%	0%	

Note: The HBW percentage for residential is blacked out, because HBW trips are never attracted to residences
Note: The retail HBO percentage should be 100% since it applies to local-serving retail, no need for a source
Note: if the schools are appropriately sized for the project, school HBO attractions should be 100% above, no need for a source

Project Phase I

Local-Serving Retail Parameters (part of the site-specific internalization calculation)

The above internalization is likely to vary significantly among different types of retail. Therefore, the inputs below are used to specify which retail uses are "local-serving," i.e. will draw a significant portion of its shoppers from within the project. The rest will just go through the MXD model process.

% of retail which is local-serving

Super Regional Shopping Center	32%
Regional Shopping Center	32%
Community Shopping Center	32%
Neighborhood Shopping Center	32%
Speciality Retail / Strip Commercial	32%
Supermarket	100%
Drugstore	100%
Bank with Drive-Thru	100%
Discount Store	32%
Restuarants	
Quality	50%
Sit-down, High Turnover	50%
Fast Food (With Drive-thru)	50%
Fast Food (Without Drive-thru)	50%
Delicatessen (7 AM - 4 PM)	50%

Section 3 - Trip Generation

NOTE: Be sure to enter only occupied units / spaces	Quantity	Units	Trip Equation Method (if applicable)	Trips Daily	Trips AM Peak Hour	Trips PM Peak Hour	SANDAG Daily Parameters Average Rate	Log Multipler	Log Constant	PEAK HOUR PERCENTAGES AM	PM	Jobs Per Input Unit
Residential												
Estate, Urban or Rural		DU		0	0	0	12			8%	10%	
Single Family Detached		DU		0	0	0	10			8%	10%	
Condominium		DU		0	0	0	8			8%	10%	
Apartment	1910	DU		11,460	917	1,031	6			8%	9%	
Mobile Home (Family)		DU		0	0	0	5			8%	11%	
Retail												
Super Regional Shopping Center		ksf	Average Rate	0	0	0	35	0.502	6.945	4%	10%	2.0
Regional Shopping Center		ksf	Average Rate	0	0	0	50	0.502	6.945	4%	9%	2.0
Community Shopping Center	110.3	ksf		8,824	353	882	80			4%	10%	2.0
Neighborhood Shopping Center		ksf		0	0	0	120			4%	10%	2.0
Speciality Retail / Strip Commercial		ksf		0	0	0	40			3%	9%	2.0
Supermarket		ksf		0	0	0	150			4%	10%	2.0
Drugstore		ksf		0	0	0	90			8%	8%	2.0
Bank with Drive-Thru		ksf		0	0	0	200			5%	10%	2.0
Discount Store		ksf		0	0	0	60			3%	8%	2.0
Restaurant												
Quality		ksf		0	0	0	100			1%	8%	2.0
Sit-down, High Turnover		ksf		0	0	0	160			8%	8%	2.0
Fast Food (With Drive-thru)		ksf		0	0	0	650			7%	7%	2.0
Fast Food (Without Drive-thru)		ksf		0	0	0	700			5%	7%	2.0
Delicatessen (7 AM - 4 PM)		ksf		0	0	0	150			9%	3%	2.0
Office												
Standard Commercial Office	52	ksf	Fitted Curve	1,030	144	134	20	0.756	3.95	14%	13%	3.0
Large Commercial Office		ksf	Fitted Curve	0	0	0	17	0.756	3.95	13%	14%	3.0
Office Park		ksf		0	0	0	12			13%	13%	3.0
Single Tenant Office		ksf		0	0	0	14			15%	15%	3.0
Corporate Headquarters		ksf		0	0	0	7			17%	16%	3.0
Government (Civic Center)		ksf		0	0	0	30			9%	12%	3.0
Post Office (Community, w/mail drop lane)		ksf		0	0	0	30			7%	10%	3.0
Medical-Dental		ksf		0	0	0	50			6%	11%	3.0
Industrial												
Industrial / Business Park (with commercial)		ksf		0	0	0	16			12%	12%	1.0
Industrial / Business Park (no commercial)		ksf		0	0	0	8			11%	12%	1.0
Industrial Plant		ksf		0	0	0	10			14%	15%	1.0
Manufacturing		ksf		0	0	0	4			19%	20%	0.5
Warehousing		ksf		0	0	0	5			13%	15%	1.0
Storage		ksf		0	0	0	2			6%	9%	0.5
Science Research & Development		ksf		0	0	0	8			16%	14%	1.0
Lodging												
Hotel (w/convention facilities, restaurant)		Occ. Room		0	0	0	10			6%	8%	0.50
Motel		Occ. Room		0	0	0	9			8%	9%	0.50
Resort Hotel		Occ. Room		0	0	0	8			5%	7%	0.50
Misc. Uses												
Movie Theater		seat		0	0	0	0.9			0.33%	8%	4.00
Religious Facility		ksf		0	0	0	9			5%	8%	2.0
Gas Station (w/Food Mart and Car Wash)		Pump		0	0	0	155			8%	9%	2.0
Hospital		Bed		0	0	0	20			8%	10%	2.0
Convalescent / Nursing Facility		Bed		0	0	0	3			7%	7%	2.0
Library		ksf		0	0	0	50			2%	10%	2.0
Park (developed with meeting rooms and sports facilities)	1.6	acre		80	10	7	50			13%	9%	0
Transit Station (Light Rail with Parking)		occupied pkg space		0	0	0	4			14%	15%	0
Park & Ride Lot		occupied pkg space		0	0	0	8			14%	15%	0
Education												
University		Student		0	0	0	2.4			10%	9%	0.25
Junior College		Student		0	0	0	1.2			12%	9%	0.25
High School		Student		0	0	0	1.3			20%	10%	0.10
Middle / Junior High		Student		0	0	0	1.4			30%	9%	0.10
Elementary		Student		0	0	0	1.6			32%	9%	0.10
Day Care		Student		0	0	0	5			17%	18%	0.10

	Daily	AM Peak Hour	PM Peak Hour
Trips from Land uses not covered above ==>	0	0	0
Jobs in those Land Uses	0		

	Daily	AM Peak Hour	PM Peak Hour
Total "Raw" SANDAG Trip Generation Trips	**21,394**	**1,424**	**2,055**

Project Phase I

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

MODEL APPLICATION - ALL TRIPS

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" SANDAG Rate Trips Subject to Model	3578	13311	4425	21314	606	737	71	1414	468	1101	478	2048
Predicted Probabilities:												
Internal Capture	3.68%	2.99%	3.11%	3.13%	3.68%	2.99%	3.11%	3.29%	3.68%	2.99%	3.11%	3.17%
Walking External	2.74%	18.24%	3.34%	12.56%	2.74%	18.24%	3.34%	10.87%	2.74%	18.24%	3.34%	11.23%
Transit External	0.62%	2.76%	3.90%	2.64%	0.62%	2.76%	3.90%	1.91%	0.62%	2.76%	3.90%	2.54%
Number of Trips:												
Internal Capture	132	397	138	667	22	22	2	47	17	33	15	65
Walking External	94	2355	143	2593	16	130	2	149	12	195	15	223
Transit External	21	357	167	545	4	20	3	26	3	30	18	50
Net Number of IXXI Vehicle Trips	**3331**	**10201**	**3977**	**17509**	**564**	**565**	**64**	**1193**	**436**	**844**	**430**	**1710**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	21,394	17,509	18%	81,841	68,667	16%
AM Peak Hour	1,424	1,193	16%	6,579	5,729	13%
PM Peak Hour	2,055	1,710	17%	8,261	7,059	15%

NOTE: External trips are attributed half to project site uses, internal trips all to site uses for purposes of VMT allocation.

This phase does not assume transit credit. Therefore, transit credit trips were excluded as shown below (approx.)
18% – 2.64% = 15%
16% – 1.91% = 14%
17% – 2.54% = 14%

MODEL APPLICATION - TRIP ENDS TO/FROM RESIDENCES IN THE PROJECT ONLY

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model	2356	7450	1654	11460	412	473	32	917	290	579	163	1031
Predicted Probabilities:												
Internal Capture	3.68%	2.99%	3.11%	3.15%	3.68%	2.99%	3.11%	3.30%	3.68%	2.99%	3.11%	3.20%
Walking External	2.74%	18.24%	3.34%	12.92%	2.74%	18.24%	3.34%	10.79%	2.74%	18.24%	3.34%	11.55%
Transit External	0.62%	2.76%	3.90%	2.49%	0.62%	2.76%	3.90%	1.84%	0.62%	2.76%	3.90%	2.34%
Number of Trips:												
Internal Capture	87	222	52	361	15	14	1	30	11	17	5	33
Walking External	62	1318	54	1434	11	84	1	96	8	102	5	115
Transit External	14	200	62	276	2	13	1	16	2	16	6	23
Net Number of IXXI Vehicle Trips generated by Project Residences	**2193**	**5710**	**1487**	**9389**	**383**	**363**	**28**	**775**	**270**	**444**	**146**	**860**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	11,460	9,389	18%	90,622	86,359	5%
AM Peak Hour	917	775	16%	8,649	7,702	11%
PM Peak Hour	1,031	860	17%	8,651	8,354	3%

NOTE: all trips generated by project households (either produced or attracted or both) are counted 100%. This cannot be compared directly to the VMT in the section above.

Project Phases I and II

MIXED USE TRIP GENERATION MODEL V4 - INPUT

All shaded cells are inputs
Regular inputs (project-specific)
Inputs that may depend on regional values from census data, travel demand model, etc…
Treat like other inputs, but please send values and source to Mark Feldman so that a library of values can be compiled in future versions!

Section 1 - General Site Information

Site Name: Riverwalk Phase I and II

Geographic

		Notes / Instructions
Developed Area (in acres)	87.3	Include streets, ROW, parking lots, pocket parks. Do not include open space, vacant lots.
Number of Intersections	7	Count intersections either within or adjacent to the project site, and major project site access points to the street system (signalized or unsignalized).

Land Use - Surrounding Area

Employment within one mile of the MXD	19,503	Do not include employment within the MXD itself
Employment within a 30 minute Transit Trip (Door-to-door)	544,625	Include employment within the MXD itself This can be a difficult number to get - some suggestions are in the instructions tab in "disclaimers and warnings"

Site Demographics

Enter Population Directly?	No	If "No", will apply average HH size factors (in section 2) to dwelling units below
Population		You do not need to enter population here. It will be calculated based on dwelling units below and average HH sizes in section 2.
Average Vehicles Owned per Dwelling Unit	1.77	For guidance, one can look up Census 2000 Summary File 3 block group data for the closest block group to the site, at the URL indicated to the right, choosing table H44 when it prompts you for a table:

http://factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF3_U&_lang=en&_ts=257951516373

Section 2 - Variable Modeling Parameters

Conversion Factors

Average Household Size

		Source:	What does this input affect?
Estate, Urban or Rural	3.2	n/a - no SFDUs	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Single Family Detached	3.2	n/a - no SFDUs	
Condominium	2.34	n/a - no Apts	
Apartment	2.34	n/a - no Apts	
Mobile Home (Family)	2.5	n/a - no mobile homes	

Jobs per ksf

		Source:	What does this input affect?
Retail	2.0	ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Office	3.0	ITE Trip Generation Manual	
Light Industrial	1.0	ITE Trip Generation Manual	
Manufacturing	0.5	ITE Trip Generation Manual	
Warehousing	1.0	ITE Trip Generation Manual	
Misc. Uses	2.0	ITE Trip Generation Manual	

Jobs from ITE rates per other unit

		Source	What does this input affect?
Jobs per Hotel Room	0.50	ITE Trip Generation Manual	Used to compute site employment for these land uses which are typically expressed in other units
Jobs per Movie Screen	4.00	ITE Trip Generation Manual	
Grade School Jobs per student	0.10	ITE Trip Generation Manual	
High School / Middle School Jobs per Student	0.10	ITE Trip Generation Manual	
College Jobs per student	0.25	ITE Trip Generation Manual	

Average Trip Lengths (in miles)

Source: PSRC Travel Model Documentation, Cambridge Systematics, 2007.

	HBW	HBO	NHB	
External Trips	12.92	6.58	6.75	
Intra-site Trips	0.25	0.25	0.25	Used for VMT calculations only

Trip Purpose Splits by Land Use Type

This will affect the final results significantly. Keep "Use NCHRP on "Yes" unless you have reliable splits which have been QA/QCd

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab.
If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

		Productions			Attractions			
DAILY	**Use NCHRP?**	**HBW**	**HBO**	**NHB**	**HBW**	**HBO**	**NHB**	**Source (if not using NCHRP):**
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS

Enter the percent of these that occur…

		Source for this information:
Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	This only affects VMT calculations
Completely outside the Project Site	60%	

SITE-SPECIFIC INTERNALIZATION

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "raw" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the raw trips.

Site-Specific Internalization Percentages

Land Use	Use Site Specific Internalization?	% of Attractions which come from internal locations			Please note sources here: (important! These shouldn't just be guesses!)
		HBW	HBO	NHB	
Residential	No		50%	5%	
Retail (applies to "local-serving" retail only, see below)	No	36%	100%	100%	not needed
Office	No	36%	76%	81%	
Industrial	No	36%	76%	81%	
School	No	36%	100%	0%	

Note: The HBW percentage for residential is blacked out, because HBW trips are never attracted to residences
Note: The retail HBO percentage should be 100% since it applies to local-serving retail, no need for a source
Note: if the schools are appropriately sized for the project, school HBO attractions should be 100% above, no need for a source

Project Phases I and II

Local-Serving Retail Parameters (part of the site-specific internalization calculation)

The above internalization is likely to vary significantly among different types of retail. Therefore, the inputs below are used to specify which retail uses are "local-serving," i.e. will draw a significant portion of its shoppers from within the project. The rest will just go through the MXD model process.

% of retail which is local-serving

Super Regional Shopping Center	32%
Regional Shopping Center	32%
Community Shopping Center	32%
Neighborhood Shopping Center	32%
Speciality Retail / Strip Commercial	32%
Supermarket	100%
Drugstore	100%
Bank with Drive-Thru	100%
Discount Store	32%
Restuarants	
Quality	50%
Sit-down, High Turnover	50%
Fast Food (With Drive-thru)	50%
Fast Food (Without Drive-thru)	50%
Delicatessen (7 AM - 4 PM)	50%

Section 3 - Trip Generation

NOTE: Be sure to enter only occupied units / spaces	Quantity	Units	Trip Equation Method (if applicable)	Trips Daily	Trips AM Peak Hour	Trips PM Peak Hour	SANDAG Daily Parameters Average Rate	Log Multipler	Log Constant	PEAK HOUR PERCENTAGES AM	PM	Jobs Per Input Unit
Residential												
Estate, Urban or Rural		DU		0	0	0	12			8%	10%	
Single Family Detached		DU		0	0	0	10			8%	10%	
Condominium		DU		0	0	0	8			8%	10%	
Apartment	4300	DU		25,800	2,064	2,322	6			8%	9%	
Mobile Home (Family)		DU		0	0	0	5			8%	11%	
Retail												
Super Regional Shopping Center		ksf	Average Rate	0	0	0	35	0.502	6.945	4%	10%	2.0
Regional Shopping Center		ksf	Average Rate	0	0	0	50	0.502	6.945	4%	9%	2.0
Community Shopping Center	123.4	ksf		9,872	395	987	80			4%	10%	2.0
Neighborhood Shopping Center		ksf		0	0	0	120			4%	10%	2.0
Speciality Retail / Strip Commercial		ksf		0	0	0	40			3%	9%	2.0
Supermarket		ksf		0	0	0	150			4%	10%	2.0
Drugstore		ksf		0	0	0	90			8%	8%	2.0
Bank with Drive-Thru		ksf		0	0	0	200			5%	10%	2.0
Discount Store		ksf		0	0	0	60			3%	8%	2.0
Restaurant												
Quality		ksf		0	0	0	100			1%	8%	2.0
Sit-down, High Turnover		ksf		0	0	0	160			8%	8%	2.0
Fast Food (With Drive-thru)		ksf		0	0	0	650			7%	7%	2.0
Fast Food (Without Drive-thru)		ksf		0	0	0	700			5%	7%	2.0
Delicatessen (7 AM - 4 PM)		ksf		0	0	0	150			9%	3%	2.0
Office												
Standard Commercial Office	52	ksf	Fitted Curve	1,030	144	134	20	0.756	3.95	14%	13%	3.0
Large Commercial Office		ksf	Fitted Curve	0	0	0	17	0.756	3.95	13%	14%	3.0
Office Park		ksf		0	0	0	12			13%	13%	3.0
Single Tenant Office		ksf		0	0	0	14			15%	15%	3.0
Corporate Headquarters		ksf		0	0	0	7			17%	16%	3.0
Government (Civic Center)		ksf		0	0	0	30			9%	12%	3.0
Post Office (Community, w/mail drop lane)		ksf		0	0	0	30			7%	10%	3.0
Medical-Dental		ksf		0	0	0	50			6%	11%	3.0
Industrial												
Industrial / Business Park (with commercial)		ksf		0	0	0	16			12%	12%	1.0
Industrial / Business Park (no commercial)		ksf		0	0	0	8			11%	12%	1.0
Industrial Plant		ksf		0	0	0	10			14%	15%	1.0
Manufacturing		ksf		0	0	0	4			19%	20%	0.5
Warehousing		ksf		0	0	0	5			13%	15%	1.0
Storage		ksf		0	0	0	2			6%	9%	0.5
Science Research & Development		ksf		0	0	0	8			16%	14%	1.0
Lodging												
Hotel (w/convention facilities, restaurant)		Occ. Room		0	0	0	10			6%	8%	0.50
Motel		Occ. Room		0	0	0	9			8%	9%	0.50
Resort Hotel		Occ. Room		0	0	0	8			5%	7%	0.50
Misc. Uses												
Movie Theater		seat		0	0	0	0.9			0.33%	8%	4.00
Religious Facility		ksf		0	0	0	9			5%	8%	2.0
Gas Station (w/Food Mart and Car Wash)		Pump		0	0	0	155			8%	9%	2.0
Hospital		Bed		0	0	0	20			8%	10%	2.0
Convalescent / Nursing Facility		Bed		0	0	0	3			7%	7%	2.0
Library		ksf		0	0	0	50			2%	10%	2.0
Park (developed with meeting rooms and sports facilities)	27.87	acre		1,394	181	125	50			13%	9%	0
Transit Station (Light Rail with Parking)		occupied pkg space		0	0	0	4			14%	15%	0
Park & Ride Lot		occupied pkg space		0	0	0	8			14%	15%	0
Education												
University		Student		0	0	0	2.4			10%	9%	0.25
Junior College		Student		0	0	0	1.2			12%	9%	0.25
High School		Student		0	0	0	1.3			20%	10%	0.10
Middle / Junior High		Student		0	0	0	1.4			30%	9%	0.10
Elementary		Student		0	0	0	1.6			32%	9%	0.10
Day Care		Student		0	0	0	5			17%	18%	0.10

	Daily	AM Peak Hour	PM Peak Hour
Trips from Land uses not covered above ==>	0	0	0
Jobs in those Land Uses	0		

	Daily	AM Peak Hour	PM Peak Hour
Total "Raw" SANDAG Trip Generation Trips	**38,095**	**2,784**	**3,568**

Project Phases I and II

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

MODEL APPLICATION - ALL TRIPS

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" SANDAG Rate Trips Subject to Model	6630	23281	6791	36702	1133	1356	114	2603	845	1883	715	3443
Predicted Probabilities:												
Internal Capture	2.97%	3.67%	4.40%	3.68%	2.97%	3.67%	4.40%	3.39%	2.97%	3.67%	4.40%	3.65%
Walking External	2.41%	10.31%	2.28%	7.40%	2.41%	10.31%	2.28%	6.51%	2.41%	10.31%	2.28%	6.70%
Transit External	0.42%	2.76%	3.90%	2.54%	0.42%	2.76%	3.90%	1.79%	0.42%	2.76%	3.90%	2.42%
Number of Trips:												
Internal Capture	197	854	298	1349	34	50	5	88	25	69	31	126
Walking External	155	2313	148	2616	27	135	2	164	20	187	16	222
Transit External	27	620	253	900	5	36	4	45	3	50	27	80
Net Number of IXXI Vehicle Trips	**6251**	**19494**	**6091**	**31837**	**1068**	**1135**	**103**	**2306**	**797**	**1577**	**641**	**3015**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	38,095	31,837	16%	142,343	125,415	12%
AM Peak Hour	2,784	2,306	17%	12,165	11,004	10%
PM Peak Hour	3,568	3,015	16%	14,068	12,531	11%

NOTE: External trips are attributed half to project site uses, internal trips all to site uses for purposes of VMT allocation.

MODEL APPLICATION - TRIP ENDS TO/FROM RESIDENCES IN THE PROJECT ONLY

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model	5303	16772	3725	25800	927	1065	71	2064	652	1303	367	2322
Predicted Probabilities:												
Internal Capture	2.97%	3.67%	4.40%	3.63%	2.97%	3.67%	4.40%	3.38%	2.97%	3.67%	4.40%	3.59%
Walking External	2.41%	10.31%	2.28%	7.53%	2.41%	10.31%	2.28%	6.47%	2.41%	10.31%	2.28%	6.82%
Transit External	0.42%	2.76%	3.90%	2.44%	0.42%	2.76%	3.90%	1.74%	0.42%	2.76%	3.90%	2.28%
Number of Trips:												
Internal Capture	157	615	164	936	27	39	3	70	19	48	16	83
Walking External	124	1666	81	1871	22	106	2	129	15	129	8	153
Transit External	21	447	139	607	4	28	3	35	3	35	14	51
Net Number of IXXI Vehicle Trips generated by Project Residences	**5000**	**14044**	**3341**	**22385**	**874**	**892**	**64**	**1830**	**615**	**1091**	**329**	**2035**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	25,800	22,385	13%	204,018	203,065	0%
AM Peak Hour	2,064	1,830	11%	19,471	17,980	8%
PM Peak Hour	2,322	2,035	12%	19,475	19,514	0%

NOTE: all trips generated by project households (either produced or attracted or both) are counted 100%. This cannot be compared directly to the VMT in the section above.

Project Phases I, II and III

MIXED USE TRIP GENERATION MODEL V4 - INPUT

All shaded cells are inputs
Regular inputs (project-specific)
Inputs that may depend on regional values from census data, travel demand model, etc…
Treat like other inputs, but please send values and source to Mark Feldman so that a library of values can be compiled in future versions!

Section 1 - General Site Information

Site Name: Riverwalk Phase I, II and III

Geographic — **Notes / Instructions**

Developed Area (in acres)	104.9	Include streets, ROW, parking lots, pocket parks. Do not include open space, vacant lots.
Number of Intersections	10	Count intersections either within or adjacent to the project site, and major project site access points to the street system (signalized or unsignalized).

Land Use - Surrounding Area

Employment within one mile of the MXD	19,503	Do not include employment within the MXD itself
Employment within a 30 minute Transit Trip (Door-to-door)	544,625	Include employment within the MXD itself This can be a difficult number to get - some suggestions are in the instructions tab in "disclaimers and warnings"

Site Demographics

Enter Population Directly?	No	If "No", will apply average HH size factors (in section 2) to dwelling units below
Population		You do not need to enter population here. It will be calculated based on dwelling units below and average HH sizes in section 2.
Average Vehicles Owned per Dwelling Unit	1.77	For guidance, one can look up Census 2000 Summary File 3 block group data for the closest block group to the site, at the URL indicated to the right, choosing table H44 when it prompts you for a table:

http://factfinder.census.gov/servlet/CTGeoSearchByListServlet?ds_name=DEC_2000_SF3_U&_lang=en&_ts=257951516373

Section 2 - Variable Modeling Parameters

Conversion Factors

Average Household Size

		Source:	What does this input affect?
Estate, Urban or Rural	3.2	n/a - no SFDUs	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Single Family Detached	3.2	n/a - no SFDUs	
Condominium	2.34	n/a - no Apts	
Apartment	2.34	n/a - no Apts	
Mobile Home (Family)	2.5	n/a - no mobile homes	

Jobs per ksf

		Source:	What does this input affect?
Retail	2.0	ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Office	3.0	ITE Trip Generation Manual	
Light Industrial	1.0	ITE Trip Generation Manual	
Manufacturing	0.5	ITE Trip Generation Manual	
Warehousing	1.0	ITE Trip Generation Manual	
Misc. Uses	2.0	ITE Trip Generation Manual	

Jobs from ITE rates per other unit

		Source	What does this input affect?
Jobs per Hotel Room	0.50	ITE Trip Generation Manual	Used to compute site employment for these land uses which are typically expressed in other units
Jobs per Movie Screen	4.00	ITE Trip Generation Manual	
Grade School Jobs per student	0.10	ITE Trip Generation Manual	
High School / Middle School Jobs per Student	0.10	ITE Trip Generation Manual	
College Jobs per student	0.25	ITE Trip Generation Manual	

Average Trip Lengths (in miles)

Source: PSRC Travel Model Documentation, Cambridge Systematics, 2007.

	HBW	HBO	NHB	
External Trips	12.92	6.58	6.75	
Intra-site Trips	0.25	0.25	0.25	Used for VMT calculations only

Trip Purpose Splits by Land Use Type

This will affect the final results significantly. Keep "Use NCHRP on "Yes" unless you have reliable splits which have been QA/QCd

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab.
If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the total is 100%
NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

		Productions			Attractions			
DAILY	**Use NCHRP?**	**HBW**	**HBO**	**NHB**	**HBW**	**HBO**	**NHB**	**Source (if not using NCHRP):**
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS

Enter the percent of these that occur…

		Source for this information:	
Completely Within the Project Site	25%		
With one trip end external to the Project Site	15%		This only affects VMT calculations
Completely outside the Project Site	60%		

SITE-SPECIFIC INTERNALIZATION

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "raw" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the raw trips.

Site-Specific Internalization Percentages

Land Use	Use Site Specific Internalization?	% of Attractions which come from internal locations			Please note sources here: (important! These shouldn't just be guesses!)
		HBW	HBO	NHB	
Residential	No		50%	5%	
Retail (applies to "local-serving" retail only, see below)	No	36%	100%	100%	not needed
Office	No	36%	76%	81%	
Industrial	No	36%	76%	81%	
School	No	36%	100%	0%	

Note: The HBW percentage for residential is blacked out, because HBW trips are never attracted to residences
Note: The retail HBO percentage should be 100% since it applies to local-serving retail, no need for a source
Note: if the schools are appropriately sized for the project, school HBO attractions should be 100% above, no need for a source

Project Phases I, II and III

Local-Serving Retail Parameters (part of the site-specific internalization calculation)

The above internalization is likely to vary significantly among different types of retail. Therefore, the inputs below are used to specify which retail uses are "local-serving," i.e. will draw a significant portion of its shoppers from within the project. The rest will just go through the MXD model process.

% of retail which is local-serving

Super Regional Shopping Center	32%
Regional Shopping Center	32%
Community Shopping Center	32%
Neighborhood Shopping Center	32%
Speciality Retail / Strip Commercial	32%
Supermarket	100%
Drugstore	100%
Bank with Drive-Thru	100%
Discount Store	32%
Restuarants	
Quality	50%
Sit-down, High Turnover	50%
Fast Food (With Drive-thru)	50%
Fast Food (Without Drive-thru)	50%
Delicatessen (7 AM - 4 PM)	50%

Section 3 - Trip Generation

NOTE: Be sure to enter only occupied units / spaces	Quantity	Units	Trip Equation Method (if applicable)	Trips Daily	Trips AM Peak Hour	Trips PM Peak Hour	SANDAG Daily Parameters Average Rate	Log Multipler	Log Constant	PEAK HOUR PERCENTAGES AM	PM	Jobs Per Input Unit
Residential												
Estate, Urban or Rural		DU		0	0	0	12			8%	10%	
Single Family Detached		DU		0	0	0	10			8%	10%	
Condominium		DU		0	0	0	8			8%	10%	
Apartment	4300	DU		25,800	2,064	2,322	6			8%	9%	
Mobile Home (Family)		DU		0	0	0	5			8%	11%	
Retail												
Super Regional Shopping Center		ksf	Average Rate	0	0	0	35	0.502	6.945	4%	10%	2.0
Regional Shopping Center		ksf	Average Rate	0	0	0	50	0.502	6.945	4%	9%	2.0
Community Shopping Center	123.4	ksf		9,872	395	987	80			4%	10%	2.0
Neighborhood Shopping Center	28.6	ksf		3,432	137	343	120			4%	10%	2.0
Speciality Retail / Strip Commercial		ksf		0	0	0	40			3%	9%	2.0
Supermarket		ksf		0	0	0	150			4%	10%	2.0
Drugstore		ksf		0	0	0	90			8%	8%	2.0
Bank with Drive-Thru		ksf		0	0	0	200			5%	10%	2.0
Discount Store		ksf		0	0	0	60			3%	8%	2.0
Restaurant												
Quality		ksf		0	0	0	100			1%	8%	2.0
Sit-down, High Turnover		ksf		0	0	0	160			8%	8%	2.0
Fast Food (With Drive-thru)		ksf		0	0	0	650			7%	7%	2.0
Fast Food (Without Drive-thru)		ksf		0	0	0	700			5%	7%	2.0
Delicatessen (7 AM - 4 PM)		ksf		0	0	0	150			9%	3%	2.0
Office												
Standard Commercial Office	800	ksf	Fitted Curve	8,132	1,138	1,057	20	0.756	3.95	14%	13%	3.0
Large Commercial Office		ksf	Fitted Curve	0	0	0	17	0.756	3.95	13%	14%	3.0
Office Park		ksf		0	0	0	12			13%	13%	3.0
Single Tenant Office		ksf		0	0	0	14			15%	15%	3.0
Corporate Headquarters		ksf		0	0	0	7			17%	16%	3.0
Government (Civic Center)		ksf		0	0	0	30			9%	12%	3.0
Post Office (Community, w/mail drop lane)		ksf		0	0	0	30			7%	10%	3.0
Medical-Dental		ksf		0	0	0	50			6%	11%	3.0
Industrial												
Industrial / Business Park (with commercial)		ksf		0	0	0	16			12%	12%	1.0
Industrial / Business Park (no commercial)		ksf		0	0	0	8			11%	12%	1.0
Industrial Plant		ksf		0	0	0	10			14%	15%	1.0
Manufacturing		ksf		0	0	0	4			19%	20%	0.5
Warehousing		ksf		0	0	0	5			13%	15%	1.0
Storage		ksf		0	0	0	2			6%	9%	0.5
Science Research & Development		ksf		0	0	0	8			16%	14%	1.0
Lodging												
Hotel (w/convention facilities, restaurant)		Occ. Room		0	0	0	10			6%	8%	0.50
Motel		Occ. Room		0	0	0	9			8%	9%	0.50
Resort Hotel		Occ. Room		0	0	0	8			5%	7%	0.50
Misc. Uses												
Movie Theater		seat		0	0	0	0.9			0.33%	8%	4.00
Religious Facility		ksf		0	0	0	9			5%	8%	2.0
Gas Station (w/Food Mart and Car Wash)		Pump		0	0	0	155			8%	9%	2.0
Hospital		Bed		0	0	0	20			8%	10%	2.0
Convalescent / Nursing Facility		Bed		0	0	0	3			7%	7%	2.0
Library		ksf		0	0	0	50			2%	10%	2.0
Park (developed with meeting rooms and sports facilities)	27.87	acre		1,394	181	125	50			13%	9%	0
Transit Station (Light Rail with Parking)		occupied pkg space		0	0	0	4			14%	15%	0
Park & Ride Lot		occupied pkg space		0	0	0	8			14%	15%	0
Education												
University		Student		0	0	0	2.4			10%	9%	0.25
Junior College		Student		0	0	0	1.2			12%	9%	0.25
High School		Student		0	0	0	1.3			20%	10%	0.10
Middle / Junior High		Student		0	0	0	1.4			30%	9%	0.10
Elementary		Student		0	0	0	1.6			32%	9%	0.10
Day Care		Student		0	0	0	5			17%	18%	0.10

	Daily	AM Peak Hour	PM Peak Hour
Trips from Land uses not covered above ==>	0	0	0
Jobs in those Land Uses	0		

	Daily	AM Peak Hour	PM Peak Hour
Total "Raw" SANDAG Trip Generation Trips	**48,630**	**3,916**	**4,835**

Project Phases I, II and III

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

MODEL APPLICATION - ALL TRIPS

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" SANDAG Rate Trips Subject to Model	9339	28180	9717	47236	1827	1722	186	3735	1277	2355	1078	4710
Predicted Probabilities:												
Internal Capture	4.22%	6.08%	7.68%	6.04%	4.22%	6.08%	7.68%	5.25%	4.22%	6.08%	7.68%	5.94%
Walking External	2.97%	9.96%	2.63%	7.07%	2.97%	9.96%	2.63%	6.14%	2.97%	9.96%	2.63%	6.38%
Transit External	0.84%	2.76%	3.90%	2.60%	0.84%	2.76%	3.90%	1.87%	0.84%	2.76%	3.90%	2.49%
Number of Trips:												
Internal Capture	394	1714	746	2854	77	105	14	196	54	143	83	280
Walking External	265	2635	236	3136	52	161	5	217	36	220	26	283
Transit External	75	732	349	1156	15	45	7	66	10	61	39	110
Net Number of IXXI Vehicle Trips	**8605**	**23100**	**8386**	**40091**	**1683**	**1411**	**160**	**3255**	**1177**	**1930**	**930**	**4037**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	48,630	40,091	18%	185,839	160,603	14%
AM Peak Hour	3,916	3,255	17%	18,094	16,109	11%
PM Peak Hour	4,835	4,037	17%	19,634	17,161	13%

NOTE: External trips are attributed half to project site uses, internal trips all to site uses for purposes of VMT allocation.

MODEL APPLICATION - TRIP ENDS TO/FROM RESIDENCES IN THE PROJECT ONLY

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model	5303	16772	3725	25800	927	1065	71	2064	652	1303	367	2322
Predicted Probabilities:												
Internal Capture	4.22%	6.08%	7.68%	5.93%	4.22%	6.08%	7.68%	5.30%	4.22%	6.08%	7.68%	5.81%
Walking External	2.97%	9.96%	2.63%	7.45%	2.97%	9.96%	2.63%	6.53%	2.97%	9.96%	2.63%	6.82%
Transit External	0.84%	2.76%	3.90%	2.52%	0.84%	2.76%	3.90%	1.93%	0.84%	2.76%	3.90%	2.39%
Number of Trips:												
Internal Capture	224	1020	286	1530	39	65	5	109	28	79	28	135
Walking External	151	1568	90	1809	26	100	2	128	19	122	9	149
Transit External	43	435	134	612	7	28	3	38	5	34	13	52
Net Number of IXXI Vehicle Trips generated by Project Residences	**4886**	**13749**	**3214**	**21849**	**854**	**873**	**62**	**1789**	**601**	**1068**	**317**	**1986**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	25,800	21,849	15%	204,018	198,941	2%
AM Peak Hour	2,064	1,789	13%	19,471	17,592	10%
PM Peak Hour	2,322	1,986	14%	19,475	19,111	2%

NOTE: all trips generated by project households (either produced or attracted or both) are counted 100%. This cannot be compared directly to the VMT in the section above.

TABLE 5.1
PROJECT TRIP GENERATION

Use	Development Area 1	2	3	Rate	Unadjusted ADT 1	2	3	4% LRT R/W Adjustment* 1	2	3	ADT Adjusted for LRT, Vacancy and Passerby Trips 1	2	3
Residential (units)	60	300	969	8/du	480	2,400	7,752	0	0	425	480	2,400	7,327
Hotel (rooms)	500	250	250	8/ room	4,000	2,000	2,000	0	0	320	4,000	2,000	1,680
Retail (K SqFt)	100	50	50	49/K SqFt	4,900	2,450	2,450	0	0	392	4,900	2,450	2,058
Office	500	691	1,391	16/K SqFt	8,000	11,056	22,256	0	0	1,652	8,000	11,056	20,604
										TOTALS	17,380	17,906	31,669
										TOTAL PROJECT GENERATION	66,954		
										TOTAL ALLOCATION BY REVISED INTERIM ORDINANCE	66,880		

* Light-rail transit adjustment equals 4% of unadjusted cumulative ADT.

APPENDIX G

EXISTING + PROJECT PHASE I INTERSECTION ANALYSIS CALCULATION SHEETS



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	533	375	1136	407	168	702
Future Volume (veh/h)	533	375	1136	407	168	702
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	567	130	1209	11	179	747
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	700	311	1751	1073	268	2244
Arrive On Green	0.20	0.20	0.49	0.49	0.08	0.63
Sat Flow, veh/h	3563	1585	3647	1545	3456	3647
Grp Volume(v), veh/h	567	130	1209	11	179	747
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1545	1728	1777
Q Serve(g_s), s	11.0	5.2	18.8	0.2	3.6	7.1
Cycle Q Clear(g_c), s	11.0	5.2	18.8	0.2	3.6	7.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	700	311	1751	1073	268	2244
V/C Ratio(X)	0.81	0.42	0.69	0.01	0.67	0.33
Avail Cap(c_a), veh/h	1475	656	2754	1509	461	3485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	25.3	14.0	3.5	32.3	6.2
Incr Delay (d2), s/veh	0.9	0.3	0.7	0.0	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	1.8	6.2	0.1	1.5	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.5	25.7	14.7	3.5	33.4	6.4
LnGrp LOS	C	C	B	A	C	A
Approach Vol, veh/h	697		1220			926
Approach Delay, s/veh	28.0		14.6			11.6
Approach LOS	C		B			B

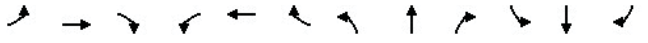
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.0	41.7				51.7	20.3
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	9.6	55.8				* 71	29.8
Max Q Clear Time (g_c+I1), s	5.6	20.8				9.1	13.0
Green Ext Time (p_c), s	0.1	14.6				13.9	1.2

Intersection Summary			
HCM 6th Ctrl Delay		16.9	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	80	41	116	103	177	1072	100	118	664	157
Future Volume (veh/h)	50	45	80	41	116	103	177	1072	100	118	664	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	50	89	46	129	114	197	1191	111	131	738	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	214	172	59	207	163	217	1883	873	97	1854	876
Arrive On Green	0.04	0.11	0.11	0.03	0.11	0.11	0.06	0.53	0.53	0.05	0.52	0.52
Sat Flow, veh/h	3456	1870	1501	1781	1870	1474	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	56	50	89	46	129	114	197	1191	111	131	738	174
Grp Sat Flow(s),veh/h/ln	1728	1870	1501	1781	1870	1474	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	1.2	1.8	4.1	1.9	4.8	5.5	4.1	17.4	2.5	4.0	9.2	4.0
Cycle Q Clear(g_c), s	1.2	1.8	4.1	1.9	4.8	5.5	4.1	17.4	2.5	4.0	9.2	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	128	214	172	59	207	163	217	1883	873	97	1854	876
V/C Ratio(X)	0.44	0.23	0.52	0.78	0.62	0.70	0.91	0.63	0.13	1.35	0.40	0.20
Avail Cap(c_a), veh/h	368	792	636	173	764	602	217	1883	873	97	1854	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	29.5	30.5	35.1	31.1	31.4	34.1	12.2	7.5	34.6	10.6	8.0
Incr Delay (d2), s/veh	0.9	0.6	2.4	7.9	1.1	2.0	36.1	1.6	0.3	209.3	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.8	1.5	0.9	2.2	2.0	2.8	6.4	0.8	7.3	3.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	30.0	32.9	43.1	32.3	33.4	70.2	13.8	7.8	243.9	11.2	8.5
LnGrp LOS	D	C	C	D	C	C	E	B	A	F	B	A
Approach Vol, veh/h		195			289			1499			1043	
Approach Delay, s/veh		32.9			34.4			20.8			40.0	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	44.1	6.8	13.9	9.0	43.5	7.1	13.6
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	38.7	7.1	* 31	4.6	* 38	7.8	29.9
Max Q Clear Time (g_c+I1), s	6.0	19.4	3.9	6.1	6.1	11.2	3.2	7.5
Green Ext Time (p_c), s	0.0	12.7	0.0	0.5	0.0	9.5	0.0	0.6

Intersection Summary			
HCM 6th Ctrl Delay		29.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1443	0	317	238	0	0	0	0	261	1	718
Future Volume (veh/h)	0	1443	0	317	238	0	0	0	0	261	1	718
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1503	0	330	248	0				272	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1593	711	417	2221	0				438	2	
Arrive On Green	0.00	0.45	0.00	0.12	0.63	0.00				0.25	0.25	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1775	7	1585
Grp Volume(v), veh/h	0	1503	0	330	248	0				273	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1782	0	1585
Q Serve(g_s), s	0.0	30.3	0.0	7.0	2.1	0.0				10.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.3	0.0	7.0	2.1	0.0				10.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1593	711	417	2221	0				440	0	
V/C Ratio(X)	0.00	0.94	0.00	0.79	0.11	0.00				0.62	0.00	
Avail Cap(c_a), veh/h	0	1616	721	447	2274	0				440	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.47	0.47	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.8	0.0	32.1	5.7	0.0				25.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.3	0.0	4.3	0.0	0.0				2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.7	0.0	3.1	0.7	0.0				4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.1	0.0	36.4	5.7	0.0				27.1	0.0	0.0
LnGrp LOS	A	C	A	D	A	A				C	A	
Approach Vol, veh/h		1503			578						273	A
Approach Delay, s/veh		31.1			23.2						27.1	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.3	38.6		23.1		51.9						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 9.7	34.1		17.4		48.0						
Max Q Clear Time (g_c+I1), s	9.0	32.3		12.2		4.1						
Green Ext Time (p_c), s	0.1	1.3		0.3		1.1						

Intersection Summary			
HCM 6th Ctrl Delay		28.7	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1133	552	0	0	478	476	72	25	247	0	0	0
Future Volume (veh/h)	1133	552	0	0	478	476	72	25	247	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1193	581	0	0	503	501	76	26	260			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1267	2663	0	0	580	518	156	53	184			
Arrive On Green	0.37	0.75	0.00	0.00	0.33	0.33	0.12	0.12	0.12			
Sat Flow, veh/h	3456	3647	0	0	1870	1585	1344	460	1585			
Grp Volume(v), veh/h	1193	581	0	0	503	501	102	0	260			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1803	0	1585			
Q Serve(g_s), s	25.0	3.7	0.0	0.0	19.9	23.3	4.0	0.0	8.7			
Cycle Q Clear(g_c), s	25.0	3.7	0.0	0.0	19.9	23.3	4.0	0.0	8.7			
Prop In Lane	1.00		0.00	0.00		1.00	0.75		1.00			
Lane Grp Cap(c), veh/h	1267	2663	0	0	580	518	209	0	184			
V/C Ratio(X)	0.94	0.22	0.00	0.00	0.87	0.97	0.49	0.00	1.41			
Avail Cap(c_a), veh/h	1281	2677	0	0	580	518	209	0	184			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.37	0.37	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.0	2.8	0.0	0.0	23.7	24.9	31.1	0.0	33.1			
Incr Delay (d2), s/veh	6.1	0.0	0.0	0.0	12.6	31.1	0.7	0.0	214.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	10.5	0.8	0.0	0.0	9.8	12.6	1.7	0.0	18.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	2.8	0.0	0.0	36.3	56.0	31.7	0.0	247.9			
LnGrp LOS	C	A	A	A	D	E	C	A	F			
Approach Vol, veh/h		1774			1004			362				
Approach Delay, s/veh		20.5			46.1			187.0				
Approach LOS		C			D			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		61.7		13.3	31.7	30.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		56.5		8.4	* 28	24.5						
Max Q Clear Time (g_c+I1), s		5.7		10.7	27.0	25.3						
Green Ext Time (p_c), s		2.9		0.0	0.4	0.0						

Intersection Summary			
HCM 6th Ctrl Delay		47.9	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	430	73	152	698	19	262	25	239	31	31	51
Future Volume (veh/h)	25	430	73	152	698	19	262	25	239	31	31	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	478	81	169	776	21	291	28	266	34	34	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	1448	618	172	1705	46	317	531	594	43	243	200
Arrive On Green	0.02	0.41	0.41	0.10	0.48	0.48	0.18	0.28	0.28	0.02	0.13	0.13
Sat Flow, veh/h	1781	3554	1516	1781	3531	96	1781	1870	1553	1781	1870	1541
Grp Volume(v), veh/h	28	478	81	169	390	407	291	28	266	34	34	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1516	1781	1777	1850	1781	1870	1553	1781	1870	1541
Q Serve(g_s), s	1.7	10.1	3.7	10.4	16.0	16.0	17.7	1.2	14.1	2.1	1.8	3.7
Cycle Q Clear(g_c), s	1.7	10.1	3.7	10.4	16.0	16.0	17.7	1.2	14.1	2.1	1.8	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	37	1448	618	172	858	893	317	531	594	43	243	200
V/C Ratio(X)	0.75	0.33	0.13	0.98	0.46	0.46	0.92	0.05	0.45	0.79	0.14	0.28
Avail Cap(c_a), veh/h	97	1448	618	172	858	893	317	663	703	102	442	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	22.3	20.4	49.6	18.8	18.8	44.4	28.6	25.5	53.4	42.4	43.2
Incr Delay (d2), s/veh	10.7	0.6	0.4	63.8	1.7	1.7	29.6	0.0	0.2	11.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	1.4	7.7	6.9	7.1	10.3	0.5	5.2	1.1	0.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	22.9	20.8	113.4	20.6	20.5	74.0	28.6	25.7	65.0	42.5	43.5
LnGrp LOS	E	C	C	F	C	C	E	C	C	E	D	D
Approach Vol, veh/h		587			966			585			125	
Approach Delay, s/veh		24.6			36.8			49.8			49.1	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.5	24.0	19.5	6.7	59.8	7.0	36.4
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	10.6	* 34	19.6	* 26	6.0	38.0	6.3	39.0
Max Q Clear Time (g_c+I1), s	12.4	12.1	19.7	5.7	3.7	18.0	4.1	16.1
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.4	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay	37.7	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	119	3	3	848	462	0	0	15	88	1	228
Future Volume (vph)	288	119	3	3	848	462	0	0	15	88	1	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (prot)	3433	3525		1751	3332				1520	1681	1687	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (perm)	3433	3525		1751	3332				1520	1681	1687	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	320	132	3	3	942	513	0	0	17	98	1	253
RTOR Reduction (vph)	0	1	0	0	46	0	0	0	17	0	0	164
Lane Group Flow (vph)	320	134	0	3	1409	0	0	0	0	49	50	89
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	14.8	76.6		0.8	62.6				2.1	30.2	30.2	45.0
Effective Green, g (s)	14.8	76.6		0.8	62.6				2.1	30.2	30.2	45.0
Actuated g/C Ratio	0.12	0.60		0.01	0.49				0.02	0.24	0.24	0.35
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	396	2104		10	1625				24	395	397	550
v/s Ratio Prot	c0.09	0.04		0.00	c0.42					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.81	0.06		0.30	0.87				0.01	0.12	0.13	0.16
Uniform Delay, d1	55.4	10.8		63.5	29.2				62.1	38.6	38.7	28.7
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	0.0		6.1	6.5				0.2	0.6	0.7	0.1
Delay (s)	66.2	10.8		69.5	35.7				62.3	39.3	39.3	28.7
Level of Service	E	B		E	D				E	D	D	C
Approach Delay (s)		49.8			35.7			62.3			31.7	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	128.3	Sum of lost time (s)	18.6
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	217	372	919	838	255	86
Future Volume (vph)	217	372	919	838	255	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1547	3428	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1547	3428	1418
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	233	400	988	901	274	92
RTOR Reduction (vph)	0	0	0	394	2	70
Lane Group Flow (vph)	233	400	988	507	281	13
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.9	50.8	30.9	44.2	13.3	13.3
Effective Green, g (s)	15.9	50.8	30.9	44.2	13.3	13.3
Actuated g/C Ratio	0.18	0.58	0.35	0.50	0.15	0.15
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	320	2049	1246	779	519	215
v/s Ratio Prot	c0.13	0.11	c0.28	c0.10	0.08	
v/s Ratio Perm				0.23		0.01
v/c Ratio	0.73	0.20	0.79	0.65	0.54	0.06
Uniform Delay, d1	33.9	8.8	25.5	16.0	34.4	31.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.8	0.2	3.8	2.6	2.0	0.2
Delay (s)	40.7	9.0	29.4	18.7	36.4	32.1
Level of Service	D	A	C	B	D	C
Approach Delay (s)		20.7	24.3		35.4	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	18.9
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	494	19	13	1757	88	53	5	34	58	2	32
Future Volume (veh/h)	39	494	19	13	1757	88	53	5	34	58	2	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	549	14	14	1952	89	59	6	0	64	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	2069	53	110	2123	96	253	21	185	288	218	0
Arrive On Green	0.03	0.58	0.58	0.06	0.61	0.61	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3537	90	1781	3461	156	1254	178	1585	1386	1870	0
Grp Volume(v), veh/h	43	276	287	14	994	1047	65	0	0	64	2	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1850	1781	1777	1840	1432	0	1585	1386	1870	0
Q Serve(g_s), s	1.5	4.9	4.9	0.5	31.8	33.0	2.5	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	1.5	4.9	4.9	0.5	31.8	33.0	2.7	0.0	0.0	2.2	0.1	0.0
Prop In Lane	1.00		0.05	1.00		0.09	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	59	1039	1082	110	1090	1129	273	0	185	288	218	0
V/C Ratio(X)	0.73	0.27	0.27	0.13	0.91	0.93	0.24	0.00	0.00	0.22	0.01	0.00
Avail Cap(c_a), veh/h	110	1039	1082	441	1091	1130	789	0	760	791	897	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.0	6.6	6.6	28.7	11.0	11.2	26.4	0.0	0.0	26.2	25.3	0.0
Incr Delay (d2), s/veh	6.1	0.6	0.6	0.2	12.9	14.2	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.4	1.5	0.2	11.5	12.6	0.9	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	7.2	7.2	28.9	23.9	25.4	26.5	0.0	0.0	26.3	25.3	0.0
LnGrp LOS	D	A	A	C	C	C	C	A	A	C	C	A
Approach Vol, veh/h		606			2055			65			66	
Approach Delay, s/veh		9.3			24.7			26.5			26.3	
Approach LOS		A			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	43.8		12.4	6.6	45.7		12.4				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	2.5	6.9		4.2	3.5	35.0		4.7				
Green Ext Time (p_c), s	0.0	7.3		0.1	0.0	4.7		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	21.4	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	584	1053	33	38	27
Future Vol, veh/h	40	584	1053	33	38	27
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	635	1145	36	41	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1218	0	-	0	1604	628
Stage 1	-	-	-	-	1200	-
Stage 2	-	-	-	-	404	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	568	-	-	-	96	426
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	550	-	-	-	83	413
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	27.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	550	-	-	-	229
HCM Lane V/C Ratio	0.079	-	-	-	0.309
HCM Control Delay (s)	12.1	-	-	-	27.6
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	593	30	0	1086	0	49
Future Vol, veh/h	593	30	0	1086	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	645	33	0	1180	0	53

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	339
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	657
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	657
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	657	-	-	-
HCM Lane V/C Ratio	0.081	-	-	-
HCM Control Delay (s)	11	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Existing + P1 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	445	33	72	1597	479	111	42	153	166	20	115
Future Volume (veh/h)	122	445	33	72	1597	479	111	42	153	166	20	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	494	36	78	1774	361	121	46	166	184	22	0
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1522	111	101	1573	679	172	66	209	226	27	224
Arrive On Green	0.06	0.45	0.45	0.06	0.44	0.44	0.13	0.13	0.13	0.14	0.14	0.00
Sat Flow, veh/h	1781	3350	243	1781	3554	1533	1308	497	1585	1599	191	1585
Grp Volume(v), veh/h	136	261	269	78	1774	361	167	0	166	206	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1816	1781	1777	1533	1805	0	1585	1790	0	1585
Q Serve(g_s), s	5.6	8.3	8.3	3.8	39.0	15.1	7.8	0.0	8.9	9.8	0.0	0.0
Cycle Q Clear(g_c), s	5.6	8.3	8.3	3.8	39.0	15.1	7.8	0.0	8.9	9.8	0.0	0.0
Prop In Lane	1.00		0.13	1.00		1.00	0.72		1.00	0.89		1.00
Lane Grp Cap(c), veh/h	113	807	825	101	1573	679	238	0	209	253	0	224
V/C Ratio(X)	1.20	0.32	0.33	0.77	1.13	0.53	0.70	0.00	0.79	0.81	0.00	0.00
Avail Cap(c_a), veh/h	113	807	825	202	1573	679	328	0	288	650	0	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.2	15.4	15.4	41.0	24.5	17.9	36.6	0.0	37.1	36.7	0.0	0.0
Incr Delay (d2), s/veh	148.3	1.1	1.0	11.8	66.1	3.0	4.0	0.0	10.1	2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	3.2	3.3	1.9	28.7	5.3	3.6	0.0	4.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	189.6	16.4	16.4	52.8	90.7	20.9	40.6	0.0	47.1	39.1	0.0	0.0
LnGrp LOS	F	B	B	D	F	C	D	A	D	D	A	A
Approach Vol, veh/h		666			2213			333			206	
Approach Delay, s/veh		51.8			78.0			43.8			39.1	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	45.9		17.6	10.0	44.9		15.6				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	10.0	* 35		32.0	5.6	39.0		16.0				
Max Q Clear Time (g_c+I1), s	5.8	10.3		11.8	7.6	41.0		10.9				
Green Ext Time (p_c), s	0.0	2.2		0.7	0.0	0.0		0.7				

Intersection Summary			
HCM 6th Ctrl Delay			67.2
HCM 6th LOS			E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Existing + P1 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	792	77	139	1874	127	241
Future Volume (veh/h)	792	77	139	1874	127	241
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	861	73	151	2037	138	235
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1681	143	198	2407	318	288
Arrive On Green	0.51	0.51	0.11	0.68	0.18	0.18
Sat Flow, veh/h	3409	281	1781	3647	1781	1610
Grp Volume(v), veh/h	461	473	151	2037	138	235
Grp Sat Flow(s),veh/h/ln	1777	1820	1781	1777	1781	1610
Q Serve(g_s), s	13.0	13.0	6.2	32.5	5.2	10.5
Cycle Q Clear(g_c), s	13.0	13.0	6.2	32.5	5.2	10.5
Prop In Lane		0.15	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	901	923	198	2407	318	288
V/C Ratio(X)	0.51	0.51	0.76	0.85	0.43	0.82
Avail Cap(c_a), veh/h	909	930	347	2709	526	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	12.3	32.3	9.1	27.4	29.6
Incr Delay (d2), s/veh	0.5	0.5	5.9	2.4	0.9	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	4.4	2.8	8.3	2.2	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.8	12.8	38.2	11.6	28.3	35.2
LnGrp LOS	B	B	D	B	C	D
Approach Vol, veh/h	934			2188	373	
Approach Delay, s/veh	12.8			13.4	32.7	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.7	43.9				56.6	18.3
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	14.6	* 38				57.1	22.1
Max Q Clear Time (g_c+I1), s	8.2	15.0				34.5	12.5
Green Ext Time (p_c), s	0.2	5.7				16.3	0.9

Intersection Summary			
HCM 6th Ctrl Delay			15.3
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	712	325	173	1623	8	385	1	81	17	2	5
Future Volume (veh/h)	2	712	325	173	1623	8	385	1	81	17	2	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	791	250	192	1803	7	428	1	62	19	2	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1569	491	249	1740	7	597	1	673	180	19	13
Arrive On Green	0.00	0.41	0.41	0.14	0.96	0.96	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1781	3832	1200	3456	3630	14	1503	4	1576	342	54	38
Grp Volume(v), veh/h	2	702	339	192	882	928	429	0	62	23	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1627	1728	1777	1867	1507	0	1576	434	0	0
Q Serve(g_s), s	0.1	17.2	17.4	6.0	53.7	53.7	0.0	0.0	2.6	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	17.2	17.4	6.0	53.7	53.7	27.9	0.0	2.6	29.0	0.0	0.0
Prop In Lane	1.00		0.74	1.00		0.01	1.00		1.00	0.83		0.09
Lane Grp Cap(c), veh/h	4	1394	666	249	852	895	598	0	673	212	0	0
V/C Ratio(X)	0.52	0.50	0.51	0.77	1.04	1.04	0.72	0.00	0.09	0.11	0.00	0.00
Avail Cap(c_a), veh/h	64	1394	666	358	852	895	598	0	673	212	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	0.98	0.00	0.98	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.8	24.6	24.7	47.0	2.3	2.3	32.3	0.0	19.2	36.8	0.0	0.0
Incr Delay (d2), s/veh	35.2	0.3	0.6	2.2	33.9	33.7	7.1	0.0	0.3	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.6	6.5	2.4	8.9	9.3	11.4	0.0	1.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	24.9	25.3	49.2	36.2	36.0	39.4	0.0	19.4	37.8	0.0	0.0
LnGrp LOS	F	C	C	D	F	F	D	A	B	D	A	A
Approach Vol, veh/h		1043			2002			491			23	
Approach Delay, s/veh		25.1			37.3			36.9			37.8	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	51.8		44.6	4.6	59.6		44.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	11.6	45.5		39.7	4.0	* 54		39.7				
Max Q Clear Time (g_c+I1), s	8.0	19.4		31.0	2.1	55.7		29.9				
Green Ext Time (p_c), s	0.1	6.8		0.0	0.0	0.0		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		33.7	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing + P1 AM
02/27/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	820	15	84	1835	4	23
Future Volume (veh/h)	0	820	15	84	1835	4	23
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		891	12	91	1995	4	0
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		4297	58	142	3228	7	7
Arrive On Green		1.00	1.00	0.04	0.91	0.00	0.00
Sat Flow, veh/h		5358	70	3456	3647	1781	1585
Grp Volume(v), veh/h		584	319	91	1995	4	0
Grp Sat Flow(s),veh/h/ln		1702	1855	1728	1777	1781	1585
Q Serve(g_s), s		0.0	0.0	2.9	13.1	0.3	0.0
Cycle Q Clear(g_c), s		0.0	0.0	2.9	13.1	0.3	0.0
Prop In Lane			0.04	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2818	1536	142	3228	7	7
V/C Ratio(X)		0.21	0.21	0.64	0.62	0.54	0.00
Avail Cap(c_a), veh/h		2818	1536	142	3228	493	439
HCM Platoon Ratio		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.87	0.87	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	52.9	1.1	55.7	0.0
Incr Delay (d2), s/veh		0.1	0.3	7.4	0.9	20.5	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.1	0.1	1.4	0.4	0.2	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		0.1	0.3	60.3	2.0	76.2	0.0
LnGrp LOS		A	A	E	A	E	A
Approach Vol, veh/h		903			2086	4	
Approach Delay, s/veh		0.2			4.5	76.2	
Approach LOS		A			A	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.0	98.1				107.1		4.9
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	4.6	62.2				* 63		31.0
Max Q Clear Time (g_c+I1), s	4.9	2.0				15.1		2.3
Green Ext Time (p_c), s	0.0	8.3				31.8		0.0

Intersection Summary			
HCM 6th Ctrl Delay		3.3	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	816	21	159	1918	2	3	0	15	27	0	3
Future Volume (veh/h)	0	816	21	159	1918	2	3	0	15	27	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	868	22	169	2040	2	3	0	16	29	0	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3842	97	228	4509	4	134	0	163	136	0	81
Arrive On Green	0.00	0.75	0.75	0.07	0.86	0.86	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1781	5119	130	3456	5268	5	1390	0	3115	1374	0	1558
Grp Volume(v), veh/h	0	577	313	169	1318	724	3	0	16	29	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1845	1728	1702	1869	1390	0	1558	1374	0	1558
Q Serve(g_s), s	0.0	5.7	5.7	5.4	10.2	10.2	0.2	0.0	0.5	2.3	0.0	0.2
Cycle Q Clear(g_c), s	0.0	5.7	5.7	5.4	10.2	10.2	0.4	0.0	0.5	2.3	0.0	0.2
Prop In Lane	1.00		0.07	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	2555	1385	228	2913	1600	134	0	163	136	0	81
V/C Ratio(X)	0.00	0.23	0.23	0.74	0.45	0.45	0.02	0.00	0.10	0.21	0.00	0.04
Avail Cap(c_a), veh/h	64	2555	1385	234	2913	1600	435	0	837	433	0	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.2	4.2	51.4	1.9	1.9	50.6	0.0	50.6	51.4	0.0	50.4
Incr Delay (d2), s/veh	0.0	0.2	0.4	10.1	0.5	0.9	0.0	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	1.7	2.6	1.2	1.5	0.1	0.0	0.2	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.4	4.6	61.5	2.4	2.8	50.6	0.0	50.7	51.7	0.0	50.5
LnGrp LOS	A	A	A	E	A	A	D	A	D	D	A	D
Approach Vol, veh/h		890			2211			19			32	
Approach Delay, s/veh		4.5			7.1			50.7			51.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	89.5		10.7	0.0	101.3		10.7				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	7.6	59.6		30.1	4.0	* 63		30.1				
Max Q Clear Time (g_c+I1), s	7.4	7.7		4.3	0.0	12.2		2.5				
Green Ext Time (p_c), s	0.0	8.1		0.0	0.0	30.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		7.0
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	937	59	0	1895	0	43
Future Vol, veh/h	937	59	0	1895	0	43
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1041	66	0	2106	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	564
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	402
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	398
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.3
HCM LOS			C

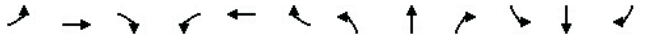
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	398	-	-	-
HCM Lane V/C Ratio	0.12	-	-	-
HCM Control Delay (s)	15.3	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	621	0	481	425
Future Volume (Veh/h)	0	0	621	0	481	425
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	675	0	523	462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	1952	338			675	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1952	338			675	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			43	
cM capacity (veh/h)	24	658			912	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	450	225	523	231	231
Volume Left	0	0	523	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	912	1700	1700
Volume to Capacity	0.26	0.13	0.57	0.14	0.14
Queue Length 95th (ft)	0	0	94	0	0
Control Delay (s)	0.0	0.0	14.1	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		7.5		
Approach LOS					

Intersection Summary				
Average Delay		4.4		
Intersection Capacity Utilization		50.5%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	617	233	0	1430	463	485	33	770	307	0	80
Future Volume (vph)	59	617	233	0	1430	463	485	33	770	307	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.0	4.0		7.0	7.0	4.6	4.6	4.0	4.6		4.6
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1551		4782	1345	1681	1696	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1551		4782	1345	1681	1696	1564	3433		1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	63	656	248	0	1521	493	516	35	819	327	0	85
RTOR Reduction (vph)	0	0	0	0	2	57	0	0	0	0	0	69
Lane Group Flow (vph)	63	656	248	0	1568	387	273	278	819	327	0	16
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1			1			1
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	12.0	69.7	140.0		53.5	53.5	27.6	27.6	140.0	26.5		26.5
Effective Green, g (s)	12.0	69.7	140.0		53.5	53.5	27.6	27.6	140.0	26.5		26.5
Actuated g/C Ratio	0.09	0.50	1.00		0.38	0.38	0.20	0.20	1.00	0.19		0.19
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	151	2531	1551		1827	513	331	334	1564	649		299
v/s Ratio Prot	0.04	0.13			c0.33					0.10		0.01
v/s Ratio Perm			0.16			0.29	0.16	0.16	c0.52			
v/c Ratio	0.42	0.26	0.16		0.86	0.75	0.82	0.83	0.52	0.50		0.05
Uniform Delay, d1	60.7	20.3	0.0		39.8	37.6	53.9	54.0	0.0	50.9		46.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.7	0.2	0.2		5.5	9.9	20.3	20.9	1.3	0.2		0.0
Delay (s)	61.4	20.5	0.2		45.3	47.5	74.2	74.9	1.3	51.1		46.5
Level of Service	E	C	A		D	D	E	E	A	D		D
Approach Delay (s)		18.0			45.7			30.7			50.1	
Approach LOS		B			D			C			D	

Intersection Summary					
HCM 2000 Control Delay		36.2	HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio		0.78			
Actuated Cycle Length (s)		140.0	Sum of lost time (s)		20.4
Intersection Capacity Utilization		77.7%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing + P1 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	1215	0	0	1511	703	0	0	857	0	0	703
Future Volume (veh/h)	482	1215	0	0	1511	703	0	0	857	0	0	703
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	507	1279	0	0	1591	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	532	5391	0	0	2239							
Arrive On Green	0.30	0.96	0.00	0.00	0.63	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	507	1279	0	0	1591	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	39.1	1.6	0.0	0.0	42.0	0.0						
Cycle Q Clear(g_c), s	39.1	1.6	0.0	0.0	42.0	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	532	5391	0	0	2239							
V/C Ratio(X)	0.95	0.24	0.00	0.00	0.71							
Avail Cap(c_a), veh/h	795	5391	0	0	2239							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	48.2	0.1	0.0	0.0	17.3	0.0						
Incr Delay (d2), s/veh	13.4	0.1	0.0	0.0	1.9	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	18.8	0.0	0.0	0.0	17.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	0.2	0.0	0.0	19.3	0.0						
LnGrp LOS	E	A	A	A	B							
Approach Vol, veh/h		1786			1591	A						
Approach Delay, s/veh		17.7			19.3							
Approach LOS		B			B							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		140.0			46.3	93.7						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		134.5			62.5	67.5						
Max Q Clear Time (g_c+I1), s		3.6			41.1	44.0						
Green Ext Time (p_c), s		6.7			0.7	9.8						

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	639	893	460	43	1749	42	137	106	30	29	43	266
Future Volume (veh/h)	639	893	460	43	1749	42	137	106	30	29	43	266
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	666	930	479	45	1822	44	143	110	31	30	0	307
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	660	2682	821	58	1874	572	194	717	194	107	0	719
Arrive On Green	0.19	0.53	0.53	0.03	0.37	0.37	0.06	0.26	0.26	0.03	0.00	0.24
Sat Flow, veh/h	3456	5106	1562	1781	5106	1559	3456	2743	741	3563	0	3053
Grp Volume(v), veh/h	666	930	479	45	1822	44	143	70	71	30	0	307
Grp Sat Flow(s),veh/h/ln	1728	1702	1562	1781	1702	1559	1728	1777	1707	1781	0	1526
Q Serve(g_s), s	25.6	14.2	28.1	3.4	47.1	2.5	5.5	4.0	4.3	1.1	0.0	11.5
Cycle Q Clear(g_c), s	25.6	14.2	28.1	3.4	47.1	2.5	5.5	4.0	4.3	1.1	0.0	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	660	2682	821	58	1874	572	194	464	446	107	0	719
V/C Ratio(X)	1.01	0.35	0.58	0.78	0.97	0.08	0.74	0.15	0.16	0.28	0.00	0.43
Avail Cap(c_a), veh/h	660	2682	821	125	1874	572	291	649	624	159	0	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.2	18.5	21.8	64.4	41.8	27.6	62.3	38.1	38.2	63.6	0.0	43.6
Incr Delay (d2), s/veh	37.4	0.4	3.0	8.0	15.2	0.3	3.0	0.1	0.1	0.8	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.3	5.4	10.9	1.6	21.5	1.0	2.5	1.8	1.8	0.5	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.6	18.8	24.8	72.4	57.0	27.9	65.3	38.1	38.2	64.4	0.0	43.8
LnGrp LOS	F	B	C	E	E	C	E	D	D	E	A	D
Approach Vol, veh/h		2075			1911			284			337	
Approach Delay, s/veh		43.6			56.7			51.8			45.6	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	76.9	11.9	36.5	30.0	55.7	8.4	39.9				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.4	* 66	11.3	43.7	25.6	49.2	6.0	49.0				
Max Q Clear Time (g_c+I1), s	5.4	30.1	7.5	13.5	27.6	49.1	3.1	6.3				
Green Ext Time (p_c), s	0.0	14.0	0.1	0.9	0.0	0.1	0.0	0.5				

Intersection Summary	
HCM 6th Ctrl Delay	49.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	329	142	480	0	0	366	270
Future Volume (veh/h)	0	0	0	147	0	329	142	480	0	0	366	270
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				155	0	346	149	505	0	0	385	284
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				912	0	398	218	2202	0	0	1804	801
Arrive On Green				0.26	0.00	0.26	0.13	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				155	0	346	149	505	0	0	385	284
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1578
Q Serve(g_s), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.4	9.7
Cycle Q Clear(g_c), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.4	9.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				912	0	398	218	2202	0	0	1804	801
V/C Ratio(X)				0.17	0.00	0.87	0.68	0.23	0.00	0.00	0.21	0.35
Avail Cap(c_a), veh/h				1389	0	606	407	2202	0	0	1804	801
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.0	0.0	32.0	38.5	0.0	0.0	0.0	12.2	13.3
Incr Delay (d2), s/veh				0.1	0.0	8.6	1.4	0.2	0.0	0.0	0.3	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	7.6	1.5	0.1	0.0	0.0	2.1	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.1	0.0	40.7	39.8	0.2	0.0	0.0	12.5	14.5
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					501			654			669	
Approach Delay, s/veh					36.2			9.3			13.4	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.1			10.1	52.0		27.9				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 45			10.6	28.7		35.1				
Max Q Clear Time (g_c+I1), s		2.0			5.7	11.7		21.2				
Green Ext Time (p_c), s		3.2			0.1	5.6		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		18.2	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



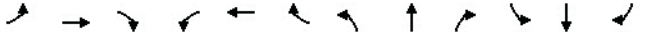
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	3	173	0	0	0	0	432	78	122	384	0
Future Volume (veh/h)	162	3	173	0	0	0	0	432	78	122	384	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	176	0	0				0	465	56	131	413	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	391	0	174				0	2125	255	198	2741	0
Arrive On Green	0.11	0.00	0.00				0.00	0.67	0.67	0.11	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3289	383	3456	3647	0
Grp Volume(v), veh/h	176	0	0				0	258	263	131	413	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1801	1728	1777	0
Q Serve(g_s), s	4.2	0.0	0.0				0.0	5.1	5.2	3.3	0.0	0.0
Cycle Q Clear(g_c), s	4.2	0.0	0.0				0.0	5.1	5.2	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	391	0	174				0	1182	1198	198	2741	0
V/C Ratio(X)	0.45	0.00	0.00				0.00	0.22	0.22	0.66	0.15	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1182	1198	445	2741	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	37.5	0.0	0.0				0.0	5.9	5.9	39.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0				0.0	0.4	0.4	1.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0				0.0	1.8	1.8	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	0.0	0.0				0.0	6.3	6.3	40.4	0.1	0.0
LnGrp LOS	D	A	A				A	A	A	D	A	A
Approach Vol, veh/h		176						521			544	
Approach Delay, s/veh		38.3						6.3			9.8	
Approach LOS		D						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.6	65.7		14.8		75.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	5.3	7.2		6.2		2.0						
Green Ext Time (p_c), s	0.1	4.9		0.5		3.7						

Intersection Summary			
HCM 6th Ctrl Delay		12.4	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	182	1	3	477	22	0	0	20	8
Future Volume (veh/h)	0	0	0	182	1	3	477	22	0	0	20	8
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				190	0	0	487	22	0	0	20	8
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				266	140	0	533	2933	0	0	1774	630
Arrive On Green				0.07	0.00	0.00	0.30	0.83	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3885	1320
Grp Volume(v), veh/h				190	0	0	487	22	0	0	18	10
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1633
Q Serve(g_s), s				5.2	0.0	0.0	26.4	0.1	0.0	0.0	0.3	0.3
Cycle Q Clear(g_c), s				5.2	0.0	0.0	26.4	0.1	0.0	0.0	0.3	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.81
Lane Grp Cap(c), veh/h				266	140	0	533	2933	0	0	1625	779
V/C Ratio(X)				0.71	0.00	0.00	0.91	0.01	0.00	0.00	0.01	0.01
Avail Cap(c_a), veh/h				1001	526	0	696	2933	0	0	1625	779
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.2	0.0	0.0	33.8	1.5	0.0	0.0	13.7	13.7
Incr Delay (d2), s/veh				1.3	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	13.2	0.0	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.6	0.0	0.0	48.1	1.5	0.0	0.0	13.7	13.8
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					190			509			28	
Approach Delay, s/veh					46.6			46.1			13.8	
Approach LOS					D			D			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	87.6		34.8	52.8		12.4						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	61.9		39.1	* 18		28.1						
Max Q Clear Time (g_c+I1), s	2.1		28.4	2.3		7.2						
Green Ext Time (p_c), s	0.1		1.5	0.1		0.3						

Intersection Summary		
HCM 6th Ctrl Delay		45.0
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	132	0	0	0	0	432	187	4	188	0
Future Volume (veh/h)	64	0	132	0	0	0	0	432	187	4	188	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	67	0	139				0	455	197	4	198	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	221	0	195				0	2458	1072	8	2668	0
Arrive On Green	0.12	0.00	0.12				0.00	0.69	0.69	0.00	0.75	0.00
Sat Flow, veh/h	1781	0	1574				0	3647	1550	1781	3647	0
Grp Volume(v), veh/h	67	0	139				0	455	197	4	198	0
Grp Sat Flow(s),veh/h/ln	1781	0	1574				0	1777	1550	1781	1777	0
Q Serve(g_s), s	2.7	0.0	6.8				0.0	3.6	3.6	0.2	1.2	0.0
Cycle Q Clear(g_c), s	2.7	0.0	6.8				0.0	3.6	3.6	0.2	1.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	221	0	195				0	2458	1072	8	2668	0
V/C Ratio(X)	0.30	0.00	0.71				0.00	0.19	0.18	0.53	0.07	0.00
Avail Cap(c_a), veh/h	782	0	690				0	2458	1072	125	2668	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	31.9	0.0	33.7				0.0	4.4	4.4	39.7	2.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.8				0.0	0.2	0.4	18.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.5				0.0	1.1	1.0	0.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	0.0	35.5				0.0	4.5	4.7	58.4	2.7	0.0
LnGrp LOS	C	A	D				A	A	A	E	A	A
Approach Vol, veh/h		206						652			202	
Approach Delay, s/veh		34.4						4.6			3.8	
Approach LOS		C						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.7	60.4		14.8		65.2						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	5.6	24.9		35.1		* 35						
Max Q Clear Time (g_c+I1), s	2.2	5.6		8.8		3.2						
Green Ext Time (p_c), s	0.0	4.2		0.4		0.8						

Intersection Summary		
HCM 6th Ctrl Delay		10.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	652	38	148	1433	178	127	47	65	6	4	14
Future Volume (veh/h)	78	652	38	148	1433	178	127	47	65	6	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	83	694	40	157	1524	189	135	50	69	6	4	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	2459	141	185	2498	309	277	105	126	131	98	290
Arrive On Green	0.06	0.48	0.48	0.10	0.52	0.52	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5130	294	1853	4785	593	786	355	426	320	331	977
Grp Volume(v), veh/h	83	478	256	157	1127	586	254	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1884	1853	1770	1837	1567	0	0	1628	0	0
Q Serve(g_s), s	5.5	10.2	10.2	10.4	27.9	28.0	15.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	10.2	10.2	10.4	27.9	28.0	16.8	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.32	0.53		0.27	0.24		0.60
Lane Grp Cap(c), veh/h	106	1697	903	185	1848	959	509	0	0	519	0	0
V/C Ratio(X)	0.78	0.28	0.28	0.85	0.61	0.61	0.50	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	202	1697	903	305	1848	959	509	0	0	519	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.2	19.6	19.6	55.3	20.9	21.0	36.7	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.4	0.8	5.4	1.5	2.9	3.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.1	4.5	5.0	11.2	12.0	7.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	20.0	20.4	60.7	22.5	23.9	40.2	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	E	B	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		817			1870			254			25	
Approach Delay, s/veh		24.5			26.1			40.2			31.5	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	66.1		42.0	11.5	71.5		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	12.4	12.2		3.3	7.5	30.0		18.8				
Green Ext Time (p_c), s	0.1	16.6		0.1	0.0	26.3		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	5	9	54	8	121	50	294	40	108	324	27
Future Volume (veh/h)	2	5	9	54	8	121	50	294	40	108	324	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	5	9	55	8	123	51	300	41	110	331	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	75	106	221	27	176	65	1851	250	130	2078	174
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.04	0.59	0.59	0.07	0.63	0.63
Sat Flow, veh/h	66	660	934	1228	237	1551	1781	3125	422	1781	3305	277
Grp Volume(v), veh/h	16	0	0	63	0	123	51	169	172	110	177	182
Grp Sat Flow(s),veh/h/ln	1661	0	0	1465	0	1551	1781	1777	1770	1781	1777	1805
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	6.3	2.3	3.5	3.6	5.0	3.4	3.4
Cycle Q Clear(g_c), s	0.7	0.0	0.0	3.2	0.0	6.3	2.3	3.5	3.6	5.0	3.4	3.4
Prop In Lane	0.12		0.56	0.87		1.00	1.00		0.24	1.00		0.15
Lane Grp Cap(c), veh/h	238	0	0	248	0	176	65	1052	1048	130	1117	1135
V/C Ratio(X)	0.07	0.00	0.00	0.25	0.00	0.70	0.79	0.16	0.16	0.85	0.16	0.16
Avail Cap(c_a), veh/h	486	0	0	471	0	417	154	1052	1048	130	1117	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	0.0	0.0	33.6	0.0	35.1	39.3	7.6	7.6	37.7	6.3	6.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	10.2	7.7	0.3	0.3	36.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.2	0.0	2.8	1.1	1.3	1.3	3.4	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	0.0	34.8	0.0	45.3	47.0	7.9	7.9	73.6	6.6	6.6
LnGrp LOS	C	A	A	C	A	D	D	A	A	E	A	A
Approach Vol, veh/h		16			186			392			469	
Approach Delay, s/veh		32.7			41.7			13.0			22.3	
Approach LOS		C			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	55.6		16.2	7.4	58.6		16.2				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	6.0	48.7		22.1	7.1	* 50		22.1				
Max Q Clear Time (g_c+I1), s	7.0	5.6		2.7	4.3	5.4		8.3				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	2.0		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			22.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	59	118	27	27	165	43
Future Vol, veh/h	59	118	27	27	165	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	131	30	30	183	48
Number of Lanes	1	0	0	1	1	1

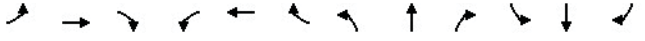
Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.5	8.3	9.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	50%
Vol Thru, %	0%	0%	33%	50%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	43	177	54
LT Vol	165	0	0	27
Through Vol	0	0	59	27
RT Vol	0	43	118	0
Lane Flow Rate	183	48	197	60
Geometry Grp	7	7	2	2
Degree of Util (X)	0.285	0.058	0.231	0.081
Departure Headway (Hd)	5.6	4.395	4.23	4.871
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	642	813	852	736
Service Time	3.336	2.13	2.247	2.897
HCM Lane V/C Ratio	0.285	0.059	0.231	0.082
HCM Control Delay	10.6	7.4	8.5	8.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.2	0.2	0.9	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	41	0	0	33	38	0	1	18	41	0	4
Future Volume (vph)	2	41	0	0	33	38	0	1	18	41	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Lane Util. Factor	1.00	0.95			0.95			*1.00		*1.00		*1.00
Frpb, ped/bikes	1.00	1.00			0.99			0.99		1.00		0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.92			0.86		1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95		1.00
Satd. Flow (prot)	1765	3539			3211			1574		1769		1563
Flt Permitted	1.00	1.00			1.00			1.00		1.00		1.00
Satd. Flow (perm)	1857	3539			3211			1574		1862		1563
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	3	55	0	0	44	51	0	1	24	55	0	5
RTOR Reduction (vph)	0	0	0	0	39	0	0	19	0	0	0	4
Lane Group Flow (vph)	3	55	0	0	56	0	0	6	0	55	0	1
Confl. Peds. (#/hr)	6					6	4		1	1		4
Confl. Bikes (#/hr)			1			1						
Turn Type	Perm	NA			NA		Perm	NA		Perm		Perm
Protected Phases		2			6			8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	3.5	3.5			3.5			2.9		2.0		2.0
Effective Green, g (s)	3.5	3.5			3.5			2.9		2.0		2.0
Actuated g/C Ratio	0.23	0.23			0.23			0.19		0.13		0.13
Clearance Time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0		2.0		2.0
Lane Grp Cap (vph)	424	809			734			298		243		204
v/s Ratio Prot		0.02			c0.02			0.00				
v/s Ratio Perm	0.00									c0.03		0.00
v/c Ratio	0.01	0.07			0.08			0.02		0.23		0.00
Uniform Delay, d1	4.6	4.6			4.6			5.0		6.0		5.8
Progression Factor	1.00	1.00			1.00			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.0			0.0			0.0		0.2		0.0
Delay (s)	4.6	4.6			4.7			5.1		6.1		5.8
Level of Service	A	A			A			A		A		A
Approach Delay (s)		4.6			4.7			5.1			6.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	15.3	Sum of lost time (s)	9.8
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

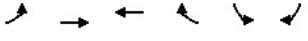
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	97	0	4	47	26	2	1	33	29	0	4
Future Volume (veh/h)	3	97	0	4	47	26	2	1	33	29	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	0.96		1.00	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	104	0	4	51	0	2	1	0	31	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	644	1523	0	610	1523	0	537	252	0	742	0	0
Arrive On Green	0.43	0.43	0.00	0.43	0.43	0.00	0.46	0.46	0.00	0.46	0.00	0.00
Sat Flow, veh/h	1287	3647	0	1233	3647	0	987	552	0	1398	0	0
Grp Volume(v), veh/h	3	104	0	4	51	0	3	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1287	1777	0	1233	1777	0	1538	0	0	1398	0	0
Q Serve(g_s), s	0.1	1.2	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.2	0.0	1.3	0.6	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.67		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	644	1523	0	610	1523	0	789	0	0	742	0	0
V/C Ratio(X)	0.00	0.07	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	644	1523	0	610	1523	0	789	0	0	742	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	11.8	0.0	12.2	11.6	0.0	10.3	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	11.9	0.0	12.2	11.6	0.0	10.3	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	B	A	A	B	A	A
Approach Vol, veh/h		107			55			3			31	
Approach Delay, s/veh		11.9			11.7			10.3			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	3.2	2.8	3.3	2.1
Green Ext Time (p_c), s	0.5	0.1	0.2	0.0

Intersection Summary			
HCM 6th Ctrl Delay	11.6		
HCM 6th LOS	B		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	13	9	77	90	26
Future Volume (vph)	96	13	9	77	90	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	2993		1770	1540
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	2993		1770	1540
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	14	10	86	100	29
RTOR Reduction (vph)	0	0	66	0	0	24
Lane Group Flow (vph)	107	14	30	0	100	5
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	4.2	20.5	11.9		8.3	8.3
Effective Green, g (s)	4.2	20.5	11.9		8.3	8.3
Actuated g/C Ratio	0.08	0.39	0.23		0.16	0.16
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	142	1387	681		280	244
v/s Ratio Prot	c0.06	0.00	c0.01		c0.06	
v/s Ratio Perm						0.00
v/c Ratio	0.75	0.01	0.04		0.36	0.02
Uniform Delay, d1	23.5	9.7	15.8		19.6	18.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.0	0.0	0.0		0.3	0.0
Delay (s)	41.5	9.7	15.8		19.9	18.6
Level of Service	D	A	B		B	B
Approach Delay (s)		37.9	15.8		19.6	
Approach LOS		D	B		B	

Intersection Summary				
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	30.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Existing + P1 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	8	166	15	2	3	249	504	66	32	418	54
Future Volume (veh/h)	48	8	166	15	2	3	249	504	66	32	418	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	0	83	16	2	0	265	536	57	34	445	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	409	0	174	23	3	0	317	2290	243	44	3049	270
Arrive On Green	0.11	0.00	0.11	0.01	0.01	0.00	0.09	0.71	0.71	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1519	1592	199	0	3456	3239	343	1781	4767	422
Grp Volume(v), veh/h	57	0	83	18	0	0	265	293	300	34	316	169
Grp Sat Flow(s),veh/h/ln	1781	0	1519	1791	0	0	1728	1777	1806	1781	1702	1785
Q Serve(g_s), s	2.0	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.2	5.3
Cycle Q Clear(g_c), s	2.0	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.2	5.3
Prop In Lane	1.00		1.00	0.89		0.00	1.00		0.19	1.00		0.24
Lane Grp Cap(c), veh/h	409	0	174	26	0	0	317	1256	1277	44	2178	1142
V/C Ratio(X)	0.14	0.00	0.48	0.70	0.00	0.00	0.84	0.23	0.23	0.78	0.15	0.15
Avail Cap(c_a), veh/h	970	0	413	219	0	0	484	1256	1277	135	2178	1142
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	0.0	58.0	68.7	0.0	0.0	62.5	7.2	7.2	67.9	10.0	10.0
Incr Delay (d2), s/veh	0.2	0.0	2.5	12.0	0.0	0.0	4.5	0.4	0.4	10.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.9	0.7	0.0	0.0	4.9	3.1	3.2	1.3	2.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.9	0.0	60.6	80.6	0.0	0.0	67.1	7.6	7.6	78.6	10.2	10.3
LnGrp LOS	E	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		140			18			858			519	
Approach Delay, s/veh		58.7			80.6			26.0			14.7	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	104.3		21.0	17.3	94.9		6.9				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.6	54.7		38.1	19.6	45.7		17.1				
Max Q Clear Time (g_c+I1), s	4.7	10.2		9.2	12.6	7.3		3.4				
Green Ext Time (p_c), s	0.0	8.0		0.6	0.3	6.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			25.8
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Existing + P1 AM
02/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	185	503	214	97	18
Future Volume (veh/h)	35	185	503	214	97	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	206	559	22	108	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	53	1180	1016	1240	426	379
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.00
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	39	206	559	22	108	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.6	3.5	14.7	0.2	3.7	0.0
Cycle Q Clear(g_c), s	1.6	3.5	14.7	0.2	3.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	53	1180	1016	1240	426	379
V/C Ratio(X)	0.74	0.17	0.55	0.02	0.25	0.00
Avail Cap(c_a), veh/h	155	1288	1016	1240	426	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	5.8	11.2	1.8	23.3	0.0
Incr Delay (d2), s/veh	7.3	0.0	2.1	0.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	6.0	0.2	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	5.8	13.4	1.8	24.7	0.0
LnGrp LOS	D	A	B	A	C	A
Approach Vol, veh/h		245	581		108	
Approach Delay, s/veh		11.8	13.0		24.7	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.6		23.0	6.6	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		5.5		5.7	3.6	16.7
Green Ext Time (p_c), s		0.8		0.1	0.0	2.5

Intersection Summary			
HCM 6th Ctrl Delay			14.0
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	181	84	82	251	3	63	2	49	12	8	7
Future Volume (veh/h)	0	181	84	82	251	3	63	2	49	12	8	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	191	7	86	264	1	66	2	0	13	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1021	37	111	1530	6	712	797	0	482	277	0
Arrive On Green	0.00	0.29	0.29	0.06	0.42	0.42	0.43	0.43	0.00	0.43	0.43	0.00
Sat Flow, veh/h	0	3586	127	1781	3631	14	1407	1870	0	923	650	0
Grp Volume(v), veh/h	0	97	101	86	129	136	66	2	0	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1843	1781	1777	1867	1407	1870	0	1573	0	0
Q Serve(g_s), s	0.0	2.7	2.7	3.1	3.0	3.0	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.7	2.7	3.1	3.0	3.0	1.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	0.00		0.07	1.00		0.01	1.00		0.00	0.62		0.00
Lane Grp Cap(c), veh/h	0	519	539	111	749	787	712	797	0	759	0	0
V/C Ratio(X)	0.00	0.19	0.19	0.78	0.17	0.17	0.09	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	519	539	233	866	910	712	797	0	759	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.4	17.4	30.4	11.9	11.9	11.3	10.8	0.0	10.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.8	4.4	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.2	1.4	1.1	1.1	0.5	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.2	18.2	34.7	11.9	11.9	11.3	10.8	0.0	11.0	0.0	0.0
LnGrp LOS	A	B	B	C	B	B	B	B	A	B	A	A
Approach Vol, veh/h		198			351			68			21	
Approach Delay, s/veh		18.2			17.5			11.3			11.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.5	24.3		32.9		32.8		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	8.6	* 19		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	5.1	4.7		2.4		5.0		3.7				
Green Ext Time (p_c), s	0.0	0.7		0.1		1.3		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		16.9
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	228	5	62	321	1	27
Future Vol, veh/h	228	5	62	321	1	27
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	240	5	65	338	1	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	248	0	546	126
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	300	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1315	-	468	901
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1312	-	443	899
Mov Cap-2 Maneuver	-	-	-	-	443	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	724	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	443	899	-	-	1312	-
HCM Lane V/C Ratio	0.002	0.032	-	-	0.05	-
HCM Control Delay (s)	13.1	9.1	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Existing + P1 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	192	34	88	339	9	30	3	35	29	3	10
Future Volume (veh/h)	7	192	34	88	339	9	30	3	35	29	3	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	202	36	93	357	9	32	3	37	31	3	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	710	124	118	912	23	870	67	832	613	66	198
Arrive On Green	0.04	0.24	0.24	0.07	0.26	0.26	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1781	3006	524	1781	3538	89	1395	120	1479	968	118	351
Grp Volume(v), veh/h	7	118	120	93	179	187	32	0	40	45	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1753	1781	1777	1850	1395	0	1599	1437	0	0
Q Serve(g_s), s	0.3	4.8	5.0	4.6	7.4	7.4	0.0	0.0	1.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	4.8	5.0	4.6	7.4	7.4	0.7	0.0	1.0	1.1	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.05	1.00		0.93	0.69		0.24
Lane Grp Cap(c), veh/h	80	420	414	118	458	477	870	0	899	876	0	0
V/C Ratio(X)	0.09	0.28	0.29	0.78	0.39	0.39	0.04	0.00	0.04	0.05	0.00	0.00
Avail Cap(c_a), veh/h	140	420	414	140	458	477	870	0	899	876	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.7	27.8	27.8	40.9	27.2	27.3	8.7	0.0	8.7	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.7	1.8	17.8	0.5	0.5	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.2	2.3	2.6	3.1	3.3	0.3	0.0	0.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	29.4	29.6	58.7	27.8	27.8	8.8	0.0	8.8	8.9	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		245			459			72			45	
Approach Delay, s/veh		29.9			34.0			8.8			8.9	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	25.0		54.0	8.0	26.9		54.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	21.0		50.0	7.0	21.0		50.0				
Max Q Clear Time (g_c+I1), s	6.6	7.0		3.1	2.3	9.4		3.0				
Green Ext Time (p_c), s	0.0	1.1		0.2	0.0	1.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	86	72	85	309	201	170	528	70	128	333	118
Future Volume (veh/h)	78	86	72	85	309	201	170	528	70	128	333	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	92	22	91	332	84	183	568	56	138	358	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	510	118	137	510	127	232	2800	273	188	2959	918
Arrive On Green	0.04	0.18	0.18	0.04	0.18	0.18	0.13	1.00	1.00	0.05	0.58	0.00
Sat Flow, veh/h	3456	2851	657	3456	2812	701	3456	4729	461	3456	5106	1585
Grp Volume(v), veh/h	84	56	58	91	208	208	183	407	217	138	358	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1732	1728	1777	1736	1728	1702	1786	1728	1702	1585
Q Serve(g_s), s	3.4	3.7	4.0	3.6	15.2	15.6	7.2	0.0	0.0	5.5	4.4	0.0
Cycle Q Clear(g_c), s	3.4	3.7	4.0	3.6	15.2	15.6	7.2	0.0	0.0	5.5	4.4	0.0
Prop In Lane	1.00		0.38	1.00		0.40	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	128	318	310	137	322	315	232	2016	1057	188	2959	918
V/C Ratio(X)	0.65	0.18	0.19	0.67	0.65	0.66	0.79	0.20	0.21	0.74	0.12	0.00
Avail Cap(c_a), veh/h	286	610	595	311	623	609	459	2016	1057	385	2959	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.5	48.7	48.8	66.3	53.1	53.3	59.7	0.0	0.0	65.2	13.3	0.0
Incr Delay (d2), s/veh	2.1	0.3	0.3	2.1	4.2	4.6	2.0	0.2	0.4	2.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.7	1.8	1.6	7.2	7.2	3.0	0.1	0.1	2.5	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	49.0	49.1	68.4	57.3	57.9	61.6	0.2	0.4	67.3	13.4	0.0
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	A
Approach Vol, veh/h		198			507			807			496	
Approach Delay, s/veh		57.3			59.5			14.2			28.4	
Approach LOS		E			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	88.1	9.9	30.0	13.8	86.3	9.6	30.3				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	18.6	* 42	11.6	49.1				
Max Q Clear Time (g_c+I1), s	7.5	2.0	5.6	6.0	9.2	6.4	5.4	17.6				
Green Ext Time (p_c), s	0.1	8.2	0.1	0.7	0.2	4.6	0.1	4.9				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	66	76	219	266	474	154	249	253	140	293	24
Future Volume (veh/h)	3	66	76	219	266	474	154	249	253	140	293	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	69	0	228	277	8	160	259	0	146	305	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	369		275	337	282	210	2218		196	2204	983
Arrive On Green	0.00	0.10	0.00	0.08	0.18	0.18	0.06	0.62	0.00	0.11	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1564	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	3	69	0	228	277	8	160	259	0	146	305	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1564	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	2.5	0.0	9.1	20.0	0.6	6.4	4.1	0.0	5.7	0.0	0.0
Cycle Q Clear(g_c), s	0.2	2.5	0.0	9.1	20.0	0.6	6.4	4.1	0.0	5.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	6	369		275	337	282	210	2218		196	2204	983
V/C Ratio(X)	0.54	0.19		0.83	0.82	0.03	0.76	0.12		0.74	0.14	0.00
Avail Cap(c_a), veh/h	71	1399		286	811	678	385	2218		385	2204	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.96	0.96	0.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	69.7	57.3	0.0	63.5	55.2	47.3	64.7	10.7	0.0	61.1	0.0	0.0
Incr Delay (d2), s/veh	26.4	0.2	0.0	16.5	1.9	0.0	2.1	0.1	0.0	5.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	4.6	9.6	0.2	2.9	1.7	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.0	57.6	0.0	80.0	57.2	47.3	66.8	10.8	0.0	66.5	0.1	0.0
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		72	A		513			419	A		451	
Approach Delay, s/veh		59.2			67.2			32.2			21.6	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	92.3	15.5	19.8	12.9	91.7	4.8	30.5
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	15.6	39.1	11.6	* 55	15.6	39.1	5.6	60.7
Max Q Clear Time (g_c+I1), s	7.7	6.1	11.1	4.5	8.4	2.0	2.2	22.0
Green Ext Time (p_c), s	0.2	1.1	0.0	0.4	0.2	3.5	0.0	1.1

Intersection Summary		
HCM 6th Ctrl Delay	42.6	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	0	401	0	0	0	0	307	108	243	286	0
Future Volume (vph)	360	0	401	0	0	0	0	307	108	243	286	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3357	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3357	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	0	418	0	0	0	0	320	112	253	298	0
RTOR Reduction (vph)	0	0	282	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	375	0	136	0	0	0	0	320	40	180	371	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	45.6		45.6					49.0	49.0	27.1	27.1	
Effective Green, g (s)	45.6		45.6					49.0	49.0	27.1	27.1	
Actuated g/C Ratio	0.33		0.33					0.35	0.35	0.19	0.19	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1118		515					1238	554	311	649	
v/s Ratio Prot	c0.11							c0.09		c0.11	0.11	
v/s Ratio Perm			0.09						0.02			
v/c Ratio	0.34		0.26					0.26	0.07	0.58	0.57	
Uniform Delay, d1	35.7		34.8					32.5	30.3	51.3	51.2	
Progression Factor	1.00		1.00					0.56	0.05	1.03	1.03	
Incremental Delay, d2	0.8		1.3					0.0	0.0	2.9	1.4	
Delay (s)	36.5		36.1					18.3	1.5	55.5	53.9	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		36.3			0.0			13.9			54.4	
Approach LOS		D			A			B			D	

Intersection Summary					
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.38				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	53.5%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	27	5	10	94	226	2	11	1	269	76	346
Future Volume (vph)	197	27	5	10	94	226	2	11	1	269	76	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3249			3522	1583		1834		1681	1721	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3249			3522	1583		1834		1681	1721	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	212	29	5	11	101	243	2	12	1	289	82	372
RTOR Reduction (vph)	0	2	0	0	0	116	0	1	0	0	0	220
Lane Group Flow (vph)	106	138	0	0	112	127	0	14	0	185	186	152
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.9	26.9			16.0	73.3		15.4		57.3	57.3	57.3
Effective Green, g (s)	26.9	26.9			16.0	73.3		15.4		57.3	57.3	57.3
Actuated g/C Ratio	0.19	0.19			0.11	0.52		0.11		0.41	0.41	0.41
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	309	624			402	828		201		688	704	639
v/s Ratio Prot	c0.07	0.04			c0.03	0.06		c0.01		c0.11	0.11	
v/s Ratio Perm						0.02						0.10
v/c Ratio	0.34	0.22			0.28	0.15		0.07		0.27	0.26	0.24
Uniform Delay, d1	48.9	47.7			56.7	17.3		55.9		27.4	27.4	27.1
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.78	0.78	2.27
Incremental Delay, d2	3.0	0.8			1.7	0.4		0.7		0.9	0.8	0.8
Delay (s)	51.9	48.5			58.4	17.7		56.6		22.4	22.3	62.2
Level of Service	D	D			E	B		E		C	C	E
Approach Delay (s)		50.0			30.5			56.6			42.3	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	113	1355	74	196	114
Future Volume (veh/h)	183	113	1355	74	196	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	119	1426	0	206	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	1443	2078		301	345
Arrive On Green	0.13	0.77	0.58	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	193	119	1426	0	206	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	7.9	1.2	20.7	0.0	4.3	4.0
Cycle Q Clear(g_c), s	7.9	1.2	20.7	0.0	4.3	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	232	1443	2078		301	345
V/C Ratio(X)	0.83	0.08	0.69		0.68	0.30
Avail Cap(c_a), veh/h	283	1443	2078		1027	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	2.1	10.7	0.0	33.0	24.3
Incr Delay (d2), s/veh	13.5	0.1	1.9	0.0	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.3	7.3	0.0	1.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	2.2	12.6	0.0	34.0	24.5
LnGrp LOS	D	A	B		C	C
Approach Vol, veh/h		312	1426	A	308	
Approach Delay, s/veh		28.7	12.6		30.8	
Approach LOS		C	B		C	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	62.4	12.0	13.9	48.5
Change Period (Y+Rc), s	5.0	5.5	* 4.2	5.0
Max Green Setting (Gmax), s	57.4	22.1	* 12	41.4
Max Q Clear Time (g_c+I1), s	3.2	6.3	9.9	22.7
Green Ext Time (p_c), s	0.4	0.2	0.0	7.7

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Existing + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Future Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	51	504	41	4	45	29	166	4	9	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	67	504	45	240	15
Volume Left (vph)	1	504	0	45	4
Volume Right (vph)	51	0	4	166	2
Hadj (s)	-0.42	0.53	-0.03	-0.34	0.01
Departure Headway (s)	5.1	5.8	5.3	5.3	6.1
Degree Utilization, x	0.10	0.82	0.07	0.35	0.03
Capacity (veh/h)	644	608	668	627	537
Control Delay (s)	8.7	28.5	7.4	11.1	9.2
Approach Delay (s)	8.7	26.7		11.1	9.2
Approach LOS	A	D		B	A

Intersection Summary				
Delay		20.7		
Level of Service		C		
Intersection Capacity Utilization		54.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Existing + P1 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Future Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	191	0	0	0	1012	62				0	246	308
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	242	0		0	1920	856				0	0	0
Arrive On Green	0.14	0.00	0.00	0.00	0.54	0.54				0.00	0.00	0.00
Sat Flow, veh/h	1781	191		0	3647	1585					0	
Grp Volume(v), veh/h	191	22.5		0	1012	62					0.0	
Grp Sat Flow(s),veh/h/ln	1781	C		0	1777	1585						
Q Serve(g_s), s	3.2			0.0	5.7	0.6						
Cycle Q Clear(g_c), s	3.2			0.0	5.7	0.6						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	242			0	1920	856						
V/C Ratio(X)	0.79			0.00	0.53	0.07						
Avail Cap(c_a), veh/h	289			0	4490	2003						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	12.9			0.0	4.6	3.4						
Incr Delay (d2), s/veh	9.6			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.6			0.0	0.8	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5			0.0	4.8	3.4						
LnGrp LOS	C			A	A	A						
Approach Vol, veh/h					1074							
Approach Delay, s/veh					4.7							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.2	21.7				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							5.0	39.0				
Max Q Clear Time (g_c+I1), s							5.2	7.7				
Green Ext Time (p_c), s							0.0	9.0				

Intersection Summary												
HCM 6th Ctrl Delay			7.4									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	62.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	111	7	124	174	15	343	16	711	8	1	1
Future Vol, veh/h	0	111	7	124	174	15	343	16	711	8	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	118	7	132	185	16	365	17	756	9	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

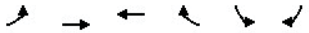
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	12.9	14.5	82.4	10.7
HCM LOS	B	B	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	80%
Vol Thru, %	0%	2%	100%	0%	0%	92%	10%
Vol Right, %	0%	98%	0%	100%	0%	8%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	727	111	7	124	189	10
LT Vol	343	0	0	0	124	0	8
Through Vol	0	16	111	0	0	174	1
RT Vol	0	711	0	7	0	15	1
Lane Flow Rate	365	773	118	7	132	201	11
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.672	1.167	0.247	0.014	0.282	0.398	0.021
Departure Headway (Hd)	6.628	5.432	7.853	7.133	7.987	7.419	7.562
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	547	673	461	505	452	489	476
Service Time	4.328	3.132	5.553	4.833	5.687	5.119	5.562
HCM Lane V/C Ratio	0.667	1.149	0.256	0.014	0.292	0.411	0.023
HCM Control Delay	21.8	111	13.1	9.9	13.8	14.9	10.7
HCM Lane LOS	C	F	B	A	B	B	B
HCM 95th-tile Q	5	25.3	1	0	1.1	1.9	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	318	572	203	139	228	121
Future Volume (veh/h)	318	572	203	139	228	121
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	353	636	226	154	253	134
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	432	1069	416	340	342	304
Arrive On Green	0.24	0.57	0.22	0.22	0.19	0.19
Sat Flow, veh/h	1781	1870	1870	1528	1781	1585
Grp Volume(v), veh/h	353	636	226	154	253	134
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1528	1781	1585
Q Serve(g_s), s	7.8	9.1	4.4	3.6	5.5	3.1
Cycle Q Clear(g_c), s	7.8	9.1	4.4	3.6	5.5	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	432	1069	416	340	342	304
V/C Ratio(X)	0.82	0.60	0.54	0.45	0.74	0.44
Avail Cap(c_a), veh/h	1101	2308	953	779	822	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	5.8	14.2	13.9	15.8	14.8
Incr Delay (d2), s/veh	1.5	0.5	1.5	1.3	1.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.1	1.7	1.2	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	6.2	15.8	15.2	16.9	15.1
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		989	380		387	
Approach Delay, s/veh		9.8	15.5		16.3	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.6		12.8	14.5	14.1
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	25.6	21.1
Max Q Clear Time (g_c+I1), s		11.1		7.5	9.8	6.4
Green Ext Time (p_c), s		4.6		0.5	0.5	2.2

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	153	224	114	99	140	607
Future Volume (veh/h)	153	224	114	99	140	607
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	166	243	124	108	152	660
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	213	805	230	201	774	689
Arrive On Green	0.12	0.43	0.25	0.25	0.43	0.43
Sat Flow, veh/h	1781	1870	922	803	1781	1585
Grp Volume(v), veh/h	166	243	0	232	152	660
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1726	1781	1585
Q Serve(g_s), s	6.6	6.2	0.0	8.4	3.8	29.2
Cycle Q Clear(g_c), s	6.6	6.2	0.0	8.4	3.8	29.2
Prop In Lane	1.00			0.47	1.00	1.00
Lane Grp Cap(c), veh/h	213	805	0	431	774	689
V/C Ratio(X)	0.78	0.30	0.00	0.54	0.20	0.96
Avail Cap(c_a), veh/h	384	984	0	431	789	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	13.5	0.0	23.5	12.7	19.9
Incr Delay (d2), s/veh	2.3	0.1	0.0	4.8	0.0	23.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.4	0.0	3.8	1.4	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.3	13.6	0.0	28.3	12.7	43.5
LnGrp LOS	C	B	A	C	B	D
Approach Vol, veh/h		409	232		812	
Approach Delay, s/veh		21.6	28.3		37.8	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.1		36.4	13.1	23.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		38.1		32.1	15.6	18.1
Max Q Clear Time (g_c+I1), s		8.2		31.2	8.6	10.4
Green Ext Time (p_c), s		0.9		0.2	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	94	370	451	263	23
Future Vol, veh/h	162	94	370	451	263	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	172	100	394	480	280	24
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13.1	21.6	20.4
HCM LOS	B	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	94	370	451	263	23
LT Vol	162	0	0	0	263	0
Through Vol	0	94	370	0	0	0
RT Vol	0	0	0	451	0	23
Lane Flow Rate	172	100	394	480	280	24
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.354	0.191	0.679	0.733	0.597	0.044
Departure Headway (Hd)	7.401	6.89	6.213	5.501	7.687	6.467
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	518	579	653	470	552
Service Time	5.181	4.669	3.977	3.265	5.449	4.229
HCM Lane V/C Ratio	0.355	0.193	0.68	0.735	0.596	0.043
HCM Control Delay	14.2	11.3	21.2	22	21.3	9.5
HCM Lane LOS	B	B	C	C	C	A
HCM 95th-tile Q	1.6	0.7	5.2	6.4	3.8	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	213	177	327	597	228	122
Future Volume (veh/h)	213	177	327	597	228	122
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	197	363	663	253	136
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	339	281	408	1199	426	379
Arrive On Green	0.36	0.36	0.23	0.64	0.24	0.24
Sat Flow, veh/h	944	784	1781	1870	1781	1585
Grp Volume(v), veh/h	0	434	363	663	253	136
Grp Sat Flow(s),veh/h/ln	0	1728	1781	1870	1781	1585
Q Serve(g_s), s	0.0	16.2	14.8	14.8	9.5	5.4
Cycle Q Clear(g_c), s	0.0	16.2	14.8	14.8	9.5	5.4
Prop In Lane		0.45	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	620	408	1199	426	379
V/C Ratio(X)	0.00	0.70	0.89	0.55	0.59	0.36
Avail Cap(c_a), veh/h	0	620	521	1318	426	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	20.6	28.1	7.5	25.4	23.8
Incr Delay (d2), s/veh	0.0	6.5	13.5	0.5	6.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.2	7.5	4.9	4.5	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	27.1	41.6	8.0	31.3	26.4
LnGrp LOS	A	C	D	A	C	C
Approach Vol, veh/h	434			1026	389	
Approach Delay, s/veh	27.1			19.9	29.6	
Approach LOS	C			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	21.2	32.0				53.2	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	22.0	27.0				53.0	18.0
Max Q Clear Time (g_c+I1), s	16.8	18.2				16.8	11.5
Green Ext Time (p_c), s	0.4	2.3				7.0	0.5

Intersection Summary			
HCM 6th Ctrl Delay		23.6	
HCM 6th LOS		C	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	478	232	1118	724	531	1191
Future Volume (veh/h)	478	232	1118	724	531	1191
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	493	105	1153	712	547	1228
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	709	316	1605	1016	644	2421
Arrive On Green	0.20	0.20	0.45	0.45	0.19	0.68
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	493	105	1153	712	547	1228
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	9.5	4.2	19.4	21.8	11.3	12.4
Cycle Q Clear(g_c), s	9.5	4.2	19.4	21.8	11.3	12.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	709	316	1605	1016	644	2421
V/C Ratio(X)	0.69	0.33	0.72	0.70	0.85	0.51
Avail Cap(c_a), veh/h	1412	628	1679	1048	657	2548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	25.3	16.4	8.3	29.0	5.7
Incr Delay (d2), s/veh	0.5	0.2	1.6	2.3	9.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	1.5	6.9	10.7	5.3	3.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.9	25.5	18.0	10.6	38.5	6.1
LnGrp LOS	C	C	B	B	D	A
Approach Vol, veh/h	598		1865			1775
Approach Delay, s/veh	27.5		15.2			16.1
Approach LOS	C		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	17.7	37.3				55.0	18.7
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	13.6	32.6				* 51	27.0
Max Q Clear Time (g_c+I1), s	13.3	23.8				14.4	11.5
Green Ext Time (p_c), s	0.1	7.2				22.3	1.0

Intersection Summary			
HCM 6th Ctrl Delay		17.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	142	264	118	54	164	143	1167	220	139	1149	136
Future Volume (veh/h)	156	142	264	118	54	164	143	1167	220	139	1149	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	158	159	131	60	182	159	1297	161	154	1277	151
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	322	262	108	316	252	250	1830	860	95	1759	869
Arrive On Green	0.07	0.17	0.17	0.06	0.17	0.17	0.07	0.52	0.50	0.05	0.49	0.49
Sat Flow, veh/h	3456	1870	1518	1781	1870	1492	3456	3554	1545	1781	3554	1565
Grp Volume(v), veh/h	173	158	159	131	60	182	159	1297	161	154	1277	151
Grp Sat Flow(s),veh/h/ln	1728	1870	1518	1781	1870	1492	1728	1777	1545	1781	1777	1565
Q Serve(g_s), s	4.0	6.3	8.0	5.0	2.3	9.5	3.7	23.0	4.3	4.4	23.4	3.9
Cycle Q Clear(g_c), s	4.0	6.3	8.0	5.0	2.3	9.5	3.7	23.0	4.3	4.4	23.4	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	322	262	108	316	252	250	1830	860	95	1759	869
V/C Ratio(X)	0.72	0.49	0.61	1.21	0.19	0.72	0.64	0.71	0.19	1.62	0.73	0.17
Avail Cap(c_a), veh/h	239	728	591	108	712	568	285	1830	860	95	1759	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	30.9	31.6	38.8	29.5	32.5	37.2	15.3	9.1	39.1	16.4	9.1
Incr Delay (d2), s/veh	9.1	1.2	2.3	155.0	0.1	1.5	2.3	2.4	0.5	322.5	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.9	3.0	6.8	1.0	3.4	1.6	9.0	1.4	10.4	9.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	32.0	33.8	193.7	29.6	34.0	39.6	17.6	9.6	361.6	19.1	9.5
LnGrp LOS	D	C	C	F	C	C	D	B	A	F	B	A
Approach Vol, veh/h		490			373			1617			1582	
Approach Delay, s/veh		37.8			89.4			19.0			51.5	
Approach LOS		D			F			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	46.5	9.0	18.6	10.0	44.9	9.7	17.9
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	41.2	4.6	* 31	6.4	* 39	5.3	29.9
Max Q Clear Time (g_c+I1), s	6.4	25.0	7.0	10.0	5.7	25.4	6.0	11.5
Green Ext Time (p_c), s	0.0	12.0	0.0	1.4	0.0	10.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1095	4	268	488	0	0	0	0	271	5	1323
Future Volume (veh/h)	0	1095	4	268	488	0	0	0	0	271	5	1323
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1141	4	279	508	0				282	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1303	581	356	1818	0				687	12	
Arrive On Green	0.00	0.37	0.37	0.10	0.51	0.00				0.39	0.39	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1752	31	1585
Grp Volume(v), veh/h	0	1141	4	279	508	0				287	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	30.0	0.2	7.9	8.1	0.0				11.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.0	0.2	7.9	8.1	0.0				11.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1303	581	356	1818	0				700	0	
V/C Ratio(X)	0.00	0.88	0.01	0.78	0.28	0.00				0.41	0.00	
Avail Cap(c_a), veh/h	0	1564	697	511	2239	0				700	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.57	0.57	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.5	20.1	43.8	13.9	0.0				22.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.5	0.0	2.9	0.0	0.0				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.2	0.1	3.5	3.2	0.0				4.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.1	20.1	46.7	13.9	0.0				22.1	0.0	0.0
LnGrp LOS	A	C	C	D	B	A				C	A	
Approach Vol, veh/h		1145			787						287	A
Approach Delay, s/veh		34.0			25.5						22.1	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.5	41.7		43.8		56.2		
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0		
Max Green Setting (Gmax), s	* 15	44.0		27.4		63.0		
Max Q Clear Time (g_c+I1), s	9.9	32.0		13.7		10.1		
Green Ext Time (p_c), s	0.4	4.7		0.5		2.5		

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	844	575	0	0	531	433	233	17	500	0	0	0
Future Volume (veh/h)	844	575	0	0	531	433	233	17	500	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	879	599	0	0	553	223	243	18	194			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	892	1984	0	0	639	257	567	42	540			
Arrive On Green	0.26	0.56	0.00	0.00	0.26	0.26	0.34	0.34	0.34			
Sat Flow, veh/h	3456	3647	0	0	2567	995	1664	123	1585			
Grp Volume(v), veh/h	879	599	0	0	397	379	261	0	194			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1691	1787	0	1585			
Q Serve(g_s), s	25.3	9.0	0.0	0.0	21.3	21.4	11.3	0.0	9.2			
Cycle Q Clear(g_c), s	25.3	9.0	0.0	0.0	21.3	21.4	11.3	0.0	9.2			
Prop In Lane	1.00		0.00	0.00		0.59	0.93		1.00			
Lane Grp Cap(c), veh/h	892	1984	0	0	459	437	609	0	540			
V/C Ratio(X)	0.99	0.30	0.00	0.00	0.86	0.87	0.43	0.00	0.36			
Avail Cap(c_a), veh/h	892	2221	0	0	577	550	609	0	540			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	36.9	11.7	0.0	0.0	35.4	35.5	25.4	0.0	24.8			
Incr Delay (d2), s/veh	23.0	0.0	0.0	0.0	9.2	10.0	0.2	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	13.3	3.4	0.0	0.0	10.2	9.9	4.7	0.0	9.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	11.8	0.0	0.0	44.7	45.4	25.6	0.0	24.9			
LnGrp LOS	E	B	A	A	D	D	C	A	C			
Approach Vol, veh/h		1478			776			455				
Approach Delay, s/veh		40.4			45.0			25.3				
Approach LOS		D			D			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		61.3		38.7	30.0	31.3			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		62.5		27.4	* 26	32.5			
Max Q Clear Time (g_c+I1), s		11.0		13.3	27.3	23.4			
Green Ext Time (p_c), s		3.0		0.6	0.0	2.4			

Intersection Summary			
HCM 6th Ctrl Delay		39.2	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Existing + P1 PM
02/27/2020

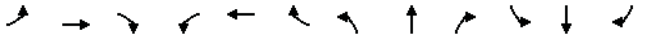
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	647	293	248	713	36	107	32	206	21	34	30
Future Volume (veh/h)	49	647	293	248	713	36	107	32	206	21	34	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	719	326	276	792	40	119	36	229	23	38	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1547	650	309	1957	99	152	413	598	39	289	241
Arrive On Green	0.04	0.44	0.44	0.17	0.57	0.54	0.09	0.22	0.21	0.02	0.15	0.15
Sat Flow, veh/h	1781	3554	1493	1781	3437	174	1781	1870	1512	1781	1870	1557
Grp Volume(v), veh/h	54	719	326	276	409	423	119	36	229	23	38	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1493	1781	1777	1834	1781	1870	1512	1781	1870	1557
Q Serve(g_s), s	3.3	15.8	17.4	16.7	14.2	14.2	7.2	1.7	12.0	1.4	1.9	2.0
Cycle Q Clear(g_c), s	3.3	15.8	17.4	16.7	14.2	14.2	7.2	1.7	12.0	1.4	1.9	2.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	1547	650	309	1011	1044	152	413	598	39	289	241
V/C Ratio(X)	0.71	0.46	0.50	0.89	0.40	0.40	0.78	0.09	0.38	0.59	0.13	0.14
Avail Cap(c_a), veh/h	144	1547	650	324	1011	1044	168	565	721	71	462	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	22.0	22.4	44.4	13.3	13.3	49.3	34.1	24.3	53.3	40.1	40.1
Incr Delay (d2), s/veh	4.5	1.0	2.8	23.5	1.2	1.2	16.9	0.0	0.1	5.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.7	6.5	9.3	5.8	6.0	3.9	0.8	4.3	0.7	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	23.0	25.2	68.0	14.5	14.5	66.2	34.1	24.5	58.4	40.2	40.2
LnGrp LOS	E	C	C	E	B	B	E	C	C	E	D	D
Approach Vol, veh/h		1099			1108			384			94	
Approach Delay, s/veh		25.3			27.8			38.3			44.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.1	52.2	13.4	21.3	8.7	66.6	6.4	28.3				
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2				
Max Green Setting (Gmax), s	19.6	* 34	10.0	* 26	8.5	44.8	4.0	32.0				
Max Q Clear Time (g_c+I1), s	18.7	19.4	9.2	4.0	5.3	16.2	3.4	14.0				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.1	0.0	3.9	0.0	0.5				

Intersection Summary			
HCM 6th Ctrl Delay		28.9	
HCM 6th LOS		C	

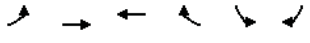
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	511	620	25	7	382	123	0	0	19	199	13	361
Future Volume (vph)	511	620	25	7	382	123	0	0	19	199	13	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3512		1770	3394				1525	1681	1695	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3512		1770	3394				1525	1681	1695	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	568	689	28	8	424	137	0	0	21	221	14	401
RTOR Reduction (vph)	0	2	0	0	27	0	0	0	21	0	0	195
Lane Group Flow (vph)	568	715	0	8	534	0	0	0	0	117	118	206
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	42.9		0.7	26.0				2.1	30.1	30.1	47.7
Effective Green, g (s)	18.0	43.8		1.1	26.9				2.1	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.46		0.01	0.28				0.02	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	654	1629		20	967				33	559	563	806
v/s Ratio Prot	c0.17	0.20		0.00	c0.16					0.07	0.07	c0.05
v/s Ratio Perm									c0.00			0.08
v/c Ratio	0.87	0.44		0.40	0.55				0.01	0.21	0.21	0.26
Uniform Delay, d1	37.1	17.0		46.3	28.6				45.1	22.6	22.6	12.8
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	11.4	0.2		4.7	2.3				0.2	0.9	0.8	0.1
Delay (s)	48.5	17.2		51.0	30.9				45.3	23.4	23.4	12.9
Level of Service	D	B		D	C				D	C	C	B
Approach Delay (s)		31.0			31.2			45.3			16.8	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	134	1114	510	437	654	187
Future Volume (vph)	134	1114	510	437	654	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1545	3429	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1545	3429	1417
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	140	1160	531	455	681	195
RTOR Reduction (vph)	0	0	0	189	2	75
Lane Group Flow (vph)	140	1160	531	266	699	100
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	10.8	48.4	33.6	50.2	16.6	16.6
Effective Green, g (s)	11.2	50.4	35.2	52.0	17.5	17.5
Actuated g/C Ratio	0.13	0.57	0.40	0.59	0.20	0.20
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	223	2008	1402	904	675	279
v/s Ratio Prot	0.08	c0.33	0.15	0.06	c0.20	
v/s Ratio Perm				0.11		0.07
v/c Ratio	0.63	0.58	0.38	0.29	1.04	0.36
Uniform Delay, d1	36.8	12.4	19.0	9.2	35.6	30.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	1.2	0.3	0.4	44.3	1.6
Delay (s)	40.8	13.6	19.3	9.6	80.0	32.4
Level of Service	D	B	B	A	E	C
Approach Delay (s)		16.5	14.8		70.5	
Approach LOS		B	B		E	

Intersection Summary				
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	58.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1671	43	34	828	51	28	1	14	148	9	49
Future Volume (veh/h)	56	1671	43	34	828	51	28	1	14	148	9	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	1723	40	35	854	42	29	1	0	153	9	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	1846	43	137	1907	94	372	11	296	395	349	0
Arrive On Green	0.05	0.52	0.49	0.08	0.55	0.52	0.19	0.19	0.00	0.19	0.19	0.00
Sat Flow, veh/h	1781	3547	82	1781	3445	169	1327	58	1585	1401	1870	0
Grp Volume(v), veh/h	58	860	903	35	441	455	30	0	0	153	9	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1852	1781	1777	1837	1385	0	1585	1401	1870	0
Q Serve(g_s), s	1.8	25.7	26.0	1.1	8.4	8.4	0.9	0.0	0.0	4.2	0.2	0.0
Cycle Q Clear(g_c), s	1.8	25.7	26.0	1.1	8.4	8.4	1.1	0.0	0.0	5.4	0.2	0.0
Prop In Lane	1.00		0.04	1.00		0.09	0.97		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	88	925	964	137	984	1017	383	0	296	395	349	0
V/C Ratio(X)	0.66	0.93	0.94	0.25	0.45	0.45	0.08	0.00	0.00	0.39	0.03	0.00
Avail Cap(c_a), veh/h	137	925	964	512	1299	1343	905	0	886	917	1046	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.7	12.7	12.8	24.8	7.6	7.6	19.4	0.0	0.0	20.9	19.0	0.0
Incr Delay (d2), s/veh	3.2	16.9	17.2	0.4	1.5	1.4	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	11.1	11.7	0.4	2.4	2.5	0.3	0.0	0.0	1.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	29.6	30.0	25.1	9.0	9.0	19.4	0.0	0.0	21.2	19.0	0.0
LnGrp LOS	C	C	C	C	A	A	B	A	A	C	B	A
Approach Vol, veh/h		1821			931			30			162	
Approach Delay, s/veh		29.8			9.6			19.4			21.1	
Approach LOS		C			A			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.0		14.7	6.8	35.6		14.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	3.1	28.0		7.4	3.8	10.4		3.1				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	15.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		22.8	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1633	975	42	44	21
Future Vol, veh/h	27	1633	975	42	44	21
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	1775	1060	46	48	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1142	0	-	0	2066	589
Stage 1	-	-	-	-	1119	-
Stage 2	-	-	-	-	947	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	608	-	-	-	~ 47	452
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	337	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	590	-	-	-	~ 42	438
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	253	-
Stage 2	-	-	-	-	327	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	36.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	590	-	-	-	184
HCM Lane V/C Ratio	0.05	-	-	-	0.384
HCM Control Delay (s)	11.4	-	-	-	36.3
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	1.7

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1598	78	0	1017	0	40
Future Vol, veh/h	1598	78	0	1017	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1737	85	0	1105	0	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	911
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	277
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	277
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	277	-	-	-
HCM Lane V/C Ratio	0.157	-	-	-
HCM Control Delay (s)	20.4	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	1433	87	192	733	252	92	35	127	377	52	129
Future Volume (veh/h)	216	1433	87	192	733	252	92	35	127	377	52	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	1508	92	202	772	127	97	37	134	397	55	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	1486	90	165	1379	586	203	40	147	365	51	380
Arrive On Green	0.14	0.44	0.43	0.09	0.39	0.39	0.11	0.11	0.11	0.24	0.23	0.24
Sat Flow, veh/h	1781	3393	206	1781	3554	1509	1781	355	1284	1574	218	1585
Grp Volume(v), veh/h	227	786	814	202	772	127	97	0	171	452	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1822	1781	1777	1509	1781	0	1639	1792	0	1585
Q Serve(g_s), s	17.5	61.4	61.4	13.0	23.8	7.9	7.2	0.0	14.5	32.5	0.0	4.1
Cycle Q Clear(g_c), s	17.5	61.4	61.4	13.0	23.8	7.9	7.2	0.0	14.5	32.5	0.0	4.1
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.78	0.88		1.00
Lane Grp Cap(c), veh/h	257	778	798	165	1379	586	203	0	187	415	0	380
V/C Ratio(X)	0.88	1.01	1.02	1.22	0.56	0.22	0.48	0.00	0.91	1.09	0.00	0.16
Avail Cap(c_a), veh/h	496	778	798	165	1379	586	203	0	187	415	0	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.9	39.4	39.5	63.6	33.5	28.7	58.2	0.0	61.4	53.4	0.0	42.1
Incr Delay (d2), s/veh	4.0	34.7	37.2	142.4	1.6	0.8	1.7	0.0	42.3	70.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	32.9	34.3	12.3	10.3	2.9	3.3	0.0	8.2	22.6	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	74.1	76.7	206.0	35.2	29.5	59.9	0.0	103.7	123.4	0.0	42.2
LnGrp LOS	E	F	F	F	D	C	E	A	F	F	A	D
Approach Vol, veh/h		1827			1101			268			511	
Approach Delay, s/veh		73.8			65.9			87.9			114.0	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	65.6		37.6	24.2	58.4		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	13.0	* 60		32.5	38.6	33.5		16.0				
Max Q Clear Time (g_c+I1), s	15.0	63.4		34.5	19.5	25.8		16.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.3	2.6		0.0				

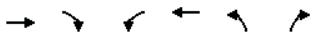
Intersection Summary		
HCM 6th Ctrl Delay		78.0
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Existing + P1 PM
03/18/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1876	207	371	1107	158	240
Future Volume (veh/h)	1876	207	371	1107	158	240
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2039	205	403	1203	113	117
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	2094	207	327	3035	132	119
Arrive On Green	0.64	0.64	0.18	0.85	0.07	0.07
Sat Flow, veh/h	3360	323	1781	3647	1781	1610
Grp Volume(v), veh/h	1093	1151	403	1203	113	117
Grp Sat Flow(s),veh/h/ln	1777	1812	1781	1777	1781	1610
Q Serve(g_s), s	86.2	93.8	27.6	11.2	9.4	10.9
Cycle Q Clear(g_c), s	86.2	93.8	27.6	11.2	9.4	10.9
Prop In Lane		0.18	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1139	1162	327	3035	132	119
V/C Ratio(X)	0.96	0.99	1.23	0.40	0.86	0.98
Avail Cap(c_a), veh/h	1139	1162	327	3035	132	119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	26.5	61.3	2.4	68.8	69.4
Incr Delay (d2), s/veh	17.8	24.0	127.8	0.1	39.7	77.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.1	43.7	23.8	2.3	5.8	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.9	50.5	189.1	2.5	108.4	146.4
LnGrp LOS	D	D	F	A	F	F
Approach Vol, veh/h	2244			1606	230	
Approach Delay, s/veh	46.8			49.3	127.8	
Approach LOS	D			D	F	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	32.0	102.2				134.2	16.0
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	27.6	* 96				128.1	11.1
Max Q Clear Time (g_c+I1), s	29.6	95.8				13.2	12.9
Green Ext Time (p_c), s	0.0	0.5				11.1	0.0

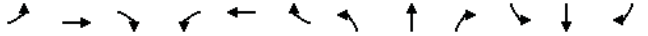
Intersection Summary			
HCM 6th Ctrl Delay		52.4	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 PM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1613	497	197	957	13	519	5	289	6	3	2
Future Volume (veh/h)	7	1613	497	197	957	13	519	5	289	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1680	437	205	997	13	541	5	277	6	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	1879	479	254	1884	25	505	4	683	44	14	0
Arrive On Green	0.01	0.47	0.45	0.02	0.17	0.17	0.36	0.36	0.36	0.36	0.36	0.00
Sat Flow, veh/h	1781	4037	1030	3456	3590	47	1239	11	1568	0	38	0
Grp Volume(v), veh/h	7	1411	706	205	493	517	546	0	277	9	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1663	1728	1777	1860	1251	0	1568	38	0	0
Q Serve(g_s), s	0.5	51.5	53.7	8.0	34.4	34.4	0.0	0.0	16.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	51.5	53.7	8.0	34.4	34.4	49.6	0.0	16.5	49.6	0.0	0.0
Prop In Lane	1.00		0.62	1.00		0.03	0.99		1.00	0.67		0.00
Lane Grp Cap(c), veh/h	17	1584	774	254	932	976	509	0	683	58	0	0
V/C Ratio(X)	0.40	0.89	0.91	0.81	0.53	0.53	1.07	0.00	0.41	0.16	0.00	0.00
Avail Cap(c_a), veh/h	58	1612	788	254	932	976	509	0	683	58	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	0.84	0.00	0.84	1.00	0.00	0.00
Uniform Delay (d), s/veh	66.9	33.2	34.3	65.4	40.9	40.9	45.8	0.0	26.4	36.3	0.0	0.0
Incr Delay (d2), s/veh	5.5	6.6	14.6	15.0	2.0	1.9	57.7	0.0	1.5	5.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	21.5	23.8	4.1	16.9	17.6	25.9	0.0	6.5	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.4	39.8	48.9	80.4	42.9	42.8	103.5	0.0	27.9	41.9	0.0	0.0
LnGrp LOS	E	D	D	F	D	D	F	A	C	D	A	A
Approach Vol, veh/h		2124			1215			823			9	
Approach Delay, s/veh		42.9			49.2			78.1			41.9	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	67.3		53.6	5.3	76.0		53.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	9.6	62.5		48.7	4.0	* 69		48.7				
Max Q Clear Time (g_c+I1), s	10.0	55.7		51.6	2.5	36.4		51.6				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	9.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		51.7	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing + P1 PM
03/06/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1808	56	235	1098	42	242
Future Volume (veh/h)	0	1808	56	235	1098	42	242
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		1845	50	240	1120	43	212
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		3545	96	229	2804	270	240
Arrive On Green		0.69	0.68	0.07	0.79	0.15	0.15
Sat Flow, veh/h		5275	138	3456	3647	1781	1585
Grp Volume(v), veh/h		1229	666	240	1120	43	212
Grp Sat Flow(s),veh/h/ln		1702	1841	1728	1777	1781	1585
Q Serve(g_s), s		23.5	23.6	9.0	13.2	2.9	17.8
Cycle Q Clear(g_c), s		23.5	23.6	9.0	13.2	2.9	17.8
Prop In Lane			0.08	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2363	1278	229	2804	270	240
V/C Ratio(X)		0.52	0.52	1.05	0.40	0.16	0.88
Avail Cap(c_a), veh/h		2363	1278	229	2804	440	392
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.15	0.15	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		9.9	10.0	63.5	4.4	50.2	56.5
Incr Delay (d2), s/veh		0.1	0.2	73.1	0.4	0.1	7.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.7	8.4	6.2	3.8	1.3	7.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		10.1	10.2	136.6	4.8	50.3	64.3
LnGrp LOS		B	B	F	A	D	E
Approach Vol, veh/h		1895			1360	255	
Approach Delay, s/veh		10.1			28.1	62.0	
Approach LOS		B			C	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.0	98.4				111.4		24.6
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	8.6	80.0				* 82		33.2
Max Q Clear Time (g_c+I1), s	11.0	25.6				15.2		19.8
Green Ext Time (p_c), s	0.0	26.8				13.5		0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2094	47	492	1258	27	37	1	275	18	0	3
Future Volume (veh/h)	22	2094	47	492	1258	27	37	1	275	18	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	2204	49	518	1324	28	39	0	290	19	0	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	3246	72	563	3981	84	213	0	363	179	0	181
Arrive On Green	0.02	0.63	0.62	0.33	1.00	1.00	0.12	0.00	0.12	0.12	0.00	0.11
Sat Flow, veh/h	1781	5138	114	3456	5143	109	1385	0	3105	1074	0	1551
Grp Volume(v), veh/h	23	1458	795	518	876	476	39	0	290	19	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1728	1702	1848	1385	0	1553	1074	0	1551
Q Serve(g_s), s	1.7	37.5	37.8	19.6	0.0	0.0	3.5	0.0	12.4	2.2	0.0	0.2
Cycle Q Clear(g_c), s	1.7	37.5	37.8	19.6	0.0	0.0	3.7	0.0	12.4	2.2	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	2150	1167	563	2635	1430	213	0	363	179	0	181
V/C Ratio(X)	0.65	0.68	0.68	0.92	0.33	0.33	0.18	0.00	0.80	0.11	0.00	0.02
Avail Cap(c_a), veh/h	81	2150	1167	584	2635	1430	366	0	708	298	0	353
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	16.1	16.2	45.0	0.0	0.0	54.8	0.0	58.5	54.0	0.0	53.5
Incr Delay (d2), s/veh	7.0	1.7	3.2	19.0	0.3	0.6	0.2	0.0	1.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	13.7	15.5	8.3	0.1	0.2	1.2	0.0	4.9	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	17.9	19.4	63.9	0.3	0.6	54.9	0.0	60.0	54.1	0.0	53.5
LnGrp LOS	E	B	B	E	A	A	D	A	E	D	A	D
Approach Vol, veh/h		2276			1870			329			22	
Approach Delay, s/veh		19.0			18.0			59.4			54.0	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.2	89.9		19.9	6.7	109.4		19.9				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	22.6	68.6		30.1	5.8	* 86		30.1				
Max Q Clear Time (g_c+I1), s	21.6	39.8		4.2	3.7	2.0		14.4				
Green Ext Time (p_c), s	0.1	22.2		0.0	0.0	16.7		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	79.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2263	113	0	1878	0	346
Future Vol, veh/h	2263	113	0	1878	0	346
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2514	126	0	2087	0	384

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1337
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 123
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 121
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1056.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	121	-	-	-
HCM Lane V/C Ratio	3.177	-	-	-
HCM Control Delay (s)	$ 1056.2	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	36.8	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	826	0	396	617
Future Volume (Veh/h)	0	0	826	0	396	617
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	898	0	430	671
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2094	449			898	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2094	449			898	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			43	
cM capacity (veh/h)	19	557			752	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	599	299	430	336	336
Volume Left	0	0	430	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	752	1700	1700
Volume to Capacity	0.35	0.18	0.57	0.20	0.20
Queue Length 95th (ft)	0	0	92	0	0
Control Delay (s)	0.0	0.0	16.0	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		6.2		
Approach LOS					

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1848	729	0	1232	618	440	47	837	394	0	167
Future Volume (vph)	125	1848	729	0	1232	618	440	47	837	394	0	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1550		4806	1362	1678	1698	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1550		4806	1362	1678	1698	1564	3433		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	1945	767	0	1297	651	463	49	881	415	0	176
RTOR Reduction (vph)	0	0	0	0	0	99	0	0	0	0	0	139
Lane Group Flow (vph)	132	1945	767	0	1297	552	264	248	881	415	0	37
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)			2						1			5
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	15.0	73.3	136.0		54.1	54.1	18.6	18.6	136.0	27.9		27.9
Effective Green, g (s)	15.2	76.3	136.0		57.1	57.1	19.2	19.2	136.0	28.5		28.5
Actuated g/C Ratio	0.11	0.56	1.00		0.42	0.42	0.14	0.14	1.00	0.21		0.21
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	197	2852	1550		2017	571	236	239	1564	719		331
v/s Ratio Prot	0.07	c0.38			0.27					0.12		0.02
v/s Ratio Perm			0.49			c0.41	c0.16	0.15	c0.56			
v/c Ratio	0.67	0.68	0.49		0.64	0.97	1.12	1.04	0.56	0.58		0.11
Uniform Delay, d1	58.0	21.2	0.0		31.4	38.5	58.4	58.4	0.0	48.3		43.5
Progression Factor	1.12	1.18	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	5.8	1.1	1.0		1.6	30.4	94.2	68.4	1.5	0.7		0.1
Delay (s)	70.8	26.2	1.0		32.9	69.0	152.6	126.8	1.5	49.0		43.6
Level of Service	E	C	A		C	E	F	F	A	D		D
Approach Delay (s)		21.5			45.0			52.4			47.4	
Approach LOS		C			D			D			D	

Intersection Summary				
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	71.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	636	2396	0	0	1482	893	0	0	524	0	0	964
Future Volume (veh/h)	636	2396	0	0	1482	893	0	0	524	0	0	964
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	669	2522	0	0	1560	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	695	5405	0	0	1957							
Arrive On Green	0.39	0.96	0.00	0.00	0.55	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	669	2522	0	0	1560	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	49.9	4.1	0.0	0.0	47.8	0.0						
Cycle Q Clear(g_c), s	49.9	4.1	0.0	0.0	47.8	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	695	5405	0	0	1957							
V/C Ratio(X)	0.96	0.47	0.00	0.00	0.80							
Avail Cap(c_a), veh/h	773	5405	0	0	1957							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	40.5	0.2	0.0	0.0	24.5	0.0						
Incr Delay (d2), s/veh	21.0	0.3	0.0	0.0	3.5	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	24.9	0.1	0.0	0.0	20.5	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	0.4	0.0	0.0	27.9	0.0						
LnGrp LOS	E	A	A	A	C							
Approach Vol, veh/h		3191			1560	A						
Approach Delay, s/veh		13.2			27.9							
Approach LOS		B			C							

Timer - Assigned Phs	2			5	6							
Phs Duration (G+Y+Rc), s	136.0			57.1	78.9							
Change Period (Y+Rc), s	5.5			4.5	5.5							
Max Green Setting (Gmax), s	130.5			58.5	67.5							
Max Q Clear Time (g_c+I1), s	6.1			51.9	49.8							
Green Ext Time (p_c), s	27.0			0.7	8.3							

Intersection Summary		
HCM 6th Ctrl Delay	18.1	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	2082	676	97	1207	43	425	83	174	136	86	605
Future Volume (veh/h)	370	2082	676	97	1207	43	425	83	174	136	86	605
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	381	2146	697	100	1244	44	438	86	179	140	0	683
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	438	2266	684	118	1991	607	481	587	498	168	0	707
Arrive On Green	0.13	0.44	0.44	0.07	0.39	0.39	0.14	0.33	0.32	0.05	0.00	0.24
Sat Flow, veh/h	3456	5106	1541	1781	5106	1557	3456	1777	1508	3563	0	2965
Grp Volume(v), veh/h	381	2146	697	100	1244	44	438	86	179	140	0	683
Grp Sat Flow(s),veh/h/ln	1728	1702	1541	1781	1702	1557	1728	1777	1508	1781	0	1482
Q Serve(g_s), s	16.3	60.9	67.0	8.4	29.7	2.7	18.9	5.1	13.7	5.9	0.0	34.4
Cycle Q Clear(g_c), s	16.3	60.9	67.0	8.4	29.7	2.7	18.9	5.1	13.7	5.9	0.0	34.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	438	2266	684	118	1991	607	481	587	498	168	0	707
V/C Ratio(X)	0.87	0.95	1.02	0.85	0.62	0.07	0.91	0.15	0.36	0.84	0.00	0.97
Avail Cap(c_a), veh/h	558	2266	684	118	1991	607	481	587	498	168	0	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.7	40.3	42.0	69.7	37.2	28.9	64.1	35.6	38.8	71.4	0.0	56.9
Incr Delay (d2), s/veh	9.8	10.0	39.4	39.0	1.5	0.2	21.2	0.0	0.2	28.1	0.0	25.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	26.5	32.6	5.0	12.3	1.1	9.7	2.3	5.2	3.4	0.0	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.5	50.3	81.4	108.7	38.7	29.2	85.3	35.6	38.9	99.5	0.0	82.5
LnGrp LOS	E	D	F	F	D	C	F	D	D	F	A	F
Approach Vol, veh/h		3224			1388			703			823	
Approach Delay, s/veh		59.9			43.4			67.4			85.4	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	72.0	25.0	40.0	23.1	62.9	11.1	53.9
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	9.6	* 66	20.6	35.1	24.0	50.1	6.7	49.0
Max Q Clear Time (g_c+I1), s	10.4	69.0	20.9	36.4	18.3	31.7	7.9	15.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.4	11.4	0.0	1.2

Intersection Summary		
HCM 6th Ctrl Delay		60.4
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	170	6	263	243	666	0	0	944	245
Future Volume (veh/h)	0	0	0	170	6	263	243	666	0	0	944	245
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				194	0	292	270	740	0	0	1049	272
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				793	0	346	346	2466	0	0	2012	893
Arrive On Green				0.22	0.00	0.22	0.13	0.92	0.00	0.00	0.57	0.57
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				194	0	292	270	740	0	0	1049	272
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1577
Q Serve(g_s), s				4.8	0.0	19.4	8.2	2.4	0.0	0.0	19.6	9.8
Cycle Q Clear(g_c), s				4.8	0.0	19.4	8.2	2.4	0.0	0.0	19.6	9.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				793	0	346	346	2466	0	0	2012	893
V/C Ratio(X)				0.24	0.00	0.84	0.78	0.30	0.00	0.00	0.52	0.30
Avail Cap(c_a), veh/h				1023	0	446	512	2466	0	0	2012	893
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.79	0.79	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.5	0.0	40.2	45.7	1.4	0.0	0.0	14.4	12.3
Incr Delay (d2), s/veh				0.2	0.0	11.2	1.9	0.2	0.0	0.0	1.0	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	8.2	3.5	0.7	0.0	0.0	7.8	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.7	0.0	51.4	47.5	1.6	0.0	0.0	15.4	13.2
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					486			1010			1321	
Approach Delay, s/veh					44.7			13.9			14.9	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		79.9			14.8	65.1		28.1
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 68			15.6	46.7		30.1
Max Q Clear Time (g_c+I1), s		4.4			10.2	21.6		21.4
Green Ext Time (p_c), s		5.2			0.3	15.4		1.2

Intersection Summary		
HCM 6th Ctrl Delay		19.7
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	6	335	0	0	0	0	628	345	442	673	0
Future Volume (veh/h)	273	6	335	0	0	0	0	628	345	442	673	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	308	0	98				0	698	252	491	748	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	433	0	192				0	1534	554	551	2859	0
Arrive On Green	0.12	0.00	0.12				0.00	0.60	0.59	0.32	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2651	923	3456	3647	0
Grp Volume(v), veh/h	308	0	98				0	485	465	491	748	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1704	1728	1777	0
Q Serve(g_s), s	9.0	0.0	6.3				0.0	16.2	16.4	14.6	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	6.3				0.0	16.2	16.4	14.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.54	1.00		0.00
Lane Grp Cap(c), veh/h	433	0	192				0	1066	1022	551	2859	0
V/C Ratio(X)	0.71	0.00	0.51				0.00	0.45	0.46	0.89	0.26	0.00
Avail Cap(c_a), veh/h	960	0	427				0	1066	1022	723	2859	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	45.6	0.0	44.4				0.0	11.9	12.1	35.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.1				0.0	1.4	1.5	8.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.5				0.0	6.5	6.4	5.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	0.0	46.5				0.0	13.3	13.6	44.2	0.2	0.0
LnGrp LOS	D	A	D				A	B	B	D	A	A
Approach Vol, veh/h		406						950			1239	
Approach Delay, s/veh		47.5						13.4			17.6	
Approach LOS		D						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	21.6	69.3		17.1		90.9						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	16.6	18.4		11.0		2.0						
Green Ext Time (p_c), s	0.6	9.6		1.2		7.8						

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	366	5	0	489	19	0	0	7	20
Future Volume (veh/h)	0	0	0	366	5	0	489	19	0	0	7	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				398	0	0	526	20	0	0	8	22
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				510	268	0	580	2761	0	0	1392	648
Arrive On Green				0.14	0.00	0.00	0.33	0.78	0.00	0.00	0.41	0.40
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3572	1585
Grp Volume(v), veh/h				398	0	0	526	20	0	0	8	22
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1585
Q Serve(g_s), s				10.8	0.0	0.0	28.3	0.1	0.0	0.0	0.1	0.8
Cycle Q Clear(g_c), s				10.8	0.0	0.0	28.3	0.1	0.0	0.0	0.1	0.8
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				510	268	0	580	2761	0	0	1392	648
V/C Ratio(X)				0.78	0.00	0.00	0.91	0.01	0.00	0.00	0.01	0.03
Avail Cap(c_a), veh/h				1033	542	0	695	2761	0	0	1392	648
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	0.0	32.3	2.5	0.0	0.0	17.5	18.0
Incr Delay (d2), s/veh				1.0	0.0	0.0	14.2	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	0.0	14.1	0.0	0.0	0.0	0.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.3	0.0	0.0	46.4	2.5	0.0	0.0	17.5	18.1
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					398			546			30	
Approach Delay, s/veh					42.3			44.8			17.9	
Approach LOS					D			D			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.7			36.6	45.1		18.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		61.9			38.1	* 19		28.1				
Max Q Clear Time (g_c+I1), s		2.1			30.3	2.8		12.8				
Green Ext Time (p_c), s		0.1			1.4	0.1		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Existing + P1 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	6	317	0	0	0	0	455	326	5	373	0
Future Volume (veh/h)	57	6	317	0	0	0	0	455	326	5	373	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	62	7	345				0	495	354	5	405	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	396	45	390				0	2219	990	16	2387	0
Arrive On Green	0.25	0.25	0.25				0.00	0.62	0.62	0.00	0.22	0.00
Sat Flow, veh/h	1608	182	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	69	0	345				0	495	354	5	405	0
Grp Sat Flow(s),veh/h/ln	1790	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	3.0	0.0	21.0				0.0	6.1	10.8	0.3	9.2	0.0
Cycle Q Clear(g_c), s	3.0	0.0	21.0				0.0	6.1	10.8	0.3	9.2	0.0
Prop In Lane	0.90		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	441	0	390				0	2219	990	16	2387	0
V/C Ratio(X)	0.16	0.00	0.88				0.00	0.22	0.36	0.31	0.17	0.00
Avail Cap(c_a), veh/h	788	0	697				0	2219	990	107	2387	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	29.5	0.0	36.3				0.0	8.2	9.1	49.5	16.4	0.0
Incr Delay (d2), s/veh	0.1	0.0	2.7				0.0	0.2	1.0	3.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	8.0				0.0	2.2	3.7	0.1	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	0.0	39.0				0.0	8.4	10.1	52.6	16.5	0.0
LnGrp LOS	C	A	D				A	A	B	D	B	A
Approach Vol, veh/h		414						849			410	
Approach Delay, s/veh		37.4						9.1			16.9	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	4.9	66.5		28.6		71.4
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	5.6	36.9		43.1		* 47
Max Q Clear Time (g_c+I1), s	2.3	12.8		23.0		11.2
Green Ext Time (p_c), s	0.0	5.7		0.8		1.9

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Existing + P1 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1957	99	57	1186	21	40	5	95	117	3	59
Future Volume (veh/h)	18	1957	99	57	1186	21	40	5	95	117	3	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	20	2174	110	63	1318	23	44	6	106	130	3	66
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	3094	156	87	3364	59	138	35	295	274	15	121
Arrive On Green	0.02	0.60	0.58	0.05	0.63	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5178	261	1853	5375	94	391	130	1105	861	56	455
Grp Volume(v), veh/h	20	1483	801	63	868	473	156	0	0	199	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1898	1853	1770	1928	1626	0	0	1373	0	0
Q Serve(g_s), s	1.4	39.2	39.8	4.5	16.4	16.4	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	39.2	39.8	4.5	16.4	16.4	10.0	0.0	0.0	17.6	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.28		0.68	0.65		0.33
Lane Grp Cap(c), veh/h	34	2115	1134	87	2216	1207	468	0	0	410	0	0
V/C Ratio(X)	0.58	0.70	0.71	0.72	0.39	0.39	0.33	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	82	2115	1134	198	2216	1207	468	0	0	410	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	18.8	19.1	63.5	12.5	12.6	40.2	0.0	0.0	43.0	0.0	0.0
Incr Delay (d2), s/veh	5.6	2.0	3.7	4.2	0.5	1.0	1.9	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.3	17.3	2.2	6.2	6.9	4.5	0.0	0.0	6.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	20.8	22.8	67.7	13.0	13.5	42.1	0.0	0.0	47.1	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2304			1404			156			199	
Approach Delay, s/veh		21.9			15.7			42.1			47.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	84.7		40.0	6.5	88.5		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	6.5	41.8		19.6	3.4	18.4		12.0
Green Ext Time (p_c), s	0.0	28.1		1.2	0.0	40.5		0.7

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	7	38	219	9	273	53	617	110	194	419	28
Future Volume (veh/h)	28	7	38	219	9	273	53	617	110	194	419	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	8	41	235	10	294	57	663	118	209	451	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	32	34	285	9	408	81	1562	278	154	1835	122
Arrive On Green	0.23	0.26	0.23	0.26	0.26	0.26	0.05	0.53	0.49	0.09	0.55	0.54
Sat Flow, veh/h	0	121	131	805	34	1558	1781	2975	528	1781	3366	223
Grp Volume(v), veh/h	79	0	0	245	0	294	57	396	385	209	237	244
Grp Sat Flow(s),veh/h/ln	252	0	0	840	0	1558	1781	1777	1726	1781	1777	1812
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	16.3	3.0	12.9	13.2	8.2	6.7	6.7
Cycle Q Clear(g_c), s	22.0	0.0	0.0	24.9	0.0	16.3	3.0	12.9	13.2	8.2	6.7	6.7
Prop In Lane	0.38		0.52	0.96		1.00	1.00		0.31	1.00		0.12
Lane Grp Cap(c), veh/h	111	0	0	294	0	408	81	933	907	154	969	988
V/C Ratio(X)	0.71	0.00	0.00	0.83	0.00	0.72	0.71	0.42	0.43	1.36	0.24	0.25
Avail Cap(c_a), veh/h	111	0	0	294	0	408	161	933	907	154	969	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	0.0	37.1	0.0	31.9	44.7	13.8	14.1	43.4	11.3	11.4
Incr Delay (d2), s/veh	17.0	0.0	0.0	19.7	0.0	7.5	4.2	1.4	1.5	197.9	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	7.4	0.0	6.9	1.4	5.3	5.3	12.0	2.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	0.0	56.9	0.0	39.4	48.9	15.2	15.6	241.3	11.9	12.0
LnGrp LOS	D	A	A	E	A	D	D	B	B	F	B	B
Approach Vol, veh/h		79			539			838			690	
Approach Delay, s/veh		48.2			47.3			17.7			81.4	
Approach LOS		D			D			B			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	53.9		28.9	8.3	57.8		28.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	7.8	47.0		22.0	8.2	* 49		22.0				
Max Q Clear Time (g_c+I1), s	10.2	15.2		24.0	5.0	8.7		26.9				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	2.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		46.7
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	358	139	66	384	142
Future Vol, veh/h	71	358	139	66	384	142
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	365	142	67	392	145
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	18	13.1	22.4
HCM LOS	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	68%
Vol Thru, %	0%	0%	17%	32%
Vol Right, %	0%	100%	83%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	384	142	429	205
LT Vol	384	0	0	139
Through Vol	0	0	71	66
RT Vol	0	142	358	0
Lane Flow Rate	392	145	438	209
Geometry Grp	7	7	2	2
Degree of Util (X)	0.744	0.226	0.652	0.369
Departure Headway (Hd)	6.831	5.612	5.365	6.343
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	529	638	670	565
Service Time	4.582	3.363	3.428	4.415
HCM Lane V/C Ratio	0.741	0.227	0.654	0.37
HCM Control Delay	27	10	18	13.1
HCM Lane LOS	D	A	C	B
HCM 95th-tile Q	6.3	0.9	4.8	1.7

HCM Signalized Intersection Capacity Analysis
33: Hazard Center West Drwy. & Hazard Center Dr.

Existing + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	48	0	0	69	72	0	1	16	48	0	6
Future Volume (vph)	5	48	0	0	69	72	0	1	16	48	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.9	4.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.92			0.86			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			0.95	1.00
Satd. Flow (prot)	1767	3539			3227			1578			1770	1564
Flt Permitted	0.87	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	1618	3539			3227			1578			1863	1564
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	53	0	0	77	80	0	1	18	53	0	7
RTOR Reduction (vph)	0	0	0	0	56	0	0	15	0	0	0	6
Lane Group Flow (vph)	6	53	0	0	101	0	0	4	0	0	53	1
Confl. Peds. (#/hr)	3		1	1		3	2					2
Confl. Bikes (#/hr)			2			3			1			
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	3.7	3.7			3.7			2.8			1.9	1.9
Effective Green, g (s)	4.6	4.6			4.6			2.8			1.9	2.8
Actuated g/C Ratio	0.30	0.30			0.30			0.18			0.12	0.18
Clearance Time (s)	4.9	4.9			4.9			4.0			4.9	4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0			2.0	2.0
Lane Grp Cap (vph)	483	1057			963			286			229	284
v/s Ratio Prot		0.01			c0.03			0.00				
v/s Ratio Perm	0.00										c0.03	0.00
v/c Ratio	0.01	0.05			0.10			0.01			0.23	0.00
Uniform Delay, d1	3.8	3.8			3.9			5.2			6.1	5.2
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.0	0.0			0.0			0.0			0.2	0.0
Delay (s)	3.8	3.9			3.9			5.2			6.3	5.2
Level of Service	A	A			A			A			A	A
Approach Delay (s)		3.9			3.9			5.2			6.1	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.14			
Actuated Cycle Length (s)	15.4	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	23.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

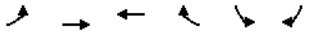
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	146	1	33	143	34	0	0	24	250	1	4
Future Volume (veh/h)	1	146	1	33	143	34	0	0	24	250	1	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	0.96		1.00	1.00		1.00	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	162	0	37	159	0	0	0	0	278	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1218	0	471	1218	0	0	1015	0	842	3	8
Arrive On Green	0.34	0.34	0.00	0.34	0.34	0.00	0.00	0.00	0.00	0.54	0.54	0.54
Sat Flow, veh/h	1185	3647	0	1181	3647	0	0	1870	0	1362	6	15
Grp Volume(v), veh/h	1	162	0	37	159	0	0	0	0	282	0	0
Grp Sat Flow(s),veh/h/ln	1185	1777	0	1181	1777	0	0	1870	0	1383	0	0
Q Serve(g_s), s	0.0	2.2	0.0	1.6	2.2	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	2.2	2.2	0.0	3.8	2.2	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.00		0.00	0.99		0.01
Lane Grp Cap(c), veh/h	473	1218	0	471	1218	0	0	1015	0	853	0	0
V/C Ratio(X)	0.00	0.13	0.00	0.08	0.13	0.00	0.00	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	473	1218	0	471	1218	0	0	1015	0	853	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.6	15.8	0.0	17.1	15.8	0.0	0.0	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.2	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.0	0.4	0.9	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	16.1	0.0	17.5	16.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach Vol, veh/h		163			196			0			282	
Approach Delay, s/veh		16.1			16.3			0.0			10.2	
Approach LOS		B			B						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	28.0	42.0	28.0	42.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	38.0	24.0	38.0
Max Q Clear Time (g_c+I1), s	4.2	10.2	5.8	0.0
Green Ext Time (p_c), s	0.7	1.1	0.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	13.6	
HCM 6th LOS	B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	213	12	30	130	204	111
Future Volume (vph)	213	12	30	130	204	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3064		1770	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3064		1770	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	13	33	144	227	123
RTOR Reduction (vph)	0	0	103	0	0	103
Lane Group Flow (vph)	237	13	74	0	227	20
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	11.3	34.9	19.2		11.3	11.3
Effective Green, g (s)	11.7	35.8	20.1		11.7	11.7
Actuated g/C Ratio	0.16	0.50	0.28		0.16	0.16
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	291	1781	866		291	255
v/s Ratio Prot	c0.13	0.00	c0.02		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.81	0.01	0.09		0.78	0.08
Uniform Delay, d1	28.7	8.8	18.7		28.5	25.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.1	0.0	0.1		11.8	0.0
Delay (s)	43.8	8.8	18.8		40.2	25.2
Level of Service	D	A	B		D	C
Approach Delay (s)		42.0	18.8		34.9	
Approach LOS		D	B		C	

Intersection Summary				
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



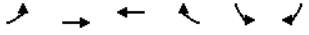
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	6	519	68	10	7	301	680	20	41	955	53
Future Volume (veh/h)	96	6	519	68	10	7	301	680	20	41	955	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	104	0	181	71	10	5	314	708	19	43	995	49
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	569	0	242	88	12	6	359	2216	59	55	2761	136
Arrive On Green	0.16	0.00	0.16	0.06	0.06	0.06	0.10	0.63	0.62	0.03	0.55	0.55
Sat Flow, veh/h	3563	0	1516	1459	205	103	3456	3532	95	1781	4983	245
Grp Volume(v), veh/h	104	0	181	86	0	0	314	356	371	43	679	365
Grp Sat Flow(s),veh/h/ln	1781	0	1516	1767	0	0	1728	1777	1849	1781	1702	1824
Q Serve(g_s), s	3.8	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.0	3.6	16.7	16.8
Cycle Q Clear(g_c), s	3.8	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.0	3.6	16.7	16.8
Prop In Lane	1.00		1.00	0.83		0.06	1.00		0.05	1.00		0.13
Lane Grp Cap(c), veh/h	569	0	242	107	0	0	359	1115	1161	55	1886	1010
V/C Ratio(X)	0.18	0.00	0.75	0.81	0.00	0.00	0.87	0.32	0.32	0.78	0.36	0.36
Avail Cap(c_a), veh/h	1266	0	539	178	0	0	405	1115	1161	112	1886	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.00	0.61	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	0.0	60.1	69.6	0.0	0.0	66.2	13.0	13.0	72.1	18.6	18.7
Incr Delay (d2), s/veh	0.1	0.0	3.6	5.3	0.0	0.0	15.9	0.8	0.7	8.3	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	6.8	3.4	0.0	0.0	6.7	5.9	6.1	1.8	6.8	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	63.8	74.9	0.0	0.0	82.2	13.8	13.8	80.5	19.2	19.7
LnGrp LOS	D	A	E	E	A	A	F	B	B	F	B	B
Approach Vol, veh/h		285			86			1041			1087	
Approach Delay, s/veh		60.5			74.9			34.4			21.8	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	98.1		28.8	20.0	87.2		14.0				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.4	52.7		53.3	17.6	44.5		15.1				
Max Q Clear Time (g_c+I1), s	5.6	16.0		19.1	15.4	18.8		9.2				
Green Ext Time (p_c), s	0.0	9.8		1.5	0.2	12.8		0.1				

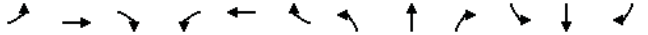
Intersection Summary		
HCM 6th Ctrl Delay	33.3	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	432	293	378	397	63
Future Volume (veh/h)	72	432	293	378	397	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	475	322	57	436	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	110	1197	985	1241	458	407
Arrive On Green	0.06	0.64	0.53	0.53	0.26	0.00
Sat Flow, veh/h	1781	1870	1870	1582	1781	1585
Grp Volume(v), veh/h	79	475	322	57	436	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1582	1781	1585
Q Serve(g_s), s	3.4	9.5	7.7	0.6	18.7	0.0
Cycle Q Clear(g_c), s	3.4	9.5	7.7	0.6	18.7	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	110	1197	985	1241	458	407
V/C Ratio(X)	0.72	0.40	0.33	0.05	0.95	0.00
Avail Cap(c_a), veh/h	160	1250	985	1241	458	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	6.8	10.5	1.9	28.4	0.0
Incr Delay (d2), s/veh	3.2	0.1	0.9	0.1	31.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.1	3.1	0.5	11.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.1	6.8	11.4	2.0	60.1	0.0
LnGrp LOS	D	A	B	A	E	A
Approach Vol, veh/h		554	379		436	
Approach Delay, s/veh		11.4	10.0		60.1	
Approach LOS		B	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.8		24.0	8.8	45.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	6.6	40.1
Max Q Clear Time (g_c+I1), s		11.5		20.7	5.4	9.7
Green Ext Time (p_c), s		2.1		0.0	0.0	1.4
Intersection Summary						
HCM 6th Ctrl Delay			26.5			
HCM 6th LOS			C			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	681	132	19	439	23	175	8	65	6	3	2
Future Volume (veh/h)	0	681	132	19	439	23	175	8	65	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	740	143	21	477	25	190	9	71	7	3	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1081	209	45	1555	81	719	76	603	423	177	103
Arrive On Green	0.00	0.37	0.35	0.03	0.45	0.44	0.43	0.43	0.41	0.43	0.43	0.41
Sat Flow, veh/h	0	3049	571	1781	3429	179	1405	179	1409	792	414	241
Grp Volume(v), veh/h	0	445	438	21	247	255	190	0	80	12	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1749	1781	1777	1832	1405	0	1587	1447	0	0
Q Serve(g_s), s	0.0	14.3	14.3	0.8	5.9	6.0	3.3	0.0	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.3	14.3	0.8	5.9	6.0	5.4	0.0	2.1	2.1	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.10	1.00		0.89	0.58		0.17
Lane Grp Cap(c), veh/h	0	650	640	45	806	830	719	0	680	704	0	0
V/C Ratio(X)	0.00	0.68	0.68	0.47	0.31	0.31	0.26	0.00	0.12	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	650	640	116	871	898	719	0	680	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.1	18.2	32.5	11.7	11.8	12.5	0.0	11.9	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.8	5.9	2.8	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.4	6.4	0.4	2.1	2.2	1.7	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.9	24.1	35.2	11.9	11.9	12.7	0.0	12.0	11.2	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		883			523			270			12	
Approach Delay, s/veh		24.0			12.9			12.5			11.2	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	28.9		32.9		34.6		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	2.8	16.3		4.1		8.0		7.4				
Green Ext Time (p_c), s	0.0	3.0		0.0		2.7		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.6									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	732	10	48	480	2	32
Future Vol, veh/h	732	10	48	480	2	32
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	796	11	52	522	2	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	809	0	1169	406
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	812	-	186	594
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	811	-	174	593
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	673	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	174	593	-	-	811	-
HCM Lane V/C Ratio	0.012	0.059	-	-	0.064	-
HCM Control Delay (s)	26	11.4	-	-	9.7	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	667	67	235	556	40	86	5	259	21	8	15
Future Volume (veh/h)	40	667	67	235	556	40	86	5	259	21	8	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	702	71	247	585	42	91	5	273	22	8	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1197	121	196	1462	105	571	11	613	225	87	138
Arrive On Green	0.04	0.37	0.37	0.11	0.44	0.44	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	3236	327	1781	3348	240	1381	28	1534	429	218	346
Grp Volume(v), veh/h	42	385	388	247	310	317	91	0	278	46	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1786	1781	1777	1811	1381	0	1562	993	0	0
Q Serve(g_s), s	2.3	17.4	17.5	11.0	11.9	12.0	0.0	0.0	13.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.3	17.4	17.5	11.0	11.9	12.0	6.2	0.0	13.0	13.4	0.0	0.0
Prop In Lane	1.00		0.18	1.00		0.13	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	77	657	661	196	776	791	571	0	625	451	0	0
V/C Ratio(X)	0.55	0.59	0.59	1.26	0.40	0.40	0.16	0.00	0.45	0.10	0.00	0.00
Avail Cap(c_a), veh/h	107	657	661	196	776	791	571	0	625	451	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.9	25.3	25.4	44.5	19.2	19.2	19.8	0.0	21.9	19.1	0.0	0.0
Incr Delay (d2), s/veh	2.2	3.8	3.8	151.6	0.3	0.3	0.6	0.0	2.3	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.9	7.9	13.1	4.9	5.0	1.5	0.0	5.1	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	29.1	29.1	196.1	19.5	19.6	20.4	0.0	24.2	19.5	0.0	0.0
LnGrp LOS	D	C	C	F	B	B	C	A	C	B	A	A
Approach Vol, veh/h		815			874			369			46	
Approach Delay, s/veh		30.2			69.4			23.3			19.5	
Approach LOS		C			E			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	41.0		44.0	8.3	47.7		44.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	11.0	37.0		40.0	6.0	42.0		40.0				
Max Q Clear Time (g_c+I1), s	13.0	19.5		15.4	4.3	14.0		15.0				
Green Ext Time (p_c), s	0.0	4.8		0.1	0.0	4.2		1.4				

Intersection Summary		
HCM 6th Ctrl Delay	45.0	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	458	236	289	301	271	220	454	145	427	839	255
Future Volume (veh/h)	223	458	236	289	301	271	220	454	145	427	839	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	482	188	304	317	106	232	478	99	449	883	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	580	224	362	670	219	291	1727	348	512	2408	747
Arrive On Green	0.08	0.23	0.23	0.10	0.26	0.25	0.06	0.27	0.27	0.15	0.47	0.00
Sat Flow, veh/h	3456	2483	961	3456	2611	854	3456	4239	853	3456	5106	1585
Grp Volume(v), veh/h	235	344	326	304	214	209	232	381	196	449	883	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1667	1728	1777	1688	1728	1702	1688	1728	1702	1585
Q Serve(g_s), s	10.0	27.6	28.0	13.0	15.2	15.8	10.0	13.2	13.8	19.1	16.6	0.0
Cycle Q Clear(g_c), s	10.0	27.6	28.0	13.0	15.2	15.8	10.0	13.2	13.8	19.1	16.6	0.0
Prop In Lane	1.00		0.58	1.00		0.51	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	292	415	389	362	456	433	291	1387	688	512	2408	747
V/C Ratio(X)	0.80	0.83	0.84	0.84	0.47	0.48	0.80	0.27	0.28	0.88	0.37	0.00
Avail Cap(c_a), veh/h	461	569	534	530	609	578	461	1387	688	760	2408	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	1.00	0.90	0.90	0.90	1.00	1.00	0.00
Uniform Delay (d), s/veh	67.4	54.6	55.0	65.9	47.1	47.6	69.5	37.1	37.5	62.6	25.3	0.0
Incr Delay (d2), s/veh	1.9	5.8	6.7	5.2	1.5	1.6	1.9	0.4	0.9	5.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	13.1	12.5	6.0	7.0	7.0	4.6	5.9	6.2	8.8	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	60.5	61.7	71.1	48.6	49.3	71.4	37.5	38.4	68.2	25.8	0.0
LnGrp LOS	E	E	E	E	D	D	E	D	D	E	C	A
Approach Vol, veh/h		905			727			809			1332	
Approach Delay, s/veh		63.2			58.2			47.5			40.1	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.2	65.0	19.7	39.0	16.6	74.6	16.7	42.1
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	32.6	28.8	22.6	47.1	19.6	* 42	19.6	50.1
Max Q Clear Time (g_c+I1), s	21.1	15.8	15.0	30.0	12.0	18.6	12.0	17.8
Green Ext Time (p_c), s	0.7	4.6	0.4	4.2	0.3	10.7	0.3	5.1

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Existing + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	171	253	251	271	425	166	327	536	351	875	56
Future Volume (veh/h)	19	171	253	251	271	425	166	327	536	351	875	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	176	0	259	279	438	171	337	0	362	902	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	695		316	509	422	226	1712		421	1913	853
Arrive On Green	0.02	0.20	0.00	0.09	0.27	0.27	0.07	0.48	0.00	0.24	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1553	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	176	0	259	279	438	171	337	0	362	902	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1553	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.7	6.3	0.0	11.0	19.1	40.8	7.3	8.1	0.0	15.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	6.3	0.0	11.0	19.1	40.8	7.3	8.1	0.0	15.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	695		316	509	422	226	1712		421	1913	853
V/C Ratio(X)	0.63	0.25		0.82	0.55	1.04	0.76	0.20		0.86	0.47	0.00
Avail Cap(c_a), veh/h	74	695		461	509	422	323	1712		599	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.80	0.80	0.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	73.2	51.1	0.0	66.9	46.7	54.6	68.9	22.3	0.0	55.5	0.0	0.0
Incr Delay (d2), s/veh	7.5	0.2	0.0	4.8	0.7	53.7	2.6	0.2	0.0	7.7	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	0.0	5.1	9.1	22.2	3.3	3.5	0.0	6.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	51.2	0.0	71.7	47.4	108.3	71.6	22.5	0.0	63.1	0.7	0.0
LnGrp LOS	F	D		E	D	F	E	C		E	A	A
Approach Vol, veh/h		196	A		976			508	A		1264	
Approach Delay, s/veh		54.3			81.2			39.0			18.6	
Approach LOS		D			F			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	76.2	17.7	33.7	13.8	84.7	6.7	44.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	25.6	60.1	19.6	* 26	13.6	72.1	5.8	39.5
Max Q Clear Time (g_c+I1), s	17.0	10.1	13.0	8.3	9.3	2.0	3.7	42.8
Green Ext Time (p_c), s	0.9	1.6	0.3	0.9	0.1	14.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	572	0	340	0	0	0	0	482	315	802	394	0
Future Volume (vph)	572	0	340	0	0	0	0	482	315	802	394	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3307	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3307	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	602	0	358	0	0	0	0	507	332	844	415	0
RTOR Reduction (vph)	0	0	269	0	0	0	0	0	212	0	0	0
Lane Group Flow (vph)	602	0	89	0	0	0	0	507	120	422	837	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	35.8		35.8					53.0	53.0	42.9	42.9	
Effective Green, g (s)	37.4		37.4					54.0	54.0	44.5	44.5	
Actuated g/C Ratio	0.25		0.25					0.36	0.36	0.30	0.30	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	855		394					1274	569	477	981	
v/s Ratio Prot	c0.18							c0.14		c0.26	0.25	
v/s Ratio Perm			0.06						0.08			
v/c Ratio	0.70		0.23					0.40	0.21	0.88	0.85	
Uniform Delay, d1	51.3		44.8					35.9	33.2	50.3	49.7	
Progression Factor	1.00		1.00					0.39	0.02	0.89	0.89	
Incremental Delay, d2	4.8		1.3					0.1	0.1	16.3	6.8	
Delay (s)	56.1		46.1					13.9	0.8	60.9	50.9	
Level of Service	E		D					B	A	E	D	
Approach Delay (s)		52.4			0.0			8.7			54.2	
Approach LOS		D			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



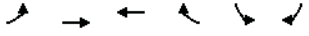
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	494	79	6	4	67	293	3	26	11	408	25	285
Future Volume (vph)	494	79	6	4	67	293	3	26	11	408	25	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (prot)	1610	3259			3530	1583		1780		1681	1695	1583
Flt Permitted	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (perm)	1610	3259			3530	1583		1780		1681	1695	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	549	88	7	4	74	326	3	29	12	453	28	317
RTOR Reduction (vph)	0	1	0	0	0	58	0	9	0	0	0	163
Lane Group Flow (vph)	274	369	0	0	78	268	0	35	0	240	241	154
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	30.9	30.9			16.0	87.4		7.3		71.4	71.4	71.4
Effective Green, g (s)	32.5	32.5			17.6	87.4		8.8		73.0	73.0	73.0
Actuated g/C Ratio	0.22	0.22			0.12	0.58		0.06		0.49	0.49	0.49
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	348	706			414	922		104		818	824	770
v/s Ratio Prot	c0.17	0.11			0.02	c0.14		c0.02		c0.14	0.14	
v/s Ratio Perm						0.03						0.10
v/c Ratio	0.79	0.52			0.19	0.29		0.33		0.29	0.29	0.20
Uniform Delay, d1	55.5	51.9			59.8	15.7		67.8		23.1	23.0	21.9
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.50	0.50	0.36
Incremental Delay, d2	16.4	2.8			1.0	0.8		8.4		0.7	0.7	0.4
Delay (s)	71.8	54.7			60.8	16.5		76.2		12.1	12.1	8.3
Level of Service	E	D			E	B		E		B	B	A
Approach Delay (s)		62.0			25.1			76.2			10.6	
Approach LOS		E			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	48.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
45: Taylor St. & I-8 EB Ramp

Existing + P1 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	594	359	406	156	311	81
Future Volume (veh/h)	594	359	406	156	311	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	632	382	432	0	331	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	658	1499	1408		436	766
Arrive On Green	0.37	0.80	0.40	0.00	0.13	0.00
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	632	382	432	0	331	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	38.3	5.6	9.2	0.0	10.2	0.0
Cycle Q Clear(g_c), s	38.3	5.6	9.2	0.0	10.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	658	1499	1408		436	766
V/C Ratio(X)	0.96	0.25	0.31		0.76	0.00
Avail Cap(c_a), veh/h	823	1499	1408		735	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	2.7	22.9	0.0	46.6	0.0
Incr Delay (d2), s/veh	18.7	0.4	0.6	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	1.7	4.0	0.0	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.8	3.1	23.5	0.0	47.7	0.0
LnGrp LOS	D	A	C		D	A
Approach Vol, veh/h		1014	432	A	331	
Approach Delay, s/veh		34.1	23.5		47.7	
Approach LOS		C	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.5		17.9	44.8	47.7
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		87.5		22.0	* 51	32.5
Max Q Clear Time (g_c+I1), s		7.6		12.2	40.3	11.2
Green Ext Time (p_c), s		1.6		0.2	0.3	1.9

Intersection Summary						
HCM 6th Ctrl Delay			34.0			
HCM 6th LOS			C			

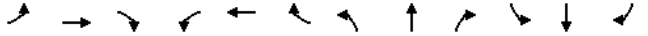
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

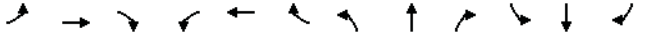
Existing + P1 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Future Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	46	279	34	20	67	21	265	8	47	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	71	279	54	353	57
Volume Left (vph)	1	279	0	67	8
Volume Right (vph)	46	0	20	265	2
Hadj (s)	-0.35	0.53	-0.23	-0.38	0.04
Departure Headway (s)	5.3	6.2	5.4	4.8	5.6
Degree Utilization, x	0.10	0.48	0.08	0.47	0.09
Capacity (veh/h)	612	557	631	722	575
Control Delay (s)	8.9	13.6	7.7	11.9	9.2
Approach Delay (s)	8.9	12.6		11.9	9.2
Approach LOS	A	B		B	A

Intersection Summary					
Delay		11.7			
Level of Service		B			
Intersection Capacity Utilization		53.7%	ICU Level of Service		A
Analysis Period (min)		15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Future Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	254	0	0	0	457	101				0	167	209
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	401	0		0	1494	666				0	0	0
Arrive On Green	0.23	0.00	0.00	0.00	0.42	0.42				0.00	0.16	0.16
Sat Flow, veh/h	1781	254		0	3647	1585					0	
Grp Volume(v), veh/h	254	7.0		0	457	101					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	2.4			0.0	1.6	0.7						
Cycle Q Clear(g_c), s	2.4			0.0	1.6	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	401			0	1494	666						
V/C Ratio(X)	0.63			0.00	0.31	0.15						
Avail Cap(c_a), veh/h	534			0	7170	3198						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	6.4			0.0	3.5	3.3						
Incr Delay (d2), s/veh	0.6			0.0	0.0	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.4			0.0	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0			0.0	3.6	3.3						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					558							
Approach Delay, s/veh					3.5							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							8.6	9.7				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							5.0	34.0				
Max Q Clear Time (g_c+I1), s							4.4	3.6				
Green Ext Time (p_c), s							0.0	1.2				

Intersection Summary												
HCM 6th Ctrl Delay			4.6									
HCM 6th LOS			A									

Notes

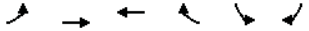
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	71.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	310	17	359	116	9	139	4	611	4	1	1
Future Vol, veh/h	1	310	17	359	116	9	139	4	611	4	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	333	18	386	125	10	149	4	657	4	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	28.3	36.1	113.7	13
HCM LOS	D	E	F	B

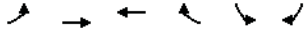
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	67%
Vol Thru, %	0%	1%	100%	0%	0%	93%	17%
Vol Right, %	0%	99%	0%	100%	0%	7%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	615	311	17	359	125	6
LT Vol	139	0	1	0	359	0	4
Through Vol	0	4	310	0	0	116	1
RT Vol	0	611	0	17	0	9	1
Lane Flow Rate	149	661	334	18	386	134	6
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.326	1.218	0.716	0.036	0.852	0.276	0.017
Departure Headway (Hd)	7.854	6.631	8.282	7.554	8.506	7.937	9.806
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	459	549	438	477	428	456	367
Service Time	5.586	4.363	5.982	5.254	6.206	5.637	7.806
HCM Lane V/C Ratio	0.325	1.204	0.763	0.038	0.902	0.294	0.016
HCM Control Delay	14.4	136.2	29.3	10.5	44	13.6	13
HCM Lane LOS	B	F	D	B	E	B	B
HCM 95th-tile Q	1.4	24.7	5.6	0.1	8.4	1.1	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	466	495	267	215	292	228
Future Volume (veh/h)	466	495	267	215	292	228
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	496	527	284	229	311	243
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	565	1176	448	378	405	361
Arrive On Green	0.32	0.63	0.24	0.24	0.23	0.23
Sat Flow, veh/h	1781	1870	1870	1578	1781	1585
Grp Volume(v), veh/h	496	527	284	229	311	243
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1578	1781	1585
Q Serve(g_s), s	14.7	8.1	7.6	7.2	9.1	7.8
Cycle Q Clear(g_c), s	14.7	8.1	7.6	7.2	9.1	7.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	565	1176	448	378	405	361
V/C Ratio(X)	0.88	0.45	0.63	0.61	0.77	0.67
Avail Cap(c_a), veh/h	831	1745	738	623	639	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	5.3	19.0	18.8	20.1	19.6
Incr Delay (d2), s/veh	5.4	0.2	2.0	2.1	1.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	2.2	3.2	2.6	3.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.4	5.6	21.0	21.0	21.3	20.5
LnGrp LOS	C	A	C	C	C	C
Approach Vol, veh/h		1023	513		554	
Approach Delay, s/veh		14.2	21.0		20.9	
Approach LOS		B	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		39.0		16.7	21.7	17.4
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	25.6	21.1
Max Q Clear Time (g_c+I1), s		10.1		11.1	16.7	9.6
Green Ext Time (p_c), s		3.6		0.7	0.6	2.7

Intersection Summary			
HCM 6th Ctrl Delay		17.7	
HCM 6th LOS		B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	268	559	133	80	152	495
Future Volume (veh/h)	268	559	133	80	152	495
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	298	621	148	89	169	550
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	947	276	166	680	605
Arrive On Green	0.20	0.51	0.25	0.24	0.38	0.38
Sat Flow, veh/h	1781	1870	1094	658	1781	1585
Grp Volume(v), veh/h	298	621	0	237	169	550
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1752	1781	1585
Q Serve(g_s), s	11.5	17.5	0.0	8.4	4.6	23.4
Cycle Q Clear(g_c), s	11.5	17.5	0.0	8.4	4.6	23.4
Prop In Lane	1.00			0.38	1.00	1.00
Lane Grp Cap(c), veh/h	352	947	0	442	680	605
V/C Ratio(X)	0.85	0.66	0.00	0.54	0.25	0.91
Avail Cap(c_a), veh/h	450	1050	0	442	800	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	13.0	0.0	23.2	15.1	20.9
Incr Delay (d2), s/veh	9.4	0.9	0.0	4.6	0.1	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	6.6	0.0	3.9	1.8	19.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.0	13.9	0.0	27.8	15.1	34.0
LnGrp LOS	D	B	A	C	B	C
Approach Vol, veh/h		919	237		719	
Approach Delay, s/veh		21.4	27.8		29.6	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.1		31.2	18.1	22.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		39.1		31.1	17.6	17.1
Max Q Clear Time (g_c+I1), s		19.5		25.4	13.5	10.4
Green Ext Time (p_c), s		2.7		0.9	0.2	0.5

Intersection Summary			
HCM 6th Ctrl Delay		25.3	
HCM 6th LOS		C	

Intersection	
Intersection Delay, s/veh	102.2
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	337	177	730	171	27
Future Vol, veh/h	467	337	177	730	171	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	519	374	197	811	190	30
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	51.7	165.3	18
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	467	337	177	730	171	27
LT Vol	467	0	0	0	171	0
Through Vol	0	337	177	0	0	0
RT Vol	0	0	0	730	0	27
Lane Flow Rate	519	374	197	811	190	30
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.015	0.681	0.375	1.385	0.452	0.061
Departure Headway (Hd)	7.504	6.992	6.862	6.147	9.114	7.87
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	488	520	523	592	397	458
Service Time	5.204	4.692	4.612	3.897	6.814	5.57
HCM Lane V/C Ratio	1.064	0.719	0.377	1.37	0.479	0.066
HCM Control Delay	72.2	23.3	13.7	202.1	19.1	11.1
HCM Lane LOS	F	C	B	F	C	B
HCM 95th-tile Q	14	5.1	1.7	36.3	2.3	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	326	89	209	634	393	254
Future Volume (veh/h)	326	89	209	634	393	254
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	347	95	222	674	418	270
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	470	129	265	1000	640	569
Arrive On Green	0.33	0.32	0.15	0.53	0.36	0.36
Sat Flow, veh/h	1414	387	1781	1870	1781	1585
Grp Volume(v), veh/h	0	442	222	674	418	270
Grp Sat Flow(s),veh/h/ln	0	1801	1781	1870	1781	1585
Q Serve(g_s), s	0.0	16.4	9.1	19.7	14.8	9.9
Cycle Q Clear(g_c), s	0.0	16.4	9.1	19.7	14.8	9.9
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	599	265	1000	640	569
V/C Ratio(X)	0.00	0.74	0.84	0.67	0.65	0.47
Avail Cap(c_a), veh/h	0	599	379	1119	640	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	22.3	31.1	12.7	20.2	18.6
Incr Delay (d2), s/veh	0.0	7.9	9.1	1.6	5.1	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.8	4.4	7.6	6.6	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	30.3	40.2	14.3	25.3	21.4
LnGrp LOS	A	C	D	B	C	C
Approach Vol, veh/h	442			896	688	
Approach Delay, s/veh	30.3			20.7	23.8	
Approach LOS	C			C	C	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.2	29.0			44.2	31.0
Change Period (Y+Rc), s	4.0	5.0			5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0			44.0	27.0
Max Q Clear Time (g_c+I1), s	11.1	18.4			21.7	16.8
Green Ext Time (p_c), s	0.2	1.6			6.2	1.3

Intersection Summary		
HCM 6th Ctrl Delay		23.8
HCM 6th LOS		C

APPENDIX H

EXISTING + PROJECT PHASE I FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3873	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1019
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5748	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2060
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5656	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1191
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8405	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1788
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.8
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5736	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1526
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8535	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1797
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6263	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1333
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9219	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1600
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6409	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1393
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9473	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1974
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6890	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1466
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10163	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2095
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9230	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2029
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7083	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1491
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8540	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1599
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6580	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9393	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1999
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7269	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1893
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7973	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2858
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6208	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1089
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8450	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2224
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex + P Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6603	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2269
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5745	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1528
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4803	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1703
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8394	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1749
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phase I PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7019	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1462
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.0
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phase I PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8514	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2172
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7129	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1485
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9229	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1903
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7775	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1350
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9460	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1951
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7951	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1656
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10158	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2094
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8557	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1783
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8218	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1806
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9837	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2028
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1364
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9090	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7369	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1535
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7855	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2024
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6275	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2134
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6643	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1204
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6688	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1724
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7062	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2427
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.07
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX I

EXISTING + PROJECT PHASES I AND II INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Existing + P1 + P2 AM
02/27/2020

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	556	498	1136	413	199	702	
Future Volume (veh/h)	556	498	1136	413	199	702	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	591	261	1209	17	212	747	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	728	324	1724	1073	300	2241	
Arrive On Green	0.20	0.20	0.49	0.49	0.09	0.63	
Sat Flow, veh/h	3563	1585	3647	1545	3456	3647	
Grp Volume(v), veh/h	591	261	1209	17	212	747	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1545	1728	1777	
Q Serve(g_s), s	11.9	11.8	19.9	0.3	4.5	7.4	
Cycle Q Clear(g_c), s	11.9	11.8	19.9	0.3	4.5	7.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	728	324	1724	1073	300	2241	
V/C Ratio(X)	0.81	0.81	0.70	0.02	0.71	0.33	
Avail Cap(c_a), veh/h	1414	629	2641	1472	442	3341	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	28.5	28.5	15.1	3.7	33.4	6.5	
Incr Delay (d2), s/veh	0.8	1.8	0.8	0.0	1.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.7	4.2	6.8	0.1	1.9	2.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.3	30.3	15.8	3.7	34.5	6.7	
LnGrp LOS	C	C	B	A	C	A	
Approach Vol, veh/h	852		1226			959	
Approach Delay, s/veh	29.6		15.7			12.8	
Approach LOS	C		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.9	42.6				53.5	21.5
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	9.6	55.8				* 71	29.8
Max Q Clear Time (g_c+I1), s	6.5	21.9				9.4	13.9
Green Ext Time (p_c), s	0.1	14.5				13.9	1.5

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Existing + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	82	49	116	103	185	1148	130	118	684	157
Future Volume (veh/h)	50	45	82	49	116	103	185	1148	130	118	684	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	50	91	54	129	114	206	1276	144	131	760	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	201	161	68	204	161	253	1941	906	93	1866	880
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.07	0.55	0.55	0.05	0.53	0.53
Sat Flow, veh/h	3456	1870	1497	1781	1870	1473	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	56	50	91	54	129	114	206	1276	144	131	760	174
Grp Sat Flow(s),veh/h/ln	1728	1870	1497	1781	1870	1473	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	1.2	1.9	4.4	2.3	5.1	5.7	4.5	19.5	3.3	4.0	9.9	4.2
Cycle Q Clear(g_c), s	1.2	1.9	4.4	2.3	5.1	5.7	4.5	19.5	3.3	4.0	9.9	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	201	161	68	204	161	253	1941	906	93	1866	880
V/C Ratio(X)	0.45	0.25	0.57	0.79	0.63	0.71	0.81	0.66	0.16	1.41	0.41	0.20
Avail Cap(c_a), veh/h	217	757	606	95	731	575	253	1941	906	93	1866	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	31.3	32.5	36.5	32.6	32.9	35.0	12.3	7.3	36.3	11.0	8.3
Incr Delay (d2), s/veh	0.9	0.6	3.1	16.9	1.2	2.2	17.1	1.8	0.4	235.3	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	1.7	1.3	2.3	2.1	2.4	7.2	1.0	7.8	3.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	32.0	35.6	53.4	33.8	35.1	52.1	14.1	7.7	271.6	11.6	8.8
LnGrp LOS	D	C	D	D	C	D	D	B	A	F	B	A
Approach Vol, veh/h		197			297			1626			1065	
Approach Delay, s/veh		35.1			37.9			18.3			43.1	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	47.1	7.3	13.7	10.0	45.5	7.2	13.9
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	41.7	4.1	* 31	5.6	* 40	4.8	29.9
Max Q Clear Time (g_c+I1), s	6.0	21.5	4.3	6.4	6.5	11.9	3.2	7.7
Green Ext Time (p_c), s	0.0	14.0	0.0	0.5	0.0	10.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1519	0	317	238	0	0	0	0	261	1	738
Future Volume (veh/h)	0	1519	0	317	238	0	0	0	0	261	1	738
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1582	0	330	248	0				272	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1616	721	417	2244	0				427	2	
Arrive On Green	0.00	0.45	0.00	0.12	0.63	0.00				0.24	0.24	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1775	7	1585
Grp Volume(v), veh/h	0	1582	0	330	248	0				273	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1782	0	1585
Q Serve(g_s), s	0.0	32.8	0.0	7.0	2.1	0.0				10.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	32.8	0.0	7.0	2.1	0.0				10.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1616	721	417	2244	0				429	0	
V/C Ratio(X)	0.00	0.98	0.00	0.79	0.11	0.00				0.64	0.00	
Avail Cap(c_a), veh/h	0	1616	721	447	2274	0				429	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.41	0.41	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.1	0.0	32.1	5.5	0.0				25.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	17.5	0.0	3.8	0.0	0.0				2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.0	0.0	3.0	0.6	0.0				4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	37.6	0.0	35.9	5.5	0.0				27.9	0.0	0.0
LnGrp LOS	A	D	A	D	A	A				C	A	
Approach Vol, veh/h		1582			578						273	A
Approach Delay, s/veh		37.6			22.8						27.9	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.3	39.1		22.6		52.4						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 9.7	34.1		17.4		48.0						
Max Q Clear Time (g_c+I1), s	9.0	34.8		12.3		4.1						
Green Ext Time (p_c), s	0.1	0.0		0.3		1.1						

Intersection Summary			
HCM 6th Ctrl Delay		33.0	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1209	552	0	0	478	476	72	25	247	0	0	0
Future Volume (veh/h)	1209	552	0	0	478	476	72	25	247	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1273	581	0	0	503	501	76	26	260			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1281	2677	0	0	580	518	150	51	178			
Arrive On Green	0.37	0.75	0.00	0.00	0.33	0.33	0.11	0.11	0.11			
Sat Flow, veh/h	3456	3647	0	0	1870	1585	1344	460	1585			
Grp Volume(v), veh/h	1273	581	0	0	503	501	102	0	260			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1803	0	1585			
Q Serve(g_s), s	27.5	3.6	0.0	0.0	19.9	23.3	4.0	0.0	8.4			
Cycle Q Clear(g_c), s	27.5	3.6	0.0	0.0	19.9	23.3	4.0	0.0	8.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.75		1.00			
Lane Grp Cap(c), veh/h	1281	2677	0	0	580	518	202	0	178			
V/C Ratio(X)	0.99	0.22	0.00	0.00	0.87	0.97	0.51	0.00	1.46			
Avail Cap(c_a), veh/h	1281	2677	0	0	580	518	202	0	178			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.28	0.28	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.5	2.7	0.0	0.0	23.7	24.9	31.3	0.0	33.3			
Incr Delay (d2), s/veh	11.9	0.0	0.0	0.0	12.6	31.1	0.8	0.0	237.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.4	0.8	0.0	0.0	9.8	12.6	1.7	0.0	18.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	2.7	0.0	0.0	36.3	56.0	32.2	0.0	270.5			
LnGrp LOS	D	A	A	A	D	E	C	A	F			
Approach Vol, veh/h		1854			1004			362				
Approach Delay, s/veh		25.2			46.1			203.4				
Approach LOS		C			D			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		62.0		13.0	32.0	30.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		56.5		8.4	* 28	24.5						
Max Q Clear Time (g_c+I1), s		5.6		10.4	29.5	25.3						
Green Ext Time (p_c), s		2.9		0.0	0.0	0.0						

Intersection Summary			
HCM 6th Ctrl Delay		51.7	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	430	75	162	698	19	270	25	277	31	31	51
Future Volume (veh/h)	25	430	75	162	698	19	270	25	277	31	31	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	478	83	180	776	21	300	28	308	34	34	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	1448	618	172	1705	46	317	531	594	43	243	200
Arrive On Green	0.02	0.41	0.41	0.10	0.48	0.48	0.18	0.28	0.28	0.02	0.13	0.13
Sat Flow, veh/h	1781	3554	1516	1781	3531	96	1781	1870	1553	1781	1870	1541
Grp Volume(v), veh/h	28	478	83	180	390	407	300	28	308	34	34	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1516	1781	1777	1850	1781	1870	1553	1781	1870	1541
Q Serve(g_s), s	1.7	10.1	3.8	10.6	16.0	16.0	18.3	1.2	16.9	2.1	1.8	3.7
Cycle Q Clear(g_c), s	1.7	10.1	3.8	10.6	16.0	16.0	18.3	1.2	16.9	2.1	1.8	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	37	1448	618	172	858	893	317	531	594	43	243	200
V/C Ratio(X)	0.75	0.33	0.13	1.05	0.46	0.46	0.95	0.05	0.52	0.79	0.14	0.28
Avail Cap(c_a), veh/h	97	1448	618	172	858	893	317	663	703	102	442	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	22.3	20.4	49.7	18.8	18.8	44.7	28.6	26.3	53.4	42.4	43.2
Incr Delay (d2), s/veh	10.7	0.6	0.5	82.1	1.7	1.7	35.8	0.0	0.3	11.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	1.4	8.6	6.9	7.1	11.2	0.5	6.2	1.1	0.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	22.9	20.9	131.8	20.6	20.5	80.5	28.6	26.6	65.0	42.5	43.5
LnGrp LOS	E	C	C	F	C	C	F	C	C	E	D	D
Approach Vol, veh/h		589			977			636			125	
Approach Delay, s/veh		24.6			41.1			52.1			49.1	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.5	24.0	19.5	6.7	59.8	7.0	36.4
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	10.6	* 34	19.6	* 26	6.0	38.0	6.3	39.0
Max Q Clear Time (g_c+I1), s	12.6	12.1	20.3	5.7	3.7	18.0	4.1	18.9
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.4	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay	40.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	123	3	3	863	462	0	0	15	88	1	236
Future Volume (vph)	290	123	3	3	863	462	0	0	15	88	1	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (prot)	3433	3525		1751	3334				1520	1681	1687	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (perm)	3433	3525		1751	3334				1520	1681	1687	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	322	137	3	3	959	513	0	0	17	98	1	262
RTOR Reduction (vph)	0	1	0	0	44	0	0	0	17	0	0	170
Lane Group Flow (vph)	322	139	0	3	1428	0	0	0	0	49	50	92
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	14.9	76.4		0.8	62.3				2.1	30.2	30.2	45.1
Effective Green, g (s)	14.9	76.4		0.8	62.3				2.1	30.2	30.2	45.1
Actuated g/C Ratio	0.12	0.60		0.01	0.49				0.02	0.24	0.24	0.35
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	399	2102		10	1621				24	396	397	552
v/s Ratio Prot	c0.09	0.04		0.00	c0.43					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.81	0.07		0.30	0.88				0.01	0.12	0.13	0.17
Uniform Delay, d1	55.2	10.9		63.4	29.6				62.0	38.5	38.6	28.6
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7	0.0		6.1	7.2				0.2	0.6	0.7	0.1
Delay (s)	65.9	10.9		69.4	36.8				62.2	39.2	39.2	28.6
Level of Service	E	B		E	D				E	D	D	C
Approach Delay (s)		49.3			36.9			62.2			31.5	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	128.1	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	84.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	217	409	1064	953	285	86
Future Volume (vph)	217	409	1064	953	285	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1549	3429	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1549	3429	1419
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	233	440	1144	1025	306	92
RTOR Reduction (vph)	0	0	0	385	2	69
Lane Group Flow (vph)	233	440	1144	640	313	14
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.9	50.4	30.5	46.0	15.5	15.5
Effective Green, g (s)	15.9	50.4	30.5	46.0	15.5	15.5
Actuated g/C Ratio	0.18	0.56	0.34	0.51	0.17	0.17
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	313	1988	1203	794	592	245
v/s Ratio Prot	c0.13	0.12	c0.32	c0.14	0.09	
v/s Ratio Perm				0.27		0.01
v/c Ratio	0.74	0.22	0.95	0.81	0.53	0.06
Uniform Delay, d1	35.0	9.8	28.9	18.1	33.8	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.1	0.3	15.8	6.8	1.6	0.2
Delay (s)	43.1	10.1	44.7	25.0	35.4	31.2
Level of Service	D	B	D	C	D	C
Approach Delay (s)		21.5	35.4		34.5	
Approach LOS		C	D		C	

Intersection Summary				
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	89.7	Sum of lost time (s)	18.9
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	562	19	13	2017	96	53	5	34	60	2	32
Future Volume (veh/h)	39	562	19	13	2017	96	53	5	34	60	2	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	624	14	14	2241	98	59	6	0	67	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	2073	46	110	2124	92	254	21	187	290	221	0
Arrive On Green	0.03	0.58	0.58	0.06	0.61	0.61	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3550	80	1781	3468	150	1255	177	1585	1386	1870	0
Grp Volume(v), veh/h	43	312	326	14	1140	1199	65	0	0	67	2	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1853	1781	1777	1841	1432	0	1585	1386	1870	0
Q Serve(g_s), s	1.5	5.7	5.8	0.5	39.7	39.7	2.5	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	1.5	5.7	5.8	0.5	39.7	39.7	2.7	0.0	0.0	2.3	0.1	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	59	1038	1082	110	1088	1128	275	0	187	290	221	0
V/C Ratio(X)	0.73	0.30	0.30	0.13	1.05	1.06	0.24	0.00	0.00	0.23	0.01	0.00
Avail Cap(c_a), veh/h	110	1038	1082	440	1088	1128	787	0	758	789	895	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.0	6.8	6.8	28.8	12.6	12.6	26.4	0.0	0.0	26.2	25.2	0.0
Incr Delay (d2), s/veh	6.1	0.7	0.7	0.2	40.4	45.4	0.2	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.7	1.8	0.2	21.9	24.2	0.9	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	7.5	7.5	28.9	53.0	57.9	26.5	0.0	0.0	26.4	25.2	0.0
LnGrp LOS	D	A	A	C	F	F	C	A	A	C	C	A
Approach Vol, veh/h		681			2353			65			69	
Approach Delay, s/veh		9.4			55.4			26.5			26.3	
Approach LOS		A			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	43.9		12.6	6.6	45.7		12.6				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	2.5	7.8		4.3	3.5	41.7		4.7				
Green Ext Time (p_c), s	0.0	8.2		0.1	0.0	0.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	44.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	654	1321	33	38	27
Future Vol, veh/h	40	654	1321	33	38	27
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	711	1436	36	41	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1509	0	-	0	1933	773
Stage 1	-	-	-	-	1491	-
Stage 2	-	-	-	-	442	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	439	-	-	-	58	342
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	425	-	-	-	49	331
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	151	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	42.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	425	-	-	-	165
HCM Lane V/C Ratio	0.102	-	-	-	0.428
HCM Control Delay (s)	14.4	-	-	-	42.2
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	1.9

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	665	26	0	1354	0	102
Future Vol, veh/h	665	26	0	1354	0	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	723	28	0	1472	0	111

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	376
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	622
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	622
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	622	-	-	-
HCM Lane V/C Ratio	0.178	-	-	-
HCM Control Delay (s)	12	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Existing + P1 + P2 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	513	53	11	1661	480	277	102	58	170	32	115
Future Volume (veh/h)	160	513	53	11	1661	480	277	102	58	170	32	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	178	570	58	12	1846	362	301	111	63	189	35	0
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	1514	154	20	1434	618	303	190	108	227	42	238
Arrive On Green	0.07	0.47	0.47	0.01	0.40	0.40	0.17	0.17	0.17	0.15	0.15	0.00
Sat Flow, veh/h	1781	3245	329	1781	3554	1531	1781	1120	636	1514	280	1585
Grp Volume(v), veh/h	178	311	317	12	1846	362	301	0	174	224	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1797	1781	1777	1531	1781	0	1756	1795	0	1585
Q Serve(g_s), s	6.6	10.7	10.7	0.6	38.0	17.4	15.9	0.0	8.6	11.4	0.0	0.0
Cycle Q Clear(g_c), s	6.6	10.7	10.7	0.6	38.0	17.4	15.9	0.0	8.6	11.4	0.0	0.0
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.36	0.84		1.00
Lane Grp Cap(c), veh/h	125	829	839	20	1434	618	303	0	298	270	0	238
V/C Ratio(X)	1.43	0.38	0.38	0.59	1.29	0.59	0.99	0.00	0.58	0.83	0.00	0.00
Avail Cap(c_a), veh/h	125	829	839	76	1434	618	303	0	298	610	0	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.8	16.2	16.3	46.3	28.1	21.9	39.0	0.0	36.0	38.8	0.0	0.0
Incr Delay (d2), s/veh	231.3	1.3	1.3	24.2	134.5	4.0	50.0	0.0	2.9	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	4.2	4.3	0.4	41.3	6.4	11.0	0.0	3.9	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	275.1	17.5	17.6	70.5	162.6	26.0	89.1	0.0	38.9	41.4	0.0	0.0
LnGrp LOS	F	B	B	E	F	C	F	A	D	D	A	A
Approach Vol, veh/h		806			2220			475			224	
Approach Delay, s/veh		74.4			139.8			70.7			41.4	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	49.8		19.2	11.0	43.9		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 41		32.0	6.6	38.0		16.0				
Max Q Clear Time (g_c+I1), s	2.6	12.7		13.4	8.6	40.0		17.9				
Green Ext Time (p_c), s	0.0	2.7		0.8	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		110.9
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Existing + P1 + P2 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	764	83	80	1868	135	86
Future Volume (veh/h)	764	83	80	1868	135	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	830	90	87	2030	120	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1303	141	173	2158	231	209
Arrive On Green	0.40	0.40	0.10	0.61	0.13	0.13
Sat Flow, veh/h	3327	351	1781	3647	1781	1610
Grp Volume(v), veh/h	456	464	87	2030	120	122
Grp Sat Flow(s),veh/h/ln	1777	1807	1781	1777	1781	1610
Q Serve(g_s), s	8.5	8.5	1.9	21.5	2.6	2.9
Cycle Q Clear(g_c), s	8.5	8.5	1.9	21.5	2.6	2.9
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	716	728	173	2158	231	209
V/C Ratio(X)	0.64	0.64	0.50	0.94	0.52	0.58
Avail Cap(c_a), veh/h	716	728	243	2170	2344	2119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	9.9	17.6	7.4	16.7	16.8
Incr Delay (d2), s/veh	1.9	1.8	2.2	8.9	1.8	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.4	0.7	4.9	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.7	11.7	19.8	16.3	18.5	19.4
LnGrp LOS	B	B	B	B	B	B
Approach Vol, veh/h	920			2117	242	
Approach Delay, s/veh	11.7			16.4	18.9	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	8.4	22.5				30.9	10.2
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	5.6	* 15				25.1	54.1
Max Q Clear Time (g_c+I1), s	3.9	10.5				23.5	4.9
Green Ext Time (p_c), s	0.0	2.3				1.5	0.8

Intersection Summary		
HCM 6th Ctrl Delay		15.3
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	825	42	0	1947	0	44
Future Vol, veh/h	825	42	0	1947	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	897	46	0	2116	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	472
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	538
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	538
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	538	-	-	-
HCM Lane V/C Ratio	0.089	-	-	-
HCM Control Delay (s)	12.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	847	21	37	1889	58	102
Future Volume (veh/h)	0	847	21	37	1889	58	102
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		921	23	40	2053	63	111
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		1302	33	183	2075	82	145
Arrive On Green		0.37	0.37	0.10	0.58	0.14	0.14
Sat Flow, veh/h		3636	88	1781	3647	595	1048
Grp Volume(v), veh/h		462	482	40	2053	175	0
Grp Sat Flow(s),veh/h/ln		1777	1854	1781	1777	1652	0
Q Serve(g_s), s		8.6	8.6	0.8	22.1	4.0	0.0
Cycle Q Clear(g_c), s		8.6	8.6	0.8	22.1	4.0	0.0
Prop In Lane			0.05	1.00		0.36	0.63
Lane Grp Cap(c), veh/h		653	682	183	2075	228	0
V/C Ratio(X)		0.71	0.71	0.22	0.99	0.77	0.00
Avail Cap(c_a), veh/h		901	941	183	2075	685	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		10.5	10.5	16.0	8.0	16.1	0.0
Incr Delay (d2), s/veh		1.5	1.5	0.6	17.3	5.4	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.3	2.4	0.3	7.2	1.6	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		12.0	12.0	16.6	25.2	21.5	0.0
LnGrp LOS		B	B	B	C	C	A
Approach Vol, veh/h		944			2093	175	
Approach Delay, s/veh		12.0			25.0	21.5	
Approach LOS		B			C	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.4	20.2				28.6		10.3
Change Period (Y+Rc), s	4.4	5.9				* 5.9		4.9
Max Green Setting (Gmax), s	4.0	19.7				* 20		16.1
Max Q Clear Time (g_c+I1), s	2.8	10.6				24.1		6.0
Green Ext Time (p_c), s	0.0	3.6				0.0		0.3

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 + P2 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	845	103	205	1641	8	280	1	139	17	2	5
Future Volume (veh/h)	2	845	103	205	1641	8	280	1	139	17	2	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	939	114	228	1823	9	311	1	154	19	2	4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1946	235	234	1771	9	505	1	601	175	21	27
Arrive On Green	0.00	0.42	0.42	0.14	0.98	0.98	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	4605	557	3456	3625	18	1408	5	1574	379	67	85
Grp Volume(v), veh/h	2	693	360	228	893	939	312	0	154	25	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1758	1728	1777	1867	1412	0	1574	532	0	0
Q Serve(g_s), s	0.1	16.5	16.6	7.4	54.7	54.7	0.0	0.0	7.5	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	16.5	16.6	7.4	54.7	54.7	21.7	0.0	7.5	22.8	0.0	0.0
Prop In Lane	1.00		0.32	1.00		0.01	1.00		1.00	0.76		0.16
Lane Grp Cap(c), veh/h	4	1439	743	234	868	912	507	0	601	223	0	0
V/C Ratio(X)	0.52	0.48	0.48	0.97	1.03	1.03	0.62	0.00	0.26	0.11	0.00	0.00
Avail Cap(c_a), veh/h	121	1644	849	234	868	912	507	0	601	223	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.60	0.60	0.60	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.8	23.4	23.5	48.3	1.3	1.3	33.9	0.0	23.8	34.9	0.0	0.0
Incr Delay (d2), s/veh	35.2	0.2	0.5	37.9	31.3	31.2	5.5	0.0	1.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.3	6.6	4.1	8.0	8.4	8.2	0.0	3.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	23.7	23.9	86.2	32.6	32.5	39.4	0.0	24.8	35.9	0.0	0.0
LnGrp LOS	F	C	C	F	F	F	D	A	C	D	A	A
Approach Vol, veh/h		1055			2060			466			25	
Approach Delay, s/veh		23.9			38.5			34.6			35.9	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	53.2		40.0	4.6	60.6		40.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	7.6	54.1		35.1	7.6	* 55		35.1				
Max Q Clear Time (g_c+I1), s	9.4	18.6		24.8	2.1	56.7		23.7				
Green Ext Time (p_c), s	0.0	7.2		0.0	0.0	0.0		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			33.7
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing + P1 + P2 AM
02/27/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1003	15	84	1883	4	23
Future Volume (veh/h)	0	1003	15	84	1883	4	23
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		1090	12	91	2047	4	0
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		4337	48	123	3228	7	7
Arrive On Green		1.00	1.00	0.04	0.91	0.00	0.00
Sat Flow, veh/h		5373	57	3456	3647	1781	1585
Grp Volume(v), veh/h		713	389	91	2047	4	0
Grp Sat Flow(s),veh/h/ln		1702	1858	1728	1777	1781	1585
Q Serve(g_s), s		0.0	0.0	2.9	14.0	0.3	0.0
Cycle Q Clear(g_c), s		0.0	0.0	2.9	14.0	0.3	0.0
Prop In Lane			0.03	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2837	1548	123	3228	7	7
V/C Ratio(X)		0.25	0.25	0.74	0.63	0.54	0.00
Avail Cap(c_a), veh/h		2837	1548	123	3228	662	589
HCM Platoon Ratio		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.90	0.90	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	53.5	1.1	55.7	0.0
Incr Delay (d2), s/veh		0.2	0.4	18.3	1.0	20.5	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.1	0.2	1.5	0.4	0.2	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		0.2	0.4	71.8	2.1	76.2	0.0
LnGrp LOS		A	A	E	A	E	A
Approach Vol, veh/h		1102			2138	4	
Approach Delay, s/veh		0.2			5.0	76.2	
Approach LOS		A			A	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.4	98.7				107.1		4.9
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	4.0	52.6				* 53		41.6
Max Q Clear Time (g_c+I1), s	4.9	2.0				16.0		2.3
Green Ext Time (p_c), s	0.0	10.9				27.2		0.0

Intersection Summary			
HCM 6th Ctrl Delay			3.5
HCM 6th LOS			A

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	999	21	159	1966	2	3	0	15	27	0	3
Future Volume (veh/h)	0	999	21	159	1966	2	3	0	15	27	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1063	22	169	2091	2	3	0	16	29	0	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3863	80	228	4509	4	134	0	163	136	0	81
Arrive On Green	0.00	0.75	0.75	0.07	0.86	0.86	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1781	5147	106	3456	5268	5	1390	0	3115	1374	0	1558
Grp Volume(v), veh/h	0	703	382	169	1351	742	3	0	16	29	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1849	1728	1702	1869	1390	0	1558	1374	0	1558
Q Serve(g_s), s	0.0	7.3	7.3	5.4	10.6	10.6	0.2	0.0	0.5	2.3	0.0	0.2
Cycle Q Clear(g_c), s	0.0	7.3	7.3	5.4	10.6	10.6	0.4	0.0	0.5	2.3	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	2555	1388	228	2913	1600	134	0	163	136	0	81
V/C Ratio(X)	0.00	0.28	0.28	0.74	0.46	0.46	0.02	0.00	0.10	0.21	0.00	0.04
Avail Cap(c_a), veh/h	64	2555	1388	234	2913	1600	435	0	837	433	0	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.4	4.4	51.4	1.9	1.9	50.6	0.0	50.6	51.4	0.0	50.4
Incr Delay (d2), s/veh	0.0	0.3	0.5	10.1	0.5	1.0	0.0	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	2.2	2.6	1.3	1.6	0.1	0.0	0.2	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.7	4.9	61.5	2.5	2.9	50.6	0.0	50.7	51.7	0.0	50.5
LnGrp LOS	A	A	A	E	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1085			2262			19			32	
Approach Delay, s/veh		4.7			7.0			50.7			51.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	89.5		10.7	0.0	101.3		10.7				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	7.6	59.6		30.1	4.0	* 63		30.1				
Max Q Clear Time (g_c+I1), s	7.4	9.3		4.3	0.0	12.6		2.5				
Green Ext Time (p_c), s	0.0	10.6		0.0	0.0	31.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		7.0
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1120	59	0	1943	0	43
Future Vol, veh/h	1120	59	0	1943	0	43
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1244	66	0	2159	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	665
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	345
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	341
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	341	-	-	-
HCM Lane V/C Ratio	0.14	-	-	-
HCM Control Delay (s)	17.3	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	629	0	481	427
Future Volume (Veh/h)	0	0	629	0	481	427
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	684	0	523	464
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	1962	342			684	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1962	342			684	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			42	
cM capacity (veh/h)	23	654			905	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	456	228	523	232	232
Volume Left	0	0	523	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	905	1700	1700
Volume to Capacity	0.27	0.13	0.58	0.14	0.14
Queue Length 95th (ft)	0	0	95	0	0
Control Delay (s)	0.0	0.0	14.3	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		7.6		
Approach LOS					

Intersection Summary				
Average Delay		4.5		
Intersection Capacity Utilization		50.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	762	263	0	1452	463	509	33	770	307	0	82
Future Volume (vph)	67	762	263	0	1452	463	509	33	770	307	0	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.0	4.0		7.0	7.0	4.6	4.6	4.0	4.6		4.6
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1551		4782	1345	1681	1695	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1551		4782	1345	1681	1695	1564	3433		1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	71	811	280	0	1545	493	541	35	819	327	0	87
RTOR Reduction (vph)	0	0	0	0	2	56	0	0	0	0	0	71
Lane Group Flow (vph)	71	811	280	0	1592	388	287	289	819	327	0	16
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1			1			1
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	12.0	68.7	140.0		52.5	52.5	28.6	28.6	140.0	26.5		26.5
Effective Green, g (s)	12.0	68.7	140.0		52.5	52.5	28.6	28.6	140.0	26.5		26.5
Actuated g/C Ratio	0.09	0.49	1.00		0.38	0.38	0.20	0.20	1.00	0.19		0.19
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	151	2495	1551		1793	504	343	346	1564	649		299
v/s Ratio Prot	0.04	0.16			c0.33					0.10		0.01
v/s Ratio Perm			0.18			0.29	c0.17	0.17	c0.52			
v/c Ratio	0.47	0.33	0.18		0.89	0.77	0.84	0.84	0.52	0.50		0.06
Uniform Delay, d1	61.0	21.6	0.0		41.0	38.4	53.5	53.4	0.0	50.9		46.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.8	0.3	0.3		7.0	10.8	20.9	20.6	1.3	0.2		0.0
Delay (s)	61.8	21.9	0.3		48.0	49.2	74.4	74.1	1.3	51.1		46.5
Level of Service	E	C	A		D	D	E	E	A	D		D
Approach Delay (s)		19.2			48.3			31.4			50.1	
Approach LOS		B			D			C			D	

Intersection Summary					
HCM 2000 Control Delay		37.0	HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio		0.80			
Actuated Cycle Length (s)		140.0	Sum of lost time (s)		20.4
Intersection Capacity Utilization		78.8%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing + P1 + P2 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	574	1268	0	0	1525	703	0	0	857	0	0	711
Future Volume (veh/h)	574	1268	0	0	1525	703	0	0	857	0	0	711
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	604	1335	0	0	1605	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	604	5391	0	0	2094							
Arrive On Green	0.34	0.96	0.00	0.00	0.59	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	604	1335	0	0	1605	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	47.5	1.7	0.0	0.0	47.4	0.0						
Cycle Q Clear(g_c), s	47.5	1.7	0.0	0.0	47.4	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	604	5391	0	0	2094							
V/C Ratio(X)	1.00	0.25	0.00	0.00	0.77							
Avail Cap(c_a), veh/h	604	5391	0	0	2094							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	46.2	0.1	0.0	0.0	21.5	0.0						
Incr Delay (d2), s/veh	35.5	0.1	0.0	0.0	2.7	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	26.2	0.1	0.0	0.0	19.9	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.8	0.2	0.0	0.0	24.3	0.0						
LnGrp LOS	F	A	A	A	C							
Approach Vol, veh/h		1939			1605	A						
Approach Delay, s/veh		25.6			24.3							
Approach LOS		C			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		140.0			52.0	88.0						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		134.5			47.5	82.5						
Max Q Clear Time (g_c+I1), s		3.7			49.5	49.4						
Green Ext Time (p_c), s		7.1			0.0	11.3						

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	647	939	460	43	1761	42	137	106	30	29	43	268
Future Volume (veh/h)	647	939	460	43	1761	42	137	106	30	29	43	268
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	674	978	479	45	1834	44	143	110	31	30	0	309
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	660	2682	821	58	1874	572	194	717	194	107	0	719
Arrive On Green	0.19	0.53	0.53	0.03	0.37	0.37	0.06	0.26	0.26	0.03	0.00	0.24
Sat Flow, veh/h	3456	5106	1562	1781	5106	1559	3456	2743	741	3563	0	3053
Grp Volume(v), veh/h	674	978	479	45	1834	44	143	70	71	30	0	309
Grp Sat Flow(s),veh/h/ln	1728	1702	1562	1781	1702	1559	1728	1777	1707	1781	0	1526
Q Serve(g_s), s	25.6	15.1	28.1	3.4	47.6	2.5	5.5	4.0	4.3	1.1	0.0	11.5
Cycle Q Clear(g_c), s	25.6	15.1	28.1	3.4	47.6	2.5	5.5	4.0	4.3	1.1	0.0	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	660	2682	821	58	1874	572	194	464	446	107	0	719
V/C Ratio(X)	1.02	0.36	0.58	0.78	0.98	0.08	0.74	0.15	0.16	0.28	0.00	0.43
Avail Cap(c_a), veh/h	660	2682	821	125	1874	572	291	649	624	159	0	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.2	18.7	21.8	64.4	41.9	27.6	62.3	38.1	38.2	63.6	0.0	43.6
Incr Delay (d2), s/veh	40.6	0.4	3.0	8.0	16.4	0.3	3.0	0.1	0.1	0.8	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	5.8	10.9	1.6	21.9	1.0	2.5	1.8	1.8	0.5	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.8	19.1	24.8	72.4	58.3	27.9	65.3	38.1	38.2	64.4	0.0	43.9
LnGrp LOS	F	B	C	E	E	C	E	D	D	E	A	D
Approach Vol, veh/h		2131			1923			284			339	
Approach Delay, s/veh		44.3			57.9			51.8			45.7	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	76.9	11.9	36.5	30.0	55.7	8.4	39.9				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.4	* 66	11.3	43.7	25.6	49.2	6.0	49.0				
Max Q Clear Time (g_c+I1), s	5.4	30.1	7.5	13.5	27.6	49.6	3.1	6.3				
Green Ext Time (p_c), s	0.0	14.8	0.1	0.9	0.0	0.0	0.0	0.5				

Intersection Summary	
HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	329	142	495	0	0	368	272
Future Volume (veh/h)	0	0	0	147	0	329	142	495	0	0	368	272
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				155	0	346	149	521	0	0	387	286
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				909	0	397	218	2205	0	0	1807	802
Arrive On Green				0.26	0.00	0.26	0.13	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				155	0	346	149	521	0	0	387	286
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1578
Q Serve(g_s), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.4	9.8
Cycle Q Clear(g_c), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.4	9.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				909	0	397	218	2205	0	0	1807	802
V/C Ratio(X)				0.17	0.00	0.87	0.68	0.24	0.00	0.00	0.21	0.36
Avail Cap(c_a), veh/h				1310	0	572	407	2205	0	0	1807	802
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.1	0.0	32.1	38.5	0.0	0.0	0.0	12.2	13.3
Incr Delay (d2), s/veh				0.1	0.0	10.0	1.4	0.2	0.0	0.0	0.3	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	7.8	1.5	0.1	0.0	0.0	2.1	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.2	0.0	42.1	39.8	0.2	0.0	0.0	12.5	14.5
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					501			670			673	
Approach Delay, s/veh					37.2			9.1			13.3	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.1			10.1	52.1		27.9				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 47			10.6	30.7		33.1				
Max Q Clear Time (g_c+I1), s		2.0			5.7	11.8		21.2				
Green Ext Time (p_c), s		3.4			0.1	6.0		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	3	173	0	0	0	0	440	78	122	386	0
Future Volume (veh/h)	170	3	173	0	0	0	0	440	78	122	386	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	185	0	0				0	473	56	131	415	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	392	0	174				0	2128	251	198	2740	0
Arrive On Green	0.11	0.00	0.00				0.00	0.66	0.66	0.11	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3295	377	3456	3647	0
Grp Volume(v), veh/h	185	0	0				0	262	267	131	415	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1802	1728	1777	0
Q Serve(g_s), s	4.4	0.0	0.0				0.0	5.2	5.3	3.3	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0				0.0	5.2	5.3	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	392	0	174				0	1181	1198	198	2740	0
V/C Ratio(X)	0.47	0.00	0.00				0.00	0.22	0.22	0.66	0.15	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1181	1198	445	2740	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	37.6	0.0	0.0				0.0	5.9	5.9	39.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0				0.0	0.4	0.4	1.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0				0.0	1.8	1.9	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0				0.0	6.4	6.4	40.4	0.1	0.0
LnGrp LOS	D	A	A				A	A	A	D	A	A
Approach Vol, veh/h		185						529			546	
Approach Delay, s/veh		38.5						6.4			9.8	
Approach LOS		D						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.6	65.6		14.8		75.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	5.3	7.3		6.4		2.0						
Green Ext Time (p_c), s	0.1	5.0		0.5		3.8						

Intersection Summary			
HCM 6th Ctrl Delay		12.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Existing + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	182	1	3	481	37	0	0	20	12
Future Volume (veh/h)	0	0	0	182	1	3	481	37	0	0	20	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				190	0	0	491	38	0	0	20	12
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				266	140	0	534	2933	0	0	1621	755
Arrive On Green				0.07	0.00	0.00	0.30	0.83	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3572	1585
Grp Volume(v), veh/h				190	0	0	491	38	0	0	20	12
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1585
Q Serve(g_s), s				5.2	0.0	0.0	26.6	0.2	0.0	0.0	0.3	0.4
Cycle Q Clear(g_c), s				5.2	0.0	0.0	26.6	0.2	0.0	0.0	0.3	0.4
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				266	140	0	534	2933	0	0	1621	755
V/C Ratio(X)				0.71	0.00	0.00	0.92	0.01	0.00	0.00	0.01	0.02
Avail Cap(c_a), veh/h				1001	526	0	661	2933	0	0	1621	755
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.2	0.0	0.0	33.8	1.5	0.0	0.0	13.8	13.8
Incr Delay (d2), s/veh				1.3	0.0	0.0	16.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	13.6	0.0	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.6	0.0	0.0	49.9	1.6	0.0	0.0	13.8	13.9
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					190			529			32	
Approach Delay, s/veh					46.6			46.5			13.8	
Approach LOS					D			D			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		87.6			34.9	52.7		12.4				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		61.9			37.1	* 20		28.1				
Max Q Clear Time (g_c+I1), s		2.2			28.6	2.4		7.2				
Green Ext Time (p_c), s		0.3			1.4	0.1		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		45.1	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Existing + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	0	147	0	0	0	0	436	187	4	188	0
Future Volume (veh/h)	79	0	147	0	0	0	0	436	187	4	188	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	83	0	155				0	459	197	4	198	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	240	0	212				0	2420	1055	8	2630	0
Arrive On Green	0.13	0.00	0.13				0.00	0.68	0.68	0.00	0.74	0.00
Sat Flow, veh/h	1781	0	1574				0	3647	1550	1781	3647	0
Grp Volume(v), veh/h	83	0	155				0	459	197	4	198	0
Grp Sat Flow(s),veh/h/ln	1781	0	1574				0	1777	1550	1781	1777	0
Q Serve(g_s), s	3.4	0.0	7.6				0.0	3.8	3.7	0.2	1.2	0.0
Cycle Q Clear(g_c), s	3.4	0.0	7.6				0.0	3.8	3.7	0.2	1.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	240	0	212				0	2420	1055	8	2630	0
V/C Ratio(X)	0.35	0.00	0.73				0.00	0.19	0.19	0.53	0.08	0.00
Avail Cap(c_a), veh/h	782	0	691				0	2420	1055	125	2630	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	31.4	0.0	33.2				0.0	4.7	4.7	39.7	2.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.8				0.0	0.2	0.4	18.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.8				0.0	1.2	1.1	0.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	35.0				0.0	4.9	5.1	58.4	2.9	0.0
LnGrp LOS	C	A	D				A	A	A	E	A	A
Approach Vol, veh/h		238						656			202	
Approach Delay, s/veh		33.9						4.9			4.0	
Approach LOS		C						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.7	59.6		15.7		64.3						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	5.6	24.9		35.1		* 35						
Max Q Clear Time (g_c+I1), s	2.2	5.8		9.6		3.2						
Green Ext Time (p_c), s	0.0	4.2		0.5		0.8						

Intersection Summary			
HCM 6th Ctrl Delay		11.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	660	38	148	1435	178	127	47	65	6	4	14
Future Volume (veh/h)	78	660	38	148	1435	178	127	47	65	6	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	83	702	40	157	1527	189	135	50	69	6	4	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	2461	139	185	2499	309	277	105	126	131	98	290
Arrive On Green	0.06	0.48	0.48	0.10	0.52	0.52	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5134	291	1853	4786	592	786	355	426	320	331	977
Grp Volume(v), veh/h	83	483	259	157	1129	587	254	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1884	1853	1770	1837	1567	0	0	1628	0	0
Q Serve(g_s), s	5.5	10.3	10.4	10.4	28.0	28.0	15.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	10.3	10.4	10.4	28.0	28.0	16.8	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.32	0.53		0.27	0.24		0.60
Lane Grp Cap(c), veh/h	106	1697	903	185	1848	959	509	0	0	519	0	0
V/C Ratio(X)	0.78	0.28	0.29	0.85	0.61	0.61	0.50	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	202	1697	903	305	1848	959	509	0	0	519	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.2	19.6	19.6	55.3	21.0	21.0	36.7	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.4	0.8	5.4	1.5	2.9	3.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.2	4.6	5.0	11.2	12.0	7.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	20.0	20.4	60.7	22.5	23.9	40.2	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		825			1873			254			25	
Approach Delay, s/veh		24.5			26.1			40.2			31.5	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	66.1		42.0	11.5	71.5		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	12.4	12.4		3.3	7.5	30.0		18.8				
Green Ext Time (p_c), s	0.1	16.8		0.1	0.0	26.3		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		26.9
HCM 6th LOS		C

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	117	21	420	289	21
Future Vol, veh/h	0	117	21	420	289	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	127	23	457	314	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	169	337	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	845	1219	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	845	1219	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1219	-	845	-	-
HCM Lane V/C Ratio	0.019	-	0.151	-	-
HCM Control Delay (s)	8	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	136	286	54	56	96	150	236	40	120	207	38
Future Volume (veh/h)	2	136	286	54	56	96	150	236	40	120	207	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	139	292	55	57	98	153	241	41	122	211	39
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	390	329	149	136	325	188	1545	258	147	1454	263
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.11	0.51	0.51	0.08	0.49	0.49
Sat Flow, veh/h	1229	1870	1578	434	652	1558	1781	3020	504	1781	2978	538
Grp Volume(v), veh/h	2	139	292	112	0	98	153	140	142	122	124	126
Grp Sat Flow(s),veh/h/ln	1229	1870	1578	1086	0	1558	1781	1777	1747	1781	1777	1739
Q Serve(g_s), s	0.1	5.9	16.6	4.3	0.0	4.9	7.7	3.8	4.0	6.2	3.5	3.7
Cycle Q Clear(g_c), s	10.3	5.9	16.6	10.1	0.0	4.9	7.7	3.8	4.0	6.2	3.5	3.7
Prop In Lane	1.00		1.00	0.49		1.00	1.00		0.29	1.00		0.31
Lane Grp Cap(c), veh/h	199	390	329	285	0	325	188	909	893	147	868	849
V/C Ratio(X)	0.01	0.36	0.89	0.39	0.00	0.30	0.81	0.15	0.16	0.83	0.14	0.15
Avail Cap(c_a), veh/h	238	449	379	325	0	374	631	909	893	147	868	849
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	31.2	35.4	32.9	0.0	30.8	40.3	11.9	12.0	41.6	13.0	13.0
Incr Delay (d2), s/veh	0.0	0.2	18.3	1.9	0.0	1.1	3.2	0.4	0.4	29.6	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	7.9	2.4	0.0	1.9	3.5	1.5	1.6	3.9	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	31.4	53.7	34.8	0.0	31.9	43.5	12.3	12.3	71.2	13.3	13.4
LnGrp LOS	D	C	D	C	A	C	D	B	B	E	B	B
Approach Vol, veh/h		433			210			435			372	
Approach Delay, s/veh		46.5			33.4			23.3			32.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	54.0		26.1	14.1	51.9		26.1
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9
Max Green Setting (Gmax), s	7.6	47.1		22.1	32.6	* 24		22.1
Max Q Clear Time (g_c+I1), s	8.2	6.0		18.6	9.7	5.7		12.1
Green Ext Time (p_c), s	0.0	1.3		0.4	0.2	1.2		1.2

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	82	164	27	33	167	43
Future Vol, veh/h	82	164	27	33	167	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	182	30	37	186	48
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.3	8.5	10.3
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	45%
Vol Thru, %	0%	0%	33%	55%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	43	246	60
LT Vol	167	0	0	27
Through Vol	0	0	82	33
RT Vol	0	43	164	0
Lane Flow Rate	186	48	273	67
Geometry Grp	7	7	2	2
Degree of Util (X)	0.298	0.061	0.324	0.092
Departure Headway (Hd)	5.781	4.574	4.263	4.968
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	620	779	845	720
Service Time	3.534	2.326	2.286	3.009
HCM Lane V/C Ratio	0.3	0.062	0.323	0.093
HCM Control Delay	11	7.6	9.3	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.2	0.2	1.4	0.3

HCM Signalized Intersection Capacity Analysis — Existing + P1 + P2 AM
33: Hazard Center West Drwy. & Hazard Center Dr. — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	64	0	0	39	38	0	1	18	41	0	4
Future Volume (vph)	2	64	0	0	39	38	0	1	18	41	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Lane Util. Factor	1.00	0.95			0.95			*0.95		*0.95		*0.95
Frpb, ped/bikes	1.00	1.00			0.99			0.99		1.00		0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.93			0.86		1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95		1.00
Satd. Flow (prot)	1765	3539			3236			1496		1681		1485
Flt Permitted	1.00	1.00			1.00			1.00		1.00		1.00
Satd. Flow (perm)	1857	3539			3236			1496		1769		1485
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	2	80	0	0	49	48	0	1	22	51	0	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	3	80	0	0	97	0	0	24	0	51	0	5
Confl. Peds. (#/hr)	6					6	4		1	1		4
Confl. Bikes (#/hr)			1			1						
Turn Type	Perm	NA			NA		Perm	NA		Perm		Perm
Protected Phases		2			6			8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	3.6	3.6			3.6			2.9		2.0		2.0
Effective Green, g (s)	3.6	3.6			3.6			2.9		2.0		2.0
Actuated g/C Ratio	0.23	0.23			0.23			0.19		0.13		0.13
Clearance Time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0		2.0		2.0
Lane Grp Cap (vph)	434	827			756			281		229		192
v/s Ratio Prot		0.02			c0.03			0.02				
v/s Ratio Perm	0.00									c0.03		0.00
v/c Ratio	0.01	0.10			0.13			0.09		0.22		0.03
Uniform Delay, d1	4.5	4.6			4.7			5.2		6.0		5.8
Progression Factor	1.00	1.00			1.00			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.0			0.1			0.0		0.2		0.0
Delay (s)	4.5	4.7			4.7			5.2		6.2		5.9
Level of Service	A	A			A			A		A		A
Approach Delay (s)		4.7			4.7			5.2			6.2	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.16			
Actuated Cycle Length (s)	15.4	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

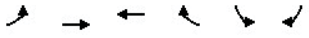
c Critical Lane Group

HCM 6th Signalized Intersection Summary — Existing + P1 + P2 AM
34: Hazard Center East Drwy. & Hazard Center Dr. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	120	0	4	53	26	2	1	33	29	0	4
Future Volume (veh/h)	3	120	0	4	53	26	2	1	33	29	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	0.96		1.00	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	129	0	4	57	0	2	1	0	31	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	640	1523	0	595	1523	0	537	252	0	742	0	0
Arrive On Green	0.43	0.43	0.00	0.43	0.43	0.00	0.46	0.46	0.00	0.46	0.00	0.00
Sat Flow, veh/h	1281	3647	0	1209	3647	0	987	552	0	1398	0	0
Grp Volume(v), veh/h	3	129	0	4	57	0	3	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1281	1777	0	1209	1777	0	1538	0	0	1398	0	0
Q Serve(g_s), s	0.1	1.5	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.5	0.0	1.6	0.7	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.67		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	640	1523	0	595	1523	0	789	0	0	742	0	0
V/C Ratio(X)	0.00	0.08	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	640	1523	0	595	1523	0	789	0	0	742	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	11.9	0.0	12.3	11.6	0.0	10.3	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	12.0	0.0	12.4	11.7	0.0	10.3	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	B	A	A	B	A	A
Approach Vol, veh/h		132			61			3			31	
Approach Delay, s/veh		12.0			11.7			10.3			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	3.5	2.8	3.6	2.1
Green Ext Time (p_c), s	0.6	0.1	0.2	0.0

Intersection Summary		
HCM 6th Ctrl Delay	11.7	
HCM 6th LOS	B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	104	21	11	77	90	28
Future Volume (vph)	104	21	11	77	90	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3001		1770	1511
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3001		1770	1511
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	116	23	12	86	100	31
RTOR Reduction (vph)	0	0	67	0	0	29
Lane Group Flow (vph)	116	23	31	0	100	2
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	11.1	27.8	12.3		4.0	4.0
Effective Green, g (s)	11.1	27.8	12.3		4.0	4.0
Actuated g/C Ratio	0.20	0.50	0.22		0.07	0.07
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	352	1766	662		127	108
v/s Ratio Prot	c0.07	0.01	c0.01		c0.06	
v/s Ratio Perm						0.00
v/c Ratio	0.33	0.01	0.05		0.79	0.02
Uniform Delay, d1	19.1	7.0	17.1		25.4	24.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0		25.0	0.0
Delay (s)	19.3	7.0	17.1		50.4	24.1
Level of Service	B	A	B		D	C
Approach Delay (s)		17.3	17.1		44.2	
Approach LOS		B	B		D	

Intersection Summary				
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	55.7	Sum of lost time (s)	21.7
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



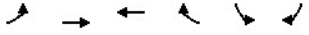
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	8	166	15	2	3	249	504	66	32	418	56
Future Volume (veh/h)	56	8	166	15	2	3	249	504	66	32	418	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	0	83	16	2	0	265	536	57	34	445	60
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	0	175	23	3	0	317	2289	243	44	2911	384
Arrive On Green	0.12	0.00	0.12	0.01	0.01	0.00	0.09	0.71	0.71	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1519	1592	199	0	3456	3239	343	1781	4552	601
Grp Volume(v), veh/h	66	0	83	18	0	0	265	293	300	34	330	175
Grp Sat Flow(s),veh/h/ln	1781	0	1519	1791	0	0	1728	1777	1806	1781	1702	1749
Q Serve(g_s), s	2.3	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.4	5.6
Cycle Q Clear(g_c), s	2.3	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.4	5.6
Prop In Lane	1.00		1.00	0.89		0.00	1.00		0.19	1.00		0.34
Lane Grp Cap(c), veh/h	411	0	175	26	0	0	317	1255	1276	44	2177	1118
V/C Ratio(X)	0.16	0.00	0.47	0.70	0.00	0.00	0.84	0.23	0.23	0.78	0.15	0.16
Avail Cap(c_a), veh/h	1148	0	489	270	0	0	459	1255	1276	198	2177	1118
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.8	0.0	58.0	68.7	0.0	0.0	62.6	7.2	7.2	67.9	10.1	10.1
Incr Delay (d2), s/veh	0.2	0.0	2.5	12.0	0.0	0.0	6.0	0.4	0.4	10.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.9	0.7	0.0	0.0	4.9	3.1	3.2	1.3	2.1	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	0.0	60.5	80.6	0.0	0.0	68.5	7.7	7.7	78.5	10.2	10.4
LnGrp LOS	E	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		149			18			858			539	
Approach Delay, s/veh		58.5			80.6			26.5			14.6	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	104.2		21.0	17.2	94.8		6.9				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	15.6	38.7		45.1	18.6	35.7		21.1				
Max Q Clear Time (g_c+I1), s	4.7	10.2		9.2	12.6	7.6		3.4				
Green Ext Time (p_c), s	0.0	7.1		0.7	0.3	5.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	26.0	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	193	505	226	143	18
Future Volume (veh/h)	35	193	505	226	143	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	214	561	35	159	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	53	1180	1016	1240	426	379
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.00
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	39	214	561	35	159	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.6	3.6	14.8	0.4	5.6	0.0
Cycle Q Clear(g_c), s	1.6	3.6	14.8	0.4	5.6	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	53	1180	1016	1240	426	379
V/C Ratio(X)	0.74	0.18	0.55	0.03	0.37	0.00
Avail Cap(c_a), veh/h	155	1288	1016	1240	426	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	5.8	11.3	1.8	24.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	2.2	0.0	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.2	6.0	0.3	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	5.8	13.4	1.9	26.5	0.0
LnGrp LOS	D	A	B	A	C	A
Approach Vol, veh/h		253	596		159	
Approach Delay, s/veh		11.7	12.7		26.5	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.6		23.0	6.6	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		5.6		7.6	3.6	16.8
Green Ext Time (p_c), s		0.8		0.1	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	227	92	82	263	3	65	2	49	12	8	7
Future Volume (veh/h)	0	227	92	82	263	3	65	2	49	12	8	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	239	16	86	277	1	68	2	0	13	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	987	66	111	1530	6	712	797	0	482	277	0
Arrive On Green	0.00	0.29	0.29	0.06	0.42	0.42	0.43	0.43	0.00	0.43	0.43	0.00
Sat Flow, veh/h	0	3469	224	1781	3631	13	1407	1870	0	923	650	0
Grp Volume(v), veh/h	0	125	130	86	135	143	68	2	0	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1822	1781	1777	1868	1407	1870	0	1573	0	0
Q Serve(g_s), s	0.0	3.5	3.6	3.1	3.1	3.1	1.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.5	3.6	3.1	3.1	3.1	1.8	0.0	0.0	0.4	0.0	0.0
Prop In Lane	0.00		0.12	1.00		0.01	1.00		0.00	0.62		0.00
Lane Grp Cap(c), veh/h	0	519	533	111	749	787	712	797	0	759	0	0
V/C Ratio(X)	0.00	0.24	0.24	0.78	0.18	0.18	0.10	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	519	533	233	866	910	712	797	0	759	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.7	17.7	30.4	11.9	11.9	11.3	10.8	0.0	10.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.1	4.4	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	1.6	1.4	1.1	1.2	0.5	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.8	18.8	34.7	12.0	12.0	11.4	10.8	0.0	11.0	0.0	0.0
LnGrp LOS	A	B	B	C	B	B	B	B	A	B	A	A
Approach Vol, veh/h		255			364			70			21	
Approach Delay, s/veh		18.8			17.4			11.3			11.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.5	24.3		32.9		32.8		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	8.6	* 19		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	5.1	5.6		2.4		5.1		3.8				
Green Ext Time (p_c), s	0.0	1.0		0.1		1.4		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	274	5	62	333	1	27
Future Vol, veh/h	274	5	62	333	1	27
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	288	5	65	351	1	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	296	0	601	150
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1262	-	432	870
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1259	-	408	868
Mov Cap-2 Maneuver	-	-	-	-	408	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	718	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	408	868	-	-	1259	-
HCM Lane V/C Ratio	0.003	0.033	-	-	0.052	-
HCM Control Delay (s)	13.8	9.3	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	230	42	88	349	9	32	3	35	29	3	10
Future Volume (veh/h)	7	230	42	88	349	9	32	3	35	29	3	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	242	44	93	367	9	34	3	37	31	3	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	707	126	118	913	22	870	67	832	613	66	198
Arrive On Green	0.04	0.24	0.24	0.07	0.26	0.26	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1781	2994	534	1781	3541	87	1395	120	1479	968	118	351
Grp Volume(v), veh/h	7	142	144	93	184	192	34	0	40	45	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1751	1781	1777	1851	1395	0	1599	1437	0	0
Q Serve(g_s), s	0.3	5.9	6.1	4.6	7.6	7.6	0.0	0.0	1.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.3	5.9	6.1	4.6	7.6	7.6	0.8	0.0	1.0	1.1	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.05	1.00		0.93	0.69		0.24
Lane Grp Cap(c), veh/h	80	420	414	118	458	477	870	0	899	876	0	0
V/C Ratio(X)	0.09	0.34	0.35	0.78	0.40	0.40	0.04	0.00	0.04	0.05	0.00	0.00
Avail Cap(c_a), veh/h	140	420	414	140	458	477	870	0	899	876	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.7	28.2	28.3	40.9	27.3	27.3	8.7	0.0	8.7	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.2	2.3	17.8	0.6	0.5	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.7	2.8	2.6	3.2	3.4	0.3	0.0	0.3	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	30.4	30.6	58.7	27.9	27.9	8.8	0.0	8.8	8.9	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		293			469			74			45	
Approach Delay, s/veh		30.7			34.0			8.8			8.9	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	25.0		54.0	8.0	26.9		54.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	21.0		50.0	7.0	21.0		50.0				
Max Q Clear Time (g_c+I1), s	6.6	8.1		3.1	2.3	9.6		3.0				
Green Ext Time (p_c), s	0.0	1.3		0.2	0.0	1.6		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	29.5	
HCM 6th LOS	C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	101	95	85	313	201	176	528	70	128	333	118
Future Volume (veh/h)	78	101	95	85	313	201	176	528	70	128	333	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	109	47	91	337	84	189	568	56	138	358	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	128	441	179	137	515	127	238	2794	273	188	2943	914
Arrive On Green	0.04	0.18	0.18	0.04	0.18	0.18	0.14	1.00	1.00	0.05	0.58	0.00
Sat Flow, veh/h	3456	2444	993	3456	2821	693	3456	4729	461	3456	5106	1585
Grp Volume(v), veh/h	84	77	79	91	210	211	189	407	217	138	358	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1661	1728	1777	1737	1728	1702	1786	1728	1702	1585
Q Serve(g_s), s	3.4	5.2	5.7	3.6	15.4	15.8	7.4	0.0	0.0	5.5	4.5	0.0
Cycle Q Clear(g_c), s	3.4	5.2	5.7	3.6	15.4	15.8	7.4	0.0	0.0	5.5	4.5	0.0
Prop In Lane	1.00		0.60	1.00		0.40	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	128	320	299	137	324	317	238	2011	1055	188	2943	914
V/C Ratio(X)	0.65	0.24	0.26	0.67	0.65	0.66	0.79	0.20	0.21	0.74	0.12	0.00
Avail Cap(c_a), veh/h	286	610	571	311	623	609	484	2011	1055	385	2943	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	0.00
Uniform Delay (d), s/veh	66.5	49.2	49.4	66.3	53.0	53.2	59.4	0.0	0.0	65.2	13.5	0.0
Incr Delay (d2), s/veh	2.1	0.4	0.5	2.1	4.2	4.6	2.0	0.2	0.4	2.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.4	2.4	1.6	7.3	7.3	3.1	0.1	0.1	2.5	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	49.6	49.8	68.4	57.3	57.8	61.4	0.2	0.4	67.3	13.6	0.0
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	A
Approach Vol, veh/h		240			512			813			496	
Approach Delay, s/veh		56.3			59.5			14.5			28.5	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	87.9	9.9	30.1	14.0	85.9	9.6	30.5
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	19.6	* 41	11.6	49.1
Max Q Clear Time (g_c+I1), s	7.5	2.0	5.6	7.7	9.4	6.5	5.4	17.8
Green Ext Time (p_c), s	0.1	8.2	0.1	1.0	0.2	4.6	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	66	84	219	268	478	154	251	253	140	316	24
Future Volume (veh/h)	3	66	84	219	268	478	154	251	253	140	316	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	69	0	228	279	12	160	261	0	146	329	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	367		279	339	283	188	2215		196	2224	992
Arrive On Green	0.00	0.10	0.00	0.08	0.18	0.18	0.05	0.62	0.00	0.11	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1564	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	3	69	0	228	279	12	160	261	0	146	329	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1564	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	2.5	0.0	9.1	20.1	0.9	6.4	4.2	0.0	5.7	0.0	0.0
Cycle Q Clear(g_c), s	0.2	2.5	0.0	9.1	20.1	0.9	6.4	4.2	0.0	5.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	6	367		279	339	283	188	2215		196	2224	992
V/C Ratio(X)	0.54	0.19		0.82	0.82	0.04	0.85	0.12		0.74	0.15	0.00
Avail Cap(c_a), veh/h	71	1272		434	824	689	188	2215		385	2224	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.96	0.96	0.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	69.7	57.4	0.0	63.3	55.2	47.3	65.6	10.7	0.0	61.1	0.0	0.0
Incr Delay (d2), s/veh	26.4	0.2	0.0	3.5	2.0	0.0	27.5	0.1	0.0	5.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	4.1	9.7	0.4	3.6	1.7	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.0	57.6	0.0	66.8	57.1	47.3	93.2	10.8	0.0	66.5	0.1	0.0
LnGrp LOS	F	E		E	E	D	F	B		E	A	A
Approach Vol, veh/h		72	A		519			421	A		475	
Approach Delay, s/veh		59.2			61.1			42.1			20.5	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	92.2	15.7	19.8	12.0	92.5	4.8	30.6
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	15.6	38.1	17.6	* 50	7.6	46.1	5.6	61.7
Max Q Clear Time (g_c+I1), s	7.7	6.2	11.1	4.5	8.4	2.0	2.2	22.1
Green Ext Time (p_c), s	0.2	1.2	0.2	0.4	0.0	3.9	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	0	401	0	0	0	0	309	108	266	294	0
Future Volume (vph)	360	0	401	0	0	0	0	309	108	266	294	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3352	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3352	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	0	418	0	0	0	0	322	112	277	306	0
RTOR Reduction (vph)	0	0	283	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	375	0	135	0	0	0	0	322	40	188	395	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	45.2		45.2					49.0	49.0	27.5	27.5	
Effective Green, g (s)	45.2		45.2					49.0	49.0	27.5	27.5	
Actuated g/C Ratio	0.32		0.32					0.35	0.35	0.20	0.20	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1108		511					1238	554	316	658	
v/s Ratio Prot	c0.11							c0.09		0.12	c0.12	
v/s Ratio Perm			0.09						0.02			
v/c Ratio	0.34		0.26					0.26	0.07	0.59	0.60	
Uniform Delay, d1	36.0		35.1					32.5	30.3	51.2	51.2	
Progression Factor	1.00		1.00					0.56	0.05	1.02	1.02	
Incremental Delay, d2	0.8		1.3					0.0	0.0	3.4	1.7	
Delay (s)	36.9		36.3					18.4	1.6	55.5	53.8	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		36.6			0.0			14.0			54.4	
Approach LOS		D			A			B			D	

Intersection Summary				
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	53.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

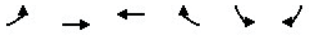
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	27	5	10	94	228	2	11	1	277	76	346
Future Volume (vph)	197	27	5	10	94	228	2	11	1	277	76	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3249			3522	1583		1834		1681	1720	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3249			3522	1583		1834		1681	1720	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	212	29	5	11	101	245	2	12	1	298	82	372
RTOR Reduction (vph)	0	2	0	0	0	119	0	1	0	0	0	224
Lane Group Flow (vph)	106	138	0	0	112	126	0	14	0	188	192	148
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.9	26.9			16.0	71.8		16.9		55.8	55.8	55.8
Effective Green, g (s)	26.9	26.9			16.0	71.8		16.9		55.8	55.8	55.8
Actuated g/C Ratio	0.19	0.19			0.11	0.51		0.12		0.40	0.40	0.40
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	309	624			402	811		221		669	685	622
v/s Ratio Prot	c0.07	0.04			c0.03	0.06		c0.01		c0.11	0.11	
v/s Ratio Perm						0.02						0.09
v/c Ratio	0.34	0.22			0.28	0.15		0.06		0.28	0.28	0.24
Uniform Delay, d1	48.9	47.7			56.7	18.0		54.5		28.5	28.5	28.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.79	0.79	2.33
Incremental Delay, d2	3.0	0.8			1.7	0.4		0.6		0.9	0.9	0.8
Delay (s)	51.9	48.5			58.4	18.5		55.1		23.5	23.4	66.1
Level of Service	D	D			E	B		E		C	C	E
Approach Delay (s)		50.0			31.0			55.1			44.5	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
45: Taylor St. & I-8 EB Ramp

Existing + P1 + P2 AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	117	1370	74	196	114
Future Volume (veh/h)	183	117	1370	74	196	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	123	1442	0	206	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	1443	2078		301	345
Arrive On Green	0.13	0.77	0.58	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	193	123	1442	0	206	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	7.9	1.2	21.1	0.0	4.3	4.0
Cycle Q Clear(g_c), s	7.9	1.2	21.1	0.0	4.3	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	232	1443	2078		301	345
V/C Ratio(X)	0.83	0.09	0.69		0.68	0.30
Avail Cap(c_a), veh/h	283	1443	2078		1027	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	2.1	10.8	0.0	33.0	24.3
Incr Delay (d2), s/veh	13.5	0.1	1.9	0.0	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.3	7.4	0.0	1.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	2.2	12.7	0.0	34.0	24.5
LnGrp LOS	D	A	B		C	C
Approach Vol, veh/h		316	1442	A	308	
Approach Delay, s/veh		28.4	12.7		30.8	
Approach LOS		C	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		62.4		12.0	13.9	48.5
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		57.4		22.1	* 12	41.4
Max Q Clear Time (g_c+I1), s		3.2		6.3	9.9	23.1
Green Ext Time (p_c), s		0.5		0.2	0.0	7.7

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Existing + P1 + P2 AM
02/27/2020



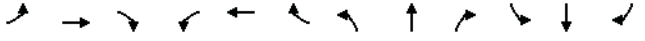
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Future Volume (vph)	1	14	47	464	38	4	41	27	153	4	8	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	51	504	41	4	45	29	166	4	9	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	67	504	45	240	15
Volume Left (vph)	1	504	0	45	4
Volume Right (vph)	51	0	4	166	2
Hadj (s)	-0.42	0.53	-0.03	-0.34	0.01
Departure Headway (s)	5.1	5.8	5.3	5.3	6.1
Degree Utilization, x	0.10	0.82	0.07	0.35	0.03
Capacity (veh/h)	644	608	668	627	537
Control Delay (s)	8.7	28.5	7.4	11.1	9.2
Approach Delay (s)	8.7	26.7		11.1	9.2
Approach LOS	A	D		B	A

Intersection Summary				
Delay	20.7			
Level of Service	C			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Existing + P1 + P2 AM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Future Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	277
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	191	0	0	0	1012	62				0	246	308
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	242	0		0	1927	859				0	0	0
Arrive On Green	0.14	0.00	0.00	0.00	0.54	0.54				0.00	0.00	0.00
Sat Flow, veh/h	1781	191		0	3647	1585					0	
Grp Volume(v), veh/h	191	22.7		0	1012	62					0.0	
Grp Sat Flow(s),veh/h/ln	1781	C		0	1777	1585						
Q Serve(g_s), s	3.2			0.0	5.7	0.6						
Cycle Q Clear(g_c), s	3.2			0.0	5.7	0.6						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	242			0	1927	859						
V/C Ratio(X)	0.79			0.00	0.53	0.07						
Avail Cap(c_a), veh/h	287			0	4692	2093						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	13.0			0.0	4.6	3.4						
Incr Delay (d2), s/veh	9.7			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.6			0.0	0.8	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7			0.0	4.8	3.4						
LnGrp LOS	C			A	A	A						
Approach Vol, veh/h					1074							
Approach Delay, s/veh					4.7							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.2	21.8				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							5.0	41.0				
Max Q Clear Time (g_c+I1), s							5.2	7.7				
Green Ext Time (p_c), s							0.0	9.2				

Intersection Summary												
HCM 6th Ctrl Delay			7.4									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
48: I-8 WB Ramps & Hotel Circle N.

Existing + P1 + P2 AM
02/27/2020

Intersection	
Intersection Delay, s/veh	73.8
Intersection LOS	F

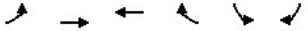
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	111	7	162	174	15	343	16	735	8	1	1
Future Vol, veh/h	0	111	7	162	174	15	343	16	735	8	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	118	7	172	185	16	365	17	782	9	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	13.1	15.1	99.8	10.9
HCM LOS	B	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	80%
Vol Thru, %	0%	2%	100%	0%	0%	92%	10%
Vol Right, %	0%	98%	0%	100%	0%	8%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	751	111	7	162	189	10
LT Vol	343	0	0	0	162	0	8
Through Vol	0	16	111	0	0	174	1
RT Vol	0	735	0	7	0	15	1
Lane Flow Rate	365	799	118	7	172	201	11
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.682	1.228	0.249	0.014	0.364	0.393	0.022
Departure Headway (Hd)	6.73	5.533	7.994	7.273	8.062	7.494	7.708
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	540	663	452	495	450	483	467
Service Time	4.434	3.237	5.694	4.973	5.762	5.194	5.708
HCM Lane V/C Ratio	0.676	1.205	0.261	0.014	0.382	0.416	0.024
HCM Control Delay	22.7	135	13.3	10.1	15.3	15	10.9
HCM Lane LOS	C	F	B	B	C	B	B
HCM 95th-tile Q	5.2	28.9	1	0	1.6	1.8	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	342	572	203	157	351	159
Future Volume (veh/h)	342	572	203	157	351	159
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	380	636	226	174	390	177
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	448	1019	385	314	463	412
Arrive On Green	0.25	0.55	0.21	0.21	0.26	0.26
Sat Flow, veh/h	1781	1870	1870	1526	1781	1585
Grp Volume(v), veh/h	380	636	226	174	390	177
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1526	1781	1585
Q Serve(g_s), s	10.2	11.8	5.5	5.1	10.4	4.7
Cycle Q Clear(g_c), s	10.2	11.8	5.5	5.1	10.4	4.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	448	1019	385	314	463	412
V/C Ratio(X)	0.85	0.62	0.59	0.55	0.84	0.43
Avail Cap(c_a), veh/h	908	1903	786	641	677	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	7.9	18.0	17.9	17.6	15.5
Incr Delay (d2), s/veh	1.8	0.6	2.0	2.1	4.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	3.5	2.3	1.8	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.6	8.4	20.0	20.0	21.9	15.7
LnGrp LOS	B	A	B	B	C	B
Approach Vol, veh/h		1016	400		567	
Approach Delay, s/veh		12.6	20.0		20.0	
Approach LOS		B	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.3		18.0	17.0	15.2
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	25.6	21.1
Max Q Clear Time (g_c+I1), s		13.8		12.4	12.2	7.5
Green Ext Time (p_c), s		4.6		0.6	0.5	2.2
Intersection Summary						
HCM 6th Ctrl Delay			16.2			
HCM 6th LOS			B			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	161	339	130	99	140	609
Future Volume (veh/h)	161	339	130	99	140	609
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	175	368	141	108	152	662
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	221	830	255	195	753	670
Arrive On Green	0.12	0.44	0.26	0.26	0.42	0.42
Sat Flow, veh/h	1781	1870	982	752	1781	1585
Grp Volume(v), veh/h	175	368	0	249	152	662
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1735	1781	1585
Q Serve(g_s), s	7.0	10.0	0.0	9.1	4.0	30.4
Cycle Q Clear(g_c), s	7.0	10.0	0.0	9.1	4.0	30.4
Prop In Lane	1.00			0.43	1.00	1.00
Lane Grp Cap(c), veh/h	221	830	0	451	753	670
V/C Ratio(X)	0.79	0.44	0.00	0.55	0.20	0.99
Avail Cap(c_a), veh/h	378	994	0	451	753	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	14.2	0.0	23.5	13.4	21.0
Incr Delay (d2), s/veh	2.4	0.1	0.0	4.8	0.0	31.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.9	0.0	4.2	1.5	5.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.7	14.3	0.0	28.3	13.4	52.5
LnGrp LOS	C	B	A	C	B	D
Approach Vol, veh/h		543	249		814	
Approach Delay, s/veh		20.5	28.3		45.2	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		36.0	13.5	24.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		39.1		31.1	15.6	19.1
Max Q Clear Time (g_c+I1), s		12.0		32.4	9.0	11.1
Green Ext Time (p_c), s		1.5		0.0	0.1	0.6
Intersection Summary						
HCM 6th Ctrl Delay			34.3			
HCM 6th LOS			C			

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	98	385	543	273	23
Future Vol, veh/h	162	98	385	543	273	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	172	104	410	578	290	24
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13.7	32.5	22.4
HCM LOS	B	D	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	98	385	543	273	23
LT Vol	162	0	0	0	273	0
Through Vol	0	98	385	0	0	0
RT Vol	0	0	0	543	0	23
Lane Flow Rate	172	104	410	578	290	24
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.365	0.206	0.718	0.899	0.636	0.045
Departure Headway (Hd)	7.62	7.107	6.312	5.6	7.881	6.66
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	501	569	641	456	535
Service Time	5.409	4.896	4.087	3.374	5.651	4.429
HCM Lane V/C Ratio	0.367	0.208	0.721	0.902	0.636	0.045
HCM Control Delay	14.8	11.8	23.7	38.7	23.5	9.7
HCM Lane LOS	B	B	C	E	C	A
HCM 95th-tile Q	1.7	0.8	5.9	11.2	4.3	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	227	177	335	704	228	124
Future Volume (veh/h)	227	177	335	704	228	124
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	252	197	372	782	253	138
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	347	271	416	1203	424	377
Arrive On Green	0.36	0.36	0.23	0.64	0.24	0.24
Sat Flow, veh/h	972	760	1781	1870	1781	1585
Grp Volume(v), veh/h	0	449	372	782	253	138
Grp Sat Flow(s),veh/h/ln	0	1732	1781	1870	1781	1585
Q Serve(g_s), s	0.0	17.0	15.3	19.4	9.5	5.5
Cycle Q Clear(g_c), s	0.0	17.0	15.3	19.4	9.5	5.5
Prop In Lane		0.44	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	618	416	1203	424	377
V/C Ratio(X)	0.00	0.73	0.89	0.65	0.60	0.37
Avail Cap(c_a), veh/h	0	618	518	1310	424	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.1	28.1	8.3	25.6	24.1
Incr Delay (d2), s/veh	0.0	7.3	14.5	1.2	6.1	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.7	7.9	6.6	4.6	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	28.4	42.6	9.4	31.7	26.8
LnGrp LOS	A	C	D	A	C	C
Approach Vol, veh/h	449			1154	391	
Approach Delay, s/veh	28.4			20.1	30.0	
Approach LOS	C			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	21.7	32.0				53.7	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	22.0	27.0				53.0	18.0
Max Q Clear Time (g_c+I1), s	17.3	19.0				21.4	11.5
Green Ext Time (p_c), s	0.4	2.2				8.8	0.5

Intersection Summary			
HCM 6th Ctrl Delay		23.9	
HCM 6th LOS		C	

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	489	291	1118	748	661	1191	
Future Volume (veh/h)	489	291	1118	748	661	1191	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	504	166	1153	737	681	1228	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	721	321	1601	1019	646	2417	
Arrive On Green	0.20	0.20	0.45	0.45	0.19	0.68	
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647	
Grp Volume(v), veh/h	504	166	1153	737	681	1228	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777	
Q Serve(g_s), s	9.8	7.0	19.8	23.5	14.0	12.6	
Cycle Q Clear(g_c), s	9.8	7.0	19.8	23.5	14.0	12.6	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	721	321	1601	1019	646	2417	
V/C Ratio(X)	0.70	0.52	0.72	0.72	1.05	0.51	
Avail Cap(c_a), veh/h	1389	618	1652	1041	646	2506	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	27.7	26.6	16.7	8.6	30.4	5.9	
Incr Delay (d2), s/veh	0.5	0.5	1.7	2.7	50.5	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	3.9	2.5	7.1	11.8	10.1	3.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.2	27.1	18.4	11.3	80.9	6.2	
LnGrp LOS	C	C	B	B	F	A	
Approach Vol, veh/h	670		1890			1909	
Approach Delay, s/veh	27.9		15.6			32.9	
Approach LOS	C		B			C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	18.0	37.7				55.7	19.2
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	13.6	32.6				* 51	27.0
Max Q Clear Time (g_c+I1), s	16.0	25.5				14.6	11.8
Green Ext Time (p_c), s	0.0	6.0				22.2	1.1

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	142	272	150	54	164	146	1204	235	139	1230	136
Future Volume (veh/h)	156	142	272	150	54	164	146	1204	235	139	1230	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	158	168	167	60	182	162	1338	178	154	1367	151
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	326	264	121	317	253	253	1756	838	110	1710	860
Arrive On Green	0.08	0.17	0.17	0.07	0.17	0.17	0.07	0.49	0.48	0.06	0.48	0.47
Sat Flow, veh/h	3456	1870	1519	1781	1870	1493	3456	3554	1545	1781	3554	1565
Grp Volume(v), veh/h	173	158	168	167	60	182	162	1338	178	154	1367	151
Grp Sat Flow(s),veh/h/ln	1728	1870	1519	1781	1870	1493	1728	1777	1545	1781	1777	1565
Q Serve(g_s), s	3.9	6.2	8.3	5.5	2.2	9.3	3.7	24.8	4.8	5.0	26.3	3.9
Cycle Q Clear(g_c), s	3.9	6.2	8.3	5.5	2.2	9.3	3.7	24.8	4.8	5.0	26.3	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	326	264	121	317	253	253	1756	838	110	1710	860
V/C Ratio(X)	0.65	0.49	0.64	1.38	0.19	0.72	0.64	0.76	0.21	1.40	0.80	0.18
Avail Cap(c_a), veh/h	354	773	628	121	708	565	256	1756	838	110	1710	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	30.2	31.1	37.8	28.9	31.8	36.5	16.6	9.7	38.0	17.7	9.1
Incr Delay (d2), s/veh	1.0	1.1	2.5	214.9	0.1	1.4	4.0	3.2	0.6	226.3	4.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.8	3.2	9.6	1.0	3.4	1.7	9.9	1.6	9.0	10.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	31.3	33.6	252.6	29.0	33.3	40.5	19.8	10.2	264.4	21.8	9.6
LnGrp LOS	D	C	C	F	C	C	D	B	B	F	C	A
Approach Vol, veh/h		499			409			1678			1672	
Approach Delay, s/veh		34.2			122.2			20.8			43.0	
Approach LOS		C			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	44.0	9.5	18.5	9.9	43.1	10.3	17.7
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.6	38.7	5.1	* 32	5.6	* 38	7.9	29.2
Max Q Clear Time (g_c+I1), s	7.0	26.8	7.5	10.3	5.7	28.3	5.9	11.3
Green Ext Time (p_c), s	0.0	9.5	0.0	1.4	0.0	7.7	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	40.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1132	4	268	488	0	0	0	0	271	5	1404
Future Volume (veh/h)	0	1132	4	268	488	0	0	0	0	271	5	1404
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1179	4	279	508	0				282	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1337	596	356	1852	0				671	12	
Arrive On Green	0.00	0.38	0.38	0.10	0.52	0.00				0.38	0.38	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1752	31	1585
Grp Volume(v), veh/h	0	1179	4	279	508	0				287	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	31.0	0.2	7.9	8.0	0.0				11.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.0	0.2	7.9	8.0	0.0				11.8	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1337	596	356	1852	0				682	0	
V/C Ratio(X)	0.00	0.88	0.01	0.78	0.27	0.00				0.42	0.00	
Avail Cap(c_a), veh/h	0	1564	697	511	2239	0				682	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.54	0.54	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.1	19.5	43.8	13.4	0.0				22.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.0	0.0	2.8	0.0	0.0				0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.7	0.1	3.5	3.1	0.0				4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.1	19.5	46.5	13.4	0.0				22.9	0.0	0.0
LnGrp LOS	A	C	B	D	B	A				C	A	
Approach Vol, veh/h		1183			787						287	A
Approach Delay, s/veh		34.1			25.1						22.9	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	14.5	42.6		42.9		57.1
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0
Max Green Setting (Gmax), s	* 15	44.0		27.4		63.0
Max Q Clear Time (g_c+I1), s	9.9	33.0		13.8		10.0
Green Ext Time (p_c), s	0.4	4.6		0.5		2.5

Intersection Summary		
HCM 6th Ctrl Delay		29.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	881	575	0	0	531	433	233	17	500	0	0	0
Future Volume (veh/h)	881	575	0	0	531	433	233	17	500	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	918	599	0	0	553	227	243	18	194			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	926	2019	0	0	635	260	550	41	524			
Arrive On Green	0.27	0.57	0.00	0.00	0.26	0.26	0.33	0.33	0.33			
Sat Flow, veh/h	3456	3647	0	0	2553	1007	1664	123	1585			
Grp Volume(v), veh/h	918	599	0	0	399	381	261	0	194			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1689	1787	0	1585			
Q Serve(g_s), s	26.5	8.8	0.0	0.0	21.5	21.6	11.4	0.0	9.3			
Cycle Q Clear(g_c), s	26.5	8.8	0.0	0.0	21.5	21.6	11.4	0.0	9.3			
Prop In Lane	1.00		0.00	0.00		0.60	0.93		1.00			
Lane Grp Cap(c), veh/h	926	2019	0	0	459	436	591	0	524			
V/C Ratio(X)	0.99	0.30	0.00	0.00	0.87	0.87	0.44	0.00	0.37			
Avail Cap(c_a), veh/h	926	2221	0	0	560	532	591	0	524			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.74	0.74	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	36.5	11.2	0.0	0.0	35.5	35.5	26.2	0.0	25.5			
Incr Delay (d2), s/veh	23.3	0.0	0.0	0.0	10.5	11.3	0.2	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	13.9	3.3	0.0	0.0	10.5	10.1	4.8	0.0	9.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	11.2	0.0	0.0	46.0	46.9	26.4	0.0	25.7			
LnGrp LOS	E	B	A	A	D	D	C	A	C			
Approach Vol, veh/h		1517			780			455				
Approach Delay, s/veh		40.6			46.4			26.1				
Approach LOS		D			D			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		62.3		37.7	31.0	31.3			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		62.5		27.4	* 27	31.5			
Max Q Clear Time (g_c+I1), s		10.8		13.4	28.5	23.6			
Green Ext Time (p_c), s		3.0		0.6	0.0	2.2			

Intersection Summary		
HCM 6th Ctrl Delay		39.8
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	647	301	288	713	36	110	32	224	21	34	30
Future Volume (veh/h)	49	647	301	288	713	36	110	32	224	21	34	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	719	334	320	792	40	122	36	249	23	38	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1477	619	340	1948	98	139	418	629	39	308	256
Arrive On Green	0.04	0.42	0.42	0.19	0.57	0.54	0.08	0.22	0.22	0.02	0.16	0.16
Sat Flow, veh/h	1781	3554	1490	1781	3437	174	1781	1870	1512	1781	1870	1559
Grp Volume(v), veh/h	54	719	334	320	409	423	122	36	249	23	38	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1490	1781	1777	1834	1781	1870	1512	1781	1870	1559
Q Serve(g_s), s	3.3	16.3	18.6	19.5	14.3	14.3	7.5	1.7	12.9	1.4	1.9	2.0
Cycle Q Clear(g_c), s	3.3	16.3	18.6	19.5	14.3	14.3	7.5	1.7	12.9	1.4	1.9	2.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	1477	619	340	1007	1039	139	418	629	39	308	256
V/C Ratio(X)	0.71	0.49	0.54	0.94	0.41	0.41	0.88	0.09	0.40	0.59	0.12	0.13
Avail Cap(c_a), veh/h	144	1477	619	340	1007	1039	139	565	748	71	493	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	23.6	24.2	43.9	13.4	13.5	50.2	33.8	23.2	53.3	39.2	39.2
Incr Delay (d2), s/veh	4.5	1.2	3.4	33.4	1.2	1.2	40.7	0.0	0.2	5.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.0	7.0	11.7	5.8	6.1	4.9	0.8	4.6	0.7	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	24.7	27.6	77.2	14.6	14.7	90.9	33.9	23.3	58.4	39.3	39.3
LnGrp LOS	E	C	C	E	B	B	F	C	C	E	D	D
Approach Vol, veh/h		1107			1152			407			94	
Approach Delay, s/veh		27.1			32.1			44.5			44.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	50.0	12.6	22.4	8.7	66.3	6.4	28.6
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	20.6	* 33	8.2	* 28	8.5	44.8	4.0	32.0
Max Q Clear Time (g_c+I1), s	21.5	20.6	9.5	4.0	5.3	16.3	3.4	14.9
Green Ext Time (p_c), s	0.0	3.6	0.0	0.1	0.0	3.9	0.0	0.5

Intersection Summary		
HCM 6th Ctrl Delay	32.3	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	519	637	25	7	389	123	0	0	19	199	13	364
Future Volume (vph)	519	637	25	7	389	123	0	0	19	199	13	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3513		1770	3396				1525	1681	1695	1571
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3513		1770	3396				1525	1681	1695	1571
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	708	28	8	432	137	0	0	21	221	14	404
RTOR Reduction (vph)	0	2	0	0	27	0	0	0	21	0	0	195
Lane Group Flow (vph)	577	734	0	8	542	0	0	0	0	117	118	209
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.9	43.0		0.7	25.8				2.1	30.1	30.1	48.0
Effective Green, g (s)	18.3	43.9		1.1	26.7				2.1	31.4	31.4	48.8
Actuated g/C Ratio	0.19	0.46		0.01	0.28				0.02	0.33	0.33	0.52
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	664	1631		20	959				33	558	563	811
v/s Ratio Prot	c0.17	0.21		0.00	c0.16					0.07	0.07	c0.05
v/s Ratio Perm									c0.00			0.08
v/c Ratio	0.87	0.45		0.40	0.57				0.01	0.21	0.21	0.26
Uniform Delay, d1	36.9	17.1		46.4	28.9				45.2	22.6	22.6	12.7
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	0.2		4.7	2.4				0.2	0.9	0.8	0.1
Delay (s)	48.2	17.3		51.1	31.4				45.4	23.5	23.5	12.8
Level of Service	D	B		D	C				D	C	C	B
Approach Delay (s)		30.9			31.6			45.4			16.7	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	134	1269	580	492	775	187
Future Volume (vph)	134	1269	580	492	775	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1545	3431	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1545	3431	1417
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	140	1322	604	512	807	195
RTOR Reduction (vph)	0	0	0	215	2	63
Lane Group Flow (vph)	140	1322	604	298	825	112
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	10.8	48.4	33.6	49.2	15.6	15.6
Effective Green, g (s)	11.2	50.4	35.2	51.0	16.5	16.5
Actuated g/C Ratio	0.13	0.57	0.40	0.58	0.19	0.19
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	225	2031	1418	897	644	266
v/s Ratio Prot	0.08	c0.37	0.17	0.06	c0.24	
v/s Ratio Perm				0.13		0.08
v/c Ratio	0.62	0.65	0.43	0.33	1.28	0.42
Uniform Delay, d1	36.3	12.7	19.0	9.6	35.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	1.6	0.3	0.5	138.4	2.2
Delay (s)	40.1	14.4	19.3	10.0	174.0	33.7
Level of Service	D	B	B	B	F	C
Approach Delay (s)		16.8	15.0		149.5	
Approach LOS		B	B		F	

Intersection Summary				
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	65.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1947	43	34	953	54	28	1	14	156	9	49
Future Volume (veh/h)	56	1947	43	34	953	54	28	1	14	156	9	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	2007	40	35	982	45	29	1	0	161	9	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	1842	37	137	1902	87	378	11	304	401	359	0
Arrive On Green	0.05	0.52	0.49	0.08	0.55	0.52	0.19	0.19	0.00	0.19	0.19	0.00
Sat Flow, veh/h	1781	3561	71	1781	3458	158	1329	58	1585	1402	1870	0
Grp Volume(v), veh/h	58	997	1050	35	505	522	30	0	0	161	9	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1839	1386	0	1585	1402	1870	0
Q Serve(g_s), s	1.8	29.7	29.7	1.1	10.2	10.3	0.9	0.0	0.0	4.5	0.2	0.0
Cycle Q Clear(g_c), s	1.8	29.7	29.7	1.1	10.2	10.3	1.1	0.0	0.0	5.7	0.2	0.0
Prop In Lane	1.00		0.04	1.00		0.09	0.97		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	87	919	959	137	978	1012	389	0	304	401	359	0
V/C Ratio(X)	0.66	1.08	1.09	0.26	0.52	0.52	0.08	0.00	0.00	0.40	0.03	0.00
Avail Cap(c_a), veh/h	137	919	959	509	1291	1336	900	0	881	911	1039	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.8	13.9	13.9	25.0	8.1	8.2	19.3	0.0	0.0	20.9	18.8	0.0
Incr Delay (d2), s/veh	3.2	55.4	58.3	0.4	1.9	1.9	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	22.0	23.8	0.4	3.1	3.2	0.3	0.0	0.0	1.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	69.3	72.2	25.3	10.0	10.0	19.3	0.0	0.0	21.2	18.9	0.0
LnGrp LOS	C	F	F	C	B	B	B	A	A	C	B	A
Approach Vol, veh/h		2105			1062			30			170	
Approach Delay, s/veh		69.6			10.5			19.3			21.1	
Approach LOS		E			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.0		15.0	6.8	35.6		15.0				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	3.1	31.7		7.7	3.8	12.3		3.1				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	17.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay	48.1		
HCM 6th LOS	D		

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1917	1104	42	44	21
Future Vol, veh/h	27	1917	1104	42	44	21
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	2084	1200	46	48	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1282	0	-	0	2360	659
Stage 1	-	-	-	-	1259	-
Stage 2	-	-	-	-	1101	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	537	-	-	-	~ 30	406
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	280	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	521	-	-	-	~ 27	394
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	272	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	48.7
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	521	-	-	-	150
HCM Lane V/C Ratio	0.056	-	-	-	0.471
HCM Control Delay (s)	12.3	-	-	-	48.7
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	2.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1877	84	0	1146	0	66
Future Vol, veh/h	1877	84	0	1146	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2040	91	0	1246	0	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1066
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	218
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	218
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	218	-	-	-
HCM Lane V/C Ratio	0.329	-	-	-
HCM Control Delay (s)	29.4	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Existing + P1 + P2 PM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	1637	168	34	756	249	180	66	38	394	101	129
Future Volume (veh/h)	234	1637	168	34	756	249	180	66	38	394	101	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	246	1723	177	36	796	124	189	69	40	415	106	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	274	1708	172	46	1421	604	190	118	69	324	83	370
Arrive On Green	0.15	0.53	0.51	0.03	0.40	0.40	0.11	0.11	0.11	0.23	0.23	0.23
Sat Flow, veh/h	1781	3245	327	1781	3554	1510	1781	1111	644	1433	366	1585
Grp Volume(v), veh/h	246	927	973	36	796	124	189	0	109	521	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1795	1781	1777	1510	1781	0	1754	1799	0	1585
Q Serve(g_s), s	20.4	77.6	79.0	3.0	26.0	8.1	15.9	0.0	8.9	33.9	0.0	4.4
Cycle Q Clear(g_c), s	20.4	77.6	79.0	3.0	26.0	8.1	15.9	0.0	8.9	33.9	0.0	4.4
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.37	0.80		1.00
Lane Grp Cap(c), veh/h	274	935	945	46	1421	604	190	0	187	406	0	370
V/C Ratio(X)	0.90	0.99	1.03	0.78	0.56	0.21	1.00	0.00	0.58	1.28	0.00	0.16
Avail Cap(c_a), veh/h	534	935	945	47	1421	604	190	0	187	406	0	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.4	35.2	35.7	72.7	34.8	29.4	67.0	0.0	63.9	57.7	0.0	45.8
Incr Delay (d2), s/veh	4.3	27.5	37.0	54.8	1.6	0.8	63.9	0.0	4.5	144.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	38.6	42.0	2.1	11.3	3.0	10.6	0.0	4.2	31.7	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	62.7	72.7	127.4	36.4	30.2	130.9	0.0	68.4	202.4	0.0	45.9
LnGrp LOS	E	E	F	F	D	C	F	A	E	F	A	D
Approach Vol, veh/h		2146			956			298			580	
Approach Delay, s/veh		67.7			39.0			108.0			186.5	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	83.2		39.0	27.1	64.0		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 77		33.9	44.6	36.1		16.0				
Max Q Clear Time (g_c+I1), s	5.0	81.0		35.9	22.4	28.0		17.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.3	2.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		81.2	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Existing + P1 + P2 PM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1958	257	242	979	150	103
Future Volume (veh/h)	1958	257	242	979	150	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2128	279	263	1064	138	139
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	2137	274	280	3059	120	108
Arrive On Green	0.67	0.67	0.16	0.86	0.07	0.07
Sat Flow, veh/h	3261	406	1781	3647	1781	1610
Grp Volume(v), veh/h	1173	1234	263	1064	138	139
Grp Sat Flow(s),veh/h/ln	1777	1797	1781	1777	1781	1610
Q Serve(g_s), s	94.9	101.3	21.9	8.9	10.1	10.1
Cycle Q Clear(g_c), s	94.9	101.3	21.9	8.9	10.1	10.1
Prop In Lane		0.23	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1198	1212	280	3059	120	108
V/C Ratio(X)	0.98	1.02	0.94	0.35	1.15	1.28
Avail Cap(c_a), veh/h	1198	1212	280	3059	120	108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	24.5	62.6	2.1	70.1	70.0
Incr Delay (d2), s/veh	20.9	30.5	37.9	0.1	128.9	180.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	41.5	47.6	12.7	1.7	8.9	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.3	55.0	100.5	2.1	198.9	250.9
LnGrp LOS	D	F	F	A	F	F
Approach Vol, veh/h	2407			1327	277	
Approach Delay, s/veh	49.8			21.6	225.0	
Approach LOS	D			C	F	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	28.0	107.2				135.2		15.0
Change Period (Y+Rc), s	4.4	* 5.9				5.9		4.9
Max Green Setting (Gmax), s	23.6	* 1E2				129.1		10.1
Max Q Clear Time (g_c+I1), s	23.9	103.3				10.9		12.1
Green Ext Time (p_c), s	0.0	0.0				9.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay		52.6	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1959	135	0	1221	0	28
Future Vol, veh/h	1959	135	0	1221	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2129	147	0	1327	0	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1138
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	195
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	195
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	26.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	195	-	-	-
HCM Lane V/C Ratio	0.156	-	-	-
HCM Control Delay (s)	26.8	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1920	67	118	1183	38	66
Future Volume (veh/h)	0	1920	67	118	1183	38	66
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		2087	72	128	1286	41	72
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2072	71	171	2598	96	168
Arrive On Green		0.59	0.59	0.10	0.73	0.16	0.16
Sat Flow, veh/h		3599	120	1781	3647	594	1044
Grp Volume(v), veh/h		1052	1107	128	1286	114	0
Grp Sat Flow(s),veh/h/ln		1777	1849	1781	1777	1653	0
Q Serve(g_s), s		59.1	59.1	7.0	15.3	6.2	0.0
Cycle Q Clear(g_c), s		59.1	59.1	7.0	15.3	6.2	0.0
Prop In Lane			0.07	1.00		0.36	0.63
Lane Grp Cap(c), veh/h		1050	1093	171	2598	266	0
V/C Ratio(X)		1.00	1.01	0.75	0.50	0.43	0.00
Avail Cap(c_a), veh/h		1050	1093	171	2598	266	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.74	0.74	1.00	0.00
Uniform Delay (d), s/veh		20.4	20.5	44.0	5.7	37.8	0.0
Incr Delay (d2), s/veh		28.2	30.6	19.7	0.1	1.1	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		28.2	30.1	3.9	4.0	2.6	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		48.6	51.0	63.8	5.8	38.9	0.0
LnGrp LOS		F	F	E	A	D	A
Approach Vol, veh/h		2159			1414	114	
Approach Delay, s/veh		49.9			11.0	38.9	
Approach LOS		D			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.0	65.0				79.0	21.0
Change Period (Y+Rc), s	4.4	5.9				* 5.9	4.9
Max Green Setting (Gmax), s	9.6	59.1				* 65	16.1
Max Q Clear Time (g_c+I1), s	9.0	61.1				17.3	8.2
Green Ext Time (p_c), s	0.0	0.0				11.8	0.2

Intersection Summary		
HCM 6th Ctrl Delay	34.6	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 + P2 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1667	312	298	1059	13	240	5	327	6	3	2
Future Volume (veh/h)	7	1667	312	298	1059	13	240	5	327	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1736	325	310	1103	14	250	5	341	6	3	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	1713	317	330	1719	22	561	10	804	198	97	57
Arrive On Green	0.01	0.40	0.38	0.03	0.16	0.15	0.42	0.42	0.42	0.42	0.42	0.41
Sat Flow, veh/h	1781	4315	798	3456	3592	46	1213	24	1570	376	231	135
Grp Volume(v), veh/h	7	1365	696	310	546	571	255	0	341	11	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1709	1728	1777	1861	1238	0	1570	742	0	0
Q Serve(g_s), s	0.5	54.0	54.0	12.2	39.1	39.1	0.0	0.0	18.4	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.5	54.0	54.0	12.2	39.1	39.1	26.0	0.0	18.4	26.2	0.0	0.0
Prop In Lane	1.00		0.47	1.00		0.02	0.98		1.00	0.55		0.18
Lane Grp Cap(c), veh/h	17	1352	679	330	850	890	571	0	804	352	0	0
V/C Ratio(X)	0.40	1.01	1.03	0.94	0.64	0.64	0.45	0.00	0.42	0.03	0.00	0.00
Avail Cap(c_a), veh/h	105	1352	679	330	850	890	571	0	804	352	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	66.9	41.0	41.4	65.5	46.3	46.3	30.5	0.0	20.8	25.3	0.0	0.0
Incr Delay (d2), s/veh	0.5	10.0	17.6	30.7	3.3	3.1	2.5	0.0	1.6	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	23.4	25.0	7.0	19.4	20.3	6.9	0.0	7.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	51.0	59.0	96.2	49.6	49.5	33.0	0.0	22.4	25.5	0.0	0.0
LnGrp LOS	E	F	F	F	D	D	C	A	C	C	A	A
Approach Vol, veh/h		2068			1427			596			11	
Approach Delay, s/veh		53.8			59.7			26.9			25.5	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	58.0		61.0	5.3	69.7		61.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	12.6	52.1		56.1	7.6	* 58		56.1				
Max Q Clear Time (g_c+I1), s	14.2	56.0		28.2	2.5	41.1		28.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	7.8		1.8				

Intersection Summary	
HCM 6th Ctrl Delay	51.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing + P1 + P2 PM
03/06/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1897	56	235	1293	42	242
Future Volume (veh/h)	0	1897	56	235	1293	42	242
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		1936	50	240	1319	43	237
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		3546	91	178	2749	297	265
Arrive On Green		0.69	0.68	0.05	0.77	0.17	0.17
Sat Flow, veh/h		5283	132	3456	3647	1781	1585
Grp Volume(v), veh/h		1288	698	240	1319	43	237
Grp Sat Flow(s),veh/h/ln		1702	1842	1728	1777	1781	1585
Q Serve(g_s), s		25.4	25.5	7.0	18.2	2.8	19.9
Cycle Q Clear(g_c), s		25.4	25.5	7.0	18.2	2.8	19.9
Prop In Lane			0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2360	1277	178	2749	297	265
V/C Ratio(X)		0.55	0.55	1.35	0.48	0.14	0.90
Avail Cap(c_a), veh/h		2360	1277	178	2749	445	396
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.48	0.48	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		10.3	10.3	64.5	5.5	48.4	55.5
Incr Delay (d2), s/veh		0.4	0.8	189.6	0.6	0.1	12.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		8.4	9.3	7.7	5.5	1.3	8.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		10.7	11.1	254.1	6.1	48.4	67.6
LnGrp LOS		B	B	F	A	D	E
Approach Vol, veh/h		1986			1559	280	
Approach Delay, s/veh		10.9			44.3	64.7	
Approach LOS		B			D	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	98.3				109.3		26.7
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	6.6	81.6				* 82		33.6
Max Q Clear Time (g_c+I1), s	9.0	27.5				20.2		21.9
Green Ext Time (p_c), s	0.0	28.8				17.7		0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2183	47	492	1453	27	37	1	275	18	0	3
Future Volume (veh/h)	22	2183	47	492	1453	27	37	1	275	18	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	2298	49	518	1529	28	39	0	290	19	0	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	3292	70	534	3993	73	213	0	364	179	0	182
Arrive On Green	0.02	0.64	0.63	0.31	1.00	1.00	0.12	0.00	0.12	0.12	0.00	0.11
Sat Flow, veh/h	1781	5143	109	3456	5160	94	1385	0	3105	1074	0	1551
Grp Volume(v), veh/h	23	1519	828	518	1009	548	39	0	290	19	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1849	1728	1702	1851	1385	0	1553	1074	0	1551
Q Serve(g_s), s	1.7	39.4	39.8	20.1	0.0	0.0	3.5	0.0	12.4	2.2	0.0	0.2
Cycle Q Clear(g_c), s	1.7	39.4	39.8	20.1	0.0	0.0	3.7	0.0	12.4	2.2	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	2179	1183	534	2634	1432	213	0	364	179	0	182
V/C Ratio(X)	0.65	0.70	0.70	0.97	0.38	0.38	0.18	0.00	0.80	0.11	0.00	0.02
Avail Cap(c_a), veh/h	65	2179	1183	534	2634	1432	397	0	776	322	0	388
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	15.9	16.0	46.7	0.0	0.0	54.7	0.0	58.5	53.9	0.0	53.5
Incr Delay (d2), s/veh	7.0	1.9	3.5	31.3	0.4	0.8	0.2	0.0	1.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	14.3	16.2	9.3	0.2	0.3	1.2	0.0	4.9	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	17.8	19.4	78.0	0.4	0.8	54.9	0.0	60.0	54.0	0.0	53.5
LnGrp LOS	E	B	B	E	A	A	D	A	E	D	A	D
Approach Vol, veh/h		2370			2075			329			22	
Approach Delay, s/veh		18.9			19.9			59.4			54.0	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.0	91.1		19.9	6.7	109.3		19.9				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	20.6	67.6		33.1	4.6	* 84		33.1				
Max Q Clear Time (g_c+I1), s	22.1	41.8		4.2	3.7	2.0		14.4				
Green Ext Time (p_c), s	0.0	21.1		0.0	0.0	21.8		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		22.3
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	83.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2352	113	0	2073	0	346
Future Vol, veh/h	2352	113	0	2073	0	346
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2613	126	0	2303	0	384

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1387
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 114
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 112
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1175.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	112	-	-	-
HCM Lane V/C Ratio	3.433	-	-	-
HCM Control Delay (s)	$ 1175.4	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	37.9	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	829	0	396	625
Future Volume (Veh/h)	0	0	829	0	396	625
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	901	0	430	679
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2100	450			901	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2100	450			901	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			43	
cM capacity (veh/h)	19	556			750	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	601	300	430	340	340
Volume Left	0	0	430	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	750	1700	1700
Volume to Capacity	0.35	0.18	0.57	0.20	0.20
Queue Length 95th (ft)	0	0	92	0	0
Control Delay (s)	0.0	0.0	16.0	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		6.2		
Approach LOS					

Intersection Summary				
Average Delay		3.4		
Intersection Capacity Utilization		51.5%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1918	744	0	1321	618	537	47	837	394	0	175
Future Volume (vph)	128	1918	744	0	1321	618	537	47	837	394	0	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1550		4806	1362	1678	1696	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1550		4806	1362	1678	1696	1564	3433		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	135	2019	783	0	1391	651	565	49	881	415	0	184
RTOR Reduction (vph)	0	0	0	0	0	93	0	0	0	0	0	145
Lane Group Flow (vph)	135	2019	783	0	1391	558	322	292	881	415	0	39
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)			2						1			5
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	15.0	70.5	136.0		51.3	51.3	21.4	21.4	136.0	27.9		27.9
Effective Green, g (s)	15.2	73.5	136.0		54.3	54.3	22.0	22.0	136.0	28.5		28.5
Actuated g/C Ratio	0.11	0.54	1.00		0.40	0.40	0.16	0.16	1.00	0.21		0.21
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	197	2748	1550		1918	543	271	274	1564	719		331
v/s Ratio Prot	0.08	c0.40			0.29					0.12		0.02
v/s Ratio Perm			0.51			c0.41	c0.19	0.17	c0.56			
v/c Ratio	0.69	0.73	0.51		0.73	1.03	1.19	1.07	0.56	0.58		0.12
Uniform Delay, d1	58.1	23.8	0.0		34.5	40.9	57.0	57.0	0.0	48.3		43.5
Progression Factor	1.14	1.14	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	6.3	1.5	1.0		2.4	46.1	115.4	72.8	1.5	0.7		0.1
Delay (s)	72.7	28.6	1.0		37.0	87.0	172.4	129.8	1.5	49.0		43.6
Level of Service	E	C	A		D	F	F	F	A	D		D
Approach Delay (s)		23.2			52.9			63.4			47.4	
Approach LOS		C			D			E			D	

Intersection Summary					
HCM 2000 Control Delay		42.3	HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio		0.94			
Actuated Cycle Length (s)		136.0	Sum of lost time (s)		16.0
Intersection Capacity Utilization		75.4%	ICU Level of Service		D
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing + P1 + P2 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	680	2422	0	0	1539	893	0	0	524	0	0	996
Future Volume (veh/h)	680	2422	0	0	1539	893	0	0	524	0	0	996
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	716	2549	0	0	1620	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	743	5405	0	0	1863							
Arrive On Green	0.42	0.96	0.00	0.00	0.52	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	716	2549	0	0	1620	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	53.3	4.2	0.0	0.0	54.2	0.0						
Cycle Q Clear(g_c), s	53.3	4.2	0.0	0.0	54.2	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	743	5405	0	0	1863							
V/C Ratio(X)	0.96	0.47	0.00	0.00	0.87							
Avail Cap(c_a), veh/h	851	5405	0	0	1863							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	38.6	0.2	0.0	0.0	28.3	0.0						
Incr Delay (d2), s/veh	19.7	0.3	0.0	0.0	5.9	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	26.2	0.1	0.0	0.0	24.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	0.5	0.0	0.0	34.2	0.0						
LnGrp LOS	E	A	A	A	C							
Approach Vol, veh/h		3265			1620	A						
Approach Delay, s/veh		13.1			34.2							
Approach LOS		B			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		136.0			60.7	75.3						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		130.5			64.5	61.5						
Max Q Clear Time (g_c+I1), s		6.2			55.3	56.2						
Green Ext Time (p_c), s		27.9			0.9	3.7						

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	2104	676	97	1256	43	425	83	174	136	86	613
Future Volume (veh/h)	373	2104	676	97	1256	43	425	83	174	136	86	613
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	385	2169	697	100	1295	44	438	86	179	140	0	691
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	2210	667	127	1961	598	513	558	473	203	0	658
Arrive On Green	0.13	0.43	0.43	0.07	0.38	0.38	0.15	0.31	0.31	0.06	0.00	0.22
Sat Flow, veh/h	3456	5106	1540	1781	5106	1557	3456	1777	1504	3563	0	2953
Grp Volume(v), veh/h	385	2169	697	100	1295	44	438	86	179	140	0	691
Grp Sat Flow(s),veh/h/ln	1728	1702	1540	1781	1702	1557	1728	1777	1504	1781	0	1477
Q Serve(g_s), s	14.9	57.1	59.0	7.5	28.5	2.4	16.8	4.8	12.7	5.3	0.0	30.4
Cycle Q Clear(g_c), s	14.9	57.1	59.0	7.5	28.5	2.4	16.8	4.8	12.7	5.3	0.0	30.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	441	2210	667	127	1961	598	513	558	473	203	0	658
V/C Ratio(X)	0.87	0.98	1.05	0.79	0.66	0.07	0.85	0.15	0.38	0.69	0.00	1.05
Avail Cap(c_a), veh/h	456	2210	667	131	1961	598	1166	665	563	366	0	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.4	38.1	38.6	62.3	34.6	26.6	56.6	33.7	36.8	63.1	0.0	53.0
Incr Delay (d2), s/veh	15.8	15.2	47.2	23.9	1.8	0.2	2.3	0.0	0.2	2.3	0.0	49.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	25.6	30.6	4.2	11.7	1.0	7.5	2.1	4.8	2.5	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	53.3	85.9	86.2	36.4	26.9	58.9	33.7	36.9	65.4	0.0	102.0
LnGrp LOS	E	D	F	F	D	C	E	C	D	E	A	F
Approach Vol, veh/h		3251			1439			703			831	
Approach Delay, s/veh		62.8			39.6			50.2			95.8	
Approach LOS		E			D			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.7	64.0	24.2	34.4	21.4	56.3	11.8	46.8				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.6	* 58	45.6	18.1	17.6	48.5	13.6	50.1				
Max Q Clear Time (g_c+I1), s	9.5	61.0	18.8	32.4	16.9	30.5	7.3	14.7				
Green Ext Time (p_c), s	0.0	0.0	1.0	0.0	0.1	11.6	0.1	1.2				

Intersection Summary	
HCM 6th Ctrl Delay	60.4
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	170	6	263	243	673	0	0	952	253
Future Volume (veh/h)	0	0	0	170	6	263	243	673	0	0	952	253
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				194	0	292	270	748	0	0	1058	281
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				793	0	346	320	2466	0	0	2038	905
Arrive On Green				0.22	0.00	0.22	0.19	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				194	0	292	270	748	0	0	1058	281
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1578
Q Serve(g_s), s				4.8	0.0	19.4	8.1	0.0	0.0	0.0	19.5	10.0
Cycle Q Clear(g_c), s				4.8	0.0	19.4	8.1	0.0	0.0	0.0	19.5	10.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				793	0	346	320	2466	0	0	2038	905
V/C Ratio(X)				0.24	0.00	0.84	0.84	0.30	0.00	0.00	0.52	0.31
Avail Cap(c_a), veh/h				1023	0	446	320	2466	0	0	2038	905
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.5	0.0	40.2	43.2	0.0	0.0	0.0	14.0	11.9
Incr Delay (d2), s/veh				0.2	0.0	11.2	14.1	0.2	0.0	0.0	0.9	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	8.2	3.8	0.1	0.0	0.0	7.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.7	0.0	51.4	57.3	0.2	0.0	0.0	14.9	12.8
LnGrp LOS				C	A	D	E	A	A	A	B	B
Approach Vol, veh/h					486			1018			1339	
Approach Delay, s/veh					44.7			15.4			14.5	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		79.9			14.0	65.9		28.1				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 68			9.6	52.7		30.1				
Max Q Clear Time (g_c+I1), s		2.0			10.1	21.5		21.4				
Green Ext Time (p_c), s		5.3			0.0	17.9		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	6	335	0	0	0	0	631	345	442	681	0
Future Volume (veh/h)	276	6	335	0	0	0	0	631	345	442	681	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	312	0	98				0	701	252	491	757	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	437	0	194				0	1533	551	551	2855	0
Arrive On Green	0.12	0.00	0.12				0.00	0.60	0.59	0.32	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2654	921	3456	3647	0
Grp Volume(v), veh/h	312	0	98				0	486	467	491	757	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1705	1728	1777	0
Q Serve(g_s), s	9.1	0.0	6.2				0.0	16.3	16.5	14.6	0.0	0.0
Cycle Q Clear(g_c), s	9.1	0.0	6.2				0.0	16.3	16.5	14.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.54	1.00		0.00
Lane Grp Cap(c), veh/h	437	0	194				0	1064	1020	551	2855	0
V/C Ratio(X)	0.71	0.00	0.50				0.00	0.46	0.46	0.89	0.27	0.00
Avail Cap(c_a), veh/h	960	0	427				0	1064	1020	723	2855	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	45.6	0.0	44.3				0.0	12.0	12.2	35.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.0				0.0	1.4	1.5	8.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.5				0.0	6.6	6.4	5.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	0.0	46.3				0.0	13.4	13.7	44.2	0.2	0.0
LnGrp LOS	D	A	D				A	B	B	D	A	A
Approach Vol, veh/h		410						953			1248	
Approach Delay, s/veh		47.4						13.5			17.5	
Approach LOS		D						B			B	

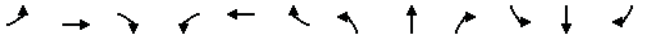
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	21.6	69.2		17.2		90.8						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	16.6	18.5		11.1		2.0						
Green Ext Time (p_c), s	0.6	9.6		1.2		8.0						

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	366	5	0	506	26	0	0	7	37
Future Volume (veh/h)	0	0	0	366	5	0	506	26	0	0	7	37
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				398	0	0	544	28	0	0	8	40
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				510	268	0	595	2761	0	0	1364	635
Arrive On Green				0.14	0.00	0.00	0.33	0.78	0.00	0.00	0.40	0.39
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3572	1585
Grp Volume(v), veh/h				398	0	0	544	28	0	0	8	40
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1585
Q Serve(g_s), s				10.8	0.0	0.0	29.3	0.2	0.0	0.0	0.1	1.6
Cycle Q Clear(g_c), s				10.8	0.0	0.0	29.3	0.2	0.0	0.0	0.1	1.6
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				510	268	0	595	2761	0	0	1364	635
V/C Ratio(X)				0.78	0.00	0.00	0.91	0.01	0.00	0.00	0.01	0.06
Avail Cap(c_a), veh/h				1033	542	0	677	2761	0	0	1364	635
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	0.0	31.9	2.5	0.0	0.0	18.0	18.7
Incr Delay (d2), s/veh				1.0	0.0	0.0	15.9	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	0.0	14.9	0.0	0.0	0.0	0.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.3	0.0	0.0	47.9	2.5	0.0	0.0	18.0	18.9
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					398			572			48	
Approach Delay, s/veh					42.3			45.6			18.7	
Approach LOS					D			D			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.7			37.4	44.3		18.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		61.9			37.1	* 20		28.1				
Max Q Clear Time (g_c+I1), s		2.2			31.3	3.6		12.8				
Green Ext Time (p_c), s		0.2			1.2	0.2		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		43.1	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



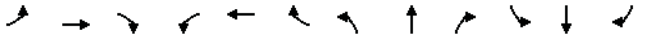
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	6	324	0	0	0	0	472	326	5	373	0
Future Volume (veh/h)	64	6	324	0	0	0	0	472	326	5	373	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	70	7	352				0	513	354	5	405	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	408	41	398				0	2203	983	16	2371	0
Arrive On Green	0.25	0.25	0.25				0.00	0.62	0.62	0.00	0.22	0.00
Sat Flow, veh/h	1626	163	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	77	0	352				0	513	354	5	405	0
Grp Sat Flow(s),veh/h/ln	1789	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	3.4	0.0	21.4				0.0	6.4	10.9	0.3	9.2	0.0
Cycle Q Clear(g_c), s	3.4	0.0	21.4				0.0	6.4	10.9	0.3	9.2	0.0
Prop In Lane	0.91		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	449	0	398				0	2203	983	16	2371	0
V/C Ratio(X)	0.17	0.00	0.89				0.00	0.23	0.36	0.31	0.17	0.00
Avail Cap(c_a), veh/h	787	0	697				0	2203	983	107	2371	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	29.3	0.0	36.1				0.0	8.4	9.3	49.5	16.6	0.0
Incr Delay (d2), s/veh	0.1	0.0	2.9				0.0	0.2	1.0	3.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	8.1				0.0	2.4	3.8	0.1	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	39.0				0.0	8.7	10.3	52.7	16.7	0.0
LnGrp LOS	C	A	D				A	A	B	D	B	A
Approach Vol, veh/h		429						867			410	
Approach Delay, s/veh		37.3						9.4			17.1	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.9	66.0		29.1		70.9						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	5.6	36.9		43.1		* 47						
Max Q Clear Time (g_c+I1), s	2.3	12.9		23.4		11.2						
Green Ext Time (p_c), s	0.0	5.9		0.8		1.9						

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1960	99	57	1194	21	40	5	95	117	3	59
Future Volume (veh/h)	18	1960	99	57	1194	21	40	5	95	117	3	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	20	2178	110	63	1327	23	44	6	106	130	3	66
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	3094	155	87	3364	58	138	35	295	274	15	121
Arrive On Green	0.02	0.60	0.58	0.05	0.63	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5178	260	1853	5375	93	391	130	1105	861	56	455
Grp Volume(v), veh/h	20	1485	803	63	874	476	156	0	0	199	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1898	1853	1770	1928	1626	0	0	1373	0	0
Q Serve(g_s), s	1.4	39.3	39.9	4.5	16.6	16.6	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	39.3	39.9	4.5	16.6	16.6	10.0	0.0	0.0	17.6	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.28		0.68	0.65		0.33
Lane Grp Cap(c), veh/h	34	2115	1134	87	2216	1207	468	0	0	410	0	0
V/C Ratio(X)	0.58	0.70	0.71	0.72	0.39	0.39	0.33	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	82	2115	1134	198	2216	1207	468	0	0	410	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	18.8	19.1	63.5	12.5	12.6	40.2	0.0	0.0	43.0	0.0	0.0
Incr Delay (d2), s/veh	5.6	2.0	3.7	4.2	0.5	1.0	1.9	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.4	17.3	2.2	6.2	7.0	4.5	0.0	0.0	6.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	20.8	22.8	67.7	13.1	13.5	42.1	0.0	0.0	47.1	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2308			1413			156			199	
Approach Delay, s/veh		21.9			15.7			42.1			47.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	84.7		40.0	6.5	88.5		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1				
Max Q Clear Time (g_c+I1), s	6.5	41.9		19.6	3.4	18.6		12.0				
Green Ext Time (p_c), s	0.0	28.0		1.2	0.0	40.8		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		21.8
HCM 6th LOS		C

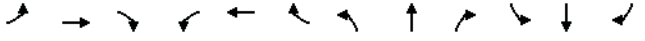
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	76	67	572	546	67
Future Vol, veh/h	0	76	67	572	546	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	83	73	622	593	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	333	666	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	663	919	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	663	919	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	919	-	663	-	-
HCM Lane V/C Ratio	0.079	-	0.125	-	-
HCM Control Delay (s)	9.3	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	92	218	219	160	211	373	468	110	188	317	62
Future Volume (veh/h)	28	92	218	219	160	211	373	468	110	188	317	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.92	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	99	234	235	172	227	401	503	118	202	341	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	545	417	241	137	454	439	1365	318	193	958	185
Arrive On Green	0.26	0.29	0.26	0.29	0.29	0.29	0.25	0.49	0.46	0.11	0.33	0.32
Sat Flow, veh/h	986	1870	1580	641	469	1559	1781	2811	654	1781	2915	562
Grp Volume(v), veh/h	30	99	234	407	0	227	401	316	305	202	205	203
Grp Sat Flow(s),veh/h/ln	986	1870	1580	1110	0	1559	1781	1777	1688	1781	1777	1700
Q Serve(g_s), s	0.0	4.2	13.4	26.4	0.0	12.7	23.0	11.7	12.1	11.4	9.2	9.6
Cycle Q Clear(g_c), s	27.7	4.2	13.4	30.6	0.0	12.7	23.0	11.7	12.1	11.4	9.2	9.6
Prop In Lane	1.00		1.00	0.58		1.00	1.00		0.39	1.00		0.33
Lane Grp Cap(c), veh/h	69	545	417	378	0	454	439	863	820	193	584	559
V/C Ratio(X)	0.44	0.18	0.56	1.08	0.00	0.50	0.91	0.37	0.37	1.04	0.35	0.36
Avail Cap(c_a), veh/h	69	545	417	378	0	454	623	863	820	193	584	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	27.8	33.4	41.2	0.0	30.9	38.5	16.9	17.3	46.8	26.8	27.0
Incr Delay (d2), s/veh	1.6	0.1	1.1	68.6	0.0	1.8	11.5	1.2	1.3	76.9	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.9	5.2	17.1	0.0	5.0	11.3	4.9	4.9	9.1	4.1	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	27.9	34.5	109.8	0.0	32.7	49.9	18.1	18.6	123.7	28.4	28.8
LnGrp LOS	D	C	C	F	A	C	D	B	B	F	C	C
Approach Vol, veh/h		363			634			1022			610	
Approach Delay, s/veh		34.3			82.2			30.7			60.1	
Approach LOS		C			F			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.4	55.0		34.6	29.9	40.5		34.6				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	11.0	48.1		27.7	36.3	* 25		27.7				
Max Q Clear Time (g_c+I1), s	13.4	14.1		29.7	25.0	11.6		32.6				
Green Ext Time (p_c), s	0.0	3.2		0.0	0.5	1.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		50.5
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

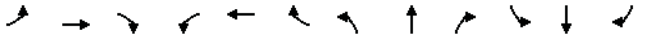
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	25.9
Intersection LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	82	380	139	90	433	142
Future Vol, veh/h	82	380	139	90	433	142
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	388	142	92	442	145
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	23	14.7	32.8
HCM LOS	C	B	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	61%
Vol Thru, %	0%	0%	18%	39%
Vol Right, %	0%	100%	82%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	433	142	462	229
LT Vol	433	0	0	139
Through Vol	0	0	82	90
RT Vol	0	142	380	0
Lane Flow Rate	442	145	471	234
Geometry Grp	7	7	2	2
Degree of Util (X)	0.865	0.234	0.737	0.43
Departure Headway (Hd)	7.047	5.826	5.627	6.622
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	513	613	636	540
Service Time	4.817	3.595	3.71	4.719
HCM Lane V/C Ratio	0.862	0.237	0.741	0.433
HCM Control Delay	40.2	10.4	23	14.7
HCM Lane LOS	E	B	C	B
HCM 95th-tile Q	9.2	0.9	6.4	2.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	59	0	0	93	72	0	1	16	48	0	6
Future Volume (vph)	5	59	0	0	93	72	0	1	16	48	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.9	4.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.93			0.86			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			0.95	1.00
Satd. Flow (prot)	1767	3539			3269			1578			1770	1564
Flt Permitted	1.00	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	1860	3539			3269			1578			1863	1564
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	6	71	0	0	112	87	0	1	19	58	0	7
RTOR Reduction (vph)	0	0	0	0	67	0	0	14	0	0	0	5
Lane Group Flow (vph)	6	71	0	0	132	0	0	6	0	0	58	2
Confl. Peds. (#/hr)	3		1	1		3	2					2
Confl. Bikes (#/hr)			2			3			1			
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	2.7	2.7			2.7			4.1			3.2	3.2
Effective Green, g (s)	3.6	3.6			3.6			4.1			3.2	4.1
Actuated g/C Ratio	0.23	0.23			0.23			0.26			0.20	0.26
Clearance Time (s)	4.9	4.9			4.9			4.0			4.9	4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0			2.0	2.0
Lane Grp Cap (vph)	426	811			749			412			379	408
v/s Ratio Prot		0.02			c0.04			0.00				
v/s Ratio Perm	0.00										c0.03	0.00
v/c Ratio	0.01	0.09			0.18			0.01			0.15	0.00
Uniform Delay, d1	4.7	4.8			4.9			4.3			5.1	4.3
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.0	0.0			0.1			0.0			0.1	0.0
Delay (s)	4.7	4.8			4.9			4.3			5.2	4.3
Level of Service	A	A			A			A			A	A
Approach Delay (s)		4.8			4.9			4.3			5.1	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.17			
Actuated Cycle Length (s)	15.7	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	23.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



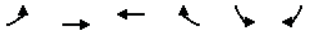
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	157	1	33	167	34	0	0	24	250	1	4
Future Volume (veh/h)	1	157	1	33	167	34	0	0	24	250	1	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	0.97		1.00	1.00		1.00	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	174	0	37	186	0	0	0	0	278	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	458	1218	0	464	1218	0	0	1015	0	842	3	8
Arrive On Green	0.34	0.34	0.00	0.34	0.34	0.00	0.00	0.00	0.00	0.54	0.54	0.54
Sat Flow, veh/h	1159	3647	0	1169	3647	0	0	1870	0	1362	6	15
Grp Volume(v), veh/h	1	174	0	37	186	0	0	0	0	282	0	0
Grp Sat Flow(s),veh/h/ln	1159	1777	0	1169	1777	0	0	1870	0	1383	0	0
Q Serve(g_s), s	0.0	2.4	0.0	1.6	2.5	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	2.6	2.4	0.0	3.9	2.5	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.00		0.00	0.99		0.01
Lane Grp Cap(c), veh/h	458	1218	0	464	1218	0	0	1015	0	853	0	0
V/C Ratio(X)	0.00	0.14	0.00	0.08	0.15	0.00	0.00	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	458	1218	0	464	1218	0	0	1015	0	853	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.8	15.9	0.0	17.3	15.9	0.0	0.0	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.3	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.0	0.4	1.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	16.1	0.0	17.6	16.2	0.0	0.0	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach Vol, veh/h		175			223			0			282	
Approach Delay, s/veh		16.1			16.4			0.0			10.2	
Approach LOS		B			B						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	28.0	42.0	28.0	42.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	38.0	24.0	38.0
Max Q Clear Time (g_c+I1), s	4.6	10.2	5.9	0.0
Green Ext Time (p_c), s	0.8	1.1	0.9	0.0

Intersection Summary		
HCM 6th Ctrl Delay	13.8	
HCM 6th LOS	B	

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Existing + P1 + P2 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	216	15	38	130	204	119
Future Volume (vph)	216	15	38	130	204	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3087		1770	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3087		1770	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	240	17	42	144	227	132
RTOR Reduction (vph)	0	0	103	0	0	110
Lane Group Flow (vph)	240	17	83	0	227	22
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	11.3	34.9	19.2		11.3	11.3
Effective Green, g (s)	11.7	35.8	20.1		11.7	11.7
Actuated g/C Ratio	0.16	0.50	0.28		0.16	0.16
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	291	1781	872		291	255
v/s Ratio Prot	c0.14	0.00	c0.03		c0.13	
v/s Ratio Perm						0.01
v/c Ratio	0.82	0.01	0.09		0.78	0.09
Uniform Delay, d1	28.7	8.8	18.8		28.5	25.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	16.3	0.0	0.1		11.8	0.1
Delay (s)	45.0	8.8	18.9		40.2	25.2
Level of Service	D	A	B		D	C
Approach Delay (s)		42.6	18.9		34.7	
Approach LOS		D	B		C	

Intersection Summary				
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	42.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Existing + P1 + P2 PM
03/06/2020



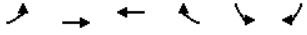
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	6	519	68	10	7	301	680	20	41	955	61
Future Volume (veh/h)	99	6	519	68	10	7	301	680	20	41	955	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	0	181	71	10	5	314	708	19	43	995	57
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	569	0	242	88	12	6	358	2216	59	55	2738	157
Arrive On Green	0.16	0.00	0.16	0.06	0.06	0.06	0.10	0.63	0.62	0.03	0.55	0.55
Sat Flow, veh/h	3563	0	1516	1459	205	103	3456	3532	95	1781	4938	282
Grp Volume(v), veh/h	107	0	181	86	0	0	314	356	371	43	685	367
Grp Sat Flow(s),veh/h/ln	1781	0	1516	1767	0	0	1728	1777	1849	1781	1702	1817
Q Serve(g_s), s	3.9	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.0	3.6	16.9	16.9
Cycle Q Clear(g_c), s	3.9	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.0	3.6	16.9	16.9
Prop In Lane	1.00		1.00	0.83		0.06	1.00		0.05	1.00		0.16
Lane Grp Cap(c), veh/h	569	0	242	107	0	0	358	1115	1161	55	1887	1007
V/C Ratio(X)	0.19	0.00	0.75	0.81	0.00	0.00	0.88	0.32	0.32	0.78	0.36	0.36
Avail Cap(c_a), veh/h	1266	0	539	178	0	0	382	1115	1161	112	1887	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.00	0.62	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	0.0	60.1	69.6	0.0	0.0	66.3	13.0	13.0	72.1	18.6	18.7
Incr Delay (d2), s/veh	0.1	0.0	3.7	5.3	0.0	0.0	18.2	0.8	0.7	8.3	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	6.8	3.4	0.0	0.0	6.9	5.9	6.1	1.8	6.9	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	0.0	63.8	74.9	0.0	0.0	84.5	13.8	13.8	80.5	19.2	19.7
LnGrp LOS	D	A	E	E	A	A	F	B	B	F	B	B
Approach Vol, veh/h		288			86			1041			1095	
Approach Delay, s/veh		60.4			74.9			35.1			21.8	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	98.1		28.9	19.9	87.3		14.0				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.4	52.7		53.3	16.6	45.5		15.1				
Max Q Clear Time (g_c+I1), s	5.6	16.0		19.1	15.4	18.9		9.2				
Green Ext Time (p_c), s	0.0	9.8		1.5	0.1	13.1		0.1				

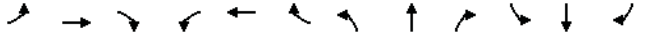
Intersection Summary			
HCM 6th Ctrl Delay	33.6		
HCM 6th LOS	C		

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	435	301	427	419	63
Future Volume (veh/h)	72	435	301	427	419	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	478	331	111	460	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	111	1174	954	1222	467	415
Arrive On Green	0.06	0.63	0.51	0.51	0.26	0.00
Sat Flow, veh/h	1781	1870	1870	1582	1781	1585
Grp Volume(v), veh/h	79	478	331	111	460	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1582	1781	1585
Q Serve(g_s), s	3.2	9.3	7.6	1.2	18.6	0.0
Cycle Q Clear(g_c), s	3.2	9.3	7.6	1.2	18.6	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	111	1174	954	1222	467	415
V/C Ratio(X)	0.71	0.41	0.35	0.09	0.99	0.00
Avail Cap(c_a), veh/h	295	1367	954	1222	467	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	6.8	10.6	2.0	26.6	0.0
Incr Delay (d2), s/veh	3.1	0.1	1.0	0.1	38.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.0	3.1	0.9	12.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.4	6.8	11.6	2.2	65.0	0.0
LnGrp LOS	D	A	B	A	E	A
Approach Vol, veh/h		557	442		460	
Approach Delay, s/veh		11.0	9.2		65.0	
Approach LOS		B	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		49.5		23.0	8.5	41.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	11.6	36.1
Max Q Clear Time (g_c+I1), s		11.3		20.6	5.2	9.6
Green Ext Time (p_c), s		2.1		0.0	0.0	1.5
Intersection Summary						
HCM 6th Ctrl Delay			27.5			
HCM 6th LOS			C			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	703	135	19	488	23	183	8	65	6	3	2
Future Volume (veh/h)	0	703	135	19	488	23	183	8	65	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	764	147	21	530	25	199	9	71	7	3	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1082	208	45	1564	74	719	76	603	423	177	103
Arrive On Green	0.00	0.37	0.35	0.03	0.45	0.44	0.43	0.43	0.41	0.43	0.43	0.41
Sat Flow, veh/h	0	3051	569	1781	3450	162	1405	179	1409	792	414	241
Grp Volume(v), veh/h	0	459	452	21	273	282	199	0	80	12	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1750	1781	1777	1836	1405	0	1587	1447	0	0
Q Serve(g_s), s	0.0	14.9	15.0	0.8	6.7	6.7	3.6	0.0	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	14.9	15.0	0.8	6.7	6.7	5.7	0.0	2.1	2.1	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.09	1.00		0.89	0.58		0.17
Lane Grp Cap(c), veh/h	0	650	640	45	806	832	719	0	680	704	0	0
V/C Ratio(X)	0.00	0.71	0.71	0.47	0.34	0.34	0.28	0.00	0.12	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	650	640	116	871	900	719	0	680	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.3	18.4	32.5	11.9	12.0	12.6	0.0	11.9	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.3	6.4	2.8	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.7	6.7	0.4	2.4	2.5	1.8	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.6	24.9	35.2	12.1	12.2	12.8	0.0	12.0	11.2	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		911			576			279			12	
Approach Delay, s/veh		24.8			13.0			12.5			11.2	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	28.9		32.9		34.6		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	2.8	17.0		4.1		8.7		7.7				
Green Ext Time (p_c), s	0.0	2.9		0.0		3.0		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	754	10	48	529	2	32
Future Vol, veh/h	754	10	48	529	2	32
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	820	11	52	575	2	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	833	0	1220	418
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	392	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	796	-	172	584
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	795	-	160	583
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	160	583	-	-	795	-
HCM Lane V/C Ratio	0.014	0.06	-	-	0.066	-
HCM Control Delay (s)	27.8	11.6	-	-	9.8	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	685	70	235	596	40	94	5	259	21	8	15
Future Volume (veh/h)	40	685	70	235	596	40	94	5	259	21	8	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	721	74	247	627	42	99	5	273	22	8	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1130	116	196	1403	94	601	12	644	241	93	150
Arrive On Green	0.04	0.35	0.35	0.11	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	3230	331	1781	3365	225	1381	28	1534	446	221	356
Grp Volume(v), veh/h	42	396	399	247	331	338	99	0	278	46	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	1777	1814	1381	0	1562	1023	0	0
Q Serve(g_s), s	2.3	18.7	18.7	11.0	13.3	13.4	0.0	0.0	12.6	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.3	18.7	18.7	11.0	13.3	13.4	6.5	0.0	12.6	12.9	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.12	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	77	622	624	196	741	756	601	0	656	483	0	0
V/C Ratio(X)	0.55	0.64	0.64	1.26	0.45	0.45	0.16	0.00	0.42	0.10	0.00	0.00
Avail Cap(c_a), veh/h	107	622	624	196	741	756	601	0	656	483	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.9	27.2	27.2	44.5	20.9	20.9	18.7	0.0	20.5	17.8	0.0	0.0
Incr Delay (d2), s/veh	2.2	4.9	4.9	151.6	0.4	0.4	0.6	0.0	2.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	8.6	8.6	13.1	5.5	5.6	1.6	0.0	4.8	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	32.1	32.1	196.1	21.3	21.3	19.3	0.0	22.5	18.2	0.0	0.0
LnGrp LOS	D	C	C	F	C	C	B	A	C	B	A	A
Approach Vol, veh/h		837			916			377			46	
Approach Delay, s/veh		33.0			68.5			21.6			18.2	
Approach LOS		C			E			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	39.0		46.0	8.3	45.7		46.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	11.0	35.0		42.0	6.0	40.0		42.0				
Max Q Clear Time (g_c+I1), s	13.0	20.7		14.9	4.3	15.4		14.6				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.0	4.4		1.4				

Intersection Summary		
HCM 6th Ctrl Delay	45.6	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing + P1 + P2 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	465	247	289	318	271	244	454	145	427	839	255
Future Volume (veh/h)	223	465	247	289	318	271	244	454	145	427	839	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	489	200	304	335	106	257	478	99	449	883	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	582	236	363	691	214	319	1707	343	512	2342	727
Arrive On Green	0.08	0.24	0.23	0.10	0.26	0.25	0.06	0.27	0.26	0.15	0.46	0.00
Sat Flow, veh/h	3456	2445	993	3456	2649	823	3456	4239	853	3456	5106	1585
Grp Volume(v), veh/h	235	354	335	304	223	218	257	381	196	449	883	0
Grp Sat Flow(s),veh/h/ln	1728	1777	1661	1728	1777	1695	1728	1702	1688	1728	1702	1585
Q Serve(g_s), s	10.0	28.5	28.9	12.9	15.9	16.5	11.0	13.3	13.8	19.1	17.0	0.0
Cycle Q Clear(g_c), s	10.0	28.5	28.9	12.9	15.9	16.5	11.0	13.3	13.8	19.1	17.0	0.0
Prop In Lane	1.00		0.60	1.00		0.49	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	294	423	395	363	463	442	319	1371	680	512	2342	727
V/C Ratio(X)	0.80	0.84	0.85	0.84	0.48	0.49	0.80	0.28	0.29	0.88	0.38	0.00
Avail Cap(c_a), veh/h	553	545	509	553	550	524	783	1371	680	783	2342	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	0.00
Uniform Delay (d), s/veh	67.4	54.4	54.8	65.9	46.9	47.3	69.0	37.5	37.9	62.5	26.6	0.0
Incr Delay (d2), s/veh	1.4	6.6	7.5	4.2	1.5	1.7	1.6	0.4	1.0	4.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	13.5	12.9	5.9	7.3	7.2	5.1	6.0	6.3	8.8	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	61.0	62.3	70.0	48.4	49.0	70.6	38.0	38.9	67.5	27.0	0.0
LnGrp LOS	E	E	E	E	D	D	E	D	D	E	C	A
Approach Vol, veh/h		924			745			834			1332	
Approach Delay, s/veh		63.4			57.4			48.3			40.7	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.2	64.3	19.7	39.7	17.9	72.7	16.7	42.7
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	33.6	28.8	23.6	45.1	33.6	* 29	23.6	45.1
Max Q Clear Time (g_c+I1), s	21.1	15.8	14.9	30.9	13.0	19.0	12.0	18.5
Green Ext Time (p_c), s	0.8	4.6	0.4	3.9	0.4	6.0	0.3	5.0

Intersection Summary	
HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Existing + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	171	256	251	279	442	166	335	536	351	886	56
Future Volume (veh/h)	19	171	256	251	279	442	166	335	536	351	886	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	176	0	259	288	456	171	345	0	362	913	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	695		316	509	422	226	1712		421	1913	853
Arrive On Green	0.02	0.20	0.00	0.09	0.27	0.27	0.07	0.48	0.00	0.24	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1553	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	176	0	259	288	456	171	345	0	362	913	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1553	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.7	6.3	0.0	11.0	19.9	40.8	7.3	8.4	0.0	15.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	6.3	0.0	11.0	19.9	40.8	7.3	8.4	0.0	15.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	695		316	509	422	226	1712		421	1913	853
V/C Ratio(X)	0.63	0.25		0.82	0.57	1.08	0.76	0.20		0.86	0.48	0.00
Avail Cap(c_a), veh/h	74	695		461	509	422	323	1712		599	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.80	0.80	0.00	0.86	0.86	0.00
Uniform Delay (d), s/veh	73.2	51.1	0.0	66.9	47.0	54.6	68.9	22.3	0.0	55.5	0.0	0.0
Incr Delay (d2), s/veh	7.5	0.2	0.0	4.8	0.9	66.8	2.6	0.2	0.0	7.6	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	0.0	5.1	9.5	23.8	3.3	3.6	0.0	6.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	51.2	0.0	71.7	47.9	121.4	71.6	22.5	0.0	63.1	0.7	0.0
LnGrp LOS	F	D		E	D	F	E	C		E	A	A
Approach Vol, veh/h		196	A		1003			516	A		1275	
Approach Delay, s/veh		54.3			87.5			38.8			18.4	
Approach LOS		D			F			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	76.2	17.7	33.7	13.8	84.7	6.7	44.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	25.6	60.1	19.6	* 26	13.6	72.1	5.8	39.5
Max Q Clear Time (g_c+I1), s	17.0	10.4	13.0	8.3	9.3	2.0	3.7	42.8
Green Ext Time (p_c), s	0.9	1.6	0.3	0.9	0.1	14.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	572	0	340	0	0	0	0	490	315	813	397	0
Future Volume (vph)	572	0	340	0	0	0	0	490	315	813	397	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3307	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3307	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	602	0	358	0	0	0	0	516	332	856	418	0
RTOR Reduction (vph)	0	0	269	0	0	0	0	0	212	0	0	0
Lane Group Flow (vph)	602	0	89	0	0	0	0	516	120	428	846	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	35.6		35.6					53.0	53.0	43.1	43.1	
Effective Green, g (s)	37.2		37.2					54.0	54.0	44.7	44.7	
Actuated g/C Ratio	0.25		0.25					0.36	0.36	0.30	0.30	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	851		392					1274	569	479	985	
v/s Ratio Prot	c0.18							c0.15		c0.27	0.26	
v/s Ratio Perm			0.06						0.08			
v/c Ratio	0.71		0.23					0.41	0.21	0.89	0.86	
Uniform Delay, d1	51.4		44.9					36.0	33.2	50.4	49.7	
Progression Factor	1.00		1.00					0.39	0.03	0.87	0.87	
Incremental Delay, d2	4.9		1.3					0.1	0.1	17.4	7.0	
Delay (s)	56.4		46.3					14.1	0.9	61.4	50.5	
Level of Service	E		D					B	A	E	D	
Approach Delay (s)		52.6			0.0			9.0			54.1	
Approach LOS		D			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	67.8%	ICU Level of Service	C	
Analysis Period (min)	15			

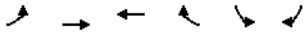
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	494	79	6	4	67	301	3	26	11	411	25	285
Future Volume (vph)	494	79	6	4	67	301	3	26	11	411	25	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (prot)	1610	3259			3530	1583		1780		1681	1695	1583
Flt Permitted	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (perm)	1610	3259			3530	1583		1780		1681	1695	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	549	88	7	4	74	334	3	29	12	457	28	317
RTOR Reduction (vph)	0	1	0	0	0	57	0	9	0	0	0	163
Lane Group Flow (vph)	274	369	0	0	78	277	0	35	0	242	243	154
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	29.9	29.9			17.0	88.4		7.3		71.4	71.4	71.4
Effective Green, g (s)	31.5	31.5			18.6	88.4		8.8		73.0	73.0	73.0
Actuated g/C Ratio	0.21	0.21			0.12	0.59		0.06		0.49	0.49	0.49
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	338	684			437	932		104		818	824	770
v/s Ratio Prot	c0.17	0.11			0.02	c0.14		c0.02		c0.14	0.14	
v/s Ratio Perm						0.03						0.10
v/c Ratio	0.81	0.54			0.18	0.30		0.33		0.30	0.29	0.20
Uniform Delay, d1	56.4	52.8			58.9	15.3		67.8		23.1	23.1	21.9
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.49	0.49	0.35
Incremental Delay, d2	18.7	3.0			0.9	0.8		8.4		0.7	0.7	0.4
Delay (s)	75.1	55.8			59.7	16.1		76.2		12.1	12.1	8.1
Level of Service	E	E			E	B		E		B	B	A
Approach Delay (s)		64.0			24.4			76.2			10.5	
Approach LOS		E			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	594	376	413	156	311	81
Future Volume (veh/h)	594	376	413	156	311	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	632	400	439	0	331	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	656	1499	1411		436	765
Arrive On Green	0.37	0.80	0.40	0.00	0.13	0.00
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	632	400	439	0	331	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	38.4	6.0	9.4	0.0	10.2	0.0
Cycle Q Clear(g_c), s	38.4	6.0	9.4	0.0	10.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	656	1499	1411		436	765
V/C Ratio(X)	0.96	0.27	0.31		0.76	0.00
Avail Cap(c_a), veh/h	678	1499	1411		735	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.2	2.8	22.9	0.0	46.6	0.0
Incr Delay (d2), s/veh	25.1	0.4	0.6	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	1.8	4.0	0.0	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.3	3.2	23.5	0.0	47.7	0.0
LnGrp LOS	E	A	C		D	A
Approach Vol, veh/h		1032	439	A	331	
Approach Delay, s/veh		37.5	23.5		47.7	
Approach LOS		D	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		92.5		17.9	44.7	47.8
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		87.5		22.0	* 42	41.5
Max Q Clear Time (g_c+I1), s		8.0		12.2	40.4	11.4
Green Ext Time (p_c), s		1.7		0.2	0.1	2.0

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

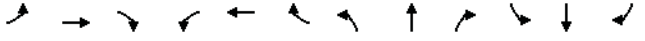
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Future Volume (vph)	1	22	42	257	31	18	62	19	244	7	43	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	46	279	34	20	67	21	265	8	47	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	71	279	54	353	57
Volume Left (vph)	1	279	0	67	8
Volume Right (vph)	46	0	20	265	2
Hadj (s)	-0.35	0.53	-0.23	-0.38	0.04
Departure Headway (s)	5.3	6.2	5.4	4.8	5.6
Degree Utilization, x	0.10	0.48	0.08	0.47	0.09
Capacity (veh/h)	612	557	631	722	575
Control Delay (s)	8.9	13.6	7.7	11.9	9.2
Approach Delay (s)	8.9	12.6		11.9	9.2
Approach LOS	A	B		B	A

Intersection Summary			
Delay	11.7		
Level of Service	B		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Future Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	188
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	254	0	0	0	457	101				0	167	209
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	393	0		0	1550	692				0	0	0
Arrive On Green	0.22	0.00	0.00	0.00	0.44	0.44				0.00	0.16	0.16
Sat Flow, veh/h	1781	254		0	3647	1585					0	
Grp Volume(v), veh/h	254	7.4		0	457	101					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	2.5			0.0	1.6	0.7						
Cycle Q Clear(g_c), s	2.5			0.0	1.6	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	393			0	1550	692						
V/C Ratio(X)	0.65			0.00	0.29	0.15						
Avail Cap(c_a), veh/h	1832			0	2624	1170						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	6.7			0.0	3.5	3.2						
Incr Delay (d2), s/veh	0.7			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.4			0.0	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4			0.0	3.6	3.3						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					558							
Approach Delay, s/veh					3.5							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							8.7	10.3				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							19.0	11.0				
Max Q Clear Time (g_c+I1), s							4.5	3.6				
Green Ext Time (p_c), s							0.1	2.0				

Intersection Summary												
HCM 6th Ctrl Delay			4.7									
HCM 6th LOS			A									

Notes

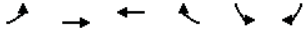
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	112
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	310	17	377	116	9	139	4	708	4	1	1
Future Vol, veh/h	1	310	17	377	116	9	139	4	708	4	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	333	18	405	125	10	149	4	761	4	1	1
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	29.7	42.5	185.5	13.4
HCM LOS	D	E	F	B

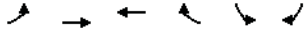
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	67%
Vol Thru, %	0%	1%	100%	0%	0%	93%	17%
Vol Right, %	0%	99%	0%	100%	0%	7%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	712	311	17	377	125	6
LT Vol	139	0	1	0	377	0	4
Through Vol	0	4	310	0	0	116	1
RT Vol	0	708	0	17	0	9	1
Lane Flow Rate	149	766	334	18	405	134	6
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.328	1.42	0.719	0.036	0.893	0.276	0.017
Departure Headway (Hd)	7.899	6.675	8.683	7.952	8.874	8.303	10.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	456	551	418	453	413	435	353
Service Time	5.638	4.414	6.383	5.652	6.574	6.003	8.201
HCM Lane V/C Ratio	0.327	1.39	0.799	0.04	0.981	0.308	0.017
HCM Control Delay	14.5	218.9	30.7	10.9	51.9	14.1	13.4
HCM Lane LOS	B	F	D	B	F	B	B
HCM 95th-tile Q	1.4	36.1	5.6	0.1	9.3	1.1	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	563	495	267	288	351	246
Future Volume (veh/h)	563	495	267	288	351	246
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	599	527	284	306	373	262
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	642	1220	447	377	430	383
Arrive On Green	0.36	0.65	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	1870	1870	1578	1781	1585
Grp Volume(v), veh/h	599	527	284	306	373	262
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1578	1781	1585
Q Serve(g_s), s	24.4	10.3	10.3	13.8	15.1	11.3
Cycle Q Clear(g_c), s	24.4	10.3	10.3	13.8	15.1	11.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	642	1220	447	377	430	383
V/C Ratio(X)	0.93	0.43	0.64	0.81	0.87	0.68
Avail Cap(c_a), veh/h	686	1316	497	419	449	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	6.3	25.7	27.1	27.4	26.0
Incr Delay (d2), s/veh	18.6	0.2	2.8	11.3	15.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	3.3	4.7	6.1	7.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.8	6.6	28.5	38.4	42.4	29.6
LnGrp LOS	D	A	C	D	D	C
Approach Vol, veh/h		1126	590		635	
Approach Delay, s/veh		25.3	33.6		37.1	
Approach LOS		C	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.1		22.2	31.1	22.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	28.6	19.1
Max Q Clear Time (g_c+I1), s		12.3		17.1	26.4	15.8
Green Ext Time (p_c), s		3.6		0.2	0.3	1.2

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	271	614	198	80	152	503
Future Volume (veh/h)	271	614	198	80	152	503
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	682	220	89	169	559
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	351	948	324	131	686	611
Arrive On Green	0.20	0.51	0.26	0.24	0.39	0.39
Sat Flow, veh/h	1781	1870	1266	512	1781	1585
Grp Volume(v), veh/h	301	682	0	309	169	559
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1778	1781	1585
Q Serve(g_s), s	12.1	21.0	0.0	11.6	4.8	24.8
Cycle Q Clear(g_c), s	12.1	21.0	0.0	11.6	4.8	24.8
Prop In Lane	1.00			0.29	1.00	1.00
Lane Grp Cap(c), veh/h	351	948	0	455	686	611
V/C Ratio(X)	0.86	0.72	0.00	0.68	0.25	0.92
Avail Cap(c_a), veh/h	384	983	0	455	792	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	14.2	0.0	25.0	15.5	21.7
Incr Delay (d2), s/veh	15.1	2.1	0.0	7.9	0.1	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	8.4	0.0	5.7	1.8	21.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.9	16.3	0.0	32.9	15.6	36.0
LnGrp LOS	D	B	A	C	B	D
Approach Vol, veh/h		983	309		728	
Approach Delay, s/veh		24.8	32.9		31.2	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.6		32.6	18.6	23.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		38.1		32.1	15.6	18.1
Max Q Clear Time (g_c+I1), s		23.0		26.8	14.1	13.6
Green Ext Time (p_c), s		2.8		0.8	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	126.4
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	354	184	774	211	27
Future Vol, veh/h	467	354	184	774	211	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	519	393	204	860	234	30
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	60	209.3	21.9
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	467	354	184	774	211	27
LT Vol	467	0	0	0	211	0
Through Vol	0	354	184	0	0	0
RT Vol	0	0	0	774	0	27
Lane Flow Rate	519	393	204	860	234	30
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.051	0.742	0.398	1.508	0.562	0.062
Departure Headway (Hd)	7.875	7.361	7.197	6.48	9.307	8.062
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	496	503	568	389	447
Service Time	5.575	5.061	4.897	4.18	7.007	5.762
HCM Lane V/C Ratio	1.111	0.792	0.406	1.514	0.602	0.067
HCM Control Delay	84.1	28.3	14.6	255.6	23.3	11.3
HCM Lane LOS	F	D	B	F	C	B
HCM 95th-tile Q	15	6.2	1.9	42.6	3.3	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	383	89	212	685	393	262
Future Volume (veh/h)	383	89	212	685	393	262
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	407	95	226	729	418	279
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	486	114	269	1002	638	568
Arrive On Green	0.33	0.32	0.15	0.54	0.36	0.36
Sat Flow, veh/h	1466	342	1781	1870	1781	1585
Grp Volume(v), veh/h	0	502	226	729	418	279
Grp Sat Flow(s),veh/h/ln	0	1809	1781	1870	1781	1585
Q Serve(g_s), s	0.0	19.4	9.3	22.4	14.8	10.3
Cycle Q Clear(g_c), s	0.0	19.4	9.3	22.4	14.8	10.3
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	600	269	1002	638	568
V/C Ratio(X)	0.00	0.84	0.84	0.73	0.66	0.49
Avail Cap(c_a), veh/h	0	600	378	1116	638	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.4	31.1	13.3	20.3	18.8
Incr Delay (d2), s/veh	0.0	13.1	9.7	2.3	5.2	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	4.6	8.8	6.7	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	36.5	40.8	15.7	25.5	21.9
LnGrp LOS	A	D	D	B	C	C
Approach Vol, veh/h	502			955	697	
Approach Delay, s/veh	36.5			21.6	24.0	
Approach LOS	D			C	C	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.4	29.0			44.4	31.0
Change Period (Y+Rc), s	4.0	5.0			5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0			44.0	27.0
Max Q Clear Time (g_c+I1), s	11.3	21.4			24.4	16.8
Green Ext Time (p_c), s	0.2	1.0			6.6	1.3

Intersection Summary		
HCM 6th Ctrl Delay		25.9
HCM 6th LOS		C

APPENDIX J

EXISTING + PROJECT PHASES I AND II FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3881	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1021
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5778	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2071
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5666	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1193
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8443	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1796
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5746	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1528
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8573	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1805
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6355	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1352
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9243	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1605
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6462	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1405
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9487	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1976
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6966	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1482
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10183	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2100
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9306	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2045
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7103	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1495
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8540	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1599
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6580	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9485	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2018
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7293	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1899
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7981	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2861
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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Project Information

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Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6238	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1094
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8468	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2228
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

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Jurisdiction	SR163 South of I-8 SB – Ex + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6671	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2292
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5777	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1536
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4818	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1709
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8434	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1757
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7037	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1466
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8554	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2182
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7147	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1489
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9273	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1912
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7872	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1367
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9486	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1956
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8008	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1668
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10195	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2102
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8638	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1800
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8255	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1814
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9918	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2045
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1364
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

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Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9090	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7413	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1544
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7952	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2050
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

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Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6307	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2145
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.3
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6658	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1206
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.0
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

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Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6761	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1742
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7095	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2438
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.07
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX K

EXISTING + PROJECT PHASES I THROUGH III
INTERSECTION ANALYSIS CALCULATION SHEETS



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	559	482	1136	432	199	702	
Future Volume (veh/h)	559	482	1136	432	199	702	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	595	244	1209	38	212	747	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	729	325	1734	1079	296	2245	
Arrive On Green	0.20	0.20	0.49	0.49	0.09	0.63	
Sat Flow, veh/h	3563	1585	3647	1545	3456	3647	
Grp Volume(v), veh/h	595	244	1209	38	212	747	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1545	1728	1777	
Q Serve(g_s), s	12.1	11.0	20.0	0.6	4.5	7.4	
Cycle Q Clear(g_c), s	12.1	11.0	20.0	0.6	4.5	7.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	729	325	1734	1079	296	2245	
V/C Ratio(X)	0.82	0.75	0.70	0.04	0.72	0.33	
Avail Cap(c_a), veh/h	1400	623	2708	1502	346	3307	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	28.8	28.4	15.1	3.7	33.8	6.5	
Incr Delay (d2), s/veh	0.9	1.3	0.7	0.0	4.2	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.8	3.9	6.8	0.3	2.0	2.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.7	29.7	15.8	3.7	38.0	6.7	
LnGrp LOS	C	C	B	A	D	A	
Approach Vol, veh/h	839		1247			959	
Approach Delay, s/veh	29.7		15.4			13.6	
Approach LOS	C		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.9	43.2				54.1	21.7
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	7.6	57.8				* 71	29.8
Max Q Clear Time (g_c+I1), s	6.5	22.0				9.4	14.1
Green Ext Time (p_c), s	0.0	15.0				13.9	1.4

Intersection Summary			
HCM 6th Ctrl Delay		18.8	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	45	82	48	116	103	185	1148	130	118	684	157
Future Volume (veh/h)	50	45	82	48	116	103	185	1148	130	118	684	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	50	91	53	129	114	206	1276	144	131	760	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	202	162	67	204	161	253	1941	905	93	1866	880
Arrive On Green	0.04	0.11	0.11	0.04	0.11	0.11	0.07	0.55	0.55	0.05	0.53	0.53
Sat Flow, veh/h	3456	1870	1498	1781	1870	1473	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	56	50	91	53	129	114	206	1276	144	131	760	174
Grp Sat Flow(s),veh/h/ln	1728	1870	1498	1781	1870	1473	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	1.2	1.9	4.4	2.3	5.1	5.7	4.5	19.5	3.3	4.0	9.9	4.2
Cycle Q Clear(g_c), s	1.2	1.9	4.4	2.3	5.1	5.7	4.5	19.5	3.3	4.0	9.9	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	202	162	67	204	161	253	1941	905	93	1866	880
V/C Ratio(X)	0.45	0.25	0.56	0.79	0.63	0.71	0.81	0.66	0.16	1.41	0.41	0.20
Avail Cap(c_a), veh/h	217	757	606	95	731	575	253	1941	905	93	1866	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	31.3	32.4	36.5	32.6	32.9	35.0	12.3	7.3	36.3	11.0	8.3
Incr Delay (d2), s/veh	0.9	0.6	3.0	15.9	1.2	2.2	17.1	1.8	0.4	235.3	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	1.7	1.3	2.3	2.1	2.4	7.2	1.0	7.8	3.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	31.9	35.5	52.4	33.8	35.1	52.1	14.1	7.7	271.6	11.6	8.8
LnGrp LOS	D	C	D	D	C	D	D	B	A	F	B	A
Approach Vol, veh/h		197			296			1626			1065	
Approach Delay, s/veh		35.0			37.6			18.3			43.1	
Approach LOS		D			D			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	47.1	7.3	13.8	10.0	45.5	7.2	13.9				
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5				
Max Green Setting (Gmax), s	4.0	41.7	4.1	* 31	5.6	* 40	4.8	29.9				
Max Q Clear Time (g_c+I1), s	6.0	21.5	4.3	6.4	6.5	11.9	3.2	7.7				
Green Ext Time (p_c), s	0.0	14.0	0.0	0.5	0.0	10.0	0.0	0.6				

Intersection Summary			
HCM 6th Ctrl Delay		29.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1519	0	317	238	0	0	0	0	261	1	738
Future Volume (veh/h)	0	1519	0	317	238	0	0	0	0	261	1	738
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1582	0	330	248	0				272	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1616	721	417	2244	0				427	2	
Arrive On Green	0.00	0.45	0.00	0.12	0.63	0.00				0.24	0.24	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1775	7	1585
Grp Volume(v), veh/h	0	1582	0	330	248	0				273	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1782	0	1585
Q Serve(g_s), s	0.0	32.8	0.0	7.0	2.1	0.0				10.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	32.8	0.0	7.0	2.1	0.0				10.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1616	721	417	2244	0				429	0	
V/C Ratio(X)	0.00	0.98	0.00	0.79	0.11	0.00				0.64	0.00	
Avail Cap(c_a), veh/h	0	1616	721	447	2274	0				429	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.41	0.41	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	20.1	0.0	32.1	5.5	0.0				25.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	17.5	0.0	3.8	0.0	0.0				2.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.0	0.0	3.0	0.6	0.0				4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	37.6	0.0	35.9	5.5	0.0				27.9	0.0	0.0
LnGrp LOS	A	D	A	D	A	A				C	A	
Approach Vol, veh/h		1582			578						273	A
Approach Delay, s/veh		37.6			22.8						27.9	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.3	39.1		22.6		52.4						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 9.7	34.1		17.4		48.0						
Max Q Clear Time (g_c+I1), s	9.0	34.8		12.3		4.1						
Green Ext Time (p_c), s	0.1	0.0		0.3		1.1						

Intersection Summary			
HCM 6th Ctrl Delay		33.0	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1209	552	0	0	478	476	72	25	247	0	0	0
Future Volume (veh/h)	1209	552	0	0	478	476	72	25	247	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1273	581	0	0	503	501	76	26	260			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1281	2677	0	0	580	518	150	51	178			
Arrive On Green	0.37	0.75	0.00	0.00	0.33	0.33	0.11	0.11	0.11			
Sat Flow, veh/h	3456	3647	0	0	1870	1585	1344	460	1585			
Grp Volume(v), veh/h	1273	581	0	0	503	501	102	0	260			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1803	0	1585			
Q Serve(g_s), s	27.5	3.6	0.0	0.0	19.9	23.3	4.0	0.0	8.4			
Cycle Q Clear(g_c), s	27.5	3.6	0.0	0.0	19.9	23.3	4.0	0.0	8.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.75		1.00			
Lane Grp Cap(c), veh/h	1281	2677	0	0	580	518	202	0	178			
V/C Ratio(X)	0.99	0.22	0.00	0.00	0.87	0.97	0.51	0.00	1.46			
Avail Cap(c_a), veh/h	1281	2677	0	0	580	518	202	0	178			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.28	0.28	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.5	2.7	0.0	0.0	23.7	24.9	31.3	0.0	33.3			
Incr Delay (d2), s/veh	11.9	0.0	0.0	0.0	12.6	31.1	0.8	0.0	237.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.4	0.8	0.0	0.0	9.8	12.6	1.7	0.0	18.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	2.7	0.0	0.0	36.3	56.0	32.2	0.0	270.5			
LnGrp LOS	D	A	A	A	D	E	C	A	F			
Approach Vol, veh/h		1854			1004			362				
Approach Delay, s/veh		25.2			46.1			203.4				
Approach LOS		C			D			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		62.0		13.0	32.0	30.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		56.5		8.4	* 28	24.5						
Max Q Clear Time (g_c+I1), s		5.6		10.4	29.5	25.3						
Green Ext Time (p_c), s		2.9		0.0	0.0	0.0						

Intersection Summary			
HCM 6th Ctrl Delay		51.7	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	430	75	172	698	19	270	25	278	31	31	51
Future Volume (veh/h)	25	430	75	172	698	19	270	25	278	31	31	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	478	83	191	776	21	300	28	309	34	34	57
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	1448	618	172	1705	46	317	531	594	43	243	200
Arrive On Green	0.02	0.41	0.41	0.10	0.48	0.48	0.18	0.28	0.28	0.02	0.13	0.13
Sat Flow, veh/h	1781	3554	1516	1781	3531	96	1781	1870	1553	1781	1870	1541
Grp Volume(v), veh/h	28	478	83	191	390	407	300	28	309	34	34	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1516	1781	1777	1850	1781	1870	1553	1781	1870	1541
Q Serve(g_s), s	1.7	10.1	3.8	10.6	16.0	16.0	18.3	1.2	16.9	2.1	1.8	3.7
Cycle Q Clear(g_c), s	1.7	10.1	3.8	10.6	16.0	16.0	18.3	1.2	16.9	2.1	1.8	3.7
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	37	1448	618	172	858	893	317	531	594	43	243	200
V/C Ratio(X)	0.75	0.33	0.13	1.11	0.46	0.46	0.95	0.05	0.52	0.79	0.14	0.28
Avail Cap(c_a), veh/h	97	1448	618	172	858	893	317	663	703	102	442	364
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	22.3	20.4	49.7	18.8	18.8	44.7	28.6	26.4	53.4	42.4	43.2
Incr Delay (d2), s/veh	10.7	0.6	0.5	102.1	1.7	1.7	35.8	0.0	0.3	11.6	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	1.4	9.6	6.9	7.1	11.2	0.5	6.2	1.1	0.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	22.9	20.9	151.8	20.6	20.5	80.5	28.6	26.6	65.0	42.5	43.5
LnGrp LOS	E	C	C	F	C	C	F	C	C	E	D	D
Approach Vol, veh/h		589			988			637			125	
Approach Delay, s/veh		24.6			45.9			52.1			49.1	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	51.5	24.0	19.5	6.7	59.8	7.0	36.4
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	10.6	* 34	19.6	* 26	6.0	38.0	6.3	39.0
Max Q Clear Time (g_c+I1), s	12.6	12.1	20.3	5.7	3.7	18.0	4.1	18.9
Green Ext Time (p_c), s	0.0	2.4	0.0	0.2	0.0	3.4	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay	42.4	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	172	3	3	870	462	0	0	15	88	1	236
Future Volume (vph)	290	172	3	3	870	462	0	0	15	88	1	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (prot)	3433	3529		1752	3335				1520	1681	1687	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.95	1.00
Satd. Flow (perm)	3433	3529		1752	3335				1520	1681	1687	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	322	191	3	3	967	513	0	0	17	98	1	262
RTOR Reduction (vph)	0	1	0	0	44	0	0	0	17	0	0	168
Lane Group Flow (vph)	322	193	0	3	1436	0	0	0	0	49	50	94
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	14.9	75.3		0.8	61.2				2.1	31.3	31.3	46.2
Effective Green, g (s)	14.9	75.3		0.8	61.2				2.1	31.3	31.3	46.2
Actuated g/C Ratio	0.12	0.59		0.01	0.48				0.02	0.24	0.24	0.36
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	399	2074		10	1593				24	410	412	565
v/s Ratio Prot	c0.09	0.05		0.00	c0.43					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.81	0.09		0.30	0.90				0.01	0.12	0.12	0.17
Uniform Delay, d1	55.2	11.5		63.4	30.7				62.0	37.7	37.7	27.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7	0.0		6.1	8.7				0.2	0.6	0.6	0.1
Delay (s)	65.9	11.5		69.4	39.3				62.2	38.3	38.3	27.9
Level of Service	E	B		E	D				E	D	D	C
Approach Delay (s)		45.5			39.4			62.2			30.8	
Approach LOS		D			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	128.1	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	84.4%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	217	421	1052	956	313	86
Future Volume (vph)	217	421	1052	956	313	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1549	3430	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1549	3430	1419
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	233	453	1131	1028	337	92
RTOR Reduction (vph)	0	0	0	390	2	68
Lane Group Flow (vph)	233	453	1131	638	344	15
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.9	49.4	29.5	45.0	15.5	15.5
Effective Green, g (s)	15.9	49.4	29.5	45.0	15.5	15.5
Actuated g/C Ratio	0.18	0.56	0.33	0.51	0.17	0.17
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	317	1970	1177	785	599	247
v/s Ratio Prot	c0.13	0.13	c0.32	c0.14	0.10	
v/s Ratio Perm				0.27		0.01
v/c Ratio	0.74	0.23	0.96	0.81	0.57	0.06
Uniform Delay, d1	34.4	10.0	29.0	18.3	33.6	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	0.3	17.7	7.3	2.1	0.2
Delay (s)	41.8	10.3	46.8	25.6	35.7	30.7
Level of Service	D	B	D	C	D	C
Approach Delay (s)		21.0	36.7		34.7	
Approach LOS		C	D		C	

Intersection Summary				
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	18.9
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	600	19	13	2008	97	53	5	34	70	2	32
Future Volume (veh/h)	39	600	19	13	2008	97	53	5	34	70	2	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	667	14	14	2231	99	59	6	0	78	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	2064	43	109	2109	93	261	22	196	297	231	0
Arrive On Green	0.03	0.58	0.58	0.06	0.61	0.61	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3556	75	1781	3465	153	1258	175	1585	1387	1870	0
Grp Volume(v), veh/h	43	333	348	14	1135	1195	65	0	0	78	2	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1841	1433	0	1585	1387	1870	0
Q Serve(g_s), s	1.6	6.3	6.3	0.5	39.7	39.7	2.5	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	1.6	6.3	6.3	0.5	39.7	39.7	2.7	0.0	0.0	2.7	0.1	0.0
Prop In Lane	1.00		0.04	1.00		0.08	0.91		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	59	1031	1076	109	1081	1120	282	0	196	297	231	0
V/C Ratio(X)	0.73	0.32	0.32	0.13	1.05	1.07	0.23	0.00	0.00	0.26	0.01	0.00
Avail Cap(c_a), veh/h	109	1031	1076	437	1081	1120	782	0	753	785	889	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.2	7.1	7.1	29.0	12.8	12.8	26.2	0.0	0.0	26.2	25.1	0.0
Incr Delay (d2), s/veh	6.2	0.8	0.8	0.2	41.4	46.5	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	2.0	0.2	22.2	24.6	0.9	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	7.9	7.9	29.2	54.1	59.3	26.3	0.0	0.0	26.4	25.1	0.0
LnGrp LOS	D	A	A	C	F	F	C	A	A	C	C	A
Approach Vol, veh/h		724			2344			65			80	
Approach Delay, s/veh		9.6			56.6			26.3			26.4	
Approach LOS		A			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	43.9		13.0	6.6	45.7		13.0				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 28		31.0	4.0	39.7		31.0				
Max Q Clear Time (g_c+I1), s	2.5	8.3		4.7	3.6	41.7		4.7				
Green Ext Time (p_c), s	0.0	8.6		0.1	0.0	0.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	44.7	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	703	1313	33	39	27
Future Vol, veh/h	40	703	1313	33	39	27
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	764	1427	36	42	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1500	0	-	0	1950	769
Stage 1	-	-	-	-	1482	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	443	-	-	-	56	344
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	429	-	-	-	47	333
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	42.6
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	429	-	-	-	165
HCM Lane V/C Ratio	0.101	-	-	-	0.435
HCM Control Delay (s)	14.3	-	-	-	42.6
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	2

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	721	20	0	1346	0	87
Future Vol, veh/h	721	20	0	1346	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	784	22	0	1463	0	95

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	403
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	597
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	597
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	597	-	-	-
HCM Lane V/C Ratio	0.158	-	-	-
HCM Control Delay (s)	12.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Existing + P1 + P2 +P3 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	570	51	10	1668	481	277	102	58	179	31	115
Future Volume (veh/h)	145	570	51	10	1668	481	277	102	58	179	31	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	161	633	55	11	1853	363	301	111	63	199	34	0
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1501	130	19	1424	614	308	194	110	239	41	248
Arrive On Green	0.06	0.46	0.46	0.01	0.40	0.40	0.17	0.17	0.17	0.16	0.16	0.00
Sat Flow, veh/h	1781	3298	286	1781	3554	1531	1781	1120	636	1532	262	1585
Grp Volume(v), veh/h	161	341	347	11	1853	363	301	0	174	233	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1807	1781	1777	1531	1781	0	1756	1794	0	1585
Q Serve(g_s), s	5.6	12.0	12.0	0.6	37.1	17.2	15.6	0.0	8.4	11.7	0.0	0.0
Cycle Q Clear(g_c), s	5.6	12.0	12.0	0.6	37.1	17.2	15.6	0.0	8.4	11.7	0.0	0.0
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.36	0.85		1.00
Lane Grp Cap(c), veh/h	108	809	822	19	1424	614	308	0	304	280	0	248
V/C Ratio(X)	1.49	0.42	0.42	0.58	1.30	0.59	0.98	0.00	0.57	0.83	0.00	0.00
Avail Cap(c_a), veh/h	108	809	822	77	1424	614	308	0	304	657	0	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.5	17.0	17.0	45.6	27.7	21.8	38.1	0.0	35.1	37.9	0.0	0.0
Incr Delay (d2), s/veh	264.6	1.6	1.6	25.0	140.6	4.2	45.0	0.0	2.6	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	4.8	4.9	0.4	41.9	6.3	10.5	0.0	3.8	5.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	308.1	18.6	18.6	70.6	168.4	25.9	83.1	0.0	37.7	40.3	0.0	0.0
LnGrp LOS	F	B	B	E	F	C	F	A	D	D	A	A
Approach Vol, veh/h		849			2227			475			233	
Approach Delay, s/veh		73.5			144.7			66.5			40.3	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	48.0		19.6	10.0	43.0		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 39		33.9	5.6	37.1		16.0				
Max Q Clear Time (g_c+I1), s	2.6	14.0		13.7	7.6	39.1		17.6				
Green Ext Time (p_c), s	0.0	3.0		0.8	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		112.5	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Existing + P1 + P2 +P3 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	781	131	78	1870	141	86
Future Volume (veh/h)	781	131	78	1870	141	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	849	142	85	2033	123	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1225	205	173	2153	236	213
Arrive On Green	0.40	0.40	0.10	0.61	0.13	0.13
Sat Flow, veh/h	3140	509	1781	3647	1781	1610
Grp Volume(v), veh/h	495	496	85	2033	123	125
Grp Sat Flow(s),veh/h/ln	1777	1779	1781	1777	1781	1610
Q Serve(g_s), s	9.5	9.5	1.9	21.7	2.7	3.0
Cycle Q Clear(g_c), s	9.5	9.5	1.9	21.7	2.7	3.0
Prop In Lane		0.29	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	715	715	173	2153	236	213
V/C Ratio(X)	0.69	0.69	0.49	0.94	0.52	0.59
Avail Cap(c_a), veh/h	715	715	199	2162	2336	2112
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	10.2	17.7	7.5	16.7	16.8
Incr Delay (d2), s/veh	2.9	2.9	2.2	9.4	1.8	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.8	0.7	5.1	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	13.1	19.8	16.8	18.5	19.4
LnGrp LOS	B	B	B	B	B	B
Approach Vol, veh/h	991			2118	248	
Approach Delay, s/veh	13.1			17.0	18.9	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	8.4	22.5				30.9	10.4
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	4.6	* 16				25.1	54.1
Max Q Clear Time (g_c+I1), s	3.9	11.5				23.7	5.0
Green Ext Time (p_c), s	0.0	2.4				1.3	0.8

Intersection Summary			
HCM 6th Ctrl Delay		16.0	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	843	41	0	1948	0	44
Future Vol, veh/h	843	41	0	1948	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	916	45	0	2117	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	481
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	531
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	531
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	531	-	-	-
HCM Lane V/C Ratio	0.09	-	-	-
HCM Control Delay (s)	12.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	867	20	41	1890	58	116
Future Volume (veh/h)	0	867	20	41	1890	58	116
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		942	22	45	2054	63	126
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		1308	31	179	2059	82	164
Arrive On Green		0.37	0.37	0.10	0.58	0.15	0.15
Sat Flow, veh/h		3643	83	1781	3647	546	1092
Grp Volume(v), veh/h		472	492	45	2054	190	0
Grp Sat Flow(s),veh/h/ln		1777	1855	1781	1777	1647	0
Q Serve(g_s), s		9.1	9.1	0.9	23.0	4.4	0.0
Cycle Q Clear(g_c), s		9.1	9.1	0.9	23.0	4.4	0.0
Prop In Lane			0.04	1.00		0.33	0.66
Lane Grp Cap(c), veh/h		655	684	179	2059	247	0
V/C Ratio(X)		0.72	0.72	0.25	1.00	0.77	0.00
Avail Cap(c_a), veh/h		878	917	179	2059	665	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		10.8	10.8	16.6	8.4	16.3	0.0
Incr Delay (d2), s/veh		1.9	1.8	0.7	19.3	5.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.5	2.6	0.3	8.2	1.7	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		12.7	12.6	17.3	27.6	21.3	0.0
LnGrp LOS		B	B	B	C	C	A
Approach Vol, veh/h		964			2099	190	
Approach Delay, s/veh		12.7			27.4	21.3	
Approach LOS		B			C	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.4	20.6				29.0		10.9
Change Period (Y+Rc), s	4.4	5.9				* 5.9		4.9
Max Green Setting (Gmax), s	4.0	19.7				* 20		16.1
Max Q Clear Time (g_c+I1), s	2.9	11.1				25.0		6.4
Green Ext Time (p_c), s	0.0	3.6				0.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 + P2 +P3 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	858	123	365	1643	8	283	1	160	17	2	5
Future Volume (veh/h)	2	858	123	365	1643	8	283	1	160	17	2	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	953	137	406	1826	7	314	1	178	19	2	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1580	226	420	1708	7	565	2	765	219	27	45
Arrive On Green	0.00	0.35	0.35	0.24	0.94	0.94	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1781	4498	644	3456	3630	14	1378	4	1576	449	74	125
Grp Volume(v), veh/h	2	720	370	406	893	940	315	0	178	26	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1739	1728	1777	1867	1383	0	1576	647	0	0
Q Serve(g_s), s	0.1	19.5	19.6	13.0	52.7	52.7	0.0	0.0	7.3	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.1	19.5	19.6	13.0	52.7	52.7	21.4	0.0	7.3	22.3	0.0	0.0
Prop In Lane	1.00		0.37	1.00		0.01	1.00		1.00	0.73		0.19
Lane Grp Cap(c), veh/h	4	1196	611	420	836	879	567	0	765	291	0	0
V/C Ratio(X)	0.52	0.60	0.61	0.97	1.07	1.07	0.56	0.00	0.23	0.09	0.00	0.00
Avail Cap(c_a), veh/h	64	1292	660	420	836	879	567	0	765	291	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.50	0.50	0.50	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.8	29.9	29.9	42.2	3.3	3.3	29.5	0.0	16.8	28.9	0.0	0.0
Incr Delay (d2), s/veh	35.2	0.7	1.4	23.2	42.8	42.8	3.9	0.0	0.7	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	7.7	8.0	6.0	11.2	11.8	7.5	0.0	2.8	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	30.6	31.3	65.4	46.1	46.1	33.4	0.0	17.5	29.5	0.0	0.0
LnGrp LOS	F	C	C	E	F	F	C	A	B	C	A	A
Approach Vol, veh/h		1092			2239			493			26	
Approach Delay, s/veh		30.9			49.6			27.7			29.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	45.2		45.6	4.6	58.6		45.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	13.6	42.5		40.7	4.0	* 53		40.7				
Max Q Clear Time (g_c+I1), s	15.0	21.6		24.3	2.1	54.7		23.4				
Green Ext Time (p_c), s	0.0	6.6		0.0	0.0	0.0		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		41.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1037	15	84	2035	4	23
Future Volume (veh/h)	0	1037	15	84	2035	4	23
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		1127	12	91	2212	4	0
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		4339	46	123	3228	7	7
Arrive On Green		1.00	1.00	0.04	0.91	0.00	0.00
Sat Flow, veh/h		5375	55	3456	3647	1781	1585
Grp Volume(v), veh/h		737	402	91	2212	4	0
Grp Sat Flow(s),veh/h/ln		1702	1859	1728	1777	1781	1585
Q Serve(g_s), s		0.0	0.0	2.9	16.9	0.3	0.0
Cycle Q Clear(g_c), s		0.0	0.0	2.9	16.9	0.3	0.0
Prop In Lane			0.03	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2837	1549	123	3228	7	7
V/C Ratio(X)		0.26	0.26	0.74	0.69	0.54	0.00
Avail Cap(c_a), veh/h		2837	1549	123	3228	503	447
HCM Platoon Ratio		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.85	0.85	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	53.5	1.2	55.7	0.0
Incr Delay (d2), s/veh		0.2	0.3	18.3	1.2	20.5	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.1	0.1	1.5	0.5	0.2	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		0.2	0.3	71.8	2.5	76.2	0.0
LnGrp LOS		A	A	E	A	E	A
Approach Vol, veh/h		1139			2303	4	
Approach Delay, s/veh		0.2			5.2	76.2	
Approach LOS		A			A	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.4	98.7				107.1		4.9
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	4.0	62.6				* 63		31.6
Max Q Clear Time (g_c+I1), s	4.9	2.0				18.9		2.3
Green Ext Time (p_c), s	0.0	11.7				33.8		0.0

Intersection Summary			
HCM 6th Ctrl Delay		3.6	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1033	21	159	2118	2	3	0	15	27	0	3
Future Volume (veh/h)	0	1033	21	159	2118	2	3	0	15	27	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1099	22	169	2253	2	3	0	16	29	0	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2	3902	78	204	4509	4	134	0	163	136	0	81
Arrive On Green	0.00	0.76	0.76	0.06	0.86	0.86	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1781	5151	103	3456	5269	5	1390	0	3115	1374	0	1558
Grp Volume(v), veh/h	0	726	395	169	1456	799	3	0	16	29	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1728	1702	1869	1390	0	1558	1374	0	1558
Q Serve(g_s), s	0.0	7.4	7.4	5.4	12.1	12.1	0.2	0.0	0.5	2.3	0.0	0.2
Cycle Q Clear(g_c), s	0.0	7.4	7.4	5.4	12.1	12.1	0.4	0.0	0.5	2.3	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	2579	1402	204	2913	1600	134	0	163	136	0	81
V/C Ratio(X)	0.00	0.28	0.28	0.83	0.50	0.50	0.02	0.00	0.10	0.21	0.00	0.04
Avail Cap(c_a), veh/h	64	2579	1402	204	2913	1600	435	0	837	433	0	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.2	4.2	52.1	2.0	2.0	50.6	0.0	50.6	51.4	0.0	50.4
Incr Delay (d2), s/veh	0.0	0.3	0.5	22.8	0.6	1.1	0.0	0.0	0.1	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	2.2	2.9	1.4	1.8	0.1	0.0	0.2	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.5	4.7	75.0	2.6	3.2	50.6	0.0	50.7	51.7	0.0	50.5
LnGrp LOS	A	A	A	E	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1121			2424			19			32	
Approach Delay, s/veh		4.5			7.9			50.7			51.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	90.3		10.7	0.0	101.3		10.7				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	6.6	60.6		30.1	4.0	* 63		30.1				
Max Q Clear Time (g_c+I1), s	7.4	9.4		4.3	0.0	14.1		2.5				
Green Ext Time (p_c), s	0.0	11.2		0.0	0.0	33.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1154	59	0	2095	0	43
Future Vol, veh/h	1154	59	0	2095	0	43
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1282	66	0	2328	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	684
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	335
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	332
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

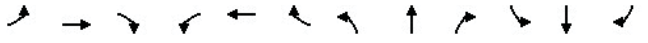
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	332	-	-	-
HCM Lane V/C Ratio	0.144	-	-	-
HCM Control Delay (s)	17.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	632	0	491	447
Future Volume (Veh/h)	0	0	632	0	491	447
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	687	0	534	486
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	1998	344			687	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1998	344			687	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			41	
cM capacity (veh/h)	21	652			903	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	458	229	534	243	243
Volume Left	0	0	534	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	903	1700	1700
Volume to Capacity	0.27	0.13	0.59	0.14	0.14
Queue Length 95th (ft)	0	0	100	0	0
Control Delay (s)	0.0	0.0	14.6	0.0	0.0
Lane LOS			B		
Approach Delay (s)	0.0		7.6		
Approach LOS					

Intersection Summary				
Average Delay		4.6		
Intersection Capacity Utilization		51.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	793	263	0	1465	463	628	33	770	307	0	102
Future Volume (vph)	70	793	263	0	1465	463	628	33	770	307	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.0	4.0		7.0	7.0	4.6	4.6	4.0	4.6		4.6
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1551		4782	1344	1681	1693	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1551		4782	1344	1681	1693	1564	3433		1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	74	844	280	0	1559	493	668	35	819	327	0	109
RTOR Reduction (vph)	0	0	0	0	2	56	0	0	0	0	0	88
Lane Group Flow (vph)	74	844	280	0	1606	388	347	356	819	327	0	21
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1			1			1
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	12.0	65.7	140.0		49.5	49.5	31.6	31.6	140.0	26.5		26.5
Effective Green, g (s)	12.0	65.7	140.0		49.5	49.5	31.6	31.6	140.0	26.5		26.5
Actuated g/C Ratio	0.09	0.47	1.00		0.35	0.35	0.23	0.23	1.00	0.19		0.19
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	151	2386	1551		1690	475	379	382	1564	649		299
v/s Ratio Prot	0.04	0.17			c0.34					0.10		0.01
v/s Ratio Perm			0.18			0.29	0.21	0.21	c0.52			
v/c Ratio	0.49	0.35	0.18		0.95	0.82	0.92	0.93	0.52	0.50		0.07
Uniform Delay, d1	61.1	23.6	0.0		44.1	41.1	52.9	53.1	0.0	50.9		46.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.9	0.4	0.3		12.9	14.4	29.1	31.7	1.3	0.2		0.0
Delay (s)	62.0	24.1	0.3		57.0	55.5	82.0	84.8	1.3	51.1		46.7
Level of Service	E	C	A		E	E	F	F	A	D		D
Approach Delay (s)		20.8			56.6			39.2			50.0	
Approach LOS		C			E			D			D	

Intersection Summary					
HCM 2000 Control Delay		42.8	HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio		0.85			
Actuated Cycle Length (s)		140.0	Sum of lost time (s)		20.4
Intersection Capacity Utilization		82.3%	ICU Level of Service		E
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Existing + P1 + P2 +P3 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	1283	0	0	1539	703	0	0	857	0	0	710
Future Volume (veh/h)	590	1283	0	0	1539	703	0	0	857	0	0	710
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	621	1351	0	0	1620	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	617	5391	0	0	2069							
Arrive On Green	0.35	0.96	0.00	0.00	0.58	0.00						
Sat Flow, veh/h	1781	5611	0	0	3647	1585						
Grp Volume(v), veh/h	621	1351	0	0	1620	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1777	1585						
Q Serve(g_s), s	48.5	1.7	0.0	0.0	49.0	0.0						
Cycle Q Clear(g_c), s	48.5	1.7	0.0	0.0	49.0	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	617	5391	0	0	2069							
V/C Ratio(X)	1.01	0.25	0.00	0.00	0.78							
Avail Cap(c_a), veh/h	617	5391	0	0	2069							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	45.8	0.1	0.0	0.0	22.5	0.0						
Incr Delay (d2), s/veh	36.9	0.1	0.0	0.0	3.0	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	26.9	0.1	0.0	0.0	20.7	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.6	0.2	0.0	0.0	25.5	0.0						
LnGrp LOS	F	A	A	A	C							
Approach Vol, veh/h		1972			1620	A						
Approach Delay, s/veh		26.2			25.5							
Approach LOS		C			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		140.0			53.0	87.0						
Change Period (Y+Rc), s		5.5			4.5	5.5						
Max Green Setting (Gmax), s		134.5			48.5	81.5						
Max Q Clear Time (g_c+I1), s		3.7			50.5	51.0						
Green Ext Time (p_c), s		7.2			0.0	11.2						
Intersection Summary												
HCM 6th Ctrl Delay			25.9									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	648	953	460	104	1765	42	137	106	38	29	43	278
Future Volume (veh/h)	648	953	460	104	1765	42	137	106	38	29	43	278
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	675	993	479	108	1839	44	143	110	40	30	0	320
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	654	2505	766	124	1894	578	193	669	231	107	0	717
Arrive On Green	0.19	0.49	0.49	0.07	0.37	0.37	0.06	0.26	0.26	0.03	0.00	0.23
Sat Flow, veh/h	3456	5106	1562	1781	5106	1559	3456	2567	885	3563	0	3053
Grp Volume(v), veh/h	675	993	479	108	1839	44	143	74	76	30	0	320
Grp Sat Flow(s),veh/h/ln	1728	1702	1562	1781	1702	1559	1728	1777	1675	1781	0	1526
Q Serve(g_s), s	25.6	16.6	30.5	8.1	47.9	2.5	5.5	4.4	4.7	1.1	0.0	12.1
Cycle Q Clear(g_c), s	25.6	16.6	30.5	8.1	47.9	2.5	5.5	4.4	4.7	1.1	0.0	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	654	2505	766	124	1894	578	193	463	437	107	0	717
V/C Ratio(X)	1.03	0.40	0.63	0.87	0.97	0.08	0.74	0.16	0.17	0.28	0.00	0.45
Avail Cap(c_a), veh/h	654	2505	766	124	1894	578	289	643	606	158	0	986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	21.8	25.3	62.4	41.9	27.6	62.9	38.6	38.7	64.2	0.0	44.3
Incr Delay (d2), s/veh	43.9	0.5	3.8	43.5	14.9	0.3	3.0	0.1	0.1	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.8	6.5	12.1	5.1	21.9	1.0	2.5	1.9	2.0	0.5	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.8	22.3	29.2	105.9	56.7	27.8	65.9	38.7	38.8	65.0	0.0	44.5
LnGrp LOS	F	C	C	F	E	C	E	D	D	E	A	D
Approach Vol, veh/h		2147			1991			293			350	
Approach Delay, s/veh		47.9			58.8			52.0			46.3	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	72.9	12.0	36.7	30.0	56.7	8.5	40.2				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.4	* 66	11.3	43.7	25.6	49.2	6.0	49.0				
Max Q Clear Time (g_c+I1), s	10.1	32.5	7.5	14.1	27.6	49.9	3.1	6.7				
Green Ext Time (p_c), s	0.0	14.6	0.1	0.9	0.0	0.0	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			52.5									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	147	0	329	142	498	0	0	388	272
Future Volume (veh/h)	0	0	0	147	0	329	142	498	0	0	388	272
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				155	0	346	149	524	0	0	408	286
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				913	0	398	214	2201	0	0	1807	802
Arrive On Green				0.26	0.00	0.26	0.12	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				155	0	346	149	524	0	0	408	286
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1578
Q Serve(g_s), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.7	9.8
Cycle Q Clear(g_c), s				3.0	0.0	19.2	3.7	0.0	0.0	0.0	5.7	9.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				913	0	398	214	2201	0	0	1807	802
V/C Ratio(X)				0.17	0.00	0.87	0.70	0.24	0.00	0.00	0.23	0.36
Avail Cap(c_a), veh/h				1429	0	624	215	2201	0	0	1807	802
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.0	0.0	32.0	38.6	0.0	0.0	0.0	12.3	13.3
Incr Delay (d2), s/veh				0.1	0.0	8.0	7.7	0.2	0.0	0.0	0.3	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	7.6	1.7	0.1	0.0	0.0	2.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.1	0.0	40.0	46.3	0.2	0.0	0.0	12.6	14.5
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					501			673			694	
Approach Delay, s/veh					35.7			10.4			13.4	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.0			10.0	52.1		28.0				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 44			5.6	32.7		36.1				
Max Q Clear Time (g_c+I1), s		2.0			5.7	11.8		21.2				
Green Ext Time (p_c), s		3.4			0.0	6.5		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	3	173	0	0	0	0	443	78	122	406	0
Future Volume (veh/h)	170	3	173	0	0	0	0	443	78	122	406	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	185	0	0				0	476	56	131	437	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	392	0	174				0	2133	250	195	2740	0
Arrive On Green	0.11	0.00	0.00				0.00	0.67	0.67	0.11	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3298	375	3456	3647	0
Grp Volume(v), veh/h	185	0	0				0	263	269	131	437	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1803	1728	1777	0
Q Serve(g_s), s	4.4	0.0	0.0				0.0	5.2	5.3	3.3	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0				0.0	5.2	5.3	3.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	392	0	174				0	1183	1200	195	2740	0
V/C Ratio(X)	0.47	0.00	0.00				0.00	0.22	0.22	0.67	0.16	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1183	1200	215	2740	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	37.6	0.0	0.0				0.0	5.9	5.9	39.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0				0.0	0.4	0.4	5.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0				0.0	1.8	1.9	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	0.0				0.0	6.3	6.3	44.2	0.1	0.0
LnGrp LOS	D	A	A				A	A	A	D	A	A
Approach Vol, veh/h		185						532			568	
Approach Delay, s/veh		38.5						6.3			10.3	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.5	65.7		14.8		75.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	5.6	* 43		27.1		52.2						
Max Q Clear Time (g_c+I1), s	5.3	7.3		6.4		2.0						
Green Ext Time (p_c), s	0.0	5.2		0.5		4.0						

Intersection Summary			
HCM 6th Ctrl Delay		12.7	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	182	1	3	500	40	0	0	20	31
Future Volume (veh/h)	0	0	0	182	1	3	500	40	0	0	20	31
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				190	0	0	510	41	0	0	20	32
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				266	140	0	551	2933	0	0	1590	740
Arrive On Green				0.07	0.00	0.00	0.31	0.83	0.00	0.00	0.47	0.47
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3572	1585
Grp Volume(v), veh/h				190	0	0	510	41	0	0	20	32
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1585
Q Serve(g_s), s				5.2	0.0	0.0	27.7	0.2	0.0	0.0	0.3	1.1
Cycle Q Clear(g_c), s				5.2	0.0	0.0	27.7	0.2	0.0	0.0	0.3	1.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				266	140	0	551	2933	0	0	1590	740
V/C Ratio(X)				0.71	0.00	0.00	0.93	0.01	0.00	0.00	0.01	0.04
Avail Cap(c_a), veh/h				998	524	0	643	2933	0	0	1590	740
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.2	0.0	0.0	33.4	1.5	0.0	0.0	14.3	14.5
Incr Delay (d2), s/veh				1.3	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	14.4	0.0	0.0	0.0	0.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				46.6	0.0	0.0	51.5	1.6	0.0	0.0	14.3	14.6
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					190			551			52	
Approach Delay, s/veh					46.6			47.8			14.5	
Approach LOS					D			D			B	

Timer - Assigned Phs	2		5	6	8			
Phs Duration (G+Y+Rc), s	87.6		35.8	51.8	12.4			
Change Period (Y+Rc), s	5.1		4.9	* 5.1	4.9			
Max Green Setting (Gmax), s	62.0		36.1	* 21	28.0			
Max Q Clear Time (g_c+I1), s	2.2		29.7	3.1	7.2			
Green Ext Time (p_c), s	0.3		1.2	0.2	0.3			

Intersection Summary		
HCM 6th Ctrl Delay		45.3
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	0	150	0	0	0	0	455	187	4	188	0
Future Volume (veh/h)	82	0	150	0	0	0	0	455	187	4	188	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	158				0	479	197	4	198	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	244	0	216				0	2413	1052	8	2623	0
Arrive On Green	0.14	0.00	0.14				0.00	0.68	0.68	0.00	0.74	0.00
Sat Flow, veh/h	1781	0	1575				0	3647	1550	1781	3647	0
Grp Volume(v), veh/h	86	0	158				0	479	197	4	198	0
Grp Sat Flow(s),veh/h/ln	1781	0	1575				0	1777	1550	1781	1777	0
Q Serve(g_s), s	3.5	0.0	7.7				0.0	4.0	3.7	0.2	1.2	0.0
Cycle Q Clear(g_c), s	3.5	0.0	7.7				0.0	4.0	3.7	0.2	1.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	244	0	216				0	2413	1052	8	2623	0
V/C Ratio(X)	0.35	0.00	0.73				0.00	0.20	0.19	0.53	0.08	0.00
Avail Cap(c_a), veh/h	782	0	691				0	2413	1052	125	2623	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	31.3	0.0	33.1				0.0	4.8	4.7	39.7	2.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.8				0.0	0.2	0.4	18.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.8				0.0	1.2	1.1	0.1	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	0.0	34.9				0.0	5.0	5.1	58.6	3.0	0.0
LnGrp LOS	C	A	C				A	A	A	E	A	A
Approach Vol, veh/h		244						676			202	
Approach Delay, s/veh		33.8						5.0			4.1	
Approach LOS		C						A			A	

Timer - Assigned Phs	1	2		4		6			
Phs Duration (G+Y+Rc), s	4.7	59.4		15.8		64.2			
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1			
Max Green Setting (Gmax), s	5.6	24.9		35.1		* 35			
Max Q Clear Time (g_c+I1), s	2.2	6.0		9.7		3.2			
Green Ext Time (p_c), s	0.0	4.4		0.5		0.8			

Intersection Summary		
HCM 6th Ctrl Delay		11.1
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	677	38	148	1460	178	127	47	65	6	4	14
Future Volume (veh/h)	78	677	38	148	1460	178	127	47	65	6	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	83	720	40	157	1553	189	135	50	69	6	4	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	2465	136	185	2504	304	277	105	126	131	98	290
Arrive On Green	0.06	0.48	0.48	0.10	0.52	0.52	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5142	284	1853	4796	583	786	355	426	320	331	977
Grp Volume(v), veh/h	83	495	265	157	1146	596	254	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1886	1853	1770	1839	1567	0	0	1628	0	0
Q Serve(g_s), s	5.5	10.6	10.7	10.4	28.6	28.7	15.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.5	10.6	10.7	10.4	28.6	28.7	16.8	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.32	0.53		0.27	0.24		0.60
Lane Grp Cap(c), veh/h	106	1697	904	185	1848	960	509	0	0	519	0	0
V/C Ratio(X)	0.78	0.29	0.29	0.85	0.62	0.62	0.50	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	202	1697	904	305	1848	960	509	0	0	519	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.2	19.7	19.7	55.3	21.1	21.1	36.7	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.7	0.4	0.8	5.4	1.6	3.0	3.5	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.3	4.7	5.0	11.4	12.3	7.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	20.1	20.5	60.7	22.7	24.1	40.2	0.0	0.0	31.5	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		843			1899			254			25	
Approach Delay, s/veh		24.5			26.3			40.2			31.5	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	66.1		42.0	11.5	71.5		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	12.4	12.7		3.3	7.5	30.7		18.8				
Green Ext Time (p_c), s	0.1	17.2		0.1	0.0	25.9		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		27.0
HCM 6th LOS		C

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	87	10	443	470	20
Future Vol, veh/h	0	87	10	443	470	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	95	11	482	511	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	267	533	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	731	1031	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	731	1031	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1031	-	731	-	-
HCM Lane V/C Ratio	0.011	-	0.129	-	-
HCM Control Delay (s)	8.5	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Existing + P1 + P2 +P3 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	151	391	215	54	95	169	248	69	119	360	37
Future Volume (veh/h)	2	151	391	215	54	95	169	248	69	119	360	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	154	399	219	55	97	172	253	70	121	367	38
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	623	526	276	53	520	204	1073	288	151	1176	121
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.11	0.39	0.39	0.08	0.36	0.36
Sat Flow, veh/h	1235	1870	1581	629	158	1561	1781	2726	732	1781	3230	332
Grp Volume(v), veh/h	2	154	399	274	0	97	172	162	161	121	200	205
Grp Sat Flow(s),veh/h/ln	1235	1870	1581	786	0	1561	1781	1777	1682	1781	1777	1785
Q Serve(g_s), s	0.0	5.8	21.7	26.3	0.0	4.3	9.1	5.9	6.2	6.4	7.8	7.9
Cycle Q Clear(g_c), s	32.1	5.8	21.7	32.1	0.0	4.3	9.1	5.9	6.2	6.4	7.8	7.9
Prop In Lane	1.00		1.00	0.80		1.00	1.00		0.44	1.00		0.19
Lane Grp Cap(c), veh/h	75	623	526	329	0	520	204	699	662	151	647	650
V/C Ratio(X)	0.03	0.25	0.76	0.83	0.00	0.19	0.84	0.23	0.24	0.80	0.31	0.31
Avail Cap(c_a), veh/h	75	623	526	329	0	520	214	699	662	270	647	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	23.4	28.7	35.6	0.0	22.9	41.9	19.5	19.6	43.3	22.0	22.0
Incr Delay (d2), s/veh	0.1	0.1	5.7	18.0	0.0	0.4	23.0	0.8	0.9	3.7	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	8.8	8.0	0.0	1.6	5.3	2.5	2.5	3.0	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	23.5	34.4	53.7	0.0	23.2	64.8	20.3	20.5	47.0	23.2	23.3
LnGrp LOS	D	C	C	D	A	C	E	C	C	D	C	C
Approach Vol, veh/h		555			371			495			526	
Approach Delay, s/veh		31.4			45.7			35.8			28.7	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	44.9		39.0	15.4	42.0		39.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	14.6	30.1		32.1	11.6	* 35		32.1				
Max Q Clear Time (g_c+I1), s	8.4	8.2		34.1	11.1	9.9		34.1				
Green Ext Time (p_c), s	0.1	1.4		0.0	0.0	2.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			34.5
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Existing + P1 + P2 +P3 AM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	0	24	0	0	0	85	347	0	0	345	621
Future Volume (veh/h)	134	0	24	0	0	0	85	347	0	0	345	621
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	154	0	17				92	377	0	0	375	675
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	314	0	140				226	2323	0	5	1679	749
Arrive On Green	0.09	0.00	0.09				0.07	0.65	0.00	0.00	0.47	0.47
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	154	0	17				92	377	0	0	375	675
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	1.6	0.0	0.4				1.0	1.6	0.0	0.0	2.4	14.9
Cycle Q Clear(g_c), s	1.6	0.0	0.4				1.0	1.6	0.0	0.0	2.4	14.9
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	314	0	140				226	2323	0	5	1679	749
V/C Ratio(X)	0.49	0.00	0.12				0.41	0.16	0.00	0.00	0.22	0.90
Avail Cap(c_a), veh/h	1690	0	752				364	2323	0	188	1760	785
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	16.0				17.0	2.5	0.0	0.0	5.9	9.2
Incr Delay (d2), s/veh	1.2	0.0	0.4				1.2	0.0	0.0	0.0	0.1	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.4				0.4	0.2	0.0	0.0	0.6	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	16.3				18.2	2.6	0.0	0.0	6.0	22.4
LnGrp LOS	B	A	B				B	A	A	A	A	C
Approach Vol, veh/h		171						469			1050	
Approach Delay, s/veh		17.5						5.6			16.6	
Approach LOS		B						A			B	

Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	0.0	29.7		8.2	6.9	22.8						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9						
Max Green Setting (Gmax), s	4.0	18.8		18.0	4.0	18.8						
Max Q Clear Time (g_c+I1), s	0.0	3.6		3.6	3.0	16.9						
Green Ext Time (p_c), s	0.0	2.1		0.4	0.0	1.1						

Intersection Summary			
HCM 6th Ctrl Delay			13.6
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
31: Office Dwy. & Project Dwy. Street "B"/Project Dwy. Street "U"

Existing + P1 + P2 +P3 AM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	75	0	373	306	0	17	0	66	0	0	0
Future Volume (veh/h)	0	75	0	373	306	0	17	0	66	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870			
Adj Flow Rate, veh/h	0	82	0	405	333	0	18	0	72			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2			
Cap, veh/h	0	1728	0	1014	1728	0	143	0	127			
Arrive On Green	0.00	0.49	0.00	0.49	0.49	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	0	3741	0	1316	3647	0	1781	0	1585			
Grp Volume(v), veh/h	0	82	0	405	333	0	18	0	72			
Grp Sat Flow(s),veh/h/ln	0	1777	0	1316	1777	0	1781	0	1585			
Q Serve(g_s), s	0.0	0.2	0.0	4.3	1.0	0.0	0.2	0.0	0.8			
Cycle Q Clear(g_c), s	0.0	0.2	0.0	4.5	1.0	0.0	0.2	0.0	0.8			
Prop In Lane	0.00		0.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1728	0	1014	1728	0	143	0	127			
V/C Ratio(X)	0.00	0.05	0.00	0.40	0.19	0.00	0.13	0.00	0.57			
Avail Cap(c_a), veh/h	0	3082	0	1516	3082	0	1545	0	1374			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	2.5	0.0	3.7	2.7	0.0	7.9	0.0	8.2			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.1	0.0	0.4	0.0	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.5	0.0	3.9	2.7	0.0	8.3	0.0	12.1			
LnGrp LOS	A	A	A	A	A	A	A	A	B			
Approach Vol, veh/h		82			738			90				
Approach Delay, s/veh		2.5			3.4			11.3				
Approach LOS		A			A			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		5.5		13.0				13.0				
Change Period (Y+Rc), s		4.0		4.0				4.0				
Max Green Setting (Gmax), s		16.0		16.0				16.0				
Max Q Clear Time (g_c+I1), s		2.8		2.2				6.5				
Green Ext Time (p_c), s		0.3		0.3				2.6				

Intersection Summary	
HCM 6th Ctrl Delay	4.1
HCM 6th LOS	A

HCM 6th AWSC
32: Avenida Del Rio & Riverwalk Dr.

Existing + P1 + P2 +P3 AM
02/27/2020

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	191	27	133	206	43
Future Vol, veh/h	95	191	27	133	206	43
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	212	30	148	229	48
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	10.7	10	12.2
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	17%
Vol Thru, %	0%	0%	33%	83%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	206	43	286	160
LT Vol	206	0	0	27
Through Vol	0	0	95	133
RT Vol	0	43	191	0
Lane Flow Rate	229	48	318	178
Geometry Grp	7	7	2	2
Degree of Util (X)	0.398	0.067	0.403	0.254
Departure Headway (Hd)	6.259	5.047	4.569	5.143
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	579	714	779	690
Service Time	3.959	2.747	2.645	3.238
HCM Lane V/C Ratio	0.396	0.067	0.408	0.258
HCM Control Delay	13	8.1	10.7	10
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.9	0.2	2	1

HCM Signalized Intersection Capacity Analysis — Existing + P1 + P2 +P3 AM
33: Hazard Center West Drwy. & Hazard Center Dr. — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	77	0	0	139	38	0	1	18	41	0	4
Future Volume (vph)	2	77	0	0	139	38	0	1	18	41	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Lane Util. Factor	1.00	0.95			0.95			*0.95		*0.95		*0.95
Frpb, ped/bikes	1.00	1.00			0.99			0.99		1.00		0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00		1.00
Frt	1.00	1.00			0.97			0.86		1.00		0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95		1.00
Satd. Flow (prot)	1766	3539			3406			1495		1681		1485
Flt Permitted	1.00	1.00			1.00			1.00		1.00		1.00
Satd. Flow (perm)	1858	3539			3406			1495		1769		1485
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	3	103	0	0	185	51	0	1	24	55	0	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	3	103	0	0	236	0	0	25	0	55	0	5
Confl. Peds. (#/hr)	6					6	4		1	1		4
Confl. Bikes (#/hr)			1			1						
Turn Type	Perm	NA			NA		Perm	NA		Perm		Perm
Protected Phases		2			6			8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	3.4	3.4			3.4			2.7		1.8		1.8
Effective Green, g (s)	3.4	3.4			3.4			2.7		1.8		1.8
Actuated g/C Ratio	0.23	0.23			0.23			0.18		0.12		0.12
Clearance Time (s)	4.9	4.9			4.9			4.0		4.9		4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0		2.0		2.0
Lane Grp Cap (vph)	421	802			772			269		212		178
v/s Ratio Prot		0.03			c0.07			0.02				
v/s Ratio Perm	0.00									c0.03		0.00
v/c Ratio	0.01	0.13			0.31			0.09		0.26		0.03
Uniform Delay, d1	4.5	4.6			4.8			5.1		6.0		5.8
Progression Factor	1.00	1.00			1.00			1.00		1.00		1.00
Incremental Delay, d2	0.0	0.1			0.2			0.1		0.2		0.0
Delay (s)	4.5	4.7			5.0			5.2		6.2		5.9
Level of Service	A	A			A			A		A		A
Approach Delay (s)		4.7			5.0			5.2			6.2	
Approach LOS		A			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.29			
Actuated Cycle Length (s)	15.0	Sum of lost time (s)	9.8	
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

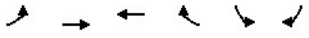
c Critical Lane Group

HCM 6th Signalized Intersection Summary — Existing + P1 + P2 +P3 AM
34: Hazard Center East Drwy. & Hazard Center Dr. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	132	0	4	143	26	2	1	33	29	0	4
Future Volume (veh/h)	3	132	0	4	143	26	2	1	33	29	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		1.00	0.96		1.00	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	142	0	4	154	0	2	1	0	31	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	580	1523	0	587	1523	0	537	252	0	742	0	0
Arrive On Green	0.43	0.43	0.00	0.43	0.43	0.00	0.46	0.46	0.00	0.46	0.00	0.00
Sat Flow, veh/h	1186	3647	0	1196	3647	0	987	552	0	1398	0	0
Grp Volume(v), veh/h	3	142	0	4	154	0	3	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1186	1777	0	1196	1777	0	1538	0	0	1398	0	0
Q Serve(g_s), s	0.1	1.7	0.0	0.1	1.8	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	1.9	1.7	0.0	1.8	1.8	0.0	0.1	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.67		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	580	1523	0	587	1523	0	789	0	0	742	0	0
V/C Ratio(X)	0.01	0.09	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	580	1523	0	587	1523	0	789	0	0	742	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.5	11.9	0.0	12.4	11.9	0.0	10.3	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	12.0	0.0	12.5	12.1	0.0	10.3	0.0	0.0	10.6	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	B	A	A	B	A	A
Approach Vol, veh/h		145			158			3			31	
Approach Delay, s/veh		12.0			12.1			10.3			10.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	3.9	2.8	3.8	2.1
Green Ext Time (p_c), s	0.7	0.1	0.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	11.9	
HCM 6th LOS	B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	25	41	77	90	89
Future Volume (vph)	112	25	41	77	90	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	*0.85	*0.85	*0.85		*0.85	*0.85
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.90		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1504	3167	2804		1504	1309
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1504	3167	2804		1504	1309
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	140	31	51	96	112	111
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	140	31	147	0	113	111
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	7.3	27.4	15.7		9.7	9.7
Effective Green, g (s)	7.3	27.4	15.7		9.7	9.7
Actuated g/C Ratio	0.12	0.45	0.26		0.16	0.16
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	178	1410	715		237	206
v/s Ratio Prot	c0.09	0.01	c0.05		0.08	
v/s Ratio Perm						c0.08
v/c Ratio	0.79	0.02	0.21		0.48	0.54
Uniform Delay, d1	26.3	9.5	18.0		23.6	23.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.7	0.0	0.2		0.6	1.4
Delay (s)	45.1	9.6	18.2		24.1	25.2
Level of Service	D	A	B		C	C
Approach Delay (s)		38.6	18.2		24.7	
Approach LOS		D	B		C	

Intersection Summary				
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	30.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



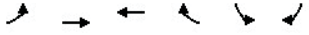
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	8	166	15	2	3	249	504	66	32	418	86
Future Volume (veh/h)	60	8	166	15	2	3	249	504	66	32	418	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	0	83	16	2	0	265	536	57	34	445	58
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	0	175	23	3	0	317	2289	243	44	2924	373
Arrive On Green	0.12	0.00	0.12	0.01	0.01	0.00	0.09	0.71	0.71	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1519	1592	199	0	3456	3239	343	1781	4572	584
Grp Volume(v), veh/h	70	0	83	18	0	0	265	293	300	34	329	174
Grp Sat Flow(s),veh/h/ln	1781	0	1519	1791	0	0	1728	1777	1806	1781	1702	1752
Q Serve(g_s), s	2.5	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.4	5.6
Cycle Q Clear(g_c), s	2.5	0.0	7.2	1.4	0.0	0.0	10.6	8.1	8.2	2.7	5.4	5.6
Prop In Lane	1.00		1.00	0.89		0.00	1.00		0.19	1.00		0.33
Lane Grp Cap(c), veh/h	411	0	175	26	0	0	317	1256	1276	44	2177	1121
V/C Ratio(X)	0.17	0.00	0.47	0.70	0.00	0.00	0.84	0.23	0.23	0.78	0.15	0.16
Avail Cap(c_a), veh/h	995	0	424	219	0	0	459	1256	1276	135	2177	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	0.0	58.0	68.7	0.0	0.0	62.6	7.2	7.2	67.9	10.1	10.1
Incr Delay (d2), s/veh	0.2	0.0	2.4	12.0	0.0	0.0	6.0	0.4	0.4	10.7	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.9	0.7	0.0	0.0	4.9	3.1	3.2	1.3	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	0.0	60.3	80.6	0.0	0.0	68.5	7.7	7.7	78.6	10.2	10.4
LnGrp LOS	E	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		153			18			858			537	
Approach Delay, s/veh		58.4			80.6			26.5			14.6	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	104.2		21.0	17.2	94.8		6.9				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.6	53.7		39.1	18.6	45.7		17.1				
Max Q Clear Time (g_c+I1), s	4.7	10.2		9.2	12.6	7.6		3.4				
Green Ext Time (p_c), s	0.0	8.0		0.7	0.3	6.4		0.0				

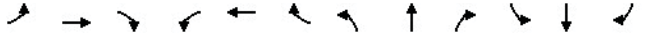
Intersection Summary			
HCM 6th Ctrl Delay	26.1		
HCM 6th LOS	C		

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	178	566	265	170	18
Future Volume (veh/h)	35	178	566	265	170	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	198	629	78	189	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	53	1180	1016	1240	426	379
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.00
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	39	198	629	78	189	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.6	3.3	17.5	0.9	6.8	0.0
Cycle Q Clear(g_c), s	1.6	3.3	17.5	0.9	6.8	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	53	1180	1016	1240	426	379
V/C Ratio(X)	0.74	0.17	0.62	0.06	0.44	0.00
Avail Cap(c_a), veh/h	155	1288	1016	1240	426	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	5.8	11.9	1.9	24.5	0.0
Incr Delay (d2), s/veh	7.3	0.0	2.8	0.1	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	7.2	0.6	3.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	5.8	14.7	2.0	27.8	0.0
LnGrp LOS	D	A	B	A	C	A
Approach Vol, veh/h		237	707		189	
Approach Delay, s/veh		12.0	13.3		27.8	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.6		23.0	6.6	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		5.3		8.8	3.6	19.5
Green Ext Time (p_c), s		0.8		0.2	0.0	2.9
Intersection Summary						
HCM 6th Ctrl Delay			15.5			
HCM 6th LOS			B			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	238	93	82	353	3	75	2	49	12	8	7
Future Volume (veh/h)	0	238	93	82	353	3	75	2	49	12	8	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	251	17	86	372	1	79	2	0	13	8	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1087	73	110	1629	4	679	761	0	460	264	0
Arrive On Green	0.00	0.32	0.32	0.06	0.45	0.45	0.41	0.41	0.00	0.41	0.41	0.00
Sat Flow, veh/h	0	3466	227	1781	3635	10	1407	1870	0	923	650	0
Grp Volume(v), veh/h	0	131	137	86	182	191	79	2	0	21	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1822	1781	1777	1868	1407	1870	0	1573	0	0
Q Serve(g_s), s	0.0	3.7	3.8	3.3	4.3	4.3	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.7	3.8	3.3	4.3	4.3	2.3	0.0	0.0	0.5	0.0	0.0
Prop In Lane	0.00		0.12	1.00		0.01	1.00		0.00	0.62		0.00
Lane Grp Cap(c), veh/h	0	573	587	110	796	837	679	761	0	724	0	0
V/C Ratio(X)	0.00	0.23	0.23	0.78	0.23	0.23	0.12	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	573	587	145	826	868	679	761	0	724	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.1	17.1	31.8	11.7	11.7	12.8	12.1	0.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	13.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	1.6	1.8	1.6	1.7	0.7	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.0	18.0	44.8	11.8	11.8	12.9	12.1	0.0	12.3	0.0	0.0
LnGrp LOS	A	B	B	D	B	B	B	B	A	B	A	A
Approach Vol, veh/h		268			459			81			21	
Approach Delay, s/veh		18.0			18.0			12.8			12.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.7	27.3		32.9		36.0		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	5.6	* 22		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	5.3	5.8		2.5		6.3		4.3				
Green Ext Time (p_c), s	0.0	1.1		0.1		1.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	285	5	62	423	1	27
Future Vol, veh/h	285	5	62	423	1	27
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	300	5	65	445	1	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	308	0	660	156
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1249	-	396	862
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1246	-	374	860
Mov Cap-2 Maneuver	-	-	-	-	374	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	374	860	-	-	1246	-
HCM Lane V/C Ratio	0.003	0.033	-	-	0.052	-
HCM Control Delay (s)	14.7	9.3	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	240	43	88	430	9	42	3	35	29	3	10
Future Volume (veh/h)	7	240	43	88	430	9	42	3	35	29	3	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	253	45	93	453	9	44	3	37	31	3	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	768	134	118	988	20	845	65	805	594	64	191
Arrive On Green	0.04	0.26	0.26	0.07	0.28	0.28	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	3006	525	1781	3560	71	1395	120	1479	966	118	351
Grp Volume(v), veh/h	7	148	150	93	226	236	44	0	40	45	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1754	1781	1777	1854	1395	0	1598	1435	0	0
Q Serve(g_s), s	0.3	6.1	6.3	4.6	9.5	9.5	0.0	0.0	1.1	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.1	6.3	4.6	9.5	9.5	1.0	0.0	1.1	1.3	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.04	1.00		0.93	0.69		0.24
Lane Grp Cap(c), veh/h	79	454	448	118	493	515	845	0	870	849	0	0
V/C Ratio(X)	0.09	0.33	0.34	0.79	0.46	0.46	0.05	0.00	0.05	0.05	0.00	0.00
Avail Cap(c_a), veh/h	119	454	448	119	493	515	845	0	870	849	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.2	27.2	27.3	41.4	26.9	26.9	9.6	0.0	9.6	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.9	2.0	26.3	0.7	0.6	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	2.8	2.9	4.0	4.2	0.4	0.0	0.4	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	29.1	29.3	67.7	27.6	27.5	9.7	0.0	9.7	9.7	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		305			555			84			45	
Approach Delay, s/veh		29.5			34.3			9.7			9.7	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	27.0		53.0	8.0	29.0		53.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	23.0		49.0	6.0	23.0		49.0				
Max Q Clear Time (g_c+I1), s	6.6	8.3		3.3	2.3	11.5		3.1				
Green Ext Time (p_c), s	0.0	1.5		0.2	0.0	2.1		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	29.6	
HCM 6th LOS	C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	104	102	85	332	201	225	528	70	128	333	128
Future Volume (veh/h)	79	104	102	85	332	201	225	528	70	128	333	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	112	55	91	357	84	242	568	56	138	358	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	435	200	137	537	125	290	2768	270	188	2837	878
Arrive On Green	0.04	0.19	0.19	0.04	0.19	0.19	0.17	1.00	1.00	0.05	0.56	0.56
Sat Flow, veh/h	3456	2343	1078	3456	2857	664	3456	4729	461	3456	5106	1580
Grp Volume(v), veh/h	85	83	84	91	220	221	242	407	217	138	358	11
Grp Sat Flow(s),veh/h/ln	1728	1777	1644	1728	1777	1743	1728	1702	1786	1728	1702	1580
Q Serve(g_s), s	3.4	5.6	6.1	3.6	16.1	16.5	9.5	0.0	0.0	5.5	4.7	0.4
Cycle Q Clear(g_c), s	3.4	5.6	6.1	3.6	16.1	16.5	9.5	0.0	0.0	5.5	4.7	0.4
Prop In Lane	1.00		0.66	1.00		0.38	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	130	330	305	137	334	328	290	1992	1045	188	2837	878
V/C Ratio(X)	0.66	0.25	0.27	0.67	0.66	0.67	0.83	0.20	0.21	0.74	0.13	0.01
Avail Cap(c_a), veh/h	286	610	565	311	623	611	459	1992	1045	385	2837	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.5	48.7	48.9	66.3	52.7	52.9	57.3	0.0	0.0	65.2	14.9	13.9
Incr Delay (d2), s/veh	2.1	0.4	0.5	2.1	4.3	4.6	3.2	0.2	0.4	2.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.5	2.6	1.6	7.6	7.7	4.0	0.1	0.1	2.5	1.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	49.1	49.4	68.4	57.0	57.5	60.5	0.2	0.4	67.3	15.0	13.9
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	B
Approach Vol, veh/h		252			532			866			507	
Approach Delay, s/veh		55.7			59.2			17.1			29.2	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	87.1	9.9	30.9	16.2	83.0	9.7	31.2
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	18.6	* 42	11.6	49.1
Max Q Clear Time (g_c+I1), s	7.5	2.0	5.6	8.1	11.5	6.7	5.4	18.5
Green Ext Time (p_c), s	0.1	8.2	0.1	1.1	0.3	4.7	0.1	5.2

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	66	85	219	268	517	164	261	253	140	323	24
Future Volume (veh/h)	3	66	85	219	268	517	164	261	253	140	323	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	69	0	228	279	53	171	272	0	146	336	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	371		277	339	284	212	2215		196	2198	980
Arrive On Green	0.00	0.10	0.00	0.08	0.18	0.18	0.06	0.62	0.00	0.11	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1564	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	3	69	0	228	279	53	171	272	0	146	336	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1564	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	2.5	0.0	9.1	20.1	4.0	6.8	4.4	0.0	5.7	0.0	0.0
Cycle Q Clear(g_c), s	0.2	2.5	0.0	9.1	20.1	4.0	6.8	4.4	0.0	5.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	6	371		277	339	284	212	2215		196	2198	980
V/C Ratio(X)	0.54	0.19		0.82	0.82	0.19	0.81	0.12		0.75	0.15	0.00
Avail Cap(c_a), veh/h	71	1399		336	838	700	212	2215		360	2198	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.96	0.96	0.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	69.7	57.3	0.0	63.4	55.1	48.6	64.9	10.8	0.0	61.1	0.0	0.0
Incr Delay (d2), s/veh	26.4	0.2	0.0	11.0	1.9	0.1	18.0	0.1	0.0	5.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	0.0	4.4	9.7	1.6	3.6	1.8	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.0	57.5	0.0	74.4	57.1	48.7	82.8	10.9	0.0	66.6	0.1	0.0
LnGrp LOS	F	E		E	E	D	F	B		E	A	A
Approach Vol, veh/h		72	A		560			443	A		482	
Approach Delay, s/veh		59.1			63.3			38.7			20.3	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	92.2	15.6	19.9	13.0	91.5	4.8	30.7
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	14.6	38.1	13.6	* 55	8.6	44.1	5.6	62.7
Max Q Clear Time (g_c+I1), s	7.7	6.4	11.1	4.5	8.8	2.0	2.2	22.1
Green Ext Time (p_c), s	0.2	1.2	0.1	0.4	0.0	3.9	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	0	401	0	0	0	0	329	108	271	297	0
Future Volume (vph)	360	0	401	0	0	0	0	329	108	271	297	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3352	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3352	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	375	0	418	0	0	0	0	343	112	282	309	0
RTOR Reduction (vph)	0	0	289	0	0	0	0	0	72	0	0	0
Lane Group Flow (vph)	375	0	129	0	0	0	0	343	41	192	399	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	43.3		43.3					50.9	50.9	27.5	27.5	
Effective Green, g (s)	43.3		43.3					50.9	50.9	27.5	27.5	
Actuated g/C Ratio	0.31		0.31					0.36	0.36	0.20	0.20	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1061		489					1286	575	316	658	
v/s Ratio Prot	c0.11							c0.10		c0.12	0.12	
v/s Ratio Perm			0.08						0.03			
v/c Ratio	0.35		0.26					0.27	0.07	0.61	0.61	
Uniform Delay, d1	37.5		36.4					31.4	29.1	51.3	51.3	
Progression Factor	1.00		1.00					0.56	0.05	1.00	1.00	
Incremental Delay, d2	0.9		1.3					0.0	0.0	3.6	1.8	
Delay (s)	38.4		37.7					17.7	1.6	54.9	53.0	
Level of Service	D		D					B	A	D	D	
Approach Delay (s)		38.0			0.0			13.7			53.7	
Approach LOS		D			A			B			D	

Intersection Summary				
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	53.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	27	5	10	94	238	2	11	1	278	76	347
Future Volume (vph)	207	27	5	10	94	238	2	11	1	278	76	347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3248			3522	1583		1834		1681	1720	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3248			3522	1583		1834		1681	1720	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	223	29	5	11	101	256	2	12	1	299	82	373
RTOR Reduction (vph)	0	2	0	0	0	130	0	1	0	0	0	232
Lane Group Flow (vph)	111	144	0	0	112	126	0	14	0	188	193	141
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	28.8	28.8			16.0	68.9		17.9		52.9	52.9	52.9
Effective Green, g (s)	28.8	28.8			16.0	68.9		17.9		52.9	52.9	52.9
Actuated g/C Ratio	0.21	0.21			0.11	0.49		0.13		0.38	0.38	0.38
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	331	668			402	779		234		635	649	590
v/s Ratio Prot	c0.07	0.04			c0.03	0.06		c0.01		0.11	c0.11	
v/s Ratio Perm						0.02						0.09
v/c Ratio	0.34	0.22			0.28	0.16		0.06		0.30	0.30	0.24
Uniform Delay, d1	47.4	46.2			56.7	19.6		53.7		30.5	30.5	29.8
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.79	0.78	2.29
Incremental Delay, d2	2.7	0.7			1.7	0.4		0.5		1.1	1.0	0.9
Delay (s)	50.2	47.0			58.4	20.1		54.2		25.0	25.0	68.9
Level of Service	D	D			E	C		D		C	C	E
Approach Delay (s)		48.3			31.7			54.2			46.7	
Approach LOS		D			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
45: Taylor St. & I-8 EB Ramp

Existing + P1 + P2 +P3 AM
03/02/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	166	1377	288	196	114
Future Volume (veh/h)	183	166	1377	288	196	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	175	1449	0	206	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	1443	2079		301	345
Arrive On Green	0.13	0.77	0.58	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	193	175	1449	0	206	102
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	7.9	1.8	21.3	0.0	4.3	4.0
Cycle Q Clear(g_c), s	7.9	1.8	21.3	0.0	4.3	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	232	1443	2079		301	345
V/C Ratio(X)	0.83	0.12	0.70		0.68	0.30
Avail Cap(c_a), veh/h	259	1443	2079		1027	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	2.1	10.8	0.0	33.0	24.3
Incr Delay (d2), s/veh	16.7	0.2	2.0	0.0	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.4	7.5	0.0	1.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.3	2.3	12.8	0.0	34.0	24.5
LnGrp LOS	D	A	B		C	C
Approach Vol, veh/h		368	1449	A	308	
Approach Delay, s/veh		26.4	12.8		30.8	
Approach LOS		C	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		62.4		12.0	13.9	48.5
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		57.4		22.1	* 11	42.4
Max Q Clear Time (g_c+I1), s		3.8		6.3	9.9	23.3
Green Ext Time (p_c), s		0.7		0.2	0.0	7.9

Intersection Summary		
HCM 6th Ctrl Delay		17.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

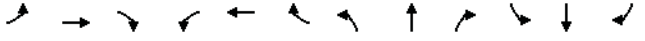
HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Existing + P1 + P2 +P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	14	47	730	38	4	41	27	153	4	8	2
Future Volume (vph)	1	14	47	730	38	4	41	27	153	4	8	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	15	51	793	41	4	45	29	166	4	9	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	67	793	45	240	15
Volume Left (vph)	1	793	0	45	4
Volume Right (vph)	51	0	4	166	2
Hadj (s)	-0.42	0.53	-0.03	-0.34	0.01
Departure Headway (s)	5.3	5.9	5.3	5.6	6.4
Degree Utilization, x	0.10	1.30	0.07	0.37	0.03
Capacity (veh/h)	655	608	667	638	538
Control Delay (s)	8.8	162.6	7.5	11.8	9.5
Approach Delay (s)	8.8	154.3		11.8	9.5
Approach LOS	A	F		B	A

Intersection Summary				
Delay	114.5			
Level of Service	F			
Intersection Capacity Utilization	69.2%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	543
Future Volume (veh/h)	172	0	101	0	911	56	0	0	0	0	221	543
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	191	0	0	0	1012	62				0	246	603
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	242	0		0	1927	859				0	0	0
Arrive On Green	0.14	0.00	0.00	0.00	0.54	0.54				0.00	0.00	0.00
Sat Flow, veh/h	1781	191		0	3647	1585					0	
Grp Volume(v), veh/h	191	22.7		0	1012	62					0.0	
Grp Sat Flow(s),veh/h/ln	1781	C		0	1777	1585						
Q Serve(g_s), s	3.2			0.0	5.7	0.6						
Cycle Q Clear(g_c), s	3.2			0.0	5.7	0.6						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	242			0	1927	859						
V/C Ratio(X)	0.79			0.00	0.53	0.07						
Avail Cap(c_a), veh/h	287			0	4692	2093						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	13.0			0.0	4.6	3.4						
Incr Delay (d2), s/veh	9.7			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.6			0.0	0.8	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7			0.0	4.8	3.4						
LnGrp LOS	C			A	A	A						
Approach Vol, veh/h					1074							
Approach Delay, s/veh					4.7							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.2	21.8				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							5.0	41.0				
Max Q Clear Time (g_c+I1), s							5.2	7.7				
Green Ext Time (p_c), s							0.0	9.2				

Intersection Summary												
HCM 6th Ctrl Delay			7.4									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	288.1
Intersection LOS	F

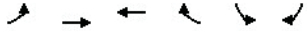
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	111	7	171	226	217	343	380	672	8	10	216
Future Vol, veh/h	0	111	7	171	226	217	343	380	672	8	10	216
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	118	7	182	240	231	365	404	715	9	11	230
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	16.7	54.7	458.6	20.7
HCM LOS	C	F	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	3%
Vol Thru, %	0%	36%	100%	0%	0%	51%	4%
Vol Right, %	0%	64%	0%	100%	0%	49%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	1052	111	7	171	443	234
LT Vol	343	0	0	0	171	0	8
Through Vol	0	380	111	0	0	226	10
RT Vol	0	672	0	7	0	217	216
Lane Flow Rate	365	1119	118	7	182	471	249
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.839	2.27	0.296	0.017	0.422	0.983	0.539
Departure Headway (Hd)	8.275	7.303	10.13	9.394	9.33	8.456	8.352
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	438	504	357	383	389	434	436
Service Time	6.054	5.081	7.83	7.094	7.03	6.156	6.352
HCM Lane V/C Ratio	0.833	2.22	0.331	0.018	0.468	1.085	0.571
HCM Control Delay	41.7	594.5	17	12.3	18.7	68.6	20.7
HCM Lane LOS	E	F	C	B	C	F	C
HCM 95th-tile Q	8.1	82.5	1.2	0.1	2	12.1	3.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	279	572	405	226	117	219
Future Volume (veh/h)	279	572	405	226	117	219
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	636	450	251	130	243
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	365	1191	662	544	338	301
Arrive On Green	0.20	0.64	0.35	0.35	0.19	0.19
Sat Flow, veh/h	1781	1870	1870	1537	1781	1585
Grp Volume(v), veh/h	310	636	450	251	130	243
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1537	1781	1585
Q Serve(g_s), s	9.5	10.6	11.6	7.1	3.6	8.3
Cycle Q Clear(g_c), s	9.5	10.6	11.6	7.1	3.6	8.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	365	1191	662	544	338	301
V/C Ratio(X)	0.85	0.53	0.68	0.46	0.38	0.81
Avail Cap(c_a), veh/h	491	3310	2649	2177	633	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	5.7	15.5	14.1	20.0	21.9
Incr Delay (d2), s/veh	8.0	0.3	1.7	0.8	0.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	2.8	4.6	2.3	1.4	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.6	6.0	17.2	14.9	20.3	23.9
LnGrp LOS	C	A	B	B	C	C
Approach Vol, veh/h		946	701		373	
Approach Delay, s/veh		13.7	16.4		22.6	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.9		15.6	16.0	24.9
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		100.1		20.1	15.6	80.1
Max Q Clear Time (g_c+I1), s		12.6		10.3	11.5	13.6
Green Ext Time (p_c), s		4.7		0.5	0.2	6.4
Intersection Summary						
HCM 6th Ctrl Delay			16.3			
HCM 6th LOS			B			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	146	120	341	99	140	670
Future Volume (veh/h)	146	120	341	99	140	670
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	159	130	371	108	152	728
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	174	797	381	111	804	715
Arrive On Green	0.10	0.43	0.27	0.27	0.45	0.45
Sat Flow, veh/h	1781	1870	1392	405	1781	1585
Grp Volume(v), veh/h	159	130	0	479	152	728
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1797	1781	1585
Q Serve(g_s), s	7.1	3.4	0.0	21.1	4.1	36.1
Cycle Q Clear(g_c), s	7.1	3.4	0.0	21.1	4.1	36.1
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	174	797	0	492	804	715
V/C Ratio(X)	0.92	0.16	0.00	0.97	0.19	1.02
Avail Cap(c_a), veh/h	174	797	0	492	804	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	14.2	0.0	28.8	13.2	22.0
Incr Delay (d2), s/veh	44.0	0.0	0.0	34.5	0.0	38.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.4	0.0	13.4	1.6	32.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	79.7	14.2	0.0	63.3	13.2	60.1
LnGrp LOS	E	B	A	E	B	F
Approach Vol, veh/h		289	479		880	
Approach Delay, s/veh		50.3	63.3		52.0	
Approach LOS		D	E		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		39.0		41.0	12.2	26.8
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		34.1		36.1	7.8	21.9
Max Q Clear Time (g_c+I1), s		5.4		38.1	9.1	23.1
Green Ext Time (p_c), s		0.4		0.0	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			55.0			
HCM 6th LOS			D			

Intersection	
Intersection Delay, s/veh	35.3
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	174	356	368	414	23
Future Vol, veh/h	162	174	356	368	414	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	172	185	379	391	440	24
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	16	27.3	63.3
HCM LOS	C	D	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	174	356	368	414	23
LT Vol	162	0	0	0	414	0
Through Vol	0	174	356	0	0	0
RT Vol	0	0	0	368	0	23
Lane Flow Rate	172	185	379	391	440	24
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.397	0.4	0.769	0.716	0.981	0.046
Departure Headway (Hd)	8.297	7.78	7.307	6.587	8.015	6.79
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	434	463	496	548	454	528
Service Time	6.041	5.524	5.049	4.328	5.753	4.528
HCM Lane V/C Ratio	0.396	0.4	0.764	0.714	0.969	0.045
HCM Control Delay	16.4	15.6	30.5	24.3	66.3	9.9
HCM Lane LOS	C	C	D	C	F	A
HCM 95th-tile Q	1.9	1.9	6.8	5.8	12.3	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	428	193	320	500	228	134
Future Volume (veh/h)	428	193	320	500	228	134
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	476	214	356	556	253	149
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	440	198	402	1196	428	381
Arrive On Green	0.36	0.36	0.23	0.64	0.24	0.24
Sat Flow, veh/h	1221	549	1781	1870	1781	1585
Grp Volume(v), veh/h	0	690	356	556	253	149
Grp Sat Flow(s),veh/h/ln	0	1771	1781	1870	1781	1585
Q Serve(g_s), s	0.0	27.0	14.5	11.4	9.4	5.9
Cycle Q Clear(g_c), s	0.0	27.0	14.5	11.4	9.4	5.9
Prop In Lane		0.31	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	638	402	1196	428	381
V/C Ratio(X)	0.00	1.08	0.89	0.46	0.59	0.39
Avail Cap(c_a), veh/h	0	638	523	1324	428	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	28.1	6.9	25.2	23.8
Incr Delay (d2), s/veh	0.0	59.4	12.7	0.4	5.9	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.9	7.3	3.8	4.5	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	83.4	40.8	7.3	31.1	26.8
LnGrp LOS	A	F	D	A	C	C
Approach Vol, veh/h	690			912	402	
Approach Delay, s/veh	83.4			20.4	29.5	
Approach LOS	F			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	20.9	32.0				52.9	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	22.0	27.0				53.0	18.0
Max Q Clear Time (g_c+I1), s	16.5	29.0				13.4	11.4
Green Ext Time (p_c), s	0.4	0.0				5.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
57: Project Dwy. Street "B" & Office Dwy.

Existing + P1 + P2 +P3 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	0	131	13	131	61	14	20	0
Future Volume (veh/h)	0	0	0	192	0	131	13	131	61	14	20	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	209	0	142	14	142	66	15	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	866	0	951	433	386	756	340	288	652	340	0
Arrive On Green	0.00	0.00	0.00	0.24	0.00	0.24	0.18	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	1246	3647	0	1781	1777	1585	1390	1870	1585	1174	1870	0
Grp Volume(v), veh/h	0	0	0	209	0	142	14	142	66	15	22	0
Grp Sat Flow(s),veh/h/ln	1246	1777	0	1781	1777	1585	1390	1870	1585	1174	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	1.0	0.1	0.9	0.5	0.2	0.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	1.0	0.3	0.9	0.5	1.1	0.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	517	866	0	951	433	386	756	340	288	652	340	0
V/C Ratio(X)	0.00	0.00	0.00	0.22	0.00	0.37	0.02	0.42	0.23	0.02	0.06	0.00
Avail Cap(c_a), veh/h	1646	4084	0	2564	2042	1821	2100	2149	1821	1787	2149	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	4.5	0.0	4.4	4.8	5.0	4.9	5.5	4.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.8	0.4	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	4.6	0.0	5.0	4.8	5.9	5.3	5.5	4.8	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		0			351			222			37	
Approach Delay, s/veh		0.0			4.8			5.6			5.1	
Approach LOS					A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	6.5	7.4	6.5	7.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	16.0	16.0	16.0
Max Q Clear Time (g_c+I1), s	2.9	0.0	3.1	3.4
Green Ext Time (p_c), s	0.8	0.0	0.1	1.2

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Existing + P1 + P2 + P3 PM
02/27/2020

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	508	277	1118	754	661	1191
Future Volume (veh/h)	508	277	1118	754	661	1191
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	524	152	1153	743	681	1228
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	738	328	1593	1023	641	2403
Arrive On Green	0.21	0.21	0.45	0.45	0.19	0.68
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	524	152	1153	743	681	1228
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	10.3	6.3	20.0	23.9	14.0	12.9
Cycle Q Clear(g_c), s	10.3	6.3	20.0	23.9	14.0	12.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	738	328	1593	1023	641	2403
V/C Ratio(X)	0.71	0.46	0.72	0.73	1.06	0.51
Avail Cap(c_a), veh/h	1379	613	1639	1044	641	2487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	26.2	17.0	8.6	30.7	6.0
Incr Delay (d2), s/veh	0.5	0.4	1.7	2.7	53.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	2.2	7.2	12.2	10.3	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.3	26.6	18.7	11.3	83.9	6.4
LnGrp LOS	C	C	B	B	F	A
Approach Vol, veh/h	676		1896			1909
Approach Delay, s/veh	27.9		15.8			34.1
Approach LOS	C		B			C

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	18.0	37.8	55.8	19.6
Change Period (Y+Rc), s	4.4	6.2	* 6.2	6.2
Max Green Setting (Gmax), s	13.6	32.6	* 51	27.0
Max Q Clear Time (g_c+I1), s	16.0	25.9	14.9	12.3
Green Ext Time (p_c), s	0.0	5.7	22.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary — Existing + P1 + P2 + P3 PM
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	142	272	149	54	164	146	1200	233	139	1230	136
Future Volume (veh/h)	156	142	272	149	54	164	146	1200	233	139	1230	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	158	168	166	60	182	162	1333	176	154	1367	151
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	311	252	133	316	252	253	1796	866	96	1722	864
Arrive On Green	0.08	0.17	0.17	0.07	0.17	0.17	0.07	0.51	0.49	0.05	0.48	0.47
Sat Flow, veh/h	3456	1870	1517	1781	1870	1493	3456	3554	1545	1781	3554	1565
Grp Volume(v), veh/h	173	158	168	166	60	182	162	1333	176	154	1367	151
Grp Sat Flow(s),veh/h/ln	1728	1870	1517	1781	1870	1493	1728	1777	1545	1781	1777	1565
Q Serve(g_s), s	4.0	6.3	8.5	6.1	2.3	9.5	3.7	24.3	4.6	4.4	26.4	3.9
Cycle Q Clear(g_c), s	4.0	6.3	8.5	6.1	2.3	9.5	3.7	24.3	4.6	4.4	26.4	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265	311	252	133	316	252	253	1796	866	96	1722	864
V/C Ratio(X)	0.65	0.51	0.67	1.25	0.19	0.72	0.64	0.74	0.20	1.61	0.79	0.17
Avail Cap(c_a), veh/h	287	733	594	133	717	572	287	1796	866	96	1722	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	31.1	32.0	37.9	29.2	32.2	36.9	16.0	9.0	38.8	17.7	9.1
Incr Delay (d2), s/veh	3.4	1.3	3.0	160.8	0.1	1.5	2.5	2.8	0.5	317.4	3.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.9	3.2	8.5	1.0	3.4	1.6	9.6	1.5	10.3	10.8	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	32.4	35.0	198.7	29.3	33.7	39.4	18.9	9.5	356.1	21.6	9.6
LnGrp LOS	D	C	D	F	C	C	D	B	A	F	C	A
Approach Vol, veh/h		499			408			1671			1672	
Approach Delay, s/veh		36.0			100.2			19.9			51.3	
Approach LOS		D			F			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	45.4	10.1	18.0	10.0	43.8	10.3	17.8
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	4.0	40.1	5.7	* 31	6.4	* 38	6.4	29.9
Max Q Clear Time (g_c+I1), s	6.4	26.3	8.1	10.5	5.7	28.4	6.0	11.5
Green Ext Time (p_c), s	0.0	10.7	0.0	1.4	0.0	7.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary — Existing + P1 + P2 + P3 PM
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1128	4	268	488	0	0	0	0	271	5	1404
Future Volume (veh/h)	0	1128	4	268	488	0	0	0	0	271	5	1404
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1175	4	279	508	0				282	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1333	595	356	1849	0				672	12	
Arrive On Green	0.00	0.38	0.38	0.10	0.52	0.00				0.38	0.38	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1752	31	1585
Grp Volume(v), veh/h	0	1175	4	279	508	0				287	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	30.9	0.2	7.9	8.0	0.0				11.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.9	0.2	7.9	8.0	0.0				11.8	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1333	595	356	1849	0				684	0	
V/C Ratio(X)	0.00	0.88	0.01	0.78	0.27	0.00				0.42	0.00	
Avail Cap(c_a), veh/h	0	1564	697	511	2239	0				684	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.48	0.48	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.2	19.6	43.8	13.4	0.0				22.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.0	0.0	2.5	0.0	0.0				0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.6	0.1	3.5	3.1	0.0				4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	34.1	19.6	46.2	13.4	0.0				22.8	0.0	0.0
LnGrp LOS	A	C	B	D	B	A				C	A	
Approach Vol, veh/h		1179			787						287	A
Approach Delay, s/veh		34.1			25.1						22.8	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.5	42.5		43.0		57.0		
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0		
Max Green Setting (Gmax), s	* 15	44.0		27.4		63.0		
Max Q Clear Time (g_c+I1), s	9.9	32.9		13.8		10.0		
Green Ext Time (p_c), s	0.4	4.7		0.5		2.5		

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Existing + P1 + P2 + P3 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	877	575	0	0	531	433	233	17	500	0	0	0
Future Volume (veh/h)	877	575	0	0	531	433	233	17	500	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	914	599	0	0	553	243	243	18	221			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	969	2038	0	0	604	265	542	40	516			
Arrive On Green	0.28	0.57	0.00	0.00	0.25	0.25	0.33	0.33	0.33			
Sat Flow, veh/h	3456	3647	0	0	2497	1054	1664	123	1585			
Grp Volume(v), veh/h	914	599	0	0	408	388	261	0	221			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1681	1787	0	1585			
Q Serve(g_s), s	25.9	8.6	0.0	0.0	22.3	22.4	11.5	0.0	10.9			
Cycle Q Clear(g_c), s	25.9	8.6	0.0	0.0	22.3	22.4	11.5	0.0	10.9			
Prop In Lane	1.00		0.00	0.00		0.63	0.93		1.00			
Lane Grp Cap(c), veh/h	969	2038	0	0	446	422	582	0	516			
V/C Ratio(X)	0.94	0.29	0.00	0.00	0.92	0.92	0.45	0.00	0.43			
Avail Cap(c_a), veh/h	975	2079	0	0	464	439	582	0	516			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.2	10.9	0.0	0.0	36.4	36.4	26.6	0.0	26.4			
Incr Delay (d2), s/veh	13.7	0.0	0.0	0.0	21.7	23.1	0.2	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.5	3.2	0.0	0.0	12.2	11.7	4.9	0.0	10.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	11.0	0.0	0.0	58.1	59.6	26.8	0.0	26.6			
LnGrp LOS	D	B	A	A	E	E	C	A	C			
Approach Vol, veh/h		1513			796			482				
Approach Delay, s/veh		33.9			58.8			26.7				
Approach LOS		C			E			C				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		62.8		37.2	32.2	30.6			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		58.5		31.4	* 28	26.1			
Max Q Clear Time (g_c+I1), s		10.6		13.5	27.9	24.4			
Green Ext Time (p_c), s		3.0		0.6	0.2	0.7			

Intersection Summary	
HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Existing + P1 + P2 + P3 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	647	301	290	713	36	110	32	233	21	34	30
Future Volume (veh/h)	49	647	301	290	713	36	110	32	233	21	34	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	719	334	322	792	40	122	36	259	23	38	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1467	615	340	1938	98	139	423	634	39	313	261
Arrive On Green	0.04	0.41	0.41	0.19	0.56	0.54	0.08	0.23	0.22	0.02	0.17	0.17
Sat Flow, veh/h	1781	3554	1489	1781	3437	174	1781	1870	1513	1781	1870	1559
Grp Volume(v), veh/h	54	719	334	322	409	423	122	36	259	23	38	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1489	1781	1777	1834	1781	1870	1513	1781	1870	1559
Q Serve(g_s), s	3.3	16.4	18.7	19.6	14.4	14.4	7.5	1.7	13.4	1.4	1.9	2.0
Cycle Q Clear(g_c), s	3.3	16.4	18.7	19.6	14.4	14.4	7.5	1.7	13.4	1.4	1.9	2.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	76	1467	615	340	1002	1034	139	423	634	39	313	261
V/C Ratio(X)	0.71	0.49	0.54	0.95	0.41	0.41	0.88	0.09	0.41	0.59	0.12	0.13
Avail Cap(c_a), veh/h	144	1467	615	340	1002	1034	139	565	748	71	493	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	23.8	24.4	43.9	13.6	13.7	50.2	33.6	23.1	53.3	38.9	39.0
Incr Delay (d2), s/veh	4.5	1.2	3.4	34.7	1.2	1.2	40.7	0.0	0.2	5.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	7.0	7.1	11.9	5.9	6.1	4.9	0.8	4.8	0.7	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	24.9	27.9	78.7	14.8	14.9	90.9	33.6	23.3	58.4	39.0	39.1
LnGrp LOS	E	C	C	E	B	B	F	C	C	E	D	D
Approach Vol, veh/h		1107			1154			417			94	
Approach Delay, s/veh		27.4			32.7			44.0			43.8	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8	
Phs Duration (G+Y+Rc), s	25.0	49.7	12.6	22.7	8.7	66.0	6.4	28.9	
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2	
Max Green Setting (Gmax), s	20.6	* 33	8.2	* 28	8.5	44.8	4.0	32.0	
Max Q Clear Time (g_c+I1), s	21.6	20.7	9.5	4.0	5.3	16.4	3.4	15.4	
Green Ext Time (p_c), s	0.0	3.6	0.0	0.1	0.0	3.9	0.0	0.6	

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

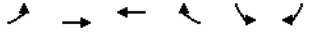
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	519	652	25	7	439	123	0	0	19	199	13	364
Future Volume (vph)	519	652	25	7	439	123	0	0	19	199	13	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3513		1770	3409				1525	1681	1695	1571
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3513		1770	3409				1525	1681	1695	1571
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	724	28	8	488	137	0	0	21	221	14	404
RTOR Reduction (vph)	0	2	0	0	22	0	0	0	21	0	0	195
Lane Group Flow (vph)	577	750	0	8	603	0	0	0	0	117	118	209
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.9	43.0		0.7	25.8				2.1	30.1	30.1	48.0
Effective Green, g (s)	18.3	43.9		1.1	26.7				2.1	31.4	31.4	48.8
Actuated g/C Ratio	0.19	0.46		0.01	0.28				0.02	0.33	0.33	0.52
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	664	1631		20	963				33	558	563	811
v/s Ratio Prot	c0.17	0.21		0.00	c0.18					0.07	0.07	c0.05
v/s Ratio Perm									c0.00			0.08
v/c Ratio	0.87	0.46		0.40	0.63				0.01	0.21	0.21	0.26
Uniform Delay, d1	36.9	17.2		46.4	29.5				45.2	22.6	22.6	12.7
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	0.2		4.7	3.1				0.2	0.9	0.8	0.1
Delay (s)	48.2	17.5		51.1	32.6				45.4	23.5	23.5	12.8
Level of Service	D	B		D	C				D	C	C	B
Approach Delay (s)		30.8			32.9			45.4			16.7	
Approach LOS		C			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	134	1253	584	518	781	187
Future Volume (vph)	134	1253	584	518	781	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1545	3431	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1545	3431	1417
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	140	1305	608	540	814	195
RTOR Reduction (vph)	0	0	0	226	2	63
Lane Group Flow (vph)	140	1305	608	314	832	112
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	10.8	48.4	33.6	49.2	15.6	15.6
Effective Green, g (s)	11.2	50.4	35.2	51.0	16.5	16.5
Actuated g/C Ratio	0.13	0.57	0.40	0.58	0.19	0.19
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	225	2031	1418	897	644	266
v/s Ratio Prot	0.08	c0.37	0.17	0.07	c0.24	
v/s Ratio Perm				0.14		0.08
v/c Ratio	0.62	0.64	0.43	0.35	1.29	0.42
Uniform Delay, d1	36.3	12.6	19.0	9.7	35.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	1.6	0.3	0.5	143.0	2.2
Delay (s)	40.1	14.2	19.3	10.2	178.6	33.7
Level of Service	D	B	B	B	F	C
Approach Delay (s)		16.7	15.0		153.5	
Approach LOS		B	B		F	

Intersection Summary				
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	65.6%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	1936	43	34	983	64	28	1	14	159	9	49
Future Volume (veh/h)	56	1936	43	34	983	64	28	1	14	159	9	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.99	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	1996	40	35	1013	55	29	1	0	164	9	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	1797	36	141	1848	100	387	11	309	410	365	0
Arrive On Green	0.05	0.50	0.47	0.08	0.54	0.50	0.20	0.20	0.00	0.20	0.20	0.00
Sat Flow, veh/h	1781	3560	71	1781	3425	186	1329	58	1585	1402	1870	0
Grp Volume(v), veh/h	58	992	1044	35	526	542	30	0	0	164	9	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1834	1387	0	1585	1402	1870	0
Q Serve(g_s), s	1.8	28.1	28.1	1.0	10.8	10.8	0.9	0.0	0.0	4.5	0.2	0.0
Cycle Q Clear(g_c), s	1.8	28.1	28.1	1.0	10.8	10.8	1.1	0.0	0.0	5.6	0.2	0.0
Prop In Lane	1.00		0.04	1.00		0.10	0.97		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	89	897	936	141	959	989	398	0	309	410	365	0
V/C Ratio(X)	0.65	1.11	1.12	0.25	0.55	0.55	0.08	0.00	0.00	0.40	0.02	0.00
Avail Cap(c_a), veh/h	672	897	936	576	959	989	928	0	908	940	1072	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	13.8	13.8	24.1	8.4	8.5	18.5	0.0	0.0	20.2	18.1	0.0
Incr Delay (d2), s/veh	3.0	63.4	66.5	0.3	2.2	2.2	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	23.2	25.0	0.4	3.3	3.4	0.3	0.0	0.0	1.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	77.1	80.3	24.4	10.6	10.6	18.5	0.0	0.0	20.4	18.1	0.0
LnGrp LOS	C	F	F	C	B	B	B	A	A	C	B	A
Approach Vol, veh/h		2094			1103			30			173	
Approach Delay, s/veh		77.4			11.1			18.5			20.3	
Approach LOS		E			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	32.4		14.9	6.8	34.0		14.9				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	17.6	* 26		31.0	20.6	23.1		31.0				
Max Q Clear Time (g_c+I1), s	3.0	30.1		7.6	3.8	12.8		3.1				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	8.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		52.4
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1909	1143	42	44	21
Future Vol, veh/h	27	1909	1143	42	44	21
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	2075	1242	46	48	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1324	0	-	0	2398	680
Stage 1	-	-	-	-	1301	-
Stage 2	-	-	-	-	1097	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	518	-	-	-	~ 28	393
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	281	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	502	-	-	-	~ 25	381
Mov Cap-2 Maneuver	-	-	-	-	112	-
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	273	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	51.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	502	-	-	-	145
HCM Lane V/C Ratio	0.058	-	-	-	0.487
HCM Control Delay (s)	12.6	-	-	-	51.4
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	2.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1887	66	0	1185	0	70
Future Vol, veh/h	1887	66	0	1185	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2051	72	0	1288	0	76

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1062
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	220
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	220
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	220	-	-	-
HCM Lane V/C Ratio	0.346	-	-	-
HCM Control Delay (s)	29.8	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.5	-	-	-

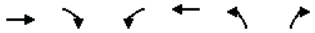
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	1650	165	33	813	259	173	64	36	396	99	129
Future Volume (veh/h)	223	1650	165	33	813	259	173	64	36	396	99	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	1737	174	35	856	135	182	67	38	417	104	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	1732	170	45	1464	622	190	120	68	318	79	361
Arrive On Green	0.15	0.53	0.52	0.03	0.41	0.41	0.11	0.11	0.11	0.23	0.22	0.23
Sat Flow, veh/h	1781	3254	320	1781	3554	1511	1781	1120	635	1439	359	1585
Grp Volume(v), veh/h	235	932	979	35	856	135	182	0	105	521	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1797	1781	1777	1511	1781	0	1756	1798	0	1585
Q Serve(g_s), s	19.4	77.5	79.8	2.9	28.0	8.7	15.2	0.0	8.5	33.1	0.0	4.5
Cycle Q Clear(g_c), s	19.4	77.5	79.8	2.9	28.0	8.7	15.2	0.0	8.5	33.1	0.0	4.5
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.36	0.80		1.00
Lane Grp Cap(c), veh/h	261	945	956	45	1464	622	190	0	187	397	0	361
V/C Ratio(X)	0.90	0.99	1.02	0.78	0.58	0.22	0.96	0.00	0.56	1.31	0.00	0.16
Avail Cap(c_a), veh/h	333	945	956	48	1464	622	190	0	187	397	0	361
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.9	34.6	35.2	72.7	34.2	28.5	66.7	0.0	63.7	58.0	0.0	46.4
Incr Delay (d2), s/veh	19.7	26.1	35.2	53.8	1.7	0.8	53.0	0.0	3.7	157.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	38.1	42.0	2.0	12.2	3.2	9.8	0.0	4.0	32.4	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.5	60.7	70.5	126.5	35.9	29.3	119.6	0.0	67.4	215.7	0.0	46.5
LnGrp LOS	F	E	F	F	D	C	F	A	E	F	A	D
Approach Vol, veh/h		2146			1026			287			580	
Approach Delay, s/veh		67.5			38.1			100.5			198.5	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	84.0		38.2	26.0	65.8		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 78		33.1	27.6	53.9		16.0				
Max Q Clear Time (g_c+I1), s	4.9	81.8		35.1	21.4	30.0		17.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	4.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	81.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1959	269	239	996	198	102
Future Volume (veh/h)	1959	269	239	996	198	102
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2129	292	260	1083	163	167
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	2103	282	244	2965	167	151
Arrive On Green	0.67	0.67	0.14	0.83	0.09	0.09
Sat Flow, veh/h	3243	422	1781	3647	1781	1610
Grp Volume(v), veh/h	1179	1242	260	1083	163	167
Grp Sat Flow(s),veh/h/ln	1777	1794	1781	1777	1781	1610
Q Serve(g_s), s	98.5	100.3	20.6	10.9	13.7	14.1
Cycle Q Clear(g_c), s	98.5	100.3	20.6	10.9	13.7	14.1
Prop In Lane		0.24	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1187	1198	244	2965	167	151
V/C Ratio(X)	0.99	1.04	1.06	0.37	0.97	1.10
Avail Cap(c_a), veh/h	1187	1198	244	2965	167	151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	25.0	64.8	3.0	67.9	68.1
Incr Delay (d2), s/veh	24.6	35.8	75.6	0.1	61.9	104.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.3	49.0	14.3	2.6	9.1	10.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.3	60.8	140.4	3.0	129.8	172.1
LnGrp LOS	D	F	F	A	F	F
Approach Vol, veh/h	2421			1343	330	
Approach Delay, s/veh	55.2			29.6	151.2	
Approach LOS	E			C	F	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	25.0	106.2				131.2	19.0
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	20.6	* 1E2				125.1	14.1
Max Q Clear Time (g_c+I1), s	22.6	102.3				12.9	16.1
Green Ext Time (p_c), s	0.0	0.0				9.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1960	132	0	1235	0	37
Future Vol, veh/h	1960	132	0	1235	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2130	143	0	1342	0	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1137
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	196
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	196
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	28
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	196	-	-	-
HCM Lane V/C Ratio	0.205	-	-	-
HCM Control Delay (s)	28	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

HCM 6th Signalized Intersection Summary
14: Project Dwy. Street "M" & Friars Rd.

Existing + P1 + P2 + P3 PM
03/18/2020

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1921	66	132	1199	36	73
Future Volume (veh/h)	0	1921	66	132	1199	36	73
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		2088	71	143	1303	39	79
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2073	70	167	2591	88	178
Arrive On Green		0.59	0.59	0.09	0.73	0.16	0.16
Sat Flow, veh/h		3601	119	1781	3647	540	1093
Grp Volume(v), veh/h		1052	1107	143	1303	119	0
Grp Sat Flow(s),veh/h/ln		1777	1849	1781	1777	1647	0
Q Serve(g_s), s		59.1	59.1	7.9	15.7	6.5	0.0
Cycle Q Clear(g_c), s		59.1	59.1	7.9	15.7	6.5	0.0
Prop In Lane			0.06	1.00		0.33	0.66
Lane Grp Cap(c), veh/h		1050	1093	167	2591	268	0
V/C Ratio(X)		1.00	1.01	0.85	0.50	0.44	0.00
Avail Cap(c_a), veh/h		1050	1093	167	2591	268	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.79	0.79	1.00	0.00
Uniform Delay (d), s/veh		20.4	20.5	44.6	5.8	37.8	0.0
Incr Delay (d2), s/veh		28.2	30.5	33.1	0.1	1.1	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		28.2	30.1	4.9	4.1	2.7	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		48.6	51.0	77.7	5.9	38.9	0.0
LnGrp LOS		F	F	E	A	D	A
Approach Vol, veh/h		2159			1446	119	
Approach Delay, s/veh		49.8			13.0	38.9	
Approach LOS		D			B	D	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.8	65.0				78.8		21.2
Change Period (Y+Rc), s	4.4	5.9				* 5.9		4.9
Max Green Setting (Gmax), s	9.4	59.1				* 65		16.3
Max Q Clear Time (g_c+I1), s	9.9	61.1				17.7		8.5
Green Ext Time (p_c), s	0.0	0.0				12.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	35.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Existing + P1 + P2 + P3 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1669	318	347	1070	13	260	5	489	6	3	2
Future Volume (veh/h)	7	1669	318	347	1070	13	260	5	489	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1739	331	361	1115	14	271	5	509	6	3	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	17	1689	318	425	1801	23	492	8	784	135	65	35
Arrive On Green	0.01	0.39	0.38	0.04	0.17	0.16	0.38	0.38	0.38	0.38	0.38	0.37
Sat Flow, veh/h	1781	4302	809	3456	3592	45	1159	21	1569	249	172	93
Grp Volume(v), veh/h	7	1372	698	361	551	578	276	0	509	11	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1707	1728	1777	1861	1181	0	1569	514	0	0
Q Serve(g_s), s	0.5	53.4	53.4	14.1	39.2	39.3	0.0	0.0	32.8	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.5	53.4	53.4	14.1	39.2	39.3	31.0	0.0	32.8	31.3	0.0	0.0
Prop In Lane	1.00		0.47	1.00		0.02	0.98		1.00	0.55		0.18
Lane Grp Cap(c), veh/h	17	1337	670	425	891	933	500	0	784	236	0	0
V/C Ratio(X)	0.40	1.03	1.04	0.85	0.62	0.62	0.55	0.00	0.65	0.05	0.00	0.00
Avail Cap(c_a), veh/h	58	1337	670	483	891	933	500	0	784	236	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	66.9	41.3	41.8	64.0	44.7	44.7	35.8	0.0	25.3	29.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	15.4	23.7	9.7	2.8	2.7	4.3	0.0	4.1	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	24.2	25.9	7.1	19.4	20.2	8.4	0.0	13.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	56.7	65.5	73.7	47.5	47.3	40.1	0.0	29.4	30.0	0.0	0.0
LnGrp LOS	E	F	F	E	D	D	D	A	C	C	A	A
Approach Vol, veh/h		2077			1490			785			11	
Approach Delay, s/veh		59.7			53.8			33.2			30.0	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.7	57.4		55.6	5.3	72.8		55.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	18.6	51.5		50.7	4.0	* 67		50.7				
Max Q Clear Time (g_c+I1), s	16.1	55.4		33.3	2.5	41.3		34.8				
Green Ext Time (p_c), s	0.2	0.0		0.0	0.0	9.8		2.2				

Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	2051	56	235	1350	42	242
Future Volume (veh/h)	0	2051	56	235	1350	42	242
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			0.97	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		2093	50	240	1378	43	133
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		3927	94	152	2981	181	161
Arrive On Green		0.77	0.76	0.04	0.84	0.10	0.10
Sat Flow, veh/h		5295	122	3456	3647	1781	1585
Grp Volume(v), veh/h		1388	755	240	1378	43	133
Grp Sat Flow(s),veh/h/ln		1702	1844	1728	1777	1781	1585
Q Serve(g_s), s		21.9	22.1	6.0	13.9	3.0	11.2
Cycle Q Clear(g_c), s		21.9	22.1	6.0	13.9	3.0	11.2
Prop In Lane			0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		2607	1413	152	2981	181	161
V/C Ratio(X)		0.53	0.53	1.57	0.46	0.24	0.83
Avail Cap(c_a), veh/h		2607	1413	152	2981	432	385
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.44	0.44	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		6.3	6.3	65.0	2.9	56.2	59.9
Incr Delay (d2), s/veh		0.3	0.6	287.5	0.5	0.2	4.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.3	7.0	8.7	3.1	1.4	4.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		6.6	7.0	352.5	3.4	56.5	63.9
LnGrp LOS		A	A	F	A	E	E
Approach Vol, veh/h		2143			1618	176	
Approach Delay, s/veh		6.8			55.2	62.1	
Approach LOS		A			E	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.0	108.2				118.2		17.8
Change Period (Y+Rc), s	4.4	5.4				* 5.4		4.4
Max Green Setting (Gmax), s	5.6	83.6				* 85		32.6
Max Q Clear Time (g_c+I1), s	8.0	24.1				15.9		13.2
Green Ext Time (p_c), s	0.0	34.2				19.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	2337	47	492	1510	27	37	1	275	18	0	3
Future Volume (veh/h)	22	2337	47	492	1510	27	37	1	275	18	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	2460	49	518	1589	28	39	0	290	19	0	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	3299	65	534	3997	70	213	0	363	179	0	181
Arrive On Green	0.02	0.64	0.63	0.31	1.00	1.00	0.12	0.00	0.12	0.12	0.00	0.11
Sat Flow, veh/h	1781	5152	102	3456	5165	91	1385	0	3105	1074	0	1551
Grp Volume(v), veh/h	23	1622	887	518	1047	570	39	0	290	19	0	3
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1728	1702	1852	1385	0	1553	1074	0	1551
Q Serve(g_s), s	1.7	44.5	45.1	20.1	0.0	0.0	3.5	0.0	12.4	2.2	0.0	0.2
Cycle Q Clear(g_c), s	1.7	44.5	45.1	20.1	0.0	0.0	3.7	0.0	12.4	2.2	0.0	0.2
Prop In Lane	1.00		0.06	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	2180	1185	534	2635	1433	213	0	363	179	0	181
V/C Ratio(X)	0.65	0.74	0.75	0.97	0.40	0.40	0.18	0.00	0.80	0.11	0.00	0.02
Avail Cap(c_a), veh/h	83	2180	1185	534	2635	1433	366	0	708	298	0	353
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	16.8	16.9	46.7	0.0	0.0	54.8	0.0	58.5	54.0	0.0	53.5
Incr Delay (d2), s/veh	7.0	2.4	4.4	31.3	0.4	0.8	0.2	0.0	1.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	16.3	18.6	9.3	0.2	0.3	1.2	0.0	4.9	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	19.2	21.3	78.0	0.4	0.8	54.9	0.0	60.0	54.1	0.0	53.5
LnGrp LOS	E	B	C	E	A	A	D	A	E	D	A	D
Approach Vol, veh/h		2532			2135			329			22	
Approach Delay, s/veh		20.4			19.4			59.4			54.0	
Approach LOS		C			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.0	91.1		19.9	6.7	109.4		19.9				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	20.6	70.6		30.1	5.9	* 85		30.1				
Max Q Clear Time (g_c+I1), s	22.1	47.1		4.2	3.7	2.0		14.4				
Green Ext Time (p_c), s	0.0	20.4		0.0	0.0	23.6		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	96.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2506	113	0	2130	0	346
Future Vol, veh/h	2506	113	0	2130	0	346
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2784	126	0	2367	0	384

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1472
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 99
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 97
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1423.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	97	-	-	-
HCM Lane V/C Ratio	3.963	-	-	-
HCM Control Delay (s)	$ 1423.5	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	39.6	-	-	-

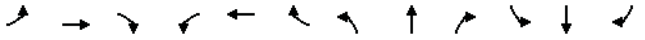
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	849	0	396	631
Future Volume (Veh/h)	0	0	849	0	396	631
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	923	0	430	686
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2126	462			923	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2126	462			923	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			42	
cM capacity (veh/h)	18	547			736	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	615	308	430	343	343
Volume Left	0	0	430	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	736	1700	1700
Volume to Capacity	0.36	0.18	0.58	0.20	0.20
Queue Length 95th (ft)	0	0	96	0	0
Control Delay (s)	0.0	0.0	16.5	0.0	0.0
Lane LOS			C		
Approach Delay (s)	0.0		6.4		
Approach LOS					

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	52.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	2053	742	0	1337	618	571	47	837	394	0	181
Future Volume (vph)	148	2053	742	0	1337	618	571	47	837	394	0	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.91	1.00		0.86	0.86	0.95	0.95	1.00	0.97		1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	1.00	1.00	0.99	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (prot)	1770	5085	1550		4806	1362	1678	1696	1564	3433		1583
Flt Permitted	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00	0.95		1.00
Satd. Flow (perm)	1770	5085	1550		4806	1362	1678	1696	1564	3433		1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	156	2161	781	0	1407	651	601	49	881	415	0	191
RTOR Reduction (vph)	0	0	0	0	0	92	0	0	0	0	0	151
Lane Group Flow (vph)	156	2161	781	0	1407	559	343	307	881	415	0	40
Confl. Peds. (#/hr)							1		1	1		1
Confl. Bikes (#/hr)			2						1			5
Turn Type	Prot	NA	Free		NA	Perm	Perm	NA	Free	Prot		Prot
Protected Phases	5	2			6			3		4		4
Permitted Phases			Free			6	3		Free			
Actuated Green, G (s)	15.4	70.5	136.0		50.9	50.9	21.4	21.4	136.0	27.9		27.9
Effective Green, g (s)	15.6	73.5	136.0		53.9	53.9	22.0	22.0	136.0	28.5		28.5
Actuated g/C Ratio	0.11	0.54	1.00		0.40	0.40	0.16	0.16	1.00	0.21		0.21
Clearance Time (s)	4.2	7.0			7.0	7.0	4.6	4.6		4.6		4.6
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0	2.0		2.0		2.0
Lane Grp Cap (vph)	203	2748	1550		1904	539	271	274	1564	719		331
v/s Ratio Prot	0.09	c0.42			0.29					0.12		0.03
v/s Ratio Perm			0.50			c0.41	c0.20	0.18	c0.56			
v/c Ratio	0.77	0.79	0.50		0.74	1.04	1.27	1.12	0.56	0.58		0.12
Uniform Delay, d1	58.4	25.0	0.0		35.0	41.1	57.0	57.0	0.0	48.3		43.6
Progression Factor	1.12	1.19	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	11.5	1.8	0.9		2.6	48.5	145.5	90.7	1.5	0.7		0.1
Delay (s)	76.9	31.5	0.9		37.7	89.6	202.5	147.7	1.5	49.0		43.7
Level of Service	E	C	A		D	F	F	F	A	D		D
Approach Delay (s)		26.1			54.1			75.8			47.3	
Approach LOS		C			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	136.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	76.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



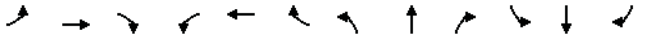
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	799	2439	0	0	1556	893	0	0	524	0	0	995
Future Volume (veh/h)	799	2439	0	0	1556	893	0	0	524	0	0	995
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	841	2567	0	0	1638	0						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	825	5405	0	0	1770							
Arrive On Green	0.46	0.96	0.00	0.00	0.48	0.00						
Sat Flow, veh/h	1781	5611	0	0	3722	1585						
Grp Volume(v), veh/h	841	2567	0	0	1638	0						
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1852	1585						
Q Serve(g_s), s	63.0	4.2	0.0	0.0	56.3	0.0						
Cycle Q Clear(g_c), s	63.0	4.2	0.0	0.0	56.3	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	825	5405	0	0	1770							
V/C Ratio(X)	1.02	0.47	0.00	0.00	0.93							
Avail Cap(c_a), veh/h	825	5405	0	0	1770							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	36.5	0.2	0.0	0.0	33.2	0.0						
Incr Delay (d2), s/veh	35.4	0.3	0.0	0.0	9.8	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	33.8	0.1	0.0	0.0	27.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.9	0.5	0.0	0.0	43.0	0.0						
LnGrp LOS	F	A	A	A	D							
Approach Vol, veh/h		3408			1638	A						
Approach Delay, s/veh		18.1			43.0							
Approach LOS		B			D							

Timer - Assigned Phs	2			5	6							
Phs Duration (G+Y+Rc), s	136.0			67.0	69.0							
Change Period (Y+Rc), s	5.5			4.5	5.5							
Max Green Setting (Gmax), s	130.5			62.5	63.5							
Max Q Clear Time (g_c+I1), s	6.2			65.0	58.3							
Green Ext Time (p_c), s	28.5			0.0	3.6							

Intersection Summary		
HCM 6th Ctrl Delay	26.2	
HCM 6th LOS	C	

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	383	2111	676	116	1271	43	425	83	235	136	86	616
Future Volume (veh/h)	383	2111	676	116	1271	43	425	83	235	136	86	616
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.95	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	395	2176	697	120	1310	44	438	86	242	140	0	694
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	2308	697	96	1945	593	494	576	489	195	0	700
Arrive On Green	0.13	0.45	0.45	0.05	0.38	0.38	0.14	0.32	0.32	0.05	0.00	0.24
Sat Flow, veh/h	3456	5106	1542	1781	5106	1556	3456	1777	1506	3563	0	2963
Grp Volume(v), veh/h	395	2176	697	120	1310	44	438	86	242	140	0	694
Grp Sat Flow(s),veh/h/ln	1728	1702	1542	1781	1702	1556	1728	1777	1506	1781	0	1482
Q Serve(g_s), s	16.6	60.3	67.0	8.0	31.7	2.7	18.4	5.1	19.3	5.7	0.0	34.6
Cycle Q Clear(g_c), s	16.6	60.3	67.0	8.0	31.7	2.7	18.4	5.1	19.3	5.7	0.0	34.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	2308	697	96	1945	593	494	576	489	195	0	700
V/C Ratio(X)	0.87	0.94	1.00	1.25	0.67	0.07	0.89	0.15	0.50	0.72	0.00	0.99
Avail Cap(c_a), veh/h	653	2308	697	96	1945	593	560	598	507	219	0	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.1	38.8	40.6	70.1	38.2	29.2	62.3	35.5	40.7	68.9	0.0	56.5
Incr Delay (d2), s/veh	6.4	9.4	34.1	172.5	1.9	0.2	13.7	0.0	0.3	8.0	0.0	31.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	26.0	31.6	8.2	13.2	1.1	9.1	2.3	7.3	2.8	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	48.2	74.7	242.6	40.1	29.5	76.0	35.6	41.0	76.9	0.0	88.3
LnGrp LOS	E	D	F	F	D	C	E	D	D	E	A	F
Approach Vol, veh/h		3268			1474			766			834	
Approach Delay, s/veh		56.4			56.3			60.4			86.4	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	72.0	25.2	39.0	23.5	60.5	12.1	52.1				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	7.6	* 66	23.6	34.1	27.6	44.5	8.7	49.0				
Max Q Clear Time (g_c+I1), s	10.0	69.0	20.4	36.6	18.6	33.7	7.7	21.3				
Green Ext Time (p_c), s	0.0	0.0	0.4	0.0	0.5	7.9	0.0	1.5				

Intersection Summary		
HCM 6th Ctrl Delay		60.8
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	170	6	263	243	692	0	0	958	253
Future Volume (veh/h)	0	0	0	170	6	263	243	692	0	0	958	253
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				194	0	292	270	769	0	0	1064	281
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				795	0	346	288	2464	0	0	2070	919
Arrive On Green				0.22	0.00	0.22	0.17	1.00	0.00	0.00	0.58	0.58
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				194	0	292	270	769	0	0	1064	281
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1578
Q Serve(g_s), s				4.8	0.0	19.4	8.3	0.0	0.0	0.0	19.3	9.8
Cycle Q Clear(g_c), s				4.8	0.0	19.4	8.3	0.0	0.0	0.0	19.3	9.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				795	0	346	288	2464	0	0	2070	919
V/C Ratio(X)				0.24	0.00	0.84	0.94	0.31	0.00	0.00	0.51	0.31
Avail Cap(c_a), veh/h				1056	0	460	288	2464	0	0	2070	919
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.77	0.77	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.5	0.0	40.1	44.7	0.0	0.0	0.0	13.4	11.5
Incr Delay (d2), s/veh				0.2	0.0	10.4	30.6	0.3	0.0	0.0	0.9	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	8.1	4.5	0.1	0.0	0.0	7.6	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	50.5	75.3	0.3	0.0	0.0	14.4	12.3
LnGrp LOS				C	A	D	E	A	A	A	B	B
Approach Vol, veh/h					486			1039			1345	
Approach Delay, s/veh					44.2			19.8			13.9	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		79.9			13.0	66.9		28.1				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 67			8.6	52.7		31.1				
Max Q Clear Time (g_c+I1), s		2.0			10.3	21.3		21.4				
Green Ext Time (p_c), s		5.5			0.0	18.1		1.2				

Intersection Summary		
HCM 6th Ctrl Delay	21.2	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	6	335	0	0	0	0	651	345	442	687	0
Future Volume (veh/h)	276	6	335	0	0	0	0	651	345	442	687	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	312	0	98				0	723	252	491	763	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	437	0	194				0	1548	540	549	2855	0
Arrive On Green	0.12	0.00	0.12				0.00	0.60	0.59	0.32	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2678	901	3456	3647	0
Grp Volume(v), veh/h	312	0	98				0	497	478	491	763	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1708	1728	1777	0
Q Serve(g_s), s	9.1	0.0	6.2				0.0	16.8	17.0	14.6	0.0	0.0
Cycle Q Clear(g_c), s	9.1	0.0	6.2				0.0	16.8	17.0	14.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.53	1.00		0.00
Lane Grp Cap(c), veh/h	437	0	194				0	1064	1023	549	2855	0
V/C Ratio(X)	0.71	0.00	0.50				0.00	0.47	0.47	0.89	0.27	0.00
Avail Cap(c_a), veh/h	960	0	427				0	1064	1023	691	2855	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	45.6	0.0	44.3				0.0	12.1	12.3	36.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.0				0.0	1.5	1.5	9.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.5				0.0	6.8	6.6	5.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	0.0	46.3				0.0	13.5	13.8	45.4	0.2	0.0
LnGrp LOS	D	A	D				A	B	B	D	A	A
Approach Vol, veh/h		410						975			1254	
Approach Delay, s/veh		47.4						13.7			17.9	
Approach LOS		D						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	21.6	69.2		17.2		90.8						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	21.6	* 44		28.2		69.1						
Max Q Clear Time (g_c+I1), s	16.6	19.0		11.1		2.0						
Green Ext Time (p_c), s	0.5	9.9		1.2		8.0						

Intersection Summary			
HCM 6th Ctrl Delay			20.9
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	366	5	0	511	45	0	0	7	42
Future Volume (veh/h)	0	0	0	366	5	0	511	45	0	0	7	42
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				398	0	0	549	48	0	0	8	45
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				510	268	0	595	2761	0	0	1364	635
Arrive On Green				0.14	0.00	0.00	0.33	0.78	0.00	0.00	0.40	0.39
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	3572	1585
Grp Volume(v), veh/h				398	0	0	549	48	0	0	8	45
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1702	1585
Q Serve(g_s), s				10.8	0.0	0.0	29.7	0.3	0.0	0.0	0.1	1.8
Cycle Q Clear(g_c), s				10.8	0.0	0.0	29.7	0.3	0.0	0.0	0.1	1.8
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				510	268	0	595	2761	0	0	1364	635
V/C Ratio(X)				0.78	0.00	0.00	0.92	0.02	0.00	0.00	0.01	0.07
Avail Cap(c_a), veh/h				1033	542	0	641	2761	0	0	1364	635
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	0.0	32.1	2.5	0.0	0.0	18.0	18.8
Incr Delay (d2), s/veh				1.0	0.0	0.0	18.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	0.0	15.4	0.1	0.0	0.0	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.3	0.0	0.0	50.4	2.5	0.0	0.0	18.0	19.0
LnGrp LOS				D	A	A	D	A	A	A	B	B
Approach Vol, veh/h					398			597			53	
Approach Delay, s/veh					42.3			46.6			18.8	
Approach LOS					D			D			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.7			37.4	44.3		18.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		61.9			35.1	* 22		28.1				
Max Q Clear Time (g_c+I1), s		2.3			31.7	3.8		12.8				
Green Ext Time (p_c), s		0.3			0.8	0.2		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		43.5	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	6	343	0	0	0	0	477	326	5	373	0
Future Volume (veh/h)	83	6	343	0	0	0	0	477	326	5	373	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	90	7	373				0	518	354	5	405	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	438	34	419				0	2155	961	16	2323	0
Arrive On Green	0.26	0.26	0.26				0.00	0.61	0.61	0.00	0.22	0.00
Sat Flow, veh/h	1658	129	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	97	0	373				0	518	354	5	405	0
Grp Sat Flow(s),veh/h/ln	1787	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	4.2	0.0	22.6				0.0	6.7	11.3	0.3	9.3	0.0
Cycle Q Clear(g_c), s	4.2	0.0	22.6				0.0	6.7	11.3	0.3	9.3	0.0
Prop In Lane	0.93		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	472	0	419				0	2155	961	16	2323	0
V/C Ratio(X)	0.21	0.00	0.89				0.00	0.24	0.37	0.31	0.17	0.00
Avail Cap(c_a), veh/h	786	0	697				0	2155	961	107	2323	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.84	0.84	0.00
Uniform Delay (d), s/veh	28.6	0.0	35.4				0.0	9.1	10.0	49.5	17.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	4.6				0.0	0.3	1.1	3.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	8.8				0.0	2.5	4.0	0.1	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	0.0	40.0				0.0	9.3	11.1	52.8	17.4	0.0
LnGrp LOS	C	A	D				A	A	B	D	B	A
Approach Vol, veh/h		470						872			410	
Approach Delay, s/veh		37.7						10.0			17.8	
Approach LOS		D						B			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	4.9	64.7		30.4		69.6
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	5.6	36.9		43.1		* 47
Max Q Clear Time (g_c+I1), s	2.3	13.3		24.6		11.3
Green Ext Time (p_c), s	0.0	5.9		0.9		1.9

Intersection Summary			
HCM 6th Ctrl Delay			19.3
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1989	99	57	1216	21	40	5	95	117	3	59
Future Volume (veh/h)	18	1989	99	57	1216	21	40	5	95	117	3	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	20	2210	110	63	1351	23	44	6	106	130	3	66
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	3097	153	87	3365	57	138	35	295	274	15	121
Arrive On Green	0.02	0.60	0.58	0.05	0.63	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5183	257	1853	5377	92	391	130	1105	861	56	455
Grp Volume(v), veh/h	20	1506	814	63	889	485	156	0	0	199	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1929	1626	0	0	1373	0	0
Q Serve(g_s), s	1.4	40.2	40.9	4.5	16.9	17.0	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear(g_c), s	1.4	40.2	40.9	4.5	16.9	17.0	10.0	0.0	0.0	17.6	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.05	0.28		0.68	0.65		0.33
Lane Grp Cap(c), veh/h	34	2115	1135	87	2216	1207	468	0	0	410	0	0
V/C Ratio(X)	0.58	0.71	0.72	0.72	0.40	0.40	0.33	0.00	0.00	0.49	0.00	0.00
Avail Cap(c_a), veh/h	82	2115	1135	198	2216	1207	468	0	0	410	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	19.0	19.3	63.5	12.6	12.7	40.2	0.0	0.0	43.0	0.0	0.0
Incr Delay (d2), s/veh	5.6	2.1	3.9	4.2	0.5	1.0	1.9	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.7	17.8	2.2	6.4	7.1	4.5	0.0	0.0	6.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	21.1	23.2	67.7	13.2	13.6	42.1	0.0	0.0	47.1	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2340			1437			156			199	
Approach Delay, s/veh		22.3			15.7			42.1			47.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	84.7		40.0	6.5	88.5		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	6.5	42.9		19.6	3.4	19.0		12.0
Green Ext Time (p_c), s	0.0	27.1		1.2	0.0	41.4		0.7

Intersection Summary			
HCM 6th Ctrl Delay			21.9
HCM 6th LOS			C

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	33	754	603	66
Future Vol, veh/h	0	55	33	754	603	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	36	820	655	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	364	727	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	633	872	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	633	872	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	872	- 633	-	-
HCM Lane V/C Ratio	0.041	- 0.094	-	-
HCM Control Delay (s)	9.3	- 11.3	-	-
HCM Lane LOS	A	- B	-	-
HCM 95th %tile Q(veh)	0.1	- 0.3	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	98	249	270	158	210	492	618	335	186	356	61
Future Volume (veh/h)	28	98	249	270	158	210	492	618	335	186	356	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.91	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	105	268	290	170	226	529	665	360	200	383	66
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	726	578	315	158	606	560	831	450	232	557	94
Arrive On Green	0.37	0.39	0.37	0.39	0.39	0.39	0.31	0.39	0.37	0.13	0.19	0.18
Sat Flow, veh/h	988	1870	1581	694	407	1561	1781	2142	1159	1781	2953	500
Grp Volume(v), veh/h	30	105	268	460	0	226	529	552	473	200	228	221
Grp Sat Flow(s),veh/h/ln	988	1870	1581	1101	0	1561	1781	1777	1524	1781	1777	1676
Q Serve(g_s), s	0.0	4.7	16.7	45.3	0.0	13.3	37.3	35.5	35.8	14.2	15.4	15.9
Cycle Q Clear(g_c), s	47.1	4.7	16.7	50.0	0.0	13.3	37.3	35.5	35.8	14.2	15.4	15.9
Prop In Lane	1.00		1.00	0.63		1.00	1.00		0.76	1.00		0.30
Lane Grp Cap(c), veh/h	56	726	578	473	0	606	560	690	592	232	335	316
V/C Ratio(X)	0.54	0.14	0.46	0.97	0.00	0.37	0.94	0.80	0.80	0.86	0.68	0.70
Avail Cap(c_a), veh/h	56	726	578	473	0	606	885	690	592	456	335	316
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.4	25.5	31.2	43.3	0.0	28.2	43.0	35.0	36.0	54.9	48.6	49.0
Incr Delay (d2), s/veh	5.4	0.0	0.2	34.4	0.0	0.8	10.1	9.4	10.9	3.6	10.6	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	6.4	19.5	0.0	5.2	17.8	17.0	15.1	6.6	7.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.8	25.6	31.4	77.7	0.0	29.0	53.1	44.4	46.9	58.5	59.2	61.2
LnGrp LOS	E	C	C	E	A	C	D	D	D	E	E	E
Approach Vol, veh/h		403			686			1554			649	
Approach Delay, s/veh		32.7			61.7			48.1			59.7	
Approach LOS		C			E			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.8	54.0		54.0	44.5	30.3		54.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	32.6	47.1		47.1	63.6	* 18		47.1				
Max Q Clear Time (g_c+I1), s	16.2	37.8		49.1	39.3	17.9		52.0				
Green Ext Time (p_c), s	0.2	3.8		0.0	0.8	0.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Existing + P1 + P2 + P3 PM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	736	0	164	0	0	0	59	709	0	0	596	279
Future Volume (veh/h)	736	0	164	0	0	0	59	709	0	0	596	279
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	855	0	119				64	771	0	0	648	303
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	1099	0	489				164	1466	0	4	981	438
Arrive On Green	0.31	0.00	0.31				0.05	0.41	0.00	0.00	0.28	0.28
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	855	0	119				64	771	0	0	648	303
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	10.8	0.0	2.8				0.9	8.0	0.0	0.0	8.0	8.5
Cycle Q Clear(g_c), s	10.8	0.0	2.8				0.9	8.0	0.0	0.0	8.0	8.5
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	1099	0	489				164	1466	0	4	981	438
V/C Ratio(X)	0.78	0.00	0.24				0.39	0.53	0.00	0.00	0.66	0.69
Avail Cap(c_a), veh/h	1449	0	645				280	1466	0	144	1273	568
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	12.8				22.8	10.9	0.0	0.0	15.8	16.0
Incr Delay (d2), s/veh	2.0	0.0	0.3				1.5	0.3	0.0	0.0	0.8	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0				0.4	2.6	0.0	0.0	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	13.0				24.4	11.2	0.0	0.0	16.7	18.5
LnGrp LOS	B	A	B				C	B	A	A	B	B
Approach Vol, veh/h		974						835			951	
Approach Delay, s/veh		17.0						12.3			17.2	
Approach LOS		B						B			B	

Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	0.0	27.3		22.1	6.7	20.5						
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	6.9						
Max Green Setting (Gmax), s	4.0	17.7		20.1	4.0	17.7						
Max Q Clear Time (g_c+I1), s	0.0	10.0		12.8	2.9	10.5						
Green Ext Time (p_c), s	0.0	3.1		2.4	0.0	3.2						

Intersection Summary												
HCM 6th Ctrl Delay			15.6									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
31: Office Dwy. & Project Dwy. Street "B"/Project Dwy. Street "U"

Existing + P1 + P2 + P3 PM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	311	0	118	151	0	133	0	522	0	0	0
Future Volume (veh/h)	0	311	0	118	151	0	133	0	522	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870			
Adj Flow Rate, veh/h	0	338	0	128	164	0	145	0	567			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2			
Cap, veh/h	0	1013	0	463	1013	0	790	0	703			
Arrive On Green	0.00	0.29	0.00	0.29	0.29	0.00	0.44	0.00	0.44			
Sat Flow, veh/h	0	3741	0	1042	3647	0	1781	0	1585			
Grp Volume(v), veh/h	0	338	0	128	164	0	145	0	567			
Grp Sat Flow(s),veh/h/ln	0	1777	0	1042	1777	0	1781	0	1585			
Q Serve(g_s), s	0.0	2.2	0.0	3.3	1.0	0.0	1.5	0.0	9.1			
Cycle Q Clear(g_c), s	0.0	2.2	0.0	5.5	1.0	0.0	1.5	0.0	9.1			
Prop In Lane	0.00		0.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1013	0	463	1013	0	790	0	703			
V/C Ratio(X)	0.00	0.33	0.00	0.28	0.16	0.00	0.18	0.00	0.81			
Avail Cap(c_a), veh/h	0	1930	0	732	1930	0	967	0	861			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.3	0.0	10.5	7.9	0.0	5.0	0.0	7.1			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.1	0.0	0.1	0.0	4.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.6	0.3	0.0	0.3	0.0	2.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.5	0.0	10.8	8.0	0.0	5.1	0.0	11.8			
LnGrp LOS	A	A	A	B	A	A	A	A	B			
Approach Vol, veh/h		338			292			712				
Approach Delay, s/veh		8.5			9.2			10.5				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		17.1		12.4				12.4				
Change Period (Y+Rc), s		4.0		4.0				4.0				
Max Green Setting (Gmax), s		16.0		16.0				16.0				
Max Q Clear Time (g_c+I1), s		11.1		4.2				7.5				
Green Ext Time (p_c), s		2.0		1.6				1.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.7									
HCM 6th LOS			A									

Intersection	
Intersection Delay, s/veh	66.7
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	183	489	139	122	444	142
Future Vol, veh/h	183	489	139	122	444	142
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	499	142	124	453	145
Number of Lanes	1	0	0	1	1	1

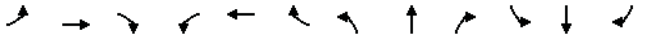
Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	103	18	46.8
HCM LOS	F	C	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	53%
Vol Thru, %	0%	0%	27%	47%
Vol Right, %	0%	100%	73%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	444	142	672	261
LT Vol	444	0	0	139
Through Vol	0	0	183	122
RT Vol	0	142	489	0
Lane Flow Rate	453	145	686	266
Geometry Grp	7	7	2	2
Degree of Util (X)	0.948	0.255	1.136	0.519
Departure Headway (Hd)	7.892	6.662	5.964	7.359
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	462	542	610	493
Service Time	5.592	4.362	4.018	5.359
HCM Lane V/C Ratio	0.981	0.268	1.125	0.54
HCM Control Delay	58.1	11.6	103	18
HCM Lane LOS	F	B	F	C
HCM 95th-tile Q	11.3	1	21.8	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	160	0	0	125	72	0	1	16	48	0	6
Future Volume (vph)	5	160	0	0	125	72	0	1	16	48	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.9	4.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.95			0.86			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			0.95	1.00
Satd. Flow (prot)	1767	3539			3313			1578			1770	1564
Flt Permitted	1.00	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	1861	3539			3313			1578			1863	1564
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	6	193	0	0	151	87	0	1	19	58	0	7
RTOR Reduction (vph)	0	0	0	0	67	0	0	14	0	0	0	5
Lane Group Flow (vph)	6	193	0	0	171	0	0	6	0	0	58	2
Confl. Peds. (#/hr)	3		1	1		3	2					2
Confl. Bikes (#/hr)			2			3			1			
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	2.6	2.6			2.6			4.0			3.1	3.1
Effective Green, g (s)	3.5	3.5			3.5			4.0			3.1	4.0
Actuated g/C Ratio	0.23	0.23			0.23			0.26			0.20	0.26
Clearance Time (s)	4.9	4.9			4.9			4.0			4.9	4.9
Vehicle Extension (s)	2.5	2.5			2.5			2.0			2.0	2.0
Lane Grp Cap (vph)	420	799			748			407			372	403
v/s Ratio Prot		c0.05			0.05			0.00				
v/s Ratio Perm	0.00										c0.03	0.00
v/c Ratio	0.01	0.24			0.23			0.01			0.16	0.00
Uniform Delay, d1	4.7	4.9			4.9			4.3			5.1	4.3
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.0	0.1			0.1			0.0			0.1	0.0
Delay (s)	4.7	5.0			5.0			4.3			5.2	4.3
Level of Service	A	A			A			A			A	A
Approach Delay (s)		5.0			5.0			4.3			5.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	15.5	Sum of lost time (s)	8.9
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

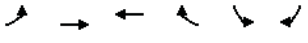
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	248	1	33	196	34	0	0	24	250	1	4
Future Volume (veh/h)	1	248	1	33	196	34	0	0	24	250	1	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	0.97		1.00	1.00		1.00	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	276	0	37	218	0	0	0	0	278	1	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	1218	0	412	1218	0	0	1015	0	842	3	8
Arrive On Green	0.34	0.34	0.00	0.34	0.34	0.00	0.00	0.00	0.00	0.54	0.54	0.54
Sat Flow, veh/h	1129	3647	0	1074	3647	0	0	1870	0	1362	6	15
Grp Volume(v), veh/h	1	276	0	37	218	0	0	0	0	282	0	0
Grp Sat Flow(s),veh/h/ln	1129	1777	0	1074	1777	0	0	1870	0	1383	0	0
Q Serve(g_s), s	0.0	3.9	0.0	1.8	3.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	3.0	3.9	0.0	5.7	3.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.00	0.00		0.00	0.99		0.01
Lane Grp Cap(c), veh/h	441	1218	0	412	1218	0	0	1015	0	853	0	0
V/C Ratio(X)	0.00	0.23	0.00	0.09	0.18	0.00	0.00	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	441	1218	0	412	1218	0	0	1015	0	853	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	16.4	0.0	18.4	16.1	0.0	0.0	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.4	0.3	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.0	0.5	1.2	0.0	0.0	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	16.8	0.0	18.8	16.4	0.0	0.0	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	B	B	A	B	B	A	A	A	A	B	A	A
Approach Vol, veh/h		277			255			0			282	
Approach Delay, s/veh		16.8			16.8			0.0			10.2	
Approach LOS		B			B						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	28.0	42.0	28.0	42.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	24.0	38.0	24.0	38.0
Max Q Clear Time (g_c+I1), s	5.9	10.2	7.7	0.0
Green Ext Time (p_c), s	1.3	1.1	1.1	0.0

Intersection Summary			
HCM 6th Ctrl Delay	14.5		
HCM 6th LOS	B		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	277	46	48	130	204	138
Future Volume (vph)	277	46	48	130	204	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.89		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3112		1770	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3112		1770	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	308	51	53	144	227	153
RTOR Reduction (vph)	0	0	104	0	0	128
Lane Group Flow (vph)	308	51	93	0	227	25
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.4	35.9	19.1		11.2	11.2
Effective Green, g (s)	12.8	36.8	20.0		11.6	11.6
Actuated g/C Ratio	0.18	0.51	0.28		0.16	0.16
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	314	1806	863		284	249
v/s Ratio Prot	c0.17	0.01	c0.03		c0.13	
v/s Ratio Perm						0.02
v/c Ratio	0.98	0.03	0.11		0.80	0.10
Uniform Delay, d1	29.5	8.8	19.4		29.1	25.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	45.3	0.0	0.1		13.6	0.1
Delay (s)	74.8	8.8	19.5		42.7	25.9
Level of Service	E	A	B		D	C
Approach Delay (s)		65.4	19.5		35.9	
Approach LOS		E	B		D	

Intersection Summary				
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.46			
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Existing + P1 + P2 + P3 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	6	519	68	10	7	301	680	20	41	955	71
Future Volume (veh/h)	130	6	519	68	10	7	301	680	20	41	955	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	0	181	71	10	5	314	708	19	43	995	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	572	0	243	88	12	6	358	2213	59	55	2707	179
Arrive On Green	0.16	0.00	0.16	0.06	0.06	0.06	0.10	0.63	0.62	0.03	0.55	0.55
Sat Flow, veh/h	3563	0	1516	1459	205	103	3456	3532	95	1781	4889	324
Grp Volume(v), veh/h	139	0	181	86	0	0	314	356	371	43	692	369
Grp Sat Flow(s),veh/h/ln	1781	0	1516	1767	0	0	1728	1777	1849	1781	1702	1809
Q Serve(g_s), s	5.1	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.1	3.6	17.1	17.2
Cycle Q Clear(g_c), s	5.1	0.0	17.1	7.2	0.0	0.0	13.4	14.0	14.1	3.6	17.1	17.2
Prop In Lane	1.00		1.00	0.83		0.06	1.00		0.05	1.00		0.18
Lane Grp Cap(c), veh/h	572	0	243	107	0	0	358	1114	1159	55	1885	1001
V/C Ratio(X)	0.24	0.00	0.74	0.81	0.00	0.00	0.88	0.32	0.32	0.78	0.37	0.37
Avail Cap(c_a), veh/h	1261	0	537	178	0	0	382	1114	1159	112	1885	1001
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.00	0.71	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	0.0	60.0	69.6	0.0	0.0	66.3	13.1	13.1	72.1	18.8	18.8
Incr Delay (d2), s/veh	0.2	0.0	4.1	5.3	0.0	0.0	18.2	0.8	0.7	8.3	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	6.9	3.4	0.0	0.0	6.9	5.9	6.1	1.8	7.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	0.0	64.1	74.9	0.0	0.0	84.5	13.8	13.8	80.5	19.3	19.9
LnGrp LOS	E	A	E	E	A	A	F	B	B	F	B	B
Approach Vol, veh/h		320			86			1041			1104	
Approach Delay, s/veh		60.3			74.9			35.1			21.9	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	98.0		29.0	19.9	87.2		14.0				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.4	52.9		53.1	16.6	45.7		15.1				
Max Q Clear Time (g_c+I1), s	5.6	16.1		19.1	15.4	19.2		9.2				
Green Ext Time (p_c), s	0.0	9.9		1.6	0.1	13.2		0.1				

Intersection Summary			
HCM 6th Ctrl Delay			33.9
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Existing + P1 + P2 + P3 PM
02/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	426	320	438	528	63
Future Volume (veh/h)	72	426	320	438	528	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	468	352	123	580	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	110	1040	830	1244	610	543
Arrive On Green	0.06	0.56	0.44	0.44	0.34	0.00
Sat Flow, veh/h	1781	1870	1870	1581	1781	1585
Grp Volume(v), veh/h	79	468	352	123	580	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1581	1781	1585
Q Serve(g_s), s	3.4	11.7	10.2	1.4	25.0	0.0
Cycle Q Clear(g_c), s	3.4	11.7	10.2	1.4	25.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	110	1040	830	1244	610	543
V/C Ratio(X)	0.72	0.45	0.42	0.10	0.95	0.00
Avail Cap(c_a), veh/h	136	1067	830	1244	610	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.3	10.4	15.0	2.0	25.3	0.0
Incr Delay (d2), s/veh	9.0	0.1	1.6	0.2	26.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.3	4.4	1.3	14.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	10.5	16.6	2.1	51.5	0.0
LnGrp LOS	D	B	B	A	D	A
Approach Vol, veh/h		547	475		580	
Approach Delay, s/veh		15.5	12.9		51.5	
Approach LOS		B	B		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		47.9		31.0	8.9	39.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		44.1		26.1	5.6	34.1
Max Q Clear Time (g_c+I1), s		13.7		27.0	5.4	12.2
Green Ext Time (p_c), s		2.0		0.0	0.0	1.5

Intersection Summary			
HCM 6th Ctrl Delay			27.8
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	793	145	19	515	23	186	8	65	6	3	2
Future Volume (veh/h)	0	793	145	19	515	23	186	8	65	6	3	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	862	158	21	560	25	202	9	71	7	3	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1092	200	45	1569	70	719	76	603	423	177	103
Arrive On Green	0.00	0.37	0.35	0.03	0.45	0.44	0.43	0.43	0.41	0.43	0.43	0.41
Sat Flow, veh/h	0	3078	547	1781	3460	154	1405	179	1409	792	414	241
Grp Volume(v), veh/h	0	513	507	21	287	298	202	0	80	12	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1754	1781	1777	1837	1405	0	1587	1447	0	0
Q Serve(g_s), s	0.0	17.4	17.4	0.8	7.1	7.2	3.7	0.0	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	17.4	17.4	0.8	7.1	7.2	5.8	0.0	2.1	2.1	0.0	0.0
Prop In Lane	0.00		0.31	1.00		0.08	1.00		0.89	0.58		0.17
Lane Grp Cap(c), veh/h	0	650	642	45	806	833	719	0	680	704	0	0
V/C Ratio(X)	0.00	0.79	0.79	0.47	0.36	0.36	0.28	0.00	0.12	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	650	642	116	871	901	719	0	680	704	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.1	19.2	32.5	12.0	12.1	12.6	0.0	11.9	11.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.4	9.5	2.8	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.2	8.2	0.4	2.6	2.7	1.9	0.0	0.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	28.5	28.8	35.2	12.3	12.3	12.8	0.0	12.0	11.2	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		1020			606			282			12	
Approach Delay, s/veh		28.6			13.1			12.6			11.2	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	28.9		32.9		34.6		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.0	* 24		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	2.8	19.4		4.1		9.2		7.8				
Green Ext Time (p_c), s	0.0	2.3		0.0		3.2		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		21.3
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	10	48	556	2	32
Future Vol, veh/h	844	10	48	556	2	32
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	917	11	52	604	2	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	930	0	1331	466
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	731	-	146	543
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	730	-	135	542
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	322	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	135	542	-	-	730	-
HCM Lane V/C Ratio	0.016	0.064	-	-	0.071	-
HCM Control Delay (s)	32.1	12.1	-	-	10.3	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0	0.2	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Existing + P1 + P2 + P3 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	766	80	235	621	40	97	5	259	21	8	15
Future Volume (veh/h)	40	766	80	235	621	40	97	5	259	21	8	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.99		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	806	84	247	654	42	102	5	273	22	8	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1582	165	160	1814	116	418	8	459	147	59	82
Arrive On Green	0.04	0.49	0.49	0.09	0.54	0.54	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3229	336	1781	3378	217	1380	28	1531	314	197	272
Grp Volume(v), veh/h	42	444	446	247	344	352	102	0	278	46	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1788	1781	1777	1818	1380	0	1559	783	0	0
Q Serve(g_s), s	2.3	17.0	17.0	9.0	11.1	11.1	0.0	0.0	15.2	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.3	17.0	17.0	9.0	11.1	11.1	8.5	0.0	15.2	15.7	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.12	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	77	871	876	160	954	976	418	0	468	288	0	0
V/C Ratio(X)	0.55	0.51	0.51	1.54	0.36	0.36	0.24	0.00	0.59	0.16	0.00	0.00
Avail Cap(c_a), veh/h	107	871	876	160	954	976	418	0	468	288	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	46.9	17.3	17.3	45.5	13.3	13.3	27.5	0.0	29.8	26.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	2.1	2.1	271.9	0.2	0.2	1.4	0.0	5.5	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.2	7.2	16.1	4.3	4.4	2.1	0.0	6.3	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	19.5	19.4	317.4	13.5	13.5	28.8	0.0	35.3	27.2	0.0	0.0
LnGrp LOS	D	B	B	F	B	B	C	A	D	C	A	A
Approach Vol, veh/h		932			943			380			46	
Approach Delay, s/veh		20.8			93.1			33.6			27.2	
Approach LOS		C			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	53.0		34.0	8.3	57.7		34.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	49.0		30.0	6.0	52.0		30.0				
Max Q Clear Time (g_c+I1), s	11.0	19.0		17.7	4.3	13.1		17.2				
Green Ext Time (p_c), s	0.0	6.9		0.1	0.0	5.0		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Existing + P1 + P2 + P3 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	484	297	289	323	271	260	454	145	427	839	258
Future Volume (veh/h)	233	484	297	289	323	271	260	454	145	427	839	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	245	509	216	304	340	122	274	478	102	449	883	140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	302	603	255	362	690	243	336	1649	342	512	2258	691
Arrive On Green	0.09	0.25	0.24	0.10	0.27	0.26	0.07	0.26	0.26	0.15	0.44	0.44
Sat Flow, veh/h	3456	2414	1019	3456	2557	899	3456	4214	873	3456	5106	1562
Grp Volume(v), veh/h	245	374	351	304	234	228	274	383	197	449	883	140
Grp Sat Flow(s),veh/h/ln	1728	1777	1656	1728	1777	1679	1728	1702	1683	1728	1702	1562
Q Serve(g_s), s	10.4	30.0	30.3	13.0	16.6	17.3	11.7	13.5	14.1	19.1	17.5	8.2
Cycle Q Clear(g_c), s	10.4	30.0	30.3	13.0	16.6	17.3	11.7	13.5	14.1	19.1	17.5	8.2
Prop In Lane	1.00		0.62	1.00		0.54	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	302	444	414	362	479	453	336	1332	659	512	2258	691
V/C Ratio(X)	0.81	0.84	0.85	0.84	0.49	0.50	0.81	0.29	0.30	0.88	0.39	0.20
Avail Cap(c_a), veh/h	461	569	530	507	597	564	714	1332	659	783	2258	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.2	53.5	53.8	65.9	46.1	46.6	68.8	38.7	39.0	62.5	28.2	25.6
Incr Delay (d2), s/veh	2.9	7.7	8.7	6.4	1.5	1.7	1.6	0.5	1.0	4.9	0.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	14.4	13.7	6.1	7.6	7.5	5.4	6.1	6.4	8.8	7.4	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	61.2	62.5	72.3	47.6	48.3	70.4	39.1	40.1	67.5	28.7	26.3
LnGrp LOS	E	E	E	E	D	D	E	D	D	E	C	C
Approach Vol, veh/h		970			766			854			1472	
Approach Delay, s/veh		63.9			57.6			49.4			40.3	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.2	62.6	19.7	41.5	18.6	70.2	17.1	44.1				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	33.6	28.8	21.6	47.1	30.6	* 32	19.6	49.1				
Max Q Clear Time (g_c+I1), s	21.1	16.1	15.0	32.3	13.7	19.5	12.4	19.3				
Green Ext Time (p_c), s	0.8	4.6	0.3	4.3	0.5	7.7	0.3	5.5				

Intersection Summary	
HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	171	266	251	279	454	169	338	536	351	936	56
Future Volume (veh/h)	19	171	266	251	279	454	169	338	536	351	936	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	176	0	259	288	468	174	348	0	362	965	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	695		316	509	422	229	1712		421	1910	852
Arrive On Green	0.02	0.20	0.00	0.09	0.27	0.27	0.07	0.48	0.00	0.24	1.00	0.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1553	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	176	0	259	288	468	174	348	0	362	965	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1553	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.7	6.3	0.0	11.0	19.9	40.8	7.4	8.4	0.0	15.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	6.3	0.0	11.0	19.9	40.8	7.4	8.4	0.0	15.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	32	695		316	509	422	229	1712		421	1910	852
V/C Ratio(X)	0.63	0.25		0.82	0.57	1.11	0.76	0.20		0.86	0.51	0.00
Avail Cap(c_a), veh/h	74	695		461	509	422	323	1712		599	1910	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.77	0.77	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	73.2	51.1	0.0	66.9	47.0	54.6	68.9	22.3	0.0	55.5	0.0	0.0
Incr Delay (d2), s/veh	7.5	0.2	0.0	4.8	0.9	76.4	2.9	0.2	0.0	7.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.9	0.0	5.1	9.5	24.9	3.4	3.7	0.0	6.3	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	51.2	0.0	71.7	47.9	131.0	71.7	22.5	0.0	63.0	0.8	0.0
LnGrp LOS	F	D		E	D	F	E	C		E	A	A
Approach Vol, veh/h		196	A		1015			522	A		1327	
Approach Delay, s/veh		54.3			92.3			38.9			17.8	
Approach LOS		D			F			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.3	76.2	17.7	33.7	13.9	84.6	6.7	44.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	25.6	60.1	19.6	* 26	13.6	72.1	5.8	39.5
Max Q Clear Time (g_c+I1), s	17.0	10.4	13.0	8.3	9.4	2.0	3.7	42.8
Green Ext Time (p_c), s	0.9	1.6	0.3	0.9	0.1	16.1	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay	48.4	
HCM 6th LOS	D	

Notes

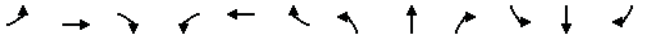
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	572	0	340	0	0	0	0	496	315	853	417	0
Future Volume (vph)	572	0	340	0	0	0	0	496	315	853	417	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3307	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3307	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	602	0	358	0	0	0	0	522	332	898	439	0
RTOR Reduction (vph)	0	0	275	0	0	0	0	0	212	0	0	0
Lane Group Flow (vph)	602	0	83	0	0	0	0	522	120	449	888	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	33.1		33.1					53.0	53.0	45.6	45.6	
Effective Green, g (s)	34.7		34.7					54.0	54.0	47.2	47.2	
Actuated g/C Ratio	0.23		0.23					0.36	0.36	0.31	0.31	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	794		366					1274	569	506	1040	
v/s Ratio Prot	c0.18							c0.15		c0.28	0.27	
v/s Ratio Perm			0.05						0.08			
v/c Ratio	0.76		0.23					0.41	0.21	0.89	0.85	
Uniform Delay, d1	53.7		46.8					36.0	33.2	48.9	48.2	
Progression Factor	1.00		1.00					0.39	0.03	0.90	0.90	
Incremental Delay, d2	4.4		0.4					0.1	0.1	15.6	6.4	
Delay (s)	58.2		47.2					14.2	1.1	59.5	49.7	
Level of Service	E		D					B	A	E	D	
Approach Delay (s)		54.1			0.0			9.1			53.0	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

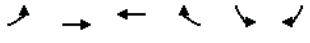
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	497	79	6	4	67	304	3	26	11	421	25	295
Future Volume (vph)	497	79	6	4	67	304	3	26	11	421	25	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (prot)	1610	3259			3530	1583		1780		1681	1694	1583
Flt Permitted	0.95	0.96			1.00	1.00		1.00		0.95	0.96	1.00
Satd. Flow (perm)	1610	3259			3530	1583		1780		1681	1694	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	552	88	7	4	74	338	3	29	12	468	28	328
RTOR Reduction (vph)	0	1	0	0	0	56	0	9	0	0	0	168
Lane Group Flow (vph)	276	370	0	0	78	282	0	35	0	248	248	160
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	28.9	28.9			18.0	89.4		7.3		71.4	71.4	71.4
Effective Green, g (s)	30.5	30.5			19.6	89.4		8.8		73.0	73.0	73.0
Actuated g/C Ratio	0.20	0.20			0.13	0.60		0.06		0.49	0.49	0.49
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	327	662			461	943		104		818	824	770
v/s Ratio Prot	c0.17	0.11			0.02	c0.14		c0.02		c0.15	0.15	
v/s Ratio Perm						0.04						0.10
v/c Ratio	0.84	0.56			0.17	0.30		0.33		0.30	0.30	0.21
Uniform Delay, d1	57.5	53.7			58.0	14.9		67.8		23.2	23.2	22.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.48	0.48	0.34
Incremental Delay, d2	22.5	3.4			0.8	0.8		8.4		0.7	0.7	0.4
Delay (s)	80.0	57.1			58.8	15.7		76.2		11.8	11.7	7.9
Level of Service	F	E			E	B		E		B	B	A
Approach Delay (s)		66.9			23.8			76.2			10.2	
Approach LOS		E			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	49.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	594	391	463	572	311	81
Future Volume (veh/h)	594	391	463	572	311	81
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	632	416	493	0	331	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	645	1499	1432		436	755
Arrive On Green	0.36	0.80	0.40	0.00	0.13	0.00
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	632	416	493	0	331	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	38.7	6.3	10.6	0.0	10.2	0.0
Cycle Q Clear(g_c), s	38.7	6.3	10.6	0.0	10.2	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	645	1499	1432		436	755
V/C Ratio(X)	0.98	0.28	0.34		0.76	0.00
Avail Cap(c_a), veh/h	645	1499	1432		735	893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.8	2.8	22.8	0.0	46.6	0.0
Incr Delay (d2), s/veh	30.1	0.5	0.7	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.7	1.9	4.5	0.0	4.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.9	3.3	23.5	0.0	47.7	0.0
LnGrp LOS	E	A	C		D	A
Approach Vol, veh/h		1048	493	A	331	
Approach Delay, s/veh		40.4	23.5		47.7	
Approach LOS		D	C		D	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	92.5		17.9	44.0	48.5
Change Period (Y+Rc), s	5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s	87.5		22.0	* 40	43.5
Max Q Clear Time (g_c+I1), s	8.3		12.2	40.7	12.6
Green Ext Time (p_c), s	1.8		0.2	0.0	2.3

Intersection Summary		
HCM 6th Ctrl Delay	37.2	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis — Existing + P1 + P2 + P3 PM
46: Hotel Circle Place/Hotel Circle N. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	1	22	42	773	31	18	62	19	244	7	43	2
Future Volume (vph)	1	22	42	773	31	18	62	19	244	7	43	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	24	46	840	34	20	67	21	265	8	47	2

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	71	840	54	353	57
Volume Left (vph)	1	840	0	67	8
Volume Right (vph)	46	0	20	265	2
Hadj (s)	-0.35	0.53	-0.23	-0.38	0.04
Departure Headway (s)	6.0	6.4	5.6	5.7	6.7
Degree Utilization, x	0.12	1.49	0.08	0.55	0.11
Capacity (veh/h)	558	560	630	628	510
Control Delay (s)	9.8	248.8	8.0	15.5	10.5
Approach Delay (s)	9.8	234.2		15.5	10.5
Approach LOS	A	F		C	B

Intersection Summary					
Delay			157.2		
Level of Service			F		
Intersection Capacity Utilization			82.3%	ICU Level of Service	E
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary — Existing + P1 + P2 + P3 PM
47: I-8 WB Ramp — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	704
Future Volume (veh/h)	229	0	123	0	411	91	0	0	0	0	150	704
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	254	0	0	0	457	101				0	167	782
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	401	0		0	1494	666				0	0	0
Arrive On Green	0.23	0.00	0.00	0.00	0.42	0.42				0.00	0.16	0.16
Sat Flow, veh/h	1781	254		0	3647	1585					0	
Grp Volume(v), veh/h	254	7.0		0	457	101					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	2.4			0.0	1.6	0.7						
Cycle Q Clear(g_c), s	2.4			0.0	1.6	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	401			0	1494	666						
V/C Ratio(X)	0.63			0.00	0.31	0.15						
Avail Cap(c_a), veh/h	923			0	1744	778						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	6.4			0.0	3.5	3.3						
Incr Delay (d2), s/veh	0.6			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.4			0.0	0.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.0			0.0	3.6	3.4						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					558							
Approach Delay, s/veh					3.6							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							8.6	9.7				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							9.0	6.0				
Max Q Clear Time (g_c+I1), s							4.4	3.6				
Green Ext Time (p_c), s							0.1	0.8				

Intersection Summary			
HCM 6th Ctrl Delay		4.7	
HCM 6th LOS		A	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	282.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	310	17	448	204	73	139	298	506	4	73	427
Future Vol, veh/h	1	310	17	448	204	73	139	298	506	4	73	427
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	333	18	482	219	78	149	320	544	4	78	459
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

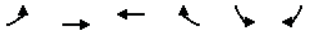
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	66.2	146.5	486.2	239.6
HCM LOS	F	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	0%	100%	0%	1%
Vol Thru, %	0%	37%	100%	0%	0%	74%	14%
Vol Right, %	0%	63%	0%	100%	0%	26%	85%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	804	311	17	448	277	504
LT Vol	139	0	1	0	448	0	4
Through Vol	0	298	310	0	0	204	73
RT Vol	0	506	0	17	0	73	427
Lane Flow Rate	149	865	334	18	482	298	542
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.417	2.189	0.908	0.046	1.344	0.775	1.425
Departure Headway (Hd)	11.333	10.336	12.526	11.767	12.509	11.772	11.766
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	320	363	291	306	294	310	314
Service Time	9.033	8.036	10.226	9.467	10.209	9.472	9.766
HCM Lane V/C Ratio	0.466	2.383	1.148	0.059	1.639	0.961	1.726
HCM Control Delay	21.9	566.5	69	15	209	45.5	239.6
HCM Lane LOS	C	F	F	B	F	E	F
HCM 95th-tile Q	2	56.8	8.4	0.1	19.7	6.1	23.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	495	331	308	200	405
Future Volume (veh/h)	361	495	331	308	200	405
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	384	527	352	328	213	431
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	364	1064	573	484	560	498
Arrive On Green	0.20	0.57	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	384	527	352	328	213	431
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	14.0	11.6	11.0	12.5	6.4	17.6
Cycle Q Clear(g_c), s	14.0	11.6	11.0	12.5	6.4	17.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	364	1064	573	484	560	498
V/C Ratio(X)	1.06	0.50	0.61	0.68	0.38	0.87
Avail Cap(c_a), veh/h	364	2593	2102	1775	962	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	8.9	20.3	20.8	18.3	22.1
Incr Delay (d2), s/veh	62.4	0.3	1.5	2.3	0.2	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	4.0	4.7	4.6	2.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.7	9.2	21.8	23.1	18.5	24.1
LnGrp LOS	F	A	C	C	B	C
Approach Vol, veh/h		911	680		644	
Approach Delay, s/veh		43.1	22.4		22.2	
Approach LOS		D	C		C	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	43.0		25.5	18.0	25.0
Change Period (Y+Rc), s	4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s	94.1		36.1	13.6	76.1
Max Q Clear Time (g_c+I1), s	13.6		19.6	16.0	14.5
Green Ext Time (p_c), s	3.6		1.1	0.0	5.6

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	262	472	262	80	152	522
Future Volume (veh/h)	262	472	262	80	152	522
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	524	291	89	169	580
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	339	940	353	108	701	624
Arrive On Green	0.19	0.50	0.26	0.25	0.39	0.39
Sat Flow, veh/h	1781	1870	1357	415	1781	1585
Grp Volume(v), veh/h	291	524	0	380	169	580
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1772	1781	1585
Q Serve(g_s), s	12.2	14.9	0.0	15.5	4.9	26.9
Cycle Q Clear(g_c), s	12.2	14.9	0.0	15.5	4.9	26.9
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	339	940	0	461	701	624
V/C Ratio(X)	0.86	0.56	0.00	0.82	0.24	0.93
Avail Cap(c_a), veh/h	371	973	0	461	741	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	13.2	0.0	26.9	15.6	22.3
Incr Delay (d2), s/veh	15.6	0.4	0.0	15.4	0.1	18.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	5.7	0.0	8.2	1.9	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.8	13.6	0.0	42.3	15.7	40.9
LnGrp LOS	D	B	A	D	B	D
Approach Vol, veh/h		815	380		749	
Approach Delay, s/veh		25.1	42.3		35.2	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		42.6		34.3	18.6	24.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		39.1		31.1	15.6	19.1
Max Q Clear Time (g_c+I1), s		16.9		28.9	14.2	17.5
Green Ext Time (p_c), s		2.2		0.5	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	127.3
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	391	165	741	255	27
Future Vol, veh/h	467	391	165	741	255	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	519	434	183	823	283	30
Number of Lanes	1	1	1	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	70.6	211.9	28
HCM LOS	F	F	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	467	391	165	741	255	27
LT Vol	467	0	0	0	255	0
Through Vol	0	391	165	0	0	0
RT Vol	0	0	0	741	0	27
Lane Flow Rate	519	434	183	823	283	30
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.086	0.849	0.371	1.506	0.681	0.062
Departure Headway (Hd)	8.139	7.622	7.502	6.782	9.359	8.112
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	451	478	482	543	388	444
Service Time	5.839	5.322	5.202	4.482	7.059	5.812
HCM Lane V/C Ratio	1.151	0.908	0.38	1.516	0.729	0.068
HCM Control Delay	96.2	40.1	14.6	255.8	29.8	11.3
HCM Lane LOS	F	E	B	F	D	B
HCM 95th-tile Q	16	8.6	1.7	40.9	4.9	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	445	108	203	553	393	265
Future Volume (veh/h)	445	108	203	553	393	265
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	473	115	216	588	418	282
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	485	118	259	996	642	571
Arrive On Green	0.33	0.32	0.15	0.53	0.36	0.36
Sat Flow, veh/h	1453	353	1781	1870	1781	1585
Grp Volume(v), veh/h	0	588	216	588	418	282
Grp Sat Flow(s),veh/h/ln	0	1807	1781	1870	1781	1585
Q Serve(g_s), s	0.0	24.1	8.8	16.0	14.7	10.4
Cycle Q Clear(g_c), s	0.0	24.1	8.8	16.0	14.7	10.4
Prop In Lane		0.20	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	603	259	996	642	571
V/C Ratio(X)	0.00	0.98	0.83	0.59	0.65	0.49
Avail Cap(c_a), veh/h	0	603	381	1124	642	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.7	31.1	11.9	20.0	18.6
Incr Delay (d2), s/veh	0.0	31.0	8.2	0.8	5.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.8	4.2	6.1	6.6	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	55.7	39.3	12.7	25.1	21.7
LnGrp LOS	A	E	D	B	C	C
Approach Vol, veh/h	588			804	700	
Approach Delay, s/veh	55.7			19.9	23.7	
Approach LOS	E			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.9	29.0				43.9	31.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0				44.0	27.0
Max Q Clear Time (g_c+I1), s	10.8	26.1				18.0	16.7
Green Ext Time (p_c), s	0.2	0.0				5.5	1.3

Intersection Summary			
HCM 6th Ctrl Delay			31.2
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	242	0	42	102	42	198	113	153	0
Future Volume (veh/h)	0	0	0	242	0	42	102	42	198	113	153	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	263	0	46	111	46	215	123	166	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	418	810	0	824	405	361	711	576	488	743	576	0
Arrive On Green	0.00	0.00	0.00	0.23	0.00	0.23	0.31	0.31	0.31	0.31	0.31	0.00
Sat Flow, veh/h	1360	3647	0	1781	1777	1585	1220	1870	1585	1118	1870	0
Grp Volume(v), veh/h	0	0	0	263	0	46	111	46	215	123	166	0
Grp Sat Flow(s),veh/h/ln	1360	1777	0	1781	1777	1585	1220	1870	1585	1118	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.4	1.3	0.3	1.9	1.5	1.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.3	0.0	0.4	2.5	0.3	1.9	1.8	1.2	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	418	810	0	824	405	361	711	576	488	743	576	0
V/C Ratio(X)	0.00	0.00	0.00	0.32	0.00	0.13	0.16	0.08	0.44	0.17	0.29	0.00
Avail Cap(c_a), veh/h	1369	3297	0	2070	1649	1471	1467	1735	1471	1436	1735	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	6.0	0.0	5.3	5.5	4.2	4.8	4.9	4.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.1	0.6	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	6.3	0.0	5.4	5.6	4.3	5.4	5.0	4.8	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		0			309			372			289	
Approach Delay, s/veh		0.0			6.1			5.3			4.9	
Approach LOS					A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.3		7.9		9.3		7.9				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		4.5		0.0		3.8		4.3				
Green Ext Time (p_c), s		1.1		0.0		1.1		0.8				

Intersection Summary			
HCM 6th Ctrl Delay			5.4
HCM 6th LOS			A

APPENDIX L

EXISTING + PROJECT PHASES I THROUGH III FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	3991	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1050
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.1
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5792	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2076
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5807	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_P), pc/h/ln	1223
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8461	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1800
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.0
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6101	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1622
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8591	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1809
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6394	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1360
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9544	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1657
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6480	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1409
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9627	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2006
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6989	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1487
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10363	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2137
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9315	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2047
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7172	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1510
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8549	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1601
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6651	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1167
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.1
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9508	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2023
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7473	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1946
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7988	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2863
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6299	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1105
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8567	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2254
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.10
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6684	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2297
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5811	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1546
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4929	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1748
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8478	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1766
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7179	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1496
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.6
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9014	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_P), pc/h/ln	2300
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7289	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1519
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9576	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1974
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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4. I-8 from Hotel Circle to SR163 EB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7964	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1383
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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4. I-8 from Hotel Circle to SR163 WB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9627	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1985
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road EB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8051	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1677
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road WB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10375	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2139
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.4
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8693	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1811
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8323	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1829
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9937	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2049
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7682	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1377
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 NB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9112	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1566
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.1
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 SB – Ex + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7593	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1582
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8006	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2064
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6367	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2166
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.0
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6675	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1209
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6791	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1750
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Ex + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7194	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2472
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX M

LOCAL AND REGIONAL ROADWAY NETWORK IMPROVEMENTS INFORMATION

Mission Valley

Public Facilities Financing Plan

Fiscal Year 2013



THE CITY OF SAN DIEGO

Development Services Department

Facilities Financing Section

CITY OF SAN DIEGO
FACILITIES FINANCING PROGRAM

TITLE: **STATE ROUTE 163 AND FRIARS ROAD INTERCHANGE IMPROVEMENTS (PHASE 1)**

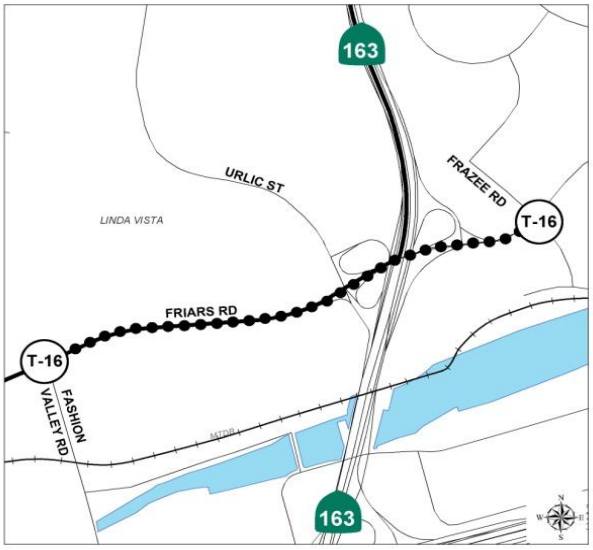
DEPARTMENT: ENGINEERING & CAPITAL PROJECTS

PROJECT: T-16
COUNCIL DISTRICT: 6
CIP NO.: S00851
COMMUNITY PLAN: MISSION VALLEY

DESCRIPTION: PROJECT WOULD WIDEN FRIARS ROAD AND THE FRIARS ROAD OVERCROSSING BRIDGE INCLUDING TWO NEW TIE BACK WALLS, IMPROVEMENTS TO FRAZEE ROAD AND AVENIDA DE LAS TIENDAS AND THE NORTHBOUND OFF-RAMP. IN ADDITION, THIS PROJECT WOULD CONSTRUCT SOUND WALLS TO MEET FEDERAL REQUIREMENTS, RETAINING WALLS, A PORTION OF AUXILIARY LANE ON SR-163, IMPROVE THE RAMP INTERSECTION AND INCLUDE FRIARS ROAD SIGNAL INTERCONNECT TIMING IMPROVEMENTS.

JUSTIFICATION: THIS PROJECT IS CONSISTENT WITH THE MISSION VALLEY COMMUNITY PLAN AND GENERAL PLAN GUIDELINES AND IS NEEDED TO SERVE THE COMMUNITY AT FULL BUILDOUT.

SCHEDULE: PRELIMINARY ENGINEERING WAS COMPLETED IN FY 1996. PHASE I DESIGN BEGAN IN FY 2002 AND CONSTRUCTION IS SCHEDULED FOR FY 2014.



FUNDING:	SOURCE	EXPEN/ENCUM	CONT APPR	FY2012	FY 2013	FY 2014	FY 2015	FY 2016	Future FY
$2,239,809	GRANT								
$16,918,488	DIF								
$471,139	PRIV								
$2,660,000	SUBDIVIDER								
$23,010,812	TRANS								
$45,300,248	**TOTAL**	$0	$0	$0	$0	$0	$0	$0	$0

PRIVATE: H.G. FENTON, TM #83-0393 ($171,179)
MISSIONS AT RIO VISTA, TM #179309 ($145,000)
ASN PRESIDIO VIEW, TM #99-0348 ($155,000)
SUBDIVIDER: SUDBERRY PROPERTIES

APPENDIX N

NEAR-TERM (OPENING DAY 2025) INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2025 AM
02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	594	307	1318	465	140	815
Future Volume (veh/h)	594	307	1318	465	140	815
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	625	57	1387	71	147	858
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	731	325	1992	1165	220	2332
Arrive On Green	0.21	0.21	0.54	0.54	0.06	0.66
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647
Grp Volume(v), veh/h	625	57	1387	71	147	858
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777
Q Serve(g_s), s	15.1	2.7	24.9	1.1	3.7	9.8
Cycle Q Clear(g_c), s	15.1	2.7	24.9	1.1	3.7	9.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	731	325	1992	1165	220	2332
V/C Ratio(X)	0.85	0.18	0.70	0.06	0.67	0.37
Avail Cap(c_a), veh/h	1665	741	3270	1704	448	3838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	29.3	15.0	3.0	41.0	7.0
Incr Delay (d2), s/veh	1.1	0.1	0.6	0.0	1.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	1.0	8.9	0.6	1.6	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.4	29.4	15.6	3.0	42.3	7.2
LnGrp LOS	D	C	B	A	D	A
Approach Vol, veh/h	682		1458			1005
Approach Delay, s/veh	34.9		15.0			12.3
Approach LOS	C		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.1	54.8				64.9	24.6
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	11.6	79.8				* 97	41.8
Max Q Clear Time (g_c+I1), s	5.7	26.9				11.8	17.1
Green Ext Time (p_c), s	0.1	21.7				17.9	1.2

Intersection Summary			
HCM 6th Ctrl Delay		18.5	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2025 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	52	89	32	135	120	197	1164	84	137	739	182
Future Volume (veh/h)	58	52	89	32	135	120	197	1164	84	137	739	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	58	99	36	150	133	219	1293	93	152	821	202
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	214	172	46	205	161	279	2216	1007	148	2223	1028
Arrive On Green	0.03	0.11	0.11	0.03	0.11	0.11	0.08	0.62	0.62	0.08	0.63	0.63
Sat Flow, veh/h	3456	1870	1501	1781	1870	1473	3456	3554	1549	1781	3554	1565
Grp Volume(v), veh/h	64	58	99	36	150	133	219	1293	93	152	821	202
Grp Sat Flow(s),veh/h/ln	1728	1870	1501	1781	1870	1473	1728	1777	1549	1781	1777	1565
Q Serve(g_s), s	2.3	3.6	8.0	2.6	9.9	11.3	7.9	27.5	2.9	10.6	14.4	6.5
Cycle Q Clear(g_c), s	2.3	3.6	8.0	2.6	9.9	11.3	7.9	27.5	2.9	10.6	14.4	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	214	172	46	205	161	279	2216	1007	148	2223	1028
V/C Ratio(X)	0.60	0.27	0.58	0.78	0.73	0.82	0.78	0.58	0.09	1.03	0.37	0.20
Avail Cap(c_a), veh/h	295	454	364	132	427	336	935	2216	1007	148	2223	1028
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	51.7	53.7	61.9	55.1	55.7	57.6	14.2	8.4	58.6	11.6	8.7
Incr Delay (d2), s/veh	2.0	0.7	3.0	10.2	1.9	4.0	1.8	1.1	0.2	81.9	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.7	3.2	1.3	4.8	4.4	3.5	11.0	1.0	8.1	5.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	52.4	56.7	72.1	57.0	59.7	59.5	15.4	8.5	140.5	12.1	9.1
LnGrp LOS	E	D	E	E	E	E	E	B	A	F	B	A
Approach Vol, veh/h		221			319			1605			1175	
Approach Delay, s/veh		57.5			59.8			21.0			28.2	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	85.0	7.7	20.1	14.7	85.3	8.3	19.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	10.6	79.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	12.6	29.5	4.6	10.0	9.9	16.4	4.3	13.3
Green Ext Time (p_c), s	0.0	24.5	0.0	0.6	0.4	12.5	0.0	0.7

Intersection Summary			
HCM 6th Ctrl Delay		29.7	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1594	1	381	288	0	0	0	0	328	5	795
Future Volume (veh/h)	0	1594	1	381	288	0	0	0	0	328	5	795
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1660	-20	397	300	0				342	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1813	784	462	2318	0				499	7	
Arrive On Green	0.00	0.49	0.00	0.13	0.65	0.00				0.28	0.28	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1757	26	1585
Grp Volume(v), veh/h	0	1660	-20	397	300	0				347	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	62.7	0.0	16.4	4.8	0.0				26.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	62.7	0.0	16.4	4.8	0.0				26.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.99		1.00
Lane Grp Cap(c), veh/h	0	1813	784	462	2318	0				506	0	
V/C Ratio(X)	0.00	0.92	-0.03	0.86	0.13	0.00				0.69	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				506	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.19	0.19	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.0	0.0	63.9	9.9	0.0				47.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.0	0.0	1.5	0.0	0.0				3.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	29.1	0.0	7.6	1.9	0.0				12.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.0	0.0	65.5	9.9	0.0				51.0	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				D	A	
Approach Vol, veh/h		1640			697						347	A
Approach Delay, s/veh		41.5			41.5						51.0	
Approach LOS		D			D						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.6	79.2		47.2		102.8						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0						
Max Q Clear Time (g_c+I1), s	18.4	64.7		28.0		6.8						
Green Ext Time (p_c), s	1.1	9.4		0.0		1.4						

Intersection Summary			
HCM 6th Ctrl Delay		42.8	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1234	667	0	0	573	572	91	29	290	0	0	0
Future Volume (veh/h)	1234	667	0	0	573	572	91	29	290	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1299	702	0	0	603	460	96	31	152			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1272	2634	0	0	636	485	215	69	250			
Arrive On Green	0.37	0.74	0.00	0.00	0.33	0.33	0.16	0.16	0.16			
Sat Flow, veh/h	3456	3647	0	0	2014	1463	1362	440	1585			
Grp Volume(v), veh/h	1299	702	0	0	558	505	127	0	152			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1607	1802	0	1585			
Q Serve(g_s), s	36.8	6.4	0.0	0.0	30.6	30.7	6.4	0.0	8.9			
Cycle Q Clear(g_c), s	36.8	6.4	0.0	0.0	30.6	30.7	6.4	0.0	8.9			
Prop In Lane	1.00		0.00	0.00		0.91	0.76		1.00			
Lane Grp Cap(c), veh/h	1272	2634	0	0	589	532	284	0	250			
V/C Ratio(X)	1.02	0.27	0.00	0.00	0.95	0.95	0.45	0.00	0.61			
Avail Cap(c_a), veh/h	1272	2647	0	0	595	538	284	0	250			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.43	0.43	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	31.6	4.2	0.0	0.0	32.6	32.6	38.2	0.0	39.2			
Incr Delay (d2), s/veh	22.2	0.0	0.0	0.0	24.2	26.0	0.4	0.0	3.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	18.7	1.9	0.0	0.0	16.7	15.4	2.8	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	4.2	0.0	0.0	56.7	58.7	38.6	0.0	42.3			
LnGrp LOS	F	A	A	A	E	E	D	A	D			
Approach Vol, veh/h		2001			1063			279				
Approach Delay, s/veh		36.4			57.7			40.6				
Approach LOS		D			E			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		79.6		20.4	41.0	38.6						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		74.5		15.4	* 37	33.5						
Max Q Clear Time (g_c+I1), s		8.4		10.9	38.8	32.7						
Green Ext Time (p_c), s		3.6		0.2	0.0	0.5						

Intersection Summary			
HCM 6th Ctrl Delay		43.5	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	545	83	163	850	23	314	29	257	40	36	61
Future Volume (veh/h)	29	545	83	163	850	23	314	29	257	40	36	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	606	92	181	944	26	349	32	286	44	40	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	1489	635	205	1803	50	373	545	635	57	214	175
Arrive On Green	0.02	0.42	0.42	0.11	0.51	0.51	0.21	0.29	0.29	0.03	0.11	0.11
Sat Flow, veh/h	1781	3554	1517	1781	3529	97	1781	1870	1554	1781	1870	1535
Grp Volume(v), veh/h	32	606	92	181	475	495	349	32	286	44	40	68
Grp Sat Flow(s),veh/h/ln	1781	1777	1517	1781	1777	1849	1781	1870	1554	1781	1870	1535
Q Serve(g_s), s	2.6	17.3	5.4	14.5	25.9	25.9	27.9	1.8	19.4	3.6	2.8	6.0
Cycle Q Clear(g_c), s	2.6	17.3	5.4	14.5	25.9	25.9	27.9	1.8	19.4	3.6	2.8	6.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	41	1489	635	205	908	945	373	545	635	57	214	175
V/C Ratio(X)	0.78	0.41	0.14	0.88	0.52	0.52	0.94	0.06	0.45	0.77	0.19	0.39
Avail Cap(c_a), veh/h	106	1489	635	314	908	945	486	654	726	179	335	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	29.5	26.1	63.2	23.7	23.7	56.4	37.0	31.3	69.7	58.1	59.5
Incr Delay (d2), s/veh	11.4	0.8	0.5	11.9	2.2	2.1	20.1	0.0	0.2	8.1	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.7	2.1	7.3	11.5	11.9	14.7	0.8	7.4	1.8	1.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.8	30.3	26.5	75.2	25.8	25.8	76.4	37.0	31.5	77.7	58.3	60.0
LnGrp LOS	F	C	C	E	C	C	E	D	C	E	E	E
Approach Vol, veh/h		730			1151			667			152	
Approach Delay, s/veh		32.1			33.6			55.3			64.7	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	67.4	34.7	21.8	7.7	80.8	9.0	47.5
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 34	39.6	* 26	8.6	50.4	14.6	50.7
Max Q Clear Time (g_c+I1), s	16.5	19.3	29.9	8.0	4.6	27.9	5.6	21.4
Green Ext Time (p_c), s	0.2	2.7	0.4	0.2	0.0	4.5	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay	40.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	130	7	7	968	536	0	0	17	102	5	256
Future Volume (vph)	331	130	7	7	968	536	0	0	17	102	5	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3505		1750	3329				1516	1681	1694	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3505		1750	3329				1516	1681	1694	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	368	144	8	8	1076	596	0	0	19	113	6	284
RTOR Reduction (vph)	0	2	0	0	46	0	0	0	19	0	0	164
Lane Group Flow (vph)	368	150	0	8	1626	0	0	0	0	60	59	120
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	16.3	82.9		0.8	67.4				2.1	30.1	30.1	46.4
Effective Green, g (s)	16.3	82.9		0.8	67.4				2.1	30.1	30.1	46.4
Actuated g/C Ratio	0.12	0.62		0.01	0.50				0.02	0.22	0.22	0.34
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	416	2160		10	1668				23	376	379	541
v/s Ratio Prot	c0.11	0.04		0.00	c0.49					0.04	0.03	c0.03
v/s Ratio Perm									c0.00			0.05
v/c Ratio	0.88	0.07		0.80	0.97				0.01	0.16	0.16	0.22
Uniform Delay, d1	58.2	10.3		66.8	32.7				65.2	42.0	42.0	31.2
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	19.0	0.0		163.6	16.8				0.2	0.9	0.9	0.1
Delay (s)	77.2	10.4		230.3	49.5				65.4	42.9	42.9	31.3
Level of Service	E	B		F	D				E	D	D	C
Approach Delay (s)		57.7			50.4			65.4			34.7	
Approach LOS		E			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	134.5	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	90.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	256	374	921	862	251	100
Future Volume (vph)	256	374	921	862	251	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1540	3424	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1540	3424	1419
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	269	394	969	907	264	105
RTOR Reduction (vph)	0	0	0	283	2	78
Lane Group Flow (vph)	269	394	969	624	273	16
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	21.6	72.6	47.0	67.5	20.5	20.5
Effective Green, g (s)	21.6	72.6	47.0	67.5	20.5	20.5
Actuated g/C Ratio	0.18	0.60	0.39	0.55	0.17	0.17
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	313	2109	1365	853	576	238
v/s Ratio Prot	c0.15	0.11	0.27	c0.12	0.08	
v/s Ratio Perm				0.28		0.01
v/c Ratio	0.86	0.19	0.71	0.73	0.47	0.07
Uniform Delay, d1	48.6	11.2	31.6	20.4	45.8	42.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.6	0.1	3.2	4.0	1.3	0.2
Delay (s)	68.2	11.3	34.8	24.3	47.1	42.8
Level of Service	E	B	C	C	D	D
Approach Delay (s)		34.4	29.7		46.0	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	121.8	Sum of lost time (s)	18.9
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	464	22	16	1782	107	62	6	39	67	6	38
Future Volume (veh/h)	53	464	22	16	1782	107	62	6	39	67	6	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	488	17	17	1876	105	65	6	-22	71	6	-16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	2325	81	86	2301	127	212	16	160	0	0	371
Arrive On Green	0.04	0.66	0.66	0.05	0.67	0.67	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	1781	3499	122	1781	3421	190	1266	158	1585	1391	1870	0
Grp Volume(v), veh/h	56	247	258	17	965	1016	71	0	-22	71	-10	-10
Grp Sat Flow(s),veh/h/ln	1781	1777	1844	1781	1777	1834	1425	0	1585	1391	1870	1585
Q Serve(g_s), s	2.6	4.5	4.5	0.8	32.1	33.5	3.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	4.5	4.5	0.8	32.1	33.5	3.9	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.10	0.92		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	72	1181	1225	86	1195	1234	228	0	160	0	0	0
V/C Ratio(X)	0.77	0.21	0.21	0.20	0.81	0.82	0.31	0.00	-0.14	0.00	0.00	0.00
Avail Cap(c_a), veh/h	943	1181	1225	1051	1208	1247	687	0	675	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.1	5.4	5.4	37.6	9.7	9.9	35.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.5	0.4	0.4	0.4	5.9	6.3	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.3	1.4	0.3	10.3	11.1	1.3	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	5.8	5.8	38.1	15.6	16.2	35.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	D	A	A	D	B	B	D	A	A	A	A	A
Approach Vol, veh/h		561			1998			49			51	
Approach Delay, s/veh		9.8			16.1			51.1			0.0	
Approach LOS		A			B			D			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	8.4	60.7	13.2	7.7	61.4	13.2
Change Period (Y+Rc), s	4.4	* 6	4.9	4.4	6.0	4.9
Max Green Setting (Gmax), s	48.6	* 51	35.1	43.6	56.0	35.1
Max Q Clear Time (g_c+I1), s	2.8	6.5	2.0	4.6	35.5	5.9
Green Ext Time (p_c), s	0.0	8.6	0.1	0.1	19.9	0.2

Intersection Summary		
HCM 6th Ctrl Delay	15.1	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	544	940	38	44	31
Future Vol, veh/h	46	544	940	38	44	31
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	591	1022	41	48	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1100	0	-	0	1476	569
Stage 1	-	-	-	-	1080	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	630	-	-	-	117	465
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	611	-	-	-	101	451
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	255	-
Stage 2	-	-	-	-	629	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	25.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	611	-	-	-	259
HCM Lane V/C Ratio	0.082	-	-	-	0.315
HCM Control Delay (s)	11.4	-	-	-	25.2
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	465	0	0	1773	568	0	0	0	192	0	135
Future Volume (veh/h)	111	465	0	0	1773	568	0	0	0	192	0	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	123	517	0	0	1970	460				213	0	22
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	146	2790	0	0	2384	1033				239	0	213
Arrive On Green	0.08	0.79	0.00	0.00	0.67	0.67				0.13	0.00	0.13
Sat Flow, veh/h	1781	3647	0	0	3647	1540				1781	0	1585
Grp Volume(v), veh/h	123	517	0	0	1970	460				213	0	22
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1540				1781	0	1585
Q Serve(g_s), s	9.3	5.0	0.0	0.0	55.9	19.1				16.1	0.0	1.7
Cycle Q Clear(g_c), s	9.3	5.0	0.0	0.0	55.9	19.1				16.1	0.0	1.7
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	146	2790	0	0	2384	1033				239	0	213
V/C Ratio(X)	0.84	0.19	0.00	0.00	0.83	0.45				0.89	0.00	0.10
Avail Cap(c_a), veh/h	164	2790	0	0	2384	1033				417	0	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	61.8	3.7	0.0	0.0	16.6	10.5				58.1	0.0	51.9
Incr Delay (d2), s/veh	25.7	0.1	0.0	0.0	3.4	1.4				5.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	1.4	0.0	0.0	20.9	6.3				7.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.5	3.8	0.0	0.0	20.0	11.9				63.6	0.0	52.0
LnGrp LOS	F	A	A	A	C	B				E	A	D
Approach Vol, veh/h		640			2430						235	
Approach Delay, s/veh		19.9			18.5						62.5	
Approach LOS		B			B						E	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	113.1	23.4	15.6	97.5
Change Period (Y+Rc), s	* 5.9	5.1	4.4	5.9
Max Green Setting (Gmax), s	* 1.1E2	32.0	12.6	90.0
Max Q Clear Time (g_c+I1), s	7.0	18.1	11.3	57.9
Green Ext Time (p_c), s	2.6	0.3	0.0	18.2

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2025 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	648	120	220	1852	9	329	5	94	20	6	6
Future Volume (veh/h)	6	648	120	220	1852	9	329	5	94	20	6	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	720	133	244	2058	7	366	6	48	22	7	4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	2105	384	289	2047	7	416	6	600	42	11	2
Arrive On Green	0.01	0.49	0.49	0.08	0.56	0.56	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	4326	790	3456	3632	12	1233	20	1574	2	38	6
Grp Volume(v), veh/h	7	565	288	244	1006	1059	372	0	48	33	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1711	1728	1777	1868	1254	0	1574	46	0	0
Q Serve(g_s), s	0.6	14.8	15.1	10.1	81.7	81.7	0.0	0.0	2.8	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.6	14.8	15.1	10.1	81.7	81.7	43.0	0.0	2.8	43.1	0.0	0.0
Prop In Lane	1.00		0.46	1.00		0.01	0.98		1.00	0.67		0.12
Lane Grp Cap(c), veh/h	12	1657	833	289	1001	1052	422	0	600	55	0	0
V/C Ratio(X)	0.58	0.34	0.35	0.84	1.00	1.01	0.88	0.00	0.08	0.60	0.00	0.00
Avail Cap(c_a), veh/h	69	1740	875	300	1001	1052	422	0	600	55	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.10	0.10	0.10	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.8	22.9	23.0	65.5	31.6	31.7	50.9	0.0	28.7	56.2	0.0	0.0
Incr Delay (d2), s/veh	15.3	0.1	0.2	2.2	10.2	10.3	22.4	0.0	0.3	40.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.8	6.0	4.5	35.0	36.8	16.1	0.0	1.1	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.1	23.0	23.2	67.7	41.8	42.0	73.3	0.0	28.9	96.3	0.0	0.0
LnGrp LOS	F	C	C	E	F	F	E	A	C	F	A	A
Approach Vol, veh/h		860			2309			420			33	
Approach Delay, s/veh		23.6			44.6			68.2			96.3	
Approach LOS		C			D			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.5	76.5		48.0	5.4	87.6		48.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	12.6	74.1		43.1	5.6	* 82		43.1				
Max Q Clear Time (g_c+I1), s	12.1	17.1		45.1	2.6	83.7		45.0				
Green Ext Time (p_c), s	0.0	5.7		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	799	17	101	2062	16	6	1	27	64	1	38
Future Volume (veh/h)	21	799	17	101	2062	16	6	1	27	64	1	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	868	14	110	2241	17	7	1	4	70	1	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	3706	60	158	2827	1261	81	14	57	97	2	85
Arrive On Green	0.72	0.72	0.72	0.05	0.80	0.80	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	167	5174	83	3456	3554	1585	1781	311	1243	1781	38	1553
Grp Volume(v), veh/h	23	571	311	110	2241	17	7	0	5	70	0	42
Grp Sat Flow(s),veh/h/ln	167	1702	1854	1728	1777	1585	1781	0	1554	1781	0	1591
Q Serve(g_s), s	11.7	7.5	7.6	4.1	46.1	0.3	0.5	0.0	0.4	5.1	0.0	3.4
Cycle Q Clear(g_c), s	47.3	7.5	7.6	4.1	46.1	0.3	0.5	0.0	0.4	5.1	0.0	3.4
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.80	1.00		0.98
Lane Grp Cap(c), veh/h	129	2438	1328	158	2827	1261	81	0	71	97	0	87
V/C Ratio(X)	0.18	0.23	0.23	0.69	0.79	0.01	0.09	0.00	0.07	0.72	0.00	0.48
Avail Cap(c_a), veh/h	129	2438	1328	191	2827	1261	418	0	365	216	0	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.5	6.4	6.4	62.1	7.5	2.8	60.4	0.0	60.3	61.4	0.0	60.6
Incr Delay (d2), s/veh	2.9	0.2	0.4	5.5	2.4	0.0	0.2	0.0	0.2	9.6	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.4	2.7	1.9	12.9	0.1	0.2	0.0	0.2	2.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	6.6	6.8	67.5	9.9	2.8	60.5	0.0	60.5	71.0	0.0	64.7
LnGrp LOS	C	A	A	E	A	A	E	A	E	E	A	E
Approach Vol, veh/h		905			2368			12			112	
Approach Delay, s/veh		7.2			12.5			60.5			68.7	
Approach LOS		A			B			E			E	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	99.9		11.2		110.4		10.4				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.1	49.3		7.1		48.1		2.5				
Green Ext Time (p_c), s	0.0	5.0		0.2		13.4		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	854	24	191	2146	6	7	4	25	31	4	7
Future Volume (veh/h)	4	854	24	191	2146	6	7	4	25	31	4	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	909	26	203	2283	6	7	0	30	33	4	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	3733	107	268	4234	11	138	0	185	145	36	63
Arrive On Green	0.00	0.73	0.73	0.08	0.81	0.81	0.06	0.00	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1781	5100	146	3456	5258	14	1384	0	3122	1360	604	1057
Grp Volume(v), veh/h	4	606	329	203	1478	811	7	0	30	33	0	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1842	1728	1702	1867	1384	0	1561	1360	0	1661
Q Serve(g_s), s	0.3	6.5	6.5	6.4	16.7	16.7	0.5	0.0	1.0	2.6	0.0	0.7
Cycle Q Clear(g_c), s	0.3	6.5	6.5	6.4	16.7	16.7	1.2	0.0	1.0	2.6	0.0	0.7
Prop In Lane	1.00		0.08	1.00		0.01	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	7	2492	1348	268	2741	1504	138	0	185	145	0	98
V/C Ratio(X)	0.54	0.24	0.24	0.76	0.54	0.54	0.05	0.00	0.16	0.23	0.00	0.11
Avail Cap(c_a), veh/h	64	2492	1348	543	2741	1504	427	0	839	430	0	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.7	4.9	4.9	50.6	3.8	3.8	50.5	0.0	50.0	50.8	0.0	49.9
Incr Delay (d2), s/veh	20.5	0.2	0.4	1.7	0.8	1.4	0.1	0.0	0.2	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.8	2.1	2.8	3.6	4.2	0.2	0.0	0.4	0.9	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.2	5.1	5.3	52.3	4.5	5.1	50.5	0.0	50.2	51.1	0.0	50.1
LnGrp LOS	E	A	A	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		939			2492			37			44	
Approach Delay, s/veh		5.5			8.6			50.3			50.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.1	87.4		11.5	4.9	95.6		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	17.6	49.6		30.1	4.0	* 63		30.1				
Max Q Clear Time (g_c+I1), s	8.4	8.5		4.6	2.3	18.7		3.2				
Green Ext Time (p_c), s	0.2	8.4		0.1	0.0	32.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		8.7
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
18: Avenida Del Rio & Friars Rd.

Year 2025 AM
02/27/2020

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	894	68	0	2108	0	50
Future Vol, veh/h	894	68	0	2108	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	993	76	0	2342	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	545
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	413
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	409
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	409	-	-	-
HCM Lane V/C Ratio	0.136	-	-	-
HCM Control Delay (s)	15.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	738	254	558	500
Future Volume (Veh/h)	0	0	738	254	558	500
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	802	276	607	543
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2288	401			1078	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2288	401			1078	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			6	
cM capacity (veh/h)	2	599			643	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	535	359	184	607	272	272
Volume Left	0	0	0	607	0	0
Volume Right	0	92	184	0	0	0
cSH	1700	1700	1700	643	1700	1700
Volume to Capacity	0.31	0.21	0.11	0.94	0.16	0.16
Queue Length 95th (ft)	0	0	0	326	0	0
Control Delay (s)	0.0	0.0	0.0	48.5	0.0	0.0
Lane LOS				E		
Approach Delay (s)	0.0			25.6		
Approach LOS						

Intersection Summary			
Average Delay		13.2	
Intersection Capacity Utilization		60.7%	ICU Level of Service B
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	639	268	213	1647	816	524	38	898	380	0	90
Future Volume (veh/h)	63	639	268	213	1647	816	524	38	898	380	0	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	680	0	227	1752	868	557	40	955	404	0	96
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	2446		288	1867	1370	777	493	958	462	322	423
Arrive On Green	0.10	0.38	0.00	0.08	0.37	0.37	0.22	0.26	0.26	0.13	0.00	0.17
Sat Flow, veh/h	3456	6434	1585	3456	5106	2727	3456	1870	2754	3456	1870	1564
Grp Volume(v), veh/h	67	680	0	227	1752	868	557	40	955	404	0	96
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	2.6	10.6	0.0	9.3	48.1	33.9	21.6	2.3	38.2	16.6	0.0	6.9
Cycle Q Clear(g_c), s	2.6	10.6	0.0	9.3	48.1	33.9	21.6	2.3	38.2	16.6	0.0	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	333	2446		288	1867	1370	777	493	958	462	322	423
V/C Ratio(X)	0.20	0.28		0.79	0.94	0.63	0.72	0.08	1.00	0.87	0.00	0.23
Avail Cap(c_a), veh/h	357	2446		1001	1867	1370	777	493	958	1006	322	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	31.2	0.0	65.2	44.4	26.7	51.9	40.2	47.3	61.6	0.0	41.3
Incr Delay (d2), s/veh	0.1	0.3	0.0	4.7	10.5	2.2	5.6	0.3	28.3	2.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	4.1	0.0	4.2	21.3	11.4	10.0	1.1	20.9	7.5	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	31.4	0.0	69.9	54.9	28.9	57.6	40.5	75.6	63.7	0.0	42.5
LnGrp LOS	E	C		E	D	C	E	D	E	E	A	D
Approach Vol, veh/h		747	A		2847			1552			500	
Approach Delay, s/veh		34.0			48.2			68.2			59.6	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	62.1	37.2	29.6	18.2	60.0	24.0	42.8
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	42.0	25.2	32.6	25.0	* 15	52.0	42.2	15.4
Max Q Clear Time (g_c+I1), s	11.3	12.6	23.6	8.9	4.6	50.1	18.6	40.2
Green Ext Time (p_c), s	0.7	2.3	0.9	0.1	0.1	1.7	0.8	0.0

Intersection Summary			
HCM 6th Ctrl Delay		52.8	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2025 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	476	1442	0	0	1856	856	0	0	0	1127	0	820
Future Volume (veh/h)	476	1442	0	0	1856	856	0	0	0	1127	0	820
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	501	1518	0	0	1954	901				1186	0	863
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	374	9999	0	0	7667	3324				1591	0	1186
Arrive On Green	0.11	1.00	0.00	0.00	1.00	1.00				0.32	0.00	0.32
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	501	1518	0	0	1954	901				1186	0	863
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	6.5	0.0	0.0	0.0	0.0	0.0				12.7	0.0	15.5
Cycle Q Clear(g_c), s	6.5	0.0	0.0	0.0	0.0	0.0				12.7	0.0	15.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	374	10287	0	0	7667	3324				1591	0	1186
V/C Ratio(X)	1.34	0.15	0.00	0.00	0.25	0.27				0.75	0.00	0.73
Avail Cap(c_a), veh/h	374	10287	0	0	7667	3324				1591	0	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	0.0	0.0	0.0	0.0				18.3	0.0	14.4
Incr Delay (d2), s/veh	168.8	0.0	0.0	0.0	0.1	0.2				3.2	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	0.0	0.0	0.0	0.0	0.1				4.9	0.0	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	195.6	0.0	0.0	0.0	0.1	0.2				21.6	0.0	18.3
LnGrp LOS	F	A	A	A	A	A				C	A	B
Approach Vol, veh/h		2019			2855						2049	
Approach Delay, s/veh		48.6			0.1						20.2	
Approach LOS		D			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.0	78.5		23.0		89.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	6.5	20.5		19.0		* 33
Max Q Clear Time (g_c+I1), s	8.5	2.0		17.5		2.0
Green Ext Time (p_c), s	0.0	13.0		1.2		12.8

Intersection Summary		
HCM 6th Ctrl Delay		20.2
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	733	1187	544	71	2060	53	197	130	81	41	52	305
Future Volume (veh/h)	733	1187	544	71	2060	53	197	130	81	41	52	305
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	764	1236	567	74	2146	55	205	135	84	43	54	318
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	751	3317	1403	117	2136	518	259	571	330	122	425	610
Arrive On Green	0.22	0.52	0.52	0.03	0.33	0.33	0.07	0.27	0.27	0.04	0.23	0.23
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2140	1235	3456	1870	2683
Grp Volume(v), veh/h	764	1236	567	74	2146	55	205	110	109	43	54	318
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1599	1728	1870	1341
Q Serve(g_s), s	29.6	15.7	17.4	2.9	45.2	3.3	7.9	6.6	7.3	1.7	3.1	14.1
Cycle Q Clear(g_c), s	29.6	15.7	17.4	2.9	45.2	3.3	7.9	6.6	7.3	1.7	3.1	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		1.00
Lane Grp Cap(c), veh/h	751	3317	1403	117	2136	518	259	474	426	122	425	610
V/C Ratio(X)	1.02	0.37	0.40	0.63	1.00	0.11	0.79	0.23	0.25	0.35	0.13	0.52
Avail Cap(c_a), veh/h	751	3317	1403	239	2136	518	447	640	575	152	514	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	19.8	20.2	64.9	45.5	31.5	61.9	39.0	39.3	64.1	41.8	46.1
Incr Delay (d2), s/veh	37.1	0.3	0.9	2.1	20.6	0.4	3.0	0.1	0.1	0.9	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.4	5.7	5.7	1.3	20.4	1.3	3.6	2.9	2.9	0.7	1.5	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.4	20.1	21.0	67.0	66.0	31.9	64.9	39.1	39.4	65.1	41.9	46.5
LnGrp LOS	F	C	C	E	F	C	E	D	D	E	D	D
Approach Vol, veh/h		2567			2275			424			415	
Approach Delay, s/veh		41.2			65.2			51.7			47.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	76.7	14.6	35.8	34.0	51.7	9.2	41.2
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	9.4	* 66	17.6	37.4	29.6	45.2	6.0	49.0
Max Q Clear Time (g_c+I1), s	4.9	19.4	9.9	16.1	31.6	47.2	3.7	9.3
Green Ext Time (p_c), s	0.0	22.6	0.3	1.1	0.0	0.0	0.0	0.9

Intersection Summary		
HCM 6th Ctrl Delay		52.1
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	210	1	410	165	544	0	0	460	372
Future Volume (veh/h)	0	0	0	210	1	410	165	544	0	0	460	372
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				222	0	432	174	573	0	0	484	392
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1098	0	480	244	2016	0	0	1591	706
Arrive On Green				0.31	0.00	0.31	0.14	1.00	0.00	0.00	0.45	0.45
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				222	0	432	174	573	0	0	484	392
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1577
Q Serve(g_s), s				4.1	0.0	23.9	4.3	0.0	0.0	0.0	7.8	16.4
Cycle Q Clear(g_c), s				4.1	0.0	23.9	4.3	0.0	0.0	0.0	7.8	16.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1098	0	480	244	2016	0	0	1591	706
V/C Ratio(X)				0.20	0.00	0.90	0.71	0.28	0.00	0.00	0.30	0.56
Avail Cap(c_a), veh/h				1389	0	607	407	2016	0	0	1591	706
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.0	0.0	29.8	37.8	0.0	0.0	0.0	15.9	18.3
Incr Delay (d2), s/veh				0.1	0.0	14.1	1.4	0.3	0.0	0.0	0.5	3.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	10.1	1.8	0.1	0.0	0.0	3.2	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.1	0.0	43.9	39.1	0.3	0.0	0.0	16.4	21.4
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					654			747			876	
Approach Delay, s/veh					36.8			9.4			18.6	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.4			10.8	46.6		32.6				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 45			10.6	28.7		35.1				
Max Q Clear Time (g_c+I1), s		2.0			6.3	18.4		25.9				
Green Ext Time (p_c), s		3.8			0.1	5.3		1.7				

Intersection Summary			
HCM 6th Ctrl Delay		20.8	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	7	201	0	0	0	0	496	147	219	493	0
Future Volume (veh/h)	181	7	201	0	0	0	0	496	147	219	493	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	201	0	30				0	533	130	235	530	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1794	436	306	2738	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2928	688	3456	3647	0
Grp Volume(v), veh/h	201	0	30				0	333	330	235	530	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1746	1728	1777	0
Q Serve(g_s), s	4.8	0.0	1.5				0.0	7.6	7.7	5.8	0.0	0.0
Cycle Q Clear(g_c), s	4.8	0.0	1.5				0.0	7.6	7.7	5.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1125	1105	306	2738	0
V/C Ratio(X)	0.51	0.00	0.17				0.00	0.30	0.30	0.77	0.19	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1125	1105	445	2738	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	37.7	0.0	36.3				0.0	7.5	7.5	36.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.5				0.0	0.7	0.7	2.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.6				0.0	2.8	2.8	2.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	36.7				0.0	8.1	8.2	38.6	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		231						663			765	
Approach Delay, s/veh		38.5						8.2			12.0	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	62.8		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	7.8	9.7		6.8		2.0						
Green Ext Time (p_c), s	0.2	6.4		0.7		5.0						

Intersection Summary			
HCM 6th Ctrl Delay		14.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	211	5	198	579	569	0	0	404	94
Future Volume (veh/h)	0	0	0	211	5	198	579	569	0	0	404	94
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				211	11	202	591	581	0	0	412	96
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				302	14	257	499	2443	0	0	2416	750
Arrive On Green				0.17	0.17	0.17	0.14	0.69	0.00	0.00	0.47	0.47
Sat Flow, veh/h				1781	83	1515	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				211	0	213	591	581	0	0	412	96
Grp Sat Flow(s),veh/h/ln				1781	0	1598	1728	1777	0	0	1702	1585
Q Serve(g_s), s				7.8	0.0	8.9	10.1	4.3	0.0	0.0	3.2	2.4
Cycle Q Clear(g_c), s				7.8	0.0	8.9	10.1	4.3	0.0	0.0	3.2	2.4
Prop In Lane				1.00		0.95	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				302	0	271	499	2443	0	0	2416	750
V/C Ratio(X)				0.70	0.00	0.79	1.19	0.24	0.00	0.00	0.17	0.13
Avail Cap(c_a), veh/h				713	0	639	499	2443	0	0	2416	750
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.4	0.0	27.8	29.9	4.1	0.0	0.0	10.6	10.3
Incr Delay (d2), s/veh				1.1	0.0	1.9	100.9	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.1	0.0	3.2	11.0	1.2	0.0	0.0	1.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.5	0.0	29.7	130.9	4.3	0.0	0.0	10.7	10.7
LnGrp LOS				C	A	C	F	A	A	A	B	B
Approach Vol, veh/h					424			1172			508	
Approach Delay, s/veh					29.1			68.1			10.7	
Approach LOS					C			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	53.2		15.0	38.2		16.8						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	32.0		10.1	* 17		28.0						
Max Q Clear Time (g_c+I1), s	6.3		12.1	5.2		10.9						
Green Ext Time (p_c), s	4.8		0.0	2.4		0.9						

Intersection Summary		
HCM 6th Ctrl Delay		46.4
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	64	297	0	0	0	0	726	217	184	381	0
Future Volume (veh/h)	372	64	297	0	0	0	0	726	217	184	381	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	440	0	313				0	764	228	194	401	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	842	0	373				0	2316	703	232	2269	0
Arrive On Green	0.24	0.00	0.24				0.00	0.45	0.45	0.13	0.64	0.00
Sat Flow, veh/h	3563	0	1579				0	5274	1549	1781	3647	0
Grp Volume(v), veh/h	440	0	313				0	764	228	194	401	0
Grp Sat Flow(s),veh/h/ln	1781	0	1579				0	1702	1549	1781	1777	0
Q Serve(g_s), s	8.6	0.0	15.1				0.0	7.7	7.5	8.5	3.7	0.0
Cycle Q Clear(g_c), s	8.6	0.0	15.1				0.0	7.7	7.5	8.5	3.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	842	0	373				0	2316	703	232	2269	0
V/C Ratio(X)	0.52	0.00	0.84				0.00	0.33	0.32	0.84	0.18	0.00
Avail Cap(c_a), veh/h	1563	0	693				0	2316	703	258	2269	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	26.6	0.0	29.1				0.0	14.0	14.0	34.0	5.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.0				0.0	0.4	1.2	16.7	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	5.4				0.0	2.9	2.7	4.7	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	0.0	31.1				0.0	14.4	15.2	50.6	6.0	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		753						992			595	
Approach Delay, s/veh		28.6						14.6			20.6	
Approach LOS		C						B			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.8	41.4		23.8		56.2						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	11.6	18.9		35.1		* 35						
Max Q Clear Time (g_c+I1), s	10.5	9.7		17.1		5.7						
Green Ext Time (p_c), s	0.0	4.5		1.3		1.8						

Intersection Summary		
HCM 6th Ctrl Delay		20.6
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	912	51	172	1734	207	150	55	75	7	5	16
Future Volume (veh/h)	91	912	51	172	1734	207	150	55	75	7	5	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	97	970	54	183	1845	220	160	59	80	7	5	17
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	2392	133	211	2471	293	285	99	124	131	104	282
Arrive On Green	0.07	0.47	0.47	0.11	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5140	286	1853	4812	570	811	334	418	321	351	951
Grp Volume(v), veh/h	97	668	356	183	1354	711	299	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1886	1853	1770	1841	1562	0	0	1623	0	0
Q Serve(g_s), s	6.5	15.5	15.6	12.1	37.7	38.2	19.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	15.5	15.6	12.1	37.7	38.2	20.6	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.31	0.54		0.27	0.24		0.59
Lane Grp Cap(c), veh/h	122	1647	877	211	1818	946	508	0	0	517	0	0
V/C Ratio(X)	0.80	0.41	0.41	0.87	0.74	0.75	0.59	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	202	1647	877	305	1818	946	508	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.6	22.0	22.0	54.5	23.9	24.1	38.0	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.7	1.4	12.2	2.8	5.5	4.9	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	6.3	6.9	6.2	15.3	16.9	8.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	22.8	23.4	66.6	26.8	29.6	43.0	0.0	0.0	31.6	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		1121			2248			299			29	
Approach Delay, s/veh		26.4			30.9			43.0			31.6	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.6	64.4		42.0	12.6	70.4		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	14.1	17.6		3.5	8.5	40.2		22.6				
Green Ext Time (p_c), s	0.1	21.7		0.1	0.0	18.1		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	6	10	63	9	100	58	268	46	43	217	32
Future Volume (veh/h)	6	6	10	63	9	100	58	268	46	43	217	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	6	10	64	9	102	59	273	47	44	221	33
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	69	76	215	25	159	76	1894	320	57	1906	279
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.04	0.63	0.63	0.03	0.62	0.62
Sat Flow, veh/h	217	671	740	1234	240	1549	1781	3016	510	1781	3088	453
Grp Volume(v), veh/h	22	0	0	73	0	102	59	159	161	44	125	129
Grp Sat Flow(s),veh/h/ln	1628	0	0	1474	0	1549	1781	1777	1749	1781	1777	1764
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	4.8	2.5	2.8	2.9	1.9	2.2	2.3
Cycle Q Clear(g_c), s	0.9	0.0	0.0	3.4	0.0	4.8	2.5	2.8	2.9	1.9	2.2	2.3
Prop In Lane	0.27		0.45	0.88		1.00	1.00		0.29	1.00		0.26
Lane Grp Cap(c), veh/h	227	0	0	240	0	159	76	1116	1098	57	1097	1089
V/C Ratio(X)	0.10	0.00	0.00	0.30	0.00	0.64	0.78	0.14	0.15	0.78	0.11	0.12
Avail Cap(c_a), veh/h	513	0	0	506	0	447	379	1116	1098	153	1097	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	0.0	32.3	0.0	33.0	36.3	5.8	5.8	36.8	6.0	6.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	8.8	6.3	0.3	0.3	8.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.3	0.0	2.2	1.2	1.0	1.0	0.9	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	0.0	33.8	0.0	41.8	42.7	6.1	6.1	45.1	6.3	6.3
LnGrp LOS	C	A	A	C	A	D	D	A	A	D	A	A
Approach Vol, veh/h		22			175			379			298	
Approach Delay, s/veh		31.3			38.5			11.8			12.0	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	55.0		14.8	7.7	54.2		14.8				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	6.6	48.1		22.1	16.3	* 40		22.1				
Max Q Clear Time (g_c+I1), s	3.9	4.9		2.9	4.5	4.3		6.8				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.0	1.4		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	88	31	20	182	50
Future Vol, veh/h	44	88	31	20	182	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	98	34	22	202	56
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.2	8.3	10
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	61%
Vol Thru, %	0%	0%	33%	39%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	50	132	51
LT Vol	182	0	0	31
Through Vol	0	0	44	20
RT Vol	0	50	88	0
Lane Flow Rate	202	56	147	57
Geometry Grp	7	7	2	2
Degree of Util (X)	0.308	0.066	0.174	0.077
Departure Headway (Hd)	5.491	4.287	4.281	4.895
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	835	840	733
Service Time	3.22	2.015	2.297	2.918
HCM Lane V/C Ratio	0.308	0.067	0.175	0.078
HCM Control Delay	10.7	7.3	8.2	8.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.3	0.2	0.6	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	26	0	0	46	44	4	5	21	72	0	5
Future Volume (veh/h)	4	26	0	0	46	44	4	5	21	72	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	28	0	0	49	36	4	5	12	77	0	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	750	719	0	0	411	269	560	46	110	634	0	149
Arrive On Green	0.20	0.20	0.00	0.00	0.20	0.20	0.09	0.09	0.09	0.09	0.00	0.09
Sat Flow, veh/h	1296	3647	0	0	2128	1330	1399	487	1168	1242	0	1578
Grp Volume(v), veh/h	4	28	0	0	42	43	4	0	17	77	0	5
Grp Sat Flow(s),veh/h/ln	1296	1777	0	0	1777	1588	1399	0	1654	1242	0	1578
Q Serve(g_s), s	0.0	0.1	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.1	0.0	0.0	0.3	0.3	0.9	0.0	0.1	0.9	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.84	1.00		0.71	1.00		1.00
Lane Grp Cap(c), veh/h	750	719	0	0	359	321	560	0	156	634	0	149
V/C Ratio(X)	0.01	0.04	0.00	0.00	0.12	0.13	0.01	0.00	0.11	0.12	0.00	0.03
Avail Cap(c_a), veh/h	2163	4591	0	0	2296	2052	2748	0	2743	2702	0	2515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.7	4.5	0.0	0.0	4.5	4.6	6.6	0.0	5.8	6.2	0.0	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	4.5	0.0	0.0	4.6	4.7	6.6	0.0	5.9	6.2	0.0	5.8
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		32			85			21			82	
Approach Delay, s/veh		4.5			4.7			6.0			6.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		7.7		6.2		7.7		6.2				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		2.3		2.9		2.3		2.9				
Green Ext Time (p_c), s		0.1		0.2		0.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		5.3
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	114	4	5	68	33	6	5	38	64	4	5
Future Volume (veh/h)	4	114	4	5	68	33	6	5	38	64	4	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.95	0.96		0.95	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	123	4	5	73	7	6	5	6	69	4	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	625	1502	49	596	1399	132	294	246	257	698	38	9
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1258	3506	113	1211	3264	307	491	539	562	1309	84	19
Grp Volume(v), veh/h	4	62	65	5	39	41	17	0	0	74	0	0
Grp Sat Flow(s),veh/h/ln	1258	1777	1842	1211	1777	1794	1593	0	0	1412	0	0
Q Serve(g_s), s	0.1	1.4	1.5	0.2	0.9	0.9	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	1.1	1.4	1.5	1.6	0.9	0.9	0.4	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.17	0.35		0.35	0.93		0.01
Lane Grp Cap(c), veh/h	625	762	790	596	762	769	798	0	0	745	0	0
V/C Ratio(X)	0.01	0.08	0.08	0.01	0.05	0.05	0.02	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	625	762	790	596	762	769	798	0	0	745	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.0	11.8	11.8	12.3	11.7	11.7	10.4	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.6	0.0	0.4	0.4	0.1	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	12.1	12.1	12.4	11.8	11.8	10.5	0.0	0.0	11.1	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		131			85			17			74	
Approach Delay, s/veh		12.1			11.9			10.5			11.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	3.5	4.0	3.6	2.4
Green Ext Time (p_c), s	0.5	0.2	0.3	0.0

Intersection Summary			
HCM 6th Ctrl Delay	11.7		
HCM 6th LOS	B		

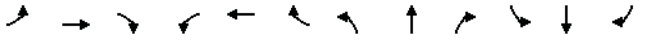
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	140	28	11	95	125	51
Future Volume (vph)	140	28	11	95	125	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	*0.95	0.95	0.95		*0.95	*0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1681	3539	2989		3362	1453
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1681	3539	2989		3362	1453
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	175	35	14	119	156	64
RTOR Reduction (vph)	0	0	37	0	0	45
Lane Group Flow (vph)	175	35	96	0	156	19
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	8.0	27.7	15.3		6.4	6.4
Effective Green, g (s)	8.0	27.7	15.3		6.4	6.4
Actuated g/C Ratio	0.14	0.48	0.26		0.11	0.11
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	230	1681	784		369	159
v/s Ratio Prot	c0.10	0.01	c0.03		c0.05	
v/s Ratio Perm						0.01
v/c Ratio	0.76	0.02	0.12		0.42	0.12
Uniform Delay, d1	24.2	8.1	16.4		24.2	23.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.5	0.0	0.1		0.3	0.1
Delay (s)	36.7	8.1	16.5		24.5	23.5
Level of Service	D	A	B		C	C
Approach Delay (s)		32.0	16.5		24.2	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	21.7
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2025 AM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	9	233	17	6	7	299	626	77	37	501	64
Future Volume (veh/h)	52	9	233	17	6	7	299	626	77	37	501	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	0	124	18	6	0	318	666	70	39	533	51
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	479	0	206	23	8	0	370	2207	232	50	2850	269
Arrive On Green	0.13	0.00	0.13	0.02	0.02	0.00	0.11	0.68	0.68	0.03	0.60	0.60
Sat Flow, veh/h	3563	0	1528	1352	451	0	3456	3243	340	1781	4736	448
Grp Volume(v), veh/h	62	0	124	24	0	0	318	365	371	39	381	203
Grp Sat Flow(s),veh/h/ln	1781	0	1528	1803	0	0	1728	1777	1806	1781	1702	1780
Q Serve(g_s), s	2.1	0.0	10.7	1.9	0.0	0.0	12.7	11.5	11.6	3.0	7.0	7.2
Cycle Q Clear(g_c), s	2.1	0.0	10.7	1.9	0.0	0.0	12.7	11.5	11.6	3.0	7.0	7.2
Prop In Lane	1.00		1.00	0.75		0.00	1.00		0.19	1.00		0.25
Lane Grp Cap(c), veh/h	479	0	206	31	0	0	370	1209	1229	50	2048	1071
V/C Ratio(X)	0.13	0.00	0.60	0.77	0.00	0.00	0.86	0.30	0.30	0.78	0.19	0.19
Avail Cap(c_a), veh/h	995	0	427	207	0	0	508	1209	1229	122	2048	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	0.0	57.1	68.5	0.0	0.0	61.5	9.0	9.0	67.6	12.5	12.5
Incr Delay (d2), s/veh	0.2	0.0	3.6	13.5	0.0	0.0	8.1	0.6	0.6	9.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	4.4	1.0	0.0	0.0	6.0	4.6	4.7	1.5	2.8	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.5	0.0	60.6	82.0	0.0	0.0	69.6	9.6	9.6	76.8	12.7	12.9
LnGrp LOS	D	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		186			24			1054			623	
Approach Delay, s/veh		58.3			82.0			27.7			16.8	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	100.6		23.7	19.4	89.5		7.3				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.6	55.7		39.1	20.6	44.7		16.1				
Max Q Clear Time (g_c+I1), s	5.0	13.6		12.7	14.7	9.2		3.9				
Green Ext Time (p_c), s	0.0	10.4		0.9	0.3	7.5		0.0				

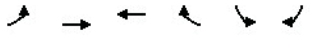
Intersection Summary			
HCM 6th Ctrl Delay			27.8
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2025 AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	207	580	225	64	21
Future Volume (veh/h)	41	207	580	225	64	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	230	644	34	71	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	58	1183	1013	1236	425	378
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.24
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	46	230	644	34	71	3
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.9	3.9	18.3	0.4	2.4	0.1
Cycle Q Clear(g_c), s	1.9	3.9	18.3	0.4	2.4	0.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	58	1183	1013	1236	425	378
V/C Ratio(X)	0.79	0.19	0.64	0.03	0.17	0.01
Avail Cap(c_a), veh/h	155	1284	1013	1236	425	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	5.8	12.2	1.9	22.9	22.0
Incr Delay (d2), s/veh	8.5	0.0	3.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.3	7.5	0.2	1.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	5.9	15.2	1.9	23.8	22.1
LnGrp LOS	D	A	B	A	C	C
Approach Vol, veh/h		276	678		74	
Approach Delay, s/veh		12.4	14.5		23.7	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.9		23.0	6.9	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		5.9		4.4	3.9	20.3
Green Ext Time (p_c), s		0.9		0.1	0.0	2.9

Intersection Summary			
HCM 6th Ctrl Delay			14.6
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	161	89	95	268	7	70	6	57	14	9	8
Future Volume (veh/h)	0	161	89	95	268	7	70	6	57	14	9	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	169	13	100	282	5	74	6	8	15	9	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1000	76	128	1559	28	693	302	402	452	255	26
Arrive On Green	0.00	0.30	0.30	0.07	0.44	0.44	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	0	3432	254	1781	3571	63	1405	727	969	884	615	62
Grp Volume(v), veh/h	0	89	93	100	140	147	74	0	14	25	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1816	1781	1777	1857	1405	0	1696	1562	0	0
Q Serve(g_s), s	0.0	2.5	2.5	3.7	3.3	3.3	1.5	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.5	2.5	3.7	3.3	3.3	2.0	0.0	0.3	0.5	0.0	0.0
Prop In Lane	0.00		0.14	1.00		0.03	1.00		0.57	0.60		0.04
Lane Grp Cap(c), veh/h	0	532	544	128	776	811	693	0	704	734	0	0
V/C Ratio(X)	0.00	0.17	0.17	0.78	0.18	0.18	0.11	0.00	0.02	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	532	544	201	843	881	693	0	704	734	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.4	17.4	30.8	11.6	11.6	12.1	0.0	11.6	11.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	3.8	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.1	1.7	1.2	1.2	0.6	0.0	0.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.1	18.1	34.6	11.7	11.7	12.2	0.0	11.6	11.8	0.0	0.0
LnGrp LOS	A	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		182			387			88			25	
Approach Delay, s/veh		18.1			17.6			12.1			11.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.3	25.3		32.9		34.6		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 20		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	5.7	4.5		2.5		5.3		4.0				
Green Ext Time (p_c), s	0.0	0.7		0.1		1.5		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	216	6	72	349	5	31
Future Vol, veh/h	216	6	72	349	5	31
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	227	6	76	367	5	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	236	0	570	120
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	337	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1328	-	452	909
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	695	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1325	-	425	907
Mov Cap-2 Maneuver	-	-	-	-	425	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	425	907	-	-	1325	-
HCM Lane V/C Ratio	0.012	0.036	-	-	0.057	-
HCM Control Delay (s)	13.6	9.1	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Year 2025 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	182	31	102	375	10	31	7	41	34	7	12
Future Volume (veh/h)	8	182	31	102	375	10	31	7	41	34	7	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	192	33	107	395	11	33	7	43	36	7	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	674	113	135	895	25	875	128	789	581	117	191
Arrive On Green	0.04	0.22	0.22	0.08	0.25	0.25	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1781	3024	509	1781	3527	98	1388	226	1389	907	206	337
Grp Volume(v), veh/h	8	111	114	107	199	207	33	0	50	56	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1756	1781	1777	1848	1388	0	1615	1450	0	0
Q Serve(g_s), s	0.4	4.7	4.8	5.3	8.4	8.5	0.0	0.0	1.2	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.7	4.8	5.3	8.4	8.5	0.7	0.0	1.2	1.4	0.0	0.0
Prop In Lane	1.00		0.29	1.00		0.05	1.00		0.86	0.64		0.23
Lane Grp Cap(c), veh/h	79	396	391	135	451	469	875	0	917	889	0	0
V/C Ratio(X)	0.10	0.28	0.29	0.79	0.44	0.44	0.04	0.00	0.05	0.06	0.00	0.00
Avail Cap(c_a), veh/h	119	396	391	139	451	469	875	0	917	889	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.2	28.9	29.0	40.8	28.1	28.2	8.5	0.0	8.6	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.8	1.9	23.6	0.7	0.7	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.1	2.2	3.2	3.6	3.8	0.3	0.0	0.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	30.7	30.9	64.4	28.8	28.8	8.6	0.0	8.8	8.8	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		233			513			83			56	
Approach Delay, s/veh		31.2			36.2			8.7			8.8	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	24.0		55.0	8.0	26.8		55.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	20.0		51.0	6.0	21.0		51.0				
Max Q Clear Time (g_c+I1), s	7.3	6.8		3.4	2.4	10.5		3.2				
Green Ext Time (p_c), s	0.0	1.0		0.2	0.0	1.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			30.6
HCM 6th LOS			C

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2025 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	84	59	99	350	239	186	642	81	160	398	170
Future Volume (veh/h)	108	84	59	99	350	239	186	642	81	160	398	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	90	8	106	376	125	200	690	68	172	428	56
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	688	60	153	539	177	246	2589	253	222	2761	854
Arrive On Green	0.05	0.21	0.21	0.04	0.21	0.21	0.14	1.00	1.00	0.06	0.54	0.54
Sat Flow, veh/h	3456	3298	289	3456	2623	860	3456	4727	462	3456	5106	1580
Grp Volume(v), veh/h	116	48	50	106	253	248	200	495	263	172	428	56
Grp Sat Flow(s),veh/h/ln	1728	1777	1810	1728	1777	1707	1728	1702	1785	1728	1702	1580
Q Serve(g_s), s	4.6	3.1	3.2	4.2	18.5	18.9	7.9	0.0	0.0	6.9	5.9	2.4
Cycle Q Clear(g_c), s	4.6	3.1	3.2	4.2	18.5	18.9	7.9	0.0	0.0	6.9	5.9	2.4
Prop In Lane	1.00		0.16	1.00		0.50	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	164	371	378	153	365	351	246	1864	978	222	2761	854
V/C Ratio(X)	0.71	0.13	0.13	0.69	0.69	0.71	0.81	0.27	0.27	0.77	0.16	0.07
Avail Cap(c_a), veh/h	286	610	622	311	623	599	336	1864	978	385	2761	854
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	45.1	45.1	66.0	51.5	51.7	59.1	0.0	0.0	64.5	16.1	15.3
Incr Delay (d2), s/veh	2.1	0.2	0.2	2.1	4.5	5.0	6.1	0.3	0.5	2.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.5	1.9	8.7	8.6	3.5	0.1	0.1	3.1	2.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	45.2	45.3	68.0	56.0	56.7	65.2	0.3	0.5	66.7	16.2	15.5
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	B
Approach Vol, veh/h		214			607			958			656	
Approach Delay, s/veh		57.5			58.4			13.9			29.4	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	81.9	10.6	34.1	14.4	80.9	11.0	33.7				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	13.6	* 47	11.6	49.1				
Max Q Clear Time (g_c+I1), s	8.9	2.0	6.2	5.2	9.9	7.9	6.6	20.9				
Green Ext Time (p_c), s	0.2	10.4	0.1	0.6	0.1	6.3	0.1	5.9				

Intersection Summary			
HCM 6th Ctrl Delay			33.0
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	77	83	274	305	546	181	302	308	164	325	29
Future Volume (veh/h)	4	77	83	274	305	546	181	302	308	164	325	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	80	0	285	318	83	189	315	0	171	339	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	369		338	370	309	238	2132		216	2109	929
Arrive On Green	0.00	0.10	0.00	0.10	0.20	0.20	0.07	0.60	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1566	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	4	80	0	285	318	83	189	315	0	171	339	5
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1566	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.3	2.9	0.0	11.4	23.0	6.3	7.5	5.4	0.0	6.7	0.0	0.0
Cycle Q Clear(g_c), s	0.3	2.9	0.0	11.4	23.0	6.3	7.5	5.4	0.0	6.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	369		338	370	309	238	2132		216	2109	929
V/C Ratio(X)	0.55	0.22		0.84	0.86	0.27	0.79	0.15		0.79	0.16	0.01
Avail Cap(c_a), veh/h	59	1119		533	811	679	336	2132		237	2109	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.94	0.94	0.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	69.6	57.5	0.0	62.1	54.3	47.6	64.2	12.3	0.0	60.3	0.0	0.0
Incr Delay (d2), s/veh	21.4	0.3	0.0	3.9	2.3	0.2	5.0	0.1	0.0	15.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.3	0.0	5.2	11.1	2.5	3.5	2.2	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	57.8	0.0	65.9	56.6	47.8	69.2	12.4	0.0	75.3	0.2	0.0
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		84	A		686			504	A		515	
Approach Delay, s/veh		59.4			59.4			33.7			25.1	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	88.9	18.1	19.8	14.1	88.0	5.0	33.0
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	9.6	46.1	21.6	* 44	13.6	42.1	4.6	60.7
Max Q Clear Time (g_c+I1), s	8.7	7.4	13.4	4.9	9.5	2.0	2.3	25.0
Green Ext Time (p_c), s	0.0	1.4	0.4	0.5	0.1	4.0	0.0	1.4

Intersection Summary		
HCM 6th Ctrl Delay	42.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	0	480	0	0	0	0	384	135	281	364	0
Future Volume (vph)	420	0	480	0	0	0	0	384	135	281	364	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3362	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3362	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	438	0	500	0	0	0	0	400	141	293	379	0
RTOR Reduction (vph)	0	0	335	0	0	0	0	0	92	0	0	0
Lane Group Flow (vph)	438	0	165	0	0	0	0	400	49	217	455	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	46.2		46.2					48.6	48.6	26.9	26.9	
Effective Green, g (s)	46.2		46.2					48.6	48.6	26.9	26.9	
Actuated g/C Ratio	0.33		0.33					0.35	0.35	0.19	0.19	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1132		522					1228	549	309	645	
v/s Ratio Prot	c0.13							c0.11		0.13	c0.14	
v/s Ratio Perm			0.10						0.03			
v/c Ratio	0.39		0.32					0.33	0.09	0.70	0.71	
Uniform Delay, d1	36.0		35.1					33.6	30.8	52.8	52.8	
Progression Factor	1.00		1.00					0.52	0.03	0.98	0.98	
Incremental Delay, d2	1.0		1.6					0.1	0.0	7.3	3.6	
Delay (s)	37.0		36.7					17.6	0.8	59.0	55.5	
Level of Service	D		D					B	A	E	E	
Approach Delay (s)		36.8			0.0			13.3			56.6	
Approach LOS		D			A			B			E	

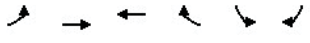
Intersection Summary					
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.46				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	58.4%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	34	6	12	114	259	6	13	5	304	88	448
Future Volume (vph)	260	34	6	12	114	259	6	13	5	304	88	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3249			3522	1583		1791		1681	1722	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3249			3522	1583		1791		1681	1722	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	280	37	6	13	123	278	6	14	5	327	95	482
RTOR Reduction (vph)	0	2	0	0	0	132	0	4	0	0	0	283
Lane Group Flow (vph)	140	181	0	0	136	146	0	21	0	209	213	199
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	73.7		15.4		57.7	57.7	57.7
Effective Green, g (s)	26.5	26.5			16.0	73.7		15.4		57.7	57.7	57.7
Actuated g/C Ratio	0.19	0.19			0.11	0.53		0.11		0.41	0.41	0.41
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	304	614			402	833		197		692	709	643
v/s Ratio Prot	c0.09	0.06			c0.04	0.07		c0.01		0.12	0.12	
v/s Ratio Perm						0.02						c0.13
v/c Ratio	0.46	0.30			0.34	0.18		0.10		0.30	0.30	0.31
Uniform Delay, d1	50.4	48.7			57.1	17.3		56.1		27.6	27.6	27.7
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.77	0.77	2.82
Incremental Delay, d2	5.0	1.2			2.3	0.5		1.1		1.0	0.9	1.1
Delay (s)	55.4	50.0			59.4	17.8		57.2		22.3	22.2	79.3
Level of Service	E	D			E	B		E		C	C	E
Approach Delay (s)		52.3			31.4			57.2			52.7	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.32			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	123	1556	86	227	132
Future Volume (veh/h)	212	123	1556	86	227	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	129	1638	0	239	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	246	1573	2392		290	351
Arrive On Green	0.14	0.84	0.67	0.00	0.08	0.08
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	223	129	1638	0	239	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	17.2	1.6	39.1	0.0	9.5	9.0
Cycle Q Clear(g_c), s	17.2	1.6	39.1	0.0	9.5	9.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	246	1573	2392		290	351
V/C Ratio(X)	0.91	0.08	0.68		0.82	0.34
Avail Cap(c_a), veh/h	278	1573	2392		544	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	1.9	13.9	0.0	63.0	45.8
Incr Delay (d2), s/veh	27.6	0.1	1.6	0.0	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	0.5	15.4	0.0	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	86.9	2.0	15.5	0.0	65.3	46.0
LnGrp LOS	F	A	B		E	D
Approach Vol, veh/h		352	1638	A	360	
Approach Delay, s/veh		55.8	15.5		58.8	
Approach LOS		E	B		E	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	122.5	17.2	23.5	99.0
Change Period (Y+Rc), s	5.0	5.5	* 4.2	5.0
Max Green Setting (Gmax), s	117.5	22.0	* 22	91.5
Max Q Clear Time (g_c+I1), s	3.6	11.5	19.2	41.1
Green Ext Time (p_c), s	0.5	0.2	0.0	12.8

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis — Year 2025 AM
46: Hotel Circle Place/Hotel Circle N. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	5	16	55	538	44	5	48	31	178	5	9	6
Future Volume (vph)	5	16	55	538	44	5	48	31	178	5	9	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	17	60	585	48	5	52	34	193	5	10	7

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	82	585	53	279	22
Volume Left (vph)	5	585	0	52	5
Volume Right (vph)	60	0	5	193	7
Hadj (s)	-0.39	0.53	-0.03	-0.34	-0.11
Departure Headway (s)	5.5	6.1	5.5	5.6	6.4
Degree Utilization, x	0.13	0.98	0.08	0.44	0.04
Capacity (veh/h)	628	591	646	632	533
Control Delay (s)	9.3	56.1	7.8	12.9	9.7
Approach Delay (s)	9.3	52.0		12.9	9.7
Approach LOS	A	F		B	A

Intersection Summary					
Delay			37.0		
Level of Service			E		
Intersection Capacity Utilization			61.8%	ICU Level of Service	B
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary — Year 2025 AM
47: I-8 WB Ramp — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	0	117	0	1057	65	0	0	0	0	256	321
Future Volume (veh/h)	200	0	117	0	1057	65	0	0	0	0	256	321
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	222	0	0	0	1174	72				0	284	357
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	279	0		0	2015	899				0	0	0
Arrive On Green	0.16	0.00	0.00	0.00	0.57	0.57				0.00	0.00	0.00
Sat Flow, veh/h	1781	222		0	3647	1585					0	
Grp Volume(v), veh/h	222	26.8		0	1174	72					0.0	
Grp Sat Flow(s),veh/h/ln	1781	C		0	1777	1585						
Q Serve(g_s), s	4.3			0.0	7.7	0.7						
Cycle Q Clear(g_c), s	4.3			0.0	7.7	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	279			0	2015	899						
V/C Ratio(X)	0.80			0.00	0.58	0.08						
Avail Cap(c_a), veh/h	295			0	3832	1709						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	14.7			0.0	5.1	3.6						
Incr Delay (d2), s/veh	12.1			0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	2.4			0.0	1.4	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8			0.0	5.3	3.6						
LnGrp LOS	C			A	A	A						
Approach Vol, veh/h					1246							
Approach Delay, s/veh					5.2							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							10.7	25.5				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							6.0	39.0				
Max Q Clear Time (g_c+I1), s							6.3	9.7				
Green Ext Time (p_c), s							0.0	10.8				

Intersection Summary			
HCM 6th Ctrl Delay		8.5	
HCM 6th LOS		A	

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	92.8
Intersection LOS	F

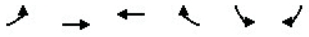
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	129	8	103	202	17	398	19	780	9	5	5
Future Vol, veh/h	4	129	8	103	202	17	398	19	780	9	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	137	9	110	215	18	423	20	830	10	5	5
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	14	15.9	124	10.9
HCM LOS	B	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	3%	0%	100%	0%	47%
Vol Thru, %	0%	2%	97%	0%	0%	92%	26%
Vol Right, %	0%	98%	0%	100%	0%	8%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	398	799	133	8	103	219	19
LT Vol	398	0	4	0	103	0	9
Through Vol	0	19	129	0	0	202	5
RT Vol	0	780	0	8	0	17	5
Lane Flow Rate	423	850	141	9	110	233	20
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.796	1.315	0.3	0.016	0.238	0.47	0.041
Departure Headway (Hd)	6.765	5.569	8.085	7.349	8.238	7.671	7.621
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	538	655	447	490	438	473	473
Service Time	4.485	3.289	5.785	5.049	5.938	5.371	5.621
HCM Lane V/C Ratio	0.786	1.298	0.315	0.018	0.251	0.493	0.042
HCM Control Delay	30.9	170.4	14.2	10.2	13.5	17	10.9
HCM Lane LOS	D	F	B	B	B	C	B
HCM 95th-tile Q	7.5	34.6	1.2	0	0.9	2.5	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	324	664	236	126	136	100
Future Volume (veh/h)	324	664	236	126	136	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	360	738	262	140	151	111
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	445	1143	461	377	236	210
Arrive On Green	0.25	0.61	0.25	0.25	0.13	0.13
Sat Flow, veh/h	1781	1870	1870	1531	1781	1585
Grp Volume(v), veh/h	360	738	262	140	151	111
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1531	1781	1585
Q Serve(g_s), s	7.3	9.7	4.7	2.9	3.1	2.5
Cycle Q Clear(g_c), s	7.3	9.7	4.7	2.9	3.1	2.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	445	1143	461	377	236	210
V/C Ratio(X)	0.81	0.65	0.57	0.37	0.64	0.53
Avail Cap(c_a), veh/h	1284	2497	933	764	889	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	4.8	12.6	12.0	15.7	15.5
Incr Delay (d2), s/veh	1.4	0.6	1.5	0.8	1.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.7	1.8	0.9	1.1	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	5.3	14.2	12.8	16.8	16.2
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		1098	402		262	
Approach Delay, s/veh		8.5	13.7		16.6	
Approach LOS		A	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.3		10.0	14.0	14.3
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	27.6	19.1
Max Q Clear Time (g_c+I1), s		11.7		5.1	9.3	6.7
Green Ext Time (p_c), s		5.8		0.3	0.5	2.2

Intersection Summary	
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	169	139	102	115	162	701
Future Volume (veh/h)	169	139	102	115	162	701
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	151	111	125	176	762
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	287	1074	344	388	510	798
Arrive On Green	0.08	0.57	0.43	0.43	0.29	0.29
Sat Flow, veh/h	3456	1870	803	904	1781	2790
Grp Volume(v), veh/h	184	151	0	236	176	762
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1708	1781	1395
Q Serve(g_s), s	3.6	2.6	0.0	6.4	5.5	18.8
Cycle Q Clear(g_c), s	3.6	2.6	0.0	6.4	5.5	18.8
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	287	1074	0	732	510	798
V/C Ratio(X)	0.64	0.14	0.00	0.32	0.35	0.95
Avail Cap(c_a), veh/h	768	1334	0	732	510	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	6.9	0.0	13.3	19.9	24.6
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.2	0.1	21.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.9	0.0	2.5	2.2	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.1	6.9	0.0	14.5	20.0	45.9
LnGrp LOS	C	A	A	B	C	D
Approach Vol, veh/h		335	236		938	
Approach Delay, s/veh		20.7	14.5		41.0	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.2		25.0	10.2	35.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		50.1		20.1	15.6	30.1
Max Q Clear Time (g_c+I1), s		4.6		20.8	5.6	8.4
Green Ext Time (p_c), s		0.6		0.0	0.2	0.9

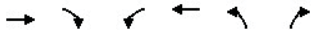
Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	192	107	423	435	293	33
Future Vol, veh/h	192	107	423	435	293	33
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	114	450	463	312	35
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	15.9	14.8	27
HCM LOS	C	B	D

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	54	54	212	212	435	293	33
LT Vol	192	0	0	0	0	0	293	0
Through Vol	0	54	54	212	212	0	0	0
RT Vol	0	0	0	0	0	435	0	33
Lane Flow Rate	204	57	57	225	225	463	312	35
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.479	0.125	0.097	0.446	0.446	0.597	0.712	0.068
Departure Headway (Hd)	8.447	7.932	6.147	7.138	7.138	4.642	8.223	7.016
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	427	451	581	504	504	777	439	510
Service Time	6.204	5.689	3.903	4.88	4.88	2.383	5.976	4.769
HCM Lane V/C Ratio	0.478	0.126	0.098	0.446	0.446	0.596	0.711	0.069
HCM Control Delay	18.8	11.8	9.6	15.5	15.5	14.1	28.9	10.3
HCM Lane LOS	C	B	A	C	C	B	D	B
HCM 95th-tile Q	2.5	0.4	0.3	2.3	2.3	4	5.5	0.2



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	236	205	371	595	265	138
Future Volume (veh/h)	236	205	371	595	265	138
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	228	412	661	294	153
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	398	346	445	1351	330	293
Arrive On Green	0.43	0.43	0.25	0.72	0.19	0.19
Sat Flow, veh/h	922	803	1781	1870	1781	1585
Grp Volume(v), veh/h	0	490	412	661	294	153
Grp Sat Flow(s),veh/h/ln	0	1725	1781	1870	1781	1585
Q Serve(g_s), s	0.0	21.9	22.0	14.8	15.7	8.5
Cycle Q Clear(g_c), s	0.0	21.9	22.0	14.8	15.7	8.5
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	745	445	1351	330	293
V/C Ratio(X)	0.00	0.66	0.93	0.49	0.89	0.52
Avail Cap(c_a), veh/h	0	745	494	1403	330	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.9	35.6	5.8	38.7	35.8
Incr Delay (d2), s/veh	0.0	4.5	22.0	0.4	28.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.5	12.0	4.8	9.3	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	26.5	57.6	6.1	67.2	42.3
LnGrp LOS	A	C	E	A	E	D
Approach Vol, veh/h	490			1073	447	
Approach Delay, s/veh	26.5			25.9	58.6	
Approach LOS	C			C	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	28.3	47.0				75.3	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	27.0	42.0				73.0	18.0
Max Q Clear Time (g_c+I1), s	24.0	23.9				16.8	17.7
Green Ext Time (p_c), s	0.3	4.0				7.4	0.0

Intersection Summary			
HCM 6th Ctrl Delay		33.3	
HCM 6th LOS		C	



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	539	168	1297	813	459	1382
Future Volume (veh/h)	539	168	1297	813	459	1382
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	556	39	1337	804	473	1425
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	693	309	1902	1139	559	2580
Arrive On Green	0.19	0.19	0.54	0.54	0.16	0.73
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	556	39	1337	804	473	1425
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	16.5	2.3	31.1	32.2	14.7	20.3
Cycle Q Clear(g_c), s	16.5	2.3	31.1	32.2	14.7	20.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	693	309	1902	1139	559	2580
V/C Ratio(X)	0.80	0.13	0.70	0.71	0.85	0.55
Avail Cap(c_a), veh/h	964	429	2180	1260	935	3269
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	36.9	19.2	8.4	45.1	6.9
Incr Delay (d2), s/veh	2.3	0.1	1.0	1.9	1.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.9	11.8	18.6	6.4	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.9	36.9	20.2	10.3	46.7	7.4
LnGrp LOS	D	D	C	B	D	A
Approach Vol, veh/h	595		2141			1898
Approach Delay, s/veh	44.4		16.5			17.2
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	21.9	63.3				85.3	25.6
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	29.6	65.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	16.7	34.2				22.3	18.5
Green Ext Time (p_c), s	0.8	22.9				41.3	0.9

Intersection Summary			
HCM 6th Ctrl Delay		20.3	
HCM 6th LOS		C	

Notes
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	165	296	96	63	190	159	1293	229	161	1236	158
Future Volume (veh/h)	181	165	296	96	63	190	159	1293	229	161	1236	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	183	146	107	70	211	177	1437	163	179	1373	176
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	313	254	135	317	253	238	1948	947	149	1998	992
Arrive On Green	0.08	0.17	0.17	0.08	0.17	0.17	0.07	0.55	0.54	0.08	0.56	0.56
Sat Flow, veh/h	3456	1870	1517	1781	1870	1493	3456	3554	1546	1781	3554	1565
Grp Volume(v), veh/h	201	183	146	107	70	211	177	1437	163	179	1373	176
Grp Sat Flow(s),veh/h/ln	1728	1870	1517	1781	1870	1493	1728	1777	1546	1781	1777	1565
Q Serve(g_s), s	7.5	11.9	11.6	7.8	4.2	18.0	6.6	40.3	6.0	11.0	36.2	6.1
Cycle Q Clear(g_c), s	7.5	11.9	11.6	7.8	4.2	18.0	6.6	40.3	6.0	11.0	36.2	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	313	254	135	317	253	238	1948	947	149	1998	992
V/C Ratio(X)	0.75	0.58	0.57	0.79	0.22	0.83	0.74	0.74	0.17	1.20	0.69	0.18
Avail Cap(c_a), veh/h	526	555	450	163	441	352	289	1948	947	149	1998	992
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	50.5	50.4	59.7	47.1	52.8	60.0	22.5	11.1	60.2	20.5	10.0
Incr Delay (d2), s/veh	1.6	1.7	2.0	15.9	0.1	8.5	6.0	2.5	0.4	137.5	2.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	5.7	4.6	4.1	2.0	7.3	3.1	17.1	2.2	10.7	15.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	52.2	52.4	75.6	47.2	61.3	66.0	25.1	11.5	197.7	22.5	10.4
LnGrp LOS	E	D	D	E	D	E	E	C	B	F	C	B
Approach Vol, veh/h		530			388			1777			1728	
Approach Delay, s/veh		55.6			62.7			27.9			39.4	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	76.0	14.0	26.4	13.1	77.9	14.1	26.2
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	10.6	70.7	11.6	* 38	10.6	* 71	19.6	29.5
Max Q Clear Time (g_c+I1), s	13.0	42.3	9.8	13.9	8.6	38.2	9.5	20.0
Green Ext Time (p_c), s	0.0	20.1	0.0	1.5	0.1	20.4	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1208	11	316	572	0	0	0	0	344	6	1434
Future Volume (veh/h)	0	1208	11	316	572	0	0	0	0	344	6	1434
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1258	11	329	596	0				358	6	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1415	631	402	1953	0				650	11	
Arrive On Green	0.00	0.40	0.40	0.12	0.55	0.00				0.37	0.37	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1753	29	1585
Grp Volume(v), veh/h	0	1258	11	329	596	0				364	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	39.6	0.5	11.2	10.9	0.0				19.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.6	0.5	11.2	10.9	0.0				19.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1415	631	402	1953	0				660	0	
V/C Ratio(X)	0.00	0.89	0.02	0.82	0.31	0.00				0.55	0.00	
Avail Cap(c_a), veh/h	0	1718	766	657	2517	0				660	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.7	21.9	51.8	14.6	0.0				29.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.7	0.0	0.4	0.0	0.0				0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.7	0.2	4.9	4.3	0.0				8.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.4	21.9	52.2	14.6	0.0				30.5	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				C	A	
Approach Vol, veh/h		1269			925						364	A
Approach Delay, s/veh		38.3			28.0						30.5	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.2	52.8		49.1		70.9		
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0		
Max Green Setting (Gmax), s	* 23	58.0		25.4		85.0		
Max Q Clear Time (g_c+I1), s	13.2	41.6		21.4		12.9		
Green Ext Time (p_c), s	0.8	6.2		0.4		3.0		

Intersection Summary	
HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	912	701	0	0	623	528	274	20	592	0	0	0
Future Volume (veh/h)	912	701	0	0	623	528	274	20	592	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	950	730	0	0	649	318	285	21	363			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	975	2223	0	0	697	342	455	34	433			
Arrive On Green	0.28	0.63	0.00	0.00	0.30	0.30	0.27	0.27	0.27			
Sat Flow, veh/h	3456	3647	0	0	2405	1132	1664	123	1585			
Grp Volume(v), veh/h	950	730	0	0	499	468	306	0	363			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1667	1787	0	1585			
Q Serve(g_s), s	27.2	9.7	0.0	0.0	27.3	27.3	15.0	0.0	21.6			
Cycle Q Clear(g_c), s	27.2	9.7	0.0	0.0	27.3	27.3	15.0	0.0	21.6			
Prop In Lane	1.00		0.00	0.00		0.68	0.93		1.00			
Lane Grp Cap(c), veh/h	975	2223	0	0	536	503	489	0	433			
V/C Ratio(X)	0.97	0.33	0.00	0.00	0.93	0.93	0.63	0.00	0.84			
Avail Cap(c_a), veh/h	975	2257	0	0	553	518	489	0	433			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.65	0.65	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.5	8.8	0.0	0.0	33.9	33.9	31.9	0.0	34.2			
Incr Delay (d2), s/veh	17.5	0.0	0.0	0.0	21.9	22.9	1.9	0.0	12.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	13.5	3.5	0.0	0.0	14.7	13.9	6.6	0.0	18.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	8.8	0.0	0.0	55.8	56.8	33.8	0.0	47.0			
LnGrp LOS	D	A	A	A	E	E	C	A	D			
Approach Vol, veh/h		1680			967			669				
Approach Delay, s/veh		33.9			56.3			41.0				
Approach LOS		C			E			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		68.1		31.9	32.4	35.7			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		63.5		26.4	* 28	31.1			
Max Q Clear Time (g_c+I1), s		11.7		23.6	29.2	29.3			
Green Ext Time (p_c), s		3.8		0.4	0.0	0.9			

Intersection Summary			
HCM 6th Ctrl Delay		41.8	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	787	346	248	867	44	127	37	210	25	39	36
Future Volume (veh/h)	58	787	346	248	867	44	127	37	210	25	39	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	874	384	276	963	49	141	41	233	28	43	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	1682	709	306	2057	105	170	395	582	41	255	212
Arrive On Green	0.05	0.47	0.47	0.17	0.60	0.58	0.10	0.21	0.21	0.02	0.14	0.14
Sat Flow, veh/h	1781	3554	1497	1781	3436	175	1781	1870	1509	1781	1870	1554
Grp Volume(v), veh/h	64	874	384	276	498	514	141	41	233	28	43	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1497	1781	1777	1834	1781	1870	1509	1781	1870	1554
Q Serve(g_s), s	4.8	23.2	24.5	20.5	21.1	21.2	10.5	2.4	15.4	2.1	2.7	3.1
Cycle Q Clear(g_c), s	4.8	23.2	24.5	20.5	21.1	21.2	10.5	2.4	15.4	2.1	2.7	3.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	1682	709	306	1064	1098	170	395	582	41	255	212
V/C Ratio(X)	0.73	0.52	0.54	0.90	0.47	0.47	0.83	0.10	0.40	0.69	0.17	0.19
Avail Cap(c_a), veh/h	224	1682	709	435	1064	1098	226	463	637	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	24.8	25.2	54.8	15.1	15.2	60.0	42.9	31.0	65.5	51.5	51.7
Incr Delay (d2), s/veh	4.4	1.2	3.0	13.5	1.5	1.4	13.5	0.0	0.2	7.5	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	10.0	9.3	10.3	8.8	9.2	5.4	1.1	5.7	1.0	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	26.0	28.1	68.3	16.6	16.6	73.4	43.0	31.1	73.0	51.7	51.9
LnGrp LOS	E	C	C	E	B	B	E	D	C	E	D	D
Approach Vol, veh/h		1322			1288			415			111	
Approach Delay, s/veh		28.6			27.7			46.7			57.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.2	68.2	16.9	22.7	10.6	84.8	7.1	32.5				
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2				
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2				
Max Q Clear Time (g_c+I1), s	22.5	26.5	12.5	5.1	6.8	23.2	4.1	17.4				
Green Ext Time (p_c), s	0.3	4.6	0.1	0.2	0.0	5.1	0.0	0.5				

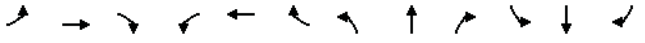
Intersection Summary			
HCM 6th Ctrl Delay		31.6	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2025 PM
02/27/2020

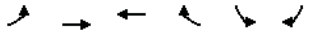


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	583	700	29	8	429	143	0	0	22	231	15	412
Future Volume (vph)	583	700	29	8	429	143	0	0	22	231	15	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3512		1770	3391				1525	1681	1695	1571
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3512		1770	3391				1525	1681	1695	1571
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	648	778	32	9	477	159	0	0	24	257	17	458
RTOR Reduction (vph)	0	2	0	0	29	0	0	0	23	0	0	220
Lane Group Flow (vph)	648	808	0	9	607	0	0	0	1	136	138	238
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	18.4	43.3		0.8	25.7				2.1	30.1	30.1	48.5
Effective Green, g (s)	18.8	44.2		1.2	26.6				2.1	31.4	31.4	49.3
Actuated g/C Ratio	0.20	0.47		0.01	0.28				0.02	0.33	0.33	0.52
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	680	1635		22	950				33	556	560	816
v/s Ratio Prot	c0.19	0.23		0.01	c0.18					0.08	0.08	c0.06
v/s Ratio Perm									c0.00			0.09
v/c Ratio	0.95	0.49		0.41	0.64				0.02	0.24	0.25	0.29
Uniform Delay, d1	37.6	17.6		46.5	29.9				45.4	23.1	23.1	12.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	23.3	0.3		4.5	3.3				0.2	1.0	1.0	0.1
Delay (s)	60.9	17.9		51.0	33.2				45.6	24.2	24.2	13.0
Level of Service	E	B		D	C				D	C	C	B
Approach Delay (s)		37.0			33.5			45.6			17.2	
Approach LOS		D			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	94.9	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	70.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

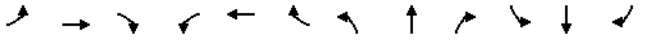
HCM Signalized Intersection Capacity Analysis
7: Friars Rd. & Napa St.

Year 2025 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	159	1118	483	425	625	221
Future Volume (vph)	159	1118	483	425	625	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1543	3427	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1543	3427	1419
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	166	1165	503	443	651	230
RTOR Reduction (vph)	0	0	0	175	1	79
Lane Group Flow (vph)	166	1165	503	268	673	128
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.5	60.3	40.8	69.9	29.1	29.1
Effective Green, g (s)	15.9	62.3	42.4	71.7	30.0	30.0
Actuated g/C Ratio	0.13	0.53	0.36	0.61	0.25	0.25
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	237	1862	1267	934	868	359
v/s Ratio Prot	c0.09	c0.33	0.14	0.07	c0.20	
v/s Ratio Perm				0.10		0.09
v/c Ratio	0.70	0.63	0.40	0.29	0.77	0.36
Uniform Delay, d1	49.0	19.8	28.4	11.1	41.1	36.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	1.6	0.3	0.4	5.1	1.3
Delay (s)	56.4	21.4	28.7	11.5	46.2	37.5
Level of Service	E	C	C	B	D	D
Approach Delay (s)		25.8	20.7		44.1	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	118.4	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1627	50	40	767	60	32	5	16	173	10	64
Future Volume (veh/h)	70	1627	50	40	767	60	32	5	16	173	10	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	1677	48	41	791	51	33	5	2	178	10	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	2377	68	73	2246	145	273	38	301	278	129	193
Arrive On Green	0.05	0.67	0.66	0.04	0.66	0.65	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3525	101	1781	3387	218	1156	197	1568	1395	670	1005
Grp Volume(v), veh/h	72	842	883	41	415	427	38	0	2	178	0	25
Grp Sat Flow(s),veh/h/ln	1781	1777	1848	1781	1777	1828	1353	0	1568	1395	0	1676
Q Serve(g_s), s	5.3	39.0	39.6	3.0	13.6	13.7	2.6	0.0	0.1	16.3	0.0	1.6
Cycle Q Clear(g_c), s	5.3	39.0	39.6	3.0	13.6	13.7	4.2	0.0	0.1	20.6	0.0	1.6
Prop In Lane	1.00		0.05	1.00		0.12	0.87		1.00	1.00		0.60
Lane Grp Cap(c), veh/h	97	1198	1246	73	1178	1212	311	0	301	278	0	322
V/C Ratio(X)	0.74	0.70	0.71	0.56	0.35	0.35	0.12	0.00	0.01	0.64	0.00	0.08
Avail Cap(c_a), veh/h	220	1198	1246	220	1198	1233	378	0	376	344	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.0	13.4	13.5	62.6	9.8	9.9	45.5	0.0	43.4	53.7	0.0	44.3
Incr Delay (d2), s/veh	4.2	3.5	3.4	2.5	0.8	0.8	0.1	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	14.7	15.5	1.4	5.1	5.3	1.1	0.0	0.1	5.8	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	16.9	16.9	65.2	10.7	10.7	45.5	0.0	43.4	55.0	0.0	44.3
LnGrp LOS	E	B	B	E	B	B	D	A	D	D	A	D
Approach Vol, veh/h		1797			883			40			203	
Approach Delay, s/veh		18.9			13.2			45.4			53.7	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	94.0		29.6	11.2	92.2		29.6				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 88		31.0	16.0	87.7		31.0				
Max Q Clear Time (g_c+I1), s	5.0	41.6		22.6	7.3	15.7		6.2				
Green Ext Time (p_c), s	0.0	39.6		0.2	0.0	20.5		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1541	897	49	51	24
Future Vol, veh/h	31	1541	897	49	51	24
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1675	975	53	55	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1064	0	-	0	1945	550
Stage 1	-	-	-	-	1038	-
Stage 2	-	-	-	-	907	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	651	-	-	-	57	479
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	354	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	631	-	-	-	~ 51	465
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	343	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	35.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	631	-	-	-	199
HCM Lane V/C Ratio	0.053	-	-	-	0.41
HCM Control Delay (s)	11	-	-	-	35.1
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	1.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	1534	0	0	803	296	0	0	0	441	0	155
Future Volume (veh/h)	219	1534	0	0	803	296	0	0	0	441	0	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	231	1615	0	0	845	174				464	0	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	236	2280	0	0	1691	722				510	0	453
Arrive On Green	0.13	0.64	0.00	0.00	0.48	0.48				0.29	0.00	0.29
Sat Flow, veh/h	1781	3647	0	0	3647	1517				1781	0	1585
Grp Volume(v), veh/h	231	1615	0	0	845	174				464	0	86
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1517				1781	0	1585
Q Serve(g_s), s	14.7	33.9	0.0	0.0	18.5	7.7				28.5	0.0	4.6
Cycle Q Clear(g_c), s	14.7	33.9	0.0	0.0	18.5	7.7				28.5	0.0	4.6
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	236	2280	0	0	1691	722				510	0	453
V/C Ratio(X)	0.98	0.71	0.00	0.00	0.50	0.24				0.91	0.00	0.19
Avail Cap(c_a), veh/h	236	2280	0	0	1691	722				757	0	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	49.1	13.4	0.0	0.0	20.4	17.6				39.1	0.0	30.6
Incr Delay (d2), s/veh	52.9	1.9	0.0	0.0	1.1	0.8				8.6	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	12.0	0.0	0.0	7.4	2.7				13.5	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.0	15.2	0.0	0.0	21.5	18.4				47.7	0.0	30.6
LnGrp LOS	F	B	A	A	C	B				D	A	C
Approach Vol, veh/h		1846			1019						550	
Approach Delay, s/veh		26.1			21.0						45.0	
Approach LOS		C			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		77.0		36.5	19.0	58.0						
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9						
Max Green Setting (Gmax), s		* 71		47.1	14.6	51.9						
Max Q Clear Time (g_c+I1), s		35.9		30.5	16.7	20.5						
Green Ext Time (p_c), s		12.0		0.8	0.0	5.1						

Intersection Summary			
HCM 6th Ctrl Delay		27.6	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2025 PM
03/25/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1785	366	249	913	15	281	6	363	7	7	6
Future Volume (veh/h)	8	1785	366	249	913	15	281	6	363	7	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	1859	324	259	951	14	293	6	345	7	7	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	1796	308	322	1750	26	451	8	740	105	92	0
Arrive On Green	0.01	0.41	0.40	0.09	0.49	0.48	0.38	0.38	0.38	0.38	0.38	0.00
Sat Flow, veh/h	1781	4373	750	3456	3583	53	1038	21	1569	166	242	0
Grp Volume(v), veh/h	8	1441	742	259	472	493	299	0	345	14	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1719	1728	1777	1859	1059	0	1569	408	0	0
Q Serve(g_s), s	0.6	53.4	53.4	9.6	24.0	24.0	0.0	0.0	19.4	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.6	53.4	53.4	9.6	24.0	24.0	37.2	0.0	19.4	37.6	0.0	0.0
Prop In Lane	1.00		0.44	1.00		0.03	0.98		1.00	0.50		0.00
Lane Grp Cap(c), veh/h	19	1398	706	322	868	908	459	0	740	197	0	0
V/C Ratio(X)	0.42	1.03	1.05	0.81	0.54	0.54	0.65	0.00	0.47	0.07	0.00	0.00
Avail Cap(c_a), veh/h	82	1398	706	399	868	908	459	0	740	197	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	63.9	38.3	38.7	57.8	23.2	23.2	36.4	0.0	23.3	29.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	23.9	36.6	6.9	2.2	2.1	7.0	0.0	2.1	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	25.7	28.5	4.4	10.1	10.6	9.4	0.0	7.6	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	62.2	75.3	64.7	25.4	25.3	43.4	0.0	25.4	30.6	0.0	0.0
LnGrp LOS	E	F	F	E	C	C	D	A	C	C	A	A
Approach Vol, veh/h		2191			1224			644			14	
Approach Delay, s/veh		66.7			33.6			33.8			30.6	
Approach LOS		E			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.1	57.4		53.6	5.4	68.1		53.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	14.6	51.5		48.7	5.6	* 61		48.7				
Max Q Clear Time (g_c+I1), s	11.6	55.4		39.6	2.6	26.0		39.2				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	8.7		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		51.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2025 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1985	65	302	1086	65	49	1	285	28	1	16
Future Volume (veh/h)	36	1985	65	302	1086	65	49	1	285	28	1	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	2026	59	308	1108	71	50	1	212	30	1	17
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	340	3269	95	253	2633	1161	271	1	236	47	2	40
Arrive On Green	0.63	0.64	0.63	0.07	0.74	0.73	0.15	0.15	0.15	0.03	0.03	0.03
Sat Flow, veh/h	476	5097	148	3456	3554	1585	1781	7	1579	1781	89	1510
Grp Volume(v), veh/h	39	1352	733	308	1108	71	50	0	213	30	0	18
Grp Sat Flow(s),veh/h/ln	476	1702	1841	1728	1777	1585	1781	0	1586	1781	0	1599
Q Serve(g_s), s	5.2	35.4	35.6	11.0	17.6	1.9	3.7	0.0	19.8	2.5	0.0	1.7
Cycle Q Clear(g_c), s	7.8	35.4	35.6	11.0	17.6	1.9	3.7	0.0	19.8	2.5	0.0	1.7
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	340	2184	1181	253	2633	1161	271	0	237	47	0	42
V/C Ratio(X)	0.11	0.62	0.62	1.22	0.42	0.06	0.18	0.00	0.90	0.64	0.00	0.43
Avail Cap(c_a), veh/h	340	2184	1181	253	2633	1161	373	0	328	190	0	171
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.39	0.39	0.39	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	16.0	16.1	69.5	7.3	5.6	55.5	0.0	62.5	72.3	0.0	71.9
Incr Delay (d2), s/veh	0.3	0.5	1.0	127.4	0.5	0.1	0.1	0.0	17.3	13.5	0.0	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	12.9	14.2	9.3	6.0	0.6	1.7	0.0	9.1	1.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	16.5	17.0	196.9	7.8	5.7	55.6	0.0	79.8	85.8	0.0	78.6
LnGrp LOS	B	B	B	F	A	A	E	A	E	F	A	E
Approach Vol, veh/h		2124			1487			263			48	
Approach Delay, s/veh		16.6			46.9			75.2			83.1	
Approach LOS		B			D			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	100.2		8.0		115.2		26.8				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	10.6	74.2		16.0		* 78		31.0				
Max Q Clear Time (g_c+I1), s	13.0	37.6		4.5		19.6		21.8				
Green Ext Time (p_c), s	0.0	25.2		0.1		13.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay			32.8
HCM 6th LOS			C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	2318	55	584	1344	31	43	5	331	21	4	7
Future Volume (veh/h)	26	2318	55	584	1344	31	43	5	331	21	4	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	2440	58	615	1415	33	45	0	351	22	4	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	3210	76	553	3916	91	225	0	418	185	81	141
Arrive On Green	0.02	0.63	0.62	0.32	1.00	1.00	0.13	0.00	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	5129	121	3456	5130	120	1379	0	3113	1019	602	1054
Grp Volume(v), veh/h	27	1616	882	615	939	509	45	0	351	22	0	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1728	1702	1846	1379	0	1557	1019	0	1657
Q Serve(g_s), s	2.3	50.7	51.4	24.0	0.0	0.0	4.4	0.0	16.5	2.9	0.0	0.9
Cycle Q Clear(g_c), s	2.3	50.7	51.4	24.0	0.0	0.0	5.3	0.0	16.5	2.9	0.0	0.9
Prop In Lane	1.00		0.07	1.00		0.06	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	39	2130	1155	553	2598	1409	225	0	418	185	0	222
V/C Ratio(X)	0.69	0.76	0.76	1.11	0.36	0.36	0.20	0.00	0.84	0.12	0.00	0.05
Avail Cap(c_a), veh/h	108	2130	1155	553	2598	1409	324	0	641	258	0	341
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.9	20.0	20.1	51.0	0.0	0.0	58.9	0.0	63.4	57.5	0.0	56.9
Incr Delay (d2), s/veh	7.9	2.6	4.8	72.9	0.4	0.7	0.2	0.0	3.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	19.3	21.9	14.2	0.1	0.3	1.6	0.0	6.8	0.8	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.8	22.6	25.0	123.9	0.4	0.7	59.1	0.0	67.0	57.6	0.0	56.9
LnGrp LOS	F	C	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2525			2063			396			33	
Approach Delay, s/veh		24.0			37.3			66.1			57.3	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	97.9		24.1	7.3	118.6		24.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	23.6	81.7		30.0	8.7	* 97		30.0				
Max Q Clear Time (g_c+I1), s	26.0	53.4		4.9	4.3	2.0		18.5				
Green Ext Time (p_c), s	0.0	23.8		0.1	0.0	19.2		0.7				

Intersection Summary			
HCM 6th Ctrl Delay			33.0
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	135.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2466	131	0	1937	0	402
Future Vol, veh/h	2466	131	0	1937	0	402
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2740	146	0	2152	0	447

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1460
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 101
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 99
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1667.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	99	-	-	-
HCM Lane V/C Ratio	4.512	-	-	-
HCM Control Delay (s)	$ 1667.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	47	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	985	436	460	741
Future Volume (Veh/h)	0	0	985	436	460	741
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1071	474	500	805
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2474	536			1545	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2474	536			1545	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	489			426	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	714	515	316	500	402	402
Volume Left	0	0	0	500	0	0
Volume Right	0	158	316	0	0	0
cSH	1700	1700	1700	426	1700	1700
Volume to Capacity	0.42	0.30	0.19	1.18	0.24	0.24
Queue Length 95th (ft)	0	0	0	478	0	0
Control Delay (s)	0.0	0.0	0.0	130.5	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			50.0		
Approach LOS						

Intersection Summary				
Average Delay	22.9			
Intersection Capacity Utilization	64.0%	ICU Level of Service		C
Analysis Period (min)	15			

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	2088	828	402	1440	1189	403	55	988	493	0	187
Future Volume (veh/h)	138	2088	828	402	1440	1189	403	55	988	493	0	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	2198	0	423	1516	1252	424	58	1040	519	0	197
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	2682		481	2323	1790	693	312	835	590	248	376
Arrive On Green	0.20	0.83	0.00	0.14	0.45	0.45	0.20	0.17	0.16	0.17	0.00	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2747	3456	1870	1550
Grp Volume(v), veh/h	145	2198	0	423	1516	1252	424	58	1040	519	0	197
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1374	1728	1870	1550
Q Serve(g_s), s	5.5	26.9	0.0	18.0	34.5	43.8	16.8	4.0	24.4	22.0	0.0	16.6
Cycle Q Clear(g_c), s	5.5	26.9	0.0	18.0	34.5	43.8	16.8	4.0	24.4	22.0	0.0	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	349	2682		481	2323	1790	693	312	835	590	248	376
V/C Ratio(X)	0.42	0.82		0.88	0.65	0.70	0.61	0.19	1.25	0.88	0.00	0.52
Avail Cap(c_a), veh/h	415	2682		622	2323	1790	693	312	835	1221	524	605
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	9.5	0.0	63.3	31.7	17.5	54.6	53.8	52.4	60.7	0.0	49.6
Incr Delay (d2), s/veh	0.3	2.9	0.0	11.0	1.4	2.3	4.0	1.3	120.4	1.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.1	0.0	8.5	14.1	14.2	7.7	2.0	29.6	9.8	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	12.5	0.0	74.3	33.1	19.7	58.6	55.1	172.8	62.4	0.0	50.0
LnGrp LOS	E	B		E	C	B	E	E	F	E	A	D
Approach Vol, veh/h		2343	A		3191			1522			716	
Approach Delay, s/veh		15.2			33.3			136.5			59.0	
Approach LOS		B			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.9	66.5	34.1	24.5	19.2	72.2	29.6	29.0
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	27.0	31.3	29.5	42.0	* 18	40.3	52.4	19.1
Max Q Clear Time (g_c+I1), s	20.0	28.9	18.8	18.6	7.5	45.8	24.0	26.4
Green Ext Time (p_c), s	0.9	2.0	0.7	0.3	0.2	0.0	1.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2025 PM
03/06/2020

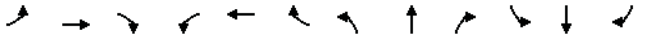
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	662	2827	0	0	1927	1060	0	0	0	785	0	1104
Future Volume (veh/h)	662	2827	0	0	1927	1060	0	0	0	785	0	1104
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	697	2976	0	0	2028	1116				826	0	1162
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	518	8978	0	0	6514	2772				1633	0	1412
Arrive On Green	0.15	1.00	0.00	0.00	1.00	0.99				0.32	0.00	0.34
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	697	2976	0	0	2028	1116				826	0	1162
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	12.0	0.0	0.0	0.0	0.0	0.3				10.6	0.0	27.5
Cycle Q Clear(g_c), s	12.0	0.0	0.0	0.0	0.0	0.3				10.6	0.0	27.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	518	8978	0	0	6514	2772				1633	0	1412
V/C Ratio(X)	1.34	0.33	0.00	0.00	0.31	0.40				0.51	0.00	0.82
Avail Cap(c_a), veh/h	518	8978	0	0	6514	2772				1633	0	1412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	0.0	0.0	0.0				21.8	0.0	16.7
Incr Delay (d2), s/veh	167.3	0.1	0.0	0.0	0.1	0.4				0.3	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.7	0.1	0.0	0.0	0.1	0.2				4.0	0.0	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	201.3	0.1	0.0	0.0	0.1	0.4				22.1	0.0	20.8
LnGrp LOS	F	A	A	A	A	A				C	A	C
Approach Vol, veh/h		3673			3144						1988	
Approach Delay, s/veh		38.3			0.2						21.3	
Approach LOS		D			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.0	86.5		30.0		102.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	11.5	28.5		26.0		* 46
Max Q Clear Time (g_c+I1), s	14.0	2.3		29.5		2.0
Green Ext Time (p_c), s	0.0	18.0		0.0		37.5

Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	422	2624	807	157	1569	61	504	98	235	166	104	692
Future Volume (veh/h)	422	2624	807	157	1569	61	504	98	235	166	104	692
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	435	2705	832	162	1618	63	520	101	242	171	107	713
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	488	2983	1235	160	2416	584	460	587	498	162	457	638
Arrive On Green	0.14	0.46	0.46	0.05	0.38	0.38	0.13	0.33	0.32	0.05	0.24	0.24
Sat Flow, veh/h	3456	6434	2664	3456	6434	1556	3456	1777	1508	3456	1870	2613
Grp Volume(v), veh/h	435	2705	832	162	1618	63	520	101	242	171	107	713
Grp Sat Flow(s),veh/h/ln	1728	1609	1332	1728	1609	1556	1728	1777	1508	1728	1870	1306
Q Serve(g_s), s	18.7	58.8	36.8	7.0	31.7	4.0	20.1	6.1	19.4	7.1	6.9	36.9
Cycle Q Clear(g_c), s	18.7	58.8	36.8	7.0	31.7	4.0	20.1	6.1	19.4	7.1	6.9	36.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	488	2983	1235	160	2416	584	460	587	498	162	457	638
V/C Ratio(X)	0.89	0.91	0.67	1.01	0.67	0.11	1.13	0.17	0.49	1.05	0.23	1.12
Avail Cap(c_a), veh/h	533	2983	1235	160	2416	584	460	587	498	162	457	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.7	37.5	31.6	72.0	39.3	30.7	65.4	35.9	40.7	71.9	45.7	57.0
Incr Delay (d2), s/veh	15.3	5.2	3.0	74.1	1.5	0.4	82.8	0.1	0.3	85.2	0.2	72.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	23.2	12.4	4.7	12.5	1.6	14.2	2.7	7.4	5.1	3.3	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.0	42.7	34.5	146.1	40.8	31.1	148.2	35.9	41.0	157.1	45.9	129.2
LnGrp LOS	E	D	C	F	D	C	F	D	D	F	D	F
Approach Vol, veh/h		3972			1843			863			991	
Approach Delay, s/veh		45.0			49.8			105.0			125.0	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	75.0	24.1	40.9	25.3	60.7	11.1	53.9
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	6.6	* 69	19.7	36.0	22.9	51.2	6.7	49.0
Max Q Clear Time (g_c+I1), s	9.0	60.8	22.1	38.9	20.7	33.7	9.1	21.4
Green Ext Time (p_c), s	0.0	7.7	0.0	0.0	0.2	13.5	0.0	1.5

Intersection Summary		
HCM 6th Ctrl Delay		63.2
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	252	7	365	282	789	0	0	1179	323
Future Volume (veh/h)	0	0	0	252	7	365	282	789	0	0	1179	323
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				286	0	406	313	877	0	0	1310	359
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1014	0	443	388	2246	0	0	1748	775
Arrive On Green				0.28	0.00	0.28	0.15	0.84	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				286	0	406	313	877	0	0	1310	359
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1576
Q Serve(g_s), s				6.7	0.0	27.3	9.5	6.3	0.0	0.0	32.0	16.2
Cycle Q Clear(g_c), s				6.7	0.0	27.3	9.5	6.3	0.0	0.0	32.0	16.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1014	0	443	388	2246	0	0	1748	775
V/C Ratio(X)				0.28	0.00	0.92	0.81	0.39	0.00	0.00	0.75	0.46
Avail Cap(c_a), veh/h				1056	0	461	512	2246	0	0	1748	775
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.44	0.44	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.0	0.0	37.4	44.8	3.7	0.0	0.0	22.1	18.0
Incr Delay (d2), s/veh				0.2	0.0	22.7	2.4	0.2	0.0	0.0	3.0	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	12.6	4.0	1.8	0.0	0.0	13.5	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.2	0.0	60.1	47.2	3.9	0.0	0.0	25.1	20.0
LnGrp LOS				C	A	E	D	A	A	A	C	C
Approach Vol, veh/h					692			1190			1669	
Approach Delay, s/veh					47.7			15.3			24.0	
Approach LOS					D			B			C	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		73.2			16.1	57.1		34.8
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 67			15.6	45.7		31.1
Max Q Clear Time (g_c+I1), s		8.3			11.5	34.0		29.3
Green Ext Time (p_c), s		6.5			0.3	9.9		0.6

Intersection Summary		
HCM 6th Ctrl Delay	25.7	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2025 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	7	389	0	0	0	0	723	467	670	784	0
Future Volume (veh/h)	338	7	389	0	0	0	0	723	467	670	784	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	382	0	158				0	803	388	744	871	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	516	0	229				0	1225	589	723	2776	0
Arrive On Green	0.14	0.00	0.14				0.00	0.53	0.51	0.42	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2420	1119	3456	3647	0
Grp Volume(v), veh/h	382	0	158				0	613	578	744	871	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1669	1728	1777	0
Q Serve(g_s), s	11.1	0.0	10.2				0.0	26.9	27.4	22.6	0.0	0.0
Cycle Q Clear(g_c), s	11.1	0.0	10.2				0.0	26.9	27.4	22.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.67	1.00		0.00
Lane Grp Cap(c), veh/h	516	0	229				0	936	879	723	2776	0
V/C Ratio(X)	0.74	0.00	0.69				0.00	0.65	0.66	1.03	0.31	0.00
Avail Cap(c_a), veh/h	960	0	427				0	936	879	723	2776	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.70	0.70	0.00
Uniform Delay (d), s/veh	44.2	0.0	43.9				0.0	18.5	18.9	31.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	3.7				0.0	3.6	3.8	35.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	4.1				0.0	11.5	11.1	10.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	0.0	47.5				0.0	22.0	22.7	67.0	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		540						1191			1615	
Approach Delay, s/veh		46.7						22.4			31.0	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	61.4		19.6		88.4						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	24.6	29.4		13.1		2.0						
Green Ext Time (p_c), s	0.0	8.4		1.6		9.7						

Intersection Summary			
HCM 6th Ctrl Delay			30.5
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2025 PM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	425	6	225	615	733	0	0	784	286
Future Volume (veh/h)	0	0	0	425	6	225	615	733	0	0	784	286
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				352	152	242	661	788	0	0	843	308
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				466	170	271	611	2405	0	0	2388	730
Arrive On Green				0.26	0.26	0.25	0.18	0.68	0.00	0.00	0.47	0.46
Sat Flow, veh/h				1781	650	1034	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				352	0	394	661	788	0	0	843	308
Grp Sat Flow(s),veh/h/ln				1781	0	1684	1728	1777	0	0	1702	1585
Q Serve(g_s), s				23.6	0.0	29.3	23.0	12.0	0.0	0.0	13.7	16.9
Cycle Q Clear(g_c), s				23.6	0.0	29.3	23.0	12.0	0.0	0.0	13.7	16.9
Prop In Lane				1.00		0.61	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				466	0	441	611	2405	0	0	2388	730
V/C Ratio(X)				0.76	0.00	0.89	1.08	0.33	0.00	0.00	0.35	0.42
Avail Cap(c_a), veh/h				658	0	622	611	2405	0	0	2388	730
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.67	0.67	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				44.2	0.0	46.5	53.5	8.7	0.0	0.0	22.1	23.5
Incr Delay (d2), s/veh				1.7	0.0	9.4	54.2	0.2	0.0	0.0	0.4	1.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.4	0.0	13.1	14.6	4.5	0.0	0.0	5.6	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.9	0.0	55.9	107.7	9.0	0.0	0.0	22.5	25.3
LnGrp LOS				D	A	E	F	A	A	A	C	C
Approach Vol, veh/h					746			1449			1151	
Approach Delay, s/veh					51.2			54.0			23.2	
Approach LOS					D			D			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		92.0			27.0	65.0		38.0				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		72.9			22.1	* 46		47.1				
Max Q Clear Time (g_c+I1), s		14.0			25.0	18.9		31.3				
Green Ext Time (p_c), s		8.0			0.0	8.0		1.8				

Intersection Summary			
HCM 6th Ctrl Delay		42.8	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2025 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	491	7	489	0	0	0	0	807	378	404	755	0
Future Volume (veh/h)	491	7	489	0	0	0	0	807	378	404	755	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	540	0	532				0	877	411	439	821	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1270	0	565				0	1495	464	460	2062	0
Arrive On Green	0.36	0.00	0.36				0.00	0.29	0.29	0.52	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	540	0	532				0	877	411	439	821	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	14.9	0.0	42.3				0.0	19.1	32.2	30.5	0.0	0.0
Cycle Q Clear(g_c), s	14.9	0.0	42.3				0.0	19.1	32.2	30.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1270	0	565				0	1495	464	460	2062	0
V/C Ratio(X)	0.43	0.00	0.94				0.00	0.59	0.89	0.95	0.40	0.00
Avail Cap(c_a), veh/h	1370	0	610				0	1495	464	767	2062	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.89	0.89	0.00
Uniform Delay (d), s/veh	31.7	0.0	40.5				0.0	39.3	43.9	30.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	21.5				0.0	1.7	21.3	10.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	19.1				0.0	8.2	15.3	11.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	62.0				0.0	41.0	65.2	40.9	0.5	0.0
LnGrp LOS	C	A	E				A	D	E	D	A	A
Approach Vol, veh/h		1072						1288			1260	
Approach Delay, s/veh		46.8						48.7			14.6	
Approach LOS		D						D			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	37.6	42.1		50.4		79.6
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	55.6	10.9		49.1		* 71
Max Q Clear Time (g_c+I1), s	32.5	34.2		44.3		2.0
Green Ext Time (p_c), s	0.7	0.0		1.2		4.4

Intersection Summary			
HCM 6th Ctrl Delay			36.3
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	2391	120	66	1609	24	54	6	110	136	7	68
Future Volume (veh/h)	21	2391	120	66	1609	24	54	6	110	136	7	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	23	2657	133	73	1788	27	60	7	122	151	8	76
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	3064	151	99	3365	51	155	33	279	262	18	113
Arrive On Green	0.02	0.59	0.57	0.05	0.62	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5183	256	1853	5389	81	449	125	1045	817	68	423
Grp Volume(v), veh/h	23	1803	987	73	1174	641	189	0	0	235	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1931	1618	0	0	1308	0	0
Q Serve(g_s), s	1.7	57.3	59.8	5.2	25.2	25.2	0.0	0.0	0.0	10.3	0.0	0.0
Cycle Q Clear(g_c), s	1.7	57.3	59.8	5.2	25.2	25.2	12.6	0.0	0.0	23.0	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.04	0.32		0.65	0.64		0.32
Lane Grp Cap(c), veh/h	37	2093	1123	99	2210	1205	467	0	0	393	0	0
V/C Ratio(X)	0.62	0.86	0.88	0.74	0.53	0.53	0.40	0.00	0.00	0.60	0.00	0.00
Avail Cap(c_a), veh/h	82	2093	1123	198	2210	1205	467	0	0	393	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.6	23.0	23.6	63.0	14.3	14.3	41.1	0.0	0.0	45.4	0.0	0.0
Incr Delay (d2), s/veh	6.1	5.0	9.9	4.0	0.9	1.7	2.6	0.0	0.0	6.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	23.1	27.4	2.5	9.5	10.7	5.6	0.0	0.0	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.7	28.0	33.5	67.0	15.2	16.0	43.7	0.0	0.0	52.0	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2813			1888			189			235	
Approach Delay, s/veh		30.3			17.4			43.7			52.0	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	83.8		40.0	6.7	88.3		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	7.2	61.8		25.0	3.7	27.2		14.6
Green Ext Time (p_c), s	0.0	8.6		1.1	0.0	45.8		0.9

Intersection Summary			
HCM 6th Ctrl Delay			27.0
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	8	44	254	10	210	62	513	128	152	351	32
Future Volume (veh/h)	33	8	44	254	10	210	62	513	128	152	351	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	9	47	273	11	226	67	552	138	163	377	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	16	85	368	15	333	92	1213	302	197	1574	141
Arrive On Green	0.07	0.10	0.07	0.21	0.21	0.21	0.05	0.44	0.41	0.11	0.48	0.47
Sat Flow, veh/h	642	165	863	1715	69	1556	1781	2763	687	1781	3275	293
Grp Volume(v), veh/h	91	0	0	284	0	226	67	354	336	163	203	208
Grp Sat Flow(s),veh/h/ln	1670	0	0	1785	0	1556	1781	1777	1673	1781	1777	1791
Q Serve(g_s), s	6.1	0.0	0.0	17.3	0.0	15.5	4.3	16.2	16.6	10.4	7.8	7.9
Cycle Q Clear(g_c), s	6.1	0.0	0.0	17.3	0.0	15.5	4.3	16.2	16.6	10.4	7.8	7.9
Prop In Lane	0.38		0.52	0.96		1.00	1.00		0.41	1.00		0.16
Lane Grp Cap(c), veh/h	165	0	0	382	0	333	92	780	735	197	854	861
V/C Ratio(X)	0.55	0.00	0.00	0.74	0.00	0.68	0.73	0.45	0.46	0.83	0.24	0.24
Avail Cap(c_a), veh/h	357	0	0	460	0	401	260	780	735	276	854	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	42.7	0.0	42.0	54.4	22.9	23.4	50.7	17.7	17.8
Incr Delay (d2), s/veh	1.1	0.0	0.0	7.5	0.0	5.8	4.0	1.9	2.0	9.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	0.0	8.4	0.0	6.5	2.0	7.1	7.0	5.2	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	0.0	50.2	0.0	47.8	58.4	24.8	25.4	60.4	18.4	18.5
LnGrp LOS	D	A	A	D	A	D	E	C	C	E	B	B
Approach Vol, veh/h		91			510			757			574	
Approach Delay, s/veh		52.4			49.2			28.0			30.3	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.9	55.1		15.5	10.0	61.9		28.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	17.6	48.2		22.0	16.6	* 51		27.1				
Max Q Clear Time (g_c+I1), s	12.4	18.6		8.1	6.3	9.9		19.3				
Green Ext Time (p_c), s	0.1	3.6		0.2	0.0	2.3		2.7				

Intersection Summary			
HCM 6th Ctrl Delay		35.4	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	375	161	46	385	165
Future Vol, veh/h	63	375	161	46	385	165
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	383	164	47	393	168
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	18.8	13.3	22.4
HCM LOS	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	78%
Vol Thru, %	0%	0%	14%	22%
Vol Right, %	0%	100%	86%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	385	165	438	207
LT Vol	385	0	0	161
Through Vol	0	0	63	46
RT Vol	0	165	375	0
Lane Flow Rate	393	168	447	211
Geometry Grp	7	7	2	2
Degree of Util (X)	0.75	0.264	0.669	0.376
Departure Headway (Hd)	6.871	5.652	5.392	6.415
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	526	633	666	558
Service Time	4.622	3.402	3.453	4.488
HCM Lane V/C Ratio	0.747	0.265	0.671	0.378
HCM Control Delay	27.5	10.4	18.8	13.3
HCM Lane LOS	D	B	C	B
HCM 95th-tile Q	6.4	1.1	5.1	1.7

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2025 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	43	0	0	56	84	4	5	19	80	0	7
Future Volume (veh/h)	10	43	0	0	56	84	4	5	19	80	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	52	0	0	68	78	5	6	17	98	0	9
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	812	1173	0	0	587	510	501	48	136	595	0	267
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.27	0.11	0.11	0.11	0.17	0.00	0.17
Sat Flow, veh/h	1238	3647	0	0	1870	1544	1401	426	1206	1280	0	1581
Grp Volume(v), veh/h	12	52	0	0	68	78	5	0	23	98	0	9
Grp Sat Flow(s),veh/h/ln	1238	1777	0	0	1777	1544	1401	0	1631	1280	0	1581
Q Serve(g_s), s	0.1	0.2	0.0	0.0	0.4	0.6	0.1	0.0	0.2	1.0	0.0	0.1
Cycle Q Clear(g_c), s	0.7	0.2	0.0	0.0	0.4	0.6	1.3	0.0	0.2	1.2	0.0	0.1
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	812	1173	0	0	587	510	501	0	184	667	0	267
V/C Ratio(X)	0.01	0.04	0.00	0.00	0.12	0.15	0.01	0.00	0.12	0.15	0.00	0.03
Avail Cap(c_a), veh/h	1867	4203	0	0	2102	1826	2368	0	2358	2434	0	2286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	3.6	0.0	0.0	3.7	4.1	7.5	0.0	6.4	6.5	0.0	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.1	3.6	0.0	0.0	3.8	4.2	7.5	0.0	6.5	6.5	0.0	5.6
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		64			146			28			107	
Approach Delay, s/veh		3.7			4.0			6.7			6.4	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.3		6.7		9.3		6.7				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		2.7		3.2		2.6		3.3				
Green Ext Time (p_c), s		0.2		0.3		0.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			4.9									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

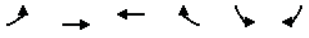
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	161	5	38	165	46	4	4	28	300	5	5
Future Volume (veh/h)	3	161	5	38	165	46	4	4	28	300	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	179	5	42	183	13	4	4	4	333	6	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	1209	34	460	1150	81	332	330	296	825	15	11
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1150	3525	98	1160	3354	236	484	607	546	1334	27	20
Grp Volume(v), veh/h	3	90	94	42	96	100	12	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	1150	1777	1847	1160	1777	1813	1637	0	0	1382	0	0
Q Serve(g_s), s	0.1	2.4	2.5	1.8	2.6	2.7	0.0	0.0	0.0	10.3	0.0	0.0
Cycle Q Clear(g_c), s	2.8	2.4	2.5	4.3	2.6	2.7	0.2	0.0	0.0	10.5	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.13	0.33		0.33	0.97		0.01
Lane Grp Cap(c), veh/h	453	609	633	460	609	622	957	0	0	851	0	0
V/C Ratio(X)	0.01	0.15	0.15	0.09	0.16	0.16	0.01	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	453	609	633	460	609	622	957	0	0	851	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.0	15.9	15.9	17.4	16.0	16.0	7.4	0.0	0.0	9.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.4	0.6	0.6	0.0	0.0	0.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	1.1	0.5	1.1	1.1	0.1	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	16.4	16.4	17.8	16.5	16.5	7.4	0.0	0.0	11.1	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		187			238			12			344	
Approach Delay, s/veh		16.4			16.8			7.4			11.1	
Approach LOS		B			B			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		42.0		28.0		42.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		24.0		38.0		24.0		38.0				
Max Q Clear Time (g_c+I1), s		4.8		12.5		6.3		2.2				
Green Ext Time (p_c), s		0.7		1.4		0.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2025 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	255	13	36	164	243	142
Future Volume (vph)	255	13	36	164	243	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3058		3433	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3058		3433	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	283	14	40	182	270	158
RTOR Reduction (vph)	0	0	137	0	0	131
Lane Group Flow (vph)	283	14	85	0	270	27
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	21.7	46.1	20.0		13.9	13.9
Effective Green, g (s)	22.1	47.0	20.9		14.3	14.3
Actuated g/C Ratio	0.26	0.56	0.25		0.17	0.17
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	462	1966	755		580	262
v/s Ratio Prot	c0.16	0.00	c0.03		c0.08	
v/s Ratio Perm						0.02
v/c Ratio	0.61	0.01	0.11		0.47	0.10
Uniform Delay, d1	27.5	8.4	24.7		31.7	29.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	0.0	0.1		0.2	0.1
Delay (s)	29.2	8.4	24.8		31.9	29.8
Level of Service	C	A	C		C	C
Approach Delay (s)		28.2	24.8		31.1	
Approach LOS		C	C		C	

Intersection Summary				
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.35			
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2025 PM
03/06/2020



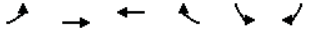
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	7	614	79	12	8	372	842	23	48	1158	58
Future Volume (veh/h)	104	7	614	79	12	8	372	842	23	48	1158	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.92	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	0	123	82	12	6	388	877	22	50	1206	55
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	469	0	198	100	15	7	429	2272	57	64	2769	126
Arrive On Green	0.13	0.00	0.13	0.07	0.07	0.07	0.12	0.64	0.63	0.04	0.55	0.55
Sat Flow, veh/h	3563	0	1505	1449	212	106	3456	3539	89	1781	5003	228
Grp Volume(v), veh/h	113	0	123	100	0	0	388	440	459	50	820	441
Grp Sat Flow(s),veh/h/ln	1781	0	1505	1768	0	0	1728	1777	1851	1781	1702	1827
Q Serve(g_s), s	4.3	0.0	11.6	8.4	0.0	0.0	16.6	17.7	17.7	4.2	21.3	21.3
Cycle Q Clear(g_c), s	4.3	0.0	11.6	8.4	0.0	0.0	16.6	17.7	17.7	4.2	21.3	21.3
Prop In Lane	1.00		1.00	0.82		0.06	1.00		0.05	1.00		0.12
Lane Grp Cap(c), veh/h	469	0	198	122	0	0	429	1141	1188	64	1884	1011
V/C Ratio(X)	0.24	0.00	0.62	0.82	0.00	0.00	0.91	0.39	0.39	0.78	0.44	0.44
Avail Cap(c_a), veh/h	1218	0	515	178	0	0	429	1141	1188	118	1884	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.00	0.90	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.4	0.0	61.6	68.9	0.0	0.0	64.8	12.8	12.8	71.7	19.7	19.8
Incr Delay (d2), s/veh	0.3	0.0	3.6	11.6	0.0	0.0	21.9	1.0	0.9	7.3	0.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.7	4.2	0.0	0.0	8.7	7.3	7.6	2.0	8.7	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	0.0	65.2	80.6	0.0	0.0	86.8	13.8	13.7	79.0	20.4	21.1
LnGrp LOS	E	A	E	F	A	A	F	B	B	E	C	C
Approach Vol, veh/h		236			100			1287			1311	
Approach Delay, s/veh		62.1			80.6			35.8			22.9	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	100.3		24.7	23.0	87.1		15.2				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.9	54.2		51.3	18.6	45.5		15.1				
Max Q Clear Time (g_c+I1), s	6.2	19.7		13.6	18.6	23.3		10.4				
Green Ext Time (p_c), s	0.0	12.7		1.2	0.0	14.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay	33.7		
HCM 6th LOS	C		

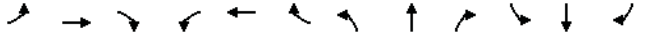
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	494	330	378	420	73
Future Volume (veh/h)	84	494	330	378	420	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	543	363	57	462	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	99	935	748	1284	732	652
Arrive On Green	0.06	0.50	0.40	0.40	0.41	0.41
Sat Flow, veh/h	1781	1870	1870	1581	1781	1585
Grp Volume(v), veh/h	92	543	363	57	462	11
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1581	1781	1585
Q Serve(g_s), s	4.6	18.4	13.0	0.6	18.6	0.4
Cycle Q Clear(g_c), s	4.6	18.4	13.0	0.6	18.6	0.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	99	935	748	1284	732	652
V/C Ratio(X)	0.93	0.58	0.49	0.04	0.63	0.02
Avail Cap(c_a), veh/h	99	935	748	1284	732	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	15.9	20.1	1.7	21.1	15.7
Incr Delay (d2), s/veh	67.1	0.6	2.2	0.1	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	7.5	5.9	0.7	8.2	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	109.4	16.5	22.3	1.7	25.2	15.8
LnGrp LOS	F	B	C	A	C	B
Approach Vol, veh/h		635	420		473	
Approach Delay, s/veh		29.9	19.5		25.0	
Approach LOS		C	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		49.0		41.0	9.0	40.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		44.1		36.1	4.6	35.1
Max Q Clear Time (g_c+I1), s		20.4		20.6	6.6	15.0
Green Ext Time (p_c), s		2.3		0.7	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	750	146	22	449	27	193	9	75	7	7	6
Future Volume (veh/h)	0	750	146	22	449	27	193	9	75	7	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	815	159	24	488	29	210	10	82	8	8	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1426	278	39	1839	109	613	67	553	231	229	184
Arrive On Green	0.00	0.48	0.48	0.02	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	3044	576	1781	3403	202	1391	172	1413	486	586	469
Grp Volume(v), veh/h	0	491	483	24	254	263	210	0	92	23	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1750	1781	1777	1827	1391	0	1586	1540	0	0
Q Serve(g_s), s	0.0	23.3	23.3	1.6	9.0	9.1	7.6	0.0	4.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	23.3	23.3	1.6	9.0	9.1	12.1	0.0	4.5	4.5	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.11	1.00		0.89	0.35		0.30
Lane Grp Cap(c), veh/h	0	858	845	39	961	988	613	0	621	644	0	0
V/C Ratio(X)	0.00	0.57	0.57	0.62	0.26	0.27	0.34	0.00	0.15	0.04	0.00	0.00
Avail Cap(c_a), veh/h	0	858	845	72	991	1019	613	0	621	644	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	21.8	21.9	57.2	14.5	14.6	25.4	0.0	23.5	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.8	2.8	5.8	0.1	0.1	0.3	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.2	10.1	0.8	3.6	3.8	4.2	0.0	1.7	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.5	24.7	63.0	14.7	14.7	25.7	0.0	23.6	22.3	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		974			541			302			23	
Approach Delay, s/veh		24.6			16.8			25.1			22.3	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.6	61.2		50.2		67.8		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	3.6	25.3		6.5		11.1		14.1				
Green Ext Time (p_c), s	0.0	6.3		0.1		3.1		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	809	12	56	497	6	37
Future Vol, veh/h	809	12	56	497	6	37
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	879	13	61	540	7	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	894	0	1280	448
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	392	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	755	-	158	558
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	754	-	145	557
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	145	557	-	-	754	-
HCM Lane V/C Ratio	0.045	0.072	-	-	0.081	-
HCM Control Delay (s)	31	12	-	-	10.2	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	740	71	273	594	46	89	6	301	24	9	17
Future Volume (veh/h)	46	740	71	273	594	46	89	6	301	24	9	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	779	75	287	625	48	94	6	317	25	9	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	1476	142	261	1865	143	396	9	490	124	48	73
Arrive On Green	0.04	0.45	0.45	0.15	0.56	0.56	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3256	313	1781	3331	255	1377	29	1531	278	151	227
Grp Volume(v), veh/h	48	425	429	287	333	340	94	0	323	52	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1793	1781	1777	1809	1377	0	1560	656	0	0
Q Serve(g_s), s	4.0	25.8	25.8	22.0	15.2	15.3	0.0	0.0	26.6	2.3	0.0	0.0
Cycle Q Clear(g_c), s	4.0	25.8	25.8	22.0	15.2	15.3	11.9	0.0	26.6	29.0	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.14	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	71	806	813	261	995	1013	396	0	499	245	0	0
V/C Ratio(X)	0.67	0.53	0.53	1.10	0.33	0.34	0.24	0.00	0.65	0.21	0.00	0.00
Avail Cap(c_a), veh/h	131	806	813	261	995	1013	396	0	499	245	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	29.5	29.5	64.0	17.9	17.9	38.7	0.0	43.7	43.2	0.0	0.0
Incr Delay (d2), s/veh	4.1	2.5	2.4	84.6	0.2	0.2	1.4	0.0	6.4	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.7	11.8	16.1	6.4	6.5	2.8	0.0	11.2	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.1	31.9	31.9	148.6	18.1	18.1	40.1	0.0	50.1	45.2	0.0	0.0
LnGrp LOS	E	C	C	F	B	B	D	A	D	D	A	A
Approach Vol, veh/h		902			960			417			52	
Approach Delay, s/veh		34.2			57.1			47.9			45.2	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.0	72.0		52.0	10.0	88.0		52.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	22.0	68.0		48.0	11.0	79.0		48.0				
Max Q Clear Time (g_c+I1), s	24.0	27.8		31.0	6.0	17.3		28.6				
Green Ext Time (p_c), s	0.0	6.8		0.1	0.0	4.9		1.5				

Intersection Summary		
HCM 6th Ctrl Delay		46.3
HCM 6th LOS		D

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2025 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	518	254	335	330	326	225	566	168	507	984	336
Future Volume (veh/h)	285	518	254	335	330	326	225	566	168	507	984	336
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	300	545	207	353	347	164	237	596	123	534	1036	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	648	245	409	646	299	276	1483	300	576	2231	683
Arrive On Green	0.10	0.26	0.25	0.12	0.28	0.27	0.16	0.70	0.68	0.17	0.44	0.44
Sat Flow, veh/h	3456	2502	947	3456	2337	1081	3456	4233	856	3456	5106	1562
Grp Volume(v), veh/h	300	386	366	353	262	249	237	477	242	534	1036	86
Grp Sat Flow(s),veh/h/ln	1728	1777	1672	1728	1777	1641	1728	1702	1684	1728	1702	1562
Q Serve(g_s), s	12.8	30.9	31.1	15.0	18.8	19.5	10.0	8.7	9.3	22.8	21.5	4.9
Cycle Q Clear(g_c), s	12.8	30.9	31.1	15.0	18.8	19.5	10.0	8.7	9.3	22.8	21.5	4.9
Prop In Lane	1.00		0.57	1.00		0.66	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	357	460	433	409	491	454	276	1192	590	576	2231	683
V/C Ratio(X)	0.84	0.84	0.84	0.86	0.53	0.55	0.86	0.40	0.41	0.93	0.46	0.13
Avail Cap(c_a), veh/h	484	610	574	488	617	570	276	1192	590	576	2231	683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.0	52.6	53.0	64.9	46.1	46.7	62.2	15.9	16.5	61.6	29.8	25.2
Incr Delay (d2), s/veh	6.0	6.7	7.3	11.5	1.8	2.0	19.5	0.9	1.9	21.0	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	14.7	14.0	7.3	8.6	8.3	4.8	3.0	3.3	11.7	9.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	59.3	60.3	76.5	47.8	48.7	81.6	16.8	18.3	82.6	30.5	25.5
LnGrp LOS	E	E	E	E	D	D	F	B	B	F	C	C
Approach Vol, veh/h		1052			864			956			1656	
Approach Delay, s/veh		63.3			59.8			33.2			47.1	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	56.4	21.7	42.8	16.0	69.4	19.5	45.1
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	24.6	35.1	20.8	50.6	11.6	* 48	20.6	50.8
Max Q Clear Time (g_c+I1), s	24.8	11.3	17.0	33.1	12.0	23.5	14.8	21.5
Green Ext Time (p_c), s	0.0	8.1	0.3	4.8	0.0	13.7	0.3	6.2

Intersection Summary	
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2025 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	198	290	314	304	476	195	394	637	411	1002	66
Future Volume (veh/h)	24	198	290	314	304	476	195	394	637	411	1002	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	204	0	324	313	491	201	406	0	424	1033	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	854		375	620	515	258	1475		438	1660	724
Arrive On Green	0.02	0.24	0.00	0.11	0.33	0.33	0.07	0.42	0.00	0.25	0.93	0.93
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1550
Grp Volume(v), veh/h	25	204	0	324	313	491	201	406	0	424	1033	10
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1550
Q Serve(g_s), s	2.1	6.9	0.0	13.8	20.2	46.3	8.6	11.3	0.0	18.2	6.9	0.1
Cycle Q Clear(g_c), s	2.1	6.9	0.0	13.8	20.2	46.3	8.6	11.3	0.0	18.2	6.9	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	854		375	620	515	258	1475		438	1660	724
V/C Ratio(X)	0.69	0.24		0.86	0.51	0.95	0.78	0.28		0.97	0.62	0.01
Avail Cap(c_a), veh/h	144	1066		392	622	517	461	1475		438	1660	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.56	0.56	0.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	73.0	45.9	0.0	65.8	40.3	49.0	68.2	29.0	0.0	55.7	2.9	2.6
Incr Delay (d2), s/veh	8.4	0.1	0.0	16.3	0.3	27.8	1.1	0.3	0.0	30.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	0.0	7.0	9.4	21.9	3.8	5.0	0.0	8.9	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.4	46.1	0.0	82.1	40.5	76.8	69.3	29.2	0.0	85.8	4.2	2.7
LnGrp LOS	F	D		F	D	E	E	C		F	A	A
Approach Vol, veh/h		229	A		1128			607	A		1467	
Approach Delay, s/veh		49.9			68.2			42.5			27.8	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	66.3	20.3	40.4	15.2	74.0	7.1	53.7
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	18.6	52.1	16.6	* 44	19.6	51.1	11.7	48.6
Max Q Clear Time (g_c+I1), s	20.2	13.3	15.8	8.9	10.6	8.9	4.1	48.3
Green Ext Time (p_c), s	0.0	1.9	0.1	1.4	0.2	15.8	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2025 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	0	412	0	0	0	0	588	377	929	500	0
Future Volume (vph)	667	0	412	0	0	0	0	588	377	929	500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3310	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3310	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	702	0	434	0	0	0	0	619	397	978	526	0
RTOR Reduction (vph)	0	0	345	0	0	0	0	0	254	0	0	0
Lane Group Flow (vph)	702	0	89	0	0	0	0	619	143	489	1015	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	23.9		23.9					43.9	43.9	38.9	38.9	
Effective Green, g (s)	25.5		25.5					44.9	44.9	40.5	40.5	
Actuated g/C Ratio	0.20		0.20					0.36	0.36	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	700		322					1271	568	521	1072	
v/s Ratio Prot	c0.20							c0.17		0.30	c0.31	
v/s Ratio Perm			0.06						0.09			
v/c Ratio	1.00		0.27					0.49	0.25	0.94	0.95	
Uniform Delay, d1	49.8		42.0					31.1	28.2	41.0	41.2	
Progression Factor	1.00		1.00					0.35	0.20	1.00	1.00	
Incremental Delay, d2	34.7		2.1					0.1	0.1	25.0	16.3	
Delay (s)	84.5		44.1					11.1	5.6	66.0	57.5	
Level of Service	F		D					B	A	E	E	
Approach Delay (s)		69.0			0.0			9.0			60.3	
Approach LOS		E			A			A			E	

Intersection Summary				
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2025 PM
02/27/2020

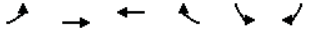


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	607	96	7	5	84	330	7	30	13	467	29	383
Future Volume (vph)	607	96	7	5	84	330	7	30	13	467	29	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3260			3529	1583		1779		1681	1695	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3260			3529	1583		1779		1681	1695	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	674	107	8	6	93	367	8	33	14	519	32	426
RTOR Reduction (vph)	0	1	0	0	0	50	0	9	0	0	0	227
Lane Group Flow (vph)	337	451	0	0	99	317	0	46	0	275	276	199
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	21.8	21.8			16.0	72.9		5.9		56.9	56.9	56.9
Effective Green, g (s)	23.4	23.4			17.6	72.9		7.4		58.5	58.5	58.5
Actuated g/C Ratio	0.19	0.19			0.14	0.58		0.06		0.47	0.47	0.47
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	301	610			496	923		105		786	793	740
v/s Ratio Prot	c0.21	0.14			0.03	c0.16		c0.03		c0.16	0.16	
v/s Ratio Perm						0.04						0.13
v/c Ratio	1.12	1.07dl			0.20	0.34		0.43		0.35	0.35	0.27
Uniform Delay, d1	50.8	47.9			47.5	13.6		56.8		21.2	21.1	20.2
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.47	0.47	0.37
Incremental Delay, d2	88.0	7.9			0.9	1.0		12.5		0.7	0.7	0.5
Delay (s)	138.8	55.8			48.4	14.6		69.3		10.6	10.6	8.1
Level of Service	F	E			D	B		E		B	B	A
Approach Delay (s)		91.3			21.8			69.3			9.5	
Approach LOS		F			C			E			A	

Intersection Summary				
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	54.1%	ICU Level of Service	A	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	689	397	457	181	361	94
Future Volume (veh/h)	689	397	457	181	361	94
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	733	422	486	0	384	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	753	1505	1252		469	869
Arrive On Green	0.42	0.80	0.35	0.00	0.14	0.13
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	733	422	486	0	384	14
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	54.2	7.6	13.8	0.0	14.5	0.5
Cycle Q Clear(g_c), s	54.2	7.6	13.8	0.0	14.5	0.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	753	1505	1252		469	869
V/C Ratio(X)	0.97	0.28	0.39		0.82	0.02
Avail Cap(c_a), veh/h	969	1505	1252		618	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	3.3	32.6	0.0	56.4	13.8
Incr Delay (d2), s/veh	18.9	0.5	0.9	0.0	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.2	2.6	6.1	0.0	6.7	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.9	3.8	33.5	0.0	61.4	13.8
LnGrp LOS	E	A	C		E	B
Approach Vol, veh/h		1155	486	A	398	
Approach Delay, s/veh		37.5	33.5		59.7	
Approach LOS		D	C		E	

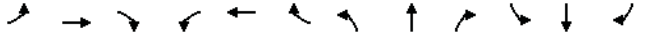
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		22.2	60.7	51.3
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.0		22.5	* 73	30.0
Max Q Clear Time (g_c+I1), s		9.6		16.5	56.2	15.8
Green Ext Time (p_c), s		1.8		0.2	0.3	1.9

Intersection Summary		
HCM 6th Ctrl Delay		40.9
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

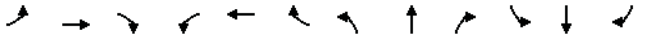
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	5	26	49	298	36	21	72	22	283	8	50	6
Future Volume (vph)	5	26	49	298	36	21	72	22	283	8	50	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	28	53	324	39	23	78	24	308	9	54	7

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	86	324	62	410	70
Volume Left (vph)	5	324	0	78	9
Volume Right (vph)	53	0	23	308	7
Hadj (s)	-0.32	0.53	-0.23	-0.38	0.00
Departure Headway (s)	5.7	6.5	5.7	5.0	6.0
Degree Utilization, x	0.14	0.58	0.10	0.57	0.12
Capacity (veh/h)	557	534	602	678	532
Control Delay (s)	9.6	16.9	8.1	14.6	9.8
Approach Delay (s)	9.6	15.5		14.6	9.8
Approach LOS	A	C		B	A

Intersection Summary				
Delay	14.1			
Level of Service	B			
Intersection Capacity Utilization	59.1%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	0	143	0	477	106	0	0	0	0	174	218
Future Volume (veh/h)	266	0	143	0	477	106	0	0	0	0	174	218
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	313	0	0	0	561	125				0	205	256
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85				0.85	0.85	0.85
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	432	0		0	1608	717				0	0	0
Arrive On Green	0.24	0.00	0.00	0.00	0.45	0.45				0.00	0.14	0.14
Sat Flow, veh/h	1781	313		0	3647	1585					0	
Grp Volume(v), veh/h	313	8.3		0	561	125					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	3.4			0.0	2.2	1.0						
Cycle Q Clear(g_c), s	3.4			0.0	2.2	1.0						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	432			0	1608	717						
V/C Ratio(X)	0.72			0.00	0.35	0.17						
Avail Cap(c_a), veh/h	1546			0	2501	1115						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	7.4			0.0	3.8	3.5						
Incr Delay (d2), s/veh	0.9			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.7			0.0	0.1	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3			0.0	3.9	3.6						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					686							
Approach Delay, s/veh					3.9							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.7	11.6				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							18.0	12.0				
Max Q Clear Time (g_c+I1), s							5.4	4.2				
Green Ext Time (p_c), s							0.1	2.6				

Intersection Summary												
HCM 6th Ctrl Delay			5.2									
HCM 6th LOS			A									

Notes

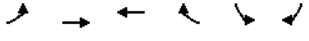
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	74.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	360	20	383	135	10	161	5	587	5	5	5
Future Vol, veh/h	5	360	20	383	135	10	161	5	587	5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	387	22	412	145	11	173	5	631	5	5	5
Number of Lanes	0	1	1	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	43.1	46.4	111	13.6
HCM LOS	E	E	F	B

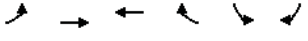
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	97%	0%	1%	0%	100%	0%	33%
Vol Thru, %	3%	0%	99%	0%	0%	93%	33%
Vol Right, %	0%	100%	0%	100%	0%	7%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	587	365	20	383	145	15
LT Vol	161	0	5	0	383	0	5
Through Vol	5	0	360	0	0	135	5
RT Vol	0	587	0	20	0	10	5
Lane Flow Rate	178	631	392	22	412	156	16
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.405	1.218	0.86	0.043	0.931	0.329	0.043
Departure Headway (Hd)	8.163	6.946	8.45	7.715	8.714	8.145	10.164
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	441	524	432	467	420	444	354
Service Time	5.912	4.694	6.15	5.415	6.414	5.845	8.164
HCM Lane V/C Ratio	0.404	1.204	0.907	0.047	0.981	0.351	0.045
HCM Control Delay	16.4	137.7	44.9	10.8	58.3	14.8	13.6
HCM Lane LOS	C	F	E	B	F	B	B
HCM 95th-tile Q	1.9	23.9	8.6	0.1	10.4	1.4	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	419	574	310	159	232	231
Future Volume (veh/h)	419	574	310	159	232	231
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	446	611	330	169	247	246
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	523	1184	490	414	379	337
Arrive On Green	0.29	0.63	0.26	0.26	0.21	0.21
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	446	611	330	169	247	246
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	12.2	9.2	8.2	4.6	6.6	7.5
Cycle Q Clear(g_c), s	12.2	9.2	8.2	4.6	6.6	7.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	523	1184	490	414	379	337
V/C Ratio(X)	0.85	0.52	0.67	0.41	0.65	0.73
Avail Cap(c_a), veh/h	962	1876	721	609	687	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	5.2	17.1	15.8	18.6	19.0
Incr Delay (d2), s/veh	1.6	0.3	2.2	0.9	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	2.3	3.4	1.6	2.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	5.5	19.4	16.7	19.4	20.2
LnGrp LOS	B	A	B	B	B	C
Approach Vol, veh/h		1057	499		493	
Approach Delay, s/veh		11.1	18.5		19.8	
Approach LOS		B	B		B	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	36.8		15.0	19.2	17.6
Change Period (Y+Rc), s	4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s	51.1		19.1	27.6	19.1
Max Q Clear Time (g_c+I1), s	11.2		9.5	14.2	10.2
Green Ext Time (p_c), s	4.4		0.6	0.6	2.3

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	304	548	73	93	176	564
Future Volume (veh/h)	304	548	73	93	176	564
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	320	577	77	98	185	594
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	420	1234	362	461	450	705
Arrive On Green	0.12	0.66	0.49	0.48	0.25	0.25
Sat Flow, veh/h	3456	1870	733	932	1781	2790
Grp Volume(v), veh/h	320	577	0	175	185	594
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1665	1781	1395
Q Serve(g_s), s	8.2	13.8	0.0	5.5	7.9	18.4
Cycle Q Clear(g_c), s	8.2	13.8	0.0	5.5	7.9	18.4
Prop In Lane	1.00			0.56	1.00	1.00
Lane Grp Cap(c), veh/h	420	1234	0	823	450	705
V/C Ratio(X)	0.76	0.47	0.00	0.21	0.41	0.84
Avail Cap(c_a), veh/h	911	1499	0	823	958	1501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	7.6	0.0	13.2	28.4	32.3
Incr Delay (d2), s/veh	1.1	0.1	0.0	0.6	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.8	0.0	2.1	3.3	13.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.8	7.7	0.0	13.8	28.6	33.4
LnGrp LOS	D	A	A	B	C	C
Approach Vol, veh/h		897	175		779	
Approach Delay, s/veh		19.2	13.8		32.3	
Approach LOS		B	B		C	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	64.1		27.0	15.1	49.0
Change Period (Y+Rc), s	4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s	72.1		48.1	23.6	44.1
Max Q Clear Time (g_c+I1), s	15.8		20.4	10.2	7.5
Green Ext Time (p_c), s	2.7		1.7	0.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	108.7
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	549	381	208	775	154	41
Future Vol, veh/h	549	381	208	775	154	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	610	423	231	861	171	46
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	120.7	115	19.9
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	549	191	191	104	104	775	154	41
LT Vol	549	0	0	0	0	0	154	0
Through Vol	0	191	191	104	104	0	0	0
RT Vol	0	0	0	0	0	775	0	41
Lane Flow Rate	610	212	212	116	116	861	171	46
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	1.346	0.438	0.336	0.245	0.245	1.245	0.455	0.106
Departure Headway (Hd)	8.395	7.883	6.108	8.164	8.164	5.672	10.509	9.275
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	439	459	593	443	443	646	346	389
Service Time	6.095	5.583	3.808	5.864	5.864	3.372	8.209	6.975
HCM Lane V/C Ratio	1.39	0.462	0.358	0.262	0.262	1.333	0.494	0.118
HCM Control Delay	194.5	16.6	11.9	13.5	13.5	142.3	21.7	13.1
HCM Lane LOS	F	C	B	B	B	F	C	B
HCM 95th-tile Q	26.7	2.2	1.5	1	1	29.5	2.3	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	329	103	236	665	456	284
Future Volume (veh/h)	329	103	236	665	456	284
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	350	110	251	707	485	302
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	445	140	293	1016	628	559
Arrive On Green	0.33	0.31	0.16	0.54	0.35	0.35
Sat Flow, veh/h	1364	429	1781	1870	1781	1585
Grp Volume(v), veh/h	0	460	251	707	485	302
Grp Sat Flow(s),veh/h/ln	0	1793	1781	1870	1781	1585
Q Serve(g_s), s	0.0	17.8	10.5	21.3	18.6	11.7
Cycle Q Clear(g_c), s	0.0	17.8	10.5	21.3	18.6	11.7
Prop In Lane		0.24	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	585	293	1016	628	559
V/C Ratio(X)	0.00	0.79	0.86	0.70	0.77	0.54
Avail Cap(c_a), veh/h	0	585	372	1099	628	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.5	31.1	12.9	22.1	19.8
Incr Delay (d2), s/veh	0.0	10.2	13.4	1.9	9.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.8	5.4	8.3	8.8	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	33.7	44.5	14.8	31.0	23.6
LnGrp LOS	A	C	D	B	C	C
Approach Vol, veh/h	460			958	787	
Approach Delay, s/veh	33.7			22.6	28.2	
Approach LOS	C			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	16.6	29.0				45.6	31.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0				44.0	27.0
Max Q Clear Time (g_c+I1), s	12.5	19.8				23.3	20.6
Green Ext Time (p_c), s	0.2	1.3				6.4	1.2

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

APPENDIX O

NEAR-TERM (OPENING DAY 2025) FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4290	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1129
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6370	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2283
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6210	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1307
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9270	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1972
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1692
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9440	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1987
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6560	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1396
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9740	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1691
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6680	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1452
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9920	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2067
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	46.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7050	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1500
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10470	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2159
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9730	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2138
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.5
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7500	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1579
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1753
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7210	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1265
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10290	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2189
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7990	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2081
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8630	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3093
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6700	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1176
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2463
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2025 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7270	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2498
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.10
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1689
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5320	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1887
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9200	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1917
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7710	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1606
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9410	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2400
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7890	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1644
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9710	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2002
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8140	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1413
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9890	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2039
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.4
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8290	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1727
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10440	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2153
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8750	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1823
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8680	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1908
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2136
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1496
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9970	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1713
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.3
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8080	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1683
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8570	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2209
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6770	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2303
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7180	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1301
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7340	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1892
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2025 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7790	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2677
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX P

NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I INTERSECTION ANALYSIS CALCULATION SHEETS



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	615	418	1318	475	193	815
Future Volume (veh/h)	615	418	1318	475	193	815
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	647	174	1387	82	203	858
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	754	335	1951	1158	275	2339
Arrive On Green	0.21	0.21	0.53	0.53	0.08	0.66
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647
Grp Volume(v), veh/h	647	174	1387	82	203	858
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777
Q Serve(g_s), s	16.6	9.2	27.1	1.4	5.5	10.3
Cycle Q Clear(g_c), s	16.6	9.2	27.1	1.4	5.5	10.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	754	335	1951	1158	275	2339
V/C Ratio(X)	0.86	0.52	0.71	0.07	0.74	0.37
Avail Cap(c_a), veh/h	1566	697	3076	1632	422	3610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	33.2	16.7	3.3	42.8	7.3
Incr Delay (d2), s/veh	1.1	0.5	0.7	0.0	1.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	3.4	10.0	0.8	2.4	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.3	33.7	17.4	3.3	44.3	7.6
LnGrp LOS	D	C	B	A	D	A
Approach Vol, veh/h	821		1469			1061
Approach Delay, s/veh	36.5		16.6			14.6
Approach LOS	D		B			B

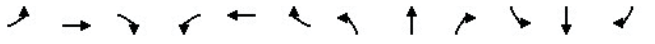
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.0	56.8				68.8	26.3
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	11.6	79.8				* 97	41.8
Max Q Clear Time (g_c+I1), s	7.5	29.1				12.3	18.6
Green Ext Time (p_c), s	0.1	21.5				17.9	1.5

Intersection Summary			
HCM 6th Ctrl Delay		20.9	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	52	92	45	135	120	204	1234	112	137	772	182
Future Volume (veh/h)	58	52	92	45	135	120	204	1234	112	137	772	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	58	102	50	150	133	227	1371	124	152	858	202
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	194	155	64	205	161	288	2216	1023	148	2215	1024
Arrive On Green	0.03	0.10	0.10	0.04	0.11	0.11	0.08	0.62	0.62	0.08	0.62	0.62
Sat Flow, veh/h	3456	1870	1495	1781	1870	1473	3456	3554	1549	1781	3554	1565
Grp Volume(v), veh/h	64	58	102	50	150	133	227	1371	124	152	858	202
Grp Sat Flow(s),veh/h/ln	1728	1870	1495	1781	1870	1473	1728	1777	1549	1781	1777	1565
Q Serve(g_s), s	2.3	3.7	8.4	3.6	9.9	11.3	8.2	30.2	3.8	10.6	15.3	6.6
Cycle Q Clear(g_c), s	2.3	3.7	8.4	3.6	9.9	11.3	8.2	30.2	3.8	10.6	15.3	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	194	155	64	205	161	288	2216	1023	148	2215	1024
V/C Ratio(X)	0.60	0.30	0.66	0.78	0.73	0.82	0.79	0.62	0.12	1.03	0.39	0.20
Avail Cap(c_a), veh/h	295	454	363	132	427	336	935	2216	1023	148	2215	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	53.0	55.1	61.1	55.1	55.7	57.5	14.7	8.0	58.6	12.0	8.8
Incr Delay (d2), s/veh	2.0	0.8	4.6	7.2	1.9	4.0	1.8	1.3	0.2	81.9	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.8	3.4	1.7	4.8	4.4	3.7	12.1	1.3	8.1	6.1	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	53.8	59.7	68.3	57.0	59.7	59.3	16.1	8.3	140.5	12.5	9.2
LnGrp LOS	E	D	E	E	E	E	E	B	A	F	B	A
Approach Vol, veh/h		224			333			1722			1212	
Approach Delay, s/veh		59.2			59.8			21.2			28.0	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	85.0	9.0	18.8	15.0	85.0	8.3	19.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	10.6	79.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	12.6	32.2	5.6	10.4	10.2	17.3	4.3	13.3
Green Ext Time (p_c), s	0.0	26.2	0.0	0.6	0.4	13.1	0.0	0.7

Intersection Summary			
HCM 6th Ctrl Delay		29.7	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1664	1	381	288	0	0	0	0	328	5	828
Future Volume (veh/h)	0	1664	1	381	288	0	0	0	0	328	5	828
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1733	-20	397	300	0				342	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1875	811	462	2378	0				469	7	
Arrive On Green	0.00	0.51	0.00	0.13	0.67	0.00				0.27	0.27	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1757	26	1585
Grp Volume(v), veh/h	0	1733	-20	397	300	0				347	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	65.7	0.0	16.4	4.6	0.0				26.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	65.7	0.0	16.4	4.6	0.0				26.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.99		1.00
Lane Grp Cap(c), veh/h	0	1875	811	462	2378	0				476	0	
V/C Ratio(X)	0.00	0.92	-0.02	0.86	0.13	0.00				0.73	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				476	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.9	0.0	63.9	9.0	0.0				50.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.9	0.0	0.7	0.0	0.0				4.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	30.5	0.0	7.5	1.8	0.0				12.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.9	0.0	64.7	9.0	0.0				55.0	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				E	A	
Approach Vol, veh/h		1713			697						347	A
Approach Delay, s/veh		41.3			40.7						55.0	
Approach LOS		D			D						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.6	81.7		44.6		105.4						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0						
Max Q Clear Time (g_c+I1), s	18.4	67.7		28.6		6.6						
Green Ext Time (p_c), s	1.1	9.1		0.0		1.4						

Intersection Summary			
HCM 6th Ctrl Delay			42.9
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1304	667	0	0	573	572	91	29	290	0	0	0
Future Volume (veh/h)	1304	667	0	0	573	572	91	29	290	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1373	702	0	0	603	463	96	31	152			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1341	2647	0	0	603	463	210	68	244			
Arrive On Green	0.39	0.75	0.00	0.00	0.31	0.31	0.15	0.15	0.15			
Sat Flow, veh/h	3456	3647	0	0	2008	1468	1362	440	1585			
Grp Volume(v), veh/h	1373	702	0	0	560	506	127	0	152			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1606	1802	0	1585			
Q Serve(g_s), s	38.8	6.3	0.0	0.0	31.5	31.5	6.4	0.0	9.0			
Cycle Q Clear(g_c), s	38.8	6.3	0.0	0.0	31.5	31.5	6.4	0.0	9.0			
Prop In Lane	1.00		0.00	0.00		0.91	0.76		1.00			
Lane Grp Cap(c), veh/h	1341	2647	0	0	560	506	278	0	244			
V/C Ratio(X)	1.02	0.27	0.00	0.00	1.00	1.00	0.46	0.00	0.62			
Avail Cap(c_a), veh/h	1341	2647	0	0	560	506	278	0	244			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.39	0.39	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	30.6	4.1	0.0	0.0	34.2	34.3	38.5	0.0	39.6			
Incr Delay (d2), s/veh	21.8	0.0	0.0	0.0	38.0	40.3	0.4	0.0	3.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	19.5	1.8	0.0	0.0	19.1	17.6	2.8	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	4.1	0.0	0.0	72.2	74.5	38.9	0.0	43.2			
LnGrp LOS	F	A	A	A	E	F	D	A	D			
Approach Vol, veh/h		2075			1066			279				
Approach Delay, s/veh		36.1			73.3			41.3				
Approach LOS		D			E			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		80.0		20.0	43.0	37.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		74.5		15.4	* 39	31.5						
Max Q Clear Time (g_c+I1), s		8.3		11.0	40.8	33.5						
Green Ext Time (p_c), s		3.6		0.2	0.0	0.0						

Intersection Summary			
HCM 6th Ctrl Delay			48.1
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	545	86	179	850	23	321	29	292	40	36	61
Future Volume (veh/h)	29	545	86	179	850	23	321	29	292	40	36	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	606	96	199	944	26	357	32	324	44	40	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	1444	616	223	1793	49	377	550	655	57	214	175
Arrive On Green	0.02	0.41	0.41	0.12	0.51	0.51	0.21	0.29	0.29	0.03	0.11	0.11
Sat Flow, veh/h	1781	3554	1516	1781	3529	97	1781	1870	1554	1781	1870	1535
Grp Volume(v), veh/h	32	606	96	199	475	495	357	32	324	44	40	68
Grp Sat Flow(s),veh/h/ln	1781	1777	1516	1781	1777	1849	1781	1870	1554	1781	1870	1535
Q Serve(g_s), s	2.6	17.7	5.8	16.0	26.0	26.0	28.6	1.8	22.2	3.6	2.8	6.0
Cycle Q Clear(g_c), s	2.6	17.7	5.8	16.0	26.0	26.0	28.6	1.8	22.2	3.6	2.8	6.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	41	1444	616	223	903	940	377	550	655	57	214	175
V/C Ratio(X)	0.78	0.42	0.16	0.89	0.53	0.53	0.95	0.06	0.49	0.78	0.19	0.39
Avail Cap(c_a), veh/h	106	1444	616	314	903	940	389	654	742	82	335	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	30.8	27.3	62.5	23.9	23.9	56.3	36.7	30.9	69.7	58.1	59.5
Incr Delay (d2), s/veh	11.4	0.9	0.5	16.5	2.2	2.1	31.0	0.0	0.2	13.9	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.9	2.2	8.3	11.5	12.0	16.1	0.8	8.4	1.8	1.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.8	31.7	27.8	78.9	26.1	26.0	87.3	36.8	31.1	83.6	58.3	60.0
LnGrp LOS	F	C	C	E	C	C	F	D	C	F	E	E
Approach Vol, veh/h		734			1169			713			152	
Approach Delay, s/veh		33.4			35.1			59.5			66.4	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	65.6	35.1	21.8	7.7	80.4	9.0	47.9
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 42	31.7	* 26	8.6	58.3	6.7	50.7
Max Q Clear Time (g_c+I1), s	18.0	19.7	30.6	8.0	4.6	28.0	5.6	24.2
Green Ext Time (p_c), s	0.2	3.1	0.1	0.2	0.0	4.7	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	137	7	7	982	536	0	0	17	102	5	263
Future Volume (vph)	334	137	7	7	982	536	0	0	17	102	5	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		0.99	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3507		1750	3331				1516	1681	1694	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3507		1750	3331				1516	1681	1694	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	371	152	8	8	1091	596	0	0	19	113	6	292
RTOR Reduction (vph)	0	2	0	0	45	0	0	0	19	0	0	163
Lane Group Flow (vph)	371	158	0	8	1642	0	0	0	0	60	59	129
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	16.0	83.3		0.8	68.1				2.1	30.0	30.0	46.0
Effective Green, g (s)	16.0	83.3		0.8	68.1				2.1	30.0	30.0	46.0
Actuated g/C Ratio	0.12	0.62		0.01	0.51				0.02	0.22	0.22	0.34
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	407	2167		10	1682				23	374	377	535
v/s Ratio Prot	c0.11	0.04		0.00	c0.49					0.04	0.03	c0.03
v/s Ratio Perm									c0.00			0.05
v/c Ratio	0.91	0.07		0.80	0.98				0.01	0.16	0.16	0.24
Uniform Delay, d1	58.7	10.3		66.9	32.6				65.3	42.2	42.2	31.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	23.9	0.0		163.6	17.0				0.2	0.9	0.9	0.1
Delay (s)	82.6	10.3		230.5	49.5				65.6	43.2	43.1	31.9
Level of Service	F	B		F	D				E	D	D	C
Approach Delay (s)		60.8			50.4			65.6			35.2	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	134.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	256	437	1053	966	300	100
Future Volume (vph)	256	437	1053	966	300	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1536	3427	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1536	3427	1417
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	269	460	1108	1017	316	105
RTOR Reduction (vph)	0	0	0	315	2	73
Lane Group Flow (vph)	269	460	1108	702	325	21
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	16.0	75.7	55.7	72.8	17.1	17.1
Effective Green, g (s)	16.0	75.7	55.7	72.8	17.1	17.1
Actuated g/C Ratio	0.13	0.62	0.46	0.60	0.14	0.14
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	231	2192	1613	915	479	198
v/s Ratio Prot	c0.15	0.13	0.31	c0.11	0.09	
v/s Ratio Perm				0.35		0.01
v/c Ratio	1.16	0.21	0.69	0.77	0.68	0.11
Uniform Delay, d1	53.1	10.2	26.3	18.4	49.9	45.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	110.9	0.1	2.4	4.6	5.0	0.5
Delay (s)	164.0	10.3	28.7	23.0	54.9	46.4
Level of Service	F	B	C	C	D	D
Approach Delay (s)		67.0	26.0		53.0	
Approach LOS		E	C		D	

Intersection Summary				
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	18.9	
Intersection Capacity Utilization	83.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	576	22	16	2018	114	62	6	39	70	6	38
Future Volume (veh/h)	53	576	22	16	2018	114	62	6	39	70	6	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	606	17	17	2124	112	65	6	-22	74	6	-16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	1951	55	122	1994	104	265	19	184	0	0	593
Arrive On Green	0.04	0.55	0.55	0.07	0.58	0.58	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3526	99	1781	3433	179	1264	168	1585	1393	1870	0
Grp Volume(v), veh/h	56	305	318	17	1089	1147	71	0	-22	74	-10	-10
Grp Sat Flow(s),veh/h/ln	1781	1777	1848	1781	1777	1836	1431	0	1585	1393	1870	1585
Q Serve(g_s), s	1.8	5.4	5.4	0.5	33.9	33.9	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	5.4	5.4	0.5	33.9	33.9	2.7	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.10	0.92		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	73	983	1023	122	1032	1066	284	0	184	0	0	0
V/C Ratio(X)	0.77	0.31	0.31	0.14	1.06	1.08	0.25	0.00	-0.12	0.00	0.00	0.00
Avail Cap(c_a), veh/h	1422	983	1023	1422	1032	1066	1483	0	1523	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	27.7	7.0	7.0	25.6	12.2	12.2	24.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.8	0.8	0.2	43.9	50.2	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.6	1.6	0.2	20.6	23.1	0.9	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	7.9	7.8	25.8	56.1	62.5	24.1	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	F	F	C	A	A	A	A	A
Approach Vol, veh/h		679			2253			49			54	
Approach Delay, s/veh		10.0			59.1			34.9			0.0	
Approach LOS		A			E			C			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	38.3		11.7	6.8	39.9		11.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	46.6	* 32		56.1	46.6	32.0		56.1				
Max Q Clear Time (g_c+I1), s	2.5	7.4		2.0	3.8	35.9		4.7				
Green Ext Time (p_c), s	0.0	8.9		0.1	0.1	0.0		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	46.7	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	659	1183	38	44	31
Future Vol, veh/h	46	659	1183	38	44	31
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	716	1286	41	48	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1364	0	-	0	1802	701
Stage 1	-	-	-	-	1344	-
Stage 2	-	-	-	-	458	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	500	-	-	-	71	381
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	604	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	485	-	-	-	60	369
Mov Cap-2 Maneuver	-	-	-	-	143	-
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	585	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	37.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	485	-	-	-	191
HCM Lane V/C Ratio	0.103	-	-	-	0.427
HCM Control Delay (s)	13.3	-	-	-	37.2
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	2

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	674	30	0	1221	0	49
Future Vol, veh/h	674	30	0	1221	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	733	33	0	1327	0	53

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	383
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	615
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	615
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	615	-	-	-
HCM Lane V/C Ratio	0.087	-	-	-
HCM Control Delay (s)	11.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2025 + P1 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	532	33	72	1870	582	111	42	153	199	20	135
Future Volume (veh/h)	146	532	33	72	1870	582	111	42	153	199	20	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	162	591	36	78	2078	476	121	46	166	221	22	22
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	1829	111	98	1879	812	206	41	149	249	25	237
Arrive On Green	0.06	0.54	0.54	0.06	0.53	0.53	0.12	0.12	0.12	0.15	0.15	0.15
Sat Flow, veh/h	1781	3395	206	1781	3554	1536	1781	356	1284	1627	162	1548
Grp Volume(v), veh/h	162	309	318	78	2078	476	121	0	212	243	0	22
Grp Sat Flow(s),veh/h/ln	1781	1777	1825	1781	1777	1536	1781	0	1639	1789	0	1548
Q Serve(g_s), s	8.6	13.4	13.5	6.0	73.1	29.3	8.9	0.0	16.0	18.4	0.0	1.7
Cycle Q Clear(g_c), s	8.6	13.4	13.5	6.0	73.1	29.3	8.9	0.0	16.0	18.4	0.0	1.7
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.78	0.91		1.00
Lane Grp Cap(c), veh/h	111	957	983	98	1879	812	206	0	190	274	0	237
V/C Ratio(X)	1.46	0.32	0.32	0.79	1.11	0.59	0.59	0.00	1.12	0.89	0.00	0.09
Avail Cap(c_a), veh/h	111	957	983	180	1879	812	206	0	190	426	0	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	17.8	17.8	64.5	32.6	22.3	58.0	0.0	61.1	57.4	0.0	50.3
Incr Delay (d2), s/veh	250.6	0.9	0.9	13.2	56.2	3.1	4.3	0.0	100.4	9.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	5.5	5.7	3.0	43.6	10.7	4.3	0.0	12.0	9.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	315.4	18.7	18.7	77.7	88.8	25.3	62.3	0.0	161.5	66.6	0.0	50.4
LnGrp LOS	F	B	B	E	F	C	E	A	F	E	A	D
Approach Vol, veh/h		789			2632			333			265	
Approach Delay, s/veh		79.6			77.0			125.5			65.3	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	80.4		26.3	13.0	79.0		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	14.0	* 68		32.9	8.6	73.1		16.0				
Max Q Clear Time (g_c+I1), s	8.0	15.5		20.4	10.6	75.1		18.0				
Green Ext Time (p_c), s	0.1	2.8		0.8	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			80.7
HCM 6th LOS			F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2025 + P1 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	895	77	139	2167	127	241
Future Volume (veh/h)	895	77	139	2167	127	241
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	973	84	151	2355	138	262
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	2106	182	180	2742	256	231
Arrive On Green	0.64	0.64	0.10	0.77	0.14	0.14
Sat Flow, veh/h	3404	286	1781	3647	1781	1610
Grp Volume(v), veh/h	522	535	151	2355	138	262
Grp Sat Flow(s),veh/h/ln	1777	1819	1781	1777	1781	1610
Q Serve(g_s), s	19.3	19.3	10.6	57.2	9.2	18.3
Cycle Q Clear(g_c), s	19.3	19.3	10.6	57.2	9.2	18.3
Prop In Lane		0.16	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1130	1157	180	2742	256	231
V/C Ratio(X)	0.46	0.46	0.84	0.86	0.54	1.13
Avail Cap(c_a), veh/h	1327	1358	302	3374	256	231
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	11.9	56.3	9.9	50.6	54.5
Incr Delay (d2), s/veh	0.3	0.3	10.1	2.0	2.3	99.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.1	5.2	16.6	4.3	13.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.2	12.2	66.3	11.9	52.9	153.9
LnGrp LOS	B	B	E	B	D	F
Approach Vol, veh/h	1057			2506	400	
Approach Delay, s/veh	12.2			15.2	119.1	
Approach LOS	B			B	F	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	17.2	86.9				104.1	23.2
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	21.6	* 95				120.9	18.3
Max Q Clear Time (g_c+I1), s	12.6	21.3				59.2	20.3
Green Ext Time (p_c), s	0.2	7.8				39.1	0.0

Intersection Summary			
HCM 6th Ctrl Delay			24.9
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2025 + P1 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	822	342	220	1934	9	434	5	94	20	6	6
Future Volume (veh/h)	6	822	342	220	1934	9	434	5	94	20	6	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	913	380	244	2149	10	482	6	104	22	7	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	12	1774	737	229	2043	10	399	4	590	40	13	3
Arrive On Green	0.01	0.50	0.50	0.07	0.56	0.56	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3519	1462	3456	3627	17	1134	14	1574	0	41	10
Grp Volume(v), veh/h	7	883	410	244	1052	1107	488	0	104	36	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1576	1728	1777	1867	1148	0	1574	51	0	0
Q Serve(g_s), s	0.6	25.2	25.3	9.6	81.7	81.7	0.0	0.0	6.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	25.2	25.3	9.6	81.7	81.7	44.7	0.0	6.4	44.7	0.0	0.0
Prop In Lane	1.00		0.93	1.00		0.01	0.99		1.00	0.61		0.19
Lane Grp Cap(c), veh/h	12	1716	795	229	1001	1052	403	0	590	56	0	0
V/C Ratio(X)	0.58	0.51	0.52	1.07	1.05	1.05	1.21	0.00	0.18	0.64	0.00	0.00
Avail Cap(c_a), veh/h	49	1772	821	229	1001	1052	403	0	590	56	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.8	24.1	24.1	67.7	31.6	31.7	52.9	0.0	30.4	53.1	0.0	0.0
Incr Delay (d2), s/veh	15.3	0.2	0.5	38.7	25.7	26.4	115.4	0.0	0.7	45.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	9.9	9.2	5.4	39.3	41.5	28.0	0.0	2.6	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.1	24.3	24.6	106.4	57.4	58.1	168.3	0.0	31.0	98.6	0.0	0.0
LnGrp LOS	F	C	C	F	F	F	F	A	C	F	A	A
Approach Vol, veh/h		1300			2403			592			36	
Approach Delay, s/veh		24.7			62.7			144.2			98.6	
Approach LOS		C			E			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	79.0		49.6	5.4	87.6		49.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	9.6	75.5		44.7	4.0	* 82		44.7				
Max Q Clear Time (g_c+I1), s	11.6	27.3		46.7	2.6	83.7		46.7				
Green Ext Time (p_c), s	0.0	10.5		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	62.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2025 + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	966	17	101	2141	16	6	1	27	64	1	38
Future Volume (veh/h)	21	966	17	101	2141	16	6	1	27	64	1	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.94	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	1050	14	110	2327	17	7	1	4	70	1	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	3718	50	158	2827	1261	81	14	57	97	2	85
Arrive On Green	0.72	0.72	0.72	0.05	0.80	0.80	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	153	5191	69	3456	3554	1585	1781	311	1243	1781	38	1553
Grp Volume(v), veh/h	23	688	376	110	2327	17	7	0	5	70	0	42
Grp Sat Flow(s),veh/h/ln	153	1702	1856	1728	1777	1585	1781	0	1554	1781	0	1591
Q Serve(g_s), s	13.8	9.5	9.5	4.1	51.2	0.3	0.5	0.0	0.4	5.1	0.0	3.4
Cycle Q Clear(g_c), s	54.6	9.5	9.5	4.1	51.2	0.3	0.5	0.0	0.4	5.1	0.0	3.4
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.80	1.00		0.98
Lane Grp Cap(c), veh/h	117	2438	1330	158	2827	1261	81	0	71	97	0	87
V/C Ratio(X)	0.20	0.28	0.28	0.69	0.82	0.01	0.09	0.00	0.07	0.72	0.00	0.48
Avail Cap(c_a), veh/h	117	2438	1330	191	2827	1261	418	0	365	216	0	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	6.7	6.7	62.1	8.0	2.8	60.4	0.0	60.3	61.4	0.0	60.6
Incr Delay (d2), s/veh	3.1	0.2	0.4	5.5	2.9	0.0	0.2	0.0	0.2	9.6	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.0	3.4	1.9	14.5	0.1	0.2	0.0	0.2	2.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	6.9	7.1	67.5	10.9	2.8	60.5	0.0	60.5	71.0	0.0	64.7
LnGrp LOS	C	A	A	E	B	A	E	A	E	E	A	E
Approach Vol, veh/h		1087			2454			12			112	
Approach Delay, s/veh		7.5			13.3			60.5			68.7	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.4	99.9		11.2		110.4		10.4				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.1	56.6		7.1		53.2		2.5				
Green Ext Time (p_c), s	0.0	2.0		0.2		9.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1021	24	191	2225	6	7	4	25	31	4	7
Future Volume (veh/h)	4	1021	24	191	2225	6	7	4	25	31	4	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	1086	26	203	2367	6	7	0	30	33	4	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	3754	90	268	4235	11	138	0	185	145	36	63
Arrive On Green	0.00	0.73	0.73	0.08	0.81	0.81	0.06	0.00	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1781	5127	123	3456	5258	13	1384	0	3122	1360	604	1057
Grp Volume(v), veh/h	4	721	391	203	1532	841	7	0	30	33	0	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1728	1702	1868	1384	0	1561	1360	0	1661
Q Serve(g_s), s	0.3	8.1	8.1	6.4	17.8	17.9	0.5	0.0	1.0	2.6	0.0	0.7
Cycle Q Clear(g_c), s	0.3	8.1	8.1	6.4	17.8	17.9	1.2	0.0	1.0	2.6	0.0	0.7
Prop In Lane	1.00		0.07	1.00		0.01	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	7	2492	1351	268	2741	1504	138	0	185	145	0	98
V/C Ratio(X)	0.54	0.29	0.29	0.76	0.56	0.56	0.05	0.00	0.16	0.23	0.00	0.11
Avail Cap(c_a), veh/h	64	2492	1351	543	2741	1504	427	0	839	430	0	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.7	5.1	5.1	50.6	3.9	3.9	50.5	0.0	50.0	50.8	0.0	49.9
Incr Delay (d2), s/veh	20.5	0.3	0.5	1.7	0.8	1.5	0.1	0.0	0.2	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.6	2.8	3.8	4.5	0.2	0.0	0.4	0.9	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.2	5.4	5.6	52.3	4.7	5.4	50.5	0.0	50.2	51.1	0.0	50.1
LnGrp LOS	E	A	A	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1116			2576			37			44	
Approach Delay, s/veh		5.7			8.7			50.3			50.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.1	87.4		11.5	4.9	95.6		11.5
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9
Max Green Setting (Gmax), s	17.6	49.6		30.1	4.0	* 63		30.1
Max Q Clear Time (g_c+I1), s	8.4	10.1		4.6	2.3	19.9		3.2
Green Ext Time (p_c), s	0.2	10.6		0.1	0.0	32.7		0.0

Intersection Summary		
HCM 6th Ctrl Delay		8.7
HCM 6th LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1061	68	0	2187	0	50
Future Vol, veh/h	1061	68	0	2187	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1179	76	0	2430	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	638
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	359
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	355
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	355	-	-	-
HCM Lane V/C Ratio	0.156	-	-	-
HCM Control Delay (s)	17	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	745	254	558	503
Future Volume (Veh/h)	0	0	745	254	558	503
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	810	276	607	547
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2298	405			1086	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2298	405			1086	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			5	
cM capacity (veh/h)	2	595			638	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	540	362	184	607	274	274
Volume Left	0	0	0	607	0	0
Volume Right	0	92	184	0	0	0
cSH	1700	1700	1700	638	1700	1700
Volume to Capacity	0.32	0.21	0.11	0.95	0.16	0.16
Queue Length 95th (ft)	0	0	0	332	0	0
Control Delay (s)	0.0	0.0	0.0	50.0	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			26.3		
Approach LOS						

Intersection Summary			
Average Delay		13.6	
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	771	296	213	1683	816	563	38	898	380	0	93
Future Volume (veh/h)	70	771	296	213	1683	816	563	38	898	380	0	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	820	0	227	1790	868	599	40	955	404	0	99
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	2507		279	1893	1385	991	480	932	462	193	317
Arrive On Green	0.10	0.39	0.00	0.08	0.37	0.37	0.29	0.26	0.26	0.13	0.00	0.10
Sat Flow, veh/h	3456	6434	1585	3456	5106	2727	3456	1870	2754	3456	1870	1563
Grp Volume(v), veh/h	74	820	0	227	1790	868	599	40	955	404	0	99
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1563
Q Serve(g_s), s	2.9	12.9	0.0	9.4	49.2	33.5	21.7	2.4	37.2	16.6	0.0	7.8
Cycle Q Clear(g_c), s	2.9	12.9	0.0	9.4	49.2	33.5	21.7	2.4	37.2	16.6	0.0	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	2507		279	1893	1385	991	480	932	462	193	317
V/C Ratio(X)	0.22	0.33		0.81	0.95	0.63	0.60	0.08	1.03	0.87	0.00	0.31
Avail Cap(c_a), veh/h	357	2507		405	1893	1385	991	480	932	1392	542	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.3	31.0	0.0	65.6	44.2	26.1	44.6	41.0	48.1	61.6	0.0	49.3
Incr Delay (d2), s/veh	0.1	0.3	0.0	7.8	11.1	2.1	2.7	0.3	36.0	2.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.0	0.0	4.4	22.0	11.3	9.7	1.2	21.4	7.5	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	31.3	0.0	73.4	55.3	28.2	47.3	41.3	84.1	63.7	0.0	49.5
LnGrp LOS	E	C		E	E	C	D	D	F	E	A	D
Approach Vol, veh/h		894	A		2885			1594			503	
Approach Delay, s/veh		33.7			48.6			69.2			60.9	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	63.5	46.2	19.6	18.4	60.8	24.0	41.8
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	17.0	24.2	41.6	42.0	* 15	26.0	58.4	25.2
Max Q Clear Time (g_c+I1), s	11.4	14.9	23.7	9.8	4.9	51.2	18.6	39.2
Green Ext Time (p_c), s	0.3	2.5	1.1	0.2	0.1	0.0	0.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	53.0	
HCM 6th LOS	D	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2025 + P1 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	1491	0	0	1879	856	0	0	0	1127	0	833
Future Volume (veh/h)	559	1491	0	0	1879	856	0	0	0	1127	0	833
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	588	1569	0	0	1978	690				1186	0	877
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	432	9999	0	0	7882	3417				1340	0	1093
Arrive On Green	0.13	1.00	0.00	0.00	1.00	1.00				0.27	0.00	0.27
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	588	1569	0	0	1978	690				1186	0	877
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0				13.6	0.0	16.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0	0.0	0.0	0.0				13.6	0.0	16.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	432	10661	0	0	7882	3417				1340	0	1093
V/C Ratio(X)	1.36	0.15	0.00	0.00	0.25	0.20				0.89	0.00	0.80
Avail Cap(c_a), veh/h	432	10661	0	0	7882	3417				1340	0	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	0.0	0.0	0.0	0.0				21.1	0.0	16.2
Incr Delay (d2), s/veh	176.6	0.0	0.0	0.0	0.1	0.1				8.9	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	0.0	0.0	0.0	0.0	0.1				5.9	0.0	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	202.8	0.0	0.0	0.0	0.1	0.1				30.0	0.0	22.5
LnGrp LOS	F	A	A	A	A	A				C	A	C
Approach Vol, veh/h		2157			2668						2063	
Approach Delay, s/veh		55.3			0.1						26.8	
Approach LOS		E			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.0	80.5		20.0		92.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	7.5	22.5		16.0		* 36
Max Q Clear Time (g_c+I1), s	9.5	2.0		18.0		2.0
Green Ext Time (p_c), s	0.0	13.5		0.0		13.9

Intersection Summary		
HCM 6th Ctrl Delay		25.4
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2025 + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	740	1229	544	71	2080	53	197	130	81	41	52	308
Future Volume (veh/h)	740	1229	544	71	2080	53	197	130	81	41	52	308
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	771	1280	567	74	2167	55	205	135	84	43	54	321
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	751	3317	1403	117	2136	518	259	571	330	122	425	610
Arrive On Green	0.22	0.52	0.52	0.03	0.33	0.33	0.07	0.27	0.27	0.04	0.23	0.23
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2140	1235	3456	1870	2683
Grp Volume(v), veh/h	771	1280	567	74	2167	55	205	110	109	43	54	321
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1599	1728	1870	1341
Q Serve(g_s), s	29.6	16.4	17.4	2.9	45.2	3.3	7.9	6.6	7.3	1.7	3.1	14.3
Cycle Q Clear(g_c), s	29.6	16.4	17.4	2.9	45.2	3.3	7.9	6.6	7.3	1.7	3.1	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		1.00
Lane Grp Cap(c), veh/h	751	3317	1403	117	2136	518	259	474	426	122	425	610
V/C Ratio(X)	1.03	0.39	0.40	0.63	1.01	0.11	0.79	0.23	0.25	0.35	0.13	0.53
Avail Cap(c_a), veh/h	751	3317	1403	239	2136	518	447	640	575	152	514	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	19.9	20.2	64.9	45.5	31.5	61.9	39.0	39.3	64.1	41.8	46.2
Incr Delay (d2), s/veh	39.6	0.3	0.9	2.1	23.1	0.4	3.0	0.1	0.1	0.9	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	6.0	5.7	1.3	20.8	1.3	3.6	2.9	2.9	0.7	1.5	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.9	20.3	21.0	67.0	68.6	31.9	64.9	39.1	39.4	65.1	41.9	46.6
LnGrp LOS	F	C	C	E	F	C	E	D	D	E	D	D
Approach Vol, veh/h		2618			2296			424			418	
Approach Delay, s/veh		41.8			67.6			51.7			47.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	76.7	14.6	35.8	34.0	51.7	9.2	41.2
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	9.4	* 66	17.6	37.4	29.6	45.2	6.0	49.0
Max Q Clear Time (g_c+I1), s	4.9	19.4	9.9	16.3	31.6	47.2	3.7	9.3
Green Ext Time (p_c), s	0.0	23.5	0.3	1.1	0.0	0.0	0.0	0.9

Intersection Summary		
HCM 6th Ctrl Delay		53.3
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2025 + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	210	1	410	165	558	0	0	463	375
Future Volume (veh/h)	0	0	0	210	1	410	165	558	0	0	463	375
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				222	0	432	174	587	0	0	487	395
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1095	0	479	244	2019	0	0	1594	707
Arrive On Green				0.31	0.00	0.31	0.14	1.00	0.00	0.00	0.45	0.45
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				222	0	432	174	587	0	0	487	395
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1577
Q Serve(g_s), s				4.1	0.0	23.9	4.3	0.0	0.0	0.0	7.9	16.6
Cycle Q Clear(g_c), s				4.1	0.0	23.9	4.3	0.0	0.0	0.0	7.9	16.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1095	0	479	244	2019	0	0	1594	707
V/C Ratio(X)				0.20	0.00	0.90	0.71	0.29	0.00	0.00	0.31	0.56
Avail Cap(c_a), veh/h				1350	0	590	407	2019	0	0	1594	707
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.0	0.0	29.9	37.8	0.0	0.0	0.0	15.9	18.3
Incr Delay (d2), s/veh				0.1	0.0	15.1	1.4	0.3	0.0	0.0	0.5	3.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	10.2	1.8	0.1	0.0	0.0	3.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.1	0.0	44.9	39.1	0.3	0.0	0.0	16.4	21.4
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					654			761			882	
Approach Delay, s/veh					37.5			9.2			18.6	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.4			10.8	46.7		32.6				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 46			10.6	29.7		34.1				
Max Q Clear Time (g_c+I1), s		2.0			6.3	18.6		25.9				
Green Ext Time (p_c), s		3.9			0.1	5.7		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		20.9	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2025 + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	7	201	0	0	0	0	503	147	219	496	0
Future Volume (veh/h)	188	7	201	0	0	0	0	503	147	219	496	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	208	0	30				0	541	130	235	533	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1800	431	306	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2937	681	3456	3647	0
Grp Volume(v), veh/h	208	0	30				0	337	334	235	533	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1748	1728	1777	0
Q Serve(g_s), s	5.0	0.0	1.5				0.0	7.7	7.8	5.8	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	1.5				0.0	7.7	7.8	5.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1124	1106	306	2737	0
V/C Ratio(X)	0.53	0.00	0.17				0.00	0.30	0.30	0.77	0.19	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1124	1106	445	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	37.8	0.0	36.3				0.0	7.5	7.5	36.2	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.5				0.0	0.7	0.7	2.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.6				0.0	2.8	2.8	2.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	36.7				0.0	8.2	8.2	38.6	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		238						671			768	
Approach Delay, s/veh		38.6						8.2			11.9	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	62.8		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	7.8	9.8		7.0		2.0						
Green Ext Time (p_c), s	0.2	6.5		0.7		5.0						

Intersection Summary			
HCM 6th Ctrl Delay		14.2	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	211	5	198	586	583	0	0	404	101
Future Volume (veh/h)	0	0	0	211	5	198	586	583	0	0	404	101
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				211	11	202	598	595	0	0	412	103
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				302	14	257	499	2443	0	0	2416	750
Arrive On Green				0.17	0.17	0.17	0.14	0.69	0.00	0.00	0.47	0.47
Sat Flow, veh/h				1781	83	1515	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				211	0	213	598	595	0	0	412	103
Grp Sat Flow(s),veh/h/ln				1781	0	1598	1728	1777	0	0	1702	1585
Q Serve(g_s), s				7.8	0.0	8.9	10.1	4.4	0.0	0.0	3.2	2.6
Cycle Q Clear(g_c), s				7.8	0.0	8.9	10.1	4.4	0.0	0.0	3.2	2.6
Prop In Lane				1.00		0.95	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				302	0	271	499	2443	0	0	2416	750
V/C Ratio(X)				0.70	0.00	0.79	1.20	0.24	0.00	0.00	0.17	0.14
Avail Cap(c_a), veh/h				713	0	639	499	2443	0	0	2416	750
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.4	0.0	27.8	29.9	4.1	0.0	0.0	10.6	10.4
Incr Delay (d2), s/veh				1.1	0.0	1.9	106.5	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.1	0.0	3.2	11.4	1.2	0.0	0.0	1.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.5	0.0	29.7	136.5	4.3	0.0	0.0	10.7	10.8
LnGrp LOS				C	A	C	F	A	A	A	B	B
Approach Vol, veh/h					424			1193			515	
Approach Delay, s/veh					29.1			70.6			10.7	
Approach LOS					C			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	53.2		15.0	38.2		16.8						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	32.0		10.1	* 17		28.0						
Max Q Clear Time (g_c+I1), s	6.4		12.1	5.2		10.9						
Green Ext Time (p_c), s	4.9		0.0	2.4		0.9						

Intersection Summary		
HCM 6th Ctrl Delay	47.9	
HCM 6th LOS	D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	386	64	311	0	0	0	0	733	217	184	381	0
Future Volume (veh/h)	386	64	311	0	0	0	0	733	217	184	381	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	454	0	327				0	772	228	194	401	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	873	0	387				0	2271	689	232	2239	0
Arrive On Green	0.24	0.00	0.24				0.00	0.44	0.44	0.13	0.63	0.00
Sat Flow, veh/h	3563	0	1579				0	5274	1549	1781	3647	0
Grp Volume(v), veh/h	454	0	327				0	772	228	194	401	0
Grp Sat Flow(s),veh/h/ln	1781	0	1579				0	1702	1549	1781	1777	0
Q Serve(g_s), s	8.8	0.0	15.8				0.0	7.9	7.7	8.5	3.8	0.0
Cycle Q Clear(g_c), s	8.8	0.0	15.8				0.0	7.9	7.7	8.5	3.8	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	873	0	387				0	2271	689	232	2239	0
V/C Ratio(X)	0.52	0.00	0.85				0.00	0.34	0.33	0.84	0.18	0.00
Avail Cap(c_a), veh/h	1519	0	673				0	2271	689	281	2239	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	26.1	0.0	28.8				0.0	14.5	14.5	34.0	6.2	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.0				0.0	0.4	1.3	13.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	5.7				0.0	3.0	2.8	4.5	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	0.0	30.7				0.0	14.9	15.7	47.5	6.3	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		781						1000			595	
Approach Delay, s/veh		28.2						15.1			19.8	
Approach LOS		C						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.8	40.7		24.5		55.5						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	12.6	18.9		34.1		* 36						
Max Q Clear Time (g_c+I1), s	10.5	9.9		17.8		5.8						
Green Ext Time (p_c), s	0.1	4.5		1.3		1.8						

Intersection Summary		
HCM 6th Ctrl Delay	20.6	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	919	51	172	1737	207	150	55	75	7	5	16
Future Volume (veh/h)	91	919	51	172	1737	207	150	55	75	7	5	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	97	978	54	183	1848	220	160	59	80	7	5	17
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	2393	132	211	2472	292	285	99	124	131	104	282
Arrive On Green	0.07	0.47	0.47	0.11	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5143	283	1853	4813	569	811	334	418	321	351	951
Grp Volume(v), veh/h	97	673	359	183	1356	712	299	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1886	1853	1770	1841	1562	0	0	1623	0	0
Q Serve(g_s), s	6.5	15.7	15.7	12.1	37.7	38.3	19.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	15.7	15.7	12.1	37.7	38.3	20.6	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.31	0.54		0.27	0.24		0.59
Lane Grp Cap(c), veh/h	122	1647	878	211	1818	946	508	0	0	517	0	0
V/C Ratio(X)	0.80	0.41	0.41	0.87	0.75	0.75	0.59	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	202	1647	878	305	1818	946	508	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.6	22.1	22.1	54.5	24.0	24.1	38.0	0.0	0.0	31.4	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.8	1.4	12.2	2.8	5.5	4.9	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	6.4	7.0	6.2	15.4	16.9	8.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	22.8	23.5	66.6	26.8	29.6	43.0	0.0	0.0	31.6	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		1129			2251			299			29	
Approach Delay, s/veh		26.4			30.9			43.0			31.6	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.6	64.4		42.0	12.6	70.4		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	14.1	17.7		3.5	8.5	40.3		22.6				
Green Ext Time (p_c), s	0.1	21.8		0.1	0.0	18.0		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			30.5
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	6	10	63	9	136	58	337	46	119	363	32
Future Volume (veh/h)	6	6	10	63	9	136	58	337	46	119	363	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	6	10	64	9	139	59	344	47	121	370	33
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	79	91	236	28	194	76	1879	254	98	2018	179
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.04	0.60	0.60	0.06	0.61	0.61
Sat Flow, veh/h	244	633	730	1242	225	1552	1781	3124	422	1781	3287	291
Grp Volume(v), veh/h	22	0	0	73	0	139	59	194	197	121	199	204
Grp Sat Flow(s),veh/h/ln	1607	0	0	1467	0	1552	1781	1777	1770	1781	1777	1802
Q Serve(g_s), s	0.0	0.0	0.0	2.7	0.0	7.2	2.7	4.1	4.2	4.6	4.1	4.1
Cycle Q Clear(g_c), s	0.9	0.0	0.0	3.7	0.0	7.2	2.7	4.1	4.2	4.6	4.1	4.1
Prop In Lane	0.27		0.45	0.88		1.00	1.00		0.24	1.00		0.16
Lane Grp Cap(c), veh/h	256	0	0	265	0	194	76	1068	1064	98	1091	1106
V/C Ratio(X)	0.09	0.00	0.00	0.28	0.00	0.72	0.78	0.18	0.19	1.23	0.18	0.18
Avail Cap(c_a), veh/h	470	0	0	466	0	412	348	1068	1064	98	1091	1106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	0.0	33.4	0.0	35.0	39.5	7.4	7.5	39.4	7.0	7.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	10.0	6.2	0.4	0.4	165.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.4	0.0	3.2	1.3	1.5	1.5	6.5	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	0.0	34.6	0.0	45.1	45.7	7.8	7.8	204.4	7.4	7.4
LnGrp LOS	C	A	A	C	A	D	D	A	A	F	A	A
Approach Vol, veh/h		22			212			450			524	
Approach Delay, s/veh		32.4			41.5			12.8			52.9	
Approach LOS		C			D			B			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	57.0		17.3	8.0	58.0		17.3				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	4.6	50.1		22.1	16.3	* 40		22.1				
Max Q Clear Time (g_c+I1), s	6.6	6.2		2.9	4.7	6.1		9.2				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	2.3		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			35.6
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	130	31	30	177	50
Future Vol, veh/h	65	130	31	30	177	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	144	34	33	197	56
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.8	8.5	10.2
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	51%
Vol Thru, %	0%	0%	33%	49%
Vol Right, %	0%	100%	67%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	50	195	61
LT Vol	177	0	0	31
Through Vol	0	0	65	30
RT Vol	0	50	130	0
Lane Flow Rate	197	56	217	68
Geometry Grp	7	7	2	2
Degree of Util (X)	0.31	0.069	0.259	0.093
Departure Headway (Hd)	5.666	4.46	4.297	4.955
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	633	800	836	723
Service Time	3.411	2.205	2.321	2.991
HCM Lane V/C Ratio	0.311	0.07	0.26	0.094
HCM Control Delay	11	7.5	8.8	8.5
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.3	0.2	1	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	47	0	0	56	44	4	5	21	72	0	5
Future Volume (veh/h)	4	47	0	0	56	44	4	5	21	72	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	51	0	0	60	47	4	5	23	77	0	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	760	877	0	0	488	340	522	29	134	596	0	159
Arrive On Green	0.25	0.25	0.00	0.00	0.25	0.25	0.10	0.10	0.10	0.10	0.00	0.10
Sat Flow, veh/h	1274	3647	0	0	2071	1376	1400	290	1333	1153	0	1578
Grp Volume(v), veh/h	4	51	0	0	53	54	4	0	28	77	0	5
Grp Sat Flow(s),veh/h/ln	1274	1777	0	0	1777	1577	1400	0	1623	1153	0	1578
Q Serve(g_s), s	0.0	0.2	0.0	0.0	0.3	0.4	0.0	0.0	0.2	0.8	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.2	0.0	0.0	0.3	0.4	1.1	0.0	0.2	1.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.87	1.00		0.82	1.00		1.00
Lane Grp Cap(c), veh/h	760	877	0	0	438	389	522	0	164	596	0	159
V/C Ratio(X)	0.01	0.06	0.00	0.00	0.12	0.14	0.01	0.00	0.17	0.13	0.00	0.03
Avail Cap(c_a), veh/h	1972	4259	0	0	2129	1890	2535	0	2497	2479	0	2332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.6	4.3	0.0	0.0	4.4	4.4	7.1	0.0	6.2	6.7	0.0	6.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	4.3	0.0	0.0	4.5	4.5	7.1	0.0	6.4	6.7	0.0	6.1
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		55			107			32			82	
Approach Delay, s/veh		4.4			4.5			6.5			6.7	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.6		6.4		8.6		6.4				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		2.4		3.1		2.4		3.1				
Green Ext Time (p_c), s		0.1		0.2		0.4		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	5.3
HCM 6th LOS	A

Notes

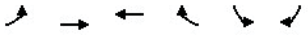
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	135	4	5	78	33	6	5	38	64	4	5
Future Volume (veh/h)	4	135	4	5	78	33	6	5	38	64	4	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.94	0.96		0.94	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	145	4	5	84	7	6	5	6	69	4	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	599	1461	40	565	1370	112	302	253	265	717	40	9
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1245	3526	97	1187	3308	271	493	537	562	1309	84	19
Grp Volume(v), veh/h	4	73	76	5	44	47	17	0	0	74	0	0
Grp Sat Flow(s),veh/h/ln	1245	1777	1846	1187	1777	1802	1592	0	0	1412	0	0
Q Serve(g_s), s	0.1	1.7	1.8	0.2	1.1	1.1	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	1.2	1.7	1.8	1.9	1.1	1.1	0.4	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.15	0.35		0.35	0.93		0.01
Lane Grp Cap(c), veh/h	599	736	765	565	736	747	820	0	0	765	0	0
V/C Ratio(X)	0.01	0.10	0.10	0.01	0.06	0.06	0.02	0.00	0.00	0.10	0.00	0.00
Avail Cap(c_a), veh/h	599	736	765	565	736	747	820	0	0	765	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	12.5	12.5	13.1	12.3	12.3	9.9	0.0	0.0	10.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.3	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.7	0.0	0.4	0.4	0.1	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	12.8	12.8	13.1	12.5	12.5	9.9	0.0	0.0	10.5	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		153			96			17			74	
Approach Delay, s/veh		12.8			12.5			9.9			10.5	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	33.0	37.0	33.0	37.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	29.0	33.0	29.0	33.0
Max Q Clear Time (g_c+I1), s	3.8	3.9	3.9	2.4
Green Ext Time (p_c), s	0.6	0.2	0.4	0.0

Intersection Summary			
HCM 6th Ctrl Delay	12.1		
HCM 6th LOS	B		



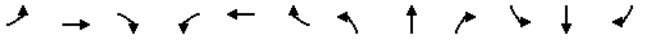
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	147	35	14	95	125	54
Future Volume (vph)	147	35	14	95	125	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	*0.95	0.95	0.95		*0.95	*0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1681	3539	3004		3362	1455
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1681	3539	3004		3362	1455
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	184	44	18	119	156	68
RTOR Reduction (vph)	0	0	37	0	0	44
Lane Group Flow (vph)	184	44	100	0	156	24
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	8.2	27.9	15.3		6.8	6.8
Effective Green, g (s)	8.2	27.9	15.3		6.8	6.8
Actuated g/C Ratio	0.14	0.47	0.26		0.12	0.12
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	234	1676	780		388	167
v/s Ratio Prot	c0.11	0.01	c0.03		c0.05	
v/s Ratio Perm						0.02
v/c Ratio	0.79	0.03	0.13		0.40	0.14
Uniform Delay, d1	24.5	8.3	16.7		24.2	23.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.7	0.0	0.1		0.2	0.1
Delay (s)	39.2	8.3	16.8		24.4	23.6
Level of Service	D	A	B		C	C
Approach Delay (s)		33.3	16.8		24.2	
Approach LOS		C	B		C	

Intersection Summary				
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.30			
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	30.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2025 + P1 AM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	9	233	17	6	7	299	626	77	37	501	67
Future Volume (veh/h)	59	9	233	17	6	7	299	626	77	37	501	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	0	124	18	6	0	318	666	70	39	533	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	480	0	206	23	8	0	370	2206	232	50	2837	278
Arrive On Green	0.13	0.00	0.13	0.02	0.02	0.00	0.11	0.68	0.68	0.03	0.60	0.60
Sat Flow, veh/h	3563	0	1529	1352	451	0	3456	3243	340	1781	4718	463
Grp Volume(v), veh/h	70	0	124	24	0	0	318	365	371	39	383	203
Grp Sat Flow(s),veh/h/ln	1781	0	1529	1803	0	0	1728	1777	1806	1781	1702	1777
Q Serve(g_s), s	2.4	0.0	10.7	1.9	0.0	0.0	12.7	11.6	11.6	3.0	7.1	7.2
Cycle Q Clear(g_c), s	2.4	0.0	10.7	1.9	0.0	0.0	12.7	11.6	11.6	3.0	7.1	7.2
Prop In Lane	1.00		1.00	0.75		0.00	1.00		0.19	1.00		0.26
Lane Grp Cap(c), veh/h	480	0	206	31	0	0	370	1209	1229	50	2047	1068
V/C Ratio(X)	0.15	0.00	0.60	0.77	0.00	0.00	0.86	0.30	0.30	0.78	0.19	0.19
Avail Cap(c_a), veh/h	1020	0	438	220	0	0	508	1209	1229	148	2047	1068
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	57.0	68.5	0.0	0.0	61.5	9.0	9.0	67.6	12.5	12.6
Incr Delay (d2), s/veh	0.2	0.0	3.6	13.5	0.0	0.0	8.1	0.6	0.6	9.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.4	1.0	0.0	0.0	6.0	4.6	4.7	1.5	2.8	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	60.6	82.0	0.0	0.0	69.6	9.6	9.6	76.7	12.7	13.0
LnGrp LOS	D	A	E	F	A	A	E	A	A	E	B	B
Approach Vol, veh/h		194			24			1054			625	
Approach Delay, s/veh		58.1			82.0			27.7			16.8	
Approach LOS		E			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	100.6		23.8	19.4	89.5		7.3				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	11.6	51.7		40.1	20.6	42.7		17.1				
Max Q Clear Time (g_c+I1), s	5.0	13.6		12.7	14.7	9.2		3.9				
Green Ext Time (p_c), s	0.0	10.2		0.9	0.3	7.4		0.0				

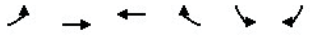
Intersection Summary			
HCM 6th Ctrl Delay			27.9
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2025 + P1 AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	214	583	245	106	21
Future Volume (veh/h)	41	214	583	245	106	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	238	648	56	118	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	58	1158	988	1236	448	399
Arrive On Green	0.03	0.62	0.53	0.53	0.25	0.25
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	46	238	648	56	118	3
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.9	4.2	19.0	0.6	4.0	0.1
Cycle Q Clear(g_c), s	1.9	4.2	19.0	0.6	4.0	0.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	58	1158	988	1236	448	399
V/C Ratio(X)	0.79	0.21	0.66	0.05	0.26	0.01
Avail Cap(c_a), veh/h	155	1260	988	1236	448	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	6.3	12.9	1.9	22.8	21.3
Incr Delay (d2), s/veh	8.5	0.0	3.4	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.4	7.9	0.4	1.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	6.3	16.3	2.0	24.2	21.3
LnGrp LOS	D	A	B	A	C	C
Approach Vol, veh/h		284	704		121	
Approach Delay, s/veh		12.6	15.2		24.1	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		51.9		24.0	6.9	45.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	6.6	40.1
Max Q Clear Time (g_c+I1), s		6.2		6.0	3.9	21.0
Green Ext Time (p_c), s		0.9		0.1	0.0	2.9

Intersection Summary			
HCM 6th Ctrl Delay			15.5
HCM 6th LOS			B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	203	96	95	288	7	73	6	57	14	9	8
Future Volume (veh/h)	0	203	96	95	288	7	73	6	57	14	9	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	214	20	100	303	5	77	6	8	15	9	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	928	86	128	1503	25	716	314	418	467	264	27
Arrive On Green	0.00	0.28	0.28	0.07	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	0	3373	303	1781	3576	59	1405	727	969	886	613	62
Grp Volume(v), veh/h	0	115	119	100	150	158	77	0	14	25	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1806	1781	1777	1858	1405	0	1696	1561	0	0
Q Serve(g_s), s	0.0	3.3	3.4	3.7	3.6	3.6	1.6	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.3	3.4	3.7	3.6	3.6	2.1	0.0	0.3	0.5	0.0	0.0
Prop In Lane	0.00		0.17	1.00		0.03	1.00		0.57	0.60		0.04
Lane Grp Cap(c), veh/h	0	503	511	128	747	781	716	0	732	759	0	0
V/C Ratio(X)	0.00	0.23	0.23	0.78	0.20	0.20	0.11	0.00	0.02	0.03	0.00	0.00
Avail Cap(c_a), veh/h	0	503	511	201	814	851	716	0	732	759	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.5	18.6	30.8	12.4	12.4	11.5	0.0	11.0	11.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.1	3.8	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	1.5	1.7	1.3	1.4	0.6	0.0	0.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.6	19.6	34.6	12.5	12.5	11.5	0.0	11.0	11.1	0.0	0.0
LnGrp LOS	A	B	B	C	B	B	B	A	B	B	A	A
Approach Vol, veh/h		234			408			91			25	
Approach Delay, s/veh		19.6			17.9			11.5			11.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.3	24.2		34.0		33.5		34.0				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 19		29.1		30.9		29.1				
Max Q Clear Time (g_c+I1), s	5.7	5.4		2.5		5.6		4.1				
Green Ext Time (p_c), s	0.0	0.9		0.1		1.6		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		17.4	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	258	6	72	369	5	31
Future Vol, veh/h	258	6	72	369	5	31
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	6	76	388	5	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	281	0	625	142
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1278	-	417	880
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1275	-	391	878
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	686	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	391	878	-	-	1275	-
HCM Lane V/C Ratio	0.013	0.037	-	-	0.059	-
HCM Control Delay (s)	14.3	9.3	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Year 2025 + P1 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	217	38	102	391	10	34	7	41	34	7	12
Future Volume (veh/h)	8	217	38	102	391	10	34	7	41	34	7	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	228	40	107	412	11	36	7	43	36	7	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	671	115	135	897	24	875	128	789	581	117	191
Arrive On Green	0.04	0.22	0.22	0.08	0.25	0.25	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1781	3012	518	1781	3531	94	1388	226	1389	907	206	337
Grp Volume(v), veh/h	8	133	135	107	207	216	36	0	50	56	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1754	1781	1777	1849	1388	0	1615	1450	0	0
Q Serve(g_s), s	0.4	5.6	5.8	5.3	8.8	8.9	0.0	0.0	1.2	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.6	5.8	5.3	8.8	8.9	0.8	0.0	1.2	1.4	0.0	0.0
Prop In Lane	1.00		0.30	1.00		0.05	1.00		0.86	0.64		0.23
Lane Grp Cap(c), veh/h	79	396	391	135	451	469	875	0	917	889	0	0
V/C Ratio(X)	0.10	0.34	0.35	0.79	0.46	0.46	0.04	0.00	0.05	0.06	0.00	0.00
Avail Cap(c_a), veh/h	119	396	391	139	451	469	875	0	917	889	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.2	29.3	29.4	40.8	28.3	28.3	8.6	0.0	8.6	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.3	2.4	23.6	0.7	0.7	0.1	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	2.7	3.2	3.8	3.9	0.3	0.0	0.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	31.6	31.8	64.4	29.0	29.0	8.6	0.0	8.8	8.8	0.0	0.0
LnGrp LOS	D	C	C	E	C	C	A	A	A	A	A	A
Approach Vol, veh/h		276			530			86			56	
Approach Delay, s/veh		32.0			36.2			8.7			8.8	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	24.0		55.0	8.0	26.8		55.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	20.0		51.0	6.0	21.0		51.0				
Max Q Clear Time (g_c+I1), s	7.3	7.8		3.4	2.4	10.9		3.2				
Green Ext Time (p_c), s	0.0	1.2		0.2	0.0	1.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			30.8
HCM 6th LOS			C

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2025 + P1 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	98	80	99	357	239	196	642	81	160	398	170
Future Volume (veh/h)	108	98	80	99	357	239	196	642	81	160	398	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	105	31	106	384	125	211	690	68	172	428	56
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	573	162	153	548	176	237	2579	252	222	2765	855
Arrive On Green	0.05	0.21	0.21	0.04	0.21	0.21	0.14	1.00	1.00	0.06	0.54	0.54
Sat Flow, veh/h	3456	2718	769	3456	2638	848	3456	4727	462	3456	5106	1580
Grp Volume(v), veh/h	116	67	69	106	257	252	211	495	263	172	428	56
Grp Sat Flow(s),veh/h/ln	1728	1777	1710	1728	1777	1709	1728	1702	1785	1728	1702	1580
Q Serve(g_s), s	4.6	4.3	4.6	4.2	18.8	19.2	8.4	0.0	0.0	6.9	5.9	2.4
Cycle Q Clear(g_c), s	4.6	4.3	4.6	4.2	18.8	19.2	8.4	0.0	0.0	6.9	5.9	2.4
Prop In Lane	1.00		0.45	1.00		0.50	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	164	374	360	153	369	355	237	1857	974	222	2765	855
V/C Ratio(X)	0.71	0.18	0.19	0.69	0.70	0.71	0.89	0.27	0.27	0.77	0.15	0.07
Avail Cap(c_a), veh/h	286	610	588	311	623	599	237	1857	974	385	2765	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	45.3	45.4	66.0	51.4	51.6	59.9	0.0	0.0	64.5	16.1	15.3
Incr Delay (d2), s/veh	2.1	0.2	0.3	2.1	4.6	5.0	25.9	0.3	0.5	2.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.0	2.0	1.9	8.9	8.8	4.3	0.1	0.1	3.1	2.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	45.6	45.7	68.0	55.9	56.6	85.7	0.3	0.5	66.7	16.2	15.4
LnGrp LOS	E	D	D	E	E	E	F	A	A	E	B	B
Approach Vol, veh/h		252			615			969			656	
Approach Delay, s/veh		55.8			58.3			19.0			29.4	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	81.6	10.6	34.4	14.0	81.0	11.0	34.0				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	9.6	* 51	11.6	49.1				
Max Q Clear Time (g_c+I1), s	8.9	2.0	6.2	6.6	10.4	7.9	6.6	21.2				
Green Ext Time (p_c), s	0.2	10.4	0.1	0.8	0.0	6.4	0.1	6.0				

Intersection Summary			
HCM 6th Ctrl Delay			35.1
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	77	90	274	308	553	181	305	308	164	346	29
Future Volume (veh/h)	4	77	90	274	308	553	181	305	308	164	346	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	80	0	285	321	90	189	318	0	171	360	5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	7	376		336	372	311	236	2125		219	2107	927
Arrive On Green	0.00	0.11	0.00	0.10	0.20	0.20	0.07	0.60	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1566	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	4	80	0	285	321	90	189	318	0	171	360	5
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1566	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.3	2.9	0.0	11.4	23.2	6.8	7.5	5.5	0.0	6.7	0.0	0.0
Cycle Q Clear(g_c), s	0.3	2.9	0.0	11.4	23.2	6.8	7.5	5.5	0.0	6.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	7	376		336	372	311	236	2125		219	2107	927
V/C Ratio(X)	0.55	0.21		0.85	0.86	0.29	0.80	0.15		0.78	0.17	0.01
Avail Cap(c_a), veh/h	51	1231		434	824	690	262	2125		311	2107	927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.94	0.94	0.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	69.6	57.2	0.0	62.2	54.2	47.7	64.3	12.4	0.0	60.2	0.0	0.0
Incr Delay (d2), s/veh	21.4	0.3	0.0	9.7	2.4	0.2	12.3	0.1	0.0	7.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.3	0.0	5.5	11.2	2.7	3.7	2.3	0.0	3.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	57.5	0.0	71.9	56.6	47.9	76.6	12.6	0.0	68.0	0.2	0.0
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		84	A		696			507	A		536	
Approach Delay, s/veh		59.1			61.7			36.4			21.8	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.3	88.6	18.0	20.1	14.0	87.9	5.0	33.1
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	12.6	42.7	17.6	* 49	10.6	44.7	4.0	61.7
Max Q Clear Time (g_c+I1), s	8.7	7.5	13.4	4.9	9.5	2.0	2.3	25.2
Green Ext Time (p_c), s	0.2	1.4	0.2	0.5	0.0	4.3	0.0	1.4

Intersection Summary		
HCM 6th Ctrl Delay	42.8	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	0	480	0	0	0	0	387	135	302	371	0
Future Volume (vph)	420	0	480	0	0	0	0	387	135	302	371	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3359	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3359	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	438	0	500	0	0	0	0	403	141	315	386	0
RTOR Reduction (vph)	0	0	338	0	0	0	0	0	92	0	0	0
Lane Group Flow (vph)	438	0	163	0	0	0	0	403	49	227	474	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	45.5		45.5					48.6	48.6	27.6	27.6	
Effective Green, g (s)	45.5		45.5					48.6	48.6	27.6	27.6	
Actuated g/C Ratio	0.32		0.32					0.35	0.35	0.20	0.20	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1115		514					1228	549	317	662	
v/s Ratio Prot	c0.13							c0.11		0.14	c0.14	
v/s Ratio Perm			0.10						0.03			
v/c Ratio	0.39		0.32					0.33	0.09	0.72	0.72	
Uniform Delay, d1	36.6		35.5					33.7	30.8	52.5	52.5	
Progression Factor	1.00		1.00					0.53	0.03	0.96	0.97	
Incremental Delay, d2	1.0		1.6					0.1	0.0	7.6	3.8	
Delay (s)	37.6		37.2					17.7	0.9	58.3	54.5	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		37.4			0.0			13.4			55.7	
Approach LOS		D			A			B			E	

Intersection Summary					
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.46				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	56.5%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	34	6	12	114	262	6	13	5	311	88	448
Future Volume (vph)	260	34	6	12	114	262	6	13	5	311	88	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3249			3522	1583		1791		1681	1722	1562
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3249			3522	1583		1791		1681	1722	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	280	37	6	13	123	282	6	14	5	334	95	482
RTOR Reduction (vph)	0	2	0	0	0	135	0	4	0	0	0	285
Lane Group Flow (vph)	140	181	0	0	136	147	0	21	0	214	215	197
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	73.2		15.9		57.2	57.2	57.2
Effective Green, g (s)	26.5	26.5			16.0	73.2		15.9		57.2	57.2	57.2
Actuated g/C Ratio	0.19	0.19			0.11	0.52		0.11		0.41	0.41	0.41
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	304	614			402	827		203		686	703	638
v/s Ratio Prot	c0.09	0.06			c0.04	0.07		c0.01		c0.13	0.12	
v/s Ratio Perm						0.02						0.13
v/c Ratio	0.46	0.30			0.34	0.18		0.10		0.31	0.31	0.31
Uniform Delay, d1	50.4	48.7			57.1	17.6		55.6		28.1	28.0	28.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.77	0.77	2.83
Incremental Delay, d2	5.0	1.2			2.3	0.5		1.0		1.0	1.0	1.1
Delay (s)	55.4	50.0			59.4	18.0		56.6		22.6	22.5	80.3
Level of Service	E	D			E	B		E		C	C	F
Approach Delay (s)		52.3			31.5			56.6			53.1	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.32			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	130	1570	86	227	132
Future Volume (veh/h)	212	130	1570	86	227	132
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	137	1653	0	239	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	245	1573	2392		290	351
Arrive On Green	0.14	0.84	0.67	0.00	0.08	0.08
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	223	137	1653	0	239	121
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	17.2	1.8	39.7	0.0	9.5	9.0
Cycle Q Clear(g_c), s	17.2	1.8	39.7	0.0	9.5	9.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	245	1573	2392		290	351
V/C Ratio(X)	0.91	0.09	0.69		0.82	0.34
Avail Cap(c_a), veh/h	265	1573	2392		544	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.4	1.9	14.0	0.0	63.0	45.8
Incr Delay (d2), s/veh	29.8	0.1	1.7	0.0	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	0.5	15.7	0.0	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.2	2.0	15.6	0.0	65.3	46.0
LnGrp LOS	F	A	B		E	D
Approach Vol, veh/h		360	1653	A	360	
Approach Delay, s/veh		56.0	15.6		58.8	
Approach LOS		E	B		E	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	122.5	17.2	23.5	99.0
Change Period (Y+Rc), s	5.0	5.5	* 4.2	5.0
Max Green Setting (Gmax), s	117.5	22.0	* 21	92.5
Max Q Clear Time (g_c+I1), s	3.8	11.5	19.2	41.7
Green Ext Time (p_c), s	0.5	0.2	0.0	13.1

Intersection Summary		
HCM 6th Ctrl Delay	28.3	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis — Year 2025 + P1 AM
46: Hotel Circle Place/Hotel Circle N. — 02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	5	16	55	538	44	5	48	31	178	5	9	6
Future Volume (vph)	5	16	55	538	44	5	48	31	178	5	9	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	17	60	585	48	5	52	34	193	5	10	7

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	82	585	53	279	22
Volume Left (vph)	5	585	0	52	5
Volume Right (vph)	60	0	5	193	7
Hadj (s)	-0.39	0.53	-0.03	-0.34	-0.11
Departure Headway (s)	5.5	6.1	5.5	5.6	6.4
Degree Utilization, x	0.13	0.98	0.08	0.44	0.04
Capacity (veh/h)	628	591	646	632	533
Control Delay (s)	9.3	56.1	7.8	12.9	9.7
Approach Delay (s)	9.3	52.0		12.9	9.7
Approach LOS	A	F		B	A

Intersection Summary					
Delay			37.0		
Level of Service			E		
Intersection Capacity Utilization			61.8%	ICU Level of Service	B
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary — Year 2025 + P1 AM
47: I-8 WB Ramp — 03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	0	117	0	1057	65	0	0	0	0	256	321
Future Volume (veh/h)	200	0	117	0	1057	65	0	0	0	0	256	321
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	222	0	0	0	1174	72				0	284	357
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	279	0		0	2010	896				0	0	0
Arrive On Green	0.16	0.00	0.00	0.00	0.57	0.57				0.00	0.00	0.00
Sat Flow, veh/h	1781	222		0	3647	1585					0	
Grp Volume(v), veh/h	222	26.6		0	1174	72					0.0	
Grp Sat Flow(s),veh/h/ln	1781	C		0	1777	1585						
Q Serve(g_s), s	4.3			0.0	7.7	0.7						
Cycle Q Clear(g_c), s	4.3			0.0	7.7	0.7						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	279			0	2010	896						
V/C Ratio(X)	0.80			0.00	0.58	0.08						
Avail Cap(c_a), veh/h	297			0	3752	1674						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	14.6			0.0	5.1	3.6						
Incr Delay (d2), s/veh	11.9			0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	2.3			0.0	1.4	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6			0.0	5.3	3.6						
LnGrp LOS	C			A	A	A						
Approach Vol, veh/h					1246							
Approach Delay, s/veh					5.2							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							10.6	25.4				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							6.0	38.0				
Max Q Clear Time (g_c+I1), s							6.3	9.7				
Green Ext Time (p_c), s							0.0	10.6				

Intersection Summary			
HCM 6th Ctrl Delay		8.5	
HCM 6th LOS		A	

Notes

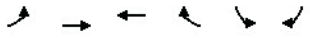
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	111.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	129	8	138	202	17	398	19	819	9	5	5
Future Vol, veh/h	4	129	8	138	202	17	398	19	819	9	5	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	137	9	147	215	18	423	20	871	10	5	5
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	14.3	16.3	151.6	11.1
HCM LOS	B	C	F	B

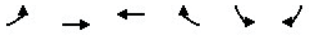
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	3%	0%	100%	0%	47%
Vol Thru, %	0%	2%	97%	0%	0%	92%	26%
Vol Right, %	0%	98%	0%	100%	0%	8%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	398	838	133	8	138	219	19
LT Vol	398	0	4	0	138	0	9
Through Vol	0	19	129	0	0	202	5
RT Vol	0	819	0	8	0	17	5
Lane Flow Rate	423	891	141	9	147	233	20
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.808	1.404	0.304	0.017	0.319	0.471	0.042
Departure Headway (Hd)	6.869	5.671	8.242	7.505	8.325	7.757	7.764
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	529	642	439	480	435	468	464
Service Time	4.594	3.395	5.942	5.205	6.025	5.457	5.764
HCM Lane V/C Ratio	0.8	1.388	0.321	0.019	0.338	0.498	0.043
HCM Control Delay	32.5	208.2	14.5	10.3	14.9	17.2	11.1
HCM Lane LOS	D	F	B	B	B	C	B
HCM 95th-tile Q	7.8	40.2	1.3	0.1	1.4	2.5	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	363	664	236	156	247	135
Future Volume (veh/h)	363	664	236	156	247	135
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	403	738	262	173	274	150
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	460	1112	455	372	354	315
Arrive On Green	0.26	0.59	0.24	0.24	0.20	0.20
Sat Flow, veh/h	1781	1870	1870	1530	1781	1585
Grp Volume(v), veh/h	403	738	262	173	274	150
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1530	1781	1585
Q Serve(g_s), s	10.3	12.5	5.8	4.6	6.9	4.0
Cycle Q Clear(g_c), s	10.3	12.5	5.8	4.6	6.9	4.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	460	1112	455	372	354	315
V/C Ratio(X)	0.88	0.66	0.58	0.46	0.77	0.48
Avail Cap(c_a), veh/h	474	2017	1346	1101	718	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	6.4	15.8	15.3	18.0	16.8
Incr Delay (d2), s/veh	15.6	0.6	1.6	1.2	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.2	2.4	1.5	2.6	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.4	7.1	17.4	16.5	19.4	17.2
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		1141	435		424	
Approach Delay, s/veh		16.0	17.0		18.6	
Approach LOS		B	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.1		14.3	16.6	16.4
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	12.6	34.1
Max Q Clear Time (g_c+I1), s		14.5		8.9	12.3	7.8
Green Ext Time (p_c), s		5.7		0.5	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	176	243	128	115	162	704
Future Volume (veh/h)	176	243	128	115	162	704
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	191	264	139	125	176	765
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	295	1103	401	360	483	757
Arrive On Green	0.09	0.59	0.44	0.44	0.27	0.27
Sat Flow, veh/h	3456	1870	907	816	1781	2790
Grp Volume(v), veh/h	191	264	0	264	176	765
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1723	1781	1395
Q Serve(g_s), s	3.8	4.7	0.0	7.1	5.6	19.1
Cycle Q Clear(g_c), s	3.8	4.7	0.0	7.1	5.6	19.1
Prop In Lane	1.00			0.47	1.00	1.00
Lane Grp Cap(c), veh/h	295	1103	0	761	483	757
V/C Ratio(X)	0.65	0.24	0.00	0.35	0.36	1.01
Avail Cap(c_a), veh/h	766	1358	0	761	483	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	6.9	0.0	13.0	20.7	25.7
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.2	0.2	35.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.6	0.0	2.8	2.2	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.1	6.9	0.0	14.2	20.9	61.1
LnGrp LOS	C	A	A	B	C	F
Approach Vol, veh/h		455	264		941	
Approach Delay, s/veh		17.5	14.2		53.5	
Approach LOS		B	B		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		46.4		24.0	10.4	36.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	15.6	31.1
Max Q Clear Time (g_c+I1), s		6.7		21.1	5.8	9.1
Green Ext Time (p_c), s		1.0		0.0	0.2	1.0

Intersection Summary		
HCM 6th Ctrl Delay		37.4
HCM 6th LOS		D

Intersection	
Intersection Delay, s/veh	21
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	192	114	437	518	309	33
Future Vol, veh/h	192	114	437	518	309	33
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	121	465	551	329	35
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	16.6	18.3	32.5
HCM LOS	C	C	D

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	192	57	57	219	219	518	309	33
LT Vol	192	0	0	0	0	0	309	0
Through Vol	0	57	57	219	219	0	0	0
RT Vol	0	0	0	0	0	518	0	33
Lane Flow Rate	204	61	61	232	232	551	329	35
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.497	0.139	0.109	0.472	0.472	0.736	0.773	0.071
Departure Headway (Hd)	8.751	8.235	6.444	7.312	7.312	4.811	8.465	7.257
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	411	434	553	493	493	749	427	492
Service Time	6.525	6.009	4.217	5.067	5.067	2.564	6.236	5.027
HCM Lane V/C Ratio	0.496	0.141	0.11	0.471	0.471	0.736	0.77	0.071
HCM Control Delay	19.9	12.3	10	16.5	16.5	19.9	34.8	10.6
HCM Lane LOS	C	B	A	C	C	C	D	B
HCM 95th-tile Q	2.7	0.5	0.4	2.5	2.5	6.6	6.6	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	259	205	378	692	265	141
Future Volume (veh/h)	259	205	378	692	265	141
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	288	228	420	769	294	157
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	464	367	374	1365	321	285
Arrive On Green	0.48	0.48	0.21	0.73	0.18	0.18
Sat Flow, veh/h	967	765	1781	1870	1781	1585
Grp Volume(v), veh/h	0	516	420	769	294	157
Grp Sat Flow(s),veh/h/ln	0	1732	1781	1870	1781	1585
Q Serve(g_s), s	0.0	22.1	21.0	18.9	16.2	9.0
Cycle Q Clear(g_c), s	0.0	22.1	21.0	18.9	16.2	9.0
Prop In Lane		0.44	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	831	374	1365	321	285
V/C Ratio(X)	0.00	0.62	1.12	0.56	0.92	0.55
Avail Cap(c_a), veh/h	0	831	374	1365	321	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	19.3	39.5	6.2	40.3	37.3
Incr Delay (d2), s/veh	0.0	3.5	84.1	0.6	32.9	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.3	17.8	6.2	9.9	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	22.7	123.6	6.8	73.2	44.8
LnGrp LOS	A	C	F	A	E	D
Approach Vol, veh/h	516			1189	451	
Approach Delay, s/veh	22.7			48.1	63.3	
Approach LOS	C			D	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	25.0	53.0				78.0	22.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	21.0	48.0				73.0	18.0
Max Q Clear Time (g_c+I1), s	23.0	24.1				20.9	18.2
Green Ext Time (p_c), s	0.0	4.7				9.5	0.0

Intersection Summary			
HCM 6th Ctrl Delay		45.2	
HCM 6th LOS		D	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	556	260	1297	839	598	1382
Future Volume (veh/h)	556	260	1297	839	598	1382
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	573	134	1337	831	616	1425
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	695	309	1812	1100	688	2611
Arrive On Green	0.19	0.19	0.51	0.51	0.20	0.73
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	573	134	1337	831	616	1425
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	19.3	9.3	37.0	42.6	21.7	22.2
Cycle Q Clear(g_c), s	19.3	9.3	37.0	42.6	21.7	22.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	695	309	1812	1100	688	2611
V/C Ratio(X)	0.82	0.43	0.74	0.76	0.89	0.55
Avail Cap(c_a), veh/h	855	380	1933	1153	829	2899
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	44.3	24.1	11.7	48.8	7.3
Incr Delay (d2), s/veh	4.5	0.4	1.6	3.0	9.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	3.6	14.8	25.0	10.3	7.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.8	44.6	25.7	14.8	58.5	7.8
LnGrp LOS	D	D	C	B	E	A
Approach Vol, veh/h	707		2168			2041
Approach Delay, s/veh	51.3		21.5			23.1
Approach LOS	D		C			C

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	28.9	67.7				96.6	28.4
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	29.6	65.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	23.7	44.6				24.2	21.3
Green Ext Time (p_c), s	0.8	16.9				40.9	0.9

Intersection Summary			
HCM 6th Ctrl Delay		26.4	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	165	305	131	63	190	165	1351	252	161	1323	158
Future Volume (veh/h)	181	165	305	131	63	190	165	1351	252	161	1323	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	183	173	146	70	211	183	1501	189	179	1470	176
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	281	227	176	326	261	245	1965	991	125	1959	976
Arrive On Green	0.08	0.15	0.15	0.10	0.17	0.17	0.07	0.55	0.54	0.07	0.55	0.55
Sat Flow, veh/h	3456	1870	1512	1781	1870	1495	3456	3554	1546	1781	3554	1565
Grp Volume(v), veh/h	201	183	173	146	70	211	183	1501	189	179	1470	176
Grp Sat Flow(s),veh/h/ln	1728	1870	1512	1781	1870	1495	1728	1777	1546	1781	1777	1565
Q Serve(g_s), s	7.3	11.8	14.1	10.3	4.1	17.4	6.7	42.0	6.5	9.0	40.6	6.1
Cycle Q Clear(g_c), s	7.3	11.8	14.1	10.3	4.1	17.4	6.7	42.0	6.5	9.0	40.6	6.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	281	227	176	326	261	245	1965	991	125	1959	976
V/C Ratio(X)	0.75	0.65	0.76	0.83	0.21	0.81	0.75	0.76	0.19	1.43	0.75	0.18
Avail Cap(c_a), veh/h	619	568	459	208	452	361	296	1965	991	125	1959	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	51.4	52.3	56.8	45.5	50.9	58.5	22.2	9.5	59.7	22.0	10.3
Incr Delay (d2), s/veh	1.6	2.5	5.2	18.0	0.1	6.4	6.1	2.9	0.4	234.7	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	5.8	5.7	5.5	1.9	7.0	3.1	17.7	2.3	12.2	17.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	53.9	57.6	74.8	45.6	57.4	64.6	25.1	10.0	294.4	24.7	10.7
LnGrp LOS	E	D	E	E	D	E	E	C	A	F	C	B
Approach Vol, veh/h		557			427			1873			1825	
Approach Delay, s/veh		57.1			61.4			27.4			49.8	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	75.0	16.7	23.7	13.1	74.9	14.0	26.4
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	8.6	69.7	14.6	* 38	10.6	* 68	22.6	29.5
Max Q Clear Time (g_c+I1), s	11.0	44.0	12.3	16.1	8.7	42.6	9.3	19.4
Green Ext Time (p_c), s	0.0	19.5	0.0	1.6	0.1	18.2	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1266	11	316	572	0	0	0	0	344	6	1521
Future Volume (veh/h)	0	1266	11	316	572	0	0	0	0	344	6	1521
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1319	11	329	596	0				358	6	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1471	656	402	2009	0				622	10	
Arrive On Green	0.00	0.41	0.41	0.12	0.57	0.00				0.35	0.35	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1753	29	1585
Grp Volume(v), veh/h	0	1319	11	329	596	0				364	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	41.5	0.5	11.2	10.5	0.0				19.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	41.5	0.5	11.2	10.5	0.0				19.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1471	656	402	2009	0				632	0	
V/C Ratio(X)	0.00	0.90	0.02	0.82	0.30	0.00				0.58	0.00	
Avail Cap(c_a), veh/h	0	1718	766	657	2517	0				632	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.8	20.8	51.8	13.6	0.0				31.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.5	0.0	0.4	0.0	0.0				0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.6	0.2	4.9	4.2	0.0				8.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.2	20.8	52.2	13.6	0.0				32.2	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				C	A	
Approach Vol, veh/h		1330			925						364	A
Approach Delay, s/veh		38.1			27.3						32.2	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	18.2	54.7		47.2		72.8
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0
Max Green Setting (Gmax), s	* 23	58.0		25.4		85.0
Max Q Clear Time (g_c+I1), s	13.2	43.5		21.9		12.5
Green Ext Time (p_c), s	0.8	6.2		0.3		3.0

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	970	701	0	0	623	528	274	20	592	0	0	0
Future Volume (veh/h)	970	701	0	0	623	528	274	20	592	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1010	730	0	0	649	318	285	21	363			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1030	2285	0	0	700	343	426	31	406			
Arrive On Green	0.30	0.64	0.00	0.00	0.30	0.30	0.26	0.26	0.26			
Sat Flow, veh/h	3456	3647	0	0	2405	1132	1664	123	1585			
Grp Volume(v), veh/h	1010	730	0	0	499	468	306	0	363			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1667	1787	0	1585			
Q Serve(g_s), s	29.0	9.2	0.0	0.0	27.2	27.2	15.4	0.0	22.1			
Cycle Q Clear(g_c), s	29.0	9.2	0.0	0.0	27.2	27.2	15.4	0.0	22.1			
Prop In Lane	1.00		0.00	0.00		0.68	0.93		1.00			
Lane Grp Cap(c), veh/h	1030	2285	0	0	538	505	457	0	406			
V/C Ratio(X)	0.98	0.32	0.00	0.00	0.93	0.93	0.67	0.00	0.89			
Avail Cap(c_a), veh/h	1030	2328	0	0	560	525	457	0	406			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.8	8.0	0.0	0.0	33.8	33.8	33.4	0.0	35.9			
Incr Delay (d2), s/veh	17.5	0.0	0.0	0.0	20.8	21.7	3.0	0.0	21.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.3	3.2	0.0	0.0	14.5	13.8	7.0	0.0	19.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	8.0	0.0	0.0	54.5	55.5	36.4	0.0	56.9			
LnGrp LOS	D	A	A	A	D	E	D	A	E			
Approach Vol, veh/h		1740			967			669				
Approach Delay, s/veh		33.7			55.0			47.6				
Approach LOS		C			E			D				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		69.8		30.2	34.0	35.8			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		65.5		24.4	* 30	31.5			
Max Q Clear Time (g_c+I1), s		11.2		24.1	31.0	29.2			
Green Ext Time (p_c), s		3.8		0.1	0.0	1.1			

Intersection Summary			
HCM 6th Ctrl Delay		42.6	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	787	355	292	867	44	133	37	239	25	39	36
Future Volume (veh/h)	58	787	355	292	867	44	133	37	239	25	39	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	874	394	324	963	49	148	41	266	28	43	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	1575	662	353	2043	104	177	402	630	41	255	212
Arrive On Green	0.05	0.44	0.44	0.20	0.59	0.57	0.10	0.22	0.21	0.02	0.14	0.14
Sat Flow, veh/h	1781	3554	1494	1781	3436	175	1781	1870	1510	1781	1870	1554
Grp Volume(v), veh/h	64	874	394	324	498	514	148	41	266	28	43	40
Grp Sat Flow(s),veh/h/ln	1781	1777	1494	1781	1777	1834	1781	1870	1510	1781	1870	1554
Q Serve(g_s), s	4.8	24.5	26.9	24.1	21.3	21.4	11.0	2.4	17.1	2.1	2.7	3.1
Cycle Q Clear(g_c), s	4.8	24.5	26.9	24.1	21.3	21.4	11.0	2.4	17.1	2.1	2.7	3.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	87	1575	662	353	1057	1091	177	402	630	41	255	212
V/C Ratio(X)	0.73	0.56	0.60	0.92	0.47	0.47	0.84	0.10	0.42	0.69	0.17	0.19
Avail Cap(c_a), veh/h	224	1575	662	435	1057	1091	226	463	679	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	27.8	28.4	53.0	15.4	15.5	59.7	42.5	28.8	65.5	51.5	51.7
Incr Delay (d2), s/veh	4.4	1.4	3.9	19.6	1.5	1.5	15.6	0.0	0.2	7.5	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	10.7	10.3	12.7	9.0	9.3	5.8	1.1	6.3	1.0	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	29.2	32.4	72.7	16.9	17.0	75.3	42.6	28.9	73.0	51.7	51.9
LnGrp LOS	E	C	C	E	B	B	E	D	C	E	D	D
Approach Vol, veh/h		1332			1336			455			111	
Approach Delay, s/veh		32.0			30.5			45.2			57.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.8	64.1	17.4	22.7	10.6	84.3	7.1	33.0				
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2				
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2				
Max Q Clear Time (g_c+I1), s	26.1	28.9	13.0	5.1	6.8	23.4	4.1	19.1				
Green Ext Time (p_c), s	0.3	4.2	0.1	0.2	0.0	5.1	0.0	0.5				

Intersection Summary			
HCM 6th Ctrl Delay		34.1	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2025 + P1 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	592	717	29	8	441	143	0	0	22	231	15	418
Future Volume (vph)	592	717	29	8	441	143	0	0	22	231	15	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3512		1770	3394				1525	1681	1695	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3512		1770	3394				1525	1681	1695	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	658	797	32	9	490	159	0	0	24	257	17	464
RTOR Reduction (vph)	0	2	0	0	27	0	0	0	23	0	0	227
Lane Group Flow (vph)	658	827	0	9	622	0	0	0	1	136	138	237
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	43.3		0.8	26.5				2.1	30.1	30.1	47.7
Effective Green, g (s)	18.0	44.2		1.2	27.4				2.1	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.47		0.01	0.29				0.02	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	651	1635		22	979				33	556	560	802
v/s Ratio Prot	c0.19	0.24		0.01	c0.18					0.08	0.08	c0.06
v/s Ratio Perm									c0.00			0.09
v/c Ratio	1.01	0.51		0.41	0.64				0.02	0.24	0.25	0.30
Uniform Delay, d1	38.5	17.7		46.5	29.4				45.4	23.1	23.1	13.4
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	38.0	0.3		4.5	3.1				0.2	1.0	1.0	0.1
Delay (s)	76.4	18.0		51.0	32.5				45.6	24.2	24.2	13.4
Level of Service	E	B		D	C				D	C	C	B
Approach Delay (s)		43.8			32.8			45.6			17.4	
Approach LOS		D			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	94.9	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	70.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: Friars Rd. & Napa St.

Year 2025 + P1 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	159	1283	593	512	756	221
Future Volume (vph)	159	1283	593	512	756	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1544	3429	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1544	3429	1419
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	166	1336	618	533	788	230
RTOR Reduction (vph)	0	0	0	201	1	63
Lane Group Flow (vph)	166	1336	618	332	810	144
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	14.5	59.7	41.2	74.0	32.8	32.8
Effective Green, g (s)	14.9	61.7	42.8	75.8	33.7	33.7
Actuated g/C Ratio	0.12	0.51	0.35	0.62	0.28	0.28
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	216	1794	1244	961	949	392
v/s Ratio Prot	0.09	c0.38	0.17	0.10	c0.24	
v/s Ratio Perm				0.12		0.10
v/c Ratio	0.77	0.74	0.50	0.35	0.85	0.37
Uniform Delay, d1	51.7	23.8	31.0	11.0	41.7	35.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	2.9	0.5	0.5	8.2	1.2
Delay (s)	65.4	26.6	31.5	11.5	49.9	36.6
Level of Service	E	C	C	B	D	D
Approach Delay (s)		30.9	22.2		47.2	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	121.7	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	66.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
8: Friars Rd. & Colusa St.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1923	50	40	963	66	32	5	16	182	10	64
Future Volume (veh/h)	70	1923	50	40	963	66	32	5	16	182	10	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	1982	48	41	993	57	33	5	2	188	10	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	2375	57	72	2249	129	279	39	309	285	132	198
Arrive On Green	0.05	0.67	0.66	0.04	0.66	0.64	0.20	0.20	0.20	0.20	0.20	0.19
Sat Flow, veh/h	1781	3543	85	1781	3413	196	1158	197	1568	1395	670	1006
Grp Volume(v), veh/h	72	989	1041	41	517	533	38	0	2	188	0	25
Grp Sat Flow(s),veh/h/ln	1781	1777	1852	1781	1777	1833	1355	0	1568	1395	0	1676
Q Serve(g_s), s	5.3	55.4	56.7	3.0	18.7	18.8	2.6	0.0	0.1	17.4	0.0	1.6
Cycle Q Clear(g_c), s	5.3	55.4	56.7	3.0	18.7	18.8	4.2	0.0	0.1	21.6	0.0	1.6
Prop In Lane	1.00		0.05	1.00		0.11	0.87		1.00	1.00		0.60
Lane Grp Cap(c), veh/h	97	1191	1241	72	1171	1207	318	0	309	285	0	331
V/C Ratio(X)	0.74	0.83	0.84	0.57	0.44	0.44	0.12	0.00	0.01	0.66	0.00	0.08
Avail Cap(c_a), veh/h	218	1191	1241	218	1191	1228	376	0	374	342	0	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.4	16.4	16.7	63.0	11.0	11.0	45.2	0.0	43.2	53.8	0.0	44.0
Incr Delay (d2), s/veh	4.2	6.8	6.9	2.6	1.2	1.2	0.1	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	21.7	23.1	1.4	7.0	7.3	1.1	0.0	0.1	6.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	23.2	23.6	65.6	12.2	12.2	45.3	0.0	43.2	55.9	0.0	44.0
LnGrp LOS	E	C	C	E	B	B	D	A	D	E	A	D
Approach Vol, veh/h		2102			1091			40			213	
Approach Delay, s/veh		24.9			14.2			45.1			54.5	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	94.0		30.4	11.3	92.2		30.4				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 88		31.0	16.0	87.7		31.0				
Max Q Clear Time (g_c+I1), s	5.0	58.7		23.6	7.3	20.8		6.2				
Green Ext Time (p_c), s	0.0	28.1		0.2	0.0	28.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		23.6
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
9: Friars Rd./Friars Rd. & Goshen St.

Year 2025 + P1 PM
02/27/2020

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1846	1099	49	51	24
Future Vol, veh/h	31	1846	1099	49	51	24
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	2007	1195	53	55	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1284	0	-	0	2331	660
Stage 1	-	-	-	-	1258	-
Stage 2	-	-	-	-	1073	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	536	-	-	-	~ 31	406
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	290	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	520	-	-	-	~ 27	394
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	281	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	54.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	520	-	-	-	150
HCM Lane V/C Ratio	0.065	-	-	-	0.543
HCM Control Delay (s)	12.4	-	-	-	54.4
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	2.7

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1818	78	0	1148	0	40
Future Vol, veh/h	1818	78	0	1148	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1976	85	0	1248	0	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1031
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	230
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	230
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	24.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	230	-	-	-
HCM Lane V/C Ratio	0.189	-	-	-
HCM Control Delay (s)	24.3	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	1685	87	192	884	308	92	35	127	458	52	155
Future Volume (veh/h)	248	1685	87	192	884	308	92	35	127	458	52	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	1774	92	202	931	186	97	37	134	482	55	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1644	84	142	1420	603	190	38	137	352	40	359
Arrive On Green	0.16	0.48	0.47	0.08	0.40	0.40	0.11	0.11	0.11	0.23	0.22	0.23
Sat Flow, veh/h	1781	3430	176	1781	3554	1510	1781	355	1284	1607	183	1585
Grp Volume(v), veh/h	261	911	955	202	931	186	97	0	171	537	0	86
Grp Sat Flow(s),veh/h/ln	1781	1777	1829	1781	1777	1510	1781	0	1639	1790	0	1585
Q Serve(g_s), s	21.6	72.0	72.0	12.0	32.0	12.7	7.7	0.0	15.6	32.9	0.0	6.7
Cycle Q Clear(g_c), s	21.6	72.0	72.0	12.0	32.0	12.7	7.7	0.0	15.6	32.9	0.0	6.7
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.78	0.90		1.00
Lane Grp Cap(c), veh/h	287	852	877	142	1420	603	190	0	175	392	0	359
V/C Ratio(X)	0.91	1.07	1.09	1.42	0.66	0.31	0.51	0.00	0.98	1.37	0.00	0.24
Avail Cap(c_a), veh/h	344	852	877	142	1420	603	190	0	175	392	0	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.9	39.1	39.2	69.1	36.7	30.9	63.4	0.0	66.9	58.2	0.0	47.5
Incr Delay (d2), s/veh	22.5	51.1	57.6	224.7	2.4	1.3	2.3	0.0	61.8	181.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	41.8	44.7	14.3	14.0	4.8	3.7	0.0	9.6	34.7	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.5	90.2	96.8	293.8	39.1	32.2	65.7	0.0	128.7	240.0	0.0	47.7
LnGrp LOS	F	F	F	F	D	C	E	A	F	F	A	D
Approach Vol, veh/h		2127			1319			268			623	
Approach Delay, s/veh		92.5			77.1			105.9			213.5	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	76.2		38.0	28.2	64.0		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	12.0	* 70		32.9	28.6	53.1		16.0				
Max Q Clear Time (g_c+I1), s	14.0	74.0		34.9	23.6	34.0		17.6				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	5.1		0.0				

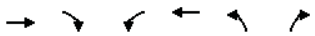
Intersection Summary	
HCM 6th Ctrl Delay	106.0
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2025 + P1 PM
03/18/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1917	207	371	1264	158	240
Future Volume (veh/h)	1917	207	371	1264	158	240
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2084	211	403	1374	194	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1986	198	349	2984	265	120
Arrive On Green	0.61	0.61	0.20	0.84	0.07	0.00
Sat Flow, veh/h	3357	325	1781	3647	3563	1610
Grp Volume(v), veh/h	1118	1177	403	1374	194	0
Grp Sat Flow(s),veh/h/ln	1777	1812	1781	1777	1781	1610
Q Serve(g_s), s	76.3	76.3	24.6	12.7	6.7	0.0
Cycle Q Clear(g_c), s	76.3	76.3	24.6	12.7	6.7	0.0
Prop In Lane		0.18	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1081	1102	349	2984	265	120
V/C Ratio(X)	1.03	1.07	1.15	0.46	0.73	0.00
Avail Cap(c_a), veh/h	1081	1102	349	2984	969	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.6	24.6	50.4	2.6	56.8	0.0
Incr Delay (d2), s/veh	36.6	47.1	96.7	0.1	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.9	42.8	20.0	2.3	3.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	61.2	71.7	147.1	2.7	60.7	0.0
LnGrp LOS	F	F	F	A	E	A
Approach Vol, veh/h	2295			1777	194	
Approach Delay, s/veh	66.5			35.5	60.7	
Approach LOS	E			D	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	29.0	82.2				111.2	14.2
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	24.6	* 76				105.1	34.1
Max Q Clear Time (g_c+I1), s	26.6	78.3				14.7	8.7
Green Ext Time (p_c), s	0.0	0.0				14.1	0.6

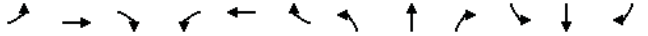
Intersection Summary			
HCM 6th Ctrl Delay		53.3	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2025 + P1 PM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1929	551	249	1131	15	560	6	363	7	7	6
Future Volume (veh/h)	8	1929	551	249	1131	15	560	6	363	7	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	2009	489	259	1178	15	583	6	353	7	7	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	2124	495	266	2072	26	349	3	610	42	29	0
Arrive On Green	0.01	0.52	0.50	0.08	0.58	0.57	0.32	0.32	0.31	0.32	0.32	0.00
Sat Flow, veh/h	1781	4122	960	3456	3592	46	931	10	1565	0	91	0
Grp Volume(v), veh/h	8	1643	855	259	583	610	589	0	353	14	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1678	1728	1777	1861	940	0	1565	91	0	0
Q Serve(g_s), s	0.6	58.8	65.4	9.7	26.8	26.9	0.0	0.0	23.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	58.8	65.4	9.7	26.8	26.9	41.0	0.0	23.2	41.0	0.0	0.0
Prop In Lane	1.00		0.57	1.00		0.02	0.99		1.00	0.50		0.00
Lane Grp Cap(c), veh/h	19	1754	865	266	1025	1073	352	0	610	70	0	0
V/C Ratio(X)	0.42	0.94	0.99	0.97	0.57	0.57	1.67	0.00	0.58	0.20	0.00	0.00
Avail Cap(c_a), veh/h	82	1754	865	266	1025	1073	352	0	610	70	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	63.9	29.5	31.7	59.9	17.3	17.3	47.7	0.0	31.4	36.5	0.0	0.0
Incr Delay (d2), s/veh	5.2	10.1	27.6	43.3	1.9	1.8	315.9	0.0	4.0	6.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	24.6	31.1	5.8	10.7	11.2	42.5	0.0	9.4	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	39.6	59.3	103.2	19.2	19.2	363.6	0.0	35.4	42.8	0.0	0.0
LnGrp LOS	E	D	E	F	B	B	F	A	D	D	A	A
Approach Vol, veh/h		2506			1452			942			14	
Approach Delay, s/veh		46.4			34.2			240.6			42.8	
Approach LOS		D			C			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	71.0		45.0	5.4	79.6		45.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	9.6	65.1		40.1	5.6	* 70		40.1				
Max Q Clear Time (g_c+I1), s	11.7	67.4		43.0	2.6	28.9		43.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	12.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		80.0	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2025 + P1 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	2123	65	302	1295	65	49	1	285	28	1	16
Future Volume (veh/h)	36	2123	65	302	1295	65	49	1	285	28	1	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	2166	59	308	1321	71	50	1	212	30	1	17
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	3311	90	230	2633	1161	271	1	236	47	2	40
Arrive On Green	0.64	0.65	0.64	0.07	0.74	0.73	0.15	0.15	0.15	0.03	0.03	0.03
Sat Flow, veh/h	388	5108	139	3456	3554	1585	1781	7	1579	1781	89	1510
Grp Volume(v), veh/h	39	1442	783	308	1321	71	50	0	213	30	0	18
Grp Sat Flow(s),veh/h/ln	388	1702	1843	1728	1777	1585	1781	0	1586	1781	0	1599
Q Serve(g_s), s	7.1	38.8	39.1	10.0	23.0	1.9	3.7	0.0	19.8	2.5	0.0	1.7
Cycle Q Clear(g_c), s	16.1	38.8	39.1	10.0	23.0	1.9	3.7	0.0	19.8	2.5	0.0	1.7
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	273	2206	1194	230	2633	1161	271	0	237	47	0	42
V/C Ratio(X)	0.14	0.65	0.66	1.34	0.50	0.06	0.18	0.00	0.90	0.64	0.00	0.43
Avail Cap(c_a), veh/h	273	2206	1194	230	2633	1161	373	0	328	190	0	171
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	16.1	16.2	70.0	8.0	5.6	55.5	0.0	62.5	72.3	0.0	71.9
Incr Delay (d2), s/veh	0.1	0.1	0.3	178.0	0.7	0.1	0.1	0.0	17.3	13.5	0.0	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	13.9	15.3	10.1	7.8	0.6	1.7	0.0	9.1	1.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	16.2	16.5	248.0	8.7	5.7	55.6	0.0	79.8	85.8	0.0	78.6
LnGrp LOS	B	B	B	F	A	A	E	A	E	F	A	E
Approach Vol, veh/h		2264			1700			263			48	
Approach Delay, s/veh		16.3			51.9			75.2			83.1	
Approach LOS		B			D			E			F	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.0	101.2		8.0		115.2		26.8				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	9.6	75.2		16.0		* 78		31.0				
Max Q Clear Time (g_c+I1), s	12.0	41.1		4.5		25.0		21.8				
Green Ext Time (p_c), s	0.0	25.7		0.1		17.9		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	2456	55	584	1553	31	43	5	331	21	4	7
Future Volume (veh/h)	26	2456	55	584	1553	31	43	5	331	21	4	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	2585	58	615	1635	33	45	0	351	22	4	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	3249	73	530	3930	79	225	0	418	185	81	141
Arrive On Green	0.02	0.63	0.62	0.31	1.00	1.00	0.13	0.00	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	5137	115	3456	5149	104	1379	0	3113	1019	602	1054
Grp Volume(v), veh/h	27	1708	935	615	1081	587	45	0	351	22	0	11
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1728	1702	1849	1379	0	1557	1019	0	1657
Q Serve(g_s), s	2.3	55.5	56.5	23.0	0.0	0.0	4.4	0.0	16.5	2.9	0.0	0.9
Cycle Q Clear(g_c), s	2.3	55.5	56.5	23.0	0.0	0.0	5.3	0.0	16.5	2.9	0.0	0.9
Prop In Lane	1.00		0.06	1.00		0.06	1.00		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	39	2153	1169	530	2598	1411	225	0	418	185	0	222
V/C Ratio(X)	0.69	0.79	0.80	1.16	0.42	0.42	0.20	0.00	0.84	0.12	0.00	0.05
Avail Cap(c_a), veh/h	108	2153	1169	530	2598	1411	324	0	641	258	0	341
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.9	20.3	20.5	52.0	0.0	0.0	58.9	0.0	63.4	57.5	0.0	56.9
Incr Delay (d2), s/veh	7.9	3.1	5.8	91.7	0.5	0.9	0.2	0.0	3.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	21.1	24.2	15.1	0.2	0.4	1.6	0.0	6.8	0.8	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.8	23.4	26.3	143.7	0.5	0.9	59.1	0.0	67.0	57.6	0.0	56.9
LnGrp LOS	F	C	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2670			2283			396			33	
Approach Delay, s/veh		25.0			39.2			66.1			57.3	
Approach LOS		C			D			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	98.9		24.1	7.3	118.6		24.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	22.6	82.7		30.0	8.7	* 97		30.0				
Max Q Clear Time (g_c+I1), s	25.0	58.5		4.9	4.3	2.0		18.5				
Green Ext Time (p_c), s	0.0	21.5		0.1	0.0	25.7		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	146.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2604	131	0	2146	0	402
Future Vol, veh/h	2604	131	0	2146	0	402
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2893	146	0	2384	0	447

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1537
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 90
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 88
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1929.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	88	-	-	-
HCM Lane V/C Ratio	5.076	-	-	-
HCM Control Delay (s)	$ 1929.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	48.3	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	991	436	460	750
Future Volume (Veh/h)	0	0	991	436	460	750
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1077	474	500	815
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2484	538			1551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2484	538			1551	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	487			423	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	718	517	316	500	408	408
Volume Left	0	0	0	500	0	0
Volume Right	0	158	316	0	0	0
cSH	1700	1700	1700	423	1700	1700
Volume to Capacity	0.42	0.30	0.19	1.18	0.24	0.24
Queue Length 95th (ft)	0	0	0	483	0	0
Control Delay (s)	0.0	0.0	0.0	133.0	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			50.6		
Approach LOS						

Intersection Summary				
Average Delay	23.2			
Intersection Capacity Utilization	64.2%	ICU Level of Service		C
Analysis Period (min)	15			

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	2198	851	402	1536	1189	508	55	988	493	0	196
Future Volume (veh/h)	144	2198	851	402	1536	1189	508	55	988	493	0	196
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	2314	0	423	1617	1252	535	58	1040	519	0	206
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2653		473	2288	1771	700	324	847	590	257	384
Arrive On Green	0.20	0.82	0.00	0.14	0.45	0.45	0.20	0.17	0.17	0.17	0.00	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2748	3456	1870	1550
Grp Volume(v), veh/h	152	2314	0	423	1617	1252	535	58	1040	519	0	206
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1374	1728	1870	1550
Q Serve(g_s), s	5.8	33.7	0.0	18.1	38.4	44.6	21.9	4.0	25.4	22.0	0.0	17.3
Cycle Q Clear(g_c), s	5.8	33.7	0.0	18.1	38.4	44.6	21.9	4.0	25.4	22.0	0.0	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2653		473	2288	1771	700	324	847	590	257	384
V/C Ratio(X)	0.43	0.87		0.89	0.71	0.71	0.76	0.18	1.23	0.88	0.00	0.54
Avail Cap(c_a), veh/h	350	2653		530	2288	1771	700	324	847	1221	524	605
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	10.7	0.0	63.7	33.4	18.2	56.4	52.9	52.1	60.7	0.0	49.3
Incr Delay (d2), s/veh	0.3	4.3	0.0	16.1	1.8	2.4	7.8	1.2	112.7	1.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.8	0.0	8.9	15.7	14.6	10.4	2.0	29.2	9.8	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	15.0	0.0	79.8	35.3	20.5	64.2	54.1	164.8	62.4	0.0	49.7
LnGrp LOS	E	B		E	D	C	E	D	F	E	A	D
Approach Vol, veh/h		2466	A		3292			1633			725	
Approach Delay, s/veh		17.5			35.4			127.9			58.8	
Approach LOS		B			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.5	65.9	34.4	25.2	19.2	71.2	29.6	30.0
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	23.0	35.0	29.8	42.0	* 15	42.8	52.4	19.4
Max Q Clear Time (g_c+I1), s	20.1	35.7	23.9	19.3	7.8	46.6	24.0	27.4
Green Ext Time (p_c), s	0.5	0.0	0.7	0.3	0.1	0.0	1.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2025 + P1 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	731	2867	0	0	1988	1060	0	0	0	785	0	1139
Future Volume (veh/h)	731	2867	0	0	1988	1060	0	0	0	785	0	1139
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	769	3018	0	0	2093	1011				826	0	1073
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	583	9819	0	0	7158	3051				1036	0	1133
Arrive On Green	0.17	1.00	0.00	0.00	1.00	1.00				0.21	0.00	0.22
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	769	3018	0	0	2093	1011				826	0	1073
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	13.5	0.0	0.0	0.0	0.0	0.0				12.5	0.0	18.0
Cycle Q Clear(g_c), s	13.5	0.0	0.0	0.0	0.0	0.0				12.5	0.0	18.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	583	9819	0	0	7158	3051				1036	0	1133
V/C Ratio(X)	1.32	0.31	0.00	0.00	0.29	0.33				0.80	0.00	0.95
Avail Cap(c_a), veh/h	583	9819	0	0	7158	3051				1036	0	1133
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	0.0	0.0	0.0	0.0				30.2	0.0	22.9
Incr Delay (d2), s/veh	154.9	0.1	0.0	0.0	0.1	0.3				4.1	0.0	15.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.1	0.0	0.0	0.1	0.1				5.2	0.0	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	188.1	0.1	0.0	0.0	0.1	0.3				34.3	0.0	38.4
LnGrp LOS	F	A	A	A	A	A				C	A	D
Approach Vol, veh/h		3787			3104						1899	
Approach Delay, s/veh		38.3			0.2						36.6	
Approach LOS		D			A						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	94.5		21.0		111.5
Change Period (Y+Rc), s	4.0	5.5		4.5		* 5.5
Max Green Setting (Gmax), s	13.0	36.5		16.5		* 55
Max Q Clear Time (g_c+I1), s	15.5	2.0		20.0		2.0
Green Ext Time (p_c), s	0.0	21.7		0.0		44.4

Intersection Summary	
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	428	2659	807	157	1621	61	504	98	235	166	104	701
Future Volume (veh/h)	428	2659	807	157	1621	61	504	98	235	166	104	701
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	441	2741	832	162	1671	63	520	101	242	171	107	723
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	493	2983	1235	160	2405	582	460	587	498	162	457	638
Arrive On Green	0.14	0.46	0.46	0.05	0.37	0.37	0.13	0.33	0.32	0.05	0.24	0.24
Sat Flow, veh/h	3456	6434	2664	3456	6434	1556	3456	1777	1508	3456	1870	2613
Grp Volume(v), veh/h	441	2741	832	162	1671	63	520	101	242	171	107	723
Grp Sat Flow(s),veh/h/ln	1728	1609	1332	1728	1609	1556	1728	1777	1508	1728	1870	1306
Q Serve(g_s), s	18.9	60.1	36.8	7.0	33.2	4.0	20.1	6.1	19.4	7.1	6.9	36.9
Cycle Q Clear(g_c), s	18.9	60.1	36.8	7.0	33.2	4.0	20.1	6.1	19.4	7.1	6.9	36.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	493	2983	1235	160	2405	582	460	587	498	162	457	638
V/C Ratio(X)	0.89	0.92	0.67	1.01	0.69	0.11	1.13	0.17	0.49	1.05	0.23	1.13
Avail Cap(c_a), veh/h	533	2983	1235	160	2405	582	460	587	498	162	457	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.6	37.8	31.6	72.0	40.0	30.9	65.4	35.9	40.7	71.9	45.7	57.0
Incr Delay (d2), s/veh	15.8	5.9	3.0	74.1	1.7	0.4	82.8	0.1	0.3	85.2	0.2	78.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	23.8	12.4	4.7	13.1	1.6	14.2	2.7	7.4	5.1	3.3	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.4	43.7	34.5	146.1	41.7	31.2	148.2	35.9	41.0	157.1	45.9	135.1
LnGrp LOS	E	D	C	F	D	C	F	D	D	F	D	F
Approach Vol, veh/h		4014			1896			863			1001	
Approach Delay, s/veh		45.8			50.2			105.0			129.3	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	75.0	24.1	40.9	25.6	60.4	11.1	53.9
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	6.6	* 69	19.7	36.0	22.9	51.2	6.7	49.0
Max Q Clear Time (g_c+I1), s	9.0	62.1	22.1	38.9	20.9	35.2	9.1	21.4
Green Ext Time (p_c), s	0.0	6.3	0.0	0.0	0.2	12.8	0.0	1.5

Intersection Summary		
HCM 6th Ctrl Delay		64.2
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	252	7	365	282	801	0	0	1188	332
Future Volume (veh/h)	0	0	0	252	7	365	282	801	0	0	1188	332
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				286	0	406	313	890	0	0	1320	369
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1014	0	443	388	2246	0	0	1748	775
Arrive On Green				0.28	0.00	0.28	0.15	0.84	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				286	0	406	313	890	0	0	1320	369
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1576
Q Serve(g_s), s				6.7	0.0	27.3	9.5	6.5	0.0	0.0	32.4	16.8
Cycle Q Clear(g_c), s				6.7	0.0	27.3	9.5	6.5	0.0	0.0	32.4	16.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1014	0	443	388	2246	0	0	1748	775
V/C Ratio(X)				0.28	0.00	0.92	0.81	0.40	0.00	0.00	0.76	0.48
Avail Cap(c_a), veh/h				1056	0	461	512	2246	0	0	1748	775
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.61	0.61	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.0	0.0	37.4	44.8	3.7	0.0	0.0	22.2	18.2
Incr Delay (d2), s/veh				0.2	0.0	22.7	3.3	0.3	0.0	0.0	3.1	2.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	12.6	4.1	1.9	0.0	0.0	13.7	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.2	0.0	60.1	48.1	4.0	0.0	0.0	25.3	20.3
LnGrp LOS				C	A	E	D	A	A	A	C	C
Approach Vol, veh/h					692			1203			1689	
Approach Delay, s/veh					47.7			15.5			24.2	
Approach LOS					D			B			C	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		73.2			16.1	57.1		34.8
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 67			15.6	45.7		31.1
Max Q Clear Time (g_c+I1), s		8.5			11.5	34.4		29.3
Green Ext Time (p_c), s		6.7			0.3	9.7		0.6

Intersection Summary		
HCM 6th Ctrl Delay		25.8
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	7	389	0	0	0	0	729	467	670	793	0
Future Volume (veh/h)	344	7	389	0	0	0	0	729	467	670	793	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	388	0	158				0	810	388	744	881	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	490	0	218				0	1245	594	723	2801	0
Arrive On Green	0.14	0.00	0.14				0.00	0.53	0.52	0.42	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2427	1113	3456	3647	0
Grp Volume(v), veh/h	388	0	158				0	616	582	744	881	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1670	1728	1777	0
Q Serve(g_s), s	11.4	0.0	10.3				0.0	26.7	27.2	22.6	0.0	0.0
Cycle Q Clear(g_c), s	11.4	0.0	10.3				0.0	26.7	27.2	22.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.67	1.00		0.00
Lane Grp Cap(c), veh/h	490	0	218				0	948	891	723	2801	0
V/C Ratio(X)	0.79	0.00	0.72				0.00	0.65	0.65	1.03	0.31	0.00
Avail Cap(c_a), veh/h	561	0	249				0	948	891	723	2801	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	45.1	0.0	44.6				0.0	18.0	18.4	31.4	0.0	0.0
Incr Delay (d2), s/veh	6.7	0.0	8.6				0.0	3.4	3.7	35.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	4.4				0.0	11.4	11.0	10.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	0.0	53.2				0.0	21.4	22.1	66.8	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		546						1198			1625	
Approach Delay, s/veh		52.2						21.8			30.7	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	62.1		18.9		89.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 55		16.1		81.2						
Max Q Clear Time (g_c+I1), s	24.6	29.2		13.4		2.0						
Green Ext Time (p_c), s	0.0	13.1		0.6		9.9						

Intersection Summary			
HCM 6th Ctrl Delay			31.0
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2025 + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	425	6	225	632	745	0	0	784	303
Future Volume (veh/h)	0	0	0	425	6	225	632	745	0	0	784	303
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				352	152	242	680	801	0	0	843	326
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				454	166	264	638	2429	0	0	2383	729
Arrive On Green				0.25	0.25	0.25	0.18	0.68	0.00	0.00	0.47	0.46
Sat Flow, veh/h				1781	650	1034	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				352	0	394	680	801	0	0	843	326
Grp Sat Flow(s),veh/h/ln				1781	0	1684	1728	1777	0	0	1702	1585
Q Serve(g_s), s				23.9	0.0	29.6	24.0	12.0	0.0	0.0	13.7	18.2
Cycle Q Clear(g_c), s				23.9	0.0	29.6	24.0	12.0	0.0	0.0	13.7	18.2
Prop In Lane				1.00		0.61	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				454	0	429	638	2429	0	0	2383	729
V/C Ratio(X)				0.78	0.00	0.92	1.07	0.33	0.00	0.00	0.35	0.45
Avail Cap(c_a), veh/h				480	0	453	638	2429	0	0	2383	729
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.65	0.65	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.0	0.0	47.4	53.0	8.4	0.0	0.0	22.1	23.9
Incr Delay (d2), s/veh				6.6	0.0	22.2	48.0	0.2	0.0	0.0	0.4	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.1	0.0	14.7	14.6	4.5	0.0	0.0	5.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.5	0.0	69.6	101.0	8.6	0.0	0.0	22.6	25.9
LnGrp LOS				D	A	E	F	A	A	A	C	C
Approach Vol, veh/h					746			1481			1169	
Approach Delay, s/veh					61.1			51.0			23.5	
Approach LOS					E			D			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		92.9			28.0	64.9		37.1				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		85.9			23.1	* 58		34.1				
Max Q Clear Time (g_c+I1), s		14.0			26.0	20.2		31.6				
Green Ext Time (p_c), s		8.3			0.0	8.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		43.8	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2025 + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	503	7	501	0	0	0	0	824	378	404	755	0
Future Volume (veh/h)	503	7	501	0	0	0	0	824	378	404	755	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	553	0	545				0	896	411	439	821	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1299	0	578				0	1453	451	460	2033	0
Arrive On Green	0.36	0.00	0.36				0.00	0.28	0.28	0.52	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	553	0	545				0	896	411	439	821	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	15.2	0.0	43.3				0.0	19.8	32.6	30.5	0.0	0.0
Cycle Q Clear(g_c), s	15.2	0.0	43.3				0.0	19.8	32.6	30.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1299	0	578				0	1453	451	460	2033	0
V/C Ratio(X)	0.43	0.00	0.94				0.00	0.62	0.91	0.95	0.40	0.00
Avail Cap(c_a), veh/h	1398	0	622				0	1453	451	754	2033	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.92	0.92	0.00
Uniform Delay (d), s/veh	31.1	0.0	40.0				0.0	40.3	44.9	30.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	21.6				0.0	2.0	25.1	11.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	19.5				0.0	8.6	15.9	11.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	61.6				0.0	42.3	70.0	41.9	0.6	0.0
LnGrp LOS	C	A	E				A	D	E	D	A	A
Approach Vol, veh/h		1098						1307			1260	
Approach Delay, s/veh		46.2						51.0			15.0	
Approach LOS		D						D			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	37.6	41.0		51.4		78.6
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	54.6	10.9		50.1		* 70
Max Q Clear Time (g_c+I1), s	32.5	34.6		45.3		2.0
Green Ext Time (p_c), s	0.7	0.0		1.2		4.4

Intersection Summary			
HCM 6th Ctrl Delay			37.2
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

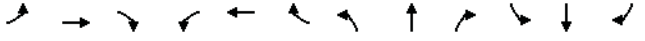
HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	2397	120	66	1618	24	54	6	110	136	7	68
Future Volume (veh/h)	21	2397	120	66	1618	24	54	6	110	136	7	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	23	2663	133	73	1798	27	60	7	122	151	8	76
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	3064	151	99	3365	51	155	33	279	262	18	113
Arrive On Green	0.02	0.59	0.57	0.05	0.62	0.61	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5184	255	1853	5390	81	449	125	1045	817	68	423
Grp Volume(v), veh/h	23	1807	989	73	1181	644	189	0	0	235	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1931	1618	0	0	1308	0	0
Q Serve(g_s), s	1.7	57.6	60.1	5.2	25.4	25.4	0.0	0.0	0.0	10.3	0.0	0.0
Cycle Q Clear(g_c), s	1.7	57.6	60.1	5.2	25.4	25.4	12.6	0.0	0.0	23.0	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.04	0.32		0.65	0.64		0.32
Lane Grp Cap(c), veh/h	37	2093	1123	99	2210	1205	467	0	0	393	0	0
V/C Ratio(X)	0.62	0.86	0.88	0.74	0.53	0.53	0.40	0.00	0.00	0.60	0.00	0.00
Avail Cap(c_a), veh/h	82	2093	1123	198	2210	1205	467	0	0	393	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.6	23.1	23.7	63.0	14.3	14.3	41.1	0.0	0.0	45.4	0.0	0.0
Incr Delay (d2), s/veh	6.1	5.0	10.0	4.0	0.9	1.7	2.6	0.0	0.0	6.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	23.2	27.6	2.5	9.6	10.8	5.6	0.0	0.0	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.7	28.1	33.7	67.0	15.2	16.0	43.7	0.0	0.0	52.0	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	D	A	A	D	A	A
Approach Vol, veh/h		2819			1898			189			235	
Approach Delay, s/veh		30.4			17.5			43.7			52.0	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	83.8		40.0	6.7	88.3		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	7.2	62.1		25.0	3.7	27.4		14.6
Green Ext Time (p_c), s	0.0	8.3		1.1	0.0	45.8		0.9

Intersection Summary			
HCM 6th Ctrl Delay			27.1
HCM 6th LOS			C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	8	44	254	10	306	62	696	128	215	472	32
Future Volume (veh/h)	33	8	44	254	10	306	62	696	128	215	472	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	9	47	273	11	329	67	748	138	231	508	34
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	16	85	333	13	302	92	1250	231	263	1693	113
Arrive On Green	0.07	0.10	0.07	0.19	0.19	0.19	0.05	0.42	0.40	0.15	0.50	0.50
Sat Flow, veh/h	642	165	863	1715	69	1555	1781	2946	543	1781	3363	224
Grp Volume(v), veh/h	91	0	0	284	0	329	67	451	435	231	268	274
Grp Sat Flow(s),veh/h/ln	1670	0	0	1785	0	1555	1781	1777	1713	1781	1777	1811
Q Serve(g_s), s	6.2	0.0	0.0	18.0	0.0	22.9	4.4	23.1	23.3	15.0	10.4	10.5
Cycle Q Clear(g_c), s	6.2	0.0	0.0	18.0	0.0	22.9	4.4	23.1	23.3	15.0	10.4	10.5
Prop In Lane	0.38		0.52	0.96		1.00	1.00		0.32	1.00		0.12
Lane Grp Cap(c), veh/h	165	0	0	346	0	302	92	754	727	263	895	912
V/C Ratio(X)	0.55	0.00	0.00	0.82	0.00	1.09	0.73	0.60	0.60	0.88	0.30	0.30
Avail Cap(c_a), veh/h	453	0	0	346	0	302	178	754	727	287	895	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	0.0	0.0	45.6	0.0	47.6	55.2	26.2	26.6	49.3	17.1	17.2
Incr Delay (d2), s/veh	1.1	0.0	0.0	16.0	0.0	78.3	4.1	3.5	3.6	22.4	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	9.5	0.0	15.4	2.1	10.4	10.2	8.3	4.4	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	0.0	61.6	0.0	125.9	59.3	29.7	30.3	71.7	18.0	18.0
LnGrp LOS	D	A	A	E	A	F	E	C	C	E	B	B
Approach Vol, veh/h		91			613			953			773	
Approach Delay, s/veh		53.1			96.1			32.0			34.1	
Approach LOS		D			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.4	54.1		15.6	10.1	65.5		26.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	18.6	47.2		29.1	11.4	* 56		20.0				
Max Q Clear Time (g_c+I1), s	17.0	25.3		8.2	6.4	12.5		24.9				
Green Ext Time (p_c), s	0.1	4.6		0.3	0.0	3.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		49.6	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	28.5
Intersection LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	410	161	72	437	165
Future Vol, veh/h	80	410	161	72	437	165
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	418	164	73	446	168
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	26.9	15.4	34.8
HCM LOS	D	C	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	69%
Vol Thru, %	0%	0%	16%	31%
Vol Right, %	0%	100%	84%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	437	165	490	233
LT Vol	437	0	0	161
Through Vol	0	0	80	72
RT Vol	0	165	410	0
Lane Flow Rate	446	168	500	238
Geometry Grp	7	7	2	2
Degree of Util (X)	0.886	0.277	0.789	0.452
Departure Headway (Hd)	7.153	5.931	5.679	6.85
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	504	601	630	530
Service Time	4.936	3.713	3.773	4.85
HCM Lane V/C Ratio	0.885	0.28	0.794	0.449
HCM Control Delay	43.8	11	26.9	15.4
HCM Lane LOS	E	B	D	C
HCM 95th-tile Q	9.8	1.1	7.7	2.3

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2025 + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	60	0	0	82	84	4	5	19	80	0	7
Future Volume (veh/h)	10	60	0	0	82	84	4	5	19	80	0	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	73	0	0	100	102	5	6	23	98	0	9
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	794	1297	0	0	648	563	468	38	146	563	0	264
Arrive On Green	0.36	0.36	0.00	0.00	0.36	0.31	0.11	0.11	0.11	0.17	0.00	0.17
Sat Flow, veh/h	1177	3647	0	0	1870	1543	1401	334	1282	1243	0	1581
Grp Volume(v), veh/h	12	73	0	0	100	102	5	0	29	98	0	9
Grp Sat Flow(s),veh/h/ln	1177	1777	0	0	1777	1543	1401	0	1616	1243	0	1581
Q Serve(g_s), s	0.1	0.2	0.0	0.0	0.6	0.8	0.1	0.0	0.3	1.1	0.0	0.1
Cycle Q Clear(g_c), s	0.9	0.2	0.0	0.0	0.6	0.8	1.4	0.0	0.3	1.4	0.0	0.1
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	794	1297	0	0	648	563	468	0	185	629	0	264
V/C Ratio(X)	0.02	0.06	0.00	0.00	0.15	0.18	0.01	0.00	0.16	0.16	0.00	0.03
Avail Cap(c_a), veh/h	1536	3536	0	0	1768	1536	2358	0	2364	2413	0	2313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.0	3.5	0.0	0.0	3.7	4.0	8.0	0.0	6.8	7.0	0.0	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.0	3.5	0.0	0.0	3.7	4.1	8.0	0.0	7.0	7.1	0.0	6.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		85			202			34			107	
Approach Delay, s/veh		3.6			3.9			7.1			7.0	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.2		6.9		10.2		6.9				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		16.1		24.1		16.1		* 25				
Max Q Clear Time (g_c+I1), s		2.9		3.4		2.8		3.4				
Green Ext Time (p_c), s		0.2		0.3		0.7		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	4.9
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	178	5	38	191	46	4	4	28	300	5	5
Future Volume (veh/h)	3	178	5	38	191	46	4	4	28	300	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	198	5	42	212	13	4	4	4	333	6	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	1162	29	432	1114	68	339	337	303	845	15	11
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1121	3536	89	1140	3391	206	485	604	545	1335	27	20
Grp Volume(v), veh/h	3	99	104	42	110	115	12	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	1121	1777	1849	1140	1777	1820	1634	0	0	1382	0	0
Q Serve(g_s), s	0.1	2.8	2.8	1.9	3.1	3.2	0.0	0.0	0.0	10.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	2.8	2.8	4.7	3.1	3.2	0.2	0.0	0.0	10.2	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.11	0.33		0.33	0.97		0.01
Lane Grp Cap(c), veh/h	421	584	607	432	584	598	979	0	0	871	0	0
V/C Ratio(X)	0.01	0.17	0.17	0.10	0.19	0.19	0.01	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	421	584	607	432	584	598	979	0	0	871	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	16.7	16.7	18.4	16.8	16.8	6.9	0.0	0.0	9.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.6	0.4	0.7	0.7	0.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	1.2	0.5	1.3	1.4	0.1	0.0	0.0	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	17.3	17.3	18.8	17.5	17.6	6.9	0.0	0.0	10.4	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		206			267			12			344	
Approach Delay, s/veh		17.3			17.7			6.9			10.4	
Approach LOS		B			B			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		43.0		27.0		43.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		23.0		39.0		23.0		39.0				
Max Q Clear Time (g_c+I1), s		5.3		12.2		6.7		2.2				
Green Ext Time (p_c), s		0.8		1.4		1.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	261	19	45	164	243	151
Future Volume (vph)	261	19	45	164	243	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3076		3433	1554
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3076		3433	1554
Peak-hour factor, PHF	0.65	0.65	0.65	0.65	0.65	0.65
Adj. Flow (vph)	402	29	69	252	374	232
RTOR Reduction (vph)	0	0	199	0	0	188
Lane Group Flow (vph)	402	29	122	0	374	44
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	31.8	56.0	19.8		18.4	18.4
Effective Green, g (s)	32.2	56.9	20.7		18.8	18.8
Actuated g/C Ratio	0.32	0.57	0.21		0.19	0.19
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	574	2029	641		650	294
v/s Ratio Prot	c0.23	0.01	c0.04		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.70	0.01	0.19		0.58	0.15
Uniform Delay, d1	29.3	9.1	32.3		36.6	33.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	0.0	0.2		0.8	0.1
Delay (s)	32.4	9.1	32.5		37.3	33.6
Level of Service	C	A	C		D	C
Approach Delay (s)		30.9	32.5		35.9	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2025 + P1 PM
03/06/2020

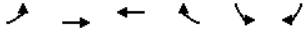
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	7	614	79	12	8	372	842	23	48	1158	67
Future Volume (veh/h)	110	7	614	79	12	8	372	842	23	48	1158	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.92	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	0	172	82	12	6	388	877	22	50	1206	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	554	0	236	101	15	7	437	2185	55	64	2612	139
Arrive On Green	0.16	0.00	0.16	0.07	0.07	0.07	0.13	0.62	0.61	0.04	0.53	0.52
Sat Flow, veh/h	3563	0	1515	1450	212	106	3456	3539	89	1781	4961	263
Grp Volume(v), veh/h	120	0	172	100	0	0	388	440	459	50	827	443
Grp Sat Flow(s),veh/h/ln	1781	0	1515	1768	0	0	1728	1777	1851	1781	1702	1820
Q Serve(g_s), s	4.4	0.0	16.2	8.4	0.0	0.0	16.6	18.9	18.9	4.2	22.8	22.9
Cycle Q Clear(g_c), s	4.4	0.0	16.2	8.4	0.0	0.0	16.6	18.9	18.9	4.2	22.8	22.9
Prop In Lane	1.00		1.00	0.82		0.06	1.00		0.05	1.00		0.14
Lane Grp Cap(c), veh/h	554	0	236	123	0	0	437	1097	1143	64	1792	958
V/C Ratio(X)	0.22	0.00	0.73	0.81	0.00	0.00	0.89	0.40	0.40	0.78	0.46	0.46
Avail Cap(c_a), veh/h	1166	0	496	284	0	0	544	1097	1143	114	1792	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.00	0.83	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	0.0	60.3	68.8	0.0	0.0	64.5	14.6	14.6	71.7	22.2	22.3
Incr Delay (d2), s/veh	0.2	0.0	4.6	4.8	0.0	0.0	12.4	1.1	1.1	7.3	0.9	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	6.6	4.0	0.0	0.0	8.1	8.0	8.3	2.0	9.4	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	0.0	64.9	73.6	0.0	0.0	76.9	15.7	15.7	79.0	23.1	23.9
LnGrp LOS	E	A	E	E	A	A	E	B	B	E	C	C
Approach Vol, veh/h		292			100			1287			1320	
Approach Delay, s/veh		61.1			73.6			34.1			25.5	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	96.6		28.2	23.4	83.1		15.3				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.6	47.7		49.1	23.6	33.7		24.1				
Max Q Clear Time (g_c+I1), s	6.2	20.9		18.2	18.6	24.9		10.4				
Green Ext Time (p_c), s	0.0	11.3		1.5	0.4	6.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay	34.3		
HCM 6th LOS	C		

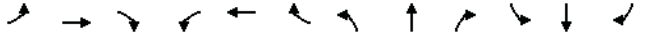
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	500	339	430	455	73
Future Volume (veh/h)	84	500	339	430	455	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	549	373	115	500	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	99	748	561	1284	910	810
Arrive On Green	0.06	0.40	0.30	0.30	0.51	0.51
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	92	549	373	115	500	11
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	4.6	22.4	15.7	1.3	17.2	0.3
Cycle Q Clear(g_c), s	4.6	22.4	15.7	1.3	17.2	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	99	748	561	1284	910	810
V/C Ratio(X)	0.93	0.73	0.66	0.09	0.55	0.01
Avail Cap(c_a), veh/h	99	748	561	1284	910	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	22.9	27.5	1.7	15.0	10.8
Incr Delay (d2), s/veh	67.1	3.3	6.1	0.1	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	10.1	7.8	1.9	7.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	109.4	26.2	33.7	1.9	17.3	10.9
LnGrp LOS	F	C	C	A	B	B
Approach Vol, veh/h		641	488		511	
Approach Delay, s/veh		38.2	26.2		17.2	
Approach LOS		D	C		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.0		50.0	9.0	31.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		35.1		45.1	4.6	26.1
Max Q Clear Time (g_c+I1), s		24.4		19.2	6.6	17.7
Green Ext Time (p_c), s		1.8		0.8	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	785	152	22	501	27	202	9	75	7	7	6
Future Volume (veh/h)	0	785	152	22	501	27	202	9	75	7	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	853	165	24	545	29	220	10	82	8	8	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1428	276	39	1852	98	613	67	553	231	229	184
Arrive On Green	0.00	0.48	0.48	0.02	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	3049	572	1781	3426	182	1391	172	1413	486	586	469
Grp Volume(v), veh/h	0	513	505	24	282	292	220	0	92	23	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1750	1781	1777	1832	1391	0	1586	1540	0	0
Q Serve(g_s), s	0.0	24.7	24.8	1.6	10.2	10.3	8.3	0.0	4.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	24.7	24.8	1.6	10.2	10.3	12.8	0.0	4.5	4.5	0.0	0.0
Prop In Lane	0.00		0.33	1.00		0.10	1.00		0.89	0.35		0.30
Lane Grp Cap(c), veh/h	0	858	846	39	961	990	613	0	621	644	0	0
V/C Ratio(X)	0.00	0.60	0.60	0.62	0.29	0.29	0.36	0.00	0.15	0.04	0.00	0.00
Avail Cap(c_a), veh/h	0	858	846	72	991	1022	613	0	621	644	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.2	22.3	57.2	14.8	14.8	25.6	0.0	23.5	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.1	3.1	5.8	0.1	0.1	0.4	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.9	10.8	0.8	4.1	4.3	4.5	0.0	1.7	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.2	25.4	63.0	14.9	15.0	26.0	0.0	23.6	22.3	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1018			598			312			23	
Approach Delay, s/veh		25.3			16.9			25.2			22.3	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.6	61.2		50.2		67.8		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	3.6	26.8		6.5		12.3		14.8				
Green Ext Time (p_c), s	0.0	6.7		0.1		3.4		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	844	12	56	549	6	37
Future Vol, veh/h	844	12	56	549	6	37
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	917	13	61	597	7	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	932	0	1347	467
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	421	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	730	-	142	542
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	729	-	130	541
Mov Cap-2 Maneuver	-	-	-	-	130	-
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	130	541	-	-	729	-
HCM Lane V/C Ratio	0.05	0.074	-	-	0.083	-
HCM Control Delay (s)	34.2	12.2	-	-	10.4	-
HCM Lane LOS	D	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	769	77	273	638	46	98	6	301	24	9	17
Future Volume (veh/h)	46	769	77	273	638	46	98	6	301	24	9	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	809	81	287	672	48	103	6	317	25	9	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	1492	149	226	1832	131	417	10	510	135	52	80
Arrive On Green	0.04	0.46	0.46	0.13	0.55	0.55	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1781	3242	325	1781	3351	239	1377	29	1531	298	157	241
Grp Volume(v), veh/h	48	443	447	287	356	364	103	0	323	52	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1790	1781	1777	1813	1377	0	1560	696	0	0
Q Serve(g_s), s	4.0	26.9	26.9	19.0	17.0	17.1	0.0	0.0	26.1	2.2	0.0	0.0
Cycle Q Clear(g_c), s	4.0	26.9	26.9	19.0	17.0	17.1	12.9	0.0	26.1	28.3	0.0	0.0
Prop In Lane	1.00		0.18	1.00		0.13	1.00		0.98	0.48		0.35
Lane Grp Cap(c), veh/h	71	817	823	226	971	991	417	0	520	267	0	0
V/C Ratio(X)	0.67	0.54	0.54	1.27	0.37	0.37	0.25	0.00	0.62	0.19	0.00	0.00
Avail Cap(c_a), veh/h	131	817	823	226	971	991	417	0	520	267	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	29.1	29.1	65.5	19.3	19.3	37.6	0.0	42.0	41.3	0.0	0.0
Incr Delay (d2), s/veh	4.1	2.6	2.6	152.4	0.2	0.2	1.4	0.0	5.5	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	12.2	12.3	18.2	7.2	7.4	3.1	0.0	10.9	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.1	31.7	31.7	217.9	19.5	19.5	39.0	0.0	47.5	42.9	0.0	0.0
LnGrp LOS	E	C	C	F	B	B	D	A	D	D	A	A
Approach Vol, veh/h		938			1007			426			52	
Approach Delay, s/veh		33.9			76.0			45.5			42.9	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	73.0		54.0	10.0	86.0		54.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	19.0	69.0		50.0	11.0	77.0		50.0				
Max Q Clear Time (g_c+I1), s	21.0	28.9		30.3	6.0	19.1		28.1				
Green Ext Time (p_c), s	0.0	7.2		0.1	0.0	5.3		1.6				

Intersection Summary		
HCM 6th Ctrl Delay		53.7
HCM 6th LOS		D

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2025 + P1 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	530	271	335	347	326	251	566	168	507	984	336
Future Volume (veh/h)	285	530	271	335	347	326	251	566	168	507	984	336
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	300	558	225	353	365	164	264	596	123	534	1036	86
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	658	264	409	679	299	276	1420	287	595	2184	668
Arrive On Green	0.10	0.27	0.26	0.12	0.29	0.28	0.16	0.67	0.65	0.17	0.43	0.43
Sat Flow, veh/h	3456	2454	987	3456	2377	1048	3456	4232	855	3456	5106	1562
Grp Volume(v), veh/h	300	404	379	353	271	258	264	477	242	534	1036	86
Grp Sat Flow(s),veh/h/ln	1728	1777	1664	1728	1777	1649	1728	1702	1684	1728	1702	1562
Q Serve(g_s), s	12.8	32.3	32.5	15.0	19.3	20.0	11.4	9.6	10.2	22.7	21.9	5.0
Cycle Q Clear(g_c), s	12.8	32.3	32.5	15.0	19.3	20.0	11.4	9.6	10.2	22.7	21.9	5.0
Prop In Lane	1.00		0.59	1.00		0.64	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	357	476	446	409	508	471	276	1142	565	595	2184	668
V/C Ratio(X)	0.84	0.85	0.85	0.86	0.53	0.55	0.95	0.42	0.43	0.90	0.47	0.13
Avail Cap(c_a), veh/h	484	610	571	488	617	573	276	1142	565	737	2184	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.0	52.0	52.3	64.9	45.2	45.7	62.7	18.0	18.5	60.8	30.8	26.0
Incr Delay (d2), s/veh	6.0	7.3	8.0	11.5	1.7	1.9	38.2	1.0	2.1	10.6	0.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	15.4	14.6	7.3	8.8	8.5	6.1	3.3	3.6	10.9	9.2	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.0	59.3	60.3	76.5	46.9	47.7	100.9	18.9	20.6	71.4	31.6	26.4
LnGrp LOS	E	E	E	E	D	D	F	B	C	E	C	C
Approach Vol, veh/h		1083			882			983			1656	
Approach Delay, s/veh		63.2			59.0			41.4			44.1	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.8	54.2	21.7	44.2	16.0	68.1	19.5	46.4
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	31.6	28.1	20.8	50.6	11.6	* 48	20.6	50.8
Max Q Clear Time (g_c+I1), s	24.7	12.2	17.0	34.5	13.4	23.9	14.8	22.0
Green Ext Time (p_c), s	0.7	6.5	0.3	4.8	0.0	13.6	0.3	6.4

Intersection Summary	
HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2025 + P1 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	198	296	314	313	493	195	403	637	411	1019	66
Future Volume (veh/h)	24	198	296	314	313	493	195	403	637	411	1019	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	204	0	324	323	508	201	415	0	424	1051	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	854		380	622	517	258	1517		392	1655	721
Arrive On Green	0.02	0.24	0.00	0.11	0.33	0.33	0.07	0.43	0.00	0.23	0.93	0.93
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1550
Grp Volume(v), veh/h	25	204	0	324	323	508	201	415	0	424	1051	10
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1550
Q Serve(g_s), s	2.1	6.9	0.0	13.8	20.9	48.6	8.6	11.4	0.0	17.0	7.5	0.1
Cycle Q Clear(g_c), s	2.1	6.9	0.0	13.8	20.9	48.6	8.6	11.4	0.0	17.0	7.5	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	36	854		380	622	517	258	1517		392	1655	721
V/C Ratio(X)	0.69	0.24		0.85	0.52	0.98	0.78	0.27		1.08	0.64	0.01
Avail Cap(c_a), veh/h	191	1066		484	622	517	461	1517		392	1655	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.56	0.56	0.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	73.0	45.9	0.0	65.5	40.4	49.6	68.2	27.9	0.0	58.0	3.0	2.8
Incr Delay (d2), s/veh	8.3	0.1	0.0	9.4	0.4	34.7	1.1	0.2	0.0	63.8	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	0.0	6.6	9.8	23.8	3.8	5.0	0.0	10.2	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.3	46.1	0.0	74.9	40.7	84.3	69.3	28.1	0.0	121.8	4.4	2.8
LnGrp LOS	F	D		E	D	F	E	C		F	A	A
Approach Vol, veh/h		229	A		1155			616	A		1485	
Approach Delay, s/veh		49.9			69.5			41.6			37.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	68.0	20.5	40.4	15.2	73.8	7.1	53.9
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	16.6	50.1	20.6	* 44	19.6	47.1	15.7	48.6
Max Q Clear Time (g_c+I1), s	19.0	13.4	15.8	8.9	10.6	9.5	4.1	50.6
Green Ext Time (p_c), s	0.0	1.9	0.3	1.4	0.2	15.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2025 + P1 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	667	0	412	0	0	0	0	597	377	946	506	0
Future Volume (vph)	667	0	412	0	0	0	0	597	377	946	506	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3310	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3310	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	702	0	434	0	0	0	0	628	397	996	533	0
RTOR Reduction (vph)	0	0	346	0	0	0	0	0	251	0	0	0
Lane Group Flow (vph)	702	0	88	0	0	0	0	628	146	498	1031	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	23.7		23.7					45.0	45.0	38.0	38.0	
Effective Green, g (s)	25.3		25.3					46.0	46.0	39.6	39.6	
Actuated g/C Ratio	0.20		0.20					0.37	0.37	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	694		320					1302	582	510	1048	
v/s Ratio Prot	c0.20							c0.18		0.31	c0.31	
v/s Ratio Perm			0.06						0.09			
v/c Ratio	1.01		0.27					0.48	0.25	0.98	0.98	
Uniform Delay, d1	49.9		42.1					30.4	27.5	42.2	42.4	
Progression Factor	1.00		1.00					0.36	0.20	1.00	1.00	
Incremental Delay, d2	37.1		2.1					0.1	0.1	33.6	23.8	
Delay (s)	86.9		44.2					11.0	5.4	75.9	66.2	
Level of Service	F		D					B	A	E	E	
Approach Delay (s)		70.6			0.0			8.9			69.3	
Approach LOS		E			A			A			E	

Intersection Summary				
HCM 2000 Control Delay	52.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	76.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2025 + P1 PM
02/27/2020

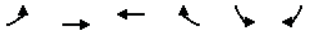


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	607	96	7	5	84	339	7	30	13	473	29	383
Future Volume (vph)	607	96	7	5	84	339	7	30	13	473	29	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3260			3529	1583		1779		1681	1695	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3260			3529	1583		1779		1681	1695	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	674	107	8	6	93	377	8	33	14	526	32	426
RTOR Reduction (vph)	0	1	0	0	0	69	0	10	0	0	0	236
Lane Group Flow (vph)	337	451	0	0	99	308	0	45	0	279	279	190
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	21.9	21.9			17.0	71.2		7.5		54.2	54.2	54.2
Effective Green, g (s)	23.5	23.5			18.6	71.2		9.0		55.8	55.8	55.8
Actuated g/C Ratio	0.19	0.19			0.15	0.57		0.07		0.45	0.45	0.45
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	302	612			525	901		128		750	756	706
v/s Ratio Prot	c0.21	0.14			0.03	c0.15		c0.03		c0.17	0.16	
v/s Ratio Perm						0.05						0.12
v/c Ratio	1.12	1.07dl			0.19	0.34		0.35		0.37	0.37	0.27
Uniform Delay, d1	50.8	47.8			46.6	14.4		55.2		23.0	22.9	21.8
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.49	0.48	0.51
Incremental Delay, d2	86.7	7.7			0.8	1.0		7.4		0.8	0.8	0.5
Delay (s)	137.4	55.6			47.4	15.4		62.6		11.9	11.9	11.6
Level of Service	F	E			D	B		E		B	B	B
Approach Delay (s)		90.5			22.1			62.6			11.8	
Approach LOS		F			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	54.6%	ICU Level of Service	A	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	689	414	469	181	361	94
Future Volume (veh/h)	689	414	469	181	361	94
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	733	440	499	0	384	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	753	1506	1254		468	869
Arrive On Green	0.42	0.81	0.35	0.00	0.14	0.13
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	733	440	499	0	384	14
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	54.4	8.1	14.2	0.0	14.6	0.5
Cycle Q Clear(g_c), s	54.4	8.1	14.2	0.0	14.6	0.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	753	1506	1254		468	869
V/C Ratio(X)	0.97	0.29	0.40		0.82	0.02
Avail Cap(c_a), veh/h	939	1506	1254		603	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	3.3	32.8	0.0	56.7	13.9
Incr Delay (d2), s/veh	19.8	0.5	0.9	0.0	5.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.5	2.7	6.4	0.0	6.7	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.0	3.8	33.8	0.0	62.1	13.9
LnGrp LOS	E	A	C		E	B
Approach Vol, veh/h		1173	499	A	398	
Approach Delay, s/veh		37.7	33.8		60.4	
Approach LOS		D	C		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.5		22.3	60.9	51.6
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.5		22.0	* 71	32.5
Max Q Clear Time (g_c+I1), s		10.1		16.6	56.4	16.2
Green Ext Time (p_c), s		1.9		0.2	0.3	2.1

Intersection Summary		
HCM 6th Ctrl Delay		41.1
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	5	26	49	298	36	21	72	22	283	8	50	6
Future Volume (vph)	5	26	49	298	36	21	72	22	283	8	50	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	28	53	324	39	23	78	24	308	9	54	7

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	86	324	62	410	70
Volume Left (vph)	5	324	0	78	9
Volume Right (vph)	53	0	23	308	7
Hadj (s)	-0.32	0.53	-0.23	-0.38	0.00
Departure Headway (s)	5.7	6.5	5.7	5.0	6.0
Degree Utilization, x	0.14	0.58	0.10	0.57	0.12
Capacity (veh/h)	557	534	602	678	532
Control Delay (s)	9.6	16.9	8.1	14.6	9.8
Approach Delay (s)	9.6	15.5		14.6	9.8
Approach LOS	A	C		B	A

Intersection Summary				
Delay	14.1			
Level of Service	B			
Intersection Capacity Utilization	59.1%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	0	143	0	477	106	0	0	0	0	174	218
Future Volume (veh/h)	266	0	143	0	477	106	0	0	0	0	174	218
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	313	0	0	0	561	125				0	205	256
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85				0.85	0.85	0.85
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	430	0		0	1660	740				0	0	0
Arrive On Green	0.24	0.00	0.00	0.00	0.47	0.47				0.00	0.13	0.13
Sat Flow, veh/h	1781	313		0	3647	1585					0	
Grp Volume(v), veh/h	313	8.7		0	561	125					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	3.6			0.0	2.2	1.0						
Cycle Q Clear(g_c), s	3.6			0.0	2.2	1.0						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	430			0	1660	740						
V/C Ratio(X)	0.73			0.00	0.34	0.17						
Avail Cap(c_a), veh/h	1477			0	3026	1350						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	7.8			0.0	3.8	3.4						
Incr Delay (d2), s/veh	0.9			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.8			0.0	0.2	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7			0.0	3.9	3.5						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					686							
Approach Delay, s/veh					3.8							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							9.9	12.4				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							18.0	16.0				
Max Q Clear Time (g_c+I1), s							5.6	4.2				
Green Ext Time (p_c), s							0.1	3.3				

Intersection Summary												
HCM 6th Ctrl Delay			5.3									
HCM 6th LOS			A									

Notes

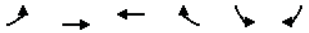
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	119.2
Intersection LOS	F

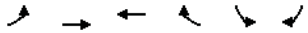
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	360	20	412	135	10	161	5	692	5	5	5
Future Vol, veh/h	5	360	20	412	135	10	161	5	692	5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	387	22	443	145	11	173	5	744	5	5	5
Number of Lanes	0	1	1	1	1	0	0	1	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	45.9	60.7	191.8	14.2
HCM LOS	E	F	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	97%	0%	1%	0%	100%	0%	33%
Vol Thru, %	3%	0%	99%	0%	0%	93%	33%
Vol Right, %	0%	100%	0%	100%	0%	7%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	692	365	20	412	145	15
LT Vol	161	0	5	0	412	0	5
Through Vol	5	0	360	0	0	135	5
RT Vol	0	692	0	20	0	10	5
Lane Flow Rate	178	744	392	22	443	156	16
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.404	1.452	0.867	0.043	1.003	0.329	0.043
Departure Headway (Hd)	8.296	7.023	8.9	8.162	9.111	8.54	10.674
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	437	521	412	441	403	424	338
Service Time	5.996	4.777	6.6	5.862	6.811	6.24	8.674
HCM Lane V/C Ratio	0.407	1.428	0.951	0.05	1.099	0.368	0.047
HCM Control Delay	16.5	233.8	47.8	11.2	76.6	15.4	14.2
HCM Lane LOS	C	F	E	B	F	C	B
HCM 95th-tile Q	1.9	36.4	8.6	0.1	12.3	1.4	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	524	574	310	237	324	260
Future Volume (veh/h)	524	574	310	237	324	260
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	557	611	330	252	345	277
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	574	1195	478	404	424	377
Arrive On Green	0.32	0.64	0.26	0.26	0.24	0.24
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	557	611	330	252	345	277
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	20.1	11.4	10.4	9.2	11.9	10.5
Cycle Q Clear(g_c), s	20.1	11.4	10.4	9.2	11.9	10.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	574	1195	478	404	424	377
V/C Ratio(X)	0.97	0.51	0.69	0.62	0.81	0.73
Avail Cap(c_a), veh/h	574	1463	746	630	574	511
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	6.3	21.9	21.5	23.5	22.9
Incr Delay (d2), s/veh	30.1	0.3	2.4	2.2	4.7	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	3.4	4.6	3.4	5.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.9	6.6	24.4	23.7	28.1	25.0
LnGrp LOS	D	A	C	C	C	C
Approach Vol, veh/h		1168	582		622	
Approach Delay, s/veh		28.2	24.1		26.7	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.7		19.5	25.0	20.7
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		50.1		20.1	20.6	25.1
Max Q Clear Time (g_c+I1), s		13.4		13.9	22.1	12.4
Green Ext Time (p_c), s		4.3		0.7	0.0	3.3
Intersection Summary						
HCM 6th Ctrl Delay			26.8			
HCM 6th LOS			C			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	310	635	143	93	176	573
Future Volume (veh/h)	310	635	143	93	176	573
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	668	151	98	185	603
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	418	1247	528	342	450	704
Arrive On Green	0.12	0.67	0.51	0.50	0.25	0.25
Sat Flow, veh/h	3456	1870	1044	678	1781	2790
Grp Volume(v), veh/h	326	668	0	249	185	603
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1721	1781	1395
Q Serve(g_s), s	9.1	18.3	0.0	8.3	8.6	20.4
Cycle Q Clear(g_c), s	9.1	18.3	0.0	8.3	8.6	20.4
Prop In Lane	1.00			0.39	1.00	1.00
Lane Grp Cap(c), veh/h	418	1247	0	870	450	704
V/C Ratio(X)	0.78	0.54	0.00	0.29	0.41	0.86
Avail Cap(c_a), veh/h	803	1456	0	870	810	1269
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	8.6	0.0	14.3	30.8	35.3
Incr Delay (d2), s/veh	1.2	0.1	0.0	0.8	0.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.6	0.0	3.3	3.7	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.4	8.7	0.0	15.1	31.1	36.5
LnGrp LOS	D	A	A	B	C	D
Approach Vol, veh/h		994	249		788	
Approach Delay, s/veh		20.1	15.1		35.2	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		70.0		29.0	16.0	54.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		76.1		44.1	22.6	49.1
Max Q Clear Time (g_c+I1), s		20.3		22.4	11.1	10.3
Green Ext Time (p_c), s		3.3		1.7	0.5	1.1
Intersection Summary						
HCM 6th Ctrl Delay			25.3			
HCM 6th LOS			C			

Intersection	
Intersection Delay, s/veh	145.5
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	549	398	220	844	198	41
Future Vol, veh/h	549	398	220	844	198	41
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	610	442	244	938	220	46
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	133.4	183	26.1
HCM LOS	F	F	D

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	549	199	199	110	110	844	198	41
LT Vol	549	0	0	0	0	0	198	0
Through Vol	0	199	199	110	110	0	0	0
RT Vol	0	0	0	0	0	844	0	41
Lane Flow Rate	610	221	221	122	122	938	220	46
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	1.399	0.476	0.37	0.271	0.271	1.445	0.594	0.108
Departure Headway (Hd)	8.959	8.443	6.656	8.562	8.562	6.057	11.035	9.796
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	409	429	544	423	423	610	330	368
Service Time	6.659	6.143	4.356	6.262	6.262	3.757	8.735	7.496
HCM Lane V/C Ratio	1.491	0.515	0.406	0.288	0.288	1.538	0.667	0.125
HCM Control Delay	218.5	18.6	13.2	14.4	14.4	227	28.7	13.7
HCM Lane LOS	F	C	B	B	B	F	D	B
HCM 95th-tile Q	27.7	2.5	1.7	1.1	1.1	40.9	3.6	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	390	103	242	746	456	293
Future Volume (veh/h)	390	103	242	746	456	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	415	110	257	794	485	312
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	426	113	303	980	654	582
Arrive On Green	0.30	0.29	0.17	0.52	0.37	0.37
Sat Flow, veh/h	1425	378	1781	1870	1781	1585
Grp Volume(v), veh/h	0	525	257	794	485	312
Grp Sat Flow(s),veh/h/ln	0	1802	1781	1870	1781	1585
Q Serve(g_s), s	0.0	21.2	10.3	25.8	17.4	11.4
Cycle Q Clear(g_c), s	0.0	21.2	10.3	25.8	17.4	11.4
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	539	303	980	654	582
V/C Ratio(X)	0.00	0.97	0.85	0.81	0.74	0.54
Avail Cap(c_a), veh/h	0	539	460	1145	654	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	25.6	29.6	14.5	20.2	18.3
Incr Delay (d2), s/veh	0.0	32.7	7.3	4.2	7.4	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.4	4.8	10.6	8.0	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	58.3	36.9	18.7	27.6	21.8
LnGrp LOS	A	E	D	B	C	C
Approach Vol, veh/h	525			1051	797	
Approach Delay, s/veh	58.3			23.1	25.4	
Approach LOS	E			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	16.5	26.0				42.5	31.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	19.0	21.0				44.0	27.0
Max Q Clear Time (g_c+I1), s	12.3	23.2				27.8	19.4
Green Ext Time (p_c), s	0.3	0.0				6.6	1.4

Intersection Summary	
HCM 6th Ctrl Delay	31.6
HCM 6th LOS	C

APPENDIX Q

NEAR-TERM (OPENING DAY 2025) + PROJECT PHASE I FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4303	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1132
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6398	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2293
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6226	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1311
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9305	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1980
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.1
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6376	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1696
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9475	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1995
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6643	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1413
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9779	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1698
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6729	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1463
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9943	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2071
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	46.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7120	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1515
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10503	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2166
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9800	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7533	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1586
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9360	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1753
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7210	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1265
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.59
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10373	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2207
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8029	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2091
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8643	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3098
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6728	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1180
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9390	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2471
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.21
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2025 + Project Phase I AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7333	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2520
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6385	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1698
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5343	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1895
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9244	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1926
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Year 2025 + Project Phase I PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7739	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1612
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Year 2025 + Project Phase I PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9454	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2412
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7919	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1650
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9779	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2016
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8245	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1432
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9930	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2047
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8351	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1740
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10498	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2165
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8837	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1841
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8738	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1920
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10447	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2154
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1496
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9970	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1713
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.3
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8149	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1698
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8675	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2236
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6805	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2315
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7203	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1305
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7418	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1912
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2025 + Project Phase I PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7842	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2695
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX R

YEAR 2030 INTERSECTION ANALYSIS CALCULATION SHEETS



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	590	300	1320	460	140	820
Future Volume (veh/h)	590	300	1320	460	140	820
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	621	50	1389	66	147	863
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	723	322	2012	1170	219	2347
Arrive On Green	0.20	0.20	0.55	0.55	0.06	0.66
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647
Grp Volume(v), veh/h	621	50	1389	66	147	863
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777
Q Serve(g_s), s	15.3	2.4	25.0	1.0	3.8	9.9
Cycle Q Clear(g_c), s	15.3	2.4	25.0	1.0	3.8	9.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	723	322	2012	1170	219	2347
V/C Ratio(X)	0.86	0.16	0.69	0.06	0.67	0.37
Avail Cap(c_a), veh/h	1286	572	3582	1832	441	4130
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.8	14.9	2.9	41.6	6.9
Incr Delay (d2), s/veh	1.2	0.1	0.6	0.0	1.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.9	8.9	0.5	1.6	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.1	29.9	15.5	3.0	43.0	7.1
LnGrp LOS	D	C	B	A	D	A
Approach Vol, veh/h	671		1455			1010
Approach Delay, s/veh	35.7		14.9			12.4
Approach LOS	D		B			B

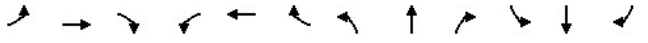
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.2	56.1				66.2	24.6
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	11.6	88.8				* 1.1E2	32.8
Max Q Clear Time (g_c+I1), s	5.8	27.0				11.9	17.3
Green Ext Time (p_c), s	0.1	22.9				18.2	1.2

Intersection Summary			
HCM 6th Ctrl Delay			18.5
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	90	40	140	130	210	1170	90	140	740	190
Future Volume (veh/h)	60	60	90	40	140	130	210	1170	90	140	740	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	67	100	44	156	144	233	1300	100	156	822	211
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	218	175	57	218	172	293	2168	995	160	2186	1013
Arrive On Green	0.03	0.12	0.12	0.03	0.12	0.12	0.08	0.61	0.61	0.09	0.62	0.62
Sat Flow, veh/h	3456	1870	1502	1781	1870	1478	3456	3554	1549	1781	3554	1565
Grp Volume(v), veh/h	67	67	100	44	156	144	233	1300	100	156	822	211
Grp Sat Flow(s),veh/h/ln	1728	1870	1502	1781	1870	1478	1728	1777	1549	1781	1777	1565
Q Serve(g_s), s	2.5	4.2	8.1	3.2	10.4	12.3	8.5	29.0	3.2	11.3	14.9	7.1
Cycle Q Clear(g_c), s	2.5	4.2	8.1	3.2	10.4	12.3	8.5	29.0	3.2	11.3	14.9	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	218	175	57	218	172	293	2168	995	160	2186	1013
V/C Ratio(X)	0.61	0.31	0.57	0.78	0.72	0.84	0.79	0.60	0.10	0.97	0.38	0.21
Avail Cap(c_a), veh/h	292	449	361	131	423	335	927	2168	995	160	2186	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	52.2	54.0	62.0	54.9	55.8	57.9	15.5	8.8	58.6	12.4	9.3
Incr Delay (d2), s/veh	2.0	0.8	2.9	8.2	1.7	4.1	1.9	1.2	0.2	62.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	3.2	1.6	5.0	4.8	3.8	11.7	1.1	7.9	6.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	53.0	56.9	70.2	56.6	59.9	59.8	16.7	9.1	121.5	12.9	9.8
LnGrp LOS	E	D	E	E	E	E	E	B	A	F	B	A
Approach Vol, veh/h		234			344			1633			1189	
Approach Delay, s/veh		57.7			59.7			22.4			26.6	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	84.0	8.5	20.5	15.3	84.7	8.5	20.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	11.6	78.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	13.3	31.0	5.2	10.1	10.5	16.9	4.5	14.3
Green Ext Time (p_c), s	0.0	24.1	0.0	0.6	0.4	12.6	0.0	0.7

Intersection Summary			
HCM 6th Ctrl Delay			30.1
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1600	10	430	290	0	0	0	0	340	10	830
Future Volume (veh/h)	0	1600	10	430	290	0	0	0	0	340	10	830
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1667	-11	448	302	0				354	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1819	787	512	2374	0				465	13	
Arrive On Green	0.00	0.50	0.00	0.14	0.67	0.00				0.27	0.27	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1735	49	1585
Grp Volume(v), veh/h	0	1667	-11	448	302	0				364	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	63.0	0.0	18.5	4.6	0.0				28.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	63.0	0.0	18.5	4.6	0.0				28.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1819	787	512	2374	0				478	0	
V/C Ratio(X)	0.00	0.92	-0.01	0.87	0.13	0.00				0.76	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				478	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.9	0.0	62.9	9.0	0.0				50.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.1	0.0	1.0	0.0	0.0				6.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	29.2	0.0	8.5	1.8	0.0				13.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.0	0.0	63.9	9.0	0.0				56.9	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				E	A	
Approach Vol, veh/h		1656			750						364	A
Approach Delay, s/veh		41.3			41.8						56.9	
Approach LOS		D			D						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	25.8	79.4		44.8		105.2						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0						
Max Q Clear Time (g_c+I1), s	20.5	65.0		30.2		6.6						
Green Ext Time (p_c), s	1.1	9.4		0.0		1.4						

Intersection Summary			
HCM 6th Ctrl Delay			43.5
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1310	690	0	0	600	620	100	30	320	0	0	0
Future Volume (veh/h)	1310	690	0	0	600	620	100	30	320	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1379	726	0	0	632	516	105	32	169			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1382	2848	0	0	669	544	135	41	155			
Arrive On Green	0.40	0.80	0.00	0.00	0.36	0.36	0.10	0.10	0.10			
Sat Flow, veh/h	3456	3647	0	0	1955	1513	1381	421	1585			
Grp Volume(v), veh/h	1379	726	0	0	603	545	137	0	169			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1598	1801	0	1585			
Q Serve(g_s), s	39.8	5.1	0.0	0.0	32.9	33.1	7.4	0.0	9.8			
Cycle Q Clear(g_c), s	39.8	5.1	0.0	0.0	32.9	33.1	7.4	0.0	9.8			
Prop In Lane	1.00		0.00	0.00		0.95	0.77		1.00			
Lane Grp Cap(c), veh/h	1382	2848	0	0	639	574	176	0	155			
V/C Ratio(X)	1.00	0.25	0.00	0.00	0.94	0.95	0.78	0.00	1.09			
Avail Cap(c_a), veh/h	1382	2868	0	0	649	583	176	0	155			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.42	0.42	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	30.0	2.5	0.0	0.0	31.1	31.1	44.1	0.0	45.1			
Incr Delay (d2), s/veh	15.1	0.0	0.0	0.0	22.1	24.6	18.2	0.0	99.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	18.7	1.2	0.0	0.0	17.5	16.3	4.2	0.0	12.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	2.5	0.0	0.0	53.1	55.8	62.3	0.0	144.6			
LnGrp LOS	D	A	A	A	D	E	E	A	F			
Approach Vol, veh/h		2105			1148			306				
Approach Delay, s/veh		30.4			54.4			107.8				
Approach LOS		C			D			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		85.6		14.4	44.2	41.4						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		80.7		9.2	* 40	36.5						
Max Q Clear Time (g_c+I1), s		7.1		11.8	41.8	35.1						
Green Ext Time (p_c), s		3.8		0.0	0.0	0.8						

Intersection Summary			
HCM 6th Ctrl Delay			44.8
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	580	90	180	900	30	350	30	280	50	40	70
Future Volume (veh/h)	30	580	90	180	900	30	350	30	280	50	40	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	644	100	200	1000	33	389	33	311	56	44	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1361	580	224	1700	56	412	577	679	72	220	181
Arrive On Green	0.02	0.38	0.38	0.13	0.48	0.48	0.23	0.31	0.31	0.04	0.12	0.12
Sat Flow, veh/h	1781	3554	1513	1781	3506	116	1781	1870	1556	1781	1870	1536
Grp Volume(v), veh/h	33	644	100	200	507	526	389	33	311	56	44	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1513	1781	1777	1845	1781	1870	1556	1781	1870	1536
Q Serve(g_s), s	2.7	19.8	6.3	16.0	29.8	29.8	31.1	1.8	20.5	4.5	3.1	6.8
Cycle Q Clear(g_c), s	2.7	19.8	6.3	16.0	29.8	29.8	31.1	1.8	20.5	4.5	3.1	6.8
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	1361	580	224	861	895	412	577	679	72	220	181
V/C Ratio(X)	0.78	0.47	0.17	0.89	0.59	0.59	0.94	0.06	0.46	0.78	0.20	0.43
Avail Cap(c_a), veh/h	106	1361	580	314	861	895	486	654	743	179	335	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.4	33.7	29.6	62.5	26.9	26.9	54.8	35.3	29.0	68.9	57.8	59.5
Incr Delay (d2), s/veh	11.0	1.2	0.6	16.7	2.9	2.8	24.0	0.0	0.2	6.6	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	8.9	2.5	8.3	13.4	13.9	16.7	0.8	7.8	2.2	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.4	34.9	30.2	79.1	29.9	29.8	78.8	35.3	29.2	75.5	58.0	60.1
LnGrp LOS	F	C	C	E	C	C	E	D	C	E	E	E
Approach Vol, veh/h		777			1233			733			178	
Approach Delay, s/veh		36.3			37.8			55.8			64.4	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.6	62.2	37.9	22.2	7.8	77.0	10.3	49.9
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 34	39.6	* 26	8.6	50.4	14.6	50.7
Max Q Clear Time (g_c+I1), s	18.0	21.8	33.1	8.8	4.7	31.8	6.5	22.5
Green Ext Time (p_c), s	0.2	2.7	0.4	0.2	0.0	4.6	0.0	0.7

Intersection Summary		
HCM 6th Ctrl Delay	43.5	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	140	10	10	1000	550	0	0	20	110	10	270
Future Volume (vph)	350	140	10	10	1000	550	0	0	20	110	10	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3496		1770	3330				1516	1681	1699	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3496		1770	3330				1516	1681	1699	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	389	156	11	11	1111	611	0	0	22	122	11	300
RTOR Reduction (vph)	0	3	0	0	47	0	0	0	21	0	0	161
Lane Group Flow (vph)	389	164	0	11	1675	0	0	0	1	66	67	139
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.2	81.3		1.6	65.7				3.2	30.0	30.0	47.2
Effective Green, g (s)	17.2	81.3		1.6	65.7				3.2	30.0	30.0	47.2
Actuated g/C Ratio	0.13	0.60		0.01	0.49				0.02	0.22	0.22	0.35
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	438	2110		21	1624				36	374	378	550
v/s Ratio Prot	c0.11	0.05		0.01	c0.50					0.04	0.04	c0.03
v/s Ratio Perm									c0.00			0.06
v/c Ratio	0.89	0.08		0.52	1.03				0.01	0.18	0.18	0.25
Uniform Delay, d1	57.8	11.1		66.2	34.5				64.2	42.4	42.4	31.2
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	18.7	0.0		10.4	30.9				0.2	1.0	1.0	0.1
Delay (s)	76.5	11.1		76.6	65.4				64.4	43.4	43.4	31.3
Level of Service	E	B		E	E				E	D	D	C
Approach Delay (s)		56.8			65.5			64.4			35.0	
Approach LOS		E			E			E			C	

Intersection Summary				
HCM 2000 Control Delay	58.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.78			
Actuated Cycle Length (s)	134.7	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	92.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	250	380	950	870	260	100
Future Volume (vph)	250	380	950	870	260	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1549	3425	1420
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1549	3425	1420
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	400	1000	916	274	105
RTOR Reduction (vph)	0	0	0	307	2	74
Lane Group Flow (vph)	263	400	1000	609	283	20
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	21.0	57.7	32.7	55.5	22.8	22.8
Effective Green, g (s)	21.0	57.7	32.7	55.5	22.8	22.8
Actuated g/C Ratio	0.19	0.53	0.30	0.51	0.21	0.21
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	342	1880	1065	791	719	298
v/s Ratio Prot	c0.15	0.11	c0.28	c0.16	0.08	
v/s Ratio Perm				0.23		0.01
v/c Ratio	0.77	0.21	0.94	0.77	0.39	0.07
Uniform Delay, d1	41.5	13.4	37.0	21.4	36.9	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	0.1	16.3	5.4	0.7	0.2
Delay (s)	50.5	13.6	53.3	26.8	37.7	34.6
Level of Service	D	B	D	C	D	C
Approach Delay (s)		28.2	40.6		36.9	
Approach LOS		C	D		D	

Intersection Summary				
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	18.9
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	510	30	20	1900	130	70	10	40	80	10	40
Future Volume (veh/h)	60	510	30	20	1900	130	70	10	40	80	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.97		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	537	26	21	2000	129	74	11	-21	84	11	-14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	2633	127	56	2544	162	158	16	134	0	0	331
Arrive On Green	0.05	0.76	0.76	0.03	0.75	0.75	0.08	0.08	0.00	0.08	0.08	0.00
Sat Flow, veh/h	1781	3445	166	1781	3390	216	1241	185	1585	1391	1870	0
Grp Volume(v), veh/h	63	277	286	21	1037	1092	85	0	-21	84	-3	-3
Grp Sat Flow(s),veh/h/ln	1781	1777	1834	1781	1777	1829	1426	0	1585	1391	1870	1585
Q Serve(g_s), s	4.5	5.5	5.6	1.5	44.6	47.1	7.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	5.5	5.6	1.5	44.6	47.1	7.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.12	0.87		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	81	1358	1402	56	1333	1373	173	0	134	0	0	0
V/C Ratio(X)	0.78	0.20	0.20	0.38	0.78	0.80	0.49	0.00	-0.16	0.00	0.00	0.00
Avail Cap(c_a), veh/h	106	1358	1402	87	1334	1374	403	0	389	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	60.3	4.2	4.2	60.6	9.5	9.9	56.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	17.1	0.3	0.3	1.5	4.5	4.8	0.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.7	1.8	0.7	14.8	16.2	2.7	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.4	4.5	4.5	62.1	14.0	14.7	57.7	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	E	A	A	E	B	B	E	A	A	A	A	A
Approach Vol, veh/h		626			2150			64			78	
Approach Delay, s/veh		11.9			14.8			76.6			0.0	
Approach LOS		B			B			E			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	103.5		15.7	10.2	101.7		15.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	6.2	* 98		31.3	7.6	95.8		31.3				
Max Q Clear Time (g_c+I1), s	3.5	7.6		2.0	6.5	49.1		9.4				
Green Ext Time (p_c), s	0.0	10.6		0.1	0.0	45.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay	15.2		
HCM 6th LOS	B		

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	590	1010	40	50	40
Future Vol, veh/h	50	590	1010	40	50	40
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	641	1098	43	54	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1178	0	-	0	1586	608
Stage 1	-	-	-	-	1157	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	589	-	-	-	99	439
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	571	-	-	-	84	425
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	30
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	571	-	-	-	240
HCM Lane V/C Ratio	0.095	-	-	-	0.408
HCM Control Delay (s)	12	-	-	-	30
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	500	0	0	1910	590	0	0	0	200	0	150
Future Volume (veh/h)	120	500	0	0	1910	590	0	0	0	200	0	150
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	133	556	0	0	2122	485				222	0	39
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	152	2774	0	0	2357	1021				248	0	221
Arrive On Green	0.09	0.78	0.00	0.00	0.66	0.66				0.14	0.00	0.14
Sat Flow, veh/h	1781	3647	0	0	3647	1540				1781	0	1585
Grp Volume(v), veh/h	133	556	0	0	2122	485				222	0	39
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1540				1781	0	1585
Q Serve(g_s), s	10.1	5.6	0.0	0.0	68.5	21.3				16.8	0.0	3.0
Cycle Q Clear(g_c), s	10.1	5.6	0.0	0.0	68.5	21.3				16.8	0.0	3.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	152	2774	0	0	2357	1021				248	0	221
V/C Ratio(X)	0.88	0.20	0.00	0.00	0.90	0.47				0.89	0.00	0.18
Avail Cap(c_a), veh/h	152	2774	0	0	2357	1021				415	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	62.1	3.9	0.0	0.0	19.3	11.4				58.1	0.0	52.1
Incr Delay (d2), s/veh	38.5	0.2	0.0	0.0	6.1	1.6				7.6	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.6	0.0	0.0	26.4	7.0				8.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.6	4.1	0.0	0.0	25.4	13.0				65.7	0.0	52.3
LnGrp LOS	F	A	A	A	C	B				E	A	D
Approach Vol, veh/h		689			2607						261	
Approach Delay, s/veh		22.7			23.1						63.7	
Approach LOS		C			C						E	

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		113.1		24.2	16.1	97.0			
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9			
Max Green Setting (Gmax), s		* 1.1E2		32.0	11.7	90.9			
Max Q Clear Time (g_c+I1), s		7.6		18.8	12.1	70.5			
Green Ext Time (p_c), s		2.8		0.3	0.0	14.8			

Intersection Summary		
HCM 6th Ctrl Delay		26.0
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2030 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	700	140	250	2010	10	370	10	110	30	10	10
Future Volume (veh/h)	10	700	140	250	2010	10	370	10	110	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	778	156	278	2233	11	411	11	122	33	11	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	2218	441	276	2143	11	359	8	568	40	13	3
Arrive On Green	0.01	0.52	0.52	0.08	0.59	0.59	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1781	4259	846	3456	3626	18	1105	30	1573	0	47	12
Grp Volume(v), veh/h	11	620	314	278	1093	1151	422	0	122	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1700	1728	1777	1867	1134	0	1573	59	0	0
Q Serve(g_s), s	0.9	15.5	15.7	11.6	85.7	85.7	0.0	0.0	7.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	15.5	15.7	11.6	85.7	85.7	40.7	0.0	7.8	40.7	0.0	0.0
Prop In Lane	1.00		0.50	1.00		0.01	0.97		1.00	0.60		0.20
Lane Grp Cap(c), veh/h	18	1773	886	276	1050	1103	367	0	568	56	0	0
V/C Ratio(X)	0.63	0.35	0.35	1.01	1.04	1.04	1.15	0.00	0.21	0.98	0.00	0.00
Avail Cap(c_a), veh/h	49	1819	909	276	1050	1103	367	0	568	56	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.5	20.3	20.4	66.7	29.6	29.7	54.9	0.0	32.1	60.4	0.0	0.0
Incr Delay (d2), s/veh	12.7	0.1	0.2	17.6	21.8	22.5	93.9	0.0	0.9	113.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.0	6.1	5.7	39.5	41.7	23.3	0.0	3.2	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.3	20.5	20.6	84.3	51.4	52.1	148.8	0.0	33.0	173.9	0.0	0.0
LnGrp LOS	F	C	C	F	F	F	F	A	C	F	A	A
Approach Vol, veh/h		945			2522			544			55	
Approach Delay, s/veh		21.3			55.4			122.8			173.9	
Approach LOS		C			E			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	81.4		45.6	5.8	91.6		45.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	11.6	77.5		40.7	4.0	* 86		40.7				
Max Q Clear Time (g_c+I1), s	13.6	17.7		42.7	2.9	87.7		42.7				
Green Ext Time (p_c), s	0.0	6.5		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			58.1									
HCM 6th LOS			E									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	840	20	110	2180	20	10	10	30	70	10	40
Future Volume (veh/h)	30	840	20	110	2180	20	10	10	30	70	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	913	18	120	2370	22	11	11	8	76	11	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	3613	71	169	2784	1242	95	53	38	104	20	76
Arrive On Green	0.70	0.70	0.70	0.05	0.78	0.78	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	146	5153	101	3456	3554	1585	1781	982	714	1781	333	1303
Grp Volume(v), veh/h	33	603	328	120	2370	22	11	0	19	76	0	54
Grp Sat Flow(s),veh/h/ln	146	1702	1850	1728	1777	1585	1781	0	1697	1781	0	1636
Q Serve(g_s), s	25.0	8.5	8.5	4.5	57.2	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Cycle Q Clear(g_c), s	71.4	8.5	8.5	4.5	57.2	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.42	1.00		0.80
Lane Grp Cap(c), veh/h	106	2387	1297	169	2784	1242	95	0	91	104	0	96
V/C Ratio(X)	0.31	0.25	0.25	0.71	0.85	0.02	0.12	0.00	0.21	0.73	0.00	0.56
Avail Cap(c_a), veh/h	106	2387	1297	191	2784	1242	418	0	399	216	0	198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.0	7.2	7.2	61.9	9.3	3.1	59.5	0.0	59.8	61.1	0.0	60.5
Incr Delay (d2), s/veh	7.1	0.2	0.4	7.8	3.5	0.0	0.2	0.0	0.4	9.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.8	3.1	2.1	17.0	0.1	0.4	0.0	0.6	2.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	7.4	7.6	69.7	12.8	3.2	59.7	0.0	60.2	70.4	0.0	65.6
LnGrp LOS	D	A	A	E	B	A	E	A	E	E	A	E
Approach Vol, veh/h		964			2512			30			130	
Approach Delay, s/veh		8.7			15.4			60.0			68.4	
Approach LOS		A			B			E			E	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.8	98.0		11.7		108.8		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.5	73.4		7.5		59.2		3.4				
Green Ext Time (p_c), s	0.0	0.0		0.3		3.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	900	30	200	2250	10	10	10	30	30	10	10
Future Volume (veh/h)	10	900	30	200	2250	10	10	10	30	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	957	32	213	2394	11	11	27	22	32	11	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	3430	115	289	3931	18	169	143	120	165	65	65
Arrive On Green	0.01	0.68	0.68	0.08	0.75	0.75	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	5072	169	3456	5245	24	1375	1870	1566	1343	852	852
Grp Volume(v), veh/h	11	642	347	213	1553	852	11	27	22	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1837	1728	1702	1865	1375	1870	1566	1343	0	1705
Q Serve(g_s), s	0.6	6.8	6.8	5.4	18.9	19.0	0.7	1.2	1.2	2.1	0.0	1.1
Cycle Q Clear(g_c), s	0.6	6.8	6.8	5.4	18.9	19.0	1.8	1.2	1.2	3.3	0.0	1.1
Prop In Lane	1.00		0.09	1.00		0.01	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	19	2303	1242	289	2551	1398	169	143	120	165	0	131
V/C Ratio(X)	0.58	0.28	0.28	0.74	0.61	0.61	0.07	0.19	0.18	0.19	0.00	0.17
Avail Cap(c_a), veh/h	83	2303	1242	407	2551	1398	523	626	524	511	0	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	5.8	5.8	40.3	5.2	5.2	39.7	38.9	38.9	40.5	0.0	38.9
Incr Delay (d2), s/veh	9.9	0.3	0.6	2.1	1.1	2.0	0.1	0.2	0.3	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.9	2.1	2.3	4.3	5.0	0.2	0.6	0.5	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	6.1	6.4	42.4	6.3	7.2	39.8	39.2	39.2	40.7	0.0	39.1
LnGrp LOS	D	A	A	D	A	A	D	D	D	D	A	D
Approach Vol, veh/h		1000			2618			60			54	
Approach Delay, s/veh		6.7			9.5			39.3			40.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.9	66.3		11.8	5.4	72.8		11.8				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	10.6	34.6		30.1	4.2	* 41		30.1				
Max Q Clear Time (g_c+I1), s	7.4	8.8		5.3	2.6	21.0		3.8				
Green Ext Time (p_c), s	0.1	8.1		0.1	0.0	17.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	9.7	
HCM 6th LOS	A	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	920	70	0	2180	0	50
Future Vol, veh/h	920	70	0	2180	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1022	78	0	2422	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	560
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	404
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	400
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	400	-	-	-
HCM Lane V/C Ratio	0.139	-	-	-
HCM Control Delay (s)	15.4	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	790	240	620	540
Future Volume (Veh/h)	0	0	790	240	620	540
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	859	261	674	587
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2500	430			1120	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2500	430			1120	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	574			619	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	573	373	174	674	294	294
Volume Left	0	0	0	674	0	0
Volume Right	0	87	174	0	0	0
cSH	1700	1700	1700	619	1700	1700
Volume to Capacity	0.34	0.22	0.10	1.09	0.17	0.17
Queue Length 95th (ft)	0	0	0	492	0	0
Control Delay (s)	0.0	0.0	0.0	87.6	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			46.8		
Approach LOS						

Intersection Summary				
Average Delay		24.8		
Intersection Capacity Utilization		65.4%	ICU Level of Service	C
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	660	280	220	1700	840	550	40	930	410	10	100
Future Volume (veh/h)	70	660	280	220	1700	840	550	40	930	410	10	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	702	0	234	1809	894	585	43	989	436	11	106
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	2467		292	1880	1404	659	467	923	495	386	478
Arrive On Green	0.10	0.38	0.00	0.08	0.37	0.37	0.19	0.25	0.25	0.14	0.21	0.21
Sat Flow, veh/h	3456	6434	1585	3456	5106	2727	3456	1870	2754	3456	1870	1564
Grp Volume(v), veh/h	74	702	0	234	1809	894	585	43	989	436	11	106
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	2.9	10.9	0.0	9.6	50.3	34.5	23.9	2.6	36.2	17.9	0.7	7.3
Cycle Q Clear(g_c), s	2.9	10.9	0.0	9.6	50.3	34.5	23.9	2.6	36.2	17.9	0.7	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	2467		292	1880	1404	659	467	923	495	386	478
V/C Ratio(X)	0.22	0.28		0.80	0.96	0.64	0.89	0.09	1.07	0.88	0.03	0.22
Avail Cap(c_a), veh/h	520	2467		596	1880	1404	882	467	923	1010	544	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.3	30.9	0.0	65.2	44.8	25.7	57.2	41.8	48.3	60.9	46.0	37.6
Incr Delay (d2), s/veh	0.1	0.3	0.0	5.0	13.3	2.2	8.7	0.4	50.7	2.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.2	0.0	4.4	22.8	11.6	11.3	1.3	23.1	8.0	0.3	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	31.2	0.0	70.2	58.1	27.9	65.8	42.2	99.1	63.0	46.0	37.7
LnGrp LOS	E	C		E	E	C	E	D	F	E	D	D
Approach Vol, veh/h		776	A		2937			1617			553	
Approach Delay, s/veh		34.0			49.9			85.5			57.8	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	62.6	31.7	34.5	18.4	60.4	25.4	40.8
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	25.0	21.2	37.0	42.2	* 22	24.2	42.4	36.2
Max Q Clear Time (g_c+I1), s	11.6	12.9	25.9	9.3	4.9	52.3	19.9	38.2
Green Ext Time (p_c), s	0.6	2.0	1.8	0.2	0.1	0.0	0.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	58.3	
HCM 6th LOS	E	

Notes
User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2030 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	500	1490	0	0	1910	890	0	0	0	1290	0	860
Future Volume (veh/h)	500	1490	0	0	1910	890	0	0	0	1290	0	860
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	526	1568	0	0	2011	811				1358	0	864
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	370	9566	0	0	7123	3089				1579	0	1176
Arrive On Green	0.11	1.00	0.00	0.00	1.00	1.00				0.31	0.00	0.31
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	526	1568	0	0	2011	811				1358	0	864
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0				17.8	0.0	18.2
Cycle Q Clear(g_c), s	7.5	0.0	0.0	0.0	0.0	0.0				17.8	0.0	18.2
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	370	9566	0	0	7123	3089				1579	0	1176
V/C Ratio(X)	1.42	0.16	0.00	0.00	0.28	0.26				0.86	0.00	0.73
Avail Cap(c_a), veh/h	370	9566	0	0	7123	3089				1579	0	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	0.0	0.0	0.0	0.0				22.6	0.0	17.0
Incr Delay (d2), s/veh	204.1	0.0	0.0	0.0	0.1	0.2				6.4	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	0.0	0.0	0.0	0.0	0.1				7.4	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	235.3	0.0	0.0	0.0	0.1	0.2				28.9	0.0	21.1
LnGrp LOS	F	A	A	A	A	A				C	A	C
Approach Vol, veh/h		2094			2822						2222	
Approach Delay, s/veh		59.1			0.1						25.9	
Approach LOS		E			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	12.0	84.5		26.0		96.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	7.5	26.5		22.0		* 40
Max Q Clear Time (g_c+I1), s	9.5	2.0		20.2		2.0
Green Ext Time (p_c), s	0.0	15.9		1.5		14.5

Intersection Summary		
HCM 6th Ctrl Delay		25.5
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	780	1220	550	80	2120	60	200	140	90	50	60	320
Future Volume (veh/h)	780	1220	550	80	2120	60	200	140	90	50	60	320
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	812	1271	573	83	2208	62	208	146	94	52	62	333
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	673	3193	1351	129	2179	528	262	578	346	134	443	636
Arrive On Green	0.19	0.50	0.50	0.04	0.34	0.34	0.08	0.27	0.27	0.04	0.24	0.24
Sat Flow, veh/h	3456	6434	2721	3456	6434	1559	3456	2109	1262	3456	1870	2687
Grp Volume(v), veh/h	812	1271	573	83	2208	62	208	121	119	52	62	333
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1594	1728	1870	1344
Q Serve(g_s), s	25.6	16.3	17.6	3.1	44.5	3.6	7.8	7.0	7.7	1.9	3.4	14.2
Cycle Q Clear(g_c), s	25.6	16.3	17.6	3.1	44.5	3.6	7.8	7.0	7.7	1.9	3.4	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	673	3193	1351	129	2179	528	262	487	437	134	443	636
V/C Ratio(X)	1.21	0.40	0.42	0.64	1.01	0.12	0.79	0.25	0.27	0.39	0.14	0.52
Avail Cap(c_a), veh/h	673	3193	1351	250	2179	528	384	678	608	253	642	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	20.8	21.1	62.4	43.4	29.9	59.7	37.2	37.4	61.6	39.6	43.7
Incr Delay (d2), s/veh	106.3	0.4	1.0	2.0	22.6	0.5	4.8	0.1	0.1	1.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	5.9	5.8	1.4	20.4	1.4	3.6	3.1	3.0	0.9	1.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	159.2	21.1	22.1	64.4	66.0	30.4	64.5	37.3	37.6	62.6	39.7	44.1
LnGrp LOS	F	C	C	E	F	C	E	D	D	E	D	D
Approach Vol, veh/h		2656			2353			448			447	
Approach Delay, s/veh		63.5			65.0			50.0			45.6	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	71.7	14.4	36.0	30.0	51.0	9.5	40.9				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	9.5	* 62	14.6	45.1	25.6	44.5	9.6	50.1				
Max Q Clear Time (g_c+I1), s	5.1	19.6	9.8	16.2	27.6	46.5	3.9	9.7				
Green Ext Time (p_c), s	0.0	22.1	0.2	1.2	0.0	0.0	0.0	1.0				

Intersection Summary		
HCM 6th Ctrl Delay		61.7
HCM 6th LOS		E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	420	170	560	0	0	470	380
Future Volume (veh/h)	0	0	0	220	10	420	170	560	0	0	470	380
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				240	0	442	179	589	0	0	495	400
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1117	0	488	249	1998	0	0	1567	695
Arrive On Green				0.31	0.00	0.31	0.14	1.00	0.00	0.00	0.44	0.44
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				240	0	442	179	589	0	0	495	400
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1576
Q Serve(g_s), s				4.5	0.0	24.5	4.5	0.0	0.0	0.0	8.1	17.1
Cycle Q Clear(g_c), s				4.5	0.0	24.5	4.5	0.0	0.0	0.0	8.1	17.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1117	0	488	249	1998	0	0	1567	695
V/C Ratio(X)				0.21	0.00	0.91	0.72	0.29	0.00	0.00	0.32	0.58
Avail Cap(c_a), veh/h				1350	0	590	407	1998	0	0	1567	695
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.7	0.0	29.6	37.6	0.0	0.0	0.0	16.3	18.8
Incr Delay (d2), s/veh				0.1	0.0	15.7	1.4	0.4	0.0	0.0	0.5	3.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	10.5	1.8	0.1	0.0	0.0	3.3	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.8	0.0	45.3	39.0	0.4	0.0	0.0	16.9	22.3
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					682			768			895	
Approach Delay, s/veh					37.4			9.4			19.3	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.9			10.9	46.0		33.1				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 46			10.6	29.7		34.1				
Max Q Clear Time (g_c+I1), s		2.0			6.5	19.1		26.5				
Green Ext Time (p_c), s		3.9			0.1	5.6		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		21.3	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	10	210	0	0	0	0	510	150	220	510	0
Future Volume (veh/h)	190	10	210	0	0	0	0	510	150	220	510	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	212	0	40				0	548	133	237	548	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1794	434	308	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2931	686	3456	3647	0
Grp Volume(v), veh/h	212	0	40				0	342	339	237	548	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1747	1728	1777	0
Q Serve(g_s), s	5.1	0.0	2.1				0.0	7.9	8.0	5.9	0.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	2.1				0.0	7.9	8.0	5.9	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1123	1104	308	2737	0
V/C Ratio(X)	0.54	0.00	0.23				0.00	0.30	0.31	0.77	0.20	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1123	1104	445	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	37.8	0.0	36.5				0.0	7.5	7.6	36.1	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.7				0.0	0.7	0.7	2.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.8				0.0	2.9	2.9	2.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	0.0	37.1				0.0	8.2	8.3	38.7	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		252						681			785	
Approach Delay, s/veh		38.7						8.3			11.8	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	62.7		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	7.9	10.0		7.1		2.0						
Green Ext Time (p_c), s	0.2	6.6		0.8		5.2						

Intersection Summary			
HCM 6th Ctrl Delay		14.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	210	600	590	0	0	420	100
Future Volume (veh/h)	0	0	0	220	10	210	600	590	0	0	420	100
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				224	10	214	612	602	0	0	429	102
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				311	12	266	511	2459	0	0	2444	759
Arrive On Green				0.17	0.17	0.17	0.15	0.69	0.00	0.00	0.48	0.48
Sat Flow, veh/h				1781	71	1525	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				224	0	224	612	602	0	0	429	102
Grp Sat Flow(s),veh/h/ln				1781	0	1596	1728	1777	0	0	1702	1585
Q Serve(g_s), s				8.9	0.0	10.1	11.1	4.7	0.0	0.0	3.6	2.7
Cycle Q Clear(g_c), s				8.9	0.0	10.1	11.1	4.7	0.0	0.0	3.6	2.7
Prop In Lane				1.00		0.96	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				311	0	279	511	2459	0	0	2444	759
V/C Ratio(X)				0.72	0.00	0.80	1.20	0.24	0.00	0.00	0.18	0.13
Avail Cap(c_a), veh/h				665	0	596	511	2459	0	0	2444	759
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.90	0.90	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.2	0.0	29.7	31.9	4.3	0.0	0.0	11.1	10.9
Incr Delay (d2), s/veh				1.2	0.0	2.1	104.8	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	0.0	3.7	11.9	1.3	0.0	0.0	1.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.4	0.0	31.8	136.7	4.5	0.0	0.0	11.3	11.3
LnGrp LOS				C	A	C	F	A	A	A	B	B
Approach Vol, veh/h					448			1214			531	
Approach Delay, s/veh					31.1			71.1			11.3	
Approach LOS					C			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	57.0		16.0	41.0		18.0						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	37.0		11.1	* 21		28.0						
Max Q Clear Time (g_c+I1), s	6.7		13.1	5.6		12.1						
Green Ext Time (p_c), s	5.2		0.0	2.9		1.0						

Intersection Summary		
HCM 6th Ctrl Delay		48.5
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	70	320	0	0	0	0	750	240	200	400	0
Future Volume (veh/h)	410	70	320	0	0	0	0	750	240	200	400	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	485	0	337				0	789	253	211	421	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	896	0	397				0	2186	663	250	2216	0
Arrive On Green	0.25	0.00	0.25				0.00	0.43	0.43	0.14	0.62	0.00
Sat Flow, veh/h	3563	0	1579				0	5274	1548	1781	3647	0
Grp Volume(v), veh/h	485	0	337				0	789	253	211	421	0
Grp Sat Flow(s),veh/h/ln	1781	0	1579				0	1702	1548	1781	1777	0
Q Serve(g_s), s	9.4	0.0	16.2				0.0	8.4	8.9	9.2	4.0	0.0
Cycle Q Clear(g_c), s	9.4	0.0	16.2				0.0	8.4	8.9	9.2	4.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	896	0	397				0	2186	663	250	2216	0
V/C Ratio(X)	0.54	0.00	0.85				0.00	0.36	0.38	0.84	0.19	0.00
Avail Cap(c_a), veh/h	1514	0	671				0	2186	663	325	2216	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	25.9	0.0	28.5				0.0	15.5	15.6	33.5	6.4	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.1				0.0	0.5	1.7	11.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	5.8				0.0	3.1	3.3	4.7	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	30.6				0.0	15.9	17.3	44.7	6.6	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		822						1042			632	
Approach Delay, s/veh		27.9						16.3			19.3	
Approach LOS		C						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.6	39.3		25.0		55.0						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	14.6	17.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	11.2	10.9		18.2		6.0						
Green Ext Time (p_c), s	0.1	3.4		1.4		1.9						

Intersection Summary		
HCM 6th Ctrl Delay		20.9
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	990	60	190	1870	220	160	60	80	10	10	20
Future Volume (veh/h)	100	990	60	190	1870	220	160	60	80	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	106	1053	64	202	1989	234	170	64	85	11	11	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	2326	141	230	2451	285	286	98	124	138	144	235
Arrive On Green	0.07	0.46	0.46	0.12	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5110	310	1853	4822	561	815	332	416	344	485	792
Grp Volume(v), veh/h	106	729	388	202	1455	768	319	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1880	1853	1770	1843	1563	0	0	1621	0	0
Q Serve(g_s), s	7.0	17.7	17.7	13.4	42.9	43.9	20.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.0	17.7	17.7	13.4	42.9	43.9	22.3	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.30	0.53		0.27	0.26		0.49
Lane Grp Cap(c), veh/h	131	1611	856	230	1800	937	508	0	0	517	0	0
V/C Ratio(X)	0.81	0.45	0.45	0.88	0.81	0.82	0.63	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	202	1611	856	305	1800	937	508	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.2	23.4	23.4	53.8	25.6	25.9	38.6	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	6.8	0.9	1.7	16.5	4.0	8.0	5.8	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.3	7.9	7.1	17.7	19.9	9.4	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	24.3	25.1	70.3	29.7	33.9	44.4	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		1223			2425			319			43	
Approach Delay, s/veh		28.0			34.4			44.4			32.0	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	63.1		42.0	13.3	69.7		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	15.4	19.7		4.2	9.0	45.9		24.3				
Green Ext Time (p_c), s	0.1	22.4		0.2	0.0	12.7		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			33.2
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	20	70	10	110	60	280	50	50	230	40
Future Volume (veh/h)	10	10	20	70	10	110	60	280	50	50	230	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	10	20	71	10	112	61	286	51	51	235	41
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	67	89	220	26	169	78	1894	332	65	1880	322
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.04	0.63	0.63	0.04	0.62	0.62
Sat Flow, veh/h	198	613	811	1255	236	1550	1781	2997	525	1781	3011	515
Grp Volume(v), veh/h	40	0	0	81	0	112	61	168	169	51	137	139
Grp Sat Flow(s),veh/h/ln	1621	0	0	1491	0	1550	1781	1777	1746	1781	1777	1749
Q Serve(g_s), s	0.0	0.0	0.0	2.2	0.0	5.7	2.8	3.1	3.2	2.3	2.6	2.7
Cycle Q Clear(g_c), s	1.7	0.0	0.0	3.9	0.0	5.7	2.8	3.1	3.2	2.3	2.6	2.7
Prop In Lane	0.25		0.50	0.88		1.00	1.00		0.30	1.00		0.29
Lane Grp Cap(c), veh/h	232	0	0	245	0	169	78	1123	1103	65	1110	1092
V/C Ratio(X)	0.17	0.00	0.00	0.33	0.00	0.66	0.78	0.15	0.15	0.79	0.12	0.13
Avail Cap(c_a), veh/h	498	0	0	491	0	438	100	1123	1103	100	1110	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	0.0	34.1	0.0	35.0	38.7	6.1	6.1	39.1	6.2	6.3
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.7	0.0	9.0	19.5	0.3	0.3	9.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.6	0.0	2.5	1.6	1.1	1.1	1.2	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	0.0	35.8	0.0	44.0	58.2	6.4	6.4	48.4	6.5	6.5
LnGrp LOS	C	A	A	D	A	D	E	A	A	D	A	A
Approach Vol, veh/h		40			193			398			327	
Approach Delay, s/veh		33.4			40.6			14.4			13.0	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	58.6		15.8	8.0	58.0		15.8				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	4.6	49.1		23.1	4.6	* 51		23.1				
Max Q Clear Time (g_c+I1), s	4.3	5.2		3.7	4.8	4.7		7.7				
Green Ext Time (p_c), s	0.0	1.6		0.1	0.0	1.5		1.3				

Intersection Summary			
HCM 6th Ctrl Delay			20.0
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	50	80	40	20	185	50
Future Vol, veh/h	50	80	40	20	185	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	56	89	44	22	206	56
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.3	8.4	10.1
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	67%
Vol Thru, %	0%	0%	38%	33%
Vol Right, %	0%	100%	62%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	50	130	60
LT Vol	185	0	0	40
Through Vol	0	0	50	20
RT Vol	0	50	80	0
Lane Flow Rate	206	56	144	67
Geometry Grp	7	7	2	2
Degree of Util (X)	0.315	0.067	0.174	0.091
Departure Headway (Hd)	5.515	4.31	4.335	4.918
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	652	831	829	729
Service Time	3.245	2.04	2.356	2.945
HCM Lane V/C Ratio	0.316	0.067	0.174	0.092
HCM Control Delay	10.8	7.4	8.3	8.4
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.3	0.2	0.6	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	30	0	0	65	50	10	10	30	80	0	10
Future Volume (veh/h)	10	30	0	0	65	50	10	10	30	80	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	0.99		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	32	0	0	70	54	11	11	32	86	0	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	735	883	0	0	494	340	515	52	151	596	0	194
Arrive On Green	0.25	0.25	0.00	0.00	0.25	0.25	0.12	0.12	0.12	0.12	0.00	0.12
Sat Flow, veh/h	1255	3647	0	0	2080	1369	1395	420	1223	1093	0	1578
Grp Volume(v), veh/h	11	32	0	0	62	62	11	0	43	86	0	11
Grp Sat Flow(s),veh/h/ln	1255	1777	0	0	1777	1578	1395	0	1643	1093	0	1578
Q Serve(g_s), s	0.1	0.1	0.0	0.0	0.4	0.5	0.1	0.0	0.4	1.0	0.0	0.1
Cycle Q Clear(g_c), s	0.6	0.1	0.0	0.0	0.4	0.5	1.4	0.0	0.4	1.3	0.0	0.1
Prop In Lane	1.00		0.00	0.00		0.87	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	735	883	0	0	442	392	515	0	202	596	0	194
V/C Ratio(X)	0.01	0.04	0.00	0.00	0.14	0.16	0.02	0.00	0.21	0.14	0.00	0.06
Avail Cap(c_a), veh/h	1871	4101	0	0	2051	1822	2409	0	2434	2354	0	2245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	4.4	0.0	0.0	4.6	4.6	7.3	0.0	6.2	6.8	0.0	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	4.5	0.0	0.0	4.7	4.7	7.3	0.0	6.3	6.8	0.0	6.1
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		43			124			54			97	
Approach Delay, s/veh		4.5			4.7			6.5			6.7	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.8		6.8		8.8		6.8				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		2.6		3.3		2.5		3.4				
Green Ext Time (p_c), s		0.1		0.3		0.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

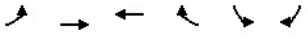
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	130	10	10	80	40	10	10	40	70	10	10
Future Volume (veh/h)	10	130	10	10	80	40	10	10	40	70	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	0.96		0.95	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	140	11	11	86	15	11	11	8	75	11	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	612	1425	111	581	1291	218	307	301	195	614	88	50
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1238	3325	258	1187	3012	509	517	658	427	1140	193	109
Grp Volume(v), veh/h	11	74	77	11	50	51	30	0	0	93	0	0
Grp Sat Flow(s),veh/h/ln	1238	1777	1806	1187	1777	1744	1602	0	0	1442	0	0
Q Serve(g_s), s	0.4	1.7	1.8	0.4	1.1	1.2	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	1.6	1.7	1.8	2.2	1.1	1.2	0.7	0.0	0.0	2.4	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.29	0.37		0.27	0.81		0.08
Lane Grp Cap(c), veh/h	612	762	774	581	762	747	803	0	0	752	0	0
V/C Ratio(X)	0.02	0.10	0.10	0.02	0.07	0.07	0.04	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	612	762	774	581	762	747	803	0	0	752	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.2	11.9	11.9	12.6	11.8	11.8	10.5	0.0	0.0	10.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.3	0.1	0.2	0.2	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.1	0.5	0.5	0.3	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	12.2	12.2	12.6	11.9	12.0	10.6	0.0	0.0	11.3	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		162			112			30			93	
Approach Delay, s/veh		12.2			12.0			10.6			11.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		36.0		34.0		36.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		30.0		32.0		30.0		32.0				
Max Q Clear Time (g_c+I1), s		3.8		4.4		4.2		2.7				
Green Ext Time (p_c), s		0.7		0.3		0.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay	11.8		
HCM 6th LOS	B		



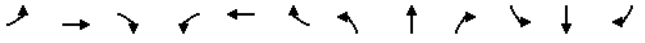
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	30	20	100	140	60
Future Volume (vph)	160	30	20	100	140	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.87		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3025		3433	1532
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3025		3433	1532
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	178	33	22	111	156	67
RTOR Reduction (vph)	0	0	82	0	0	59
Lane Group Flow (vph)	178	33	51	0	156	8
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	7.5	27.3	15.4		6.8	6.8
Effective Green, g (s)	7.5	27.3	15.4		6.8	6.8
Actuated g/C Ratio	0.13	0.47	0.26		0.12	0.12
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	227	1657	799		400	178
v/s Ratio Prot	c0.10	0.01	c0.02		c0.05	
v/s Ratio Perm						0.01
v/c Ratio	0.78	0.02	0.06		0.39	0.04
Uniform Delay, d1	24.6	8.3	16.1		23.8	22.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	15.0	0.0	0.0		0.2	0.0
Delay (s)	39.6	8.3	16.1		24.1	22.9
Level of Service	D	A	B		C	C
Approach Delay (s)		34.7	16.1		23.7	
Approach LOS		C	B		C	

Intersection Summary				
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	30.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2030 AM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	10	250	20	10	10	320	650	80	40	520	70
Future Volume (veh/h)	60	10	250	20	10	10	320	650	80	40	520	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	0	133	21	11	0	340	691	73	43	553	56
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	495	0	213	27	14	0	396	2164	228	55	2751	275
Arrive On Green	0.14	0.00	0.14	0.02	0.02	0.00	0.11	0.67	0.67	0.03	0.58	0.58
Sat Flow, veh/h	3563	0	1530	1188	623	0	3456	3241	342	1781	4708	471
Grp Volume(v), veh/h	72	0	133	32	0	0	340	379	385	43	398	211
Grp Sat Flow(s),veh/h/ln	1781	0	1530	1811	0	0	1728	1777	1806	1781	1702	1775
Q Serve(g_s), s	2.5	0.0	11.5	2.5	0.0	0.0	13.5	12.6	12.6	3.4	7.7	7.9
Cycle Q Clear(g_c), s	2.5	0.0	11.5	2.5	0.0	0.0	13.5	12.6	12.6	3.4	7.7	7.9
Prop In Lane	1.00		1.00	0.66		0.00	1.00		0.19	1.00		0.27
Lane Grp Cap(c), veh/h	495	0	213	41	0	0	396	1186	1206	55	1989	1037
V/C Ratio(X)	0.15	0.00	0.63	0.77	0.00	0.00	0.86	0.32	0.32	0.77	0.20	0.20
Avail Cap(c_a), veh/h	995	0	427	221	0	0	632	1186	1206	148	1989	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	0.0	56.8	68.0	0.0	0.0	60.9	9.8	9.8	67.3	13.7	13.7
Incr Delay (d2), s/veh	0.2	0.0	3.8	10.7	0.0	0.0	3.9	0.7	0.7	8.3	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.7	1.3	0.0	0.0	6.2	5.1	5.2	1.7	3.1	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	0.0	60.6	78.7	0.0	0.0	64.8	10.5	10.5	75.6	13.9	14.2
LnGrp LOS	D	A	E	E	A	A	E	B	B	E	B	B
Approach Vol, veh/h		205			32			1104			652	
Approach Delay, s/veh		58.0			78.7			27.3			18.1	
Approach LOS		E			E			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	98.8		24.4	20.4	87.1		8.1				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	11.6	52.7		39.1	25.6	38.7		17.1				
Max Q Clear Time (g_c+I1), s	5.4	14.6		13.5	15.5	9.9		4.5				
Green Ext Time (p_c), s	0.0	10.7		0.9	0.5	7.4		0.0				

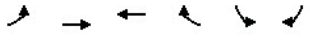
Intersection Summary			
HCM 6th Ctrl Delay			28.2
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2030 AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	210	610	220	60	20
Future Volume (veh/h)	40	210	610	220	60	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	233	678	28	67	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	57	1182	1014	1237	425	378
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.24
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	44	233	678	28	67	2
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.9	4.0	19.7	0.3	2.3	0.1
Cycle Q Clear(g_c), s	1.9	4.0	19.7	0.3	2.3	0.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	57	1182	1014	1237	425	378
V/C Ratio(X)	0.77	0.20	0.67	0.02	0.16	0.01
Avail Cap(c_a), veh/h	155	1285	1014	1237	425	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	5.9	12.5	1.9	22.8	22.0
Incr Delay (d2), s/veh	8.1	0.0	3.5	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.3	8.2	0.2	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.5	5.9	16.0	1.9	23.6	22.0
LnGrp LOS	D	A	B	A	C	C
Approach Vol, veh/h		277	706		69	
Approach Delay, s/veh		12.0	15.4		23.6	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.8		23.0	6.8	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		6.0		4.3	3.9	21.7
Green Ext Time (p_c), s		0.9		0.1	0.0	3.1

Intersection Summary			
HCM 6th Ctrl Delay			15.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	170	110	120	280	10	90	10	70	20	10	10
Future Volume (veh/h)	0	170	110	120	280	10	90	10	70	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	179	35	126	295	9	95	11	22	21	11	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	870	166	160	1574	48	679	227	453	426	213	70
Arrive On Green	0.00	0.29	0.29	0.09	0.45	0.45	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	0	3055	565	1781	3518	107	1398	557	1113	842	524	171
Grp Volume(v), veh/h	0	106	108	126	149	155	95	0	33	36	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1750	1781	1777	1848	1398	0	1670	1537	0	0
Q Serve(g_s), s	0.0	3.1	3.2	4.8	3.5	3.5	1.9	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.1	3.2	4.8	3.5	3.5	2.7	0.0	0.8	0.8	0.0	0.0
Prop In Lane	0.00		0.32	1.00		0.06	1.00		0.67	0.58		0.11
Lane Grp Cap(c), veh/h	0	522	514	160	795	827	679	0	680	709	0	0
V/C Ratio(X)	0.00	0.20	0.21	0.79	0.19	0.19	0.14	0.00	0.05	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	522	514	197	827	860	679	0	680	709	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.2	18.3	30.7	11.5	11.5	12.8	0.0	12.3	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	12.6	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	1.4	2.5	1.3	1.3	0.9	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.1	19.2	43.2	11.6	11.6	12.9	0.0	12.4	12.5	0.0	0.0
LnGrp LOS	A	B	B	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		214			430			128			36	
Approach Delay, s/veh		19.2			20.8			12.8			12.5	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.6	25.3		32.9		35.9		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 20		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	6.8	5.2		2.8		5.5		4.7				
Green Ext Time (p_c), s	0.0	0.8		0.1		1.6		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		18.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	230	10	80	370	10	40
Future Vol, veh/h	230	10	80	370	10	40
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	242	11	84	389	11	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	256	0	615	130
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	364	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1306	-	423	896
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	673	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	395	894
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	672	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	395	894	-	-	1303	-
HCM Lane V/C Ratio	0.027	0.047	-	-	0.065	-
HCM Control Delay (s)	14.4	9.2	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Year 2030 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	190	40	120	400	20	40	10	50	40	10	20
Future Volume (veh/h)	10	190	40	120	400	20	40	10	50	40	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	200	42	126	421	21	42	11	53	42	11	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	810	166	139	1070	53	792	143	687	468	128	211
Arrive On Green	0.04	0.28	0.28	0.08	0.31	0.31	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1781	2918	598	1781	3438	171	1373	279	1344	794	250	414
Grp Volume(v), veh/h	11	120	122	126	217	225	42	0	64	74	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1739	1781	1777	1832	1373	0	1623	1457	0	0
Q Serve(g_s), s	0.5	4.7	4.9	6.3	8.6	8.7	0.0	0.0	1.8	0.5	0.0	0.0
Cycle Q Clear(g_c), s	0.5	4.7	4.9	6.3	8.6	8.7	1.1	0.0	1.8	2.3	0.0	0.0
Prop In Lane	1.00		0.34	1.00		0.09	1.00		0.83	0.57		0.28
Lane Grp Cap(c), veh/h	79	494	483	139	553	570	792	0	829	807	0	0
V/C Ratio(X)	0.14	0.24	0.25	0.91	0.39	0.39	0.05	0.00	0.08	0.09	0.00	0.00
Avail Cap(c_a), veh/h	139	494	483	139	553	570	792	0	829	807	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.3	25.2	25.2	41.2	24.3	24.3	11.0	0.0	11.2	11.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	1.2	1.3	49.2	0.5	0.4	0.1	0.0	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.1	2.2	4.6	3.6	3.7	0.4	0.0	0.7	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	26.3	26.5	90.4	24.8	24.8	11.1	0.0	11.4	11.5	0.0	0.0
LnGrp LOS	D	C	C	F	C	C	B	A	B	B	A	A
Approach Vol, veh/h		253			568			106			74	
Approach Delay, s/veh		27.1			39.3			11.3			11.5	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	29.0		50.0	8.0	32.0		50.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	25.0		46.0	7.0	25.0		46.0				
Max Q Clear Time (g_c+I1), s	8.3	6.9		4.3	2.5	10.7		3.8				
Green Ext Time (p_c), s	0.0	1.3		0.3	0.0	2.2		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			31.2									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	90	60	100	370	250	200	680	90	170	420	180
Future Volume (veh/h)	110	90	60	100	370	250	200	680	90	170	420	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	97	10	108	398	137	215	731	78	183	452	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	708	72	155	558	190	260	2505	265	233	2690	832
Arrive On Green	0.05	0.22	0.22	0.04	0.21	0.21	0.15	1.00	1.00	0.07	0.53	0.53
Sat Flow, veh/h	3456	3249	330	3456	2597	883	3456	4687	497	3456	5106	1580
Grp Volume(v), veh/h	118	52	55	108	271	264	215	530	279	183	452	67
Grp Sat Flow(s),veh/h/ln	1728	1777	1802	1728	1777	1703	1728	1702	1779	1728	1702	1580
Q Serve(g_s), s	4.7	3.3	3.4	4.3	19.8	20.2	8.5	0.0	0.0	7.3	6.4	2.9
Cycle Q Clear(g_c), s	4.7	3.3	3.4	4.3	19.8	20.2	8.5	0.0	0.0	7.3	6.4	2.9
Prop In Lane	1.00		0.18	1.00		0.52	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	166	387	393	155	382	366	260	1820	951	233	2690	832
V/C Ratio(X)	0.71	0.14	0.14	0.70	0.71	0.72	0.83	0.29	0.29	0.78	0.17	0.08
Avail Cap(c_a), veh/h	286	610	619	311	623	597	311	1820	951	385	2690	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	44.1	44.2	65.9	50.9	51.1	58.6	0.0	0.0	64.3	17.2	16.4
Incr Delay (d2), s/veh	2.1	0.2	0.2	2.1	4.7	5.2	10.0	0.3	0.6	2.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.5	1.6	2.0	9.3	9.2	3.8	0.1	0.2	3.3	2.6	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	44.3	44.3	68.0	55.6	56.3	68.6	0.3	0.6	66.5	17.3	16.6
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	B
Approach Vol, veh/h		225			643			1024			702	
Approach Delay, s/veh		56.6			57.9			14.7			30.1	
Approach LOS		E			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.9	80.0	10.7	35.4	14.9	79.0	11.1	35.0				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	12.6	* 48	11.6	49.1				
Max Q Clear Time (g_c+I1), s	9.3	2.0	6.3	5.4	10.5	8.4	6.7	22.2				
Green Ext Time (p_c), s	0.2	11.3	0.1	0.6	0.1	6.8	0.1	6.3				
Intersection Summary												
HCM 6th Ctrl Delay			33.2									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	90	110	280	330	580	240	320	310	170	340	40
Future Volume (veh/h)	10	90	110	280	330	580	240	320	310	170	340	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	94	0	292	344	118	250	333	0	177	354	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	420		345	390	327	301	2064		226	1987	875
Arrive On Green	0.01	0.12	0.00	0.10	0.21	0.21	0.09	0.58	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1567	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	10	94	0	292	344	118	250	333	0	177	354	17
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1567	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.8	3.4	0.0	11.6	25.0	9.0	10.0	6.1	0.0	6.9	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.4	0.0	11.6	25.0	9.0	10.0	6.1	0.0	6.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	420		345	390	327	301	2064		226	1987	875
V/C Ratio(X)	0.61	0.22		0.85	0.88	0.36	0.83	0.16		0.78	0.18	0.02
Avail Cap(c_a), veh/h	51	1155		508	824	691	434	2064		351	1987	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.93	0.93	0.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	69.1	55.9	0.0	62.0	53.7	47.4	62.9	13.6	0.0	59.9	0.0	0.0
Incr Delay (d2), s/veh	12.8	0.3	0.0	5.8	2.6	0.2	5.5	0.2	0.0	5.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.0	5.4	12.0	3.6	4.6	2.5	0.0	3.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.9	56.2	0.0	67.7	56.3	47.7	68.4	13.7	0.0	65.8	0.2	0.0
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		104	A		754			583	A		548	
Approach Delay, s/veh		58.7			59.4			37.2			21.4	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	86.2	18.4	21.8	16.6	83.2	5.7	34.5
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	14.2	41.1	20.6	* 46	17.6	37.7	4.0	61.7
Max Q Clear Time (g_c+I1), s	8.9	8.1	13.6	5.4	12.0	2.0	2.8	27.0
Green Ext Time (p_c), s	0.2	1.5	0.3	0.6	0.2	4.2	0.0	1.6

Intersection Summary		
HCM 6th Ctrl Delay	42.4	
HCM 6th LOS	D	

Notes

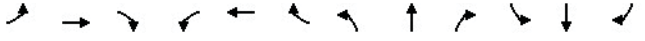
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	450	0	540	0	0	0	0	420	150	300	400	0
Future Volume (vph)	450	0	540	0	0	0	0	420	150	300	400	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3365	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3365	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	469	0	562	0	0	0	0	438	156	312	417	0
RTOR Reduction (vph)	0	0	382	0	0	0	0	0	102	0	0	0
Lane Group Flow (vph)	469	0	181	0	0	0	0	438	54	238	492	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	44.9		44.9					48.6	48.6	28.2	28.2	
Effective Green, g (s)	44.9		44.9					48.6	48.6	28.2	28.2	
Actuated g/C Ratio	0.32		0.32					0.35	0.35	0.20	0.20	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1101		507					1228	549	324	677	
v/s Ratio Prot	c0.14							c0.12		c0.15	0.15	
v/s Ratio Perm			0.11						0.03			
v/c Ratio	0.43		0.36					0.36	0.10	0.73	0.73	
Uniform Delay, d1	37.4		36.5					34.1	30.9	52.4	52.3	
Progression Factor	1.00		1.00					0.55	0.03	1.00	1.00	
Incremental Delay, d2	1.2		2.0					0.1	0.0	8.5	4.0	
Delay (s)	38.6		38.4					18.8	1.1	60.9	56.4	
Level of Service	D		D					B	A	E	E	
Approach Delay (s)		38.5			0.0			14.2			57.8	
Approach LOS		D			A			B			E	

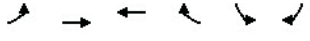
Intersection Summary					
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.49				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	62.1%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	40	10	20	120	290	10	20	10	340	90	480
Future Volume (vph)	280	40	10	20	120	290	10	20	10	340	90	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3243			3514	1583		1778		1681	1720	1562
Flt Permitted	0.95	0.96			0.99	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3243			3514	1583		1778		1681	1720	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	301	43	11	22	129	312	11	22	11	366	97	516
RTOR Reduction (vph)	0	2	0	0	0	148	0	9	0	0	0	303
Lane Group Flow (vph)	150	203	0	0	151	164	0	35	0	231	232	213
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	73.7		15.4		57.7	57.7	57.7
Effective Green, g (s)	26.5	26.5			16.0	73.7		15.4		57.7	57.7	57.7
Actuated g/C Ratio	0.19	0.19			0.11	0.53		0.11		0.41	0.41	0.41
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	304	613			401	833		195		692	708	643
v/s Ratio Prot	c0.09	0.06			c0.04	0.08		c0.02		c0.14	0.13	
v/s Ratio Perm						0.02						0.14
v/c Ratio	0.49	0.33			0.38	0.20		0.18		0.33	0.33	0.33
Uniform Delay, d1	50.7	49.1			57.4	17.5		56.6		28.0	28.0	28.0
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.77	0.76	2.95
Incremental Delay, d2	5.6	1.4			2.7	0.5		2.0		1.0	1.0	1.1
Delay (s)	56.4	50.5			60.1	18.0		58.6		22.5	22.4	83.8
Level of Service	E	D			E	B		E		C	C	F
Approach Delay (s)		53.0			31.8			58.6			54.8	
Approach LOS		D			C			E			D	

Intersection Summary				
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	220	130	1690	90	250	140
Future Volume (veh/h)	220	130	1690	90	250	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	137	1779	0	263	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	254	1561	2353		313	370
Arrive On Green	0.14	0.83	0.66	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	232	137	1779	0	263	129
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	18.1	1.8	47.7	0.0	10.5	9.6
Cycle Q Clear(g_c), s	18.1	1.8	47.7	0.0	10.5	9.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	254	1561	2353		313	370
V/C Ratio(X)	0.91	0.09	0.76		0.84	0.35
Avail Cap(c_a), veh/h	276	1561	2353		540	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	2.1	16.1	0.0	63.0	45.0
Incr Delay (d2), s/veh	29.7	0.1	2.3	0.0	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.6	19.1	0.0	4.8	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.2	2.2	18.4	0.0	65.3	45.2
LnGrp LOS	F	A	B		E	D
Approach Vol, veh/h		369	1779	A	392	
Approach Delay, s/veh		56.9	18.4		58.7	
Approach LOS		E	B		E	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	122.5	18.3	24.3	98.2
Change Period (Y+Rc), s	5.0	5.5	* 4.2	5.0
Max Green Setting (Gmax), s	117.5	22.0	* 22	91.5
Max Q Clear Time (g_c+I1), s	3.8	12.5	20.1	49.7
Green Ext Time (p_c), s	0.5	0.2	0.0	14.4

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2030 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	10	20	60	610	50	10	50	40	200	10	10	10
Future Volume (vph)	10	20	60	610	50	10	50	40	200	10	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	22	65	663	54	11	54	43	217	11	11	11

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	98	663	65	314	33
Volume Left (vph)	11	663	0	54	11
Volume Right (vph)	65	0	11	217	11
Hadj (s)	-0.34	0.53	-0.08	-0.35	-0.10
Departure Headway (s)	5.7	6.2	5.6	5.7	6.5
Degree Utilization, x	0.16	1.15	0.10	0.49	0.06
Capacity (veh/h)	589	568	632	625	517
Control Delay (s)	9.8	108.0	8.1	14.1	10.0
Approach Delay (s)	9.8	99.1		14.1	10.0
Approach LOS	A	F		B	A

Intersection Summary					
Delay			66.4		
Level of Service			F		
Intersection Capacity Utilization			66.3%	ICU Level of Service	C
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Year 2030 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	0	130	0	1200	70	0	0	0	0	270	370
Future Volume (veh/h)	230	0	130	0	1200	70	0	0	0	0	270	370
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	256	0	0	0	1333	78				0	300	411
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	251	0		0	2217	989				0	0	0
Arrive On Green	0.14	0.00	0.00	0.00	0.62	0.62				0.00	0.00	0.00
Sat Flow, veh/h	1781	256		0	3647	1585					0	
Grp Volume(v), veh/h	256	80.0		0	1333	78					0.0	
Grp Sat Flow(s),veh/h/ln	1781	F		0	1777	1585						
Q Serve(g_s), s	6.0			0.0	9.6	0.8						
Cycle Q Clear(g_c), s	6.0			0.0	9.6	0.8						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	251			0	2217	989						
V/C Ratio(X)	1.02			0.00	0.60	0.08						
Avail Cap(c_a), veh/h	251			0	4761	2124						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	18.3			0.0	4.8	3.2						
Incr Delay (d2), s/veh	61.8			0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	6.4			0.0	1.7	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.0			0.0	5.1	3.2						
LnGrp LOS	F			A	A	A						
Approach Vol, veh/h					1411							
Approach Delay, s/veh					5.0							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							11.0	31.5				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							6.0	57.0				
Max Q Clear Time (g_c+I1), s							8.0	11.6				
Green Ext Time (p_c), s							0.0	14.9				

Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	136.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	140	10	110	230	20	450	20	860	10	10	10
Future Vol, veh/h	10	140	10	110	230	20	450	20	860	10	10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	149	11	117	245	21	479	21	915	11	11	11
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

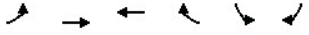
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.1	17.9	185.4	11.4
HCM LOS	C	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	7%	0%	100%	0%	33%
Vol Thru, %	0%	2%	93%	0%	0%	92%	33%
Vol Right, %	0%	98%	0%	100%	0%	8%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	450	880	150	10	110	250	30
LT Vol	450	0	10	0	110	0	10
Through Vol	0	20	140	0	0	230	10
RT Vol	0	860	0	10	0	20	10
Lane Flow Rate	479	936	160	11	117	266	32
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.932	1.51	0.348	0.021	0.258	0.546	0.067
Departure Headway (Hd)	7.006	5.806	8.342	7.586	8.446	7.877	7.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	627	434	475	428	460	461
Service Time	4.731	3.531	6.042	5.286	6.146	5.577	5.809
HCM Lane V/C Ratio	0.926	1.493	0.369	0.023	0.273	0.578	0.069
HCM Control Delay	50.8	254.2	15.4	10.4	14.1	19.6	11.4
HCM Lane LOS	F	F	C	B	B	C	B
HCM 95th-tile Q	11.4	46.8	1.5	0.1	1	3.2	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	350	690	250	130	140	110
Future Volume (veh/h)	350	690	250	130	140	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	389	767	278	144	156	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	472	1165	466	382	241	214
Arrive On Green	0.26	0.62	0.25	0.25	0.14	0.14
Sat Flow, veh/h	1781	1870	1870	1531	1781	1585
Grp Volume(v), veh/h	389	767	278	144	156	122
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1531	1781	1585
Q Serve(g_s), s	8.3	10.6	5.3	3.2	3.4	2.9
Cycle Q Clear(g_c), s	8.3	10.6	5.3	3.2	3.4	2.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	472	1165	466	382	241	214
V/C Ratio(X)	0.82	0.66	0.60	0.38	0.65	0.57
Avail Cap(c_a), veh/h	1214	2359	882	722	840	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	4.9	13.4	12.6	16.6	16.4
Incr Delay (d2), s/veh	1.4	0.6	1.7	0.8	1.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.0	2.0	1.0	1.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.4	5.5	15.1	13.4	17.7	17.3
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		1156	422		278	
Approach Delay, s/veh		8.8	14.5		17.5	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		30.1		10.4	15.1	15.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	27.6	19.1
Max Q Clear Time (g_c+I1), s		12.6		5.4	10.3	7.3
Green Ext Time (p_c), s		6.1		0.4	0.5	2.3

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	140	110	120	170	720
Future Volume (veh/h)	170	140	110	120	170	720
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	152	120	130	185	783
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	288	1074	352	381	510	798
Arrive On Green	0.08	0.57	0.43	0.43	0.29	0.29
Sat Flow, veh/h	3456	1870	821	889	1781	2790
Grp Volume(v), veh/h	185	152	0	250	185	783
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1710	1781	1395
Q Serve(g_s), s	3.6	2.6	0.0	6.9	5.8	19.6
Cycle Q Clear(g_c), s	3.6	2.6	0.0	6.9	5.8	19.6
Prop In Lane	1.00			0.52	1.00	1.00
Lane Grp Cap(c), veh/h	288	1074	0	733	510	798
V/C Ratio(X)	0.64	0.14	0.00	0.34	0.36	0.98
Avail Cap(c_a), veh/h	767	1334	0	733	510	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	6.9	0.0	13.4	20.0	24.9
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.3	0.2	27.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.9	0.0	2.7	2.3	16.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.1	6.9	0.0	14.7	20.1	51.9
LnGrp LOS	C	A	A	B	C	D
Approach Vol, veh/h		337	250		968	
Approach Delay, s/veh		20.7	14.7		45.9	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.3		25.0	10.3	35.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		50.1		20.1	15.6	30.1
Max Q Clear Time (g_c+I1), s		4.6		21.6	5.6	8.9
Green Ext Time (p_c), s		0.6		0.0	0.2	1.0

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Intersection	
Intersection Delay, s/veh	19.9
Intersection LOS	C

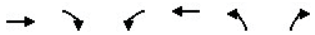
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	200	110	430	460	310	40
Future Vol, veh/h	200	110	430	460	310	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	117	457	489	330	43
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	17	16.4	31.4
HCM LOS	C	C	D

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	55	55	215	215	460	310	40
LT Vol	200	0	0	0	0	0	310	0
Through Vol	0	55	55	215	215	0	0	0
RT Vol	0	0	0	0	0	460	0	40
Lane Flow Rate	213	59	59	229	229	489	330	43
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.513	0.133	0.103	0.466	0.466	0.656	0.768	0.085
Departure Headway (Hd)	8.672	8.156	6.366	7.327	7.327	4.826	8.384	7.176
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	438	560	492	492	744	432	498
Service Time	6.444	5.927	4.137	5.08	5.08	2.577	6.149	4.941
HCM Lane V/C Ratio	0.513	0.135	0.105	0.465	0.465	0.657	0.764	0.086
HCM Control Delay	20.3	12.2	9.9	16.4	16.4	16.4	34.1	10.6
HCM Lane LOS	C	B	A	C	C	C	D	B
HCM 95th-tile Q	2.8	0.5	0.3	2.4	2.4	4.9	6.5	0.3

HCM 6th Signalized Intersection Summary
52: Bachman Place & Hotel Circle S.

Year 2030 AM
02/27/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	240	210	390	610	280	140
Future Volume (veh/h)	240	210	390	610	280	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	267	233	433	678	311	156
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	383	334	463	1339	343	305
Arrive On Green	0.42	0.42	0.26	0.72	0.19	0.19
Sat Flow, veh/h	921	804	1781	1870	1781	1585
Grp Volume(v), veh/h	0	500	433	678	311	156
Grp Sat Flow(s),veh/h/ln	0	1725	1781	1870	1781	1585
Q Serve(g_s), s	0.0	23.5	23.4	15.9	16.8	8.7
Cycle Q Clear(g_c), s	0.0	23.5	23.4	15.9	16.8	8.7
Prop In Lane		0.47	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	717	463	1339	343	305
V/C Ratio(X)	0.00	0.70	0.94	0.51	0.91	0.51
Avail Cap(c_a), veh/h	0	717	488	1365	343	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.7	35.7	6.2	38.9	35.7
Incr Delay (d2), s/veh	0.0	5.6	24.6	0.4	29.8	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.4	13.1	5.3	10.1	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	29.3	60.3	6.6	68.7	41.7
LnGrp LOS	A	C	E	A	E	D
Approach Vol, veh/h	500			1111	467	
Approach Delay, s/veh	29.3			27.5	59.7	
Approach LOS	C			C	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	29.6	46.0				75.6	23.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	27.0	41.0				72.0	19.0
Max Q Clear Time (g_c+I1), s	25.4	25.5				17.9	18.8
Green Ext Time (p_c), s	0.2	3.8				7.7	0.0

Intersection Summary			
HCM 6th Ctrl Delay		35.2	
HCM 6th LOS		D	

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2030 PM
02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	530	160	1300	810	450	1390
Future Volume (veh/h)	530	160	1300	810	450	1390
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	546	31	1340	801	464	1433
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	683	304	2070	1208	405	2590
Arrive On Green	0.19	0.19	0.58	0.58	0.12	0.73
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	546	31	1340	801	464	1433
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	16.2	1.8	28.0	26.7	13.0	20.3
Cycle Q Clear(g_c), s	16.2	1.8	28.0	26.7	13.0	20.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	683	304	2070	1208	405	2590
V/C Ratio(X)	0.80	0.10	0.65	0.66	1.14	0.55
Avail Cap(c_a), veh/h	964	429	2725	1494	405	3270
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	36.9	15.5	5.8	48.9	6.8
Incr Delay (d2), s/veh	2.1	0.1	0.5	1.0	90.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.7	10.1	15.7	10.7	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.8	37.0	16.0	6.9	139.4	7.3
LnGrp LOS	D	D	B	A	F	A
Approach Vol, veh/h	577		2141			1897
Approach Delay, s/veh	44.4		12.6			39.6
Approach LOS	D		B			D

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	17.0	68.6				85.6	25.3
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	12.6	82.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	15.0	30.0				22.3	18.2
Green Ext Time (p_c), s	0.0	32.4				41.7	0.8

Intersection Summary			
HCM 6th Ctrl Delay		27.7	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	170	310	100	70	200	160	1300	230	170	1240	160
Future Volume (veh/h)	190	170	310	100	70	200	160	1300	230	170	1240	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	189	141	111	78	222	178	1444	165	189	1378	178
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	310	251	137	326	260	236	1846	906	216	2033	999
Arrive On Green	0.07	0.17	0.17	0.08	0.17	0.17	0.07	0.52	0.51	0.12	0.57	0.57
Sat Flow, veh/h	3456	1870	1517	1781	1870	1495	3456	3554	1545	1781	3554	1565
Grp Volume(v), veh/h	211	189	141	111	78	222	178	1444	165	189	1378	178
Grp Sat Flow(s),veh/h/ln	1728	1870	1517	1781	1870	1495	1728	1777	1545	1781	1777	1565
Q Serve(g_s), s	8.5	13.2	12.0	8.6	5.1	20.3	7.1	46.3	7.0	14.7	38.1	6.5
Cycle Q Clear(g_c), s	8.5	13.2	12.0	8.6	5.1	20.3	7.1	46.3	7.0	14.7	38.1	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	310	251	137	326	260	236	1846	906	216	2033	999
V/C Ratio(X)	0.86	0.61	0.56	0.81	0.24	0.85	0.75	0.78	0.18	0.87	0.68	0.18
Avail Cap(c_a), veh/h	246	427	346	137	437	350	322	1846	906	228	2033	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	54.5	54.0	63.9	50.1	56.3	64.4	27.3	13.6	60.7	21.0	10.4
Incr Delay (d2), s/veh	24.0	1.9	2.0	27.9	0.1	11.3	4.0	3.4	0.4	26.8	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.4	4.8	5.0	2.4	8.5	3.3	20.2	2.6	8.3	16.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.6	56.4	56.0	91.9	50.2	67.6	68.4	30.7	14.1	87.5	22.9	10.8
LnGrp LOS	F	E	E	F	D	E	E	C	B	F	C	B
Approach Vol, veh/h		541			411			1787			1745	
Approach Delay, s/veh		68.9			70.8			32.9			28.7	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	77.1	14.8	27.7	13.6	84.6	14.0	28.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	17.6	71.8	10.4	* 31	12.7	* 77	9.6	31.4
Max Q Clear Time (g_c+I1), s	16.7	48.3	10.6	15.2	9.1	40.1	10.5	22.3
Green Ext Time (p_c), s	0.0	17.5	0.0	1.4	0.1	22.1	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1210	20	360	580	0	0	0	0	360	10	1500
Future Volume (veh/h)	0	1210	20	360	580	0	0	0	0	360	10	1500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1260	21	375	604	0				375	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1420	633	437	1994	0				623	17	
Arrive On Green	0.00	0.40	0.40	0.13	0.56	0.00				0.36	0.36	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1737	46	1585
Grp Volume(v), veh/h	0	1260	21	375	604	0				385	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	39.6	1.0	12.8	10.8	0.0				21.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.6	1.0	12.8	10.8	0.0				21.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1420	633	437	1994	0				640	0	
V/C Ratio(X)	0.00	0.89	0.03	0.86	0.30	0.00				0.60	0.00	
Avail Cap(c_a), veh/h	0	1747	779	513	2399	0				640	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.13	0.13	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.5	21.9	51.3	13.9	0.0				31.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.5	0.0	1.8	0.0	0.0				1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.6	0.4	5.6	4.3	0.0				9.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.0	21.9	53.2	13.9	0.0				32.6	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				C	A	
Approach Vol, veh/h		1281			979						385	A
Approach Delay, s/veh		37.7			29.0						32.6	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.4	53.0		47.7		72.3
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0
Max Green Setting (Gmax), s	* 18	59.0		29.4		81.0
Max Q Clear Time (g_c+I1), s	14.8	41.6		23.2		12.8
Green Ext Time (p_c), s	0.4	6.4		0.5		3.0

Intersection Summary	
HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	970	730	0	0	650	570	290	20	640	0	0	0
Future Volume (veh/h)	970	730	0	0	650	570	290	20	640	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1010	760	0	0	677	342	302	21	399			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1030	2357	0	0	739	373	394	27	374			
Arrive On Green	0.30	0.66	0.00	0.00	0.32	0.32	0.24	0.24	0.24			
Sat Flow, veh/h	3456	3647	0	0	2379	1154	1671	116	1585			
Grp Volume(v), veh/h	1010	760	0	0	526	493	323	0	399			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1663	1787	0	1585			
Q Serve(g_s), s	29.0	9.2	0.0	0.0	28.5	28.5	16.9	0.0	23.6			
Cycle Q Clear(g_c), s	29.0	9.2	0.0	0.0	28.5	28.5	16.9	0.0	23.6			
Prop In Lane	1.00		0.00	0.00		0.69	0.93		1.00			
Lane Grp Cap(c), veh/h	1030	2357	0	0	575	538	421	0	374			
V/C Ratio(X)	0.98	0.32	0.00	0.00	0.92	0.92	0.77	0.00	1.07			
Avail Cap(c_a), veh/h	1030	2434	0	0	613	574	421	0	374			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.65	0.65	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.8	7.2	0.0	0.0	32.5	32.5	35.7	0.0	38.2			
Incr Delay (d2), s/veh	18.1	0.0	0.0	0.0	17.4	18.3	7.5	0.0	65.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.4	3.1	0.0	0.0	14.7	13.9	8.1	0.0	25.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	7.2	0.0	0.0	49.9	50.8	43.2	0.0	104.1			
LnGrp LOS	D	A	A	A	D	D	D	A	F			
Approach Vol, veh/h		1770			1019			722				
Approach Delay, s/veh		33.3			50.3			76.8				
Approach LOS		C			D			E				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		71.8		28.2	34.0	37.8			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		68.5		21.4	* 30	34.5			
Max Q Clear Time (g_c+I1), s		11.2		25.6	31.0	30.5			
Green Ext Time (p_c), s		4.0		0.0	0.0	1.8			

Intersection Summary			
HCM 6th Ctrl Delay		47.2	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	830	380	270	920	50	140	40	230	30	40	40
Future Volume (veh/h)	70	830	380	270	920	50	140	40	230	30	40	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	922	422	300	1022	56	156	44	256	33	44	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1605	675	330	1987	109	185	404	610	47	255	212
Arrive On Green	0.06	0.45	0.45	0.19	0.58	0.56	0.10	0.22	0.21	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1495	1781	3421	187	1781	1870	1510	1781	1870	1554
Grp Volume(v), veh/h	78	922	422	300	531	547	156	44	256	33	44	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1495	1781	1777	1831	1781	1870	1510	1781	1870	1554
Q Serve(g_s), s	5.8	25.9	29.1	22.3	24.1	24.2	11.6	2.6	16.7	2.5	2.8	3.4
Cycle Q Clear(g_c), s	5.8	25.9	29.1	22.3	24.1	24.2	11.6	2.6	16.7	2.5	2.8	3.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	1605	675	330	1032	1064	185	404	610	47	255	212
V/C Ratio(X)	0.75	0.57	0.62	0.91	0.51	0.51	0.84	0.11	0.42	0.70	0.17	0.21
Avail Cap(c_a), veh/h	224	1605	675	435	1032	1064	226	463	658	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.6	27.4	28.3	53.9	16.9	17.0	59.4	42.5	29.8	65.2	51.6	51.8
Incr Delay (d2), s/veh	4.1	1.5	4.3	16.7	1.8	1.8	18.0	0.0	0.2	6.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	11.3	11.2	11.5	10.2	10.6	6.2	1.2	6.1	1.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	28.9	32.6	70.6	18.7	18.8	77.4	42.6	29.9	71.9	51.7	52.0
LnGrp LOS	E	C	C	E	B	B	E	D	C	E	D	D
Approach Vol, veh/h		1422			1378			456			121	
Approach Delay, s/veh		32.1			30.0			47.4			57.3	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.0	65.3	18.0	22.7	11.8	82.4	7.6	33.1				
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2				
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2				
Max Q Clear Time (g_c+I1), s	24.3	31.1	13.6	5.4	7.8	26.2	4.5	18.7				
Green Ext Time (p_c), s	0.3	3.8	0.1	0.2	0.0	5.5	0.0	0.5				

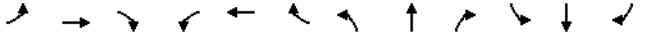
Intersection Summary			
HCM 6th Ctrl Delay		34.2	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2030 PM
02/27/2020

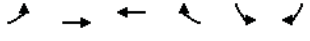


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	610	730	30	10	440	150	0	0	30	240	20	430
Future Volume (vph)	610	730	30	10	440	150	0	0	30	240	20	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3512		1770	3388				1524	1681	1697	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3512		1770	3388				1524	1681	1697	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	678	811	33	11	489	167	0	0	33	267	22	478
RTOR Reduction (vph)	0	2	0	0	30	0	0	0	32	0	0	237
Lane Group Flow (vph)	678	842	0	11	626	0	0	0	1	142	147	241
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	43.3		0.8	26.5				3.2	30.1	30.1	47.7
Effective Green, g (s)	18.0	44.2		1.2	27.4				3.2	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.46		0.01	0.29				0.03	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	643	1616		22	966				50	549	555	793
v/s Ratio Prot	c0.20	0.24		0.01	c0.18					0.08	0.09	c0.06
v/s Ratio Perm									c0.00			0.10
v/c Ratio	1.05	0.52		0.50	0.65				0.02	0.26	0.26	0.30
Uniform Delay, d1	39.0	18.4		47.1	30.1				44.9	23.7	23.8	13.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	50.7	0.3		6.4	3.4				0.2	1.1	1.2	0.1
Delay (s)	89.7	18.7		53.5	33.4				45.1	24.9	25.0	14.0
Level of Service	F	B		D	C				D	C	C	B
Approach Delay (s)		50.3			33.8			45.1			18.1	
Approach LOS		D			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	70.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: Friars Rd. & Napa St.

Year 2030 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	1140	500	430	630	220
Future Volume (vph)	150	1140	500	430	630	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1542	3427	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1542	3427	1418
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	1188	521	448	656	229
RTOR Reduction (vph)	0	0	0	169	1	78
Lane Group Flow (vph)	156	1188	521	279	678	128
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	13.7	61.2	43.5	72.6	29.1	29.1
Effective Green, g (s)	14.1	63.2	45.1	74.4	30.0	30.0
Actuated g/C Ratio	0.12	0.53	0.38	0.62	0.25	0.25
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	209	1874	1337	961	861	356
v/s Ratio Prot	c0.09	c0.34	0.15	0.07	c0.20	
v/s Ratio Perm				0.11		0.09
v/c Ratio	0.75	0.63	0.39	0.29	0.79	0.36
Uniform Delay, d1	50.9	19.9	27.1	10.3	41.7	36.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.9	1.6	0.3	0.4	5.5	1.3
Delay (s)	62.8	21.5	27.3	10.7	47.2	38.1
Level of Service	E	C	C	B	D	D
Approach Delay (s)		26.3	19.6		45.1	
Approach LOS		C	B		D	

Intersection Summary				
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	58.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	1730	60	50	830	70	40	10	20	200	10	80
Future Volume (veh/h)	80	1730	60	50	830	70	40	10	20	200	10	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	1784	58	52	856	61	41	10	7	206	10	31
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	2267	73	83	2132	152	274	62	341	291	87	268
Arrive On Green	0.06	0.65	0.63	0.05	0.63	0.62	0.22	0.22	0.22	0.22	0.22	0.21
Sat Flow, veh/h	1781	3509	113	1781	3361	240	1044	285	1570	1384	398	1235
Grp Volume(v), veh/h	82	899	943	52	452	465	51	0	7	206	0	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1845	1781	1777	1824	1329	0	1570	1384	0	1633
Q Serve(g_s), s	6.2	49.5	50.6	3.9	17.1	17.1	3.4	0.0	0.5	19.8	0.0	2.8
Cycle Q Clear(g_c), s	6.2	49.5	50.6	3.9	17.1	17.1	6.2	0.0	0.5	25.9	0.0	2.8
Prop In Lane	1.00		0.06	1.00		0.13	0.80		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	108	1148	1192	83	1127	1157	336	0	341	291	0	355
V/C Ratio(X)	0.76	0.78	0.79	0.63	0.40	0.40	0.15	0.00	0.02	0.71	0.00	0.12
Avail Cap(c_a), veh/h	182	1148	1192	218	1183	1215	371	0	379	325	0	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.2	17.3	17.5	64.0	12.3	12.3	44.9	0.0	42.0	55.0	0.0	43.2
Incr Delay (d2), s/veh	4.1	5.4	5.4	2.9	1.1	1.0	0.1	0.0	0.0	4.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	19.7	20.9	1.8	6.6	6.8	1.5	0.0	0.2	7.3	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	22.7	23.0	66.9	13.3	13.4	44.9	0.0	42.0	59.7	0.0	43.3
LnGrp LOS	E	C	C	E	B	B	D	A	D	E	A	D
Approach Vol, veh/h		1924			969			58			247	
Approach Delay, s/veh		24.7			16.2			44.6			57.0	
Approach LOS		C			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	92.6		33.7	12.3	90.7		33.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.3	* 87		32.1	13.6	89.0		32.1				
Max Q Clear Time (g_c+I1), s	5.9	52.6		27.9	8.2	19.1		8.2				
Green Ext Time (p_c), s	0.0	31.2		0.2	0.0	23.3		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		25.0
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	1660	960	50	60	30
Future Vol, veh/h	40	1660	960	50	60	30
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	1804	1043	54	65	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1133	0	-	0	2095	585
Stage 1	-	-	-	-	1106	-
Stage 2	-	-	-	-	989	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	612	-	-	-	~ 45	454
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	321	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	594	-	-	-	~ 39	440
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	250	-
Stage 2	-	-	-	-	311	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	47.9
HCM LOS			E

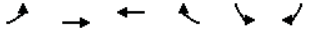
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	594	-	-	-	177
HCM Lane V/C Ratio	0.073	-	-	-	0.553
HCM Control Delay (s)	11.5	-	-	-	47.9
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	2.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Year 2030 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	230	1650	860	310	460	170
Future Volume (veh/h)	230	1650	860	310	460	170
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	242	1737	905	188	484	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	229	2170	1569	668	537	478
Arrive On Green	0.13	0.61	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1781	3647	3647	1514	1781	1585
Grp Volume(v), veh/h	242	1737	905	188	484	102
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1514	1781	1585
Q Serve(g_s), s	12.0	34.7	17.8	7.4	24.3	4.5
Cycle Q Clear(g_c), s	12.0	34.7	17.8	7.4	24.3	4.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	229	2170	1569	668	537	478
V/C Ratio(X)	1.06	0.80	0.58	0.28	0.90	0.21
Avail Cap(c_a), veh/h	229	2170	1569	668	668	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	13.8	19.5	16.6	31.3	24.3
Incr Delay (d2), s/veh	75.2	3.2	1.6	1.1	11.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	12.1	7.0	0.2	11.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	115.8	17.0	21.1	17.7	43.2	24.4
LnGrp LOS	F	B	C	B	D	C
Approach Vol, veh/h		1979	1093		586	
Approach Delay, s/veh		29.1	20.5		39.9	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		61.2		32.1	16.0	45.2
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9
Max Green Setting (Gmax), s		* 55		33.9	11.6	39.1
Max Q Clear Time (g_c+I1), s		36.7		26.3	14.0	19.8
Green Ext Time (p_c), s		10.0		0.7	0.0	5.0

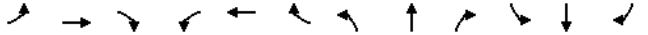
Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2030 PM
03/25/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1930	420	280	990	20	320	10	410	10	10	10
Future Volume (veh/h)	10	1930	420	280	990	20	320	10	410	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	2010	381	292	1031	18	333	10	400	10	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	1922	354	317	1853	32	394	10	708	47	33	0
Arrive On Green	0.01	0.45	0.43	0.09	0.52	0.51	0.36	0.36	0.36	0.36	0.36	0.00
Sat Flow, veh/h	1781	4318	796	3456	3571	62	922	28	1568	5	91	0
Grp Volume(v), veh/h	10	1572	819	292	513	536	343	0	400	20	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1710	1728	1777	1857	949	0	1568	97	0	0
Q Serve(g_s), s	0.7	53.4	53.4	10.1	23.4	23.4	0.0	0.0	22.6	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	53.4	53.4	10.1	23.4	23.4	43.2	0.0	22.6	43.6	0.0	0.0
Prop In Lane	1.00		0.47	1.00		0.03	0.97		1.00	0.50		0.00
Lane Grp Cap(c), veh/h	23	1515	761	317	922	964	404	0	708	80	0	0
V/C Ratio(X)	0.44	1.04	1.08	0.92	0.56	0.56	0.85	0.00	0.56	0.25	0.00	0.00
Avail Cap(c_a), veh/h	65	1515	761	317	922	964	404	0	708	80	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.32	0.32	0.32	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.8	33.3	33.7	54.1	19.5	19.5	38.1	0.0	24.3	31.8	0.0	0.0
Incr Delay (d2), s/veh	1.6	24.4	42.6	27.8	2.1	2.0	19.5	0.0	3.2	7.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	25.5	29.6	5.5	9.5	9.9	12.0	0.0	8.9	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	57.7	76.4	81.9	21.6	21.6	57.6	0.0	27.5	39.1	0.0	0.0
LnGrp LOS	E	F	F	F	C	C	E	A	C	D	A	A
Approach Vol, veh/h		2401			1341			743			20	
Approach Delay, s/veh		64.1			34.7			41.4			39.1	
Approach LOS		E			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	57.4		47.6	5.5	66.9		47.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	10.6	51.5		42.7	4.0	* 59		42.7				
Max Q Clear Time (g_c+I1), s	12.1	55.4		45.6	2.7	25.4		45.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	9.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2030 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2100	70	310	1150	70	50	10	290	30	10	20
Future Volume (veh/h)	40	2100	70	310	1150	70	50	10	290	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	2143	64	316	1173	76	51	11	219	33	11	22
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	3177	95	253	2570	1133	293	12	246	57	18	35
Arrive On Green	0.61	0.62	0.61	0.07	0.72	0.71	0.16	0.16	0.16	0.03	0.03	0.03
Sat Flow, veh/h	445	5092	152	3456	3554	1585	1781	76	1520	1781	557	1113
Grp Volume(v), veh/h	43	1430	777	316	1173	76	51	0	230	33	0	33
Grp Sat Flow(s),veh/h/ln	445	1702	1840	1728	1777	1585	1781	0	1597	1781	0	1670
Q Serve(g_s), s	6.8	40.9	41.2	11.0	20.5	2.2	3.7	0.0	21.2	2.7	0.0	2.9
Cycle Q Clear(g_c), s	12.2	40.9	41.2	11.0	20.5	2.2	3.7	0.0	21.2	2.7	0.0	2.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.95	1.00		0.67
Lane Grp Cap(c), veh/h	305	2124	1148	253	2570	1133	293	0	258	57	0	53
V/C Ratio(X)	0.14	0.67	0.68	1.25	0.46	0.07	0.17	0.00	0.89	0.58	0.00	0.62
Avail Cap(c_a), veh/h	305	2124	1148	253	2570	1133	677	0	602	273	0	256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.20	0.20	0.20	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	18.3	18.4	69.5	8.6	6.4	53.9	0.0	61.4	71.6	0.0	71.7
Incr Delay (d2), s/veh	0.2	0.3	0.7	139.7	0.6	0.1	0.1	0.0	4.2	9.1	0.0	11.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	15.1	16.5	9.7	7.2	0.7	1.7	0.0	8.9	1.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	18.6	19.1	209.2	9.2	6.5	54.0	0.0	65.6	80.7	0.0	82.9
LnGrp LOS	B	B	B	F	A	A	D	A	E	F	A	F
Approach Vol, veh/h		2250			1565			281			66	
Approach Delay, s/veh		18.7			49.4			63.5			81.8	
Approach LOS		B			D			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	97.6		8.8		112.6		28.6				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	10.6	41.6		23.0		* 38		56.6				
Max Q Clear Time (g_c+I1), s	13.0	43.2		4.9		22.5		23.2				
Green Ext Time (p_c), s	0.0	0.0		0.2		8.5		1.1				

Intersection Summary			
HCM 6th Ctrl Delay			34.3
HCM 6th LOS			C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	2430	60	600	1410	30	50	10	340	20	10	10
Future Volume (veh/h)	20	2430	60	600	1410	30	50	10	340	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	2558	63	632	1484	32	53	0	365	21	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	3150	77	576	3920	85	222	0	432	188	118	118
Arrive On Green	0.02	0.61	0.61	0.33	1.00	1.00	0.14	0.00	0.14	0.14	0.14	0.13
Sat Flow, veh/h	1781	5124	125	3456	5141	111	1367	0	3115	1006	849	849
Grp Volume(v), veh/h	21	1695	926	632	983	533	53	0	365	21	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1845	1728	1702	1848	1367	0	1558	1006	0	1699
Q Serve(g_s), s	1.8	57.3	58.3	25.0	0.0	0.0	5.3	0.0	17.1	2.8	0.0	1.7
Cycle Q Clear(g_c), s	1.8	57.3	58.3	25.0	0.0	0.0	7.0	0.0	17.1	2.8	0.0	1.7
Prop In Lane	1.00		0.07	1.00		0.06	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	32	2092	1134	576	2595	1409	222	0	432	188	0	236
V/C Ratio(X)	0.65	0.81	0.82	1.10	0.38	0.38	0.24	0.00	0.84	0.11	0.00	0.09
Avail Cap(c_a), veh/h	72	2092	1134	576	2595	1409	315	0	644	256	0	351
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.2	22.2	22.4	50.0	0.0	0.0	59.4	0.0	63.0	56.8	0.0	56.6
Incr Delay (d2), s/veh	7.8	3.5	6.6	66.9	0.4	0.8	0.2	0.0	4.3	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	22.1	25.3	14.3	0.2	0.3	1.9	0.0	7.1	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	25.7	29.0	116.9	0.4	0.8	59.6	0.0	67.4	56.9	0.0	56.6
LnGrp LOS	F	C	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2642			2148			418			43	
Approach Delay, s/veh		27.3			34.8			66.4			56.8	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	96.2		24.8	6.7	118.5		24.8				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	24.6	80.6		30.1	5.7	* 1E2		30.1				
Max Q Clear Time (g_c+I1), s	27.0	60.3		4.8	3.8	2.0		19.1				
Green Ext Time (p_c), s	0.0	18.3		0.1	0.0	21.1		0.8				

Intersection Summary			
HCM 6th Ctrl Delay			33.7
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	152.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2550	140	0	2000	0	410
Future Vol, veh/h	2550	140	0	2000	0	410
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2833	156	0	2222	0	456

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1512
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 93
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 91
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 1895.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	91	-	-	-
HCM Lane V/C Ratio	5.006	-	-	-
HCM Control Delay (s)	$ 1895.5	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	49.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1060	430	510	800
Future Volume (Veh/h)	0	0	1060	430	510	800
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1152	467	554	870
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2695	576			1619	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2695	576			1619	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	460			398	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	768	540	311	554	435	435
Volume Left	0	0	0	554	0	0
Volume Right	0	156	311	0	0	0
cSH	1700	1700	1700	398	1700	1700
Volume to Capacity	0.45	0.32	0.18	1.39	0.26	0.26
Queue Length 95th (ft)	0	0	0	678	0	0
Control Delay (s)	0.0	0.0	0.0	217.6	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			84.7		
Approach LOS						

Intersection Summary				
Average Delay	39.6			
Intersection Capacity Utilization	68.8%	ICU Level of Service		C
Analysis Period (min)	15			

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	2160	870	420	1490	1240	430	60	1030	530	10	200
Future Volume (veh/h)	150	2160	870	420	1490	1240	430	60	1030	530	10	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	2274	0	442	1568	1305	453	63	1084	558	11	211
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2391		497	2116	1709	806	366	928	630	263	389
Arrive On Green	0.13	0.49	0.00	0.14	0.41	0.41	0.23	0.20	0.19	0.18	0.14	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2749	3456	1870	1551
Grp Volume(v), veh/h	158	2274	0	442	1568	1305	453	63	1084	558	11	211
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1374	1728	1870	1551
Q Serve(g_s), s	6.3	50.6	0.0	18.8	38.9	51.1	17.3	4.2	28.7	23.6	0.8	17.8
Cycle Q Clear(g_c), s	6.3	50.6	0.0	18.8	38.9	51.1	17.3	4.2	28.7	23.6	0.8	17.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2391		497	2116	1709	806	366	928	630	263	389
V/C Ratio(X)	0.45	0.95		0.89	0.74	0.76	0.56	0.17	1.17	0.89	0.04	0.54
Avail Cap(c_a), veh/h	350	2391		599	2116	1709	806	366	928	1359	539	617
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	36.6	0.0	63.0	37.1	21.2	50.7	50.2	49.9	59.8	55.7	49.1
Incr Delay (d2), s/veh	0.3	10.1	0.0	13.2	2.3	3.2	2.8	1.0	87.2	1.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	19.2	0.0	9.0	16.2	17.0	7.9	2.1	28.6	10.5	0.4	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	46.7	0.0	76.2	39.5	24.4	53.6	51.2	137.1	61.6	55.8	49.5
LnGrp LOS	E	D		E	D	C	D	D	F	E	E	D
Approach Vol, veh/h		2432	A		3315			1600			780	
Approach Delay, s/veh		47.6			38.4			110.1			58.2	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.6	59.7	39.0	25.7	19.2	66.2	31.3	33.3
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	26.0	26.2	34.4	43.2	* 15	37.0	58.4	19.2
Max Q Clear Time (g_c+I1), s	20.8	52.6	19.3	19.8	8.3	53.1	25.6	30.7
Green Ext Time (p_c), s	0.8	0.0	0.8	0.4	0.1	0.0	1.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2030 PM
03/06/2020

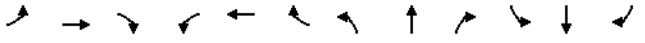
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	690	2920	0	0	1990	1110	0	0	0	900	0	1150
Future Volume (veh/h)	690	2920	0	0	1990	1110	0	0	0	900	0	1150
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	726	3074	0	0	2095	1168				947	0	1211
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	587	8903	0	0	6370	2720				1155	0	1186
Arrive On Green	0.17	1.00	0.00	0.00	0.99	0.98				0.23	0.00	0.25
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	726	3074	0	0	2095	1168				947	0	1211
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	17.0	0.0	0.0	0.0	0.5	1.8				17.9	0.0	24.5
Cycle Q Clear(g_c), s	17.0	0.0	0.0	0.0	0.5	1.8				17.9	0.0	24.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	587	8903	0	0	6370	2720				1155	0	1186
V/C Ratio(X)	1.24	0.35	0.00	0.00	0.33	0.43				0.82	0.00	1.02
Avail Cap(c_a), veh/h	587	8903	0	0	6370	2720				1155	0	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	0.0	0.0	0.0	0.1				36.5	0.0	28.7
Incr Delay (d2), s/veh	119.9	0.1	0.0	0.0	0.1	0.5				4.8	0.0	31.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.7	0.1	0.0	0.0	0.1	0.2				7.7	0.0	31.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	161.4	0.1	0.0	0.0	0.1	0.6				41.3	0.0	60.4
LnGrp LOS	F	A	A	A	A	A				D	A	F
Approach Vol, veh/h		3800			3263						2158	
Approach Delay, s/veh		30.9			0.3						52.0	
Approach LOS		C			A						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	21.0	104.5		27.0		125.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	16.5	46.5		23.0		* 69
Max Q Clear Time (g_c+I1), s	19.0	3.8		26.5		2.0
Green Ext Time (p_c), s	0.0	25.8		0.0		55.0

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	2690	820	160	1610	70	510	100	240	180	110	740
Future Volume (veh/h)	450	2690	820	160	1610	70	510	100	240	180	110	740
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	464	2773	845	165	1660	72	526	103	247	186	113	763
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	2722	1124	179	2118	511	584	614	522	199	438	610
Arrive On Green	0.15	0.42	0.42	0.05	0.33	0.33	0.17	0.35	0.34	0.06	0.23	0.23
Sat Flow, veh/h	3456	6434	2657	3456	6434	1552	3456	1777	1510	3456	1870	2606
Grp Volume(v), veh/h	464	2773	845	165	1660	72	526	103	247	186	113	763
Grp Sat Flow(s),veh/h/ln	1728	1609	1329	1728	1609	1552	1728	1777	1510	1728	1870	1303
Q Serve(g_s), s	18.3	58.9	37.5	6.6	32.5	4.5	20.8	5.6	17.9	7.5	6.9	32.6
Cycle Q Clear(g_c), s	18.3	58.9	37.5	6.6	32.5	4.5	20.8	5.6	17.9	7.5	6.9	32.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	528	2722	1124	179	2118	511	584	614	522	199	438	610
V/C Ratio(X)	0.88	1.02	0.75	0.92	0.78	0.14	0.90	0.17	0.47	0.94	0.26	1.25
Avail Cap(c_a), veh/h	695	2722	1124	179	2118	511	628	637	541	199	438	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.7	40.2	34.0	65.7	42.2	32.8	56.7	31.6	36.0	65.4	43.5	53.3
Incr Delay (d2), s/veh	8.3	22.1	4.7	45.1	3.0	0.6	15.0	0.0	0.2	45.7	0.2	125.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	26.3	12.8	4.0	12.9	1.8	10.3	2.5	6.7	4.6	3.2	21.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	62.3	38.6	110.8	45.2	33.4	71.7	31.7	36.3	111.1	43.6	179.1
LnGrp LOS	E	F	D	F	D	C	E	C	D	F	D	F
Approach Vol, veh/h		4082			1897			876			1062	
Approach Delay, s/veh		57.8			50.5			57.0			152.7	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	63.9	27.5	36.6	25.3	49.8	12.0	52.1
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	6.8	* 57	24.9	31.7	27.6	35.6	7.6	49.0
Max Q Clear Time (g_c+I1), s	8.6	60.9	22.8	34.6	20.3	34.5	9.5	19.9
Green Ext Time (p_c), s	0.0	0.0	0.3	0.0	0.6	1.0	0.0	1.6

Intersection Summary		
HCM 6th Ctrl Delay		68.7
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	260	10	370	290	810	0	0	1210	330
Future Volume (veh/h)	0	0	0	260	10	370	290	810	0	0	1210	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				297	0	411	322	900	0	0	1344	367
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1030	0	450	396	2230	0	0	1724	765
Arrive On Green				0.29	0.00	0.29	0.15	0.83	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1556	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				297	0	411	322	900	0	0	1344	367
Grp Sat Flow(s),veh/h/ln				1781	0	1556	1728	1777	0	0	1777	1576
Q Serve(g_s), s				7.0	0.0	27.6	9.7	6.8	0.0	0.0	33.8	16.9
Cycle Q Clear(g_c), s				7.0	0.0	27.6	9.7	6.8	0.0	0.0	33.8	16.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1030	0	450	396	2230	0	0	1724	765
V/C Ratio(X)				0.29	0.00	0.91	0.81	0.40	0.00	0.00	0.78	0.48
Avail Cap(c_a), veh/h				1089	0	475	512	2230	0	0	1724	765
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.38	0.38	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.8	0.0	37.1	44.6	3.9	0.0	0.0	23.0	18.7
Incr Delay (d2), s/veh				0.2	0.0	21.5	2.3	0.2	0.0	0.0	3.6	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	12.6	4.1	1.9	0.0	0.0	14.4	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.9	0.0	58.6	46.9	4.1	0.0	0.0	26.6	20.8
LnGrp LOS				C	A	E	D	A	A	A	C	C
Approach Vol, veh/h					708			1222			1711	
Approach Delay, s/veh					46.6			15.4			25.4	
Approach LOS					D			B			C	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		72.8			16.4	56.4		35.2
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 66			15.6	44.7		32.1
Max Q Clear Time (g_c+I1), s		8.8			11.7	35.8		29.6
Green Ext Time (p_c), s		6.8			0.3	7.8		0.8

Intersection Summary		
HCM 6th Ctrl Delay		26.1
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	10	390	0	0	0	0	740	470	690	800	0
Future Volume (veh/h)	340	10	390	0	0	0	0	740	470	690	800	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	386	0	159				0	822	391	767	889	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	520	0	231				0	1229	582	723	2772	0
Arrive On Green	0.15	0.00	0.15				0.00	0.53	0.51	0.42	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2434	1108	3456	3647	0
Grp Volume(v), veh/h	386	0	159				0	623	590	767	889	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1671	1728	1777	0
Q Serve(g_s), s	11.2	0.0	10.3				0.0	27.7	28.2	22.6	0.0	0.0
Cycle Q Clear(g_c), s	11.2	0.0	10.3				0.0	27.7	28.2	22.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	520	0	231				0	934	878	723	2772	0
V/C Ratio(X)	0.74	0.00	0.69				0.00	0.67	0.67	1.06	0.32	0.00
Avail Cap(c_a), veh/h	960	0	427				0	934	878	723	2772	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.66	0.66	0.00
Uniform Delay (d), s/veh	44.2	0.0	43.8				0.0	18.7	19.2	31.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	3.6				0.0	3.8	4.1	44.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	4.1				0.0	11.9	11.5	11.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	0.0	47.4				0.0	22.5	23.3	76.2	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		545						1213			1656	
Approach Delay, s/veh		46.6						22.9			35.4	
Approach LOS		D						C			D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	61.2		19.8		88.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	24.6	30.2		13.2		2.0						
Green Ext Time (p_c), s	0.0	8.1		1.7		10.0						

Intersection Summary												
HCM 6th Ctrl Delay			32.7									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2030 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	440	10	230	640	760	0	0	810	300
Future Volume (veh/h)	0	0	0	440	10	230	640	760	0	0	810	300
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				366	161	247	688	817	0	0	871	323
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				482	180	276	611	2373	0	0	2342	716
Arrive On Green				0.27	0.27	0.26	0.18	0.67	0.00	0.00	0.46	0.45
Sat Flow, veh/h				1781	666	1021	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				366	0	408	688	817	0	0	871	323
Grp Sat Flow(s),veh/h/ln				1781	0	1687	1728	1777	0	0	1702	1585
Q Serve(g_s), s				24.5	0.0	30.3	23.0	12.9	0.0	0.0	14.5	18.2
Cycle Q Clear(g_c), s				24.5	0.0	30.3	23.0	12.9	0.0	0.0	14.5	18.2
Prop In Lane				1.00		0.61	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				482	0	456	611	2373	0	0	2342	716
V/C Ratio(X)				0.76	0.00	0.89	1.13	0.34	0.00	0.00	0.37	0.45
Avail Cap(c_a), veh/h				891	0	843	611	2373	0	0	2342	716
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.59	0.59	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.5	0.0	45.9	53.5	9.3	0.0	0.0	23.0	24.5
Incr Delay (d2), s/veh				0.9	0.0	2.5	69.1	0.2	0.0	0.0	0.5	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.6	0.0	12.6	15.8	4.9	0.0	0.0	5.9	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				44.5	0.0	48.4	122.6	9.5	0.0	0.0	23.4	26.6
LnGrp LOS				D	A	D	F	A	A	A	C	C
Approach Vol, veh/h					774			1505			1194	
Approach Delay, s/veh					46.5			61.2			24.3	
Approach LOS					D			E			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		90.8			27.0	63.8		39.2				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		55.9			22.1	* 29		64.1				
Max Q Clear Time (g_c+I1), s		14.9			25.0	20.2		32.3				
Green Ext Time (p_c), s		8.1			0.0	4.6		2.0				

Intersection Summary												
HCM 6th Ctrl Delay			45.3									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2030 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	540	10	530	0	0	0	0	830	420	450	780	0
Future Volume (veh/h)	540	10	530	0	0	0	0	830	420	450	780	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	595	0	576				0	902	457	489	848	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1288	0	573				0	1603	498	507	2231	0
Arrive On Green	0.36	0.00	0.36				0.00	0.31	0.31	0.57	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	595	0	576				0	902	457	489	848	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	16.6	0.0	47.0				0.0	19.1	36.1	34.1	0.0	0.0
Cycle Q Clear(g_c), s	16.6	0.0	47.0				0.0	19.1	36.1	34.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1288	0	573				0	1603	498	507	2231	0
V/C Ratio(X)	0.46	0.00	1.01				0.00	0.56	0.92	0.96	0.38	0.00
Avail Cap(c_a), veh/h	1288	0	573				0	1603	498	575	2231	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	31.8	0.0	41.5				0.0	37.2	43.0	27.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	38.9				0.0	1.4	24.4	23.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	23.7				0.0	8.2	17.4	13.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	80.4				0.0	38.6	67.4	50.4	0.4	0.0
LnGrp LOS	C	A	F				A	D	E	D	A	A
Approach Vol, veh/h		1171						1359			1337	
Approach Delay, s/veh		55.7						48.3			18.7	
Approach LOS		E						D			B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	41.0	45.0		51.0		86.0
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	41.6	27.9		46.1		* 74
Max Q Clear Time (g_c+I1), s	36.1	38.1		49.0		2.0
Green Ext Time (p_c), s	0.5	0.0		0.0		4.6

Intersection Summary			
HCM 6th Ctrl Delay			40.3
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

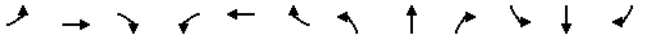
HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2580	130	70	1730	30	60	10	120	150	10	70
Future Volume (veh/h)	30	2580	130	70	1730	30	60	10	120	150	10	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	33	2867	144	78	1922	33	67	11	133	167	11	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3048	151	105	3325	57	156	40	275	259	17	101
Arrive On Green	0.03	0.59	0.57	0.06	0.62	0.60	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5183	256	1853	5377	92	455	151	1033	805	64	380
Grp Volume(v), veh/h	33	1943	1068	78	1265	690	211	0	0	256	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1929	1638	0	0	1249	0	0
Q Serve(g_s), s	2.4	67.7	71.5	5.6	28.6	28.7	0.0	0.0	0.0	12.7	0.0	0.0
Cycle Q Clear(g_c), s	2.4	67.7	71.5	5.6	28.6	28.7	14.3	0.0	0.0	26.9	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.05	0.32		0.63	0.65		0.30
Lane Grp Cap(c), veh/h	48	2082	1117	105	2189	1193	472	0	0	377	0	0
V/C Ratio(X)	0.68	0.93	0.96	0.75	0.58	0.58	0.45	0.00	0.00	0.68	0.00	0.00
Avail Cap(c_a), veh/h	82	2082	1117	198	2189	1193	472	0	0	377	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.2	25.4	26.3	62.7	15.3	15.3	41.7	0.0	0.0	47.2	0.0	0.0
Incr Delay (d2), s/veh	6.2	9.3	18.3	3.9	1.1	2.0	3.0	0.0	0.0	9.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	28.3	34.8	2.7	10.9	12.3	6.4	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	34.7	44.6	66.6	16.4	17.4	44.8	0.0	0.0	56.7	0.0	0.0
LnGrp LOS	E	C	D	E	B	B	D	A	A	E	A	A
Approach Vol, veh/h		3044			2033			211			256	
Approach Delay, s/veh		38.6			18.7			44.8			56.7	
Approach LOS		D			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	83.4		40.0	7.5	87.5		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	7.6	73.5		28.9	4.4	30.7		16.3
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	44.5		1.0

Intersection Summary			
HCM 6th Ctrl Delay			32.3
HCM 6th LOS			C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	50	270	20	220	70	540	140	160	370	40
Future Volume (veh/h)	40	10	50	270	20	220	70	540	140	160	370	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	33	54	290	22	237	75	581	151	172	398	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	155	90	390	30	366	102	1176	304	205	1510	162
Arrive On Green	0.06	0.08	0.06	0.23	0.23	0.23	0.06	0.43	0.41	0.12	0.47	0.46
Sat Flow, veh/h	1781	1870	1560	1661	126	1557	1781	2735	708	1781	3210	344
Grp Volume(v), veh/h	27	33	54	312	0	237	75	377	355	172	219	222
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1787	0	1557	1781	1777	1666	1781	1777	1777
Q Serve(g_s), s	1.7	1.9	3.9	18.9	0.0	16.0	4.8	17.9	18.2	11.0	8.7	8.8
Cycle Q Clear(g_c), s	1.7	1.9	3.9	18.9	0.0	16.0	4.8	17.9	18.2	11.0	8.7	8.8
Prop In Lane	1.00		1.00	0.93		1.00	1.00		0.42	1.00		0.19
Lane Grp Cap(c), veh/h	103	155	90	420	0	366	102	764	716	205	836	836
V/C Ratio(X)	0.26	0.21	0.60	0.74	0.00	0.65	0.73	0.49	0.50	0.84	0.26	0.27
Avail Cap(c_a), veh/h	336	400	295	522	0	454	551	764	716	229	836	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	49.9	53.6	41.3	0.0	40.2	54.0	24.0	24.6	50.5	18.6	18.7
Incr Delay (d2), s/veh	0.5	0.3	2.4	6.7	0.0	4.3	3.7	2.3	2.4	19.5	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.9	1.6	9.0	0.0	6.5	2.3	7.9	7.6	6.0	3.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	50.1	55.9	48.0	0.0	44.5	57.7	26.3	27.0	70.0	19.4	19.5
LnGrp LOS	D	D	E	D	A	D	E	C	C	E	B	B
Approach Vol, veh/h		114			549			807			613	
Approach Delay, s/veh		53.6			46.5			29.5			33.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.4	54.1		13.6	10.7	60.8		31.4				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	14.6	47.2		22.0	35.6	* 28		31.1				
Max Q Clear Time (g_c+I1), s	13.0	20.2		5.9	6.8	10.8		20.9				
Green Ext Time (p_c), s	0.0	3.8		0.2	0.1	2.2		3.6				

Intersection Summary			
HCM 6th Ctrl Delay		36.5	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	19.9
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	360	170	50	390	160
Future Vol, veh/h	70	360	170	50	390	160
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	367	173	51	398	163
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	18.7	13.8	23.3
HCM LOS	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	77%
Vol Thru, %	0%	0%	16%	23%
Vol Right, %	0%	100%	84%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	390	160	430	220
LT Vol	390	0	0	170
Through Vol	0	0	70	50
RT Vol	0	160	360	0
Lane Flow Rate	398	163	439	224
Geometry Grp	7	7	2	2
Degree of Util (X)	0.762	0.257	0.664	0.4
Departure Headway (Hd)	6.894	5.675	5.444	6.42
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	525	630	658	557
Service Time	4.649	3.429	3.508	4.497
HCM Lane V/C Ratio	0.758	0.259	0.667	0.402
HCM Control Delay	28.6	10.4	18.7	13.8
HCM Lane LOS	D	B	C	B
HCM 95th-tile Q	6.7	1	5	1.9

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2030 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	50	0	0	60	90	10	10	20	60	0	10
Future Volume (veh/h)	20	50	0	0	60	90	10	10	20	60	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	83	0	0	100	133	17	17	25	100	0	17
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	759	1340	0	0	670	582	455	88	129	554	0	284
Arrive On Green	0.38	0.38	0.00	0.00	0.38	0.33	0.13	0.13	0.13	0.18	0.00	0.18
Sat Flow, veh/h	1144	3647	0	0	1870	1543	1392	677	996	1191	0	1581
Grp Volume(v), veh/h	33	83	0	0	100	133	17	0	42	100	0	17
Grp Sat Flow(s),veh/h/ln	1144	1777	0	0	1777	1543	1392	0	1672	1191	0	1581
Q Serve(g_s), s	0.4	0.3	0.0	0.0	0.7	1.1	0.2	0.0	0.4	1.2	0.0	0.2
Cycle Q Clear(g_c), s	1.5	0.3	0.0	0.0	0.7	1.1	1.8	0.0	0.4	1.6	0.0	0.2
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	759	1340	0	0	670	582	455	0	217	613	0	284
V/C Ratio(X)	0.04	0.06	0.00	0.00	0.15	0.23	0.04	0.00	0.19	0.16	0.00	0.06
Avail Cap(c_a), veh/h	1525	3720	0	0	1860	1615	2055	0	2140	2109	0	2023
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.4	3.6	0.0	0.0	3.7	4.2	8.4	0.0	7.0	7.3	0.0	6.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	3.6	0.0	0.0	3.8	4.3	8.4	0.0	7.2	7.3	0.0	6.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		116			233			59			117	
Approach Delay, s/veh		3.8			4.1			7.5			7.2	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		10.8		7.2		10.8		7.2				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		3.5		3.6		3.1		3.8				
Green Ext Time (p_c), s		0.3		0.3		0.9		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			5.1									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

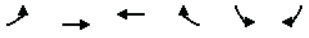
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	190	10	40	190	50	10	10	30	340	10	10
Future Volume (veh/h)	10	190	10	40	190	50	10	10	30	340	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.97		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	211	10	44	211	18	11	11	6	378	11	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	436	1181	56	440	1132	95	394	384	193	810	21	19
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1119	3446	162	1124	3301	278	594	708	355	1307	38	35
Grp Volume(v), veh/h	11	108	113	44	112	117	28	0	0	399	0	0
Grp Sat Flow(s),veh/h/ln	1119	1777	1831	1124	1777	1803	1657	0	0	1379	0	0
Q Serve(g_s), s	0.5	3.0	3.0	2.0	3.1	3.2	0.0	0.0	0.0	12.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	3.0	3.0	5.0	3.1	3.2	0.5	0.0	0.0	12.9	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.15	0.39		0.21	0.95		0.03
Lane Grp Cap(c), veh/h	436	609	628	440	609	618	971	0	0	849	0	0
V/C Ratio(X)	0.03	0.18	0.18	0.10	0.18	0.19	0.03	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	436	609	628	440	609	618	971	0	0	849	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	16.1	16.1	17.9	16.1	16.2	7.4	0.0	0.0	10.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.6	0.5	0.7	0.7	0.1	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.3	0.5	1.3	1.3	0.2	0.0	0.0	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	16.7	16.7	18.3	16.8	16.8	7.5	0.0	0.0	12.1	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		232			273			28			399	
Approach Delay, s/veh		16.8			17.1			7.5			12.1	
Approach LOS		B			B			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		42.0		28.0		42.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		24.0		38.0		24.0		38.0				
Max Q Clear Time (g_c+I1), s		5.7		14.9		7.0		2.5				
Green Ext Time (p_c), s		0.9		1.7		1.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2030 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	290	20	40	180	260	160
Future Volume (vph)	290	20	40	180	260	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3058		3433	1553
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3058		3433	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	322	22	44	200	289	178
RTOR Reduction (vph)	0	0	153	0	0	147
Lane Group Flow (vph)	322	22	91	0	289	31
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	24.5	48.9	20.0		14.8	14.8
Effective Green, g (s)	24.9	49.8	20.9		15.2	15.2
Actuated g/C Ratio	0.28	0.56	0.24		0.17	0.17
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	499	1995	723		590	267
v/s Ratio Prot	c0.18	0.01	c0.03		c0.08	
v/s Ratio Perm						0.02
v/c Ratio	0.65	0.01	0.13		0.49	0.11
Uniform Delay, d1	27.8	8.4	26.5		33.0	30.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	0.0	0.1		0.2	0.1
Delay (s)	30.0	8.4	26.6		33.3	30.9
Level of Service	C	A	C		C	C
Approach Delay (s)		28.6	26.6		32.4	
Approach LOS		C	C		C	

Intersection Summary				
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	88.3	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	44.5%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2030 PM
03/06/2020

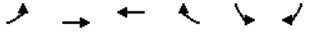


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	10	670	80	20	10	410	870	30	50	1190	60
Future Volume (veh/h)	110	10	670	80	20	10	410	870	30	50	1190	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.92	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	0	279	83	21	7	427	906	28	52	1240	57
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	740	0	317	100	25	8	483	1960	61	67	2275	105
Arrive On Green	0.21	0.00	0.21	0.08	0.08	0.08	0.14	0.56	0.55	0.04	0.46	0.45
Sat Flow, veh/h	3563	0	1527	1326	335	112	3456	3514	109	1781	5000	230
Grp Volume(v), veh/h	122	0	279	111	0	0	427	458	476	52	844	453
Grp Sat Flow(s),veh/h/ln	1781	0	1527	1773	0	0	1728	1777	1846	1781	1702	1826
Q Serve(g_s), s	4.2	0.0	26.6	9.3	0.0	0.0	18.2	23.0	23.1	4.3	27.0	27.0
Cycle Q Clear(g_c), s	4.2	0.0	26.6	9.3	0.0	0.0	18.2	23.0	23.1	4.3	27.0	27.0
Prop In Lane	1.00		1.00	0.75		0.06	1.00		0.06	1.00		0.13
Lane Grp Cap(c), veh/h	740	0	317	134	0	0	483	991	1030	67	1549	831
V/C Ratio(X)	0.16	0.00	0.88	0.83	0.00	0.00	0.88	0.46	0.46	0.78	0.54	0.55
Avail Cap(c_a), veh/h	1119	0	480	249	0	0	820	991	1030	197	1549	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.00	0.89	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	0.0	57.6	68.3	0.0	0.0	63.3	19.8	19.8	71.6	29.6	29.7
Incr Delay (d2), s/veh	0.1	0.0	12.0	4.8	0.0	0.0	3.2	1.6	1.5	7.0	1.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	11.3	4.4	0.0	0.0	8.2	10.0	10.4	2.1	11.4	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	0.0	69.6	73.2	0.0	0.0	66.5	21.3	21.3	78.6	31.0	32.3
LnGrp LOS	D	A	E	E	A	A	E	C	C	E	C	C
Approach Vol, veh/h		401			111			1361			1349	
Approach Delay, s/veh		63.3			73.2			35.5			33.3	
Approach LOS		E			E			D			C	

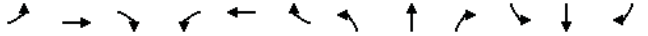
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	87.7		36.0	25.3	72.4		16.3				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	16.6	45.7		47.1	35.6	26.7		21.1				
Max Q Clear Time (g_c+I1), s	6.3	25.1		28.6	20.2	29.0		11.3				
Green Ext Time (p_c), s	0.0	10.3		1.9	0.8	0.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay	39.3		
HCM 6th LOS	D		

Notes
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	520	350	360	400	70
Future Volume (veh/h)	80	520	350	360	400	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	571	385	38	440	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	99	873	686	1284	792	704
Arrive On Green	0.06	0.47	0.37	0.37	0.44	0.44
Sat Flow, veh/h	1781	1870	1870	1581	1781	1585
Grp Volume(v), veh/h	88	571	385	38	440	8
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1581	1781	1585
Q Serve(g_s), s	4.4	21.1	14.8	0.4	16.4	0.3
Cycle Q Clear(g_c), s	4.4	21.1	14.8	0.4	16.4	0.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	99	873	686	1284	792	704
V/C Ratio(X)	0.89	0.65	0.56	0.03	0.56	0.01
Avail Cap(c_a), veh/h	99	873	686	1284	792	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	18.4	22.7	1.6	18.4	14.0
Incr Delay (d2), s/veh	55.2	1.4	3.3	0.0	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	8.9	6.9	0.5	7.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	97.4	19.8	26.0	1.7	21.3	14.0
LnGrp LOS	F	B	C	A	C	B
Approach Vol, veh/h		659	423		448	
Approach Delay, s/veh		30.2	23.8		21.1	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		46.0		44.0	9.0	37.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		41.1		39.1	4.6	32.1
Max Q Clear Time (g_c+I1), s		23.1		18.4	6.4	16.8
Green Ext Time (p_c), s		2.3		0.7	0.0	1.4
Intersection Summary						
HCM 6th Ctrl Delay			25.8			
HCM 6th LOS			C			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	790	180	30	470	30	240	10	90	10	10	10
Future Volume (veh/h)	0	790	180	30	470	30	240	10	90	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	859	196	33	511	33	261	11	98	11	11	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1374	313	48	1837	118	598	62	555	217	216	196
Arrive On Green	0.00	0.48	0.47	0.03	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	2952	652	1781	3383	218	1383	160	1424	453	554	504
Grp Volume(v), veh/h	0	534	521	33	268	276	261	0	109	33	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1734	1781	1777	1824	1383	0	1583	1511	0	0
Q Serve(g_s), s	0.0	26.4	26.5	2.2	9.6	9.7	11.5	0.0	5.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	26.4	26.5	2.2	9.6	9.7	17.0	0.0	5.4	5.4	0.0	0.0
Prop In Lane	0.00		0.38	1.00		0.12	1.00		0.90	0.33		0.33
Lane Grp Cap(c), veh/h	0	854	833	48	965	990	598	0	617	629	0	0
V/C Ratio(X)	0.00	0.63	0.63	0.69	0.28	0.28	0.44	0.00	0.18	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	854	833	72	986	1012	598	0	617	629	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.9	23.0	57.2	14.6	14.6	27.3	0.0	24.0	22.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.4	3.5	6.5	0.1	0.1	0.5	0.0	0.1	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.7	11.5	1.1	3.9	4.0	5.6	0.0	2.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	26.3	26.5	63.8	14.7	14.8	27.8	0.0	24.1	22.8	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1055			577			370			33	
Approach Delay, s/veh		26.4			17.5			26.7			22.8	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	7.2	61.2		50.2		68.4		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	4.2	28.5		7.4		11.7		19.0				
Green Ext Time (p_c), s	0.0	6.9		0.1		3.2		1.5				
Intersection Summary												
HCM 6th Ctrl Delay			23.9									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	860	20	60	530	10	40
Future Vol, veh/h	860	20	60	530	10	40
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	935	22	65	576	11	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	959	0	1366	481
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	418	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	713	-	138	531
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	712	-	125	530
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	632	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	125	530	-	-	712	-
HCM Lane V/C Ratio	0.087	0.082	-	-	0.092	-
HCM Control Delay (s)	36.5	12.4	-	-	10.6	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	790	80	310	630	50	100	10	340	30	10	20
Future Volume (veh/h)	50	790	80	310	630	50	100	10	340	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	832	84	326	663	53	105	11	358	32	11	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1122	113	344	1650	132	475	18	577	154	56	85
Arrive On Green	0.04	0.35	0.35	0.19	0.50	0.50	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1781	3235	327	1781	3318	265	1372	47	1518	312	148	225
Grp Volume(v), veh/h	53	457	459	326	355	361	105	0	369	64	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1785	1781	1777	1806	1372	0	1564	685	0	0
Q Serve(g_s), s	4.4	33.9	33.9	27.1	18.8	18.9	0.0	0.0	28.7	3.6	0.0	0.0
Cycle Q Clear(g_c), s	4.4	33.9	33.9	27.1	18.8	18.9	11.8	0.0	28.7	32.3	0.0	0.0
Prop In Lane	1.00		0.18	1.00		0.15	1.00		0.97	0.50		0.33
Lane Grp Cap(c), veh/h	76	616	619	344	884	898	475	0	594	296	0	0
V/C Ratio(X)	0.70	0.74	0.74	0.95	0.40	0.40	0.22	0.00	0.62	0.22	0.00	0.00
Avail Cap(c_a), veh/h	119	616	619	344	884	898	475	0	594	296	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	70.8	43.1	43.1	59.7	23.7	23.7	32.5	0.0	37.7	40.1	0.0	0.0
Incr Delay (d2), s/veh	4.2	7.9	7.8	34.4	0.3	0.3	1.1	0.0	4.8	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	16.3	16.4	15.5	8.1	8.2	2.9	0.0	11.9	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.0	51.0	50.9	94.1	24.0	24.0	33.6	0.0	42.5	41.7	0.0	0.0
LnGrp LOS	E	D	D	F	C	C	C	A	D	D	A	A
Approach Vol, veh/h		969			1042			474			64	
Approach Delay, s/veh		52.3			45.9			40.6			41.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	56.0		61.0	10.4	78.6		61.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	29.0	52.0		57.0	10.0	71.0		57.0				
Max Q Clear Time (g_c+I1), s	29.1	35.9		34.3	6.4	20.9		30.7				
Green Ext Time (p_c), s	0.0	5.7		0.2	0.0	5.2		1.9				

Intersection Summary		
HCM 6th Ctrl Delay	47.2	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2030 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	550	270	360	350	340	240	600	180	530	1050	350
Future Volume (veh/h)	300	550	270	360	350	340	240	600	180	530	1050	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	316	579	224	379	368	179	253	632	135	558	1105	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	676	261	415	662	316	308	1362	285	615	2108	644
Arrive On Green	0.11	0.27	0.27	0.12	0.29	0.28	0.18	0.65	0.63	0.18	0.41	0.41
Sat Flow, veh/h	3456	2487	960	3456	2311	1103	3456	4201	880	3456	5106	1561
Grp Volume(v), veh/h	316	413	390	379	281	266	253	510	257	558	1105	100
Grp Sat Flow(s),veh/h/ln	1728	1777	1670	1728	1777	1637	1728	1702	1677	1728	1702	1561
Q Serve(g_s), s	13.5	33.1	33.3	16.3	20.1	20.8	10.6	11.3	11.9	23.7	24.3	6.0
Cycle Q Clear(g_c), s	13.5	33.1	33.3	16.3	20.1	20.8	10.6	11.3	11.9	23.7	24.3	6.0
Prop In Lane	1.00		0.57	1.00		0.67	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	373	483	454	415	509	469	308	1104	544	615	2108	644
V/C Ratio(X)	0.85	0.86	0.86	0.91	0.55	0.57	0.82	0.46	0.47	0.91	0.52	0.16
Avail Cap(c_a), veh/h	507	592	557	415	550	506	691	1104	544	691	2108	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.57	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	51.8	52.1	65.2	45.4	46.0	60.5	19.8	20.4	60.5	33.0	27.6
Incr Delay (d2), s/veh	4.4	6.1	6.6	24.0	1.9	2.2	1.8	1.2	2.5	13.9	0.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	15.6	14.8	8.6	9.2	8.9	4.4	3.8	4.2	11.6	10.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	57.9	58.7	89.2	47.2	48.2	62.2	21.0	23.0	74.4	33.9	28.1
LnGrp LOS	E	E	E	F	D	D	E	C	C	E	C	C
Approach Vol, veh/h		1119			926			1020			1763	
Approach Delay, s/veh		61.6			64.7			31.7			46.4	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.7	52.5	22.0	44.8	17.4	65.8	20.2	46.6
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	29.6	34.8	17.6	49.1	29.6	* 35	21.6	45.1
Max Q Clear Time (g_c+I1), s	25.7	13.9	18.3	35.3	12.6	26.3	15.5	22.8
Green Ext Time (p_c), s	0.5	8.2	0.0	4.6	0.4	6.5	0.3	6.1

Intersection Summary	
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2030 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	230	380	320	330	500	260	420	650	440	1060	90
Future Volume (veh/h)	30	230	380	320	330	500	260	420	650	440	1060	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	237	0	330	340	515	268	433	0	454	1093	35
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	869		381	622	517	325	1454		438	1570	684
Arrive On Green	0.02	0.24	0.00	0.11	0.33	0.33	0.09	0.41	0.00	0.25	0.88	0.88
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1549
Grp Volume(v), veh/h	31	237	0	330	340	515	268	433	0	454	1093	35
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1549
Q Serve(g_s), s	2.6	8.1	0.0	14.1	22.2	49.6	11.4	12.3	0.0	19.0	14.0	0.4
Cycle Q Clear(g_c), s	2.6	8.1	0.0	14.1	22.2	49.6	11.4	12.3	0.0	19.0	14.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	869		381	622	517	325	1454		438	1570	684
V/C Ratio(X)	0.70	0.27		0.87	0.55	1.00	0.82	0.30		1.04	0.70	0.05
Avail Cap(c_a), veh/h	144	1066		392	622	517	461	1454		438	1570	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.56	0.56	0.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	72.6	45.8	0.0	65.6	40.8	49.9	66.7	29.8	0.0	56.0	5.7	4.9
Incr Delay (d2), s/veh	7.2	0.2	0.0	17.0	0.6	38.3	3.2	0.3	0.0	46.7	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.6	0.0	7.1	10.5	24.7	5.2	5.4	0.0	10.3	2.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.7	46.0	0.0	82.6	41.4	88.2	70.0	30.1	0.0	102.7	7.6	5.0
LnGrp LOS	E	D		F	D	F	E	C		F	A	A
Approach Vol, veh/h		268	A		1185			701	A		1582	
Approach Delay, s/veh		49.9			73.2			45.4			34.8	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	65.4	20.5	41.1	18.1	70.3	7.7	53.9
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	18.6	52.1	16.6	* 44	19.6	51.1	11.7	48.6
Max Q Clear Time (g_c+I1), s	21.0	14.3	16.1	10.1	13.4	16.0	4.6	51.6
Green Ext Time (p_c), s	0.0	2.0	0.0	1.6	0.3	16.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2030 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	710	0	460	0	0	0	0	650	410	970	550	0
Future Volume (vph)	710	0	460	0	0	0	0	650	410	970	550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3313	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3313	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	747	0	484	0	0	0	0	684	432	1021	579	0
RTOR Reduction (vph)	0	0	355	0	0	0	0	0	275	0	0	0
Lane Group Flow (vph)	747	0	129	0	0	0	0	684	157	510	1090	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	29.8		29.8					50.0	50.0	41.9	41.9	
Effective Green, g (s)	31.4		31.4					51.0	51.0	43.5	43.5	
Actuated g/C Ratio	0.22		0.22					0.36	0.36	0.31	0.31	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	769		355					1289	576	500	1029	
v/s Ratio Prot	c0.22							c0.19		0.32	c0.33	
v/s Ratio Perm			0.08						0.10			
v/c Ratio	0.97		0.36					0.53	0.27	1.02	1.06	
Uniform Delay, d1	53.9		45.9					35.1	31.4	48.2	48.2	
Progression Factor	1.00		1.00					0.39	0.16	1.00	1.00	
Incremental Delay, d2	26.2		2.9					0.1	0.1	45.4	45.1	
Delay (s)	80.0		48.7					13.8	5.2	93.6	93.4	
Level of Service	F		D					B	A	F	F	
Approach Delay (s)		67.7			0.0			10.4			93.5	
Approach LOS		E			A			B			F	

Intersection Summary				
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	79.6%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

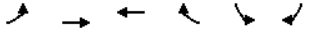
Year 2030 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	650	100	10	10	90	370	10	40	20	520	30	410
Future Volume (vph)	650	100	10	10	90	370	10	40	20	520	30	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3257			3522	1583		1771		1681	1694	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3257			3522	1583		1771		1681	1694	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	722	111	11	11	100	411	11	44	22	578	33	456
RTOR Reduction (vph)	0	1	0	0	0	71	0	10	0	0	0	251
Lane Group Flow (vph)	361	482	0	0	111	340	0	67	0	306	305	205
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	27.9	27.9			16.0	77.3		10.4		61.3	61.3	61.3
Effective Green, g (s)	29.5	29.5			17.6	77.3		11.9		62.9	62.9	62.9
Actuated g/C Ratio	0.21	0.21			0.13	0.55		0.09		0.45	0.45	0.45
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	339	686			442	874		150		755	761	711
v/s Ratio Prot	c0.22	0.15			0.03	c0.17		c0.04		c0.18	0.18	
v/s Ratio Perm						0.04						0.13
v/c Ratio	1.06	1.02dl			0.25	0.39		0.45		0.41	0.40	0.29
Uniform Delay, d1	55.2	51.2			55.3	17.9		60.9		26.0	25.9	24.4
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.50	0.50	0.81
Incremental Delay, d2	67.1	5.9			1.4	1.3		9.3		0.7	0.7	0.5
Delay (s)	122.4	57.1			56.6	19.2		70.2		13.8	13.7	20.2
Level of Service	F	E			E	B		E		B	B	C
Approach Delay (s)		85.0			27.1			70.2			16.5	
Approach LOS		F			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



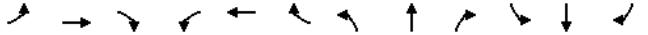
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	720	430	500	200	400	100
Future Volume (veh/h)	720	430	500	200	400	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	766	457	532	0	426	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	785	1485	1152		508	916
Arrive On Green	0.44	0.79	0.32	0.00	0.15	0.14
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	766	457	532	0	426	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	57.4	9.1	16.2	0.0	16.3	0.7
Cycle Q Clear(g_c), s	57.4	9.1	16.2	0.0	16.3	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	785	1485	1152		508	916
V/C Ratio(X)	0.98	0.31	0.46		0.84	0.02
Avail Cap(c_a), veh/h	956	1485	1152		610	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	3.8	36.5	0.0	56.4	12.3
Incr Delay (d2), s/veh	20.4	0.5	1.3	0.0	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.0	3.2	7.3	0.0	7.6	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.7	4.4	37.9	0.0	63.9	12.3
LnGrp LOS	E	A	D		E	B
Approach Vol, veh/h		1223	532	A	446	
Approach Delay, s/veh		37.8	37.9		61.5	
Approach LOS		D	D		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		24.0	63.9	48.1
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.0		22.5	* 73	30.0
Max Q Clear Time (g_c+I1), s		11.1		18.3	59.4	18.2
Green Ext Time (p_c), s		2.0		0.2	0.3	1.9

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	10	30	50	340	40	30	80	30	320	10	60	10
Future Volume (vph)	10	30	50	340	40	30	80	30	320	10	60	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	33	54	370	43	33	87	33	348	11	65	11

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	98	370	76	468	87
Volume Left (vph)	11	370	0	87	11
Volume Right (vph)	54	0	33	348	11
Hadj (s)	-0.27	0.53	-0.27	-0.37	-0.02
Departure Headway (s)	6.2	6.8	6.0	5.3	6.4
Degree Utilization, x	0.17	0.70	0.13	0.70	0.16
Capacity (veh/h)	499	510	576	646	479
Control Delay (s)	10.5	22.9	8.7	19.6	10.6
Approach Delay (s)	10.5	20.5		19.6	10.6
Approach LOS	B	C		C	B

Intersection Summary				
Delay	18.5			
Level of Service	C			
Intersection Capacity Utilization	64.6%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	0	160	0	540	120	0	0	0	0	190	250
Future Volume (veh/h)	310	0	160	0	540	120	0	0	0	0	190	250
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	344	0	0	0	600	133				0	211	278
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	466	0		0	1598	713				0	0	0
Arrive On Green	0.26	0.00	0.00	0.00	0.45	0.45				0.00	0.13	0.13
Sat Flow, veh/h	1781	344		0	3647	1585					0	
Grp Volume(v), veh/h	344	8.5		0	600	133					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	4.0			0.0	2.5	1.1						
Cycle Q Clear(g_c), s	4.0			0.0	2.5	1.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	466			0	1598	713						
V/C Ratio(X)	0.74			0.00	0.38	0.19						
Avail Cap(c_a), veh/h	1544			0	2369	1057						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	7.6			0.0	4.1	3.7						
Incr Delay (d2), s/veh	0.9			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.9			0.0	0.2	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5			0.0	4.2	3.8						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					733							
Approach Delay, s/veh					4.2							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							10.4	12.1				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							19.0	12.0				
Max Q Clear Time (g_c+I1), s							6.0	4.5				
Green Ext Time (p_c), s							0.1	2.7				

Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									

Notes

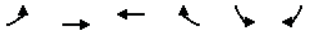
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	117.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	410	30	420	150	20	190	10	650	10	10	10
Future Vol, veh/h	10	410	30	420	150	20	190	10	650	10	10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	441	32	452	161	22	204	11	699	11	11	11
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	76.4	70.3	176.6	15.2
HCM LOS	F	F	F	C

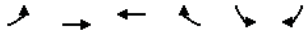
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	2%	0%	100%	0%	33%
Vol Thru, %	0%	2%	98%	0%	0%	88%	33%
Vol Right, %	0%	98%	0%	100%	0%	12%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	660	420	30	420	170	30
LT Vol	190	0	10	0	420	0	10
Through Vol	0	10	410	0	0	150	10
RT Vol	0	650	0	30	0	20	10
Lane Flow Rate	204	710	452	32	452	183	32
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.476	1.421	1.021	0.067	1.055	0.398	0.09
Departure Headway (Hd)	8.665	7.435	9.011	8.267	9.29	8.682	11.089
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	497	406	436	393	417	325
Service Time	6.365	5.135	6.711	5.967	6.99	6.382	9.089
HCM Lane V/C Ratio	0.487	1.429	1.113	0.073	1.15	0.439	0.098
HCM Control Delay	19	222	81	11.6	91.9	17	15.2
HCM Lane LOS	C	F	F	B	F	C	C
HCM 95th-tile Q	2.5	33.2	12.9	0.2	13.8	1.9	0.3



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	450	600	330	160	240	250
Future Volume (veh/h)	450	600	330	160	240	250
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	479	638	351	170	255	266
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	548	1197	490	414	391	348
Arrive On Green	0.31	0.64	0.26	0.26	0.22	0.22
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	479	638	351	170	255	266
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	14.5	10.6	9.7	5.1	7.4	9.0
Cycle Q Clear(g_c), s	14.5	10.6	9.7	5.1	7.4	9.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	548	1197	490	414	391	348
V/C Ratio(X)	0.87	0.53	0.72	0.41	0.65	0.76
Avail Cap(c_a), veh/h	876	1708	657	555	626	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	5.6	19.1	17.4	20.2	20.8
Incr Delay (d2), s/veh	3.6	0.3	3.1	0.9	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	2.8	4.2	1.8	2.9	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	5.9	22.2	18.3	20.9	22.2
LnGrp LOS	C	A	C	B	C	C
Approach Vol, veh/h		1117	521		521	
Approach Delay, s/veh		12.9	20.9		21.6	
Approach LOS		B	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.4		16.5	21.5	18.9
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	27.6	19.1
Max Q Clear Time (g_c+I1), s		12.6		11.0	16.5	11.7
Green Ext Time (p_c), s		4.6		0.6	0.6	2.1

Intersection Summary			
HCM 6th Ctrl Delay		16.9	
HCM 6th LOS		B	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	310	560	80	100	180	580
Future Volume (veh/h)	310	560	80	100	180	580
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	589	84	105	189	611
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	426	1225	362	452	460	721
Arrive On Green	0.12	0.65	0.49	0.48	0.26	0.26
Sat Flow, veh/h	3456	1870	741	926	1781	2790
Grp Volume(v), veh/h	326	589	0	189	189	611
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1666	1781	1395
Q Serve(g_s), s	8.4	14.6	0.0	6.1	8.1	19.2
Cycle Q Clear(g_c), s	8.4	14.6	0.0	6.1	8.1	19.2
Prop In Lane	1.00			0.56	1.00	1.00
Lane Grp Cap(c), veh/h	426	1225	0	814	460	721
V/C Ratio(X)	0.77	0.48	0.00	0.23	0.41	0.85
Avail Cap(c_a), veh/h	937	1502	0	814	928	1453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	8.0	0.0	13.8	28.4	32.5
Incr Delay (d2), s/veh	1.1	0.1	0.0	0.7	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	5.2	0.0	2.4	3.4	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.2	8.1	0.0	14.4	28.6	33.6
LnGrp LOS	D	A	A	B	C	C
Approach Vol, veh/h		915	189		800	
Approach Delay, s/veh		19.6	14.4		32.4	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		64.4		27.8	15.4	49.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		73.1		47.1	24.6	44.1
Max Q Clear Time (g_c+I1), s		16.6		21.2	10.4	8.1
Green Ext Time (p_c), s		2.8		1.7	0.5	0.8

Intersection Summary			
HCM 6th Ctrl Delay		24.4	
HCM 6th LOS		C	

Intersection	
Intersection Delay, s/veh	135.8
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	580	390	210	820	160	50
Future Vol, veh/h	580	390	210	820	160	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	644	433	233	911	178	56
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	145.6	150	20.8
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	580	195	195	105	105	820	160	50
LT Vol	580	0	0	0	0	0	160	0
Through Vol	0	195	195	105	105	0	0	0
RT Vol	0	0	0	0	0	820	0	50
Lane Flow Rate	644	217	217	117	117	911	178	56
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	1.438	0.453	0.349	0.251	0.251	1.347	0.476	0.13
Departure Headway (Hd)	8.606	8.094	6.315	8.363	8.363	5.867	10.826	9.588
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	449	574	432	432	629	336	376
Service Time	6.306	5.794	4.015	6.063	6.063	3.567	8.526	7.288
HCM Lane V/C Ratio	1.515	0.483	0.378	0.271	0.271	1.448	0.53	0.149
HCM Control Delay	233.5	17.3	12.4	13.8	13.8	184.9	23	13.7
HCM Lane LOS	F	C	B	B	B	F	C	B
HCM 95th-tile Q	30.3	2.3	1.6	1	1	35.4	2.4	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	340	110	240	690	470	300
Future Volume (veh/h)	340	110	240	690	470	300
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	362	117	255	734	500	319
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	441	142	297	1018	626	557
Arrive On Green	0.33	0.31	0.17	0.54	0.35	0.35
Sat Flow, veh/h	1354	438	1781	1870	1781	1585
Grp Volume(v), veh/h	0	479	255	734	500	319
Grp Sat Flow(s),veh/h/ln	0	1792	1781	1870	1781	1585
Q Serve(g_s), s	0.0	18.9	10.7	22.6	19.4	12.6
Cycle Q Clear(g_c), s	0.0	18.9	10.7	22.6	19.4	12.6
Prop In Lane		0.24	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	583	297	1018	626	557
V/C Ratio(X)	0.00	0.82	0.86	0.72	0.80	0.57
Avail Cap(c_a), veh/h	0	583	371	1096	626	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.0	31.1	13.1	22.5	20.2
Incr Delay (d2), s/veh	0.0	12.3	14.0	2.3	10.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.6	5.6	8.9	9.4	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	36.3	45.1	15.5	32.7	24.5
LnGrp LOS	A	D	D	B	C	C
Approach Vol, veh/h	479			989	819	
Approach Delay, s/veh	36.3			23.1	29.5	
Approach LOS	D			C	C	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	16.8	29.0			45.8	31.0
Change Period (Y+Rc), s	4.0	5.0			5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0			44.0	27.0
Max Q Clear Time (g_c+I1), s	12.7	20.9			24.6	21.4
Green Ext Time (p_c), s	0.2	1.1			6.6	1.2

Intersection Summary		
HCM 6th Ctrl Delay	28.2	
HCM 6th LOS	C	

APPENDIX S

YEAR 2030 FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4780	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1258
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7090	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2541
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6500	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1368
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9650	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2053
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.1
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6730	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1790
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9990	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2103
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6730	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1432
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9990	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1734
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6820	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1483
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10130	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2110
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7170	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1526
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10640	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2194
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10020	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2202
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7720	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1625
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1800
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7400	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1298
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11130	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2368
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8640	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2250
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8940	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3204
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6950	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1219
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10240	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2695
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2030 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7950	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2732
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7070	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1880
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5920	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2099
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9620	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2004
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8060	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1679
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9960	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2541
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1740
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9960	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2054
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8350	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1450
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10100	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2082
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8470	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1765
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2188
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8890	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1852
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8940	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1965
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10670	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2200
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8570	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1536
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10230	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1758
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8730	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1819
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9260	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2386
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.08
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7020	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2388
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7440	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1348
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8030	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2070
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2030 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8520	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2928
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.29
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX T

YEAR 2030 + PROJECT PHASES I AND II INTERSECTION ANALYSIS CALCULATION SHEETS

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	634	534	1320	476	224	820
Future Volume (veh/h)	634	534	1320	476	224	820
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	667	296	1389	83	236	863
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	776	345	1924	1156	305	2336
Arrive On Green	0.22	0.22	0.52	0.52	0.09	0.66
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647
Grp Volume(v), veh/h	667	296	1389	83	236	863
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777
Q Serve(g_s), s	17.9	17.8	28.8	1.5	6.6	10.9
Cycle Q Clear(g_c), s	17.9	17.8	28.8	1.5	6.6	10.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	776	345	1924	1156	305	2336
V/C Ratio(X)	0.86	0.86	0.72	0.07	0.77	0.37
Avail Cap(c_a), veh/h	1500	667	2946	1588	404	3458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	37.3	18.1	3.5	44.3	7.7
Incr Delay (d2), s/veh	1.1	2.4	0.7	0.0	4.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	6.8	10.9	0.8	3.0	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.5	39.8	18.8	3.5	48.9	7.9
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	963		1472			1099
Approach Delay, s/veh	38.9		17.9			16.7
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	13.2	58.3				71.5	27.8
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	11.6	79.8				* 97	41.8
Max Q Clear Time (g_c+I1), s	8.6	30.8				12.9	19.9
Green Ext Time (p_c), s	0.1	21.3				18.0	1.7

Intersection Summary			
HCM 6th Ctrl Delay			23.3
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	95	61	140	130	225	1316	148	140	793	190
Future Volume (veh/h)	60	60	95	61	140	130	225	1316	148	140	793	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	67	106	68	156	144	250	1462	164	156	881	211
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	186	148	87	218	172	311	2168	1022	160	2168	1005
Arrive On Green	0.03	0.10	0.10	0.05	0.12	0.12	0.09	0.61	0.61	0.09	0.61	0.61
Sat Flow, veh/h	3456	1870	1492	1781	1870	1478	3456	3554	1549	1781	3554	1565
Grp Volume(v), veh/h	67	67	106	68	156	144	250	1462	164	156	881	211
Grp Sat Flow(s),veh/h/ln	1728	1870	1492	1781	1870	1478	1728	1777	1549	1781	1777	1565
Q Serve(g_s), s	2.5	4.3	8.9	4.9	10.4	12.3	9.2	35.2	5.2	11.3	16.6	7.2
Cycle Q Clear(g_c), s	2.5	4.3	8.9	4.9	10.4	12.3	9.2	35.2	5.2	11.3	16.6	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	186	148	87	218	172	311	2168	1022	160	2168	1005
V/C Ratio(X)	0.61	0.36	0.71	0.78	0.72	0.84	0.80	0.67	0.16	0.97	0.41	0.21
Avail Cap(c_a), veh/h	292	449	358	131	423	335	927	2168	1022	160	2168	1005
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	54.3	56.3	60.7	54.9	55.8	57.6	16.7	8.4	58.6	13.0	9.6
Incr Delay (d2), s/veh	2.0	1.2	6.2	7.9	1.7	4.1	1.9	1.7	0.3	62.9	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	3.6	2.4	5.0	4.8	4.1	14.3	1.8	7.9	6.7	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	55.4	62.6	68.6	56.6	59.9	59.5	18.4	8.7	121.5	13.6	10.0
LnGrp LOS	E	E	E	E	E	E	E	B	A	F	B	B
Approach Vol, veh/h		240			368			1876			1248	
Approach Delay, s/veh		60.9			60.1			23.0			26.5	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	84.0	10.7	18.3	16.0	84.0	8.5	20.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	11.6	78.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	13.3	37.2	6.9	10.9	11.2	18.6	4.5	14.3
Green Ext Time (p_c), s	0.0	26.6	0.0	0.6	0.4	13.4	0.0	0.7

Intersection Summary			
HCM 6th Ctrl Delay			30.3
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1746	10	430	290	0	0	0	0	340	10	883
Future Volume (veh/h)	0	1746	10	430	290	0	0	0	0	340	10	883
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1819	-11	448	302	0				354	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1942	840	512	2493	0				407	11	
Arrive On Green	0.00	0.53	0.00	0.14	0.70	0.00				0.23	0.23	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1735	49	1585
Grp Volume(v), veh/h	0	1819	-11	448	302	0				364	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	69.5	0.0	18.5	4.2	0.0				29.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	69.5	0.0	18.5	4.2	0.0				29.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1942	840	512	2493	0				418	0	
V/C Ratio(X)	0.00	0.94	-0.01	0.87	0.12	0.00				0.87	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				418	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.9	0.0	62.9	7.3	0.0				55.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.4	0.0	1.0	0.0	0.0				17.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	32.4	0.0	8.5	1.6	0.0				15.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.3	0.0	63.9	7.3	0.0				72.3	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				E	A	
Approach Vol, veh/h		1808			750						364	A
Approach Delay, s/veh		41.5			41.1						72.3	
Approach LOS		D			D						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	25.8	84.5		39.8		110.2
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0
Max Q Clear Time (g_c+I1), s	20.5	71.5		31.4		6.2
Green Ext Time (p_c), s	1.1	8.0		0.0		1.4

Intersection Summary		
HCM 6th Ctrl Delay		45.3
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1456	690	0	0	600	620	100	30	320	0	0	0
Future Volume (veh/h)	1456	690	0	0	600	620	100	30	320	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1533	726	0	0	632	521	105	32	84			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1444	2896	0	0	658	540	116	35	133			
Arrive On Green	0.42	0.81	0.00	0.00	0.35	0.35	0.08	0.08	0.08			
Sat Flow, veh/h	3456	3647	0	0	1947	1520	1381	421	1585			
Grp Volume(v), veh/h	1533	726	0	0	606	547	137	0	84			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1597	1801	0	1585			
Q Serve(g_s), s	41.8	4.7	0.0	0.0	33.4	33.6	7.5	0.0	5.1			
Cycle Q Clear(g_c), s	41.8	4.7	0.0	0.0	33.4	33.6	7.5	0.0	5.1			
Prop In Lane	1.00		0.00	0.00		0.95	0.77		1.00			
Lane Grp Cap(c), veh/h	1444	2896	0	0	631	567	151	0	133			
V/C Ratio(X)	1.06	0.25	0.00	0.00	0.96	0.97	0.91	0.00	0.63			
Avail Cap(c_a), veh/h	1444	2896	0	0	631	567	151	0	133			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.32	0.32	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	29.1	2.2	0.0	0.0	31.6	31.6	45.4	0.0	44.3			
Incr Delay (d2), s/veh	33.3	0.0	0.0	0.0	26.1	29.0	45.5	0.0	7.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	23.2	1.0	0.0	0.0	18.4	17.1	5.3	0.0	4.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.4	2.2	0.0	0.0	57.6	60.6	90.9	0.0	51.4			
LnGrp LOS	F	A	A	A	E	E	F	A	D			
Approach Vol, veh/h		2259			1153			221				
Approach Delay, s/veh		43.0			59.0			75.9				
Approach LOS		D			E			E				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		87.0		13.0	46.0	41.0			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		81.5		8.4	* 42	35.5			
Max Q Clear Time (g_c+I1), s		6.7		9.5	43.8	35.6			
Green Ext Time (p_c), s		3.8		0.0	0.0	0.0			

Intersection Summary		
HCM 6th Ctrl Delay		50.1
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	580	95	206	900	30	365	30	353	50	40	70
Future Volume (veh/h)	30	580	95	206	900	30	365	30	353	50	40	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	644	106	229	1000	33	406	33	392	56	44	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1271	540	252	1667	55	428	594	719	72	220	181
Arrive On Green	0.02	0.36	0.36	0.14	0.48	0.48	0.24	0.32	0.32	0.04	0.12	0.12
Sat Flow, veh/h	1781	3554	1511	1781	3506	116	1781	1870	1557	1781	1870	1536
Grp Volume(v), veh/h	33	644	106	229	507	526	406	33	392	56	44	78
Grp Sat Flow(s),veh/h/ln	1781	1777	1511	1781	1777	1845	1781	1870	1557	1781	1870	1536
Q Serve(g_s), s	2.7	20.6	7.0	18.4	30.3	30.3	32.5	1.8	26.4	4.5	3.1	6.8
Cycle Q Clear(g_c), s	2.7	20.6	7.0	18.4	30.3	30.3	32.5	1.8	26.4	4.5	3.1	6.8
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	1271	540	252	845	878	428	594	719	72	220	181
V/C Ratio(X)	0.78	0.51	0.20	0.91	0.60	0.60	0.95	0.06	0.55	0.78	0.20	0.43
Avail Cap(c_a), veh/h	106	1271	540	314	845	878	486	654	769	179	335	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.4	36.5	32.2	61.3	27.9	27.9	54.2	34.4	28.4	68.9	57.8	59.5
Incr Delay (d2), s/veh	11.0	1.4	0.8	22.8	3.1	3.0	25.5	0.0	0.3	6.6	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.3	2.7	9.9	13.7	14.2	17.6	0.8	10.0	2.2	1.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.4	38.0	33.0	84.1	31.0	30.9	79.7	34.4	28.6	75.5	58.0	60.1
LnGrp LOS	F	D	C	F	C	C	E	C	C	E	E	E
Approach Vol, veh/h		783			1262			831			178	
Approach Delay, s/veh		39.1			40.6			53.8			64.4	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.9	58.6	39.3	22.2	7.8	75.7	10.3	51.2
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 34	39.6	* 26	8.6	50.4	14.6	50.7
Max Q Clear Time (g_c+I1), s	20.4	22.6	34.5	8.8	4.7	32.3	6.5	28.4
Green Ext Time (p_c), s	0.2	2.6	0.3	0.2	0.0	4.6	0.0	0.8

Intersection Summary		
HCM 6th Ctrl Delay	45.2	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	151	10	10	1029	550	0	0	20	110	10	285
Future Volume (vph)	355	151	10	10	1029	550	0	0	20	110	10	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3499		1770	3334				1516	1681	1699	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3499		1770	3334				1516	1681	1699	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	394	168	11	11	1143	611	0	0	22	122	11	317
RTOR Reduction (vph)	0	3	0	0	44	0	0	0	21	0	0	161
Lane Group Flow (vph)	394	176	0	11	1710	0	0	0	1	66	67	156
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	16.0	81.6		1.6	67.2				3.2	30.0	30.0	46.0
Effective Green, g (s)	16.0	81.6		1.6	67.2				3.2	30.0	30.0	46.0
Actuated g/C Ratio	0.12	0.60		0.01	0.50				0.02	0.22	0.22	0.34
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	406	2114		20	1659				35	373	377	534
v/s Ratio Prot	c0.11	0.05		0.01	c0.51					0.04	0.04	c0.03
v/s Ratio Perm									c0.00			0.06
v/c Ratio	0.97	0.08		0.55	1.03				0.01	0.18	0.18	0.29
Uniform Delay, d1	59.3	11.1		66.3	33.9				64.4	42.5	42.5	32.6
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	36.7	0.0		17.2	30.4				0.2	1.0	1.0	0.1
Delay (s)	95.9	11.1		83.6	64.3				64.5	43.5	43.5	32.7
Level of Service	F	B		F	E				E	D	D	C
Approach Delay (s)		69.4			64.5			64.5			35.9	
Approach LOS		E			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	93.5%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	250	480	1227	1089	339	100
Future Volume (vph)	250	480	1227	1089	339	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1537	3428	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1537	3428	1418
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	505	1292	1146	357	105
RTOR Reduction (vph)	0	0	0	307	2	63
Lane Group Flow (vph)	263	505	1292	839	366	31
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.9	75.2	55.3	74.7	19.4	19.4
Effective Green, g (s)	15.9	75.2	55.3	74.7	19.4	19.4
Actuated g/C Ratio	0.13	0.61	0.45	0.60	0.16	0.16
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	226	2142	1575	924	535	221
v/s Ratio Prot	c0.15	0.14	0.37	c0.14	0.11	
v/s Ratio Perm				0.40		0.02
v/c Ratio	1.16	0.24	0.82	0.91	0.68	0.14
Uniform Delay, d1	54.1	11.3	30.1	21.7	49.5	45.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	111.2	0.1	4.9	13.1	4.6	0.6
Delay (s)	165.3	11.4	35.0	34.8	54.2	45.8
Level of Service	F	B	D	C	D	D
Approach Delay (s)		64.1	34.9		52.5	
Approach LOS		E	C		D	

Intersection Summary				
HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	124.2	Sum of lost time (s)	18.9	
Intersection Capacity Utilization	90.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	690	30	20	2396	145	70	10	40	85	10	40
Future Volume (veh/h)	60	690	30	20	2396	145	70	10	40	85	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	726	26	21	2522	145	74	11	-21	89	11	-14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	2403	86	79	2345	133	194	23	157	0	0	709
Arrive On Green	0.05	0.69	0.69	0.04	0.69	0.69	0.10	0.10	0.00	0.10	0.10	0.00
Sat Flow, veh/h	1781	3495	125	1781	3416	194	1210	234	1585	1392	1870	0
Grp Volume(v), veh/h	63	369	383	21	1299	1368	85	0	-21	89	-3	-3
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1833	1444	0	1585	1392	1870	1585
Q Serve(g_s), s	3.2	7.4	7.4	1.0	62.0	62.0	4.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.2	7.4	7.4	1.0	62.0	62.0	5.1	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.11	0.87		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	81	1222	1267	79	1220	1258	217	0	157	0	0	0
V/C Ratio(X)	0.78	0.30	0.30	0.27	1.07	1.09	0.39	0.00	-0.13	0.00	0.00	0.00
Avail Cap(c_a), veh/h	110	1222	1267	120	1220	1258	1139	0	1178	0	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.7	5.6	5.6	41.7	14.2	14.2	38.9	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	14.4	0.6	0.6	0.7	45.1	52.4	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.2	2.3	0.4	32.1	35.7	1.8	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	6.2	6.2	42.4	59.2	66.6	39.3	0.0	0.0	0.0	0.0	0.0
LnGrp LOS	E	A	A	D	F	F	D	A	A	A	A	A
Approach Vol, veh/h		815			2688			64			83	
Approach Delay, s/veh		10.1			62.9			52.3			0.0	
Approach LOS		B			E			D			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	68.1		13.8	8.5	68.0		13.8				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	6.1	* 62		67.1	5.6	62.0		67.1				
Max Q Clear Time (g_c+I1), s	3.0	9.4		2.0	5.2	64.0		7.1				
Green Ext Time (p_c), s	0.0	14.8		0.1	0.0	0.0		0.3				

Intersection Summary				
HCM 6th Ctrl Delay		49.5		
HCM 6th LOS		D		

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	775	1521	40	50	40
Future Vol, veh/h	50	775	1521	40	50	40
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	842	1653	43	54	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1733	0	-	0	2241	885
Stage 1	-	-	-	-	1712	-
Stage 2	-	-	-	-	529	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	360	-	-	-	~ 36	288
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	555	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	349	-	-	-	~ 29	279
Mov Cap-2 Maneuver	-	-	-	-	87	-
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	96.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	349	-	-	-	125
HCM Lane V/C Ratio	0.156	-	-	-	0.783
HCM Control Delay (s)	17.2	-	-	-	96.8
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	4.6

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	788	26	0	1561	0	102
Future Vol, veh/h	788	26	0	1561	0	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	857	28	0	1697	0	111

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	443
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	562
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	562
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	562	-	-	-
HCM Lane V/C Ratio	0.197	-	-	-
HCM Control Delay (s)	13	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2030 + P1 + P2 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	635	53	11	2071	605	277	102	58	211	32	150
Future Volume (veh/h)	193	635	53	11	2071	605	277	102	58	211	32	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	706	58	12	2301	501	301	111	63	234	35	39
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1908	157	19	1857	803	201	127	72	260	39	258
Arrive On Green	0.06	0.58	0.58	0.01	0.52	0.52	0.11	0.11	0.11	0.17	0.17	0.17
Sat Flow, veh/h	1781	3316	272	1781	3554	1536	1781	1120	636	1559	233	1549
Grp Volume(v), veh/h	214	378	386	12	2301	501	301	0	174	269	0	39
Grp Sat Flow(s),veh/h/ln	1781	1777	1811	1781	1777	1536	1781	0	1756	1792	0	1549
Q Serve(g_s), s	8.6	16.2	16.3	1.0	74.0	32.7	16.0	0.0	13.8	20.8	0.0	3.0
Cycle Q Clear(g_c), s	8.6	16.2	16.3	1.0	74.0	32.7	16.0	0.0	13.8	20.8	0.0	3.0
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.36	0.87		1.00
Lane Grp Cap(c), veh/h	108	1023	1042	19	1857	803	201	0	198	299	0	258
V/C Ratio(X)	1.98	0.37	0.37	0.63	1.24	0.62	1.50	0.00	0.88	0.90	0.00	0.15
Avail Cap(c_a), veh/h	108	1023	1042	63	1857	803	201	0	198	405	0	350
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.5	16.2	16.2	69.8	33.8	23.9	62.8	0.0	61.8	57.9	0.0	50.4
Incr Delay (d2), s/veh	471.5	1.0	1.0	30.1	112.3	3.6	247.3	0.0	32.8	15.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.0	6.6	6.7	0.6	58.6	12.1	21.1	0.0	8.0	10.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	538.0	17.2	17.2	99.8	146.1	27.6	310.1	0.0	94.6	73.4	0.0	50.5
LnGrp LOS	F	B	B	F	F	C	F	A	F	E	A	D
Approach Vol, veh/h		978			2814			475			308	
Approach Delay, s/veh		131.2			124.8			231.1			70.5	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	87.4		28.7	13.0	79.9		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	5.0	* 78		32.0	8.6	74.0		16.0				
Max Q Clear Time (g_c+I1), s	3.0	18.3		22.8	10.6	76.0		18.0				
Green Ext Time (p_c), s	0.0	3.5		0.8	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		133.6	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2030 + P1 + P2 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	901	83	80	2272	135	86
Future Volume (veh/h)	901	83	80	2272	135	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	979	90	87	2470	120	122
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1671	154	154	2405	215	194
Arrive On Green	0.51	0.51	0.09	0.68	0.12	0.12
Sat Flow, veh/h	3384	302	1781	3647	1781	1610
Grp Volume(v), veh/h	529	540	87	2470	120	122
Grp Sat Flow(s),veh/h/ln	1777	1816	1781	1777	1781	1610
Q Serve(g_s), s	11.1	11.1	2.5	36.1	3.4	3.8
Cycle Q Clear(g_c), s	11.1	11.1	2.5	36.1	3.4	3.8
Prop In Lane		0.17	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	902	922	154	2405	215	194
V/C Ratio(X)	0.59	0.59	0.56	1.03	0.56	0.63
Avail Cap(c_a), veh/h	902	922	498	2405	3443	3113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.2	9.2	23.4	8.6	22.1	22.3
Incr Delay (d2), s/veh	1.0	1.0	3.2	25.6	2.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.1	1.0	13.2	1.4	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.2	10.2	26.6	34.2	24.4	25.6
LnGrp LOS	B	B	C	F	C	C
Approach Vol, veh/h	1069			2557	242	
Approach Delay, s/veh	10.2			34.0	25.0	
Approach LOS	B			C	C	

Timer - Assigned Phs	1	2					6	8
Phs Duration (G+Y+Rc), s	9.0	33.0					42.0	11.3
Change Period (Y+Rc), s	4.4	* 5.9					5.9	4.9
Max Green Setting (Gmax), s	14.9	* 17					36.1	103.1
Max Q Clear Time (g_c+I1), s	4.5	13.1					38.1	5.8
Green Ext Time (p_c), s	0.1	2.2					0.0	0.8

Intersection Summary			
HCM 6th Ctrl Delay		26.8	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	962	42	0	2351	0	44
Future Vol, veh/h	962	42	0	2351	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1046	46	0	2555	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	546
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	482
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	482
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	482	-	-	-
HCM Lane V/C Ratio	0.099	-	-	-
HCM Control Delay (s)	13.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	984	21	37	2293	58	102
Future Volume (veh/h)	0	984	21	37	2293	58	102
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		1070	23	40	2492	63	111
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2571	55	68	2826	71	126
Arrive On Green		0.72	0.72	0.04	0.80	0.12	0.12
Sat Flow, veh/h		3651	76	1781	3647	595	1048
Grp Volume(v), veh/h		534	559	40	2492	175	0
Grp Sat Flow(s),veh/h/ln		1777	1857	1781	1777	1652	0
Q Serve(g_s), s		15.2	15.2	2.8	61.2	13.3	0.0
Cycle Q Clear(g_c), s		15.2	15.2	2.8	61.2	13.3	0.0
Prop In Lane			0.04	1.00		0.36	0.63
Lane Grp Cap(c), veh/h		1284	1342	68	2826	198	0
V/C Ratio(X)		0.42	0.42	0.59	0.88	0.88	0.00
Avail Cap(c_a), veh/h		1522	1591	134	3218	207	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		7.0	7.0	60.3	8.9	55.2	0.0
Incr Delay (d2), s/veh		0.2	0.2	8.0	2.9	32.1	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.9	5.1	1.4	16.5	7.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		7.2	7.2	68.3	11.9	87.3	0.0
LnGrp LOS		A	A	E	B	F	A
Approach Vol, veh/h		1093			2532	175	
Approach Delay, s/veh		7.2			12.7	87.3	
Approach LOS		A			B	F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	98.0			107.3	20.2
Change Period (Y+Rc), s	4.4	5.9			* 5.9	4.9
Max Green Setting (Gmax), s	9.6	109.2			* 1.2E2	16.0
Max Q Clear Time (g_c+I1), s	4.8	17.2			63.2	15.3
Green Ext Time (p_c), s	0.0	8.1			38.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2030 + P1 + P2 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1007	140	282	2110	10	370	10	168	30	10	10
Future Volume (veh/h)	10	1007	140	282	2110	10	370	10	168	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1119	156	313	2344	11	411	11	187	33	11	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	2167	302	324	2043	10	324	7	540	40	13	3
Arrive On Green	0.01	0.48	0.48	0.09	0.56	0.56	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1781	4518	629	3456	3627	17	1105	30	1572	0	53	13
Grp Volume(v), veh/h	11	843	432	313	1147	1208	422	0	187	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1744	1728	1777	1867	1134	0	1572	67	0	0
Q Serve(g_s), s	0.9	24.8	24.9	13.1	81.7	81.7	0.0	0.0	12.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	24.8	24.9	13.1	81.7	81.7	36.1	0.0	12.9	36.1	0.0	0.0
Prop In Lane	1.00		0.36	1.00		0.01	0.97		1.00	0.60		0.20
Lane Grp Cap(c), veh/h	18	1632	836	324	1001	1052	331	0	540	56	0	0
V/C Ratio(X)	0.63	0.52	0.52	0.97	1.15	1.15	1.27	0.00	0.35	0.98	0.00	0.00
Avail Cap(c_a), veh/h	155	1880	963	324	1001	1052	331	0	540	56	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.5	26.1	26.1	65.5	31.6	31.7	57.1	0.0	35.5	61.8	0.0	0.0
Incr Delay (d2), s/veh	12.7	0.2	0.5	8.5	66.9	67.9	144.6	0.0	1.8	113.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	9.8	10.1	6.1	50.7	53.6	25.7	0.0	5.3	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.3	26.3	26.6	74.0	98.6	99.5	201.7	0.0	37.3	175.3	0.0	0.0
LnGrp LOS	F	C	C	E	F	F	F	A	D	F	A	A
Approach Vol, veh/h		1286			2668			609			55	
Approach Delay, s/veh		26.9			96.1			151.2			175.3	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	75.4		41.0	5.8	87.6		41.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	13.6	80.1		36.1	12.6	* 82		36.1				
Max Q Clear Time (g_c+I1), s	15.1	26.9		38.1	2.9	83.7		38.1				
Green Ext Time (p_c), s	0.0	10.0		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		85.1
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1190	20	110	2307	20	10	10	30	70	10	40
Future Volume (veh/h)	30	1190	20	110	2307	20	10	10	30	70	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	1293	18	120	2508	22	11	11	8	76	11	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	3638	51	169	2784	1242	95	53	38	104	20	76
Arrive On Green	0.70	0.70	0.70	0.05	0.78	0.78	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	127	5188	72	3456	3554	1585	1781	982	714	1781	333	1303
Grp Volume(v), veh/h	33	848	463	120	2508	22	11	0	19	76	0	54
Grp Sat Flow(s),veh/h/ln	127	1702	1856	1728	1777	1585	1781	0	1697	1781	0	1636
Q Serve(g_s), s	34.0	13.1	13.1	4.5	68.6	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Cycle Q Clear(g_c), s	91.7	13.1	13.1	4.5	68.6	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.42	1.00		0.80
Lane Grp Cap(c), veh/h	88	2387	1301	169	2784	1242	95	0	91	104	0	96
V/C Ratio(X)	0.37	0.36	0.36	0.71	0.90	0.02	0.12	0.00	0.21	0.73	0.00	0.56
Avail Cap(c_a), veh/h	88	2387	1301	191	2784	1242	418	0	399	216	0	198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.3	7.8	7.8	61.9	10.5	3.1	59.5	0.0	59.8	61.1	0.0	60.5
Incr Delay (d2), s/veh	10.1	0.4	0.7	7.8	5.3	0.0	0.2	0.0	0.4	9.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.3	4.8	2.1	20.7	0.1	0.4	0.0	0.6	2.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	8.2	8.5	69.7	15.8	3.2	59.7	0.0	60.2	70.4	0.0	65.6
LnGrp LOS	E	A	A	E	B	A	E	A	E	E	A	E
Approach Vol, veh/h		1344			2650			30			130	
Approach Delay, s/veh		9.5			18.1			60.0			68.4	
Approach LOS		A			B			E			E	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.8	98.0		11.7		108.8		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.5	93.7		7.5		70.6		3.4				
Green Ext Time (p_c), s	0.0	0.0		0.3		0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		17.2
HCM 6th LOS		B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1250	30	200	2377	10	10	10	30	30	10	10
Future Volume (veh/h)	10	1250	30	200	2377	10	10	10	30	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1330	32	213	2529	11	11	27	22	32	11	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	19	3473	84	285	3932	17	169	143	120	165	65	65
Arrive On Green	0.01	0.68	0.68	0.08	0.75	0.75	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1781	5127	123	3456	5247	23	1375	1870	1566	1343	852	852
Grp Volume(v), veh/h	11	883	479	213	1640	900	11	27	22	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1728	1702	1866	1375	1870	1566	1343	0	1705
Q Serve(g_s), s	0.6	10.2	10.2	5.4	21.0	21.0	0.7	1.2	1.2	2.1	0.0	1.1
Cycle Q Clear(g_c), s	0.6	10.2	10.2	5.4	21.0	21.0	1.8	1.2	1.2	3.3	0.0	1.1
Prop In Lane	1.00		0.07	1.00		0.01	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	19	2306	1251	285	2551	1398	169	143	120	165	0	131
V/C Ratio(X)	0.58	0.38	0.38	0.75	0.64	0.64	0.07	0.19	0.18	0.19	0.00	0.17
Avail Cap(c_a), veh/h	79	2306	1251	292	2551	1398	523	626	524	511	0	570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	6.3	6.3	40.4	5.5	5.5	39.7	38.9	38.9	40.5	0.0	38.9
Incr Delay (d2), s/veh	9.9	0.5	0.9	8.7	1.3	2.3	0.1	0.2	0.3	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.9	3.2	2.5	4.8	5.6	0.2	0.6	0.5	0.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	6.8	7.2	49.0	6.7	7.8	39.8	39.2	39.2	40.7	0.0	39.1
LnGrp LOS	D	A	A	D	A	A	D	D	D	D	A	D
Approach Vol, veh/h		1373			2753			60			54	
Approach Delay, s/veh		7.3			10.3			39.3			40.0	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.8	66.4		11.8	5.4	72.8		11.8				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	7.6	37.6		30.1	4.0	* 41		30.1				
Max Q Clear Time (g_c+I1), s	7.4	12.2		5.3	2.6	23.0		3.8				
Green Ext Time (p_c), s	0.0	11.8		0.1	0.0	16.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		10.1
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1270	70	0	2307	0	50
Future Vol, veh/h	1270	70	0	2307	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1411	78	0	2563	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	755
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	301
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	298
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.8
HCM LOS			C

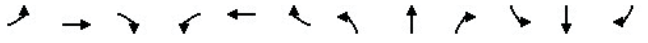
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	298	-	-	-
HCM Lane V/C Ratio	0.186	-	-	-
HCM Control Delay (s)	19.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	805	240	650	545
Future Volume (Veh/h)	0	0	805	240	650	545
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	875	261	707	592
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2585	438			1136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2585	438			1136	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	567			611	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	583	379	174	707	296	296
Volume Left	0	0	0	707	0	0
Volume Right	0	87	174	0	0	0
cSH	1700	1700	1700	611	1700	1700
Volume to Capacity	0.34	0.22	0.10	1.16	0.17	0.17
Queue Length 95th (ft)	0	0	0	584	0	0
Control Delay (s)	0.0	0.0	0.0	112.1	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			61.0		
Approach LOS						

Intersection Summary			
Average Delay		32.6	
Intersection Capacity Utilization		67.5%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	937	338	220	1758	840	613	40	930	410	10	105
Future Volume (veh/h)	85	937	338	220	1758	840	613	40	930	410	10	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	997	0	234	1870	894	652	43	989	436	11	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	2517		289	1903	1416	724	454	902	495	338	442
Arrive On Green	0.10	0.39	0.00	0.08	0.37	0.37	0.21	0.24	0.24	0.14	0.18	0.18
Sat Flow, veh/h	3456	6434	1585	3456	5106	2727	3456	1870	2754	3456	1870	1564
Grp Volume(v), veh/h	90	997	0	234	1870	894	652	43	989	436	11	112
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	3.5	16.2	0.0	9.7	52.6	34.2	26.7	2.6	35.2	17.9	0.7	8.0
Cycle Q Clear(g_c), s	3.5	16.2	0.0	9.7	52.6	34.2	26.7	2.6	35.2	17.9	0.7	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	2517		289	1903	1416	724	454	902	495	338	442
V/C Ratio(X)	0.26	0.40		0.81	0.98	0.63	0.90	0.09	1.10	0.88	0.03	0.25
Avail Cap(c_a), veh/h	357	2517		477	1903	1416	887	454	902	1034	542	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	31.8	0.0	65.3	45.0	25.3	55.8	42.6	48.9	60.9	49.0	40.4
Incr Delay (d2), s/veh	0.1	0.5	0.0	5.3	16.7	2.1	10.6	0.4	60.1	2.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.3	0.0	4.4	24.3	11.5	12.7	1.3	23.7	8.0	0.3	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.3	32.3	0.0	70.6	61.8	27.4	66.4	43.0	109.0	63.0	49.0	40.5
LnGrp LOS	E	C		E	E	C	E	D	F	E	D	D
Approach Vol, veh/h		1087	A		2998			1684			559	
Approach Delay, s/veh		34.6			52.2			90.8			58.2	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.1	63.7	34.4	30.8	18.8	61.0	25.4	39.8
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	20.0	26.2	37.2	42.0	* 15	31.0	43.4	35.2
Max Q Clear Time (g_c+I1), s	11.7	18.2	28.7	10.0	5.5	54.6	19.9	37.2
Green Ext Time (p_c), s	0.5	2.8	1.7	0.2	0.1	0.0	0.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	60.0	
HCM 6th LOS	E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2030 + P1 + P2 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	675	1592	0	0	1947	890	0	0	0	1290	0	881
Future Volume (veh/h)	675	1592	0	0	1947	890	0	0	0	1290	0	881
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	711	1676	0	0	2049	937				1358	0	927
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	420	8924	0	0	6480	2810				2009	0	1455
Arrive On Green	0.12	1.00	0.00	0.00	1.00	1.00				0.40	0.00	0.40
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	711	1676	0	0	2049	937				1358	0	927
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	8.5	0.0	0.0	0.0	0.0	0.0				15.6	0.0	16.7
Cycle Q Clear(g_c), s	8.5	0.0	0.0	0.0	0.0	0.0				15.6	0.0	16.7
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	420	8924	0	0	6480	2810				2009	0	1455
V/C Ratio(X)	1.69	0.19	0.00	0.00	0.32	0.33				0.68	0.00	0.64
Avail Cap(c_a), veh/h	420	8924	0	0	6480	2810				2009	0	1455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	0.0	0.0	0.0				17.3	0.0	12.0
Incr Delay (d2), s/veh	322.3	0.0	0.0	0.0	0.1	0.3				1.8	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	0.0	0.0	0.0	0.1	0.1				5.8	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	353.1	0.0	0.0	0.0	0.1	0.3				19.1	0.0	14.2
LnGrp LOS	F	A	A	A	A	A				B	A	B
Approach Vol, veh/h		2387			2986						2285	
Approach Delay, s/veh		105.2			0.2						17.1	
Approach LOS		F			A						B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.0	77.5		32.0		90.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	8.5	19.5		28.0		* 34
Max Q Clear Time (g_c+I1), s	10.5	2.0		18.7		2.0
Green Ext Time (p_c), s	0.0	13.1		6.5		14.9

Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	795	1308	550	80	2152	60	200	140	90	50	60	325
Future Volume (veh/h)	795	1308	550	80	2152	60	200	140	90	50	60	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	828	1362	573	83	2242	62	208	146	94	52	62	339
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	667	3212	1358	129	2209	535	263	575	344	133	439	631
Arrive On Green	0.19	0.50	0.50	0.04	0.34	0.34	0.08	0.27	0.27	0.04	0.23	0.23
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2109	1262	3456	1870	2686
Grp Volume(v), veh/h	828	1362	573	83	2242	62	208	121	119	52	62	339
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1594	1728	1870	1343
Q Serve(g_s), s	25.6	17.8	17.7	3.1	45.5	3.6	7.8	7.1	7.8	1.9	3.5	14.6
Cycle Q Clear(g_c), s	25.6	17.8	17.7	3.1	45.5	3.6	7.8	7.1	7.8	1.9	3.5	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	667	3212	1358	129	2209	535	263	484	434	133	439	631
V/C Ratio(X)	1.24	0.42	0.42	0.64	1.02	0.12	0.79	0.25	0.27	0.39	0.14	0.54
Avail Cap(c_a), veh/h	667	3212	1358	292	2209	535	469	685	615	198	574	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	21.1	21.1	62.9	43.5	29.8	60.2	37.6	37.9	62.2	40.1	44.4
Incr Delay (d2), s/veh	120.7	0.4	1.0	2.0	23.0	0.4	2.9	0.1	0.1	1.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	6.5	5.8	1.4	20.9	1.4	3.5	3.1	3.1	0.9	1.6	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	174.2	21.5	22.0	64.9	66.5	30.2	63.1	37.7	38.0	63.2	40.2	44.8
LnGrp LOS	F	C	C	E	F	C	E	D	D	E	D	D
Approach Vol, veh/h		2763			2387			448			453	
Approach Delay, s/veh		67.4			65.5			49.6			46.3	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	72.7	14.5	36.0	30.0	52.0	9.5	41.0
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	11.2	* 61	18.0	40.7	25.6	45.5	7.6	51.1
Max Q Clear Time (g_c+I1), s	5.1	19.8	9.8	16.6	27.6	47.5	3.9	9.8
Green Ext Time (p_c), s	0.0	23.4	0.3	1.2	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	63.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	420	170	589	0	0	475	385
Future Volume (veh/h)	0	0	0	220	10	420	170	589	0	0	475	385
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				240	0	442	179	620	0	0	500	405
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1109	0	484	249	2006	0	0	1575	699
Arrive On Green				0.31	0.00	0.31	0.14	1.00	0.00	0.00	0.44	0.44
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				240	0	442	179	620	0	0	500	405
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1576
Q Serve(g_s), s				4.5	0.0	24.6	4.5	0.0	0.0	0.0	8.2	17.3
Cycle Q Clear(g_c), s				4.5	0.0	24.6	4.5	0.0	0.0	0.0	8.2	17.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1109	0	484	249	2006	0	0	1575	699
V/C Ratio(X)				0.22	0.00	0.91	0.72	0.31	0.00	0.00	0.32	0.58
Avail Cap(c_a), veh/h				1271	0	555	407	2006	0	0	1575	699
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.9	0.0	29.8	37.6	0.0	0.0	0.0	16.2	18.8
Incr Delay (d2), s/veh				0.1	0.0	18.1	1.4	0.4	0.0	0.0	0.5	3.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	10.9	1.8	0.1	0.0	0.0	3.3	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.0	0.0	47.9	39.0	0.4	0.0	0.0	16.8	22.3
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					682			799			905	
Approach Delay, s/veh					39.1			9.0			19.2	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.1			10.9	46.2		32.9				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 48			10.6	31.7		32.1				
Max Q Clear Time (g_c+I1), s		2.0			6.5	19.3		26.6				
Green Ext Time (p_c), s		4.2			0.1	6.3		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		21.5	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	10	210	0	0	0	0	525	150	220	515	0
Future Volume (veh/h)	205	10	210	0	0	0	0	525	150	220	515	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	228	0	40				0	565	133	237	554	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1806	424	308	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2950	670	3456	3647	0
Grp Volume(v), veh/h	228	0	40				0	351	347	237	554	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1750	1728	1777	0
Q Serve(g_s), s	5.5	0.0	2.1				0.0	8.1	8.2	5.9	0.0	0.0
Cycle Q Clear(g_c), s	5.5	0.0	2.1				0.0	8.1	8.2	5.9	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1123	1106	308	2737	0
V/C Ratio(X)	0.58	0.00	0.23				0.00	0.31	0.31	0.77	0.20	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1123	1106	445	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	38.0	0.0	36.5				0.0	7.6	7.6	36.1	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	0.6				0.0	0.7	0.7	2.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.8				0.0	3.0	3.0	2.4	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	0.0	37.1				0.0	8.3	8.3	38.7	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		268						698			791	
Approach Delay, s/veh		39.0						8.3			11.7	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	62.7		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	7.9	10.2		7.5		2.0						
Green Ext Time (p_c), s	0.2	6.8		0.8		5.3						

Intersection Summary			
HCM 6th Ctrl Delay		14.5	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	210	611	619	0	0	420	111
Future Volume (veh/h)	0	0	0	220	10	210	611	619	0	0	420	111
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				224	10	214	623	632	0	0	429	113
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				311	12	266	511	2459	0	0	2444	759
Arrive On Green				0.17	0.17	0.17	0.15	0.69	0.00	0.00	0.48	0.48
Sat Flow, veh/h				1781	71	1525	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				224	0	224	623	632	0	0	429	113
Grp Sat Flow(s),veh/h/ln				1781	0	1596	1728	1777	0	0	1702	1585
Q Serve(g_s), s				8.9	0.0	10.1	11.1	5.0	0.0	0.0	3.6	3.0
Cycle Q Clear(g_c), s				8.9	0.0	10.1	11.1	5.0	0.0	0.0	3.6	3.0
Prop In Lane				1.00		0.96	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				311	0	279	511	2459	0	0	2444	759
V/C Ratio(X)				0.72	0.00	0.80	1.22	0.26	0.00	0.00	0.18	0.15
Avail Cap(c_a), veh/h				665	0	596	511	2459	0	0	2444	759
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.89	0.89	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.2	0.0	29.7	31.9	4.3	0.0	0.0	11.1	11.0
Incr Delay (d2), s/veh				1.2	0.0	2.1	113.3	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	0.0	3.7	12.5	1.4	0.0	0.0	1.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.4	0.0	31.8	145.3	4.6	0.0	0.0	11.3	11.4
LnGrp LOS				C	A	C	F	A	A	A	B	B
Approach Vol, veh/h					448			1255			542	
Approach Delay, s/veh					31.1			74.4			11.3	
Approach LOS					C			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	57.0		16.0	41.0		18.0						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	37.0		11.1	* 21		28.0						
Max Q Clear Time (g_c+I1), s	7.0		13.1	5.6		12.1						
Green Ext Time (p_c), s	5.5		0.0	2.9		1.0						

Intersection Summary		
HCM 6th Ctrl Delay		50.5
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	439	70	349	0	0	0	0	761	240	200	400	0
Future Volume (veh/h)	439	70	349	0	0	0	0	761	240	200	400	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	515	0	367				0	801	253	211	421	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	961	0	426				0	2092	634	250	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.41	0.41	0.14	0.61	0.00
Sat Flow, veh/h	3563	0	1580				0	5274	1548	1781	3647	0
Grp Volume(v), veh/h	515	0	367				0	801	253	211	421	0
Grp Sat Flow(s),veh/h/ln	1781	0	1580				0	1702	1548	1781	1777	0
Q Serve(g_s), s	9.9	0.0	17.7				0.0	8.8	9.2	9.2	4.2	0.0
Cycle Q Clear(g_c), s	9.9	0.0	17.7				0.0	8.8	9.2	9.2	4.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	961	0	426				0	2092	634	250	2150	0
V/C Ratio(X)	0.54	0.00	0.86				0.00	0.38	0.40	0.84	0.20	0.00
Avail Cap(c_a), veh/h	1514	0	671				0	2092	634	325	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.94	0.94	0.00
Uniform Delay (d), s/veh	24.9	0.0	27.8				0.0	16.5	16.7	33.5	7.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	4.1				0.0	0.5	1.9	11.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	6.5				0.0	3.3	3.4	4.7	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	0.0	31.8				0.0	17.1	18.5	44.7	7.3	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		882						1054			632	
Approach Delay, s/veh		27.9						17.4			19.8	
Approach LOS		C						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	15.6	37.9		26.5		53.5						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	14.6	17.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	11.2	11.2		19.7		6.2						
Green Ext Time (p_c), s	0.1	3.3		1.5		1.9						

Intersection Summary		
HCM 6th Ctrl Delay		21.6
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1005	60	190	1875	220	160	60	80	10	10	20
Future Volume (veh/h)	100	1005	60	190	1875	220	160	60	80	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	106	1069	64	202	1995	234	170	64	85	11	11	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	2328	139	230	2452	285	286	98	124	138	144	235
Arrive On Green	0.07	0.46	0.46	0.12	0.51	0.51	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5116	306	1853	4824	560	815	332	416	344	485	792
Grp Volume(v), veh/h	106	739	394	202	1458	771	319	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1881	1853	1770	1843	1563	0	0	1621	0	0
Q Serve(g_s), s	7.0	18.0	18.0	13.4	43.1	44.2	20.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.0	18.0	18.0	13.4	43.1	44.2	22.3	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.30	0.53		0.27	0.26		0.49
Lane Grp Cap(c), veh/h	131	1611	856	230	1800	937	508	0	0	517	0	0
V/C Ratio(X)	0.81	0.46	0.46	0.88	0.81	0.82	0.63	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	202	1611	856	305	1800	937	508	0	0	517	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	57.2	23.5	23.5	53.8	25.7	26.0	38.6	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	6.8	0.9	1.8	16.5	4.1	8.1	5.8	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.4	8.1	7.1	17.8	20.0	9.4	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	24.4	25.2	70.3	29.8	34.0	44.4	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	E	C	C	E	C	C	D	A	A	C	A	A
Approach Vol, veh/h		1239			2431			319			43	
Approach Delay, s/veh		28.1			34.5			44.4			32.0	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	63.1		42.0	13.3	69.7		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	15.4	20.0		4.2	9.0	46.2		24.3				
Green Ext Time (p_c), s	0.1	22.5		0.2	0.0	12.5		1.3				

Intersection Summary		
HCM 6th Ctrl Delay		33.3
HCM 6th LOS		C

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	117	21	488	341	21
Future Vol, veh/h	0	117	21	488	341	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	127	23	530	371	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	197	394	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	811	1161	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	811	1161	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1161	-	811	-	-
HCM Lane V/C Ratio	0.02	-	0.157	-	-
HCM Control Delay (s)	8.2	-	10.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	141	297	70	58	121	160	291	50	138	259	51
Future Volume (veh/h)	10	141	297	70	58	121	160	291	50	138	259	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	144	303	71	59	123	163	297	51	141	264	52
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	398	336	156	114	332	195	1552	262	143	1429	276
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.11	0.52	0.52	0.08	0.49	0.49
Sat Flow, veh/h	1199	1870	1578	459	535	1558	1781	3014	509	1781	2941	568
Grp Volume(v), veh/h	10	144	303	130	0	123	163	173	175	141	157	159
Grp Sat Flow(s),veh/h/ln	1199	1870	1578	995	0	1558	1781	1777	1746	1781	1777	1732
Q Serve(g_s), s	0.7	6.2	17.7	6.8	0.0	6.4	8.5	5.0	5.1	7.5	4.7	4.9
Cycle Q Clear(g_c), s	13.8	6.2	17.7	13.1	0.0	6.4	8.5	5.0	5.1	7.5	4.7	4.9
Prop In Lane	1.00		1.00	0.55		1.00	1.00		0.29	1.00		0.33
Lane Grp Cap(c), veh/h	166	398	336	271	0	332	195	915	899	143	863	841
V/C Ratio(X)	0.06	0.36	0.90	0.48	0.00	0.37	0.84	0.19	0.19	0.99	0.18	0.19
Avail Cap(c_a), veh/h	190	436	368	295	0	363	199	915	899	143	863	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	31.8	36.4	35.2	0.0	31.9	41.4	12.4	12.4	43.6	13.8	13.8
Incr Delay (d2), s/veh	0.1	0.2	22.1	2.8	0.0	1.5	23.9	0.5	0.5	71.5	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	8.7	3.0	0.0	2.5	5.0	2.0	2.0	6.1	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	32.0	58.4	38.0	0.0	33.4	65.3	12.8	12.9	115.1	14.2	14.3
LnGrp LOS	D	C	E	D	A	C	E	B	B	F	B	B
Approach Vol, veh/h		457			253			511			457	
Approach Delay, s/veh		49.7			35.7			29.6			45.4	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	55.8		27.1	14.8	53.0		27.1				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	7.6	47.1		22.1	10.6	* 46		22.1				
Max Q Clear Time (g_c+I1), s	9.5	7.1		19.7	10.5	6.9		15.1				
Green Ext Time (p_c), s	0.0	1.6		0.3	0.0	1.8		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			40.3									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	168	40	36	182	50
Future Vol, veh/h	94	168	40	36	182	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	187	44	40	202	56
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.8	8.8	10.7
HCM LOS	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	53%
Vol Thru, %	0%	0%	36%	47%
Vol Right, %	0%	100%	64%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	50	262	76
LT Vol	182	0	0	40
Through Vol	0	0	94	36
RT Vol	0	50	168	0
Lane Flow Rate	202	56	291	84
Geometry Grp	7	7	2	2
Degree of Util (X)	0.33	0.072	0.353	0.119
Departure Headway (Hd)	5.871	4.662	4.369	5.08
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	609	762	821	703
Service Time	3.636	2.427	2.403	3.132
HCM Lane V/C Ratio	0.332	0.073	0.354	0.119
HCM Control Delay	11.5	7.8	9.8	8.8
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.4	0.2	1.6	0.4

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2030 + P1 + P2 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	74	0	0	66	50	10	10	30	115	0	10
Future Volume (veh/h)	10	74	0	0	66	50	10	10	30	115	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	80	0	0	71	54	11	11	32	124	0	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	737	993	0	0	558	380	469	60	176	587	0	227
Arrive On Green	0.28	0.28	0.00	0.00	0.28	0.28	0.14	0.14	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1255	3647	0	0	2091	1359	1396	420	1223	1137	0	1577
Grp Volume(v), veh/h	11	80	0	0	62	63	11	0	43	124	0	11
Grp Sat Flow(s),veh/h/ln	1255	1777	0	0	1777	1579	1396	0	1643	1137	0	1577
Q Serve(g_s), s	0.1	0.3	0.0	0.0	0.4	0.5	0.1	0.0	0.4	1.5	0.0	0.1
Cycle Q Clear(g_c), s	0.6	0.3	0.0	0.0	0.4	0.5	2.0	0.0	0.4	1.9	0.0	0.1
Prop In Lane	1.00		0.00	0.00		0.86	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	737	993	0	0	496	441	469	0	236	587	0	227
V/C Ratio(X)	0.01	0.08	0.00	0.00	0.13	0.14	0.02	0.00	0.18	0.21	0.00	0.05
Avail Cap(c_a), veh/h	1717	3766	0	0	1883	1674	2167	0	2234	2162	0	2061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	4.5	0.0	0.0	4.6	4.6	8.0	0.0	6.4	7.2	0.0	6.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	4.5	0.0	0.0	4.7	4.7	8.0	0.0	6.5	7.3	0.0	6.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		91			125			54			135	
Approach Delay, s/veh		4.6			4.7			6.8			7.2	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.6		7.3		9.6		7.3				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.0		22.2		18.0		* 23				
Max Q Clear Time (g_c+I1), s		2.6		3.9		2.5		4.0				
Green Ext Time (p_c), s		0.3		0.4		0.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			5.8									
HCM 6th LOS			A									

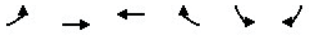
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	174	10	10	96	40	10	10	40	70	10	10
Future Volume (veh/h)	10	174	10	10	96	40	10	10	40	70	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.94	0.96		0.94	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	187	11	11	103	15	11	11	8	75	11	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	583	1408	82	536	1283	182	315	309	201	631	91	51
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1219	3399	198	1141	3098	439	519	656	427	1141	192	109
Grp Volume(v), veh/h	11	97	101	11	58	60	30	0	0	93	0	0
Grp Sat Flow(s),veh/h/ln	1219	1777	1821	1141	1777	1760	1602	0	0	1442	0	0
Q Serve(g_s), s	0.4	2.4	2.4	0.4	1.4	1.4	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	2.4	2.4	2.8	1.4	1.4	0.6	0.0	0.0	2.4	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.25	0.37		0.27	0.81		0.08
Lane Grp Cap(c), veh/h	583	736	754	536	736	729	826	0	0	773	0	0
V/C Ratio(X)	0.02	0.13	0.13	0.02	0.08	0.08	0.04	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	583	736	754	536	736	729	826	0	0	773	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.0	12.7	12.7	13.6	12.4	12.4	9.9	0.0	0.0	10.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.4	0.4	0.1	0.2	0.2	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	1.0	0.1	0.6	0.6	0.2	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	13.1	13.1	13.7	12.6	12.7	10.0	0.0	0.0	10.7	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		209			129			30			93	
Approach Delay, s/veh		13.1			12.7			10.0			10.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		37.0		33.0		37.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		29.0		33.0		29.0		33.0				
Max Q Clear Time (g_c+I1), s		4.4		4.4		4.8		2.6				
Green Ext Time (p_c), s		0.9		0.3		0.5		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			12.3									
HCM 6th LOS			B									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	175	45	25	100	140	65
Future Volume (vph)	175	45	25	100	140	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.88		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3047		3433	1532
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3047		3433	1532
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	194	50	28	111	156	72
RTOR Reduction (vph)	0	0	82	0	0	64
Lane Group Flow (vph)	194	50	57	0	156	8
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	7.8	27.5	15.3		6.8	6.8
Effective Green, g (s)	7.8	27.5	15.3		6.8	6.8
Actuated g/C Ratio	0.13	0.47	0.26		0.12	0.12
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	236	1666	798		399	178
v/s Ratio Prot	c0.11	0.01	c0.02		c0.05	
v/s Ratio Perm						0.01
v/c Ratio	0.82	0.03	0.07		0.39	0.05
Uniform Delay, d1	24.6	8.3	16.2		23.9	22.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	19.2	0.0	0.0		0.2	0.0
Delay (s)	43.8	8.3	16.3		24.1	23.0
Level of Service	D	A	B		C	C
Approach Delay (s)		36.6	16.3		23.8	
Approach LOS		D	B		C	

Intersection Summary				
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



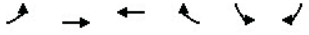
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	10	250	20	10	10	320	650	80	40	520	75
Future Volume (veh/h)	75	10	250	20	10	10	320	650	80	40	520	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	0	133	21	11	0	340	691	73	43	553	60
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	497	0	214	27	14	0	360	2161	228	56	2775	297
Arrive On Green	0.14	0.00	0.14	0.02	0.02	0.00	0.10	0.67	0.67	0.03	0.59	0.59
Sat Flow, veh/h	3563	0	1531	1188	623	0	3456	3241	342	1781	4673	500
Grp Volume(v), veh/h	88	0	133	32	0	0	340	379	385	43	401	212
Grp Sat Flow(s),veh/h/ln	1781	0	1531	1811	0	0	1728	1777	1806	1781	1702	1769
Q Serve(g_s), s	3.1	0.0	11.5	2.5	0.0	0.0	13.7	12.6	12.7	3.4	7.6	7.7
Cycle Q Clear(g_c), s	3.1	0.0	11.5	2.5	0.0	0.0	13.7	12.6	12.7	3.4	7.6	7.7
Prop In Lane	1.00		1.00	0.66		0.00	1.00		0.19	1.00		0.28
Lane Grp Cap(c), veh/h	497	0	214	42	0	0	360	1185	1204	56	2022	1051
V/C Ratio(X)	0.18	0.00	0.62	0.77	0.00	0.00	0.94	0.32	0.32	0.77	0.20	0.20
Avail Cap(c_a), veh/h	1046	0	449	312	0	0	360	1185	1204	288	2022	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	0.0	56.8	68.0	0.0	0.0	62.3	9.9	9.9	67.3	13.1	13.1
Incr Delay (d2), s/veh	0.2	0.0	3.8	10.5	0.0	0.0	32.7	0.7	0.7	8.2	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	4.7	1.3	0.0	0.0	7.7	5.1	5.2	1.7	3.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.4	0.0	60.5	78.6	0.0	0.0	95.0	10.6	10.6	75.5	13.3	13.5
LnGrp LOS	D	A	E	E	A	A	F	B	B	E	B	B
Approach Vol, veh/h		221			32			1104			656	
Approach Delay, s/veh		57.7			78.6			36.6			17.5	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	98.7		24.4	19.0	88.4		8.1				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	22.6	32.7		41.1	14.6	40.7		24.1				
Max Q Clear Time (g_c+I1), s	5.4	14.7		13.5	15.7	9.7		4.5				
Green Ext Time (p_c), s	0.0	7.7		1.0	0.0	7.6		0.1				

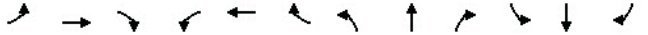
Intersection Summary				
HCM 6th Ctrl Delay	33.3			
HCM 6th LOS	C			

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	225	615	252	148	20
Future Volume (veh/h)	40	225	615	252	148	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	250	683	64	164	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	57	1182	1014	1237	425	378
Arrive On Green	0.03	0.63	0.54	0.54	0.24	0.24
Sat Flow, veh/h	1781	1870	1870	1584	1781	1585
Grp Volume(v), veh/h	44	250	683	64	164	2
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1584	1781	1585
Q Serve(g_s), s	1.9	4.3	20.0	0.7	5.9	0.1
Cycle Q Clear(g_c), s	1.9	4.3	20.0	0.7	5.9	0.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	57	1182	1014	1237	425	378
V/C Ratio(X)	0.77	0.21	0.67	0.05	0.39	0.01
Avail Cap(c_a), veh/h	155	1285	1014	1237	425	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	5.9	12.5	1.9	24.2	22.0
Incr Delay (d2), s/veh	8.1	0.0	3.6	0.1	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	8.3	0.5	2.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.5	6.0	16.1	2.0	26.8	22.0
LnGrp LOS	D	A	B	A	C	C
Approach Vol, veh/h		294	747		166	
Approach Delay, s/veh		11.7	14.9		26.8	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.8		23.0	6.8	46.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	6.6	41.1
Max Q Clear Time (g_c+I1), s		6.3		7.9	3.9	22.0
Green Ext Time (p_c), s		1.0		0.2	0.0	3.1
Intersection Summary						
HCM 6th Ctrl Delay			15.8			
HCM 6th LOS			B			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	258	125	120	312	10	95	10	70	20	10	10
Future Volume (veh/h)	0	258	125	120	312	10	95	10	70	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	272	51	126	328	9	100	11	22	21	11	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	875	161	160	1579	43	679	227	453	426	213	70
Arrive On Green	0.00	0.29	0.29	0.09	0.45	0.45	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	0	3074	550	1781	3530	97	1398	557	1113	842	524	171
Grp Volume(v), veh/h	0	160	163	126	165	172	100	0	33	36	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1753	1781	1777	1850	1398	0	1670	1537	0	0
Q Serve(g_s), s	0.0	4.8	5.0	4.8	3.9	3.9	2.1	0.0	0.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.8	5.0	4.8	3.9	3.9	2.9	0.0	0.8	0.8	0.0	0.0
Prop In Lane	0.00		0.31	1.00		0.05	1.00		0.67	0.58		0.11
Lane Grp Cap(c), veh/h	0	522	515	160	795	828	679	0	680	709	0	0
V/C Ratio(X)	0.00	0.31	0.32	0.79	0.21	0.21	0.15	0.00	0.05	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	522	515	197	827	861	679	0	680	709	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.9	18.9	30.7	11.6	11.6	12.9	0.0	12.3	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.5	1.6	12.6	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	2.5	1.4	1.5	0.9	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.4	20.5	43.2	11.7	11.7	13.0	0.0	12.4	12.5	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		323			463			133			36	
Approach Delay, s/veh		20.4			20.3			12.8			12.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.6	25.3		32.9		35.9		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 20		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	6.8	7.0		2.8		5.9		4.9				
Green Ext Time (p_c), s	0.0	1.3		0.1		1.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			19.0									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	318	10	80	402	10	40
Future Vol, veh/h	318	10	80	402	10	40
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	335	11	84	423	11	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	349	0	725	176
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	381	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1207	-	360	837
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1204	-	334	835
Mov Cap-2 Maneuver	-	-	-	-	334	-
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	659	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	835	-	-	1204	-
HCM Lane V/C Ratio	0.032	0.05	-	-	0.07	-
HCM Control Delay (s)	16.1	9.5	-	-	8.2	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	263	55	120	426	20	45	10	50	40	10	20
Future Volume (veh/h)	10	263	55	120	426	20	45	10	50	40	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	277	58	126	448	21	47	11	53	42	11	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	1200	247	119	1495	70	628	108	522	363	100	159
Arrive On Green	0.04	0.41	0.41	0.07	0.43	0.43	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1781	2918	600	1781	3451	161	1371	279	1343	772	257	408
Grp Volume(v), veh/h	11	167	168	126	230	239	47	0	64	74	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1741	1781	1777	1835	1371	0	1621	1437	0	0
Q Serve(g_s), s	0.5	5.5	5.7	6.0	7.6	7.6	0.0	0.0	2.3	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.5	5.5	5.7	6.0	7.6	7.6	1.5	0.0	2.3	3.4	0.0	0.0
Prop In Lane	1.00		0.34	1.00		0.09	1.00		0.83	0.57		0.28
Lane Grp Cap(c), veh/h	79	730	716	119	770	795	628	0	631	622	0	0
V/C Ratio(X)	0.14	0.23	0.24	1.06	0.30	0.30	0.07	0.00	0.10	0.12	0.00	0.00
Avail Cap(c_a), veh/h	119	730	716	119	770	795	628	0	631	622	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.3	17.2	17.3	42.0	16.6	16.6	17.3	0.0	17.5	17.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.7	0.8	99.9	0.2	0.2	0.2	0.0	0.3	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.4	5.9	3.0	3.1	0.6	0.0	0.9	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	17.9	18.0	141.9	16.8	16.8	17.5	0.0	17.8	18.1	0.0	0.0
LnGrp LOS	D	B	B	F	B	B	B	A	B	B	A	A
Approach Vol, veh/h		346			595			111			74	
Approach Delay, s/veh		18.7			43.3			17.7			18.1	
Approach LOS		B			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	41.0		39.0	8.0	43.0		39.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	37.0		35.0	6.0	37.0		35.0				
Max Q Clear Time (g_c+I1), s	8.0	7.7		5.4	2.5	9.6		4.3				
Green Ext Time (p_c), s	0.0	2.2		0.2	0.0	2.9		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		31.6	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	119	104	100	381	250	216	680	90	170	420	180
Future Volume (veh/h)	110	119	104	100	381	250	216	680	90	170	420	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	128	57	108	410	137	232	731	78	183	452	67
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	516	217	155	549	181	276	2555	271	212	2690	832
Arrive On Green	0.05	0.21	0.21	0.04	0.21	0.21	0.16	1.00	1.00	0.06	0.53	0.53
Sat Flow, veh/h	3456	2418	1018	3456	2618	865	3456	4687	497	3456	5106	1580
Grp Volume(v), veh/h	118	92	93	108	277	270	232	530	279	183	452	67
Grp Sat Flow(s),veh/h/ln	1728	1777	1658	1728	1777	1706	1728	1702	1779	1728	1702	1580
Q Serve(g_s), s	4.7	6.0	6.5	4.3	20.4	20.8	9.1	0.0	0.0	7.3	6.4	2.9
Cycle Q Clear(g_c), s	4.7	6.0	6.5	4.3	20.4	20.8	9.1	0.0	0.0	7.3	6.4	2.9
Prop In Lane	1.00		0.61	1.00		0.51	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	168	379	354	155	373	358	276	1856	970	212	2690	832
V/C Ratio(X)	0.70	0.24	0.26	0.70	0.74	0.76	0.84	0.29	0.29	0.86	0.17	0.08
Avail Cap(c_a), veh/h	583	610	570	311	471	452	311	1856	970	212	2690	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.6	45.7	45.9	65.9	51.8	51.9	57.9	0.0	0.0	65.1	17.2	16.4
Incr Delay (d2), s/veh	1.9	0.3	0.4	2.1	6.9	7.8	12.2	0.3	0.6	27.4	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.7	2.8	2.0	9.8	9.7	4.2	0.1	0.2	4.1	2.6	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	46.0	46.3	68.0	58.7	59.7	70.1	0.3	0.6	92.5	17.3	16.6
LnGrp LOS	E	D	D	E	E	E	E	A	A	F	B	B
Approach Vol, veh/h		303			655			1041			702	
Approach Delay, s/veh		54.5			60.6			15.9			36.9	
Approach LOS		D			E			B			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	81.5	10.7	34.8	15.6	78.9	11.2	34.3
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	8.6	51.8	12.6	48.1	12.6	* 48	23.6	37.1
Max Q Clear Time (g_c+I1), s	9.3	2.0	6.3	8.5	11.1	8.4	6.7	22.8
Green Ext Time (p_c), s	0.0	11.7	0.1	1.2	0.1	6.8	0.2	4.8

Intersection Summary	
HCM 6th Ctrl Delay	36.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	90	125	280	335	591	240	325	310	170	384	40
Future Volume (veh/h)	10	90	125	280	335	591	240	325	310	170	384	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	94	0	292	349	130	250	339	0	177	400	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	434		339	394	330	301	2057		226	1980	871
Arrive On Green	0.01	0.12	0.00	0.10	0.21	0.21	0.09	0.58	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1567	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	10	94	0	292	349	130	250	339	0	177	400	17
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1567	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.8	3.3	0.0	11.7	25.3	10.0	10.0	6.2	0.0	6.9	0.0	0.0
Cycle Q Clear(g_c), s	0.8	3.3	0.0	11.7	25.3	10.0	10.0	6.2	0.0	6.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	434		339	394	330	301	2057		226	1980	871
V/C Ratio(X)	0.61	0.22		0.86	0.88	0.39	0.83	0.16		0.78	0.20	0.02
Avail Cap(c_a), veh/h	51	1307		360	824	691	434	2057		351	1980	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.92	0.92	0.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	69.1	55.4	0.0	62.2	53.6	47.5	62.9	13.7	0.0	59.9	0.0	0.0
Incr Delay (d2), s/veh	12.8	0.2	0.0	17.0	2.7	0.3	5.5	0.2	0.0	5.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.0	5.9	12.2	4.0	4.6	2.6	0.0	3.1	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.9	55.7	0.0	79.2	56.3	47.8	68.4	13.9	0.0	65.8	0.2	0.0
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		104	A		771			589	A		594	
Approach Delay, s/veh		58.2			63.5			37.0			19.7	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	85.9	18.1	22.4	16.6	82.9	5.7	34.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	14.2	41.1	14.6	* 52	17.6	37.7	4.0	61.7
Max Q Clear Time (g_c+I1), s	8.9	8.2	13.7	5.3	12.0	2.0	2.8	27.3
Green Ext Time (p_c), s	0.2	1.5	0.1	0.6	0.2	4.8	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	450	0	540	0	0	0	0	425	150	344	415	0
Future Volume (vph)	450	0	540	0	0	0	0	425	150	344	415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3359	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3359	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	469	0	562	0	0	0	0	443	156	358	432	0
RTOR Reduction (vph)	0	0	388	0	0	0	0	0	102	0	0	0
Lane Group Flow (vph)	469	0	175	0	0	0	0	443	54	258	532	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	43.4		43.4					48.6	48.6	29.7	29.7	
Effective Green, g (s)	43.4		43.4					48.6	48.6	29.7	29.7	
Actuated g/C Ratio	0.31		0.31					0.35	0.35	0.21	0.21	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1064		490					1228	549	341	712	
v/s Ratio Prot	c0.14							c0.13		c0.16	0.16	
v/s Ratio Perm			0.11						0.03			
v/c Ratio	0.44		0.36					0.36	0.10	0.76	0.75	
Uniform Delay, d1	38.6		37.5					34.1	30.9	51.8	51.6	
Progression Factor	1.00		1.00					0.56	0.04	0.97	0.98	
Incremental Delay, d2	1.3		2.0					0.1	0.0	9.1	4.2	
Delay (s)	39.9		39.5					19.0	1.2	59.4	54.7	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		39.7			0.0			14.4			56.2	
Approach LOS		D			A			B			E	

Intersection Summary				
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	62.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	40	10	20	120	295	10	20	10	355	90	480
Future Volume (vph)	280	40	10	20	120	295	10	20	10	355	90	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3243			3514	1583		1778		1681	1718	1562
Flt Permitted	0.95	0.96			0.99	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3243			3514	1583		1778		1681	1718	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	301	43	11	22	129	317	11	22	11	382	97	516
RTOR Reduction (vph)	0	2	0	0	0	156	0	9	0	0	0	313
Lane Group Flow (vph)	150	203	0	0	151	161	0	35	0	237	242	203
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	71.2		17.9		55.2	55.2	55.2
Effective Green, g (s)	26.5	26.5			16.0	71.2		17.9		55.2	55.2	55.2
Actuated g/C Ratio	0.19	0.19			0.11	0.51		0.13		0.39	0.39	0.39
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	304	613			401	805		227		662	677	615
v/s Ratio Prot	c0.09	0.06			c0.04	0.08		c0.02		c0.14	0.14	
v/s Ratio Perm						0.02						0.13
v/c Ratio	0.49	0.33			0.38	0.20		0.16		0.36	0.36	0.33
Uniform Delay, d1	50.7	49.1			57.4	18.8		54.3		29.9	29.9	29.5
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.77	0.77	3.01
Incremental Delay, d2	5.6	1.4			2.7	0.6		1.5		1.2	1.2	1.1
Delay (s)	56.4	50.5			60.1	19.4		55.8		24.3	24.3	90.0
Level of Service	E	D			E	B		E		C	C	F
Approach Delay (s)		53.0			32.5			55.8			58.4	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM 2000 Control Delay	50.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
45: Taylor St. & I-8 EB Ramp

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	220	141	1719	90	250	140
Future Volume (veh/h)	220	141	1719	90	250	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	148	1809	0	263	129
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	254	1561	2353		313	370
Arrive On Green	0.14	0.83	0.66	0.00	0.09	0.09
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	232	148	1809	0	263	129
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	18.1	2.0	49.3	0.0	10.5	9.6
Cycle Q Clear(g_c), s	18.1	2.0	49.3	0.0	10.5	9.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	254	1561	2353		313	370
V/C Ratio(X)	0.91	0.09	0.77		0.84	0.35
Avail Cap(c_a), veh/h	276	1561	2353		540	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	2.1	16.4	0.0	63.0	45.0
Incr Delay (d2), s/veh	29.7	0.1	2.5	0.0	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.6	19.8	0.0	4.8	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	89.2	2.2	18.8	0.0	65.3	45.2
LnGrp LOS	F	A	B		E	D
Approach Vol, veh/h		380	1809	A	392	
Approach Delay, s/veh		55.3	18.8		58.7	
Approach LOS		E	B		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		122.5		18.3	24.3	98.2
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		117.5		22.0	* 22	91.5
Max Q Clear Time (g_c+I1), s		4.0		12.5	20.1	51.3
Green Ext Time (p_c), s		0.6		0.2	0.0	14.7

Intersection Summary		
HCM 6th Ctrl Delay		30.3
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

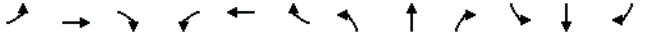
HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2030 + P1 + P2 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	10	20	60	610	50	10	50	40	200	10	10	10
Future Volume (vph)	10	20	60	610	50	10	50	40	200	10	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	22	65	663	54	11	54	43	217	11	11	11

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	98	663	65	314	33
Volume Left (vph)	11	663	0	54	11
Volume Right (vph)	65	0	11	217	11
Hadj (s)	-0.34	0.53	-0.08	-0.35	-0.10
Departure Headway (s)	5.7	6.2	5.6	5.7	6.5
Degree Utilization, x	0.16	1.15	0.10	0.49	0.06
Capacity (veh/h)	589	568	632	625	517
Control Delay (s)	9.8	108.0	8.1	14.1	10.0
Approach Delay (s)	9.8	99.1		14.1	10.0
Approach LOS	A	F		B	A

Intersection Summary				
Delay		66.4		
Level of Service		F		
Intersection Capacity Utilization		66.3%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	0	130	0	1200	70	0	0	0	0	270	370
Future Volume (veh/h)	230	0	130	0	1200	70	0	0	0	0	270	370
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	256	0	0	0	1333	78				0	300	411
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	217	0		0	2256	1006				0	0	0
Arrive On Green	0.12	0.00	0.00	0.00	0.63	0.63				0.00	0.00	0.00
Sat Flow, veh/h	1781	256		0	3647	1585					0	
Grp Volume(v), veh/h	256	136.6		0	1333	78					0.0	
Grp Sat Flow(s),veh/h/ln	1781	F		0	1777	1585						
Q Serve(g_s), s	5.0			0.0	9.0	0.8						
Cycle Q Clear(g_c), s	5.0			0.0	9.0	0.8						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	217			0	2256	1006						
V/C Ratio(X)	1.18			0.00	0.59	0.08						
Avail Cap(c_a), veh/h	217			0	5018	2238						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	18.0			0.0	4.4	2.9						
Incr Delay (d2), s/veh	118.5			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	8.9			0.0	1.4	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	136.6			0.0	4.6	2.9						
LnGrp LOS	F			A	A	A						
Approach Vol, veh/h					1411							
Approach Delay, s/veh					4.5							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							10.0	31.1				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							5.0	58.0				
Max Q Clear Time (g_c+I1), s							7.0	11.0				
Green Ext Time (p_c), s							0.0	15.1				

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

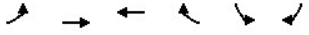
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	171
Intersection LOS	F

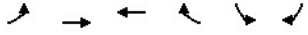
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	140	10	183	230	20	450	20	923	10	10	10
Future Vol, veh/h	10	140	10	183	230	20	450	20	923	10	10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	149	11	195	245	21	479	21	982	11	11	11
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	15.7	18.9	239.5	11.6
HCM LOS	C	C	F	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	7%	0%	100%	0%	33%
Vol Thru, %	0%	2%	93%	0%	0%	92%	33%
Vol Right, %	0%	98%	0%	100%	0%	8%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	450	943	150	10	183	250	30
LT Vol	450	0	10	0	183	0	10
Through Vol	0	20	140	0	0	230	10
RT Vol	0	923	0	10	0	20	10
Lane Flow Rate	479	1003	160	11	195	266	32
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.959	1.674	0.356	0.022	0.431	0.548	0.069
Departure Headway (Hd)	7.21	6.008	8.628	7.871	8.548	7.978	8.023
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	503	612	420	458	424	455	449
Service Time	4.939	3.736	6.328	5.571	6.248	5.678	6.023
HCM Lane V/C Ratio	0.952	1.639	0.381	0.024	0.46	0.585	0.071
HCM Control Delay	57.4	326.4	16	10.7	17.6	19.9	11.6
HCM Lane LOS	F	F	C	B	C	C	B
HCM 95th-tile Q	12.2	56.8	1.6	0.1	2.1	3.2	0.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	413	690	250	178	374	183
Future Volume (veh/h)	413	690	250	178	374	183
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	459	767	278	198	416	203
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	515	1078	403	329	469	417
Arrive On Green	0.29	0.58	0.22	0.22	0.26	0.26
Sat Flow, veh/h	1781	1870	1870	1527	1781	1585
Grp Volume(v), veh/h	459	767	278	198	416	203
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1527	1781	1585
Q Serve(g_s), s	15.1	18.0	8.4	7.1	13.7	6.6
Cycle Q Clear(g_c), s	15.1	18.0	8.4	7.1	13.7	6.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	515	1078	403	329	469	417
V/C Ratio(X)	0.89	0.71	0.69	0.60	0.89	0.49
Avail Cap(c_a), veh/h	805	1595	615	503	528	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	9.3	22.1	21.6	21.6	19.0
Incr Delay (d2), s/veh	5.4	0.8	2.9	2.4	14.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	5.8	3.7	2.6	7.1	6.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.2	10.1	25.0	24.0	36.0	19.3
LnGrp LOS	C	B	C	C	D	B
Approach Vol, veh/h		1226	476		619	
Approach Delay, s/veh		16.1	24.6		30.6	
Approach LOS		B	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.1		21.0	22.1	18.1
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	27.6	20.1
Max Q Clear Time (g_c+I1), s		20.0		15.7	17.1	10.4
Green Ext Time (p_c), s		6.0		0.4	0.6	2.3
Intersection Summary						
HCM 6th Ctrl Delay			21.7			
HCM 6th LOS			C			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	185	359	152	120	170	725
Future Volume (veh/h)	185	359	152	120	170	725
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	390	165	130	185	788
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	309	1109	426	335	470	737
Arrive On Green	0.09	0.59	0.44	0.44	0.26	0.26
Sat Flow, veh/h	3456	1870	969	764	1781	2790
Grp Volume(v), veh/h	201	390	0	295	185	788
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1733	1781	1395
Q Serve(g_s), s	3.9	7.4	0.0	7.9	5.8	18.1
Cycle Q Clear(g_c), s	3.9	7.4	0.0	7.9	5.8	18.1
Prop In Lane	1.00			0.44	1.00	1.00
Lane Grp Cap(c), veh/h	309	1109	0	761	470	737
V/C Ratio(X)	0.65	0.35	0.00	0.39	0.39	1.07
Avail Cap(c_a), veh/h	888	1422	0	761	470	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	7.2	0.0	13.0	20.7	25.2
Incr Delay (d2), s/veh	0.9	0.1	0.0	1.5	0.2	53.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.4	0.0	3.1	2.3	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.0	7.2	0.0	14.5	20.9	78.5
LnGrp LOS	C	A	A	B	C	F
Approach Vol, veh/h		591	295		973	
Approach Delay, s/veh		15.3	14.5		67.6	
Approach LOS		B	B		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.5		23.0	10.5	35.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		52.1		18.1	17.6	30.1
Max Q Clear Time (g_c+I1), s		9.4		20.1	5.9	9.9
Green Ext Time (p_c), s		1.6		0.0	0.3	1.1
Intersection Summary						
HCM 6th Ctrl Delay			42.5			
HCM 6th LOS			D			

Intersection	
Intersection Delay, s/veh	37
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	200	121	459	635	336	40
Future Vol, veh/h	200	121	459	635	336	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	213	129	488	676	357	43
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	19.1	38.4	48
HCM LOS	C	E	E

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	61	61	230	230	635	336	40
LT Vol	200	0	0	0	0	0	336	0
Through Vol	0	61	61	230	230	0	0	0
RT Vol	0	0	0	0	0	635	0	40
Lane Flow Rate	213	64	64	244	244	676	357	43
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.555	0.159	0.126	0.526	0.526	0.984	0.892	0.092
Departure Headway (Hd)	9.392	8.873	7.071	7.758	7.758	5.242	8.986	7.774
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	385	404	507	469	469	696	404	461
Service Time	7.146	6.627	4.825	5.458	5.458	2.942	6.733	5.521
HCM Lane V/C Ratio	0.553	0.158	0.126	0.52	0.52	0.971	0.884	0.093
HCM Control Delay	23.3	13.3	10.8	18.7	18.7	52.7	52.4	11.3
HCM Lane LOS	C	B	B	C	C	F	F	B
HCM 95th-tile Q	3.2	0.6	0.4	3	3	15.2	9.2	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	277	210	405	814	280	145
Future Volume (veh/h)	277	210	405	814	280	145
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	233	450	904	311	161
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	464	351	392	1365	321	285
Arrive On Green	0.47	0.47	0.22	0.73	0.18	0.18
Sat Flow, veh/h	988	747	1781	1870	1781	1585
Grp Volume(v), veh/h	0	541	450	904	311	161
Grp Sat Flow(s),veh/h/ln	0	1735	1781	1870	1781	1585
Q Serve(g_s), s	0.0	24.0	22.0	25.3	17.3	9.3
Cycle Q Clear(g_c), s	0.0	24.0	22.0	25.3	17.3	9.3
Prop In Lane		0.43	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	815	392	1365	321	285
V/C Ratio(X)	0.00	0.66	1.15	0.66	0.97	0.56
Avail Cap(c_a), veh/h	0	815	392	1365	321	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	39.0	7.1	40.7	37.4
Incr Delay (d2), s/veh	0.0	4.2	92.4	1.3	43.2	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	19.5	8.6	11.3	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	24.6	131.4	8.4	83.9	45.3
LnGrp LOS	A	C	F	A	F	D
Approach Vol, veh/h	541			1354	472	
Approach Delay, s/veh	24.6			49.3	70.7	
Approach LOS	C			D	E	

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	26.0	52.0	78.0	22.0
Change Period (Y+Rc), s	4.0	5.0	5.0	4.0
Max Green Setting (Gmax), s	22.0	47.0	73.0	18.0
Max Q Clear Time (g_c+I1), s	24.0	26.0	27.3	19.3
Green Ext Time (p_c), s	0.0	4.8	12.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	558	311	1300	860	719	1390	
Future Volume (veh/h)	558	311	1300	860	719	1390	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	575	187	1340	853	741	1433	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	687	306	1756	1072	773	2635	
Arrive On Green	0.19	0.19	0.49	0.49	0.22	0.74	
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647	
Grp Volume(v), veh/h	575	187	1340	853	741	1433	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777	
Q Serve(g_s), s	20.8	14.5	41.1	51.3	28.4	23.4	
Cycle Q Clear(g_c), s	20.8	14.5	41.1	51.3	28.4	23.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	687	306	1756	1072	773	2635	
V/C Ratio(X)	0.84	0.61	0.76	0.80	0.96	0.54	
Avail Cap(c_a), veh/h	797	354	1801	1092	773	2701	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	52.1	49.6	27.6	14.6	51.5	7.5	
Incr Delay (d2), s/veh	6.1	1.2	2.1	4.4	22.6	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	9.7	5.7	17.0	30.0	14.7	8.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	58.2	50.8	29.6	19.0	74.1	7.9	
LnGrp LOS	E	D	C	B	E	A	
Approach Vol, veh/h	762		2193			2174	
Approach Delay, s/veh	56.4		25.5			30.5	
Approach LOS	E		C			C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	34.0	70.3				104.3	29.9
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	29.6	65.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	30.4	53.3				25.4	22.8
Green Ext Time (p_c), s	0.0	10.8				40.9	0.8

Intersection Summary	
HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	170	327	167	70	200	169	1395	268	170	1408	160
Future Volume (veh/h)	190	170	327	167	70	200	169	1395	268	170	1408	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	189	137	186	78	222	188	1550	231	189	1564	178
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	266	214	192	327	261	249	1907	982	168	1983	988
Arrive On Green	0.08	0.14	0.14	0.11	0.17	0.17	0.07	0.54	0.53	0.09	0.56	0.55
Sat Flow, veh/h	3456	1870	1508	1781	1870	1495	3456	3554	1546	1781	3554	1565
Grp Volume(v), veh/h	211	189	137	186	78	222	188	1550	231	189	1564	178
Grp Sat Flow(s),veh/h/ln	1728	1870	1508	1781	1870	1495	1728	1777	1546	1781	1777	1565
Q Serve(g_s), s	8.3	13.3	11.8	14.3	5.0	19.8	7.4	49.4	8.9	13.0	47.9	6.5
Cycle Q Clear(g_c), s	8.3	13.3	11.8	14.3	5.0	19.8	7.4	49.4	8.9	13.0	47.9	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	266	214	192	327	261	249	1907	982	168	1983	988
V/C Ratio(X)	0.78	0.71	0.64	0.97	0.24	0.85	0.75	0.81	0.24	1.13	0.79	0.18
Avail Cap(c_a), veh/h	356	435	351	192	445	356	426	1907	982	168	1983	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	56.4	55.8	61.2	49.0	55.1	62.8	26.3	11.0	62.4	24.0	10.6
Incr Delay (d2), s/veh	5.6	3.5	3.2	54.7	0.1	10.4	1.8	3.9	0.6	107.1	3.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.6	4.7	9.4	2.3	8.2	3.3	21.4	3.2	10.9	20.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	60.0	59.0	115.9	49.1	65.6	64.5	30.2	11.5	169.6	27.3	11.0
LnGrp LOS	E	E	E	F	D	E	E	C	B	F	C	B
Approach Vol, veh/h		537			486			1969			1931	
Approach Delay, s/veh		62.9			82.2			31.3			39.7	
Approach LOS		E			F			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	78.0	18.9	24.0	13.9	81.1	14.8	28.1
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	12.6	72.7	14.5	* 31	16.6	* 69	13.8	31.3
Max Q Clear Time (g_c+I1), s	15.0	51.4	16.3	15.3	9.4	49.9	10.3	21.8
Green Ext Time (p_c), s	0.0	17.2	0.0	1.4	0.2	15.1	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1305	20	360	580	0	0	0	0	360	10	1668
Future Volume (veh/h)	0	1305	20	360	580	0	0	0	0	360	10	1668
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1359	21	375	604	0				375	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1506	672	437	2081	0				581	15	
Arrive On Green	0.00	0.42	0.42	0.13	0.59	0.00				0.33	0.33	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1737	46	1585
Grp Volume(v), veh/h	0	1359	21	375	604	0				385	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	42.8	0.9	12.8	10.2	0.0				22.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	42.8	0.9	12.8	10.2	0.0				22.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1506	672	437	2081	0				597	0	
V/C Ratio(X)	0.00	0.90	0.03	0.86	0.29	0.00				0.65	0.00	
Avail Cap(c_a), veh/h	0	1718	766	513	2369	0				597	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.2	20.2	51.3	12.4	0.0				33.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.0	0.0	1.3	0.0	0.0				1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.2	0.3	5.6	4.0	0.0				9.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.2	20.2	52.6	12.4	0.0				35.8	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				D	A	
Approach Vol, veh/h		1380			979						385	A
Approach Delay, s/veh		37.9			27.8						35.8	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.4	55.9		44.7		75.3						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 18	58.0		30.4		80.0						
Max Q Clear Time (g_c+I1), s	14.8	44.8		24.0		12.2						
Green Ext Time (p_c), s	0.4	6.1		0.5		3.0						

Intersection Summary			
HCM 6th Ctrl Delay		34.0	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



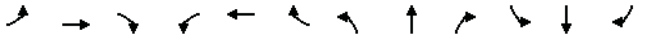
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1065	730	0	0	650	570	290	20	640	0	0	0
Future Volume (veh/h)	1065	730	0	0	650	570	290	20	640	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1109	760	0	0	677	357	302	21	411			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1099	2363	0	0	686	362	391	27	371			
Arrive On Green	0.32	0.67	0.00	0.00	0.31	0.31	0.23	0.23	0.23			
Sat Flow, veh/h	3456	3647	0	0	2342	1185	1671	116	1585			
Grp Volume(v), veh/h	1109	760	0	0	535	499	323	0	411			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1657	1787	0	1585			
Q Serve(g_s), s	31.8	9.1	0.0	0.0	29.9	30.0	16.9	0.0	23.4			
Cycle Q Clear(g_c), s	31.8	9.1	0.0	0.0	29.9	30.0	16.9	0.0	23.4			
Prop In Lane	1.00		0.00	0.00		0.72	0.93		1.00			
Lane Grp Cap(c), veh/h	1099	2363	0	0	542	505	418	0	371			
V/C Ratio(X)	1.01	0.32	0.00	0.00	0.99	0.99	0.77	0.00	1.11			
Avail Cap(c_a), veh/h	1099	2363	0	0	542	505	418	0	371			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.1	7.1	0.0	0.0	34.6	34.6	35.8	0.0	38.3			
Incr Delay (d2), s/veh	22.9	0.0	0.0	0.0	35.2	36.6	7.9	0.0	79.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	16.4	3.1	0.0	0.0	17.8	16.9	8.2	0.0	26.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	7.2	0.0	0.0	69.7	71.2	43.7	0.0	117.5			
LnGrp LOS	F	A	A	A	E	E	D	A	F			
Approach Vol, veh/h		1869			1034			734				
Approach Delay, s/veh		36.8			70.4			85.0				
Approach LOS		D			E			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		72.0		28.0	36.0	36.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		66.5		23.4	* 32	30.5						
Max Q Clear Time (g_c+I1), s		11.1		25.4	33.8	32.0						
Green Ext Time (p_c), s		4.0		0.0	0.0	0.0						

Intersection Summary			
HCM 6th Ctrl Delay		56.1	
HCM 6th LOS		E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	830	397	354	920	50	149	40	277	30	40	40
Future Volume (veh/h)	70	830	397	354	920	50	149	40	277	30	40	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	922	441	393	1022	56	166	44	308	33	44	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1408	589	419	1968	108	195	414	699	47	255	212
Arrive On Green	0.06	0.40	0.40	0.24	0.58	0.56	0.11	0.22	0.22	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1487	1781	3421	187	1781	1870	1512	1781	1870	1554
Grp Volume(v), veh/h	78	922	441	393	531	547	166	44	308	33	44	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1487	1781	1777	1831	1781	1870	1512	1781	1870	1554
Q Serve(g_s), s	5.8	28.6	34.4	29.2	24.4	24.5	12.4	2.5	19.0	2.5	2.8	3.4
Cycle Q Clear(g_c), s	5.8	28.6	34.4	29.2	24.4	24.5	12.4	2.5	19.0	2.5	2.8	3.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	1408	589	419	1022	1054	195	414	699	47	255	212
V/C Ratio(X)	0.75	0.65	0.75	0.94	0.52	0.52	0.85	0.11	0.44	0.70	0.17	0.21
Avail Cap(c_a), veh/h	224	1408	589	435	1022	1054	226	463	738	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.6	33.2	35.0	50.7	17.4	17.5	59.0	41.9	25.6	65.2	51.6	51.8
Incr Delay (d2), s/veh	4.1	2.4	8.5	27.1	1.9	1.8	20.7	0.0	0.2	6.7	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	12.8	13.8	16.2	10.4	10.8	6.7	1.2	6.9	1.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	35.6	43.5	77.8	19.2	19.3	79.8	42.0	25.7	71.9	51.7	52.0
LnGrp LOS	E	D	D	E	B	B	E	D	C	E	D	D
Approach Vol, veh/h		1441			1471			518			121	
Approach Delay, s/veh		39.7			34.9			44.4			57.3	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	35.7	57.8	18.8	22.7	11.8	81.7	7.6	33.9
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2
Max Q Clear Time (g_c+I1), s	31.2	36.4	14.4	5.4	7.8	26.5	4.5	21.0
Green Ext Time (p_c), s	0.1	1.9	0.1	0.2	0.0	5.5	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay	39.0	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	627	764	30	10	459	150	0	0	30	240	20	439
Future Volume (vph)	627	764	30	10	459	150	0	0	30	240	20	439
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3513		1770	3393				1524	1681	1697	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3513		1770	3393				1524	1681	1697	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	697	849	33	11	510	167	0	0	33	267	22	488
RTOR Reduction (vph)	0	2	0	0	28	0	0	0	32	0	0	237
Lane Group Flow (vph)	697	880	0	11	649	0	0	0	1	142	147	251
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	43.3		0.8	26.5				3.2	30.1	30.1	47.7
Effective Green, g (s)	18.0	44.2		1.2	27.4				3.2	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.46		0.01	0.29				0.03	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	643	1617		22	968				50	549	555	793
v/s Ratio Prot	c0.20	0.25		0.01	c0.19					0.08	0.09	c0.06
v/s Ratio Perm									c0.00			0.10
v/c Ratio	1.08	0.54		0.50	0.67				0.02	0.26	0.26	0.32
Uniform Delay, d1	39.0	18.6		47.1	30.3				44.9	23.7	23.8	14.0
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	60.4	0.4		6.4	3.7				0.2	1.1	1.2	0.1
Delay (s)	99.4	19.0		53.5	34.0				45.1	24.9	25.0	14.1
Level of Service	F	B		D	C				D	C	C	B
Approach Delay (s)		54.5			34.3			45.1			18.1	
Approach LOS		D			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	71.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	1460	680	572	882	220
Future Volume (vph)	150	1460	680	572	882	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1546	3431	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1546	3431	1419
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	1521	708	596	919	229
RTOR Reduction (vph)	0	0	0	217	1	52
Lane Group Flow (vph)	156	1521	708	379	941	154
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	13.7	58.9	41.2	77.9	36.7	36.7
Effective Green, g (s)	14.1	60.9	42.8	79.7	37.6	37.6
Actuated g/C Ratio	0.11	0.49	0.34	0.64	0.30	0.30
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	199	1721	1209	984	1030	426
v/s Ratio Prot	0.09	c0.43	0.20	0.12	c0.27	
v/s Ratio Perm				0.13		0.11
v/c Ratio	0.78	0.88	0.59	0.39	0.91	0.36
Uniform Delay, d1	54.1	29.0	33.9	11.0	42.2	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.8	7.0	0.9	0.5	12.6	1.1
Delay (s)	70.9	36.0	34.8	11.5	54.9	35.5
Level of Service	E	D	C	B	D	D
Approach Delay (s)		39.2	24.2		51.4	
Approach LOS		D	C		D	

Intersection Summary				
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	125.2	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	74.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	2302	60	50	1151	79	40	10	20	217	10	80
Future Volume (veh/h)	80	2302	60	50	1151	79	40	10	20	217	10	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	2373	58	52	1187	70	41	10	7	224	10	31
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	2271	55	82	2144	126	282	64	353	301	90	278
Arrive On Green	0.06	0.64	0.63	0.05	0.63	0.61	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	3542	86	1781	3408	201	1048	285	1570	1384	399	1235
Grp Volume(v), veh/h	82	1184	1247	52	618	639	51	0	7	224	0	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1851	1781	1777	1831	1333	0	1570	1384	0	1634
Q Serve(g_s), s	6.3	89.7	89.7	4.0	27.7	27.9	3.4	0.0	0.5	22.1	0.0	2.8
Cycle Q Clear(g_c), s	6.3	89.7	89.7	4.0	27.7	27.9	6.3	0.0	0.5	28.4	0.0	2.8
Prop In Lane	1.00		0.05	1.00		0.11	0.80		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	107	1139	1187	82	1118	1152	346	0	353	301	0	367
V/C Ratio(X)	0.76	1.04	1.05	0.63	0.55	0.55	0.15	0.00	0.02	0.74	0.00	0.11
Avail Cap(c_a), veh/h	176	1139	1187	209	1172	1208	351	0	358	305	0	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.8	25.1	25.1	65.6	14.8	14.9	45.1	0.0	42.2	56.1	0.0	43.4
Incr Delay (d2), s/veh	4.2	37.5	40.4	3.0	2.0	1.9	0.1	0.0	0.0	8.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	44.9	47.7	1.9	10.9	11.3	1.5	0.0	0.2	8.4	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	62.6	65.5	68.6	16.7	16.8	45.1	0.0	42.2	64.4	0.0	43.4
LnGrp LOS	E	F	F	E	B	B	D	A	D	E	A	D
Approach Vol, veh/h		2513			1309			58			265	
Approach Delay, s/veh		64.3			18.8			44.8			61.1	
Approach LOS		E			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	94.0		35.5	12.4	92.0		35.5				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.0	* 88		31.0	13.4	90.3		31.0				
Max Q Clear Time (g_c+I1), s	6.0	91.7		30.4	8.3	29.9		8.3				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	35.6		0.1				

Intersection Summary				
HCM 6th Ctrl Delay	49.4			
HCM 6th LOS	D			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	2249	1291	50	60	30
Future Vol, veh/h	40	2249	1291	50	60	30
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	2445	1403	54	65	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1493	0	-	0	2776	765
Stage 1	-	-	-	-	1466	-
Stage 2	-	-	-	-	1310	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	446	-	-	-	~ 15	346
Stage 1	-	-	-	-	178	-
Stage 2	-	-	-	-	217	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	433	-	-	-	~ 13	336
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	210	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	138.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	433	-	-	-	107
HCM Lane V/C Ratio	0.1	-	-	-	0.914
HCM Control Delay (s)	14.2	-	-	-	138.6
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	5.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2000	84	0	1351	0	66
Future Vol, veh/h	2000	84	0	1351	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2174	91	0	1468	0	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1133
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	197
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	197
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	33.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	197	-	-	-
HCM Lane V/C Ratio	0.364	-	-	-
HCM Control Delay (s)	33.4	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.6	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2030 + P1 + P2 PM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	277	2005	168	34	964	319	180	66	38	494	101	170
Future Volume (veh/h)	277	2005	168	34	964	319	180	66	38	494	101	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	292	2111	177	36	1015	198	189	69	40	520	106	102
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	1778	146	46	1372	582	190	118	69	321	65	353
Arrive On Green	0.18	0.54	0.53	0.03	0.39	0.39	0.11	0.11	0.11	0.22	0.22	0.22
Sat Flow, veh/h	1781	3312	273	1781	3554	1509	1781	1111	644	1492	304	1585
Grp Volume(v), veh/h	292	1115	1173	36	1015	198	189	0	109	626	0	102
Grp Sat Flow(s),veh/h/ln	1781	1777	1808	1781	1777	1509	1781	0	1754	1796	0	1585
Q Serve(g_s), s	24.2	80.6	80.6	3.0	36.8	13.9	15.9	0.0	8.9	32.3	0.0	8.0
Cycle Q Clear(g_c), s	24.2	80.6	80.6	3.0	36.8	13.9	15.9	0.0	8.9	32.3	0.0	8.0
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.37	0.83		1.00
Lane Grp Cap(c), veh/h	318	954	971	46	1372	582	190	0	187	386	0	353
V/C Ratio(X)	0.92	1.17	1.21	0.78	0.74	0.34	1.00	0.00	0.58	1.62	0.00	0.29
Avail Cap(c_a), veh/h	368	954	971	47	1372	582	190	0	187	386	0	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.6	34.7	34.9	72.7	39.6	32.6	67.0	0.0	63.9	58.4	0.0	48.5
Incr Delay (d2), s/veh	24.1	87.1	103.6	54.8	3.6	1.6	63.9	0.0	4.5	290.6	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	55.5	61.0	2.1	16.4	5.3	10.6	0.0	4.2	45.8	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.7	121.8	138.5	127.4	43.2	34.2	130.9	0.0	68.4	349.1	0.0	48.7
LnGrp LOS	F	F	F	F	D	C	F	A	E	F	A	D
Approach Vol, veh/h		2580			1249			298			728	
Approach Delay, s/veh		125.2			44.2			108.0			307.0	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	84.8		37.4	30.8	61.9		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 79		32.3	30.6	51.7		16.0				
Max Q Clear Time (g_c+I1), s	5.0	82.6		34.3	26.2	38.8		17.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	4.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		130.6
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2030 + P1 + P2 PM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2030	257	242	1268	150	103
Future Volume (veh/h)	2030	257	242	1268	150	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2207	259	263	1378	170	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1992	229	293	2938	252	114
Arrive On Green	0.62	0.62	0.16	0.83	0.07	0.00
Sat Flow, veh/h	3305	369	1781	3647	3563	1610
Grp Volume(v), veh/h	1201	1265	263	1378	170	0
Grp Sat Flow(s),veh/h/ln	1777	1804	1781	1777	1781	1610
Q Serve(g_s), s	65.3	65.3	15.2	11.6	4.9	0.0
Cycle Q Clear(g_c), s	65.3	65.3	15.2	11.6	4.9	0.0
Prop In Lane		0.20	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1102	1119	293	2938	252	114
V/C Ratio(X)	1.09	1.13	0.90	0.47	0.67	0.00
Avail Cap(c_a), veh/h	1102	1119	315	2974	1729	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.0	20.0	43.1	2.6	47.7	0.0
Incr Delay (d2), s/veh	55.1	70.3	25.5	0.1	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.8	44.1	8.5	1.7	2.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	75.1	90.3	68.6	2.7	50.9	0.0
LnGrp LOS	F	F	E	A	D	A
Approach Vol, veh/h	2466			1641	170	
Approach Delay, s/veh	82.9			13.3	50.9	
Approach LOS	F			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	21.7	71.2				92.9	12.4
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	18.6	* 65				88.1	51.1
Max Q Clear Time (g_c+I1), s	17.2	67.3				13.6	6.9
Green Ext Time (p_c), s	0.1	0.0				14.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay		54.9
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2351	135	0	1430	0	17
Future Vol, veh/h	2351	135	0	1430	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2555	147	0	1554	0	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1351
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	140
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	140
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	34.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	140	-	-	-
HCM Lane V/C Ratio	0.132	-	-	-
HCM Control Delay (s)	34.6	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	2312	67	118	1392	38	66
Future Volume (veh/h)	0	2312	67	118	1392	38	66
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		2513	72	128	1513	41	72
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2619	75	78	2899	67	117
Arrive On Green		0.74	0.74	0.04	0.82	0.11	0.11
Sat Flow, veh/h		3622	101	1781	3647	594	1044
Grp Volume(v), veh/h		1259	1326	128	1513	114	0
Grp Sat Flow(s),veh/h/ln		1777	1852	1781	1777	1653	0
Q Serve(g_s), s		94.1	97.3	6.6	20.5	9.9	0.0
Cycle Q Clear(g_c), s		94.1	97.3	6.6	20.5	9.9	0.0
Prop In Lane			0.05	1.00		0.36	0.63
Lane Grp Cap(c), veh/h		1319	1375	78	2899	186	0
V/C Ratio(X)		0.95	0.96	1.63	0.52	0.61	0.00
Avail Cap(c_a), veh/h		1329	1385	78	2899	186	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.61	0.61	1.00	0.00
Uniform Delay (d), s/veh		17.1	17.5	71.7	4.4	63.5	0.0
Incr Delay (d2), s/veh		15.2	16.3	317.4	0.1	5.9	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		36.6	39.7	9.9	5.5	4.5	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		32.3	33.8	389.1	4.5	69.4	0.0
LnGrp LOS		C	C	F	A	E	A
Approach Vol, veh/h		2585			1641	114	
Approach Delay, s/veh		33.1			34.5	69.4	
Approach LOS		C			C	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.0	117.2			128.2	21.8
Change Period (Y+Rc), s	4.4	5.9			* 5.9	4.9
Max Green Setting (Gmax), s	6.6	112.2			* 1.2E2	16.0
Max Q Clear Time (g_c+I1), s	8.6	99.3			22.5	11.9
Green Ext Time (p_c), s	0.0	12.0			17.1	0.1

Intersection Summary		
HCM 6th Ctrl Delay	34.6	
HCM 6th LOS	C	

Notes
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2030 + P1 + P2 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2128	420	381	1310	20	320	10	448	10	10	10
Future Volume (veh/h)	10	2128	420	381	1310	20	320	10	448	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	2217	438	397	1365	21	333	10	467	10	10	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	1864	351	317	1816	28	292	7	727	40	39	20
Arrive On Green	0.01	0.43	0.42	0.09	0.51	0.50	0.38	0.38	0.37	0.38	0.38	0.37
Sat Flow, veh/h	1781	4301	810	3456	3580	55	621	19	1568	0	104	52
Grp Volume(v), veh/h	10	1732	923	397	677	709	343	0	467	30	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1707	1728	1777	1859	640	0	1568	156	0	0
Q Serve(g_s), s	0.7	52.0	52.0	11.0	36.4	36.5	0.0	0.0	27.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	52.0	52.0	11.0	36.4	36.5	45.0	0.0	27.3	45.0	0.0	0.0
Prop In Lane	1.00		0.47	1.00		0.03	0.97		1.00	0.33		0.33
Lane Grp Cap(c), veh/h	23	1475	740	317	901	943	299	0	727	99	0	0
V/C Ratio(X)	0.44	1.17	1.25	1.25	0.75	0.75	1.15	0.00	0.64	0.30	0.00	0.00
Avail Cap(c_a), veh/h	238	1475	740	317	901	943	299	0	727	99	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.14	0.14	0.14	0.73	0.73	0.73	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	58.8	34.0	34.5	54.5	23.5	23.6	41.9	0.0	24.7	30.9	0.0	0.0
Incr Delay (d2), s/veh	0.7	79.6	113.0	131.7	4.2	4.1	97.9	0.0	4.3	7.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	36.2	43.4	10.5	15.1	15.8	17.2	0.0	10.9	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	113.6	147.5	186.2	27.8	27.7	139.8	0.0	29.0	38.7	0.0	0.0
LnGrp LOS	E	F	F	F	C	C	F	A	C	D	A	A
Approach Vol, veh/h		2665			1783			810			30	
Approach Delay, s/veh		125.1			63.0			75.9			38.7	
Approach LOS		F			E			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	56.0		49.0	5.5	65.5		49.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	10.6	50.1		44.1	15.6	* 46		44.1				
Max Q Clear Time (g_c+I1), s	13.0	54.0		47.0	2.7	38.5		47.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	5.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		96.2	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2030 + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2327	70	310	1554	70	50	10	290	30	10	20
Future Volume (veh/h)	40	2327	70	310	1554	70	50	10	290	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	2374	64	316	1586	76	51	11	215	33	11	22
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	3283	88	207	2589	1141	284	12	238	56	18	35
Arrive On Green	0.63	0.64	0.63	0.06	0.73	0.72	0.16	0.16	0.16	0.03	0.03	0.03
Sat Flow, veh/h	299	5110	137	3456	3554	1585	1781	78	1519	1781	557	1113
Grp Volume(v), veh/h	43	1578	860	316	1586	76	51	0	226	33	0	33
Grp Sat Flow(s),veh/h/ln	299	1702	1843	1728	1777	1585	1781	0	1597	1781	0	1670
Q Serve(g_s), s	12.6	46.3	47.0	9.0	32.8	2.1	3.7	0.0	20.8	2.7	0.0	2.9
Cycle Q Clear(g_c), s	32.4	46.3	47.0	9.0	32.8	2.1	3.7	0.0	20.8	2.7	0.0	2.9
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.95	1.00		0.67
Lane Grp Cap(c), veh/h	198	2187	1184	207	2589	1141	284	0	250	56	0	53
V/C Ratio(X)	0.22	0.72	0.73	1.52	0.61	0.07	0.18	0.00	0.90	0.59	0.00	0.63
Avail Cap(c_a), veh/h	198	2187	1184	207	2589	1141	373	0	330	190	0	178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	17.9	18.0	70.5	10.0	6.2	54.6	0.0	62.0	71.7	0.0	71.8
Incr Delay (d2), s/veh	0.2	0.2	0.4	258.8	1.1	0.1	0.1	0.0	19.6	9.4	0.0	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	16.8	18.5	11.4	11.5	0.7	1.7	0.0	9.8	1.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	18.1	18.4	329.3	11.1	6.3	54.7	0.0	81.6	81.1	0.0	83.4
LnGrp LOS	C	B	B	F	B	A	D	A	F	F	A	F
Approach Vol, veh/h		2481			1978			277			66	
Approach Delay, s/veh		18.2			61.7			76.6			82.2	
Approach LOS		B			E			E			F	

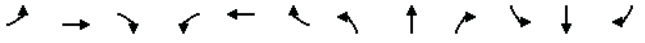
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.0	100.4		8.7		113.4		27.9				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	8.6	76.2		16.0		* 78		31.0				
Max Q Clear Time (g_c+I1), s	11.0	49.0		4.9		34.8		22.8				
Green Ext Time (p_c), s	0.0	23.2		0.1		22.2		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		40.4	
HCM 6th LOS		D	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	2657	60	600	1814	30	50	10	340	20	10	10
Future Volume (veh/h)	20	2657	60	600	1814	30	50	10	340	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	2797	63	632	1909	32	53	0	365	21	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	3226	72	530	3942	66	222	0	432	188	118	118
Arrive On Green	0.02	0.63	0.62	0.31	1.00	1.00	0.14	0.00	0.14	0.14	0.14	0.13
Sat Flow, veh/h	1781	5137	115	3456	5170	87	1367	0	3115	1006	849	849
Grp Volume(v), veh/h	21	1846	1014	632	1256	685	53	0	365	21	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1848	1728	1702	1853	1367	0	1558	1006	0	1699
Q Serve(g_s), s	1.8	66.1	67.8	23.0	0.0	0.0	5.3	0.0	17.1	2.8	0.0	1.7
Cycle Q Clear(g_c), s	1.8	66.1	67.8	23.0	0.0	0.0	7.0	0.0	17.1	2.8	0.0	1.7
Prop In Lane	1.00		0.06	1.00		0.05	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	32	2138	1160	530	2595	1412	222	0	432	188	0	236
V/C Ratio(X)	0.65	0.86	0.87	1.19	0.48	0.48	0.24	0.00	0.84	0.11	0.00	0.09
Avail Cap(c_a), veh/h	72	2138	1160	530	2595	1412	315	0	644	256	0	351
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.2	22.7	23.0	52.0	0.0	0.0	59.4	0.0	63.0	56.8	0.0	56.6
Incr Delay (d2), s/veh	7.8	4.9	9.2	104.2	0.6	1.2	0.2	0.0	4.3	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	25.5	29.8	16.0	0.2	0.5	1.9	0.0	7.1	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	27.6	32.3	156.2	0.6	1.2	59.6	0.0	67.4	56.9	0.0	56.6
LnGrp LOS	F	C	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2881			2573			418			43	
Approach Delay, s/veh		29.6			39.0			66.4			56.8	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.0	98.2		24.8	6.7	118.5		24.8				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	22.6	82.6		30.1	5.7	* 1E2		30.1				
Max Q Clear Time (g_c+I1), s	25.0	69.8		4.8	3.8	2.0		19.1				
Green Ext Time (p_c), s	0.0	12.2		0.1	0.0	36.0		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		36.5
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	171.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2777	140	0	2404	0	410
Future Vol, veh/h	2777	140	0	2404	0	410
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3086	156	0	2671	0	456

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1638
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 76
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 75
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 2392.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	75	-	-	-
HCM Lane V/C Ratio	6.074	-	-	-
HCM Control Delay (s)	$ 2392.4	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	50.9	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1069	490	510	817
Future Volume (Veh/h)	0	0	1069	490	510	817
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1162	533	554	888
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2714	581			1695	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2714	581			1695	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	457			372	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	775	565	355	554	444	444
Volume Left	0	0	0	554	0	0
Volume Right	0	178	355	0	0	0
cSH	1700	1700	1700	372	1700	1700
Volume to Capacity	0.46	0.33	0.21	1.49	0.26	0.26
Queue Length 95th (ft)	0	0	0	743	0	0
Control Delay (s)	0.0	0.0	0.0	260.8	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			100.2		
Approach LOS						

Intersection Summary			
Average Delay		46.1	
Intersection Capacity Utilization		69.7%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	2340	908	420	1675	1240	632	60	1030	530	10	217
Future Volume (veh/h)	159	2340	908	420	1675	1240	632	60	1030	530	10	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	167	2463	0	442	1763	1305	665	63	1084	558	11	228
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2434		392	1993	1657	857	408	904	649	280	403
Arrive On Green	0.13	0.50	0.00	0.11	0.39	0.39	0.25	0.22	0.21	0.19	0.15	0.15
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2749	3456	1870	1552
Grp Volume(v), veh/h	167	2463	0	442	1763	1305	665	63	1084	558	11	228
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1375	1728	1870	1552
Q Serve(g_s), s	6.7	56.7	0.0	17.0	48.2	53.5	26.9	4.1	32.1	23.5	0.8	19.2
Cycle Q Clear(g_c), s	6.7	56.7	0.0	17.0	48.2	53.5	26.9	4.1	32.1	23.5	0.8	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2434		392	1993	1657	857	408	904	649	280	403
V/C Ratio(X)	0.48	1.01		1.13	0.88	0.79	0.78	0.15	1.20	0.86	0.04	0.57
Avail Cap(c_a), veh/h	415	2434		392	1993	1657	857	408	904	1193	539	618
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	37.3	0.0	66.5	42.6	23.2	52.5	47.5	50.5	59.0	54.5	48.5
Incr Delay (d2), s/veh	0.4	21.2	0.0	84.8	6.1	3.8	6.8	0.8	100.1	3.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	23.1	0.0	12.0	20.7	18.1	12.5	2.0	29.5	10.6	0.4	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	58.5	0.0	151.3	48.6	27.0	59.3	48.3	150.6	62.5	54.6	48.9
LnGrp LOS	E	F		F	D	C	E	D	F	E	D	D
Approach Vol, veh/h		2630	A		3510			1812			797	
Approach Delay, s/veh		58.7			53.5			113.5			58.5	
Approach LOS		E			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	60.7	41.2	27.1	19.2	62.6	31.6	36.7
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.0	4.6
Max Green Setting (Gmax), s	17.0	33.0	36.6	43.2	* 18	32.0	51.2	29.2
Max Q Clear Time (g_c+I1), s	19.0	58.7	28.9	21.2	8.7	55.5	25.5	34.1
Green Ext Time (p_c), s	0.0	0.0	1.0	0.4	0.2	0.0	2.1	0.0

Intersection Summary		
HCM 6th Ctrl Delay	68.0	
HCM 6th LOS	E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2030 + P1 + P2 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	803	2986	0	0	2108	1110	0	0	0	900	0	1217
Future Volume (veh/h)	803	2986	0	0	2108	1110	0	0	0	900	0	1217
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	845	3143	0	0	2219	1168				947	0	1281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	657	9053	0	0	6370	2720				1055	0	1186
Arrive On Green	0.19	1.00	0.00	0.00	0.99	0.98				0.21	0.00	0.22
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	845	3143	0	0	2219	1168				947	0	1281
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	19.0	0.0	0.0	0.0	0.5	1.8				18.4	0.0	22.5
Cycle Q Clear(g_c), s	19.0	0.0	0.0	0.0	0.5	1.8				18.4	0.0	22.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	657	9053	0	0	6370	2720				1055	0	1186
V/C Ratio(X)	1.29	0.35	0.00	0.00	0.35	0.43				0.90	0.00	1.08
Avail Cap(c_a), veh/h	657	9053	0	0	6370	2720				1055	0	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	0.0	0.0	0.0	0.1				38.5	0.0	28.7
Incr Delay (d2), s/veh	140.1	0.1	0.0	0.0	0.2	0.5				10.3	0.0	50.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.4	0.1	0.0	0.0	0.1	0.2				8.4	0.0	34.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	180.6	0.1	0.0	0.0	0.2	0.6				48.7	0.0	79.5
LnGrp LOS	F	A	A	A	A	A				D	A	F
Approach Vol, veh/h		3988			3387						2228	
Approach Delay, s/veh		38.4			0.3						66.4	
Approach LOS		D			A						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	23.0	104.5		25.0		127.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	18.5	46.5		21.0		* 71
Max Q Clear Time (g_c+I1), s	21.0	3.8		24.5		2.0
Green Ext Time (p_c), s	0.0	27.6		0.0		57.8

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2030 + P1 + P2 PM
02/27/2020

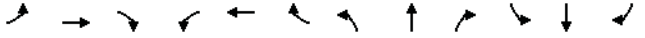
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	459	2747	820	160	1711	70	510	100	240	180	110	757
Future Volume (veh/h)	459	2747	820	160	1711	70	510	100	240	180	110	757
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	473	2832	845	165	1764	72	526	103	247	186	113	780
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	537	2804	1159	153	2137	515	595	581	493	232	416	578
Arrive On Green	0.16	0.44	0.44	0.04	0.33	0.33	0.17	0.33	0.32	0.07	0.22	0.22
Sat Flow, veh/h	3456	6434	2659	3456	6434	1552	3456	1777	1507	3456	1870	2598
Grp Volume(v), veh/h	473	2832	845	165	1764	72	526	103	247	186	113	780
Grp Sat Flow(s),veh/h/ln	1728	1609	1330	1728	1609	1552	1728	1777	1507	1728	1870	1299
Q Serve(g_s), s	18.1	59.0	35.6	6.0	34.2	4.4	20.1	5.6	18.0	7.2	6.8	30.1
Cycle Q Clear(g_c), s	18.1	59.0	35.6	6.0	34.2	4.4	20.1	5.6	18.0	7.2	6.8	30.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	537	2804	1159	153	2137	515	595	581	493	232	416	578
V/C Ratio(X)	0.88	1.01	0.73	1.08	0.83	0.14	0.88	0.18	0.50	0.80	0.27	1.35
Avail Cap(c_a), veh/h	664	2804	1159	153	2137	515	738	655	555	232	416	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	38.2	31.6	64.7	41.6	31.7	54.7	32.5	37.1	62.3	43.6	52.6
Incr Delay (d2), s/veh	9.9	19.5	4.0	94.9	3.8	0.6	9.7	0.1	0.3	17.0	0.2	168.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	25.7	12.0	4.6	13.7	1.8	9.6	2.5	6.7	3.7	3.2	23.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	57.7	35.6	159.6	45.4	32.2	64.4	32.6	37.3	79.2	43.8	221.5
LnGrp LOS	E	F	D	F	D	C	E	C	D	E	D	F
Approach Vol, veh/h		4150			2001			876			1079	
Approach Delay, s/veh		54.1			54.4			53.0			178.3	
Approach LOS		D			D			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	64.0	27.3	34.1	25.0	49.0	13.1	48.3
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	5.6	* 58	28.5	29.2	25.6	36.5	8.7	49.0
Max Q Clear Time (g_c+I1), s	8.0	61.0	22.1	32.1	20.1	36.2	9.2	20.0
Green Ext Time (p_c), s	0.0	0.0	0.8	0.0	0.5	0.3	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	70.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	260	10	370	290	829	0	0	1227	347
Future Volume (veh/h)	0	0	0	260	10	370	290	829	0	0	1227	347
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				297	0	411	322	921	0	0	1363	386
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1030	0	450	320	2230	0	0	1802	800
Arrive On Green				0.29	0.00	0.29	0.19	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1556	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				297	0	411	322	921	0	0	1363	386
Grp Sat Flow(s),veh/h/ln				1781	0	1556	1728	1777	0	0	1777	1577
Q Serve(g_s), s				7.0	0.0	27.6	10.0	0.0	0.0	0.0	33.1	17.3
Cycle Q Clear(g_c), s				7.0	0.0	27.6	10.0	0.0	0.0	0.0	33.1	17.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1030	0	450	320	2230	0	0	1802	800
V/C Ratio(X)				0.29	0.00	0.91	1.01	0.41	0.00	0.00	0.76	0.48
Avail Cap(c_a), veh/h				1089	0	475	320	2230	0	0	1802	800
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.37	0.37	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.8	0.0	37.1	44.0	0.0	0.0	0.0	21.3	17.4
Incr Delay (d2), s/veh				0.2	0.0	21.5	32.2	0.2	0.0	0.0	3.0	2.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	12.6	5.2	0.1	0.0	0.0	13.9	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.9	0.0	58.6	76.2	0.2	0.0	0.0	24.3	19.4
LnGrp LOS				C	A	E	F	A	A	A	C	B
Approach Vol, veh/h					708			1243			1749	
Approach Delay, s/veh					46.6			19.9			23.2	
Approach LOS					D			B			C	

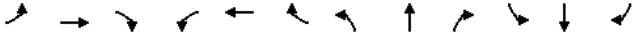
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.8			14.0	58.8		35.2				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 66			9.6	50.7		32.1				
Max Q Clear Time (g_c+I1), s		2.0			12.0	35.1		29.6				
Green Ext Time (p_c), s		7.0			0.0	13.1		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		26.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	10	390	0	0	0	0	749	470	690	817	0
Future Volume (veh/h)	349	10	390	0	0	0	0	749	470	690	817	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	396	0	159				0	832	391	767	908	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	530	0	236				0	1228	574	723	2762	0
Arrive On Green	0.15	0.00	0.15				0.00	0.52	0.51	0.42	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2444	1099	3456	3647	0
Grp Volume(v), veh/h	396	0	159				0	628	595	767	908	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1673	1728	1777	0
Q Serve(g_s), s	11.5	0.0	10.2				0.0	28.2	28.7	22.6	0.0	0.0
Cycle Q Clear(g_c), s	11.5	0.0	10.2				0.0	28.2	28.7	22.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	530	0	236				0	928	874	723	2762	0
V/C Ratio(X)	0.75	0.00	0.67				0.00	0.68	0.68	1.06	0.33	0.00
Avail Cap(c_a), veh/h	960	0	427				0	928	874	723	2762	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.65	0.65	0.00
Uniform Delay (d), s/veh	44.0	0.0	43.5				0.0	19.0	19.5	31.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	3.3				0.0	3.9	4.3	44.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.1				0.0	12.1	11.8	11.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	0.0	46.8				0.0	23.0	23.8	76.0	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		555						1223			1675	
Approach Delay, s/veh		46.3						23.4			34.9	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	60.9		20.1		87.9						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	24.6	30.7		13.5		2.0						
Green Ext Time (p_c), s	0.0	7.9		1.7		10.3						

Intersection Summary			
HCM 6th Ctrl Delay		32.7	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2030 + P1 + P2 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	440	10	230	674	779	0	0	810	334
Future Volume (veh/h)	0	0	0	440	10	230	674	779	0	0	810	334
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				366	161	247	725	838	0	0	871	359
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				470	176	270	638	2397	0	0	2336	714
Arrive On Green				0.26	0.26	0.26	0.18	0.67	0.00	0.00	0.46	0.45
Sat Flow, veh/h				1781	666	1021	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				366	0	408	725	838	0	0	871	359
Grp Sat Flow(s),veh/h/ln				1781	0	1687	1728	1777	0	0	1702	1585
Q Serve(g_s), s				24.7	0.0	30.6	24.0	13.1	0.0	0.0	14.5	20.9
Cycle Q Clear(g_c), s				24.7	0.0	30.6	24.0	13.1	0.0	0.0	14.5	20.9
Prop In Lane				1.00		0.61	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				470	0	445	638	2397	0	0	2336	714
V/C Ratio(X)				0.78	0.00	0.92	1.14	0.35	0.00	0.00	0.37	0.50
Avail Cap(c_a), veh/h				507	0	480	638	2397	0	0	2336	714
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.39	0.39	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				44.3	0.0	46.7	53.0	9.0	0.0	0.0	23.1	25.4
Incr Delay (d2), s/veh				6.2	0.0	20.7	69.5	0.2	0.0	0.0	0.5	2.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.4	0.0	15.0	16.5	4.9	0.0	0.0	5.9	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				50.5	0.0	67.4	122.5	9.2	0.0	0.0	23.5	27.9
LnGrp LOS				D	A	E	F	A	A	A	C	C
Approach Vol, veh/h					774			1563			1230	
Approach Delay, s/veh					59.4			61.7			24.8	
Approach LOS					E			E			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.7			28.0	63.7		38.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		83.9			23.1	* 56		36.1				
Max Q Clear Time (g_c+I1), s		15.1			26.0	22.9		32.6				
Green Ext Time (p_c), s		8.8			0.0	9.0		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		48.5	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2030 + P1 + P2 PM
03/09/2020

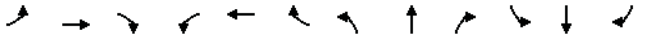
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	559	10	549	0	0	0	0	864	420	450	780	0
Future Volume (veh/h)	559	10	549	0	0	0	0	864	420	450	780	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	616	0	597				0	939	457	489	848	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1315	0	585				0	1565	486	506	2203	0
Arrive On Green	0.37	0.00	0.37				0.00	0.31	0.31	0.57	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	616	0	597				0	939	457	489	848	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	17.1	0.0	48.0				0.0	20.3	36.5	34.1	0.0	0.0
Cycle Q Clear(g_c), s	17.1	0.0	48.0				0.0	20.3	36.5	34.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1315	0	585				0	1565	486	506	2203	0
V/C Ratio(X)	0.47	0.00	1.02				0.00	0.60	0.94	0.97	0.38	0.00
Avail Cap(c_a), veh/h	1315	0	585				0	1565	486	562	2203	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.91	0.91	0.00
Uniform Delay (d), s/veh	31.3	0.0	41.0				0.0	38.3	43.9	27.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	42.4				0.0	1.7	28.4	25.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	0.0	24.7				0.0	8.7	18.1	14.3	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.4	0.0	83.4				0.0	40.0	72.4	53.3	0.5	0.0
LnGrp LOS	C	A	F				A	D	E	D	A	A
Approach Vol, veh/h		1213						1396			1337	
Approach Delay, s/veh		57.0						50.6			19.8	
Approach LOS		E						D			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	41.0	44.0		52.0		85.0						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	40.6	27.9		47.1		* 73						
Max Q Clear Time (g_c+I1), s	36.1	38.5		50.0		2.0						
Green Ext Time (p_c), s	0.4	0.0		0.0		4.6						

Intersection Summary			
HCM 6th Ctrl Delay		42.1	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2589	130	70	1747	30	60	10	120	150	10	70
Future Volume (veh/h)	30	2589	130	70	1747	30	60	10	120	150	10	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	33	2877	144	78	1941	33	67	11	133	167	11	78
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3048	150	105	3326	57	156	40	275	259	17	101
Arrive On Green	0.03	0.59	0.57	0.06	0.62	0.60	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5184	255	1853	5378	91	455	151	1033	805	64	380
Grp Volume(v), veh/h	33	1950	1071	78	1277	697	211	0	0	256	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1929	1638	0	0	1249	0	0
Q Serve(g_s), s	2.4	68.2	72.0	5.6	29.1	29.2	0.0	0.0	0.0	12.7	0.0	0.0
Cycle Q Clear(g_c), s	2.4	68.2	72.0	5.6	29.1	29.2	14.3	0.0	0.0	26.9	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.05	0.32		0.63	0.65		0.30
Lane Grp Cap(c), veh/h	48	2082	1117	105	2189	1193	472	0	0	377	0	0
V/C Ratio(X)	0.68	0.94	0.96	0.75	0.58	0.58	0.45	0.00	0.00	0.68	0.00	0.00
Avail Cap(c_a), veh/h	82	2082	1117	198	2189	1193	472	0	0	377	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.2	25.5	26.4	62.7	15.4	15.4	41.7	0.0	0.0	47.2	0.0	0.0
Incr Delay (d2), s/veh	6.2	9.6	18.8	3.9	1.1	2.1	3.0	0.0	0.0	9.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	28.6	35.2	2.7	11.1	12.5	6.4	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	35.1	45.2	66.6	16.5	17.5	44.8	0.0	0.0	56.7	0.0	0.0
LnGrp LOS	E	D	D	E	B	B	D	A	A	E	A	A
Approach Vol, veh/h		3054			2052			211			256	
Approach Delay, s/veh		39.0			18.8			44.8			56.7	
Approach LOS		D			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	83.4		40.0	7.5	87.5		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1				
Max Q Clear Time (g_c+I1), s	7.6	74.0		28.9	4.4	31.2		16.3				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	44.3		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		32.6
HCM 6th LOS		C

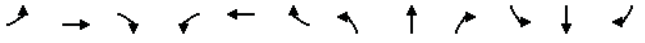
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	76	67	678	644	67
Future Vol, veh/h	0	76	67	678	644	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	83	73	737	700	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	387	773	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	611	838	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	611	838	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	838	-	611	-	-
HCM Lane V/C Ratio	0.087	-	0.135	-	-
HCM Control Delay (s)	9.7	-	11.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	95	230	270	171	254	390	574	140	217	389	74
Future Volume (veh/h)	40	95	230	270	171	254	390	574	140	217	389	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.90	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	102	247	290	184	273	419	617	151	233	418	80
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	330	246	268	170	375	443	1004	245	189	598	113
Arrive On Green	0.16	0.18	0.16	0.24	0.24	0.24	0.25	0.36	0.34	0.11	0.21	0.20
Sat Flow, veh/h	1781	1870	1576	1110	704	1557	1781	2766	675	1781	2899	546
Grp Volume(v), veh/h	43	102	247	474	0	273	419	396	372	233	254	244
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1815	0	1557	1781	1777	1664	1781	1777	1668
Q Serve(g_s), s	2.9	6.7	22.0	34.0	0.0	22.8	32.6	25.8	26.1	15.0	18.6	19.2
Cycle Q Clear(g_c), s	2.9	6.7	22.0	34.0	0.0	22.8	32.6	25.8	26.1	15.0	18.6	19.2
Prop In Lane	1.00		1.00	0.61		1.00	1.00		0.41	1.00		0.33
Lane Grp Cap(c), veh/h	278	330	246	437	0	375	443	645	604	189	366	344
V/C Ratio(X)	0.15	0.31	1.01	1.08	0.00	0.73	0.95	0.61	0.62	1.23	0.69	0.71
Avail Cap(c_a), veh/h	278	330	246	437	0	375	454	645	604	189	366	344
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	50.6	59.5	53.5	0.0	49.3	52.1	36.8	37.4	63.0	51.9	52.2
Incr Delay (d2), s/veh	0.1	0.2	58.8	67.5	0.0	8.5	28.1	4.3	4.7	141.0	10.3	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.2	12.8	23.7	0.0	9.8	18.0	12.0	11.5	14.2	9.4	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	50.8	118.3	121.0	0.0	57.8	80.2	41.2	42.1	204.1	62.1	64.0
LnGrp LOS	D	D	F	F	A	E	F	D	D	F	E	E
Approach Vol, veh/h		392			747			1187			731	
Approach Delay, s/veh		93.4			97.9			55.2			108.0	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	55.2		28.9	39.1	35.1		38.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	14.6	47.2		22.0	35.6	* 28		31.1				
Max Q Clear Time (g_c+I1), s	17.0	28.1		24.0	34.6	21.2		36.0				
Green Ext Time (p_c), s	0.0	3.7		0.0	0.1	1.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			83.2
HCM 6th LOS			F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	41.9
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	98	417	170	100	471	160
Future Vol, veh/h	98	417	170	100	471	160
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	426	173	102	481	163
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	38.6	18.4	54.7
HCM LOS	E	C	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	63%
Vol Thru, %	0%	0%	19%	37%
Vol Right, %	0%	100%	81%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	471	160	515	270
LT Vol	471	0	0	170
Through Vol	0	0	98	100
RT Vol	0	160	417	0
Lane Flow Rate	481	163	526	276
Geometry Grp	7	7	2	2
Degree of Util (X)	1.004	0.285	0.883	0.544
Departure Headway (Hd)	7.518	6.291	6.049	7.104
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	485	575	599	507
Service Time	5.218	3.991	4.091	5.155
HCM Lane V/C Ratio	0.992	0.283	0.878	0.544
HCM Control Delay	69.4	11.5	38.6	18.4
HCM Lane LOS	F	B	E	C
HCM 95th-tile Q	13.5	1.2	10.3	3.2

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2030 + P1 + P2 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	78	0	0	110	90	10	10	20	60	0	10
Future Volume (veh/h)	20	78	0	0	110	90	10	10	20	60	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	142	0	0	200	164	18	18	36	109	0	18
Peak Hour Factor	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	687	1398	0	0	742	571	435	82	164	541	0	309
Arrive On Green	0.39	0.39	0.00	0.00	0.39	0.35	0.15	0.15	0.15	0.20	0.00	0.20
Sat Flow, veh/h	1016	3647	0	0	1979	1452	1391	550	1101	1148	0	1580
Grp Volume(v), veh/h	36	142	0	0	188	176	18	0	54	109	0	18
Grp Sat Flow(s),veh/h/ln	1016	1777	0	0	1777	1561	1391	0	1651	1148	0	1580
Q Serve(g_s), s	0.5	0.5	0.0	0.0	1.4	1.6	0.2	0.0	0.6	1.4	0.0	0.2
Cycle Q Clear(g_c), s	2.1	0.5	0.0	0.0	1.4	1.6	2.2	0.0	0.6	2.0	0.0	0.2
Prop In Lane	1.00		0.00	0.00		0.93	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	687	1398	0	0	699	614	435	0	246	594	0	309
V/C Ratio(X)	0.05	0.10	0.00	0.00	0.27	0.29	0.04	0.00	0.22	0.18	0.00	0.06
Avail Cap(c_a), veh/h	1123	2924	0	0	1462	1285	2088	0	2208	2132	0	2113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.8	3.7	0.0	0.0	4.0	4.3	9.0	0.0	7.3	7.7	0.0	6.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	3.8	0.0	0.0	4.2	4.5	9.0	0.0	7.4	7.8	0.0	6.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		178			364			72			127	
Approach Delay, s/veh		4.0			4.3			7.8			7.6	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.6		7.8		11.6		7.8				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		15.1		25.1		15.1		* 26				
Max Q Clear Time (g_c+I1), s		4.1		4.0		3.6		4.2				
Green Ext Time (p_c), s		0.6		0.4		1.4		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			5.1									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2030 + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	218	10	40	240	50	10	10	30	340	10	10
Future Volume (veh/h)	10	218	10	40	240	50	10	10	30	340	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.97		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	242	10	44	267	18	11	11	6	378	11	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1190	49	424	1155	77	394	384	193	810	21	19
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1067	3470	143	1095	3368	225	594	708	355	1307	38	35
Grp Volume(v), veh/h	11	123	129	44	140	145	28	0	0	399	0	0
Grp Sat Flow(s),veh/h/ln	1067	1777	1836	1095	1777	1816	1657	0	0	1379	0	0
Q Serve(g_s), s	0.5	3.4	3.5	2.1	3.9	4.0	0.0	0.0	0.0	12.4	0.0	0.0
Cycle Q Clear(g_c), s	4.5	3.4	3.5	5.5	3.9	4.0	0.5	0.0	0.0	12.9	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.12	0.39		0.21	0.95		0.03
Lane Grp Cap(c), veh/h	408	609	629	424	609	623	971	0	0	849	0	0
V/C Ratio(X)	0.03	0.20	0.20	0.10	0.23	0.23	0.03	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	408	609	629	424	609	623	971	0	0	849	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	16.2	16.3	18.2	16.4	16.4	7.4	0.0	0.0	10.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	0.5	0.9	0.9	0.1	0.0	0.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.4	1.5	0.6	1.6	1.7	0.2	0.0	0.0	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	17.0	17.0	18.7	17.3	17.3	7.5	0.0	0.0	12.1	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	A	A	A	B	A	A
Approach Vol, veh/h		263			329			28			399	
Approach Delay, s/veh		17.0			17.5			7.5			12.1	
Approach LOS		B			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		42.0		28.0		42.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		24.0		38.0		24.0		38.0				
Max Q Clear Time (g_c+I1), s		6.5		14.9		7.5		2.5				
Green Ext Time (p_c), s		1.1		1.7		1.3		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2030 + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	299	29	57	180	260	177
Future Volume (vph)	299	29	57	180	260	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.89		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3090		3433	1554
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3090		3433	1554
Peak-hour factor, PHF	0.70	0.70	0.70	0.70	0.70	0.70
Adj. Flow (vph)	427	41	81	257	371	253
RTOR Reduction (vph)	0	0	204	0	0	206
Lane Group Flow (vph)	427	41	134	0	371	47
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	34.1	58.4	19.9		18.4	18.4
Effective Green, g (s)	34.5	59.3	20.8		18.8	18.8
Actuated g/C Ratio	0.34	0.58	0.20		0.19	0.19
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	601	2065	632		635	287
v/s Ratio Prot	c0.24	0.01	c0.04		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.71	0.02	0.21		0.58	0.16
Uniform Delay, d1	29.2	8.9	33.6		37.8	34.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.3	0.0	0.2		0.9	0.1
Delay (s)	32.5	8.9	33.8		38.7	34.9
Level of Service	C	A	C		D	C
Approach Delay (s)		30.4	33.8		37.2	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2030 + P1 + P2 PM
03/06/2020

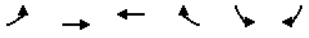
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	10	670	80	20	10	410	870	30	50	1190	77
Future Volume (veh/h)	119	10	670	80	20	10	410	870	30	50	1190	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.92	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	131	0	352	83	21	7	427	906	29	52	1240	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	897	0	386	100	25	8	477	1804	58	67	2035	120
Arrive On Green	0.25	0.00	0.25	0.08	0.08	0.08	0.14	0.51	0.51	0.04	0.41	0.40
Sat Flow, veh/h	3563	0	1534	1326	335	112	3456	3510	112	1781	4928	290
Grp Volume(v), veh/h	131	0	352	111	0	0	427	459	476	52	856	457
Grp Sat Flow(s),veh/h/ln	1781	0	1534	1773	0	0	1728	1777	1845	1781	1702	1814
Q Serve(g_s), s	4.3	0.0	33.4	9.3	0.0	0.0	18.2	25.4	25.4	4.3	29.6	29.6
Cycle Q Clear(g_c), s	4.3	0.0	33.4	9.3	0.0	0.0	18.2	25.4	25.4	4.3	29.6	29.6
Prop In Lane	1.00		1.00	0.75		0.06	1.00		0.06	1.00		0.16
Lane Grp Cap(c), veh/h	897	0	386	134	0	0	477	913	949	67	1406	749
V/C Ratio(X)	0.15	0.00	0.91	0.83	0.00	0.00	0.90	0.50	0.50	0.78	0.61	0.61
Avail Cap(c_a), veh/h	1285	0	553	202	0	0	590	913	949	114	1406	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.00	0.84	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	0.0	54.5	68.4	0.0	0.0	63.6	23.9	23.9	71.6	34.5	34.6
Incr Delay (d2), s/veh	0.1	0.0	14.1	10.0	0.0	0.0	12.6	2.0	1.9	7.1	2.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	14.4	4.6	0.0	0.0	8.9	11.2	11.6	2.1	12.7	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	0.0	68.6	78.4	0.0	0.0	76.1	25.8	25.8	78.7	36.5	38.3
LnGrp LOS	D	A	E	E	A	A	E	C	C	E	D	D
Approach Vol, veh/h		483			111			1362			1365	
Approach Delay, s/veh		61.9			78.4			41.6			38.7	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	81.1		42.7	25.1	66.0		16.2				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	9.6	49.7		54.1	25.6	33.7		17.1				
Max Q Clear Time (g_c+I1), s	6.3	27.4		35.4	20.2	31.6		11.3				
Green Ext Time (p_c), s	0.0	10.8		2.3	0.5	1.8		0.1				

Intersection Summary			
HCM 6th Ctrl Delay	44.6		
HCM 6th LOS	D		

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	529	367	461	457	70
Future Volume (veh/h)	80	529	367	461	457	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	581	403	149	502	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	99	707	520	1284	950	845
Arrive On Green	0.06	0.38	0.28	0.28	0.53	0.53
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	88	581	403	149	502	8
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	4.4	25.2	17.9	1.8	16.5	0.2
Cycle Q Clear(g_c), s	4.4	25.2	17.9	1.8	16.5	0.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	99	707	520	1284	950	845
V/C Ratio(X)	0.89	0.82	0.78	0.12	0.53	0.01
Avail Cap(c_a), veh/h	99	707	520	1284	950	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	25.3	29.9	1.8	13.6	9.8
Incr Delay (d2), s/veh	55.2	7.3	10.8	0.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	12.1	9.3	2.6	6.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	97.4	32.5	40.7	2.0	15.7	9.9
LnGrp LOS	F	C	D	A	B	A
Approach Vol, veh/h		669	552		510	
Approach Delay, s/veh		41.1	30.3		15.7	
Approach LOS		D	C		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		38.0		52.0	9.0	29.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		33.1		47.1	4.6	24.1
Max Q Clear Time (g_c+I1), s		27.2		18.5	6.4	19.9
Green Ext Time (p_c), s		1.4		0.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	847	189	30	571	30	257	10	90	10	10	10
Future Volume (veh/h)	0	847	189	30	571	30	257	10	90	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	921	205	33	621	33	279	11	98	11	11	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1382	307	48	1860	99	598	62	555	217	216	196
Arrive On Green	0.00	0.48	0.47	0.03	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	2968	639	1781	3427	182	1383	160	1424	453	554	504
Grp Volume(v), veh/h	0	569	557	33	322	332	279	0	109	33	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1736	1781	1777	1832	1383	0	1583	1511	0	0
Q Serve(g_s), s	0.0	29.0	29.2	2.2	12.0	12.0	13.0	0.0	5.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.0	29.2	2.2	12.0	12.0	18.4	0.0	5.4	5.4	0.0	0.0
Prop In Lane	0.00		0.37	1.00		0.10	1.00		0.90	0.33		0.33
Lane Grp Cap(c), veh/h	0	854	835	48	965	994	598	0	617	629	0	0
V/C Ratio(X)	0.00	0.67	0.67	0.69	0.33	0.33	0.47	0.00	0.18	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	854	835	72	986	1016	598	0	617	629	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.5	23.7	57.2	15.1	15.2	27.7	0.0	24.0	22.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.1	4.2	6.5	0.2	0.2	0.6	0.0	0.1	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.9	12.7	1.1	4.8	5.0	6.1	0.0	2.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	27.6	27.9	63.8	15.3	15.3	28.3	0.0	24.1	22.8	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1126			687			388			33	
Approach Delay, s/veh		27.7			17.6			27.1			22.8	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	7.2	61.2		50.2		68.4		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	4.2	31.2		7.4		14.0		20.4				
Green Ext Time (p_c), s	0.0	7.4		0.1		4.0		1.5				

Intersection Summary	
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	917	20	60	631	10	40
Future Vol, veh/h	917	20	60	631	10	40
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	997	22	65	686	11	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1021	0	1483	512
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	675	-	116	507
Stage 1	-	-	-	-	313	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	674	-	105	506
Mov Cap-2 Maneuver	-	-	-	-	105	-
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	593	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	105	506	-	-	674	-
HCM Lane V/C Ratio	0.104	0.086	-	-	0.097	-
HCM Control Delay (s)	43.2	12.8	-	-	10.9	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	837	89	310	714	50	117	10	340	30	10	20
Future Volume (veh/h)	50	837	89	310	714	50	117	10	340	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.96	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	881	94	326	752	53	123	11	358	32	11	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1675	179	297	2161	152	266	11	353	36	16	8
Arrive On Green	0.04	0.52	0.52	0.17	0.64	0.64	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3220	344	1781	3355	236	1377	46	1512	0	67	33
Grp Volume(v), veh/h	53	486	489	326	398	407	123	0	369	64	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1787	1781	1777	1815	1377	0	1559	100	0	0
Q Serve(g_s), s	4.4	27.1	27.1	25.0	15.4	15.4	0.0	0.0	35.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	27.1	27.1	25.0	15.4	15.4	17.4	0.0	35.0	35.0	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.13	1.00		0.97	0.50		0.33
Lane Grp Cap(c), veh/h	76	924	929	297	1144	1169	266	0	364	59	0	0
V/C Ratio(X)	0.70	0.53	0.53	1.10	0.35	0.35	0.46	0.00	1.01	1.08	0.00	0.00
Avail Cap(c_a), veh/h	119	924	929	297	1144	1169	266	0	364	59	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	70.8	23.8	23.8	62.5	12.3	12.3	50.8	0.0	57.5	61.6	0.0	0.0
Incr Delay (d2), s/veh	4.2	2.1	2.1	81.1	0.2	0.2	5.7	0.0	51.0	140.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	12.0	12.1	18.0	6.2	6.3	4.5	0.0	18.9	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.0	25.9	25.9	143.6	12.4	12.4	56.4	0.0	108.5	201.8	0.0	0.0
LnGrp LOS	E	C	C	F	B	B	E	A	F	F	A	A
Approach Vol, veh/h		1028			1131			492			64	
Approach Delay, s/veh		28.5			50.2			95.5			201.8	
Approach LOS		C			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	82.0		39.0	10.4	100.6		39.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	25.0	78.0		35.0	10.0	93.0		35.0				
Max Q Clear Time (g_c+I1), s	27.0	29.1		37.0	6.4	17.4		37.0				
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	6.2		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	53.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2030 + P1 + P2 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	569	298	360	384	340	290	600	180	530	1050	350
Future Volume (veh/h)	300	569	298	360	384	340	290	600	180	530	1050	350
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	316	599	254	379	404	179	305	632	135	558	1105	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	699	296	429	736	322	359	1266	265	618	1922	586
Arrive On Green	0.11	0.29	0.28	0.12	0.31	0.30	0.21	0.60	0.59	0.18	0.38	0.38
Sat Flow, veh/h	3456	2413	1022	3456	2386	1042	3456	4200	880	3456	5106	1559
Grp Volume(v), veh/h	316	441	412	379	299	284	305	510	257	558	1105	100
Grp Sat Flow(s),veh/h/ln	1728	1777	1658	1728	1777	1652	1728	1702	1676	1728	1702	1559
Q Serve(g_s), s	13.5	35.2	35.3	16.2	21.0	21.6	12.7	12.7	13.4	23.7	25.8	6.4
Cycle Q Clear(g_c), s	13.5	35.2	35.3	16.2	21.0	21.6	12.7	12.7	13.4	23.7	25.8	6.4
Prop In Lane	1.00		0.62	1.00		0.63	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	373	515	480	429	548	510	359	1026	505	618	1922	586
V/C Ratio(X)	0.85	0.86	0.86	0.88	0.55	0.56	0.85	0.50	0.51	0.90	0.58	0.17
Avail Cap(c_a), veh/h	484	636	594	438	617	574	599	1026	505	737	1922	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	50.3	50.6	64.6	43.1	43.7	58.3	23.3	24.0	60.3	37.2	31.2
Incr Delay (d2), s/veh	7.3	8.1	8.7	17.8	1.7	1.8	2.2	1.4	3.0	11.8	1.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	16.8	15.9	8.2	9.6	9.2	5.2	4.4	4.7	11.4	11.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	58.4	59.4	82.5	44.8	45.5	60.5	24.8	27.0	72.1	38.5	31.8
LnGrp LOS	E	E	E	F	D	D	E	C	C	E	D	C
Approach Vol, veh/h		1169			962			1072			1763	
Approach Delay, s/veh		62.7			59.8			35.5			48.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.8	49.1	22.6	47.4	19.6	60.3	20.2	49.9
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	31.6	28.1	18.6	52.8	25.6	* 34	20.6	50.8
Max Q Clear Time (g_c+I1), s	25.7	15.4	18.2	37.3	14.7	27.8	15.5	23.6
Green Ext Time (p_c), s	0.7	6.0	0.0	5.3	0.4	5.0	0.3	7.0

Intersection Summary	
HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2030 + P1 + P2 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	230	389	320	347	534	260	437	650	440	1088	90
Future Volume (veh/h)	30	230	389	320	347	534	260	437	650	440	1088	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	237	0	330	358	551	268	451	0	454	1122	35
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	869		381	622	517	325	1454		438	1570	684
Arrive On Green	0.02	0.24	0.00	0.11	0.33	0.33	0.09	0.41	0.00	0.25	0.88	0.88
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1549
Grp Volume(v), veh/h	31	237	0	330	358	551	268	451	0	454	1122	35
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1549
Q Serve(g_s), s	2.6	8.1	0.0	14.1	23.7	49.9	11.4	12.9	0.0	19.0	15.0	0.4
Cycle Q Clear(g_c), s	2.6	8.1	0.0	14.1	23.7	49.9	11.4	12.9	0.0	19.0	15.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	869		381	622	517	325	1454		438	1570	684
V/C Ratio(X)	0.70	0.27		0.87	0.58	1.07	0.82	0.31		1.04	0.71	0.05
Avail Cap(c_a), veh/h	144	1066		392	622	517	461	1454		438	1570	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.53	0.53	0.00	0.65	0.65	0.65
Uniform Delay (d), s/veh	72.6	45.8	0.0	65.6	41.3	50.0	66.7	30.0	0.0	56.0	5.8	4.9
Incr Delay (d2), s/veh	7.2	0.2	0.0	17.0	0.9	58.0	3.1	0.3	0.0	44.7	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.6	0.0	7.1	11.2	27.7	5.2	5.7	0.0	10.1	3.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.7	46.0	0.0	82.6	42.2	108.1	69.8	30.3	0.0	100.7	7.6	5.0
LnGrp LOS	E	D		F	D	F	E	C		F	A	A
Approach Vol, veh/h		268	A		1239			719	A		1611	
Approach Delay, s/veh		49.9			82.2			45.0			33.8	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	65.4	20.5	41.1	18.1	70.3	7.7	53.9
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	18.6	52.1	16.6	* 44	19.6	51.1	11.7	48.6
Max Q Clear Time (g_c+I1), s	21.0	14.9	16.1	10.1	13.4	17.0	4.6	51.9
Green Ext Time (p_c), s	0.0	2.1	0.0	1.6	0.3	16.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2030 + P1 + P2 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	710	0	460	0	0	0	0	667	410	998	559	0
Future Volume (vph)	710	0	460	0	0	0	0	667	410	998	559	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3312	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3312	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	747	0	484	0	0	0	0	702	432	1051	588	0
RTOR Reduction (vph)	0	0	355	0	0	0	0	0	275	0	0	0
Lane Group Flow (vph)	747	0	129	0	0	0	0	702	157	525	1114	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	28.8		28.8					50.0	50.0	42.9	42.9	
Effective Green, g (s)	30.4		30.4					51.0	51.0	44.5	44.5	
Actuated g/C Ratio	0.22		0.22					0.36	0.36	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	745		343					1289	576	511	1052	
v/s Ratio Prot	c0.22							c0.20		0.33	c0.34	
v/s Ratio Perm			0.08						0.10			
v/c Ratio	1.00		0.37					0.54	0.27	1.03	1.06	
Uniform Delay, d1	54.8		46.7					35.3	31.4	47.8	47.8	
Progression Factor	1.00		1.00					0.39	0.18	1.00	1.00	
Incremental Delay, d2	33.6		3.1					0.2	0.1	47.0	44.7	
Delay (s)	88.4		49.8					14.1	5.6	94.7	92.5	
Level of Service	F		D					B	A	F	F	
Approach Delay (s)		73.2			0.0			10.8			93.2	
Approach LOS		E			A			B			F	

Intersection Summary				
HCM 2000 Control Delay	63.7	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	80.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

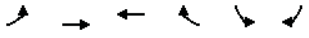
Year 2030 + P1 + P2 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	650	100	10	10	90	387	10	40	20	529	30	410
Future Volume (vph)	650	100	10	10	90	387	10	40	20	529	30	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3257			3522	1583		1771		1681	1694	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3257			3522	1583		1771		1681	1694	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	722	111	11	11	100	430	11	44	22	588	33	456
RTOR Reduction (vph)	0	1	0	0	0	86	0	10	0	0	0	256
Lane Group Flow (vph)	361	482	0	0	111	344	0	67	0	312	309	200
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.9	26.9			17.0	76.8		11.9		59.8	59.8	59.8
Effective Green, g (s)	28.5	28.5			18.6	76.8		13.4		61.4	61.4	61.4
Actuated g/C Ratio	0.20	0.20			0.13	0.55		0.10		0.44	0.44	0.44
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	327	663			467	868		169		737	742	694
v/s Ratio Prot	c0.22	0.15			0.03	c0.17		c0.04		c0.19	0.18	
v/s Ratio Perm						0.05						0.13
v/c Ratio	1.10	1.05dl			0.24	0.40		0.40		0.42	0.42	0.29
Uniform Delay, d1	55.8	52.1			54.4	18.2		59.5		27.1	27.0	25.3
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.51	0.51	0.90
Incremental Delay, d2	80.7	6.9			1.2	1.4		6.8		0.8	0.7	0.5
Delay (s)	136.4	59.0			55.5	19.6		66.3		14.7	14.5	23.3
Level of Service	F	E			E	B		E		B	B	C
Approach Delay (s)		92.1			27.0			66.3			18.3	
Approach LOS		F			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	58.8%	ICU Level of Service	B	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	720	464	519	200	400	100
Future Volume (veh/h)	720	464	519	200	400	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	766	494	552	0	426	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	785	1485	1152		508	916
Arrive On Green	0.44	0.79	0.32	0.00	0.15	0.14
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	766	494	552	0	426	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	57.4	10.0	16.9	0.0	16.3	0.7
Cycle Q Clear(g_c), s	57.4	10.0	16.9	0.0	16.3	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	785	1485	1152		508	916
V/C Ratio(X)	0.98	0.33	0.48		0.84	0.02
Avail Cap(c_a), veh/h	891	1485	1152		610	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	3.9	36.8	0.0	56.4	12.3
Incr Delay (d2), s/veh	22.5	0.6	1.4	0.0	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.4	3.5	7.6	0.0	7.6	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.8	4.5	38.2	0.0	63.9	12.3
LnGrp LOS	E	A	D		E	B
Approach Vol, veh/h		1260	552	A	446	
Approach Delay, s/veh		38.1	38.2		61.5	
Approach LOS		D	D		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		24.0	63.9	48.1
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.0		22.5	* 68	35.0
Max Q Clear Time (g_c+I1), s		12.0		18.3	59.4	18.9
Green Ext Time (p_c), s		2.2		0.2	0.3	2.3

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

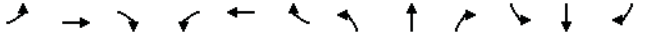
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	10	30	50	340	40	30	80	30	320	10	60	10
Future Volume (vph)	10	30	50	340	40	30	80	30	320	10	60	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	33	54	370	43	33	87	33	348	11	65	11

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	98	370	76	468	87
Volume Left (vph)	11	370	0	87	11
Volume Right (vph)	54	0	33	348	11
Hadj (s)	-0.27	0.53	-0.27	-0.37	-0.02
Departure Headway (s)	6.2	6.8	6.0	5.3	6.4
Degree Utilization, x	0.17	0.70	0.13	0.70	0.16
Capacity (veh/h)	499	510	576	646	479
Control Delay (s)	10.5	22.9	8.7	19.6	10.6
Approach Delay (s)	10.5	20.5		19.6	10.6
Approach LOS	B	C		C	B

Intersection Summary					
Delay	18.5				
Level of Service	C				
Intersection Capacity Utilization	64.6%	ICU Level of Service		C	
Analysis Period (min)	15				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	0	160	0	540	120	0	0	0	0	190	250
Future Volume (veh/h)	310	0	160	0	540	120	0	0	0	0	190	250
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	344	0	0	0	600	133				0	211	278
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	466	0		0	1598	713				0	0	0
Arrive On Green	0.26	0.00	0.00	0.00	0.45	0.45				0.00	0.13	0.13
Sat Flow, veh/h	1781	344		0	3647	1585					0	
Grp Volume(v), veh/h	344	8.5		0	600	133					0.0	
Grp Sat Flow(s),veh/h/ln	1781	A		0	1777	1585						
Q Serve(g_s), s	4.0			0.0	2.5	1.1						
Cycle Q Clear(g_c), s	4.0			0.0	2.5	1.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	466			0	1598	713						
V/C Ratio(X)	0.74			0.00	0.38	0.19						
Avail Cap(c_a), veh/h	1544			0	2369	1057						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	7.6			0.0	4.1	3.7						
Incr Delay (d2), s/veh	0.9			0.0	0.1	0.1						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.9			0.0	0.2	0.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5			0.0	4.2	3.8						
LnGrp LOS	A			A	A	A						
Approach Vol, veh/h					733							
Approach Delay, s/veh					4.2							
Approach LOS					A							

Timer - Assigned Phs							7	8				
Phs Duration (G+Y+Rc), s							10.4	12.1				
Change Period (Y+Rc), s							5.0	5.0				
Max Green Setting (Gmax), s							19.0	12.0				
Max Q Clear Time (g_c+I1), s							6.0	4.5				
Green Ext Time (p_c), s							0.1	2.7				

Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									

Notes

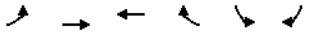
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	212.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	410	30	467	150	20	190	10	852	10	10	10
Future Vol, veh/h	10	410	30	467	150	20	190	10	852	10	10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	441	32	502	161	22	204	11	916	11	11	11
Number of Lanes	0	1	1	1	1	0	1	0	1	0	1	0

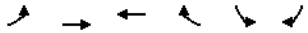
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	2
HCM Control Delay	79.9	103.7	341.5	16.2
HCM LOS	F	F	F	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	2%	0%	100%	0%	33%
Vol Thru, %	0%	1%	98%	0%	0%	88%	33%
Vol Right, %	0%	99%	0%	100%	0%	12%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	862	420	30	467	170	30
LT Vol	190	0	10	0	467	0	10
Through Vol	0	10	410	0	0	150	10
RT Vol	0	852	0	30	0	20	10
Lane Flow Rate	204	927	452	32	502	183	32
Geometry Grp	7	7	7	7	7	7	6
Degree of Util (X)	0.477	1.859	1.022	0.067	1.176	0.399	0.09
Departure Headway (Hd)	8.776	7.542	9.778	9.028	9.947	9.335	11.974
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	491	375	399	372	388	301
Service Time	6.476	5.242	7.478	6.728	7.647	7.035	9.974
HCM Lane V/C Ratio	0.494	1.888	1.205	0.08	1.349	0.472	0.106
HCM Control Delay	19.2	412.5	84.7	12.4	134.9	18.1	16.2
HCM Lane LOS	C	F	F	B	F	C	C
HCM 95th-tile Q	2.5	57.1	12.4	0.2	17.2	1.9	0.3



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	652	600	330	311	391	297
Future Volume (veh/h)	652	600	330	311	391	297
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	694	638	351	331	416	316
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	628	1211	457	386	449	399
Arrive On Green	0.35	0.65	0.24	0.24	0.25	0.25
Sat Flow, veh/h	1781	1870	1870	1579	1781	1585
Grp Volume(v), veh/h	694	638	351	331	416	316
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1579	1781	1585
Q Serve(g_s), s	28.0	14.5	13.9	15.9	18.1	14.8
Cycle Q Clear(g_c), s	28.0	14.5	13.9	15.9	18.1	14.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	628	1211	457	386	449	399
V/C Ratio(X)	1.10	0.53	0.77	0.86	0.93	0.79
Avail Cap(c_a), veh/h	628	1225	471	398	449	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	7.5	27.9	28.7	29.0	27.8
Incr Delay (d2), s/veh	68.1	0.4	7.8	17.0	25.1	9.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.9	4.9	6.9	7.6	10.5	13.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	93.8	7.9	35.7	45.7	54.0	37.3
LnGrp LOS	F	A	D	D	D	D
Approach Vol, veh/h		1332	682		732	
Approach Delay, s/veh		52.6	40.6		46.8	
Approach LOS		D	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		55.4		24.0	32.0	23.4
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		19.1	27.6	19.1
Max Q Clear Time (g_c+I1), s		16.5		20.1	30.0	17.9
Green Ext Time (p_c), s		4.6		0.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	48.1
HCM 6th LOS	D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	319	702	215	100	180	597
Future Volume (veh/h)	319	702	215	100	180	597
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	336	739	226	105	189	628
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	422	1240	599	278	463	725
Arrive On Green	0.12	0.66	0.50	0.49	0.26	0.26
Sat Flow, veh/h	3456	1870	1194	555	1781	2790
Grp Volume(v), veh/h	336	739	0	331	189	628
Grp Sat Flow(s),veh/h/ln	1728	1870	0	1748	1781	1395
Q Serve(g_s), s	9.8	22.8	0.0	12.1	9.1	22.3
Cycle Q Clear(g_c), s	9.8	22.8	0.0	12.1	9.1	22.3
Prop In Lane	1.00			0.32	1.00	1.00
Lane Grp Cap(c), veh/h	422	1240	0	878	463	725
V/C Ratio(X)	0.80	0.60	0.00	0.38	0.41	0.87
Avail Cap(c_a), veh/h	701	1391	0	878	774	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	9.7	0.0	15.9	31.7	36.6
Incr Delay (d2), s/veh	1.3	0.3	0.0	1.2	0.2	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	8.4	0.0	5.0	3.9	15.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.5	10.0	0.0	17.2	31.9	38.4
LnGrp LOS	D	B	A	B	C	D
Approach Vol, veh/h		1075	331		817	
Approach Delay, s/veh		21.1	17.2		36.9	
Approach LOS		C	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.7		30.9	16.7	56.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		76.1		44.1	20.6	51.1
Max Q Clear Time (g_c+I1), s		24.8		24.3	11.8	14.1
Green Ext Time (p_c), s		3.8		1.7	0.5	1.4

Intersection Summary	
HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C

Intersection	
Intersection Delay, s/veh	205.4
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	580	424	229	933	244	50
Future Vol, veh/h	580	424	229	933	244	50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	644	471	254	1037	271	56
Number of Lanes	1	2	2	1	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	169.9	278.6	37.7
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	580	212	212	115	115	933	244	50
LT Vol	580	0	0	0	0	0	244	0
Through Vol	0	212	212	115	115	0	0	0
RT Vol	0	0	0	0	0	933	0	50
Lane Flow Rate	644	236	236	127	127	1037	271	56
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	1.541	0.53	0.417	0.296	0.296	1.708	0.744	0.134
Departure Headway (Hd)	9.641	9.121	7.319	9.133	9.133	6.611	11.864	10.62
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	398	495	396	396	560	306	340
Service Time	7.341	6.821	5.019	6.833	6.833	4.311	9.564	8.32
HCM Lane V/C Ratio	1.695	0.593	0.477	0.321	0.321	1.852	0.886	0.165
HCM Control Delay	280.7	21.6	15.2	15.6	15.6	343.1	42.3	15
HCM Lane LOS	F	C	C	C	C	F	E	B
HCM 95th-tile Q	32	3	2	1.2	1.2	54.6	5.5	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	458	110	249	822	470	317
Future Volume (veh/h)	458	110	249	822	470	317
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	487	117	265	874	500	337
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	471	113	306	1024	622	554
Arrive On Green	0.32	0.31	0.17	0.55	0.35	0.35
Sat Flow, veh/h	1457	350	1781	1870	1781	1585
Grp Volume(v), veh/h	0	604	265	874	500	337
Grp Sat Flow(s),veh/h/ln	0	1807	1781	1870	1781	1585
Q Serve(g_s), s	0.0	25.0	11.2	30.7	19.6	13.6
Cycle Q Clear(g_c), s	0.0	25.0	11.2	30.7	19.6	13.6
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	585	306	1024	622	554
V/C Ratio(X)	0.00	1.03	0.86	0.85	0.80	0.61
Avail Cap(c_a), veh/h	0	585	369	1089	622	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.2	31.1	14.9	22.8	20.8
Incr Delay (d2), s/veh	0.0	46.1	15.5	6.7	10.6	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.6	6.0	13.1	9.5	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	72.3	46.7	21.6	33.3	25.7
LnGrp LOS	A	F	D	C	C	C
Approach Vol, veh/h	604			1139	837	
Approach Delay, s/veh	72.3			27.4	30.3	
Approach LOS	E			C	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	17.3	29.0				46.3	31.0
Change Period (Y+Rc), s	4.0	5.0				5.0	4.0
Max Green Setting (Gmax), s	16.0	24.0				44.0	27.0
Max Q Clear Time (g_c+I1), s	13.2	27.0				32.7	21.6
Green Ext Time (p_c), s	0.2	0.0				5.9	1.2

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

APPENDIX U

YEAR 2030 + PROJECT PHASES I AND II FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	4801	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1264
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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1. I-8 from I-5 to Morena Boulevard EB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7148	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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1. I-8 from I-5 to Morena Boulevard WB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6526	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1374
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9723	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2069
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.5
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6756	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1797
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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3. I-8 from Taylor Street to Hotel Circle EB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10063	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2119
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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3. I-8 from Taylor Street to Hotel Circle WB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6905	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1469
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10053	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1745
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6922	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1505
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road EB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10167	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2118
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road WB – Year 2030 + Project Phases I and II AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7316	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1557
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10693	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2205
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10166	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2234
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7773	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1636
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9610	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1800
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7400	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1298
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11305	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2405
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8703	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2266
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8961	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3212
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7008	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1230
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10288	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2707
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2030 + Project Phases I and II AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8081	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2777
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.22
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7137	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1898
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5958	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2113
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9704	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2022
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Year 2030 + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8107	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1689
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Year 2030 + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10044	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.13
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8397	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1749
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10073	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2077
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	46.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.5
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8552	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1485
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10166	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2096
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road EB – Year 2030 + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8588	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1789
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road WB – Year 2030 + Project Phases I and II PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10705	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2207
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9058	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1887
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.4
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9035	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	1986
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10838	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.9
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8570	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1536
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10230	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1758
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.4
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8843	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1842
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9462	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2439
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7087	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2411
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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Project Information

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Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7478	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1355
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8181	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2108
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2030 + Project Phases I and II PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8605	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2957
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX V

FORECAST VOLUME DEVELOPMENT

The forecast volumes for the project were developed using the following metholdogy:

Model Adjustment Steps:

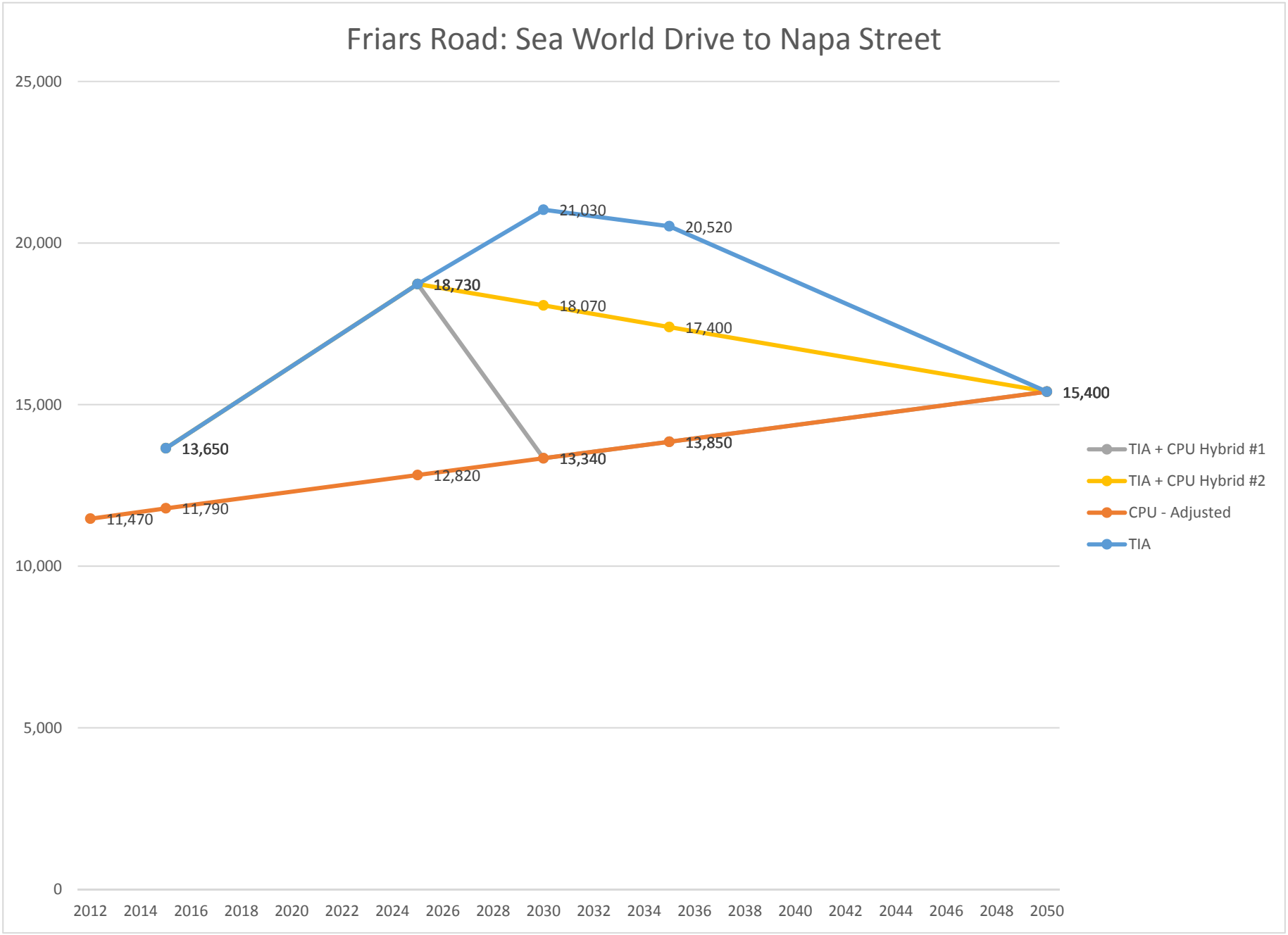
1. The MVCPU model was under review by SANDAG and was not available for public use and could not be reviewed in detail or used for this TIA. Therefore, based on consultation with City staff, the volumes were developed using the below steps.
2. Sources for volume development includes Series 13 Traffic Forecast Information Center (TFIC), Series 12 Model and other published technical studies such as Mission Community Plan Update TIA, Morena Station Planning Study among others. These sources represents the best and most recent information available to-date.
3. Series 13 model growth calculated using TFIC between Year 2020 and Year 2035 on segments where roadway network aligns with project site plan. Growth rate applied to Near-Term + Project volumes to develop Series 13 Year 2035 + P volumes.
4. Other sources such as Series 12 model and published technical studies were used to develop Year 2035 traffic volumes were used and adjustments were made to reflect project site plan and roadway network.
5. Three (3) trendline projections were developed:
   a. *CPU Trendline* : Develop a MVCPU adjusted trendline between Existing (Year 2012) and Year 2050 Preferred Roadway Network volumes
   b. *TIA + CPU Trendline* : Develop a trendline between Existing (Year 2015), Near-Term (Opening Day) + Project from the TIA with Year 2050 Preferred Roadway Network volumes.
   c. *Near-Term + CPU Trendlin* e: Develop a trendline between Near-Term (Opening Day) + Project from the TIA with Year 2050 Preferred Roadway Network volumes.
6. The Year 2035 + Project volumes were plotted against the three (3) trendlines projections to ensure the TIA volumes are higher than these projections to be conservative.
7. The appropriate Year 2035 volume per the trendline and per consultation with City staff were selected based on comparison with the Year 2050 MVCPU volume.
8. Year 2030 volumes were interpolated between Year 2025 and Year 2035 volumes

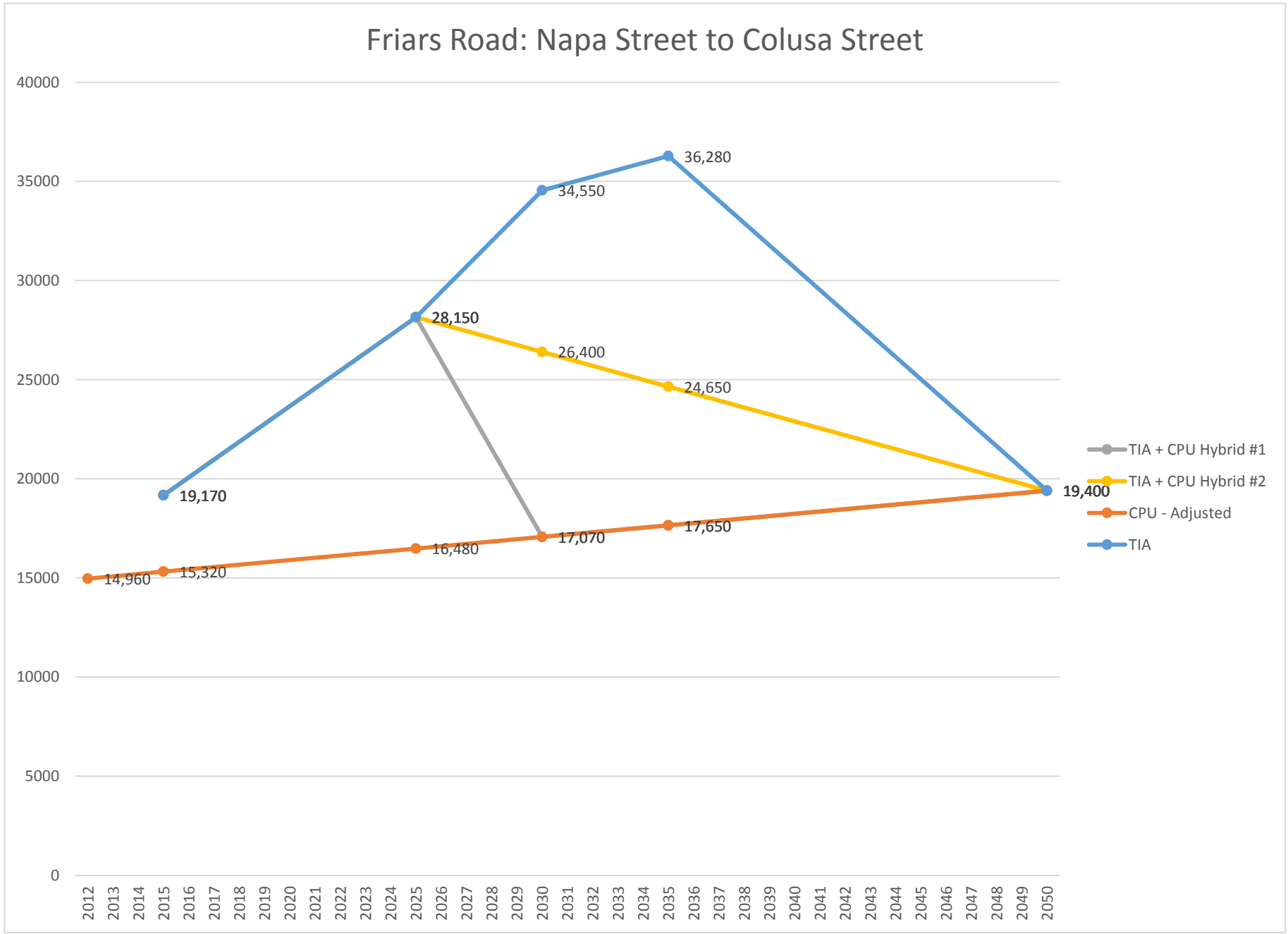
Table A
ADT Comparison

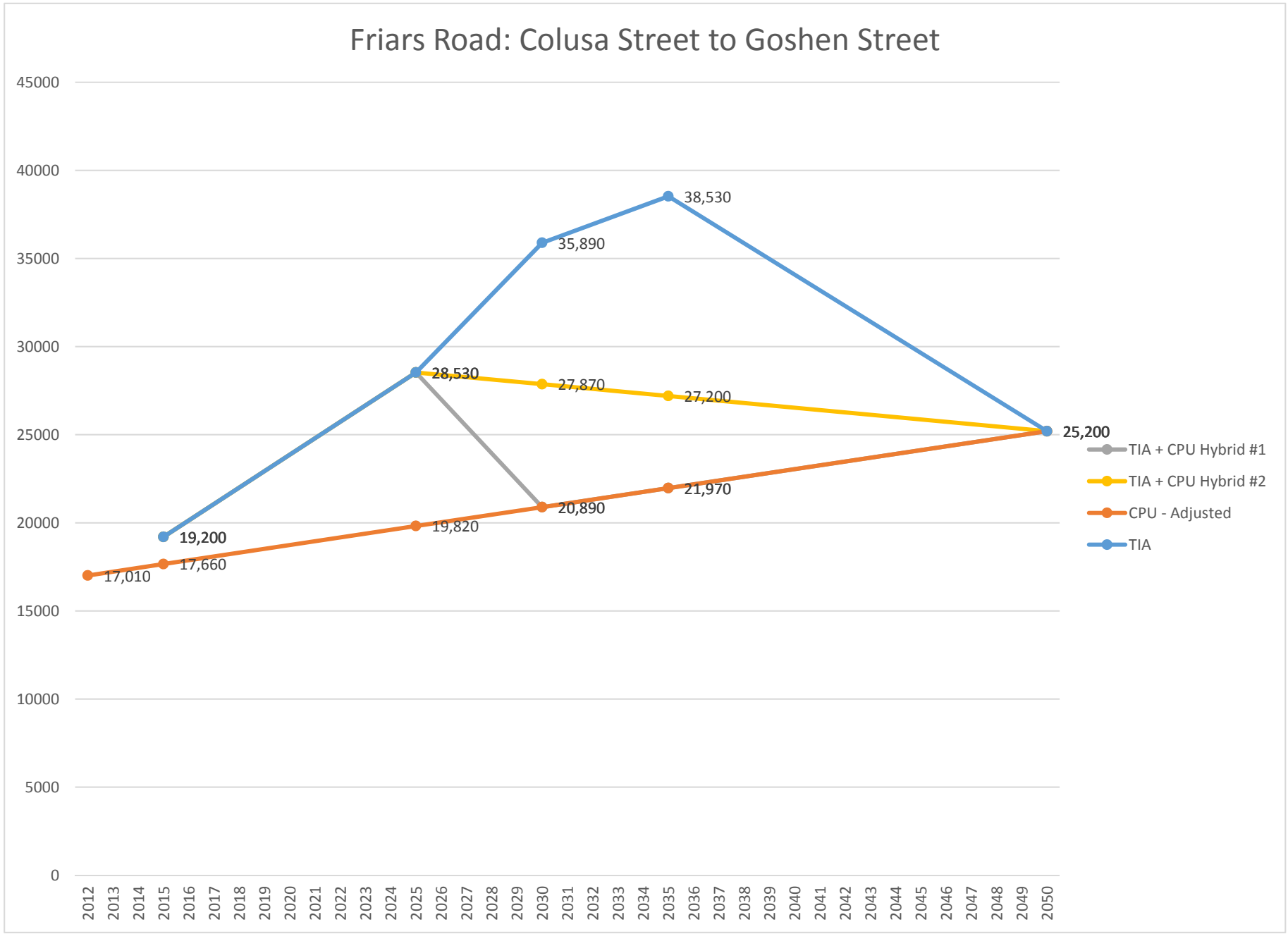
Street Segment	TFIC Year 2020 + P	TFIC Year 2035 + P	Growth	Year 2025 + P	Year 2035 + P (unadjusted)	Adjustments 1		Adjustments 2		Year 2035 + P (adjusted)	Total Project	Cut-Through Due To Construction of Street U and Street V	Year 2035 without Total Project (adjusted)	Year 2050 +P
						#	Notes	#	Notes					
Sea World Drive														
South Shores Parkway to Friars Road	39,600	41,900	6%	38,310	40,540	–	–	–	–	40,540	1,020	0	39,520	41,200
Friars Road to Pacific Highway	28,000	29,000	4%	34,970	36,220	–	–	–	–	36,220	4,090	0	32,130	34,800
Pacific Highway to I-5 SB Ramps	27,100	28,100	4%	35,920	37,250	–	–	–	–	37,250	2,730	0	34,520	34,800
I-5 SB Ramps to I-5 NB Ramps	22,300	23,900	7%	36,680	39,310	–	–	–	–	39,310	1,360	0	37,950	34,800
Friars Road														
Sea World Drive to Napa Street	17,800	19,500	10%	18,730	20,520	–	–	–	–	20,520	5,110	0	15,410	15,400
Napa Street to Colusa Street	13,300	15,000	13%	28,150	31,750			4,530		36,280	9,490	0	26,790	19,400
Colusa Street to Goshen Street	12,000	14,300	19%	28,530	34,000			4,530	No RW extension till Napa Street	38,530	9,870	0	28,660	25,200
Goshen Street to Project Driveway Street A	12,000	14,300	19%	26,730	31,850			4,530		36,380	9,870	0	26,510	25,200
Project Driveway Street A to Via Las Cumbres	12,000	14,300	19%	26,200	31,220	-2,410	Increased growth from NT as model growth was low	4,530		33,340	9,590	0	23,750	25,200
Fashion Valley Road to Via De La Moda	22,600	22,600	0%	32,270	32,270	5,890	Increased growth from NT as model growth was low	1740	HC one-way reroute	39,900	8,310	-490	32,080	27,200
Via De La Moda to Avenida De Las Tiendas	23,800	22,900	-4%	32,280	31,060	8,310	Increased growth from NT as model growth was low	1740	HC one-way reroute	41,110	8,310	-490	33,290	41,300
Avenida De Las Tiendas to Ulric Street	56,900	53,600	-6%	49,380	46,520	12,390	Increased growth from NT as model growth was low	1740	HC one-way reroute	60,650	8,310	-490	52,830	58,200
Ulric Street to SR163 NB Ramps	58,700	55,700	-5%	60,990	57,870	12,090	Increased growth from NT as model growth was low	350	HC one-way reroute	70,310	5,060	-140	65,390	55,600
SR163 NB Ramps to Frazee Road	57,200	53,300	-7%	62,030	57,800	11,840	Increased growth from NT as model growth was low	4250	HC one-way reroute	73,890	2,280	0	71,610	45,400
Frazee Road to Mission Center Road	32,900	35,400	8%	52,200	56,170	–	–	–	–	56,170	2,510	0	53,660	41,500
Mission Center Road to Qualcomm Way	38,000	43,000	13%	48,990	55,440	–	–	–	–	55,440	2,240	0	53,200	35,500
Qualcomm Way to River Run Drive	34,900	42,000	20%	44,180	53,170	–	–	–	–	53,170	750	0	52,420	38,900
Taylor Street														
Sunset Street to Morena Boulevard	14,900	15,600	5%	22,570	23,630	–	–	–	–	23,630	1,320	0	22,310	18,800
Morena Boulevard														
Linda Vista Road to I-8 WB Off-Ramp	41,300	43,900	6%	46,750	49,690	–	MBPS reported 40,600. Used TFIC Growth as it was higher	–	–	49,690	1,360	0	48,330	28,900
I-8 WB Off-Ramp to Taylor Street	12,900	13,400	4%	14,040	14,580	–	–	–	–	14,580	1,360	0	13,220	15,600
Napa Street														
Linda Vista Road to Friars Road	14,700	15,600	6%	17,920	19,020	–	–	–	–	19,020	4,390	0	14,630	15,700
Colusa Street														
Linda Vista Road to Friars Road	4,400	6,300	43%	3,690	5,280	–	–	–	–	5,280	370	0	4,910	2,700
Via Las Cumbres														
Linda Vista Road to Friars Road	14,400	16,300	13%	14,300	16,190	–	–	–	–	16,190	2,280	0	13,910	12,200
Frazee Road														
Friars Road to Hazard Center Drive	13,800	17,200	25%	20,950	26,110	–	–	–	–	26,110	870	0	25,240	19,200
Qualcomm Way														
Friars Road to Rio San Diego Drive	10,000	13,200	32%	17,050	22,510	–	–	–	–	22,510	750	0	21,760	26,300

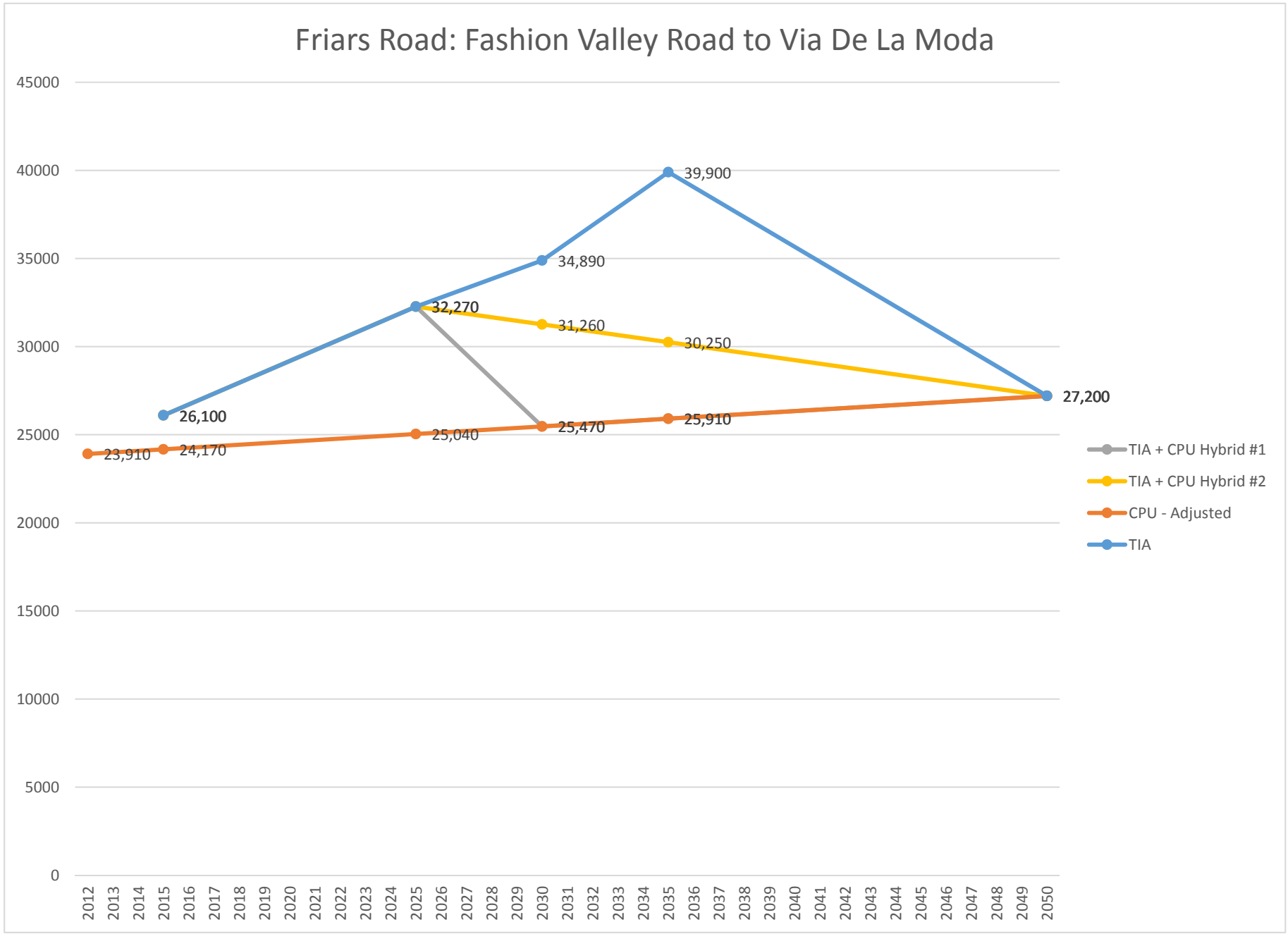
Table B
ADT Comparison

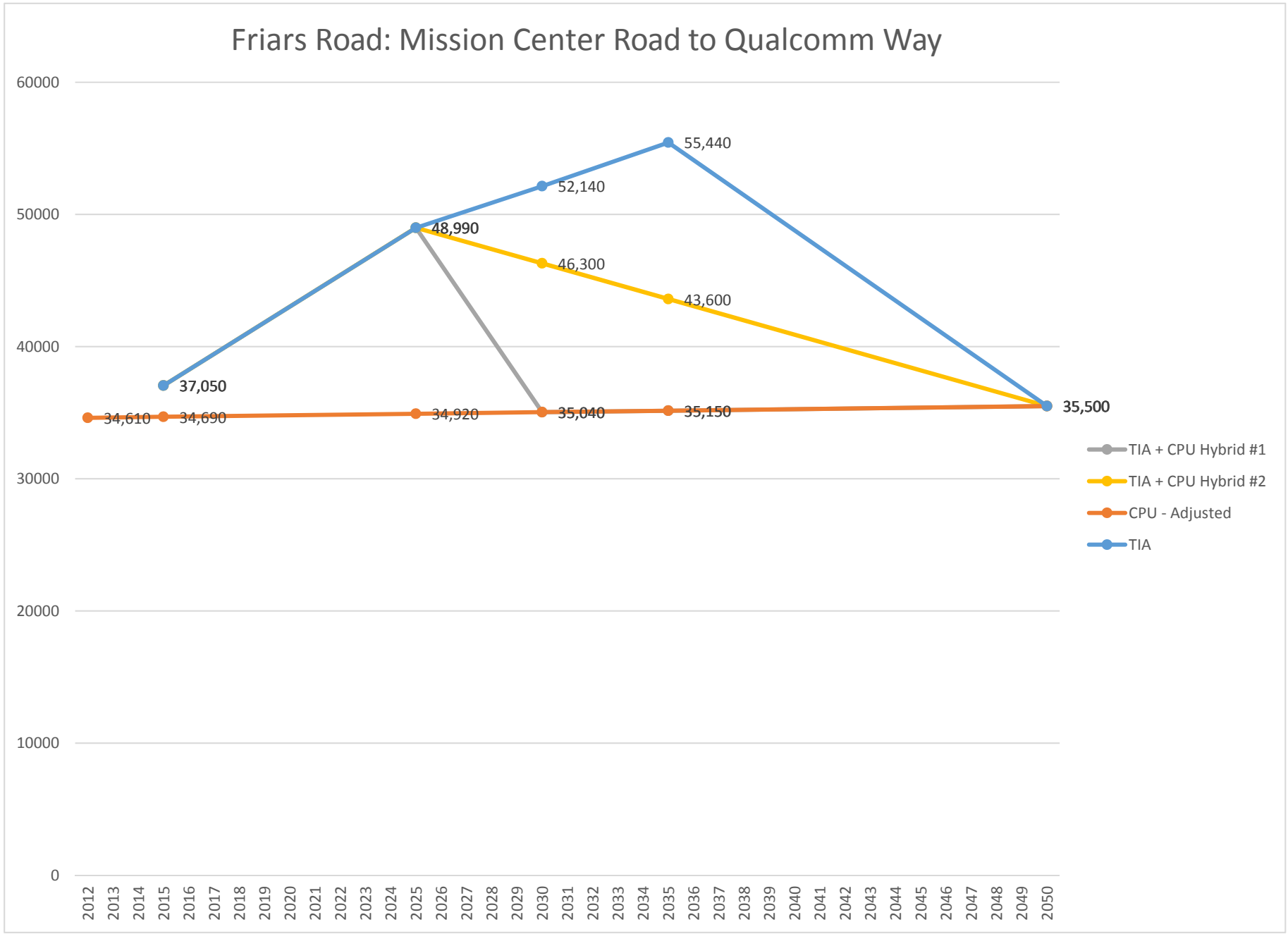
Street Segment	Existing	Year 2025	Year 2025 + P	Year 2035 without P Model (unadjusted)	Adjustments 1		Adjustments 2		Year 2035 without P Adjusted	Total Project	Cut-Through Due To Construction of Street U and Street V	Year 2035 + P	Summary	Year 2050 + P MVCPU
					#	Notes	#	Notes						
Tecolote Road														
I-5 NB Ramps to Morena Boulevard	22,410	26,950	26,950	31,000	–	–	–	–	31,000	0	0	31,000	Used Year 2035 Series 12 model volume based on growth trend with Year 2050 + P	31,900
Friars Road														
Via Las Cumbres to Transit Center Driveway	22,270	24,860	30,830	23,970	4,530	No RW extension till Napa Street	–	–	28,500	6,420	0	36,010	Used Year 2035 Series 12 model to reflect project site plan network. Removed Riverwalk Drive extension.	24,600
Transit Center Driveway to Project Driveway Street K	22,270	24,860	33,370	23,970			–	–	28,500	5,240	0	33,740		24,600
Project Driveway Street K to Project Driveway Street M	22,270	24,860	33,370	23,970			–	–	28,500	4,830	0	33,330		24,600
Project Driveway Street M to Fashion Valley Road	22,270	24,860	33,370	23,970			–	–	28,500	5,920	0	34,420		24,600
Hotel Circle North														
Hotel Circle Place to I-8 WB Ramps	6,510	8,000	8,000	14,760	-3,300	No Street U connection	1,390	HC one-way reroute	12,850	3,880	0	16,730	Used Year 2035 Series 12 model; removed Street U and added Hotel Circle one-way reroute	25,000
I-8 WB Ramps to Fashion Valley Road	15,510	18,890	20,160	18,560	3,300	No Street U connection	-11,260	HC one-way reroute	10,600	3,080	0	13,680	Used Year 2035 Series 12 model; removed Street U and added Hotel Circle one-way reroute	14,200
Fashion Valley Road to Camino De La Reina	12,460	15,730	17,600	13,720	1,120	Increased growth from NT as model growth was low	-7,430	HC one-way reroute	7,410	2,580	0	9,990	Used Year 2035 Series 12 model; removed Street U and added Hotel Circle one-way reroute	8,200
Camino Del Rio North														
Camino De La Siesta to Mission Center Road	5,430	7,000	7,150	16,400	-7,900	Model growth too high. Added it to CDR segment	700	HC one-way reroute	9,200	370	0	9,570	Used Year 2035 Series 12 model and added HC one-way reroute	12,800
Mission Center Road to I-8 WB Ramp	24,030	28,610	28,830	24,000	6,200	Increased growth from NT as model growth was low	2,780	HC one-way reroute	32,980	610	0	33,590	Used Year 2035 Series 12 model and added HC one-way reroute	29,600
Camino De La Reina														
Hotel Circle North to Avenida Del Rio	8,480	14,370	14,520	12,500	3,200	Increased growth from NT as model growth was low	1,280	HC one-way reroute	16,980	440	0	17,420	Used Year 2035 Series 12 model + HC one-way reroute	9,900
Avenida Del Rio to Camino De La Siesta	13,360	15,620	16,670	14,980	1,800	Increased growth from NT as model growth was low	1,390	HC one-way reroute	18,170	2,910	0	21,080		17,100
Camino De La Siesta to Camino Del Arroyo	10,730	13,140	14,040	7,680	7,270	Increased growth from NT as model growth was low	700	HC one-way reroute	15,650	2,540	0	18,190		10,800
Camino Del Arroyo to Mission Center Road	10,730	13,290	14,190	13,450	1,500	Same trend as existing count	700	HC one-way reroute	15,650	2,540	0	18,190		10,800
Taylor Street														
Morena Boulevard to I-8 EB Ramps	17,750	20,600	20,900	20,100	1,700	Increased growth from NT as model growth was low	–	–	21,800	1,050	0	22,850	Used Year 2035 Series 12 model. Old Town CP showed 15,300.	4,000
I-8 EB Ramps to Hotel Circle South	14,410	16,720	17,020	21,200	–	–	1,590	HC one-way reroute	22,790	1,050	0	23,840	Used Year 2035 Series 12 model + HC one-way reroute	5,000
Hotel Circle South to I-8 WB Ramps	13,130	15,240	15,240	21,600	-2,720	Old Town CP reduction on Taylor Street approx. 13%.	5,700	HC one-way reroute	24,580	3,880	0	28,460	Used Year 2035 Series 12 model + HC one-way reroute	3,300
Hotel Circle South														
Taylor Street to I-8 EB Ramps	12,340	14,830	15,130	8,800	6,700	Increased growth from NT as model growth was low	3,070	HC one-way reroute	18,570	810	0	19,380	Used Year 2035 Series 12 model + HC one-way reroute	30,200
I-8 EB Ramps to Bachman Place	17,200	21,060	22,630	19,630	2,670	Increased growth from NT as model growth was low	-6,590	HC one-way reroute	15,710	2,140	0	17,850	Used Year 2035 Series 12 model + HC one-way reroute	14,100
Bachman Place to Camino De La Reina	15,580	19,030	20,750	19,520	680	Increased growth from NT as model growth was low	-3,770	HC one-way reroute	16,430	2,140	0	18,570	Used Year 2035 Series 12 model + HC one-way reroute	14,700
Fashion Valley Road														
Friars Road to Project Driveway Street T	10,540	16,150	20,930	11,980	4,530	No RW extension	1,030	HC one-way reroute	17,540	3,150	-490	20,200	Used Series 12 Year 2035 + Hotel Circle one-way and no Riverwalk Drive extension to Napa Street	8,200
Project Driveway Street T to Riverwalk Drive	10,540	16,150	20,930	11,980	4,530	No RW extension	-10	HC one-way reroute	16,500	3,150	0	19,650		8,200
Riverwalk Drive to Project Driveway Street V	10,660	12,820	15,960	15,770	430	Increased growth from NT as model volume was low	-4,060	HC one-way reroute	12,140	10,180	1,390	23,710		17,400
Project Driveway Street V to Hotel Circle North	10,660	12,820	15,960	15,770	430	Increased growth from NT as model volume was low	-4,060	HC one-way reroute	12,140	3,670	0	15,810		17,400
Mission Center Road														
Friars Road to Mission Center Court	19,470	24,340	24,490	27,420	1,980	Increased growth from NT as model growth was low	0	0	29,400	470	0	29,870	Used Year 2035 Series 12 model based on growth trend with Year 2050 + P	25,600
Mission Center Court to Hazard Center Drive	19,450	23,860	24,010	24,350	1,150		0	0	25,500	570	0	26,070		22,400
Hazard Center Drive to Camino De La Reina	27,060	33,010	33,010	31,100	3,700		1,390	HC one-way reroute	36,190	100	0	36,290		32,100
Camino De La Reina to Camino Del Rio North	23,280	27,830	28,280	33,000	0		2,090	HC one-way reroute	35,090	1,320	-900	35,510		31,700
Camino Del Rio North to I-8 EB Ramps	34,100	40,680	41,050	41,890	–	–	–	–	41,890	1,080	0	42,970		41,100
Qualcomm Way														
Rio San Diego Drive to Camino Del Rio North	24,330	31,500	31,800	35,900	–	–	–	–	35,900	750	0	36,650	Segment not included in Year 2035 Series 12 model. Used Series 12 TFIC volume.	42,700
Riverwalk Drive														
Fashion Valley Road to Avenida Del Rio	8,200	16,620	18,260	18,760	–	–	1,970	HC one-way reroute	20,730	5,020	0	25,750	Used Series 12 Year 2035 model + Hotel Circle one-way	15,200
Hazard Center Drive														
Avenida Del Rio to Hazard Center West Driveway	DNE	9,540	9,990	10,030	–	–	5,640	HC one-way reroute	15,670	1,820	-140	17,350		12,500
Hazard Center West Driveway to Frazee Road	8,710	12,040	12,490	12,660	–	–	5,640	HC one-way reroute	18,300	1,820	-900	19,220	Used Series 12 Year 2035 model + Hotel Circle one-way	12,500
Frazee Road to Mission Center Road	8,710	10,400	10,550	12,650	–	–	1,390	HC one-way reroute	14,040	570	0	14,610		15,900

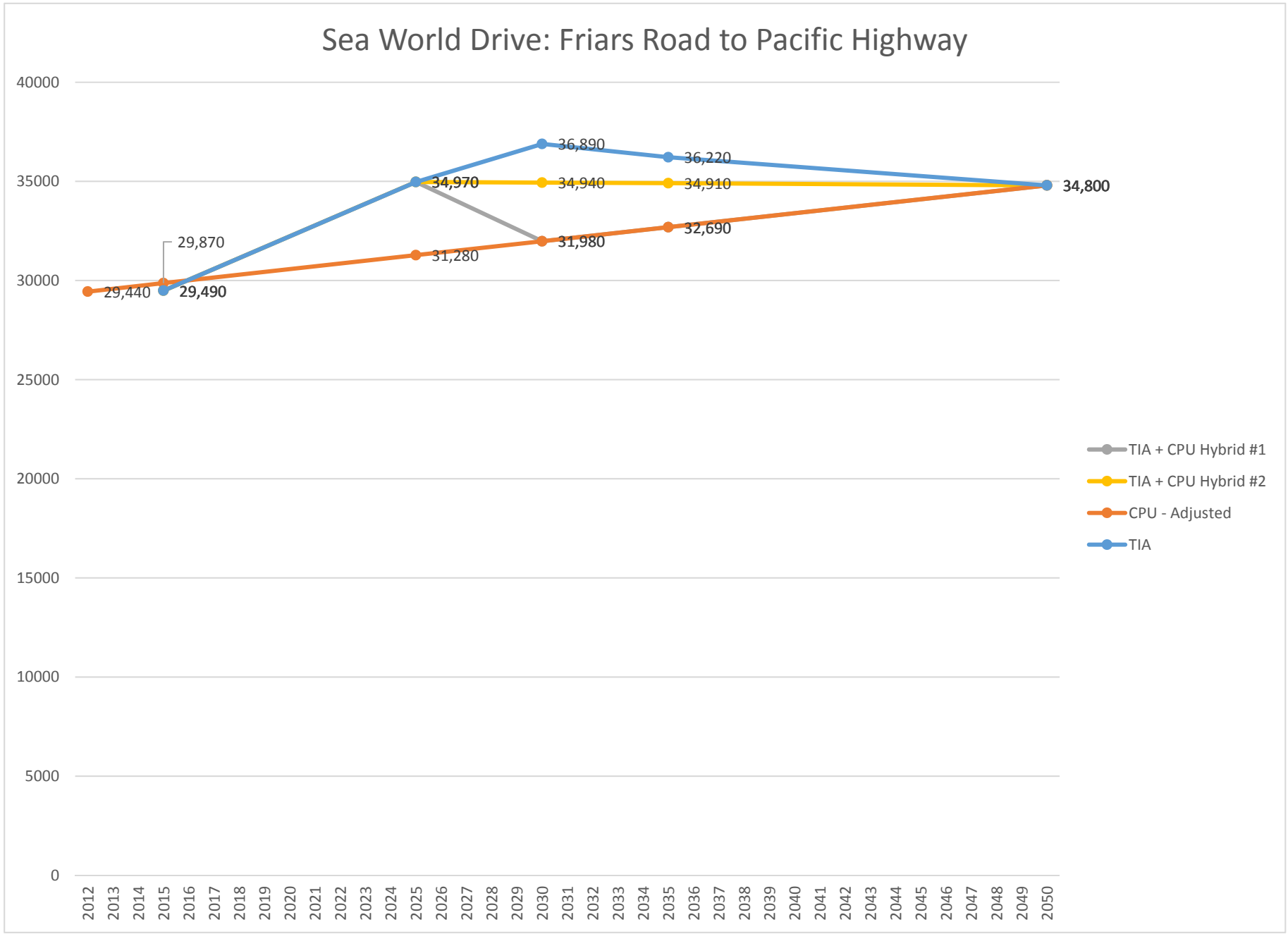

Friars Road: Sea World Drive to Napa Street
25,000
20,000
15,000
10,000
5,000
0
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
2048
2050
21,030
20,520
18,730
18,070
17,400
15,400
13,650
13,340
13,850
12,820
11,790
11,470
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA

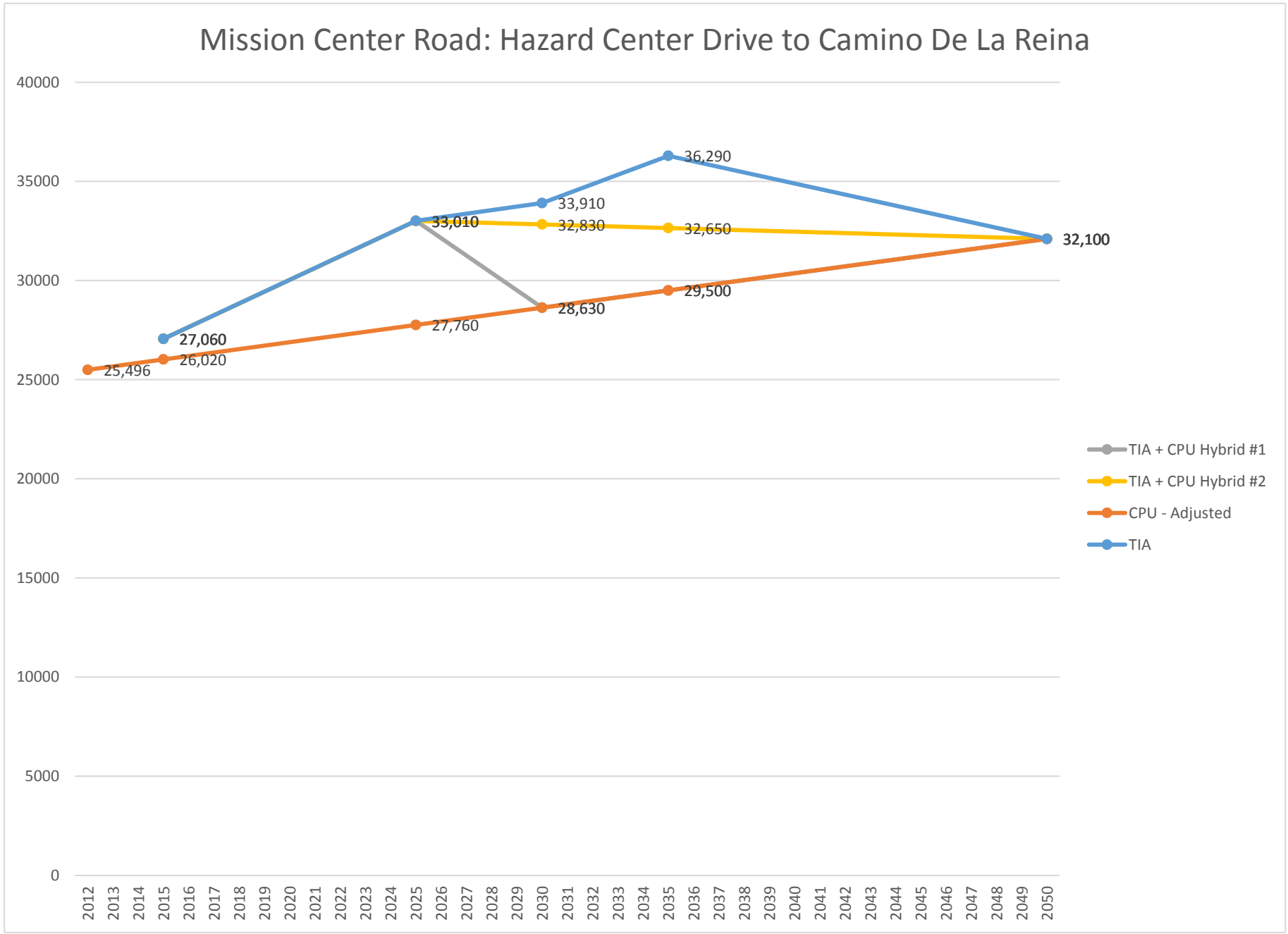

Friars Road: Napa Street to Colusa Street
40000
35000
30000
25000
20000
15000
10000
5000
0
2012
2013
2014
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2016
2017
2018
2019
2020
2021
2022
2023
2024
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19,170
34,550
36,280
28,150
26,400
24,650
19,400
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17,650
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA

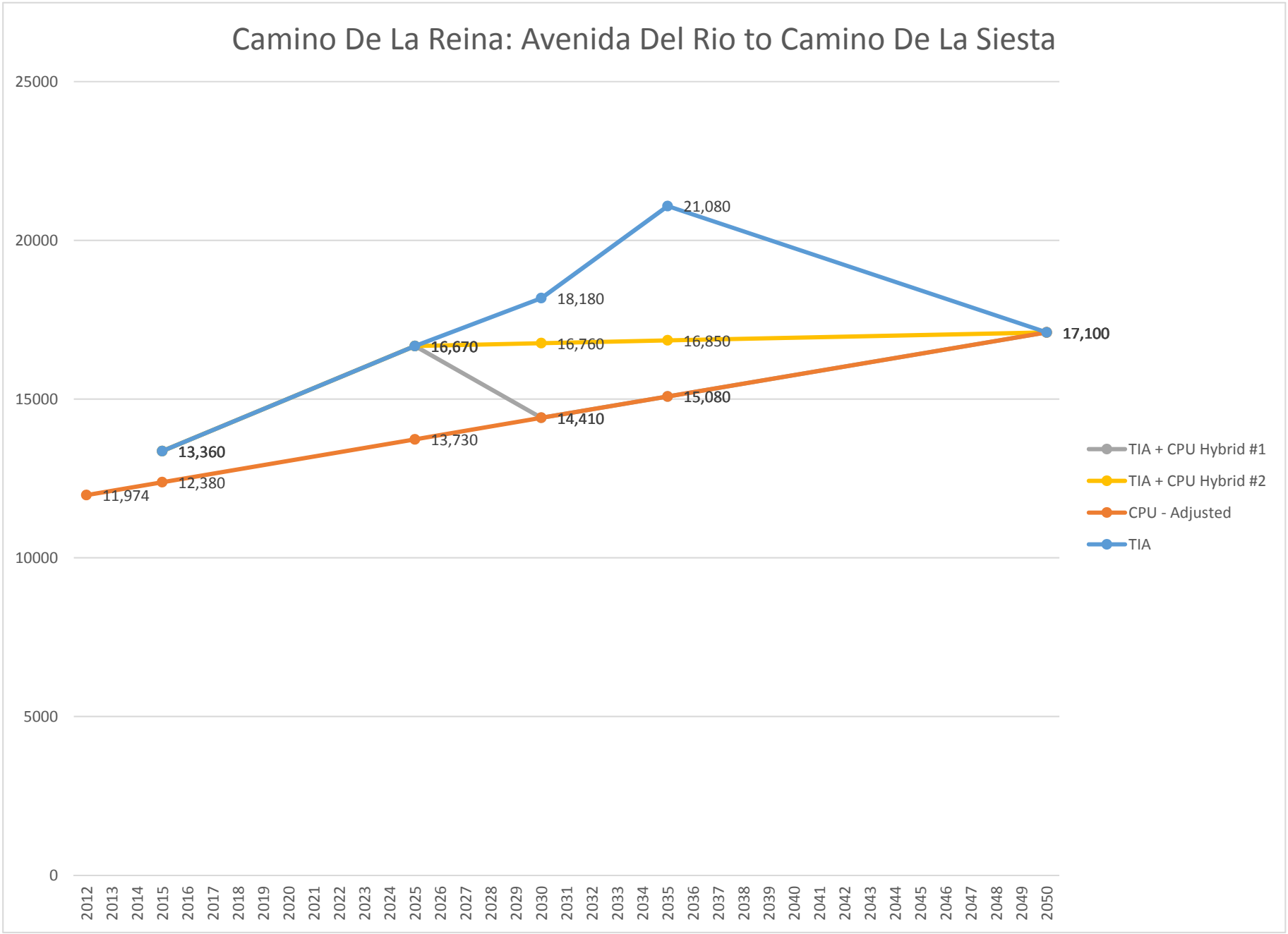

Friars Road: Colusa Street to Goshen Street
45000
40000
35000
30000
25000
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15000
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5000
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2017
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35,890
38,530
28,530
27,870
27,200
25,200
17,010
17,660
19,820
20,890
21,970
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA

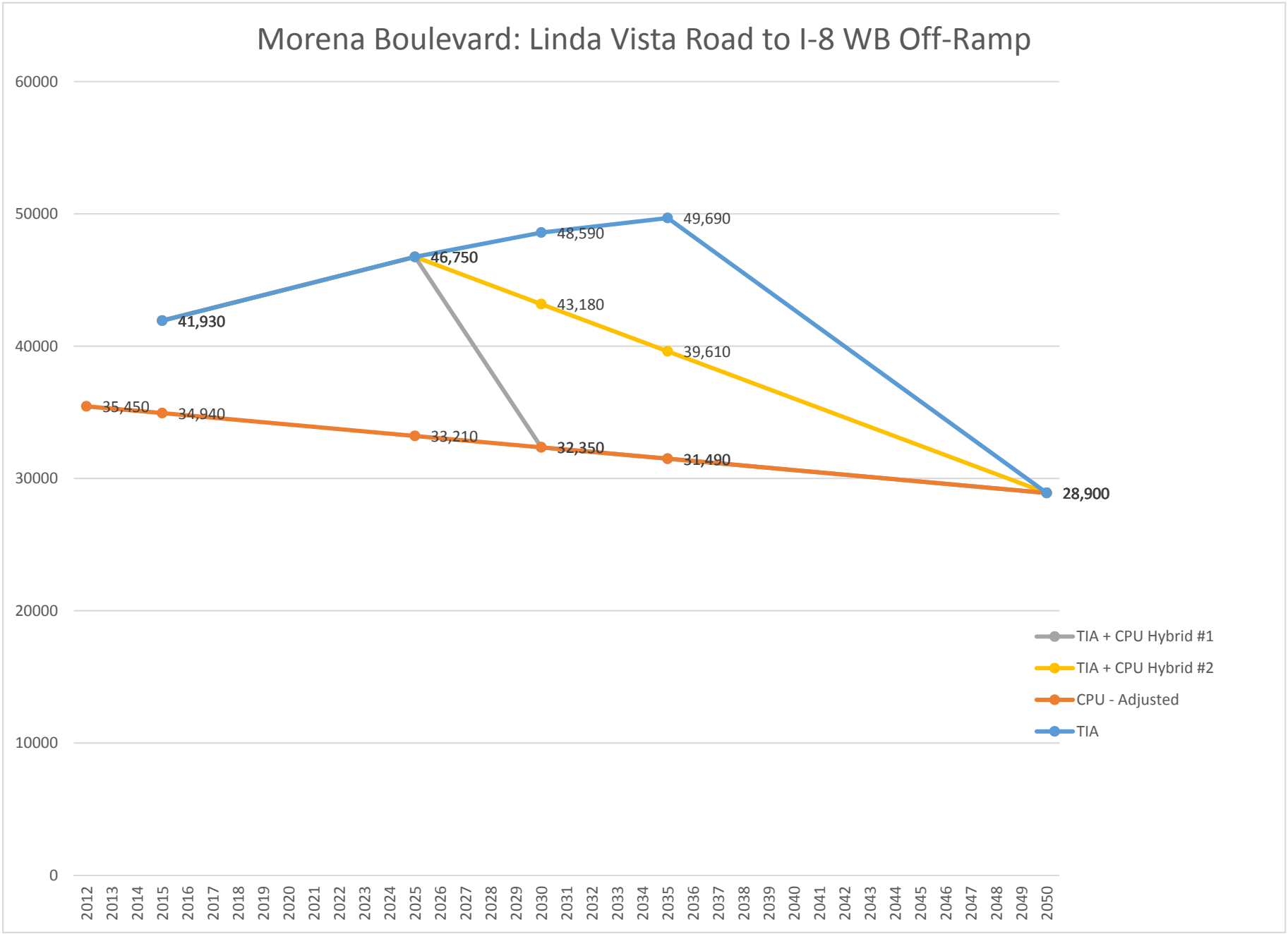

Friars Road: Fashion Valley Road to Via De La Moda
45000
40000
35000
30000
25000
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5000
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2012
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26,100
32,270
34,890
39,900
27,200
23,910
24,170
25,040
25,470
25,910
31,260
30,250
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA


Friars Road: Mission Center Road to Qualcomm Way
60000
50000
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48,990
52,140
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46,300
43,600
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34,920
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TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA


Sea World Drive: Friars Road to Pacific Highway
40000
35000
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34,970
36,890
36,220
34,940
34,910
34,800
31,280
31,980
32,690
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA


Mission Center Road: Hazard Center Drive to Camino De La Reina
40000
35000
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2017
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25,496
26,020
27,760
28,630
29,500
27,060
33,010
33,910
36,290
32,830
32,650
32,100
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA


Camino De La Reina: Avenida Del Rio to Camino De La Siesta
25000
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2048
2049
2050
21,080
18,180
16,670
16,760
16,850
17,100
15,080
14,410
13,730
13,360
12,380
11,974
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA


Morena Boulevard: Linda Vista Road to I-8 WB Off-Ramp
60000
50000
40000
30000
20000
10000
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
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2045
2046
2047
2048
2049
2050
41,930
46,750
48,590
49,690
43,180
39,610
28,900
35,450
34,940
33,210
32,350
31,490
TIA + CPU Hybrid #1
TIA + CPU Hybrid #2
CPU - Adjusted
TIA

APPENDIX W

YEAR 2035 INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2035 AM
02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	590	300	1330	460	140	830	
Future Volume (veh/h)	590	300	1330	460	140	830	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	621	50	1400	66	147	874	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	724	322	2011	1170	219	2346	
Arrive On Green	0.20	0.20	0.55	0.55	0.06	0.66	
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647	
Grp Volume(v), veh/h	621	50	1400	66	147	874	
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777	
Q Serve(g_s), s	15.3	2.4	25.4	1.0	3.8	10.1	
Cycle Q Clear(g_c), s	15.3	2.4	25.4	1.0	3.8	10.1	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	724	322	2011	1170	219	2346	
V/C Ratio(X)	0.86	0.16	0.70	0.06	0.67	0.37	
Avail Cap(c_a), veh/h	1481	659	3379	1747	441	3932	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	34.9	29.8	15.0	2.9	41.7	7.0	
Incr Delay (d2), s/veh	1.2	0.1	0.6	0.0	1.3	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	6.3	0.9	9.0	0.5	1.6	3.4	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	36.1	29.9	15.6	3.0	43.0	7.2	
LnGrp LOS	D	C	B	A	D	A	
Approach Vol, veh/h	671		1466			1021	
Approach Delay, s/veh	35.7		15.0			12.3	
Approach LOS	D		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.2	56.1				66.2	24.7
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	11.6	83.8				* 1E2	37.8
Max Q Clear Time (g_c+I1), s	5.8	27.4				12.1	17.3
Green Ext Time (p_c), s	0.1	22.5				18.5	1.2

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

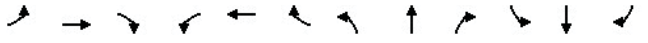
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2035 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	100	40	150	130	220	1170	90	150	750	200
Future Volume (veh/h)	60	60	100	40	150	130	220	1170	90	150	750	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	67	111	44	167	144	244	1300	100	167	833	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	218	175	57	218	173	305	2139	983	174	2173	1008
Arrive On Green	0.03	0.12	0.12	0.03	0.12	0.12	0.09	0.60	0.60	0.10	0.61	0.61
Sat Flow, veh/h	3456	1870	1503	1781	1870	1479	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	67	67	111	44	167	144	244	1300	100	167	833	222
Grp Sat Flow(s),veh/h/ln	1728	1870	1503	1781	1870	1479	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	2.5	4.2	9.1	3.2	11.2	12.3	8.9	29.6	3.3	12.0	15.4	7.6
Cycle Q Clear(g_c), s	2.5	4.2	9.1	3.2	11.2	12.3	8.9	29.6	3.3	12.0	15.4	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	218	175	57	218	173	305	2139	983	174	2173	1008
V/C Ratio(X)	0.61	0.31	0.63	0.78	0.77	0.83	0.80	0.61	0.10	0.96	0.38	0.22
Avail Cap(c_a), veh/h	292	449	361	131	423	335	926	2139	983	174	2173	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	52.2	54.4	62.0	55.3	55.8	57.7	16.1	9.2	58.0	12.7	9.6
Incr Delay (d2), s/veh	2.0	0.8	3.7	8.2	2.1	4.0	1.9	1.3	0.2	56.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.0	3.6	1.6	5.4	4.8	4.0	12.0	1.1	8.1	6.2	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	53.0	58.1	70.2	57.4	59.8	59.6	17.4	9.5	114.1	13.2	10.1
LnGrp LOS	E	D	E	E	E	E	E	B	A	F	B	B
Approach Vol, veh/h		245			355			1644			1222	
Approach Delay, s/veh		58.3			60.0			23.2			26.4	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	83.0	8.5	20.6	15.8	84.2	8.5	20.6
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	12.6	77.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	14.0	31.6	5.2	11.1	10.9	17.4	4.5	14.3
Green Ext Time (p_c), s	0.0	23.7	0.0	0.7	0.4	12.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1600	10	480	290	0	0	0	0	360	10	870
Future Volume (veh/h)	0	1600	10	480	290	0	0	0	0	360	10	870
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1667	-11	500	302	0				375	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1819	787	562	2424	0				441	12	
Arrive On Green	0.00	0.50	0.00	0.16	0.68	0.00				0.25	0.25	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1737	46	1585
Grp Volume(v), veh/h	0	1667	-11	500	302	0				385	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	63.0	0.0	20.6	4.4	0.0				30.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	63.0	0.0	20.6	4.4	0.0				30.8	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1819	787	562	2424	0				453	0	
V/C Ratio(X)	0.00	0.92	-0.01	0.89	0.12	0.00				0.85	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				453	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.9	0.0	61.9	8.3	0.0				53.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.1	0.0	1.3	0.0	0.0				13.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	29.2	0.0	9.5	1.7	0.0				15.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.0	0.0	63.2	8.3	0.0				66.8	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				E	A	
Approach Vol, veh/h		1656			802						385	A
Approach Delay, s/veh		41.3			42.5						66.8	
Approach LOS		D			D						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.9	79.4		42.7		107.3						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0						
Max Q Clear Time (g_c+I1), s	22.6	65.0		32.8		6.4						
Green Ext Time (p_c), s	1.0	9.4		0.0		1.4						

Intersection Summary			
HCM 6th Ctrl Delay		45.1	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1380	720	0	0	620	670	100	30	340	0	0	0
Future Volume (veh/h)	1380	720	0	0	620	670	100	30	340	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1453	758	0	0	653	571	105	32	90			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1483	3017	0	0	699	605	101	31	116			
Arrive On Green	0.43	0.85	0.00	0.00	0.39	0.39	0.07	0.07	0.07			
Sat Flow, veh/h	3456	3647	0	0	1898	1562	1381	421	1585			
Grp Volume(v), veh/h	1453	758	0	0	643	581	137	0	90			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1589	1801	0	1585			
Q Serve(g_s), s	53.8	5.3	0.0	0.0	45.2	45.9	9.5	0.0	7.3			
Cycle Q Clear(g_c), s	53.8	5.3	0.0	0.0	45.2	45.9	9.5	0.0	7.3			
Prop In Lane	1.00		0.00	0.00		0.98	0.77		1.00			
Lane Grp Cap(c), veh/h	1483	3017	0	0	689	616	132	0	116			
V/C Ratio(X)	0.98	0.25	0.00	0.00	0.93	0.94	1.04	0.00	0.78			
Avail Cap(c_a), veh/h	1483	3075	0	0	718	642	132	0	116			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.42	0.42	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	36.5	1.9	0.0	0.0	38.2	38.4	60.2	0.0	59.2			
Incr Delay (d2), s/veh	10.9	0.0	0.0	0.0	18.4	21.7	89.1	0.0	25.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	24.4	1.2	0.0	0.0	22.9	21.3	7.6	0.0	7.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	1.9	0.0	0.0	56.6	60.1	149.3	0.0	84.4			
LnGrp LOS	D	A	A	A	E	E	F	A	F			
Approach Vol, veh/h		2211			1224			227				
Approach Delay, s/veh		31.8			58.3			123.6				
Approach LOS		C			E			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		115.9		14.1	60.0	55.9						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		112.5		7.4	* 56	52.5						
Max Q Clear Time (g_c+I1), s		7.3		11.5	55.8	47.9						
Green Ext Time (p_c), s		4.0		0.0	0.0	2.5						

Intersection Summary			
HCM 6th Ctrl Delay		46.3	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	610	100	200	950	30	380	40	310	50	50	80
Future Volume (veh/h)	40	610	100	200	950	30	380	40	310	50	50	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	678	111	222	1056	33	422	44	344	56	56	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	1241	527	245	1599	50	444	617	732	72	227	187
Arrive On Green	0.03	0.35	0.35	0.14	0.46	0.46	0.25	0.33	0.33	0.04	0.12	0.12
Sat Flow, veh/h	1781	3554	1510	1781	3513	110	1781	1870	1558	1781	1870	1538
Grp Volume(v), veh/h	44	678	111	222	534	555	422	44	344	56	56	89
Grp Sat Flow(s),veh/h/ln	1781	1777	1510	1781	1777	1846	1781	1870	1558	1781	1870	1538
Q Serve(g_s), s	3.6	22.2	7.5	17.8	33.9	34.0	33.8	2.3	21.9	4.5	3.9	7.8
Cycle Q Clear(g_c), s	3.6	22.2	7.5	17.8	33.9	34.0	33.8	2.3	21.9	4.5	3.9	7.8
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	57	1241	527	245	809	840	444	617	732	72	227	187
V/C Ratio(X)	0.78	0.55	0.21	0.91	0.66	0.66	0.95	0.07	0.47	0.78	0.25	0.48
Avail Cap(c_a), veh/h	106	1241	527	314	809	840	486	654	763	179	335	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.7	37.9	33.1	61.6	30.8	30.8	53.6	33.3	26.4	68.9	57.7	59.4
Incr Delay (d2), s/veh	8.1	1.7	0.9	21.4	4.2	4.1	26.9	0.0	0.2	6.6	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	10.1	2.9	9.5	15.5	16.1	18.4	1.1	8.2	2.2	1.9	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.8	39.7	34.0	83.0	35.0	34.8	80.5	33.4	26.6	75.5	57.9	60.1
LnGrp LOS	E	D	C	F	C	C	F	C	C	E	E	E
Approach Vol, veh/h		833			1311			810			201	
Approach Delay, s/veh		40.9			43.1			55.0			63.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.4	57.3	40.5	22.8	9.0	72.7	10.3	53.0
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 34	39.6	* 26	8.6	50.4	14.6	50.7
Max Q Clear Time (g_c+I1), s	19.8	24.2	35.8	9.8	5.6	36.0	6.5	23.9
Green Ext Time (p_c), s	0.2	2.6	0.3	0.3	0.0	4.5	0.0	0.8

Intersection Summary		
HCM 6th Ctrl Delay	46.9	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	140	20	20	1040	570	0	0	20	110	20	280
Future Volume (vph)	360	140	20	20	1040	570	0	0	20	110	20	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3459		1770	3331				1517	1681	1710	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3459		1770	3331				1517	1681	1710	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	156	22	22	1156	633	0	0	22	122	22	311
RTOR Reduction (vph)	0	7	0	0	47	0	0	0	21	0	0	158
Lane Group Flow (vph)	400	171	0	22	1742	0	0	0	1	72	72	153
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.5	78.8		3.3	64.6				3.2	30.1	30.1	47.6
Effective Green, g (s)	17.5	78.8		3.3	64.6				3.2	30.1	30.1	47.6
Actuated g/C Ratio	0.13	0.59		0.02	0.48				0.02	0.22	0.22	0.36
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	448	2034		43	1605				36	377	384	557
v/s Ratio Prot	c0.12	0.05		0.01	c0.52					0.04	0.04	c0.04
v/s Ratio Perm									c0.00			0.06
v/c Ratio	0.89	0.08		0.51	1.09				0.01	0.19	0.19	0.27
Uniform Delay, d1	57.3	12.0		64.6	34.7				63.9	42.1	42.1	30.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	19.2	0.0		4.2	49.6				0.2	1.1	1.1	0.1
Delay (s)	76.5	12.0		68.8	84.3				64.0	43.2	43.1	31.0
Level of Service	E	B		E	F				E	D	D	C
Approach Delay (s)		56.7			84.1			64.0			34.8	
Approach LOS		E			F			E			C	

Intersection Summary				
HCM 2000 Control Delay	70.6	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	134.0	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	94.6%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	240	390	970	880	260	100
Future Volume (vph)	240	390	970	880	260	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1549	3425	1420
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1549	3425	1420
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	411	1021	926	274	105
RTOR Reduction (vph)	0	0	0	308	2	74
Lane Group Flow (vph)	253	411	1021	618	283	20
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	20.4	57.0	32.6	56.0	23.4	23.4
Effective Green, g (s)	20.4	57.0	32.6	56.0	23.4	23.4
Actuated g/C Ratio	0.19	0.53	0.30	0.52	0.22	0.22
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	332	1859	1063	799	738	306
v/s Ratio Prot	c0.14	0.12	c0.29	c0.17	0.08	
v/s Ratio Perm				0.23		0.01
v/c Ratio	0.76	0.22	0.96	0.77	0.38	0.07
Uniform Delay, d1	41.7	13.8	37.3	21.1	36.4	33.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.0	0.1	19.6	5.5	0.7	0.2
Delay (s)	50.7	13.9	56.9	26.6	37.1	34.0
Level of Service	D	B	E	C	D	C
Approach Delay (s)		28.0	42.5		36.3	
Approach LOS		C	D		D	

Intersection Summary				
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	18.9
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	560	30	20	2020	150	80	10	50	90	10	50
Future Volume (veh/h)	70	560	30	20	2020	150	80	10	50	90	10	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	589	26	21	2126	150	84	11	-10	95	11	-3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	2575	114	54	2430	169	185	18	175	233	206	0
Arrive On Green	0.05	0.74	0.74	0.03	0.72	0.72	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1781	3461	153	1781	3368	235	1213	161	1585	1395	1870	0
Grp Volume(v), veh/h	74	302	313	21	1109	1167	95	0	-10	95	8	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1826	1374	0	1585	1395	1870	0
Q Serve(g_s), s	5.4	6.9	7.0	1.5	61.1	65.3	8.4	0.0	0.0	0.0	0.5	0.0
Cycle Q Clear(g_c), s	5.4	6.9	7.0	1.5	61.1	65.3	9.0	0.0	0.0	6.7	0.5	0.0
Prop In Lane	1.00		0.08	1.00		0.13	0.88		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	93	1322	1366	54	1282	1317	203	0	175	233	206	0
V/C Ratio(X)	0.79	0.23	0.23	0.39	0.86	0.89	0.47	0.00	-0.06	0.41	0.04	0.00
Avail Cap(c_a), veh/h	102	1322	1366	83	1287	1322	382	0	375	409	443	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.0	5.2	5.2	62.9	13.6	14.2	56.6	0.0	0.0	55.4	52.6	0.0
Incr Delay (d2), s/veh	27.7	0.4	0.4	1.7	7.9	9.0	0.6	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.3	2.4	0.7	22.6	25.0	3.1	0.0	0.0	3.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.6	5.6	5.6	64.7	21.6	23.2	57.2	0.0	0.0	55.8	52.6	0.0
LnGrp LOS	F	A	A	E	C	C	E	A	A	E	D	A
Approach Vol, veh/h		689			2297			85			103	
Approach Delay, s/veh		14.7			22.8			63.9			55.5	
Approach LOS		B			C			E			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	8.4	104.4	19.5	11.3	101.5	19.5
Change Period (Y+Rc), s	4.4	* 6	4.9	4.4	6.0	4.9
Max Green Setting (Gmax), s	6.2	* 98	31.3	7.6	95.8	31.3
Max Q Clear Time (g_c+I1), s	3.5	9.0	8.7	7.4	67.3	11.0
Green Ext Time (p_c), s	0.0	12.0	0.1	0.0	28.2	0.3

Intersection Summary		
HCM 6th Ctrl Delay	23.2	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	630	1080	50	60	50
Future Vol, veh/h	60	630	1080	50	60	50
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	685	1174	54	65	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1265	0	-	0	1711	651
Stage 1	-	-	-	-	1238	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	545	-	-	-	82	411
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	528	-	-	-	67	398
Mov Cap-2 Maneuver	-	-	-	-	155	-
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	575	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	40.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	528	-	-	-	215
HCM Lane V/C Ratio	0.124	-	-	-	0.556
HCM Control Delay (s)	12.8	-	-	-	40.9
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.4	-	-	-	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	530	0	0	2040	620	0	0	0	210	0	160
Future Volume (veh/h)	130	530	0	0	2040	620	0	0	0	210	0	160
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	144	589	0	0	2267	518				233	0	50
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	155	2754	0	0	2333	1010				259	0	231
Arrive On Green	0.09	0.77	0.00	0.00	0.66	0.66				0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	0	3647	1539				1781	0	1585
Grp Volume(v), veh/h	144	589	0	0	2267	518				233	0	50
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1539				1781	0	1585
Q Serve(g_s), s	11.1	6.2	0.0	0.0	83.7	24.1				17.8	0.0	3.9
Cycle Q Clear(g_c), s	11.1	6.2	0.0	0.0	83.7	24.1				17.8	0.0	3.9
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	155	2754	0	0	2333	1010				259	0	231
V/C Ratio(X)	0.93	0.21	0.00	0.00	0.97	0.51				0.90	0.00	0.22
Avail Cap(c_a), veh/h	155	2754	0	0	2333	1010				412	0	367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	4.2	0.0	0.0	22.6	12.3				58.1	0.0	52.1
Incr Delay (d2), s/veh	51.8	0.2	0.0	0.0	13.1	1.9				10.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	1.9	0.0	0.0	34.5	8.0				8.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.6	4.4	0.0	0.0	35.7	14.2				68.2	0.0	52.3
LnGrp LOS	F	A	A	A	D	B				E	A	D
Approach Vol, veh/h		733			2785						283	
Approach Delay, s/veh		26.0			31.7						65.4	
Approach LOS		C			C						E	

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		113.1		25.2	16.4	96.7			
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9			
Max Green Setting (Gmax), s		* 1.1E2		32.0	12.0	90.6			
Max Q Clear Time (g_c+I1), s		8.2		19.8	13.1	85.7			
Green Ext Time (p_c), s		3.0		0.3	0.0	4.4			

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2035 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	760	150	505	2160	10	420	20	120	30	20	10
Future Volume (veh/h)	20	760	150	505	2160	10	420	20	120	30	20	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	844	167	561	2400	11	467	22	133	33	22	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1955	384	586	2219	10	286	11	678	37	21	4
Arrive On Green	0.02	0.46	0.46	0.17	0.61	0.61	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	4267	839	3456	3627	17	914	43	1572	0	80	16
Grp Volume(v), veh/h	22	672	339	561	1175	1236	489	0	133	66	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1701	1728	1777	1867	957	0	1572	96	0	0
Q Serve(g_s), s	1.8	19.3	19.5	23.3	88.7	88.7	0.0	0.0	7.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	19.3	19.5	23.3	88.7	88.7	37.7	0.0	7.6	37.7	0.0	0.0
Prop In Lane	1.00		0.49	1.00		0.01	0.96		1.00	0.50		0.17
Lane Grp Cap(c), veh/h	29	1560	780	586	1087	1142	297	0	678	62	0	0
V/C Ratio(X)	0.76	0.43	0.43	0.96	1.08	1.08	1.64	0.00	0.20	1.06	0.00	0.00
Avail Cap(c_a), veh/h	49	1585	792	586	1087	1142	297	0	678	62	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	26.5	26.6	59.7	28.1	28.2	56.7	0.0	25.8	57.8	0.0	0.0
Incr Delay (d2), s/veh	14.1	0.2	0.4	4.6	38.2	39.0	304.5	0.0	0.6	131.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.7	7.8	10.4	45.3	47.9	36.3	0.0	3.0	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.2	26.7	26.9	64.2	66.3	67.1	361.2	0.0	26.4	189.6	0.0	0.0
LnGrp LOS	F	C	C	E	F	F	F	A	C	F	A	A
Approach Vol, veh/h		1033			2972			622			66	
Approach Delay, s/veh		28.0			66.3			289.6			189.6	
Approach LOS		C			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	72.4		42.6	6.8	94.6		42.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	24.6	67.5		37.7	4.0	* 89		37.7				
Max Q Clear Time (g_c+I1), s	25.3	21.5		39.7	3.8	90.7		39.7				
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		89.2	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	890	20	110	2525	20	10	10	30	70	10	40
Future Volume (veh/h)	30	890	20	110	2525	20	10	10	30	70	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	967	18	120	2745	22	11	11	8	76	11	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	3618	67	169	2784	1242	95	53	38	104	20	76
Arrive On Green	0.70	0.70	0.70	0.05	0.78	0.78	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	100	5159	96	3456	3554	1585	1781	982	714	1781	333	1303
Grp Volume(v), veh/h	33	638	347	120	2745	22	11	0	19	76	0	54
Grp Sat Flow(s),veh/h/ln	100	1702	1851	1728	1777	1585	1781	0	1697	1781	0	1636
Q Serve(g_s), s	6.4	9.1	9.1	4.5	97.0	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Cycle Q Clear(g_c), s	92.6	9.1	9.1	4.5	97.0	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.42	1.00		0.80
Lane Grp Cap(c), veh/h	59	2387	1298	169	2784	1242	95	0	91	104	0	96
V/C Ratio(X)	0.56	0.27	0.27	0.71	0.99	0.02	0.12	0.00	0.21	0.73	0.00	0.56
Avail Cap(c_a), veh/h	59	2387	1298	191	2784	1242	418	0	399	216	0	198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.5	7.2	7.3	61.9	13.6	3.1	59.5	0.0	59.8	61.1	0.0	60.5
Incr Delay (d2), s/veh	28.8	0.2	0.4	7.8	14.1	0.0	0.2	0.0	0.4	9.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.0	3.3	2.1	31.9	0.1	0.4	0.0	0.6	2.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.3	7.5	7.7	69.7	27.7	3.2	59.7	0.0	60.2	70.4	0.0	65.6
LnGrp LOS	F	A	A	E	C	A	E	A	E	E	A	E
Approach Vol, veh/h		1018			2887			30			130	
Approach Delay, s/veh		10.4			29.2			60.0			68.4	
Approach LOS		B			C			E			E	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.8	98.0		11.7		108.8		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.5	94.6		7.5		99.0		3.4				
Green Ext Time (p_c), s	0.0	0.0		0.3		0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		26.0	
HCM 6th LOS		C	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	940	30	210	2585	10	10	10	30	30	10	10
Future Volume (veh/h)	10	940	30	210	2585	10	10	10	30	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1000	32	223	2750	11	11	27	22	32	11	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	3621	116	287	4122	16	148	137	114	144	62	62
Arrive On Green	0.01	0.71	0.71	0.08	0.79	0.79	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	5080	162	3456	5249	21	1374	1870	1566	1342	852	852
Grp Volume(v), veh/h	11	670	362	223	1782	979	11	27	22	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1838	1728	1702	1866	1374	1870	1566	1342	0	1704
Q Serve(g_s), s	0.7	7.9	7.9	7.1	26.4	26.5	0.8	1.5	1.5	2.6	0.0	1.4
Cycle Q Clear(g_c), s	0.7	7.9	7.9	7.1	26.4	26.5	2.2	1.5	1.5	4.1	0.0	1.4
Prop In Lane	1.00		0.09	1.00		0.01	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	18	2426	1310	287	2673	1465	148	137	114	144	0	125
V/C Ratio(X)	0.60	0.28	0.28	0.78	0.67	0.67	0.07	0.20	0.19	0.22	0.00	0.18
Avail Cap(c_a), veh/h	67	2426	1310	481	2673	1465	417	503	421	407	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.2	5.8	5.8	50.3	5.4	5.4	49.8	48.8	48.8	50.7	0.0	48.7
Incr Delay (d2), s/veh	10.9	0.3	0.5	1.7	1.3	2.4	0.1	0.3	0.3	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.3	2.6	3.0	6.4	7.4	0.3	0.7	0.6	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	6.0	6.3	52.1	6.8	7.9	49.9	49.1	49.1	51.0	0.0	49.0
LnGrp LOS	E	A	A	D	A	A	D	D	D	D	A	D
Approach Vol, veh/h		1043			2984			60			54	
Approach Delay, s/veh		6.8			10.5			49.2			50.2	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	85.2		13.1	5.6	93.4		13.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	15.6	51.6		30.1	4.2	* 63		30.1				
Max Q Clear Time (g_c+I1), s	9.1	9.9		6.1	2.7	28.5		4.2				
Green Ext Time (p_c), s	0.2	9.7		0.1	0.0	30.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		10.6
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	950	70	0	2485	0	50
Future Vol, veh/h	950	70	0	2485	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1056	78	0	2761	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	577
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	394
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	390
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	390	-	-	-
HCM Lane V/C Ratio	0.142	-	-	-
HCM Control Delay (s)	15.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	850	233	680	570
Future Volume (Veh/h)	0	0	850	233	680	570
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	924	253	739	620
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2712	462			1177	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2712	462			1177	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	547			589	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	616	392	169	739	310	310
Volume Left	0	0	0	739	0	0
Volume Right	0	84	169	0	0	0
cSH	1700	1700	1700	589	1700	1700
Volume to Capacity	0.36	0.23	0.10	1.25	0.18	0.18
Queue Length 95th (ft)	0	0	0	712	0	0
Control Delay (s)	0.0	0.0	0.0	150.3	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			81.8		
Approach LOS						

Intersection Summary			
Average Delay		43.8	
Intersection Capacity Utilization		70.3%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	680	300	227	1807	873	768	40	970	430	10	100
Future Volume (veh/h)	70	680	300	227	1807	873	768	40	970	430	10	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	723	0	241	1922	929	817	43	1032	457	11	106
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	2714		300	2102	1538	765	389	814	514	261	369
Arrive On Green	0.10	0.42	0.00	0.09	0.41	0.41	0.22	0.21	0.21	0.15	0.14	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2728	3456	1870	2753	3456	1870	1564
Grp Volume(v), veh/h	74	723	0	241	1922	929	817	43	1032	457	11	106
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	3.0	11.0	0.0	10.3	53.3	34.0	33.2	2.8	31.2	19.5	0.8	8.3
Cycle Q Clear(g_c), s	3.0	11.0	0.0	10.3	53.3	34.0	33.2	2.8	31.2	19.5	0.8	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	330	2714		300	2102	1538	765	389	814	514	261	369
V/C Ratio(X)	0.22	0.27		0.80	0.91	0.60	1.07	0.11	1.27	0.89	0.04	0.29
Avail Cap(c_a), veh/h	346	2714		760	2102	1538	765	389	814	1000	524	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.7	28.2	0.0	67.3	41.6	22.0	58.4	48.2	53.0	62.6	55.9	47.1
Incr Delay (d2), s/veh	0.1	0.2	0.0	5.0	7.5	1.7	52.3	0.6	129.9	2.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.2	0.0	4.7	23.0	11.2	20.1	1.4	30.0	8.7	0.4	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	28.5	0.0	72.2	49.1	23.7	110.7	48.7	182.8	64.8	55.9	47.3
LnGrp LOS	E	C		E	D	C	F	D	F	E	E	D
Approach Vol, veh/h		797	A		3092			1892			574	
Approach Delay, s/veh		31.7			43.3			148.6			61.4	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	70.3	37.2	25.5	18.5	68.8	26.9	35.8
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	33.0	22.2	33.2	42.0	* 15	40.0	43.4	31.2
Max Q Clear Time (g_c+I1), s	12.3	13.0	35.2	10.3	5.0	55.3	21.5	33.2
Green Ext Time (p_c), s	0.7	2.2	0.0	0.2	0.1	0.0	0.9	0.0

Intersection Summary		
HCM 6th Ctrl Delay	74.8	
HCM 6th LOS	E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2035 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	520	1530	0	0	1970	1175	0	0	0	1450	0	937
Future Volume (veh/h)	520	1530	0	0	1970	1175	0	0	0	1450	0	937
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	547	1611	0	0	2074	1237				1526	0	954
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	403	8604	0	0	6327	2743				1563	0	1193
Arrive On Green	0.12	1.00	0.00	0.00	0.98	0.98				0.31	0.00	0.31
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	547	1611	0	0	2074	1237				1526	0	954
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	10.5	0.0	0.0	0.0	0.7	1.2				27.1	0.0	26.8
Cycle Q Clear(g_c), s	10.5	0.0	0.0	0.0	0.7	1.2				27.1	0.0	26.8
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	403	8604	0	0	6327	2743				1563	0	1193
V/C Ratio(X)	1.36	0.19	0.00	0.00	0.33	0.45				0.98	0.00	0.80
Avail Cap(c_a), veh/h	403	8604	0	0	6327	2743				1563	0	1193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	39.8	0.0	0.0	0.0	0.0	0.0				30.7	0.0	22.4
Incr Delay (d2), s/veh	175.6	0.0	0.0	0.0	0.1	0.5				17.4	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	0.0	0.0	0.0	0.1	0.2				13.0	0.0	19.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	215.3	0.0	0.0	0.0	0.2	0.6				48.1	0.0	26.3
LnGrp LOS	F	A	A	A	A	A				D	A	C
Approach Vol, veh/h		2158			3311						2480	
Approach Delay, s/veh		54.6			0.3						39.7	
Approach LOS		D			A						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.0	95.5		32.0		110.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	10.5	37.5		28.0		* 54
Max Q Clear Time (g_c+I1), s	12.5	3.2		29.1		2.0
Green Ext Time (p_c), s	0.0	22.8		0.0		16.5

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	820	1250	560	90	2170	60	445	140	90	50	60	340
Future Volume (veh/h)	820	1250	560	90	2170	60	445	140	90	50	60	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	854	1302	583	94	2260	62	464	146	94	52	62	354
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	636	3207	1357	141	2286	554	527	572	342	133	294	414
Arrive On Green	0.18	0.50	0.50	0.04	0.36	0.36	0.15	0.27	0.27	0.04	0.16	0.16
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2109	1262	3456	1870	2635
Grp Volume(v), veh/h	854	1302	583	94	2260	62	464	121	119	52	62	354
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1594	1728	1870	1318
Q Serve(g_s), s	24.6	17.0	18.3	3.6	46.7	3.6	17.6	7.1	7.8	2.0	3.9	17.5
Cycle Q Clear(g_c), s	24.6	17.0	18.3	3.6	46.7	3.6	17.6	7.1	7.8	2.0	3.9	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	636	3207	1357	141	2286	554	527	482	432	133	294	414
V/C Ratio(X)	1.34	0.41	0.43	0.67	0.99	0.11	0.88	0.25	0.27	0.39	0.21	0.86
Avail Cap(c_a), veh/h	636	3207	1357	222	2286	554	765	666	597	196	393	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	21.1	21.4	63.2	42.8	28.9	55.5	38.1	38.4	62.8	49.1	54.9
Incr Delay (d2), s/veh	164.8	0.4	1.0	2.0	16.4	0.4	6.8	0.1	0.1	1.0	0.2	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.0	6.2	6.0	1.6	20.3	1.4	8.2	3.2	3.1	0.9	1.8	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.4	21.5	22.4	65.3	59.2	29.4	62.2	38.2	38.5	63.8	49.3	63.3
LnGrp LOS	F	C	C	E	E	C	E	D	D	E	D	E
Approach Vol, veh/h		2739			2416			704			468	
Approach Delay, s/veh		83.4			58.7			54.1			61.5	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	73.2	24.8	25.9	29.0	54.0	9.5	41.2				
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9				
Max Green Setting (Gmax), s	8.6	* 65	29.6	28.1	24.6	47.5	7.6	50.1				
Max Q Clear Time (g_c+I1), s	5.6	20.3	19.6	19.5	26.6	48.7	4.0	9.8				
Green Ext Time (p_c), s	0.0	23.4	0.8	0.9	0.0	0.0	0.0	1.0				

Intersection Summary	
HCM 6th Ctrl Delay	69.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	430	170	570	0	0	480	380
Future Volume (veh/h)	0	0	0	220	10	430	170	570	0	0	480	380
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				240	0	453	179	600	0	0	505	400
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1139	0	498	249	1976	0	0	1546	686
Arrive On Green				0.32	0.00	0.32	0.14	1.00	0.00	0.00	0.43	0.43
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				240	0	453	179	600	0	0	505	400
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1576
Q Serve(g_s), s				4.4	0.0	25.1	4.5	0.0	0.0	0.0	8.4	17.3
Cycle Q Clear(g_c), s				4.4	0.0	25.1	4.5	0.0	0.0	0.0	8.4	17.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1139	0	498	249	1976	0	0	1546	686
V/C Ratio(X)				0.21	0.00	0.91	0.72	0.30	0.00	0.00	0.33	0.58
Avail Cap(c_a), veh/h				1350	0	590	407	1976	0	0	1546	686
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.3	0.0	29.4	37.6	0.0	0.0	0.0	16.7	19.3
Incr Delay (d2), s/veh				0.1	0.0	16.6	1.4	0.4	0.0	0.0	0.6	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	10.9	1.8	0.1	0.0	0.0	3.4	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.4	0.0	46.0	39.0	0.4	0.0	0.0	17.3	22.9
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					693			779			905	
Approach Delay, s/veh					37.8			9.2			19.8	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.3			10.9	45.4		33.7				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 46			10.6	29.7		34.1				
Max Q Clear Time (g_c+I1), s		2.0			6.5	19.3		27.1				
Green Ext Time (p_c), s		4.0			0.1	5.5		1.6				

Intersection Summary			
HCM 6th Ctrl Delay		21.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	20	210	0	0	0	0	520	150	230	520	0
Future Volume (veh/h)	190	20	210	0	0	0	0	520	150	230	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	220	0	40				0	559	133	247	559	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1794	425	318	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2943	676	3456	3647	0
Grp Volume(v), veh/h	220	0	40				0	348	344	247	559	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1749	1728	1777	0
Q Serve(g_s), s	5.3	0.0	2.1				0.0	8.1	8.2	6.1	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	2.1				0.0	8.1	8.2	6.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1118	1101	318	2737	0
V/C Ratio(X)	0.56	0.00	0.23				0.00	0.31	0.31	0.78	0.20	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1118	1101	445	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	37.9	0.0	36.5				0.0	7.7	7.7	35.9	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.6				0.0	0.7	0.7	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.8				0.0	3.0	3.0	2.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	0.0	37.1				0.0	8.4	8.4	39.2	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		260						692			806	
Approach Delay, s/veh		38.8						8.4			12.1	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.7	62.4		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	8.1	10.2		7.3		2.0						
Green Ext Time (p_c), s	0.2	6.7		0.8		5.3						

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	230	20	220	620	610	0	0	430	100
Future Volume (veh/h)	0	0	0	230	20	220	620	610	0	0	430	100
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				235	20	224	633	622	0	0	439	102
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				332	25	275	511	2417	0	0	2383	740
Arrive On Green				0.19	0.19	0.19	0.15	0.68	0.00	0.00	0.47	0.47
Sat Flow, veh/h				1781	132	1474	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				235	0	244	633	622	0	0	439	102
Grp Sat Flow(s),veh/h/ln				1781	0	1605	1728	1777	0	0	1702	1585
Q Serve(g_s), s				9.3	0.0	10.9	11.1	5.1	0.0	0.0	3.8	2.8
Cycle Q Clear(g_c), s				9.3	0.0	10.9	11.1	5.1	0.0	0.0	3.8	2.8
Prop In Lane				1.00		0.92	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				332	0	300	511	2417	0	0	2383	740
V/C Ratio(X)				0.71	0.00	0.81	1.24	0.26	0.00	0.00	0.18	0.14
Avail Cap(c_a), veh/h				665	0	599	511	2417	0	0	2383	740
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.88	0.88	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.6	0.0	29.3	31.9	4.7	0.0	0.0	11.7	11.4
Incr Delay (d2), s/veh				1.0	0.0	2.1	121.2	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.7	0.0	4.0	13.1	1.5	0.0	0.0	1.4	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.6	0.0	31.3	153.1	4.9	0.0	0.0	11.8	11.8
LnGrp LOS				C	A	C	F	A	A	A	B	B
Approach Vol, veh/h					479			1255			541	
Approach Delay, s/veh					30.5			79.7			11.8	
Approach LOS					C			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	56.1		16.0	40.1		18.9						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	37.0		11.1	* 21		28.0						
Max Q Clear Time (g_c+I1), s	7.1		13.1	5.8		12.9						
Green Ext Time (p_c), s	5.4		0.0	2.9		1.1						

Intersection Summary		
HCM 6th Ctrl Delay	53.2	
HCM 6th LOS	D	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2035 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	80	350	0	0	0	0	780	260	220	410	0
Future Volume (veh/h)	440	80	350	0	0	0	0	780	260	220	410	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	523	0	368				0	821	274	232	432	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	964	0	428				0	2028	615	271	2148	0
Arrive On Green	0.27	0.00	0.27				0.00	0.40	0.40	0.15	0.60	0.00
Sat Flow, veh/h	3563	0	1580				0	5274	1548	1781	3647	0
Grp Volume(v), veh/h	523	0	368				0	821	274	232	432	0
Grp Sat Flow(s),veh/h/ln	1781	0	1580				0	1702	1548	1781	1777	0
Q Serve(g_s), s	10.0	0.0	17.7				0.0	9.2	10.4	10.2	4.4	0.0
Cycle Q Clear(g_c), s	10.0	0.0	17.7				0.0	9.2	10.4	10.2	4.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	964	0	428				0	2028	615	271	2148	0
V/C Ratio(X)	0.54	0.00	0.86				0.00	0.40	0.45	0.86	0.20	0.00
Avail Cap(c_a), veh/h	1514	0	671				0	2028	615	325	2148	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.93	0.93	0.00
Uniform Delay (d), s/veh	24.9	0.0	27.7				0.0	17.3	17.7	33.1	7.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	4.1				0.0	0.6	2.3	14.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	6.6				0.0	3.5	3.9	5.3	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	0.0	31.9				0.0	17.9	20.0	47.3	7.3	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		891						1095			664	
Approach Delay, s/veh		27.9						18.4			21.3	
Approach LOS		C						B			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.6	36.9		26.6		53.4						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	14.6	17.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	12.2	12.4		19.7		6.4						
Green Ext Time (p_c), s	0.1	2.8		1.5		2.0						

Intersection Summary		
HCM 6th Ctrl Delay	22.3	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1060	60	200	2010	240	170	60	90	10	10	20
Future Volume (veh/h)	110	1060	60	200	2010	240	170	60	90	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	117	1128	64	213	2138	255	181	64	96	11	11	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	2307	131	241	2418	284	287	90	130	138	144	234
Arrive On Green	0.08	0.45	0.45	0.13	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5134	291	1853	4817	565	817	304	439	343	484	790
Grp Volume(v), veh/h	117	778	414	213	1562	831	341	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1884	1853	1770	1842	1560	0	0	1617	0	0
Q Serve(g_s), s	7.8	19.4	19.4	14.1	49.2	51.1	22.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.8	19.4	19.4	14.1	49.2	51.1	24.4	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.31	0.53		0.28	0.26		0.49
Lane Grp Cap(c), veh/h	143	1591	847	241	1777	925	507	0	0	516	0	0
V/C Ratio(X)	0.82	0.49	0.49	0.89	0.88	0.90	0.67	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	202	1591	847	305	1777	925	507	0	0	516	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.8	24.3	24.3	53.5	27.7	28.2	39.3	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	11.4	1.1	2.0	18.8	6.6	13.3	7.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.0	8.7	7.7	20.8	24.2	10.3	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	25.4	26.3	72.2	34.3	41.6	46.2	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	E	C	C	E	C	D	D	A	A	C	A	A
Approach Vol, veh/h		1309			2606			341			43	
Approach Delay, s/veh		29.5			39.7			46.2			32.0	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.6	62.4		42.0	14.0	69.0		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	16.1	21.4		4.2	9.8	53.1		26.4				
Green Ext Time (p_c), s	0.1	22.6		0.2	0.0	5.6		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			37.0									
HCM 6th LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	20	70	20	110	60	149	50	144	240	40
Future Volume (veh/h)	20	10	20	70	20	110	60	149	50	144	240	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	10	20	71	20	112	61	152	51	147	245	41
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	50	56	198	47	166	78	1530	490	181	1952	321
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.04	0.59	0.59	0.10	0.64	0.64
Sat Flow, veh/h	326	464	527	1174	437	1550	1781	2611	836	1781	3032	498
Grp Volume(v), veh/h	50	0	0	91	0	112	61	101	102	147	142	144
Grp Sat Flow(s),veh/h/ln	1317	0	0	1612	0	1550	1781	1777	1670	1781	1777	1754
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	6.2	3.0	2.2	2.4	7.2	2.7	2.8
Cycle Q Clear(g_c), s	4.3	0.0	0.0	4.2	0.0	6.2	3.0	2.2	2.4	7.2	2.7	2.8
Prop In Lane	0.40		0.40	0.78		1.00	1.00		0.50	1.00		0.28
Lane Grp Cap(c), veh/h	198	0	0	245	0	166	78	1041	979	181	1144	1129
V/C Ratio(X)	0.25	0.00	0.00	0.37	0.00	0.68	0.78	0.10	0.10	0.81	0.12	0.13
Avail Cap(c_a), veh/h	406	0	0	452	0	386	193	1041	979	333	1144	1129
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	0.0	0.0	37.2	0.0	38.1	42.0	8.1	8.1	39.0	6.1	6.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.0	0.0	9.8	6.1	0.2	0.2	3.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	2.0	0.0	2.8	1.4	0.8	0.9	3.2	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	0.0	39.2	0.0	48.0	48.0	8.2	8.3	42.3	6.3	6.4
LnGrp LOS	D	A	A	D	A	D	D	A	A	D	A	A
Approach Vol, veh/h		50			203			264			433	
Approach Delay, s/veh		36.7			44.1			17.5			18.5	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.4	58.9		16.4	8.3	64.0		16.4				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	16.6	48.1		22.1	9.6	* 57		22.1				
Max Q Clear Time (g_c+I1), s	9.2	4.4		6.3	5.0	4.8		8.2				
Green Ext Time (p_c), s	0.1	0.9		0.1	0.0	1.6		1.3				
Intersection Summary												
HCM 6th Ctrl Delay			24.6									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	124	174	87	161	244	222
Future Vol, veh/h	124	174	87	161	244	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	193	97	179	271	247
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13.7	13.7	13.9
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	35%
Vol Thru, %	0%	0%	42%	65%
Vol Right, %	0%	100%	58%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	244	222	298	248
LT Vol	244	0	0	87
Through Vol	0	0	124	161
RT Vol	0	222	174	0
Lane Flow Rate	271	247	331	276
Geometry Grp	7	7	2	2
Degree of Util (X)	0.505	0.376	0.496	0.45
Departure Headway (Hd)	6.704	5.487	5.396	5.875
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	537	656	666	612
Service Time	4.446	3.228	3.44	3.921
HCM Lane V/C Ratio	0.505	0.377	0.497	0.451
HCM Control Delay	16.1	11.5	13.7	13.7
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	2.8	1.7	2.8	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	275	0	0	248	50	10	20	30	150	0	10
Future Volume (veh/h)	10	275	0	0	248	50	10	20	30	150	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	296	0	0	267	54	11	22	32	161	0	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	634	1209	0	0	999	198	411	129	187	563	0	296
Arrive On Green	0.34	0.34	0.00	0.00	0.34	0.34	0.19	0.19	0.19	0.19	0.00	0.19
Sat Flow, veh/h	1053	3647	0	0	3031	583	1398	686	998	1149	0	1575
Grp Volume(v), veh/h	11	296	0	0	160	161	11	0	54	161	0	11
Grp Sat Flow(s),veh/h/ln	1053	1777	0	0	1777	1744	1398	0	1683	1149	0	1575
Q Serve(g_s), s	0.2	1.2	0.0	0.0	1.4	1.4	0.2	0.0	0.6	2.4	0.0	0.1
Cycle Q Clear(g_c), s	1.6	1.2	0.0	0.0	1.4	1.4	3.1	0.0	0.6	2.9	0.0	0.1
Prop In Lane	1.00		0.00	0.00		0.33	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	634	1209	0	0	604	593	411	0	316	563	0	296
V/C Ratio(X)	0.02	0.24	0.00	0.00	0.26	0.27	0.03	0.00	0.17	0.29	0.00	0.04
Avail Cap(c_a), veh/h	1194	3098	0	0	1549	1521	1698	0	1865	1740	0	1677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.5	4.9	0.0	0.0	5.0	5.0	9.5	0.0	7.1	8.3	0.0	6.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.6	5.0	0.0	0.0	5.1	5.2	9.5	0.0	7.2	8.4	0.0	6.9
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		307			321			65			172	
Approach Delay, s/veh		5.0			5.1			7.6			8.3	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	12.0	8.8	12.0	8.8
Change Period (Y+Rc), s	4.9	4.9	4.9	* 4.9
Max Green Setting (Gmax), s	18.1	22.1	18.1	* 23
Max Q Clear Time (g_c+I1), s	3.6	4.9	3.4	5.1
Green Ext Time (p_c), s	1.3	0.5	1.3	0.1

Intersection Summary		
HCM 6th Ctrl Delay	5.9	
HCM 6th LOS	A	

Notes

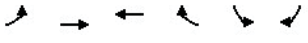
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	395	10	10	278	40	20	20	40	80	10	10
Future Volume (veh/h)	10	395	10	10	278	40	20	20	40	80	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.98		0.95	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	425	11	11	299	15	22	22	8	86	11	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	491	1514	39	430	1471	73	353	340	113	625	78	44
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1038	3533	91	934	3433	171	613	744	247	1162	171	96
Grp Volume(v), veh/h	11	213	223	11	154	160	52	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1038	1777	1848	934	1777	1828	1604	0	0	1429	0	0
Q Serve(g_s), s	0.5	5.5	5.5	0.5	3.8	3.8	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	4.3	5.5	5.5	6.0	3.8	3.8	1.1	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.09	0.42		0.15	0.83		0.07
Lane Grp Cap(c), veh/h	491	762	792	430	762	783	806	0	0	747	0	0
V/C Ratio(X)	0.02	0.28	0.28	0.03	0.20	0.20	0.06	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	491	762	792	430	762	783	806	0	0	747	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.9	13.0	13.0	15.0	12.5	12.5	10.6	0.0	0.0	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.9	0.9	0.1	0.6	0.6	0.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.2	2.3	0.1	1.5	1.6	0.4	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	13.9	13.9	15.1	13.1	13.1	10.8	0.0	0.0	11.4	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		447			325			52			104	
Approach Delay, s/veh		13.9			13.2			10.8			11.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	34.0	36.0	34.0	36.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	30.0	32.0	30.0	32.0
Max Q Clear Time (g_c+I1), s	7.5	4.7	8.0	3.1
Green Ext Time (p_c), s	2.1	0.3	1.5	0.1

Intersection Summary			
HCM 6th Ctrl Delay	13.2		
HCM 6th LOS	B		



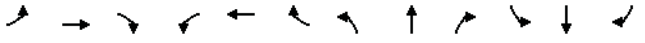
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	415	40	208	110	150	60
Future Volume (vph)	415	40	208	110	150	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3313		3433	1529
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3313		3433	1529
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	461	44	231	122	167	67
RTOR Reduction (vph)	0	0	53	0	0	60
Lane Group Flow (vph)	461	44	300	0	167	7
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	33.0	58.3	20.9		10.0	10.0
Effective Green, g (s)	33.0	58.3	20.9		10.0	10.0
Actuated g/C Ratio	0.35	0.62	0.22		0.11	0.11
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	624	2206	740		367	163
v/s Ratio Prot	c0.26	0.01	c0.09		c0.05	
v/s Ratio Perm						0.00
v/c Ratio	0.74	0.02	0.41		0.46	0.04
Uniform Delay, d1	26.5	6.7	31.0		39.2	37.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	0.0	0.5		0.3	0.0
Delay (s)	30.4	6.7	31.5		39.5	37.5
Level of Service	C	A	C		D	D
Approach Delay (s)		28.4	31.5		38.9	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	58.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2035 AM
03/06/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	20	270	20	20	20	538	670	80	40	530	70
Future Volume (veh/h)	60	20	270	20	20	20	538	670	80	40	530	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.86	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	51	143	21	21	6	572	713	73	43	564	57
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	270	221	27	27	8	634	2112	216	55	2342	234
Arrive On Green	0.14	0.14	0.14	0.04	0.04	0.04	0.18	0.65	0.65	0.03	0.50	0.50
Sat Flow, veh/h	1781	1870	1532	767	767	219	3456	3252	333	1781	4708	470
Grp Volume(v), veh/h	42	51	143	48	0	0	572	389	397	43	406	215
Grp Sat Flow(s),veh/h/ln	1781	1870	1532	1752	0	0	1728	1777	1807	1781	1702	1774
Q Serve(g_s), s	2.9	3.4	12.3	3.8	0.0	0.0	22.7	13.8	13.8	3.4	9.5	9.7
Cycle Q Clear(g_c), s	2.9	3.4	12.3	3.8	0.0	0.0	22.7	13.8	13.8	3.4	9.5	9.7
Prop In Lane	1.00		1.00	0.44		0.12	1.00		0.18	1.00		0.26
Lane Grp Cap(c), veh/h	257	270	221	62	0	0	634	1154	1174	55	1693	883
V/C Ratio(X)	0.16	0.19	0.65	0.77	0.00	0.00	0.90	0.34	0.34	0.78	0.24	0.24
Avail Cap(c_a), veh/h	459	482	395	189	0	0	903	1154	1174	135	1693	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	52.7	56.5	67.0	0.0	0.0	55.9	11.0	11.0	67.3	20.1	20.1
Incr Delay (d2), s/veh	0.4	0.4	3.8	7.4	0.0	0.0	7.3	0.8	0.8	8.3	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.6	5.0	1.8	0.0	0.0	10.5	5.6	5.7	1.7	3.9	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	53.1	60.3	74.4	0.0	0.0	63.3	11.8	11.8	75.6	20.4	20.8
LnGrp LOS	D	D	E	E	A	A	E	B	B	E	C	C
Approach Vol, veh/h		236			48			1358			664	
Approach Delay, s/veh		57.4			74.4			33.5			24.1	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	96.3		25.1	30.1	74.9		9.9				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.6	58.7		36.1	36.6	32.7		15.1				
Max Q Clear Time (g_c+I1), s	5.4	15.8		14.3	24.7	11.7		5.8				
Green Ext Time (p_c), s	0.0	11.5		1.1	1.0	6.6		0.1				

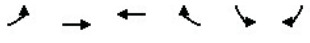
Intersection Summary			
HCM 6th Ctrl Delay		34.1	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2035 AM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	220	724	304	60	161
Future Volume (veh/h)	212	220	724	304	60	161
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	244	804	122	67	159
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	271	1286	909	1090	361	321
Arrive On Green	0.15	0.69	0.49	0.49	0.20	0.20
Sat Flow, veh/h	1781	1870	1870	1583	1781	1585
Grp Volume(v), veh/h	236	244	804	122	67	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1583	1781	1585
Q Serve(g_s), s	11.5	4.2	34.5	2.3	2.8	7.9
Cycle Q Clear(g_c), s	11.5	4.2	34.5	2.3	2.8	7.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	271	1286	909	1090	361	321
V/C Ratio(X)	0.87	0.19	0.88	0.11	0.19	0.50
Avail Cap(c_a), veh/h	292	1308	909	1090	361	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	5.0	20.6	4.7	29.4	31.4
Incr Delay (d2), s/veh	21.2	0.0	12.3	0.2	1.1	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	1.4	17.0	1.4	1.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.1	5.0	32.9	4.9	30.5	36.8
LnGrp LOS	E	A	C	A	C	D
Approach Vol, veh/h		480	926		226	
Approach Delay, s/veh		31.1	29.2		35.0	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		66.0		22.9	17.9	48.1
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		62.2		18.0	14.6	43.2
Max Q Clear Time (g_c+I1), s		6.2		9.9	13.5	36.5
Green Ext Time (p_c), s		1.0		0.2	0.0	2.4

Intersection Summary			
HCM 6th Ctrl Delay		30.6	
HCM 6th LOS		C	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	180	140	140	394	20	204	20	90	20	10	10
Future Volume (veh/h)	0	180	140	140	394	20	204	20	90	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	189	66	147	415	19	215	21	43	21	11	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	750	252	183	1574	72	673	220	450	410	206	67
Arrive On Green	0.00	0.29	0.29	0.10	0.46	0.46	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	0	2684	871	1781	3456	158	1398	547	1121	819	512	166
Grp Volume(v), veh/h	0	127	128	147	213	221	215	0	64	36	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1684	1781	1777	1837	1398	0	1669	1498	0	0
Q Serve(g_s), s	0.0	3.8	4.1	5.6	5.2	5.2	5.4	0.0	1.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.8	4.1	5.6	5.2	5.2	7.1	0.0	1.7	1.7	0.0	0.0
Prop In Lane	0.00		0.52	1.00		0.09	1.00		0.67	0.58		0.11
Lane Grp Cap(c), veh/h	0	514	488	183	809	837	673	0	669	683	0	0
V/C Ratio(X)	0.00	0.25	0.26	0.80	0.26	0.26	0.32	0.00	0.10	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	514	488	194	815	842	673	0	669	683	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.0	19.1	30.6	11.8	11.8	14.5	0.0	13.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.3	18.2	0.1	0.1	0.3	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	1.7	3.3	1.9	2.0	2.2	0.0	0.6	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.1	20.4	48.8	11.9	11.9	14.8	0.0	13.1	12.9	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		255			581			279			36	
Approach Delay, s/veh		20.2			21.2			14.4			12.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.6	25.3		32.9		36.9		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 20		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	7.6	6.1		3.7		7.2		9.1				
Green Ext Time (p_c), s	0.0	1.0		0.1		2.3		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		19.1
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	10	80	484	10	40
Future Vol, veh/h	240	10	80	484	10	40
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	11	84	509	11	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	267	0	686	135
Stage 1	-	-	-	-	262	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1294	-	381	889
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1291	-	355	887
Mov Cap-2 Maneuver	-	-	-	-	355	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	627	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	355	887	-	-	1291	-
HCM Lane V/C Ratio	0.03	0.047	-	-	0.065	-
HCM Control Delay (s)	15.5	9.3	-	-	8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
40: Shopping Center Drwy. & Camino de la Reina

Year 2035 AM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	200	40	130	514	20	40	20	50	40	20	20
Future Volume (veh/h)	20	200	40	130	514	20	40	20	50	40	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	211	42	137	541	21	42	21	53	42	21	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	950	185	139	1238	48	727	219	552	388	194	174
Arrive On Green	0.04	0.32	0.32	0.08	0.36	0.36	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	1781	2948	574	1781	3482	135	1360	469	1183	704	416	373
Grp Volume(v), veh/h	21	125	128	137	276	286	42	0	74	84	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1745	1781	1777	1840	1360	0	1652	1492	0	0
Q Serve(g_s), s	1.0	4.6	4.8	6.9	10.7	10.7	0.0	0.0	2.3	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.0	4.6	4.8	6.9	10.7	10.7	1.2	0.0	2.3	2.7	0.0	0.0
Prop In Lane	1.00		0.33	1.00		0.07	1.00		0.72	0.50		0.25
Lane Grp Cap(c), veh/h	79	573	562	139	632	654	727	0	771	756	0	0
V/C Ratio(X)	0.27	0.22	0.23	0.99	0.44	0.44	0.06	0.00	0.10	0.11	0.00	0.00
Avail Cap(c_a), veh/h	158	573	562	139	632	654	727	0	771	756	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.6	22.2	22.3	41.5	22.1	22.1	13.1	0.0	13.4	13.5	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.9	0.9	72.8	0.5	0.5	0.2	0.0	0.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.0	2.1	5.8	4.4	4.6	0.5	0.0	0.9	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	23.1	23.2	114.2	22.6	22.6	13.3	0.0	13.6	13.8	0.0	0.0
LnGrp LOS	D	C	C	F	C	C	B	A	B	B	A	A
Approach Vol, veh/h		274			699			116			84	
Approach Delay, s/veh		24.6			40.6			13.5			13.8	
Approach LOS		C			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	33.0		46.0	8.0	36.0		46.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	29.0		42.0	8.0	28.0		42.0				
Max Q Clear Time (g_c+I1), s	8.9	6.8		4.7	3.0	12.7		4.3				
Green Ext Time (p_c), s	0.0	1.5		0.3	0.0	3.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			32.2									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2035 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	90	70	110	390	260	304	908	90	170	450	190
Future Volume (veh/h)	120	90	70	110	390	260	304	908	90	170	450	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	97	20	118	419	148	327	976	78	183	484	77
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	666	133	166	576	201	336	2519	201	233	2518	779
Arrive On Green	0.05	0.23	0.23	0.05	0.22	0.22	0.19	1.00	1.00	0.07	0.49	0.49
Sat Flow, veh/h	3456	2938	587	3456	2576	900	3456	4819	384	3456	5106	1579
Grp Volume(v), veh/h	129	57	60	118	288	279	327	689	365	183	484	77
Grp Sat Flow(s),veh/h/ln	1728	1777	1749	1728	1777	1700	1728	1702	1800	1728	1702	1579
Q Serve(g_s), s	5.2	3.6	3.8	4.7	21.0	21.4	13.2	0.0	0.0	7.3	7.4	3.6
Cycle Q Clear(g_c), s	5.2	3.6	3.8	4.7	21.0	21.4	13.2	0.0	0.0	7.3	7.4	3.6
Prop In Lane	1.00		0.34	1.00		0.53	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	177	403	396	166	397	380	336	1779	941	233	2518	779
V/C Ratio(X)	0.73	0.14	0.15	0.71	0.72	0.74	0.97	0.39	0.39	0.78	0.19	0.10
Avail Cap(c_a), veh/h	286	610	601	311	623	596	336	1779	941	385	2518	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.4	43.3	43.3	65.7	50.4	50.5	56.2	0.0	0.0	64.3	19.9	18.9
Incr Delay (d2), s/veh	2.1	0.2	0.2	2.1	4.8	5.3	29.7	0.4	0.7	2.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.6	1.7	2.1	9.9	9.7	6.5	0.1	0.2	3.3	3.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	43.4	43.5	67.8	55.2	55.8	86.0	0.4	0.7	66.5	20.0	19.2
LnGrp LOS	E	D	D	E	E	E	F	A	A	E	C	B
Approach Vol, veh/h		246			685			1381			744	
Approach Delay, s/veh		56.1			57.6			20.7			31.4	
Approach LOS		E			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.9	78.4	11.1	36.6	18.0	74.2	11.6	36.2				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	13.6	* 47	11.6	49.1				
Max Q Clear Time (g_c+I1), s	9.3	2.0	6.7	5.8	15.2	9.4	7.2	23.4				
Green Ext Time (p_c), s	0.2	16.0	0.1	0.7	0.0	7.3	0.1	6.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	100	130	290	454	892	290	340	320	180	360	50
Future Volume (veh/h)	10	100	130	290	454	892	290	340	320	180	360	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	104	0	302	473	443	302	354	0	188	375	27
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	757		354	573	482	358	1706		237	1582	696
Arrive On Green	0.01	0.21	0.00	0.10	0.31	0.31	0.10	0.48	0.00	0.14	0.89	0.89
Sat Flow, veh/h	1781	3554	1585	3456	1870	1573	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	10	104	0	302	473	443	302	354	0	188	375	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1573	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.8	3.3	0.0	12.0	32.9	38.1	12.0	8.1	0.0	7.4	2.1	0.3
Cycle Q Clear(g_c), s	0.8	3.3	0.0	12.0	32.9	38.1	12.0	8.1	0.0	7.4	2.1	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	757		354	573	482	358	1706		237	1582	696
V/C Ratio(X)	0.61	0.14		0.85	0.83	0.92	0.84	0.21		0.79	0.24	0.04
Avail Cap(c_a), veh/h	51	1180		484	824	693	657	1706		351	1582	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.90	0.90	0.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	69.1	44.6	0.0	61.8	45.1	46.9	61.6	21.0	0.0	59.4	4.4	4.3
Incr Delay (d2), s/veh	12.8	0.1	0.0	8.1	3.1	11.0	1.9	0.2	0.0	7.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.0	5.7	15.7	16.3	5.4	3.5	0.0	3.3	0.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.9	44.7	0.0	69.9	48.2	57.9	63.6	21.3	0.0	66.6	4.7	4.4
LnGrp LOS	F	D		E	D	E	E	C		E	A	A
Approach Vol, veh/h		114	A		1218			656	A		590	
Approach Delay, s/veh		48.0			57.1			40.7			24.4	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	72.1	18.7	35.1	18.9	67.2	5.7	48.2
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	14.2	41.1	19.6	* 47	26.6	28.7	4.0	61.7
Max Q Clear Time (g_c+I1), s	9.4	10.1	14.0	5.3	14.0	4.1	2.8	40.1
Green Ext Time (p_c), s	0.2	1.6	0.3	0.7	0.5	4.1	0.0	2.8

Intersection Summary		
HCM 6th Ctrl Delay	45.1	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	0	590	0	0	0	0	460	160	310	440	0
Future Volume (vph)	470	0	590	0	0	0	0	460	160	310	440	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3368	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3368	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	490	0	615	0	0	0	0	479	167	323	458	0
RTOR Reduction (vph)	0	0	441	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	490	0	174	0	0	0	0	479	62	252	529	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	38.1		38.1					49.8	49.8	28.8	28.8	
Effective Green, g (s)	38.1		38.1					49.8	49.8	28.8	28.8	
Actuated g/C Ratio	0.28		0.28					0.37	0.37	0.21	0.21	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	968		446					1305	583	343	718	
v/s Ratio Prot	c0.14							c0.14		0.16	c0.16	
v/s Ratio Perm			0.11						0.04			
v/c Ratio	0.51		0.39					0.37	0.11	0.73	0.74	
Uniform Delay, d1	40.6		39.1					31.1	28.0	49.5	49.6	
Progression Factor	1.00		1.00					0.56	0.03	1.00	1.00	
Incremental Delay, d2	1.9		2.5					0.1	0.0	8.4	4.2	
Delay (s)	42.5		41.6					17.4	0.9	58.0	53.8	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		42.0			0.0			13.1			55.1	
Approach LOS		D			A			B			E	

Intersection Summary				
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.53			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	65.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	40	10	20	130	320	20	20	20	380	90	520
Future Volume (vph)	300	40	10	20	130	320	20	20	20	380	90	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		0.98		0.95	0.97	1.00
Satd. Flow (prot)	1610	3243			3515	1583		1750		1681	1716	1562
Flt Permitted	0.95	0.96			0.99	1.00		0.98		0.95	0.97	1.00
Satd. Flow (perm)	1610	3243			3515	1583		1750		1681	1716	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	323	43	11	22	140	344	22	22	22	409	97	559
RTOR Reduction (vph)	0	2	0	0	0	172	0	13	0	0	0	346
Lane Group Flow (vph)	161	214	0	0	162	172	0	53	0	249	257	213
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	27.7	27.7			16.0	67.5		15.4		51.5	51.5	51.5
Effective Green, g (s)	27.7	27.7			16.0	67.5		15.4		51.5	51.5	51.5
Actuated g/C Ratio	0.21	0.21			0.12	0.50		0.11		0.38	0.38	0.38
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	330	665			416	791		199		641	654	595
v/s Ratio Prot	c0.10	0.07			c0.05	0.08		c0.03		0.15	c0.15	
v/s Ratio Perm						0.03						0.14
v/c Ratio	0.49	0.32			0.39	0.22		0.26		0.39	0.39	0.36
Uniform Delay, d1	47.4	45.7			55.0	18.9		54.6		30.3	30.4	29.9
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.75	0.75	2.80
Incremental Delay, d2	5.1	1.3			2.7	0.6		3.2		1.4	1.4	1.3
Delay (s)	52.5	46.9			57.7	19.6		57.9		24.0	24.1	85.0
Level of Service	D	D			E	B		E		C	C	F
Approach Delay (s)		49.3			31.8			57.9			56.1	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	65.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	230	140	1830	173	270	150
Future Volume (veh/h)	230	140	1830	173	270	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	242	147	1926	0	284	140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	264	1551	2315		334	388
Arrive On Green	0.15	0.83	0.65	0.00	0.10	0.10
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	242	147	1926	0	284	140
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	19.0	2.1	58.4	0.0	11.5	10.4
Cycle Q Clear(g_c), s	19.0	2.1	58.4	0.0	11.5	10.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	264	1551	2315		334	388
V/C Ratio(X)	0.92	0.09	0.83		0.85	0.36
Avail Cap(c_a), veh/h	274	1551	2315		537	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	2.2	18.8	0.0	63.0	44.3
Incr Delay (d2), s/veh	31.9	0.1	3.7	0.0	3.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	0.7	23.9	0.0	5.2	9.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	91.4	2.4	22.5	0.0	66.9	44.5
LnGrp LOS	F	A	C		E	D
Approach Vol, veh/h		389	1926	A	424	
Approach Delay, s/veh		57.8	22.5		59.5	
Approach LOS		E	C		E	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	122.5		19.2	25.2	97.3
Change Period (Y+Rc), s	5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s	117.5		22.0	* 22	91.5
Max Q Clear Time (g_c+I1), s	4.1		13.5	21.0	60.4
Green Ext Time (p_c), s	0.6		0.2	0.0	14.8

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2035 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	20	0	70	1053	60	10	0	0	0	0	20	20
Future Volume (vph)	20	0	70	1053	60	10	0	0	0	0	20	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	76	1145	65	11	0	0	0	0	22	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	22	76	1145	76	44
Volume Left (vph)	22	0	1145	0	0
Volume Right (vph)	0	76	0	11	22
Hadj (s)	0.53	-0.67	0.53	-0.07	-0.27
Departure Headway (s)	5.8	4.6	5.2	4.6	5.6
Degree Utilization, x	0.04	0.10	1.67	0.10	0.07
Capacity (veh/h)	613	766	690	762	623
Control Delay (s)	7.8	6.9	320.7	6.9	9.0
Approach Delay (s)	7.1		301.2		9.0
Approach LOS	A		F		A

Intersection Summary					
Delay			270.6		
Level of Service			F		
Intersection Capacity Utilization			76.0%	ICU Level of Service	D
Analysis Period (min)			15		

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Year 2035 AM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	793
Future Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	793
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	1489	0				0	741	602
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	1728	0				0	772	654
Arrive On Green				0.00	0.49	0.00				0.00	0.41	0.41
Sat Flow, veh/h				0	3741	0				0	1870	1585
Grp Volume(v), veh/h				0	1489	0				0	741	602
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1585
Q Serve(g_s), s				0.0	42.2	0.0				0.0	43.9	41.0
Cycle Q Clear(g_c), s				0.0	42.2	0.0				0.0	43.9	41.0
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	1728	0				0	772	654
V/C Ratio(X)				0.00	0.86	0.00				0.00	0.96	0.92
Avail Cap(c_a), veh/h				0	1841	0				0	813	689
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	25.9	0.0				0.0	32.5	31.7
Incr Delay (d2), s/veh				0.0	4.5	0.0				0.0	21.4	16.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	18.2	0.0				0.0	23.8	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	30.3	0.0				0.0	53.9	48.3
LnGrp LOS				A	C	A				A	D	D
Approach Vol, veh/h					1489						1343	
Approach Delay, s/veh					30.3						51.4	
Approach LOS					C						D	

Timer - Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				51.5		62.4						
Change Period (Y+Rc), s				4.5		7.0						
Max Green Setting (Gmax), s				49.5		59.0						
Max Q Clear Time (g_c+I1), s				45.9		44.2						
Green Ext Time (p_c), s				1.1		11.2						

Intersection Summary			
HCM 6th Ctrl Delay		40.3	
HCM 6th LOS		D	

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	165.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	260	260	20	758	30	0	0	10	10
Future Vol, veh/h	0	0	0	260	260	20	758	30	0	0	10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	277	277	21	806	32	0	0	11	11
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

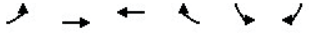
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	18.9	269.5	10.3
HCM LOS	C	F	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	99%	0%	100%	0%	0%	0%
Vol Thru, %	1%	100%	0%	93%	100%	0%
Vol Right, %	0%	0%	0%	7%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	768	20	260	280	10	10
LT Vol	758	0	260	0	0	0
Through Vol	10	20	0	260	10	0
RT Vol	0	0	0	20	0	10
Lane Flow Rate	817	21	277	298	11	11
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.553	0.037	0.535	0.531	0.021	0.019
Departure Headway (Hd)	6.841	6.341	8.044	7.487	7.81	7.083
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	568	451	486	461	508
Service Time	4.541	4.041	5.744	5.187	5.51	4.783
HCM Lane V/C Ratio	1.516	0.037	0.614	0.613	0.024	0.022
HCM Control Delay	276.3	9.3	19.6	18.3	10.7	9.9
HCM Lane LOS	F	A	C	C	B	A
HCM 95th-tile Q	43.4	0.1	3.1	3.1	0.1	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	400	188	0	110
Future Volume (vph)	0	0	400	188	0	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.9			4.9
Lane Util. Factor			0.95			0.88
Frpb, ped/bikes			1.00			0.98
Flpb, ped/bikes			1.00			1.00
Frt			0.95			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			3353			2727
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3353			2727
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	444	209	0	122
RTOR Reduction (vph)	0	0	108	0	0	105
Lane Group Flow (vph)	0	0	545	0	0	17
Confl. Peds. (#/hr)	5			5		2
Confl. Bikes (#/hr)				3		
Turn Type			NA			Perm
Protected Phases			6			
Permitted Phases						4
Actuated Green, G (s)			11.3			3.5
Effective Green, g (s)			11.3			3.5
Actuated g/C Ratio			0.46			0.14
Clearance Time (s)			4.9			4.9
Vehicle Extension (s)			3.9			2.0
Lane Grp Cap (vph)			1540			387
v/s Ratio Prot			c0.16			
v/s Ratio Perm						c0.01
v/c Ratio			0.35			0.04
Uniform Delay, d1			4.3			9.1
Progression Factor			1.00			1.00
Incremental Delay, d2			0.2			0.0
Delay (s)			4.5			9.1
Level of Service			A			A
Approach Delay (s)		0.0	4.5		9.1	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	24.6	Sum of lost time (s)	9.8
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	298	242	0	740
Future Volume (veh/h)	0	0	298	242	0	740
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			324	263	0	804
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1463	1162	0	0
Arrive On Green			0.78	0.78	0.00	0.00
Sat Flow, veh/h			1976	1495	0	
Grp Volume(v), veh/h			305	282	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1601		
Q Serve(g_s), s			1.0	1.0		
Cycle Q Clear(g_c), s			1.0	1.0		
Prop In Lane				0.93		
Lane Grp Cap(c), veh/h			1381	1245		
V/C Ratio(X)			0.22	0.23		
Avail Cap(c_a), veh/h			1381	1245		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.7	0.7		
Incr Delay (d2), s/veh			0.4	0.4		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.1	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.0	1.1		
LnGrp LOS			A	A		
Approach Vol, veh/h			587			
Approach Delay, s/veh			1.1			
Approach LOS			A			

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	22.0
Change Period (Y+Rc), s	4.9
Max Green Setting (Gmax), s	17.1
Max Q Clear Time (g_c+I1), s	3.0
Green Ext Time (p_c), s	2.2

Intersection Summary	
HCM 6th Ctrl Delay	1.1
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	210	409	0	0	330	0
Future Vol, veh/h	210	409	0	0	330	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	435	0	0	351	0
Number of Lanes	1	2	0	0	1	0

Approach	EB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		EB
Conflicting Lanes Right	0	3
HCM Control Delay	10.8	20
HCM LOS	B	C

Lane	EBLn1	EBLn2	EBLn3	SBLn1
Vol Left, %	100%	0%	0%	100%
Vol Thru, %	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	205	205	330
LT Vol	210	0	0	330
Through Vol	0	205	205	0
RT Vol	0	0	0	0
Lane Flow Rate	223	218	218	351
Geometry Grp	7	7	7	7
Degree of Util (X)	0.385	0.344	0.238	0.637
Departure Headway (Hd)	6.2	5.694	3.942	6.537
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	624	894	555
Service Time	3.999	3.493	1.74	4.237
HCM Lane V/C Ratio	0.389	0.349	0.244	0.632
HCM Control Delay	12.9	11.5	8	20
HCM Lane LOS	B	B	A	C
HCM 95th-tile Q	1.8	1.5	0.9	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	486	283	0	0	0	224
Future Volume (vph)	486	283	0	0	0	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	0.99					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.94					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3318					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3318					1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	540	314	0	0	0	249
RTOR Reduction (vph)	186	0	0	0	0	110
Lane Group Flow (vph)	668	0	0	0	0	139
Confl. Peds. (#/hr)		1	1		6	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	18.0					18.0
Effective Green, g (s)	18.0					18.0
Actuated g/C Ratio	0.40					0.40
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1327					644
v/s Ratio Prot	c0.20					
v/s Ratio Perm						c0.09
v/c Ratio	0.50					0.22
Uniform Delay, d1	10.1					8.9
Progression Factor	1.00					1.00
Incremental Delay, d2	1.4					0.8
Delay (s)	11.5					9.6
Level of Service	B					A
Approach Delay (s)	11.5			0.0	9.6	
Approach LOS	B			A	A	

Intersection Summary				
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	530	160	1310	810	450	1400
Future Volume (veh/h)	530	160	1310	810	450	1400
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	546	31	1351	801	464	1443
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	683	304	2076	1210	403	2592
Arrive On Green	0.19	0.19	0.58	0.58	0.12	0.73
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	546	31	1351	801	464	1443
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	16.3	1.8	28.4	26.7	13.0	20.6
Cycle Q Clear(g_c), s	16.3	1.8	28.4	26.7	13.0	20.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	683	304	2076	1210	403	2592
V/C Ratio(X)	0.80	0.10	0.65	0.66	1.15	0.56
Avail Cap(c_a), veh/h	959	427	2710	1487	403	3252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	37.1	15.6	5.8	49.2	6.9
Incr Delay (d2), s/veh	2.1	0.1	0.5	1.0	92.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.7	10.3	15.8	10.8	6.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.2	37.2	16.0	6.8	142.2	7.3
LnGrp LOS	D	D	B	A	F	A
Approach Vol, veh/h	577		2152			1907
Approach Delay, s/veh	44.7		12.6			40.1
Approach LOS	D		B			D

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	17.0	69.1				86.1	25.4
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	12.6	82.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	15.0	30.4				22.6	18.3
Green Ext Time (p_c), s	0.0	32.5				42.1	0.8

Intersection Summary		
HCM 6th Ctrl Delay	27.9	
HCM 6th LOS	C	

Notes
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	180	320	110	70	200	170	1300	240	170	1250	170
Future Volume (veh/h)	200	180	320	110	70	200	170	1300	240	170	1250	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	200	356	122	78	222	189	1444	267	189	1389	189
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	494	405	134	483	392	227	1414	708	194	1564	811
Arrive On Green	0.08	0.26	0.26	0.08	0.26	0.26	0.07	0.40	0.39	0.11	0.44	0.43
Sat Flow, veh/h	3456	1870	1535	1781	1870	1518	3456	3554	1543	1781	3554	1564
Grp Volume(v), veh/h	222	200	356	122	78	222	189	1444	267	189	1389	189
Grp Sat Flow(s),veh/h/ln	1728	1870	1535	1781	1870	1518	1728	1777	1543	1781	1777	1564
Q Serve(g_s), s	6.7	9.4	23.7	7.2	3.4	13.5	5.8	42.4	12.1	11.3	38.3	7.1
Cycle Q Clear(g_c), s	6.7	9.4	23.7	7.2	3.4	13.5	5.8	42.4	12.1	11.3	38.3	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	292	494	405	134	483	392	227	1414	708	194	1564	811
V/C Ratio(X)	0.76	0.40	0.88	0.91	0.16	0.57	0.83	1.02	0.38	0.97	0.89	0.23
Avail Cap(c_a), veh/h	292	564	462	134	546	443	227	1414	708	194	1564	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	32.3	37.6	48.9	30.6	34.3	49.2	32.1	19.0	47.3	27.4	14.1
Incr Delay (d2), s/veh	10.0	0.5	15.9	51.1	0.1	0.5	21.3	29.4	1.5	56.8	7.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.3	10.5	5.1	1.6	5.0	3.1	23.3	4.6	8.0	17.3	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	32.8	53.4	100.0	30.6	34.8	70.4	61.4	20.5	104.1	35.3	14.8
LnGrp LOS	E	C	D	F	C	C	E	F	C	F	D	B
Approach Vol, veh/h		778			422			1900			1767	
Approach Delay, s/veh		49.4			52.9			56.6			40.5	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	46.4	12.0	32.5	11.0	51.0	13.0	31.5
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	11.2	41.0	7.6	* 31	6.6	* 46	8.6	29.6
Max Q Clear Time (g_c+I1), s	13.3	44.4	9.2	25.7	7.8	40.3	8.7	15.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	4.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1210	20	400	580	0	0	0	0	380	10	1570
Future Volume (veh/h)	0	1210	20	400	580	0	0	0	0	380	10	1570
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1260	21	417	604	0				396	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1417	632	490	2045	0				599	15	
Arrive On Green	0.00	0.40	0.40	0.14	0.58	0.00				0.34	0.34	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1739	44	1585
Grp Volume(v), veh/h	0	1260	21	417	604	0				406	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	39.6	1.0	14.1	10.4	0.0				23.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.6	1.0	14.1	10.4	0.0				23.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1417	632	490	2045	0				614	0	
V/C Ratio(X)	0.00	0.89	0.03	0.85	0.30	0.00				0.66	0.00	
Avail Cap(c_a), veh/h	0	1718	766	657	2517	0				614	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	33.6	22.0	50.3	13.0	0.0				33.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.8	0.0	0.8	0.0	0.0				2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.7	0.4	6.2	4.1	0.0				10.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.4	22.0	51.1	13.0	0.0				35.5	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				D	A	
Approach Vol, veh/h		1281			1021						406	A
Approach Delay, s/veh		38.1			28.6						35.5	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	21.2	52.8		45.9		74.1
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0
Max Green Setting (Gmax), s	* 23	58.0		25.4		85.0
Max Q Clear Time (g_c+I1), s	16.1	41.6		25.2		12.4
Green Ext Time (p_c), s	0.9	6.2		0.0		3.0

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1020	760	0	0	680	620	310	20	690	0	0	0
Future Volume (veh/h)	1020	760	0	0	680	620	310	20	690	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1062	792	0	0	708	430	323	21	495			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1031	2354	0	0	700	424	425	28	402			
Arrive On Green	0.30	0.66	0.00	0.00	0.33	0.33	0.25	0.25	0.25			
Sat Flow, veh/h	3456	3647	0	0	2221	1288	1677	109	1585			
Grp Volume(v), veh/h	1062	792	0	0	591	547	344	0	495			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1638	1786	0	1585			
Q Serve(g_s), s	35.8	11.6	0.0	0.0	39.5	39.5	21.4	0.0	30.4			
Cycle Q Clear(g_c), s	35.8	11.6	0.0	0.0	39.5	39.5	21.4	0.0	30.4			
Prop In Lane	1.00		0.00	0.00		0.79	0.94		1.00			
Lane Grp Cap(c), veh/h	1031	2354	0	0	585	539	453	0	402			
V/C Ratio(X)	1.03	0.34	0.00	0.00	1.01	1.01	0.76	0.00	1.23			
Avail Cap(c_a), veh/h	1031	2354	0	0	585	539	453	0	402			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.52	0.52	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.1	8.8	0.0	0.0	40.3	40.3	41.4	0.0	44.8			
Incr Delay (d2), s/veh	28.4	0.0	0.0	0.0	39.9	42.3	6.6	0.0	124.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	19.1	4.3	0.0	0.0	23.4	22.0	10.2	0.0	37.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	8.8	0.0	0.0	80.1	82.6	48.1	0.0	169.5			
LnGrp LOS	F	A	A	A	F	F	D	A	F			
Approach Vol, veh/h		1854			1138			839				
Approach Delay, s/veh		44.1			81.3			119.7				
Approach LOS		D			F			F				

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	85.0	35.0	40.0	45.0
Change Period (Y+Rc), s	5.5	4.6	* 4.2	5.5
Max Green Setting (Gmax), s	79.5	30.4	* 36	39.5
Max Q Clear Time (g_c+I1), s	13.6	32.4	37.8	41.5
Green Ext Time (p_c), s	4.2	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	880	420	300	970	60	160	50	250	30	50	50
Future Volume (veh/h)	80	880	420	300	970	60	160	50	250	30	50	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	978	467	333	1078	67	178	56	278	33	56	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	1498	628	362	1906	118	207	426	658	47	255	212
Arrive On Green	0.07	0.42	0.42	0.20	0.56	0.54	0.12	0.23	0.22	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1491	1781	3392	211	1781	1870	1514	1781	1870	1554
Grp Volume(v), veh/h	89	978	467	333	564	581	178	56	278	33	56	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1491	1781	1777	1826	1781	1870	1514	1781	1870	1554
Q Serve(g_s), s	6.6	29.6	35.6	24.7	27.5	27.7	13.2	3.2	17.4	2.5	3.6	4.4
Cycle Q Clear(g_c), s	6.6	29.6	35.6	24.7	27.5	27.7	13.2	3.2	17.4	2.5	3.6	4.4
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1498	628	362	998	1026	207	426	658	47	255	212
V/C Ratio(X)	0.77	0.65	0.74	0.92	0.57	0.57	0.86	0.13	0.42	0.70	0.22	0.26
Avail Cap(c_a), veh/h	224	1498	628	435	998	1026	226	463	688	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	31.2	32.9	52.7	19.0	19.1	58.6	41.5	27.3	65.2	51.9	52.2
Incr Delay (d2), s/veh	4.0	2.2	7.8	20.7	2.3	2.3	23.9	0.1	0.2	6.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	13.2	14.1	13.1	11.9	12.2	7.4	1.5	6.4	1.2	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	33.4	40.6	73.4	21.3	21.4	82.5	41.5	27.5	71.9	52.1	52.5
LnGrp LOS	E	C	D	E	C	C	F	D	C	E	D	D
Approach Vol, veh/h		1534			1478			512			145	
Approach Delay, s/veh		37.5			33.1			48.1			56.7	
Approach LOS		D			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.4	61.2	19.7	22.7	12.8	79.9	7.6	34.8
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2
Max Q Clear Time (g_c+I1), s	26.7	37.6	15.2	6.4	8.6	29.7	4.5	19.4
Green Ext Time (p_c), s	0.3	1.3	0.0	0.2	0.1	5.8	0.0	0.6

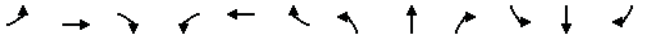
Intersection Summary	
HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2035 PM
02/27/2020

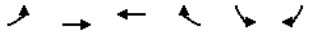


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	750	30	10	460	150	0	0	30	250	30	450
Future Volume (vph)	630	750	30	10	460	150	0	0	30	250	30	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3513		1770	3393				1524	1681	1702	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3513		1770	3393				1524	1681	1702	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	700	833	33	11	511	167	0	0	33	278	33	500
RTOR Reduction (vph)	0	2	0	0	28	0	0	0	32	0	0	237
Lane Group Flow (vph)	700	864	0	11	650	0	0	0	1	147	164	263
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	43.3		0.8	26.5				3.2	30.1	30.1	47.7
Effective Green, g (s)	18.0	44.2		1.2	27.4				3.2	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.46		0.01	0.29				0.03	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	643	1617		22	968				50	549	556	793
v/s Ratio Prot	c0.20	0.25		0.01	c0.19					0.09	0.10	c0.06
v/s Ratio Perm									c0.00			0.11
v/c Ratio	1.09	0.53		0.50	0.67				0.02	0.27	0.29	0.33
Uniform Delay, d1	39.0	18.5		47.1	30.3				44.9	23.8	24.1	14.1
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	62.0	0.4		6.4	3.7				0.2	1.2	1.3	0.1
Delay (s)	101.0	18.9		53.5	34.0				45.1	25.0	25.4	14.2
Level of Service	F	B		D	C				D	C	C	B
Approach Delay (s)		55.6			34.3			45.1			18.4	
Approach LOS		E			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	71.3%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
7: Friars Rd. & Napa St.

Year 2035 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	1170	510	440	640	210
Future Volume (vph)	150	1170	510	440	640	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1543	3428	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1543	3428	1419
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	1219	531	458	667	219
RTOR Reduction (vph)	0	0	0	176	1	73
Lane Group Flow (vph)	156	1219	531	282	688	124
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	14.7	61.2	42.5	71.8	29.3	29.3
Effective Green, g (s)	15.1	63.2	44.1	73.6	30.2	30.2
Actuated g/C Ratio	0.13	0.53	0.37	0.62	0.25	0.25
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	223	1871	1306	950	866	358
v/s Ratio Prot	0.09	c0.34	0.15	0.08	c0.20	
v/s Ratio Perm				0.11		0.09
v/c Ratio	0.70	0.65	0.41	0.30	0.79	0.35
Uniform Delay, d1	50.0	20.2	28.0	10.8	41.7	36.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	1.8	0.3	0.4	5.8	1.2
Delay (s)	57.5	22.0	28.3	11.2	47.5	37.8
Level of Service	E	C	C	B	D	D
Approach Delay (s)		26.0	20.4		45.4	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	59.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1840	60	50	890	80	40	10	20	230	10	90
Future Volume (veh/h)	90	1840	60	50	890	80	40	10	20	230	10	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	1897	58	52	918	71	41	10	7	237	10	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	2228	68	82	2052	159	283	64	365	304	72	304
Arrive On Green	0.07	0.63	0.62	0.05	0.61	0.60	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1781	3517	107	1781	3339	258	1016	276	1571	1385	312	1309
Grp Volume(v), veh/h	93	952	1003	52	489	500	51	0	7	237	0	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1847	1781	1777	1820	1292	0	1571	1385	0	1620
Q Serve(g_s), s	7.2	59.3	61.0	4.0	20.5	20.6	3.5	0.0	0.5	23.7	0.0	3.6
Cycle Q Clear(g_c), s	7.2	59.3	61.0	4.0	20.5	20.6	7.1	0.0	0.5	30.7	0.0	3.6
Prop In Lane	1.00		0.06	1.00		0.14	0.80		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	119	1126	1170	82	1092	1119	347	0	365	304	0	377
V/C Ratio(X)	0.78	0.85	0.86	0.63	0.45	0.45	0.15	0.00	0.02	0.78	0.00	0.14
Avail Cap(c_a), veh/h	201	1126	1170	211	1136	1164	347	0	365	304	0	377
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.3	20.3	20.6	65.7	14.3	14.4	44.8	0.0	41.4	56.5	0.0	42.9
Incr Delay (d2), s/veh	4.1	7.9	8.2	3.0	1.3	1.3	0.1	0.0	0.0	11.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	24.4	26.2	1.9	8.1	8.3	1.5	0.0	0.2	9.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	28.2	28.8	68.7	15.7	15.7	44.9	0.0	41.5	67.8	0.0	43.0
LnGrp LOS	E	C	C	E	B	B	D	A	D	E	A	D
Approach Vol, veh/h		2048			1041			58			289	
Approach Delay, s/veh		30.3			18.3			44.5			63.3	
Approach LOS		C			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	93.1		36.6	13.4	90.1		36.6				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	16.2	* 87		31.7	15.4	87.6		31.7				
Max Q Clear Time (g_c+I1), s	6.0	63.0		32.7	9.2	22.6		9.1				
Green Ext Time (p_c), s	0.0	23.0		0.0	0.0	25.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		29.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	1770	1030	60	70	40
Future Vol, veh/h	50	1770	1030	60	70	40
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	1924	1120	65	76	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1221	0	-	0	2260	629
Stage 1	-	-	-	-	1189	-
Stage 2	-	-	-	-	1071	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	567	-	-	-	~ 35	425
Stage 1	-	-	-	-	251	-
Stage 2	-	-	-	-	290	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	550	-	-	-	~ 30	412
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	281	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	77.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	550	-	-	-	157
HCM Lane V/C Ratio	0.099	-	-	-	0.762
HCM Control Delay (s)	12.3	-	-	-	77.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	4.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	1760	0	0	920	320	0	0	0	480	0	180
Future Volume (veh/h)	240	1760	0	0	920	320	0	0	0	480	0	180
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	253	1853	0	0	968	199				505	0	112
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	285	2229	0	0	1551	661				545	0	485
Arrive On Green	0.16	0.63	0.00	0.00	0.44	0.44				0.31	0.00	0.31
Sat Flow, veh/h	1781	3647	0	0	3647	1514				1781	0	1585
Grp Volume(v), veh/h	253	1853	0	0	968	199				505	0	112
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1514				1781	0	1585
Q Serve(g_s), s	17.1	49.9	0.0	0.0	25.9	10.5				33.7	0.0	6.5
Cycle Q Clear(g_c), s	17.1	49.9	0.0	0.0	25.9	10.5				33.7	0.0	6.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	285	2229	0	0	1551	661				545	0	485
V/C Ratio(X)	0.89	0.83	0.00	0.00	0.62	0.30				0.93	0.00	0.23
Avail Cap(c_a), veh/h	348	2229	0	0	1551	661				653	0	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	50.5	17.8	0.0	0.0	26.8	22.5				41.3	0.0	31.8
Incr Delay (d2), s/veh	18.3	3.8	0.0	0.0	1.9	1.2				16.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	18.9	0.0	0.0	10.8	3.8				17.1	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	21.6	0.0	0.0	28.7	23.6				57.5	0.0	31.9
LnGrp LOS	E	C	A	A	C	C				E	A	C
Approach Vol, veh/h		2106			1167						617	
Approach Delay, s/veh		27.3			27.8						52.8	
Approach LOS		C			C						D	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		81.2		41.6	23.6	57.6						
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9						
Max Green Setting (Gmax), s		* 75		43.9	23.6	47.1						
Max Q Clear Time (g_c+I1), s		51.9		35.7	19.1	27.9						
Green Ext Time (p_c), s		12.4		0.8	0.2	5.4						

Intersection Summary			
HCM 6th Ctrl Delay		31.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2035 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2080	470	488	1070	20	360	10	450	10	20	20
Future Volume (veh/h)	10	2080	470	488	1070	20	360	10	450	10	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	2167	436	508	1115	19	375	10	445	10	21	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2116	407	452	2171	37	227	5	644	37	60	0
Arrive On Green	0.01	0.49	0.48	0.13	0.61	0.60	0.28	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	1781	4284	825	3456	3573	61	609	16	1563	0	213	0
Grp Volume(v), veh/h	10	1702	901	508	554	580	385	0	445	31	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1705	1728	1777	1857	626	0	1563	213	0	0
Q Serve(g_s), s	0.7	64.2	64.2	17.0	23.1	23.2	0.0	0.0	30.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	64.2	64.2	17.0	23.1	23.2	36.8	0.0	30.5	36.8	0.0	0.0
Prop In Lane	1.00		0.48	1.00		0.03	0.97		1.00	0.32		0.00
Lane Grp Cap(c), veh/h	22	1681	842	452	1080	1129	232	0	644	97	0	0
V/C Ratio(X)	0.45	1.01	1.07	1.12	0.51	0.51	1.66	0.00	0.69	0.32	0.00	0.00
Avail Cap(c_a), veh/h	60	1681	842	452	1080	1129	232	0	644	97	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.23	0.23	0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	63.8	32.9	33.4	56.5	14.5	14.6	50.9	0.0	31.6	38.1	0.0	0.0
Incr Delay (d2), s/veh	1.2	13.7	37.9	76.8	1.4	1.3	315.8	0.0	6.0	8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	27.6	33.5	12.1	9.0	9.4	28.0	0.0	12.5	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.0	46.6	71.3	133.3	15.9	15.9	366.8	0.0	37.6	46.5	0.0	0.0
LnGrp LOS	E	F	F	F	B	B	F	A	D	D	A	A
Approach Vol, veh/h		2613			1642			830			31	
Approach Delay, s/veh		55.2			52.3			190.3			46.5	
Approach LOS		E			D			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	68.2		40.8	5.6	83.6		40.8				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	16.6	62.3		35.9	4.0	* 76		35.9				
Max Q Clear Time (g_c+I1), s	19.0	66.2		38.8	2.7	25.2		38.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	11.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		76.1	
HCM 6th LOS		E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2035 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2210	70	310	1388	70	50	10	300	30	10	20
Future Volume (veh/h)	40	2210	70	310	1388	70	50	10	300	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	2255	64	316	1416	76	51	11	228	33	11	22
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	3200	91	230	2559	1128	299	12	251	56	18	35
Arrive On Green	0.62	0.63	0.62	0.07	0.72	0.71	0.17	0.16	0.17	0.03	0.03	0.03
Sat Flow, veh/h	353	5101	144	3456	3554	1585	1781	73	1523	1781	557	1113
Grp Volume(v), veh/h	43	1502	817	316	1416	76	51	0	239	33	0	33
Grp Sat Flow(s),veh/h/ln	353	1702	1841	1728	1777	1585	1781	0	1596	1781	0	1670
Q Serve(g_s), s	9.9	44.1	44.6	10.0	27.8	2.2	3.7	0.0	22.0	2.7	0.0	2.9
Cycle Q Clear(g_c), s	23.7	44.1	44.6	10.0	27.8	2.2	3.7	0.0	22.0	2.7	0.0	2.9
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.95	1.00		0.67
Lane Grp Cap(c), veh/h	233	2136	1155	230	2559	1128	299	0	263	56	0	53
V/C Ratio(X)	0.18	0.70	0.71	1.37	0.55	0.07	0.17	0.00	0.91	0.59	0.00	0.62
Avail Cap(c_a), veh/h	233	2136	1155	230	2559	1128	392	0	347	214	0	200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	18.6	18.8	70.0	9.8	6.6	53.5	0.0	61.3	71.7	0.0	71.7
Incr Delay (d2), s/veh	0.2	0.2	0.3	192.3	0.9	0.1	0.1	0.0	19.5	9.3	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	16.1	17.7	10.5	9.8	0.7	1.7	0.0	10.4	1.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	18.8	19.1	262.3	10.6	6.7	53.6	0.0	80.9	80.9	0.0	83.2
LnGrp LOS	B	B	B	F	B	A	D	A	F	F	A	F
Approach Vol, veh/h		2362			1808			290			66	
Approach Delay, s/veh		18.9			54.5			76.1			82.1	
Approach LOS		B			D			E			F	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.0	98.1		8.7		112.1		29.1				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	9.6	71.6		18.0		* 75		32.6				
Max Q Clear Time (g_c+I1), s	12.0	46.6		4.9		29.8		24.0				
Green Ext Time (p_c), s	0.0	20.8		0.1		19.0		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	2540	60	620	1648	30	50	10	350	20	10	10
Future Volume (veh/h)	20	2540	60	620	1648	30	50	10	350	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	2674	63	653	1735	32	53	0	375	21	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	3101	73	599	3916	72	227	0	443	190	121	121
Arrive On Green	0.02	0.60	0.60	0.35	1.00	1.00	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	5130	120	3456	5160	95	1368	0	3117	997	850	850
Grp Volume(v), veh/h	21	1768	969	653	1144	623	53	0	375	21	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1728	1702	1851	1368	0	1558	997	0	1699
Q Serve(g_s), s	1.8	64.1	65.5	26.0	0.0	0.0	5.3	0.0	17.6	2.8	0.0	1.7
Cycle Q Clear(g_c), s	1.8	64.1	65.5	26.0	0.0	0.0	6.9	0.0	17.6	2.8	0.0	1.7
Prop In Lane	1.00		0.07	1.00		0.05	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	32	2058	1116	599	2583	1405	227	0	443	190	0	242
V/C Ratio(X)	0.65	0.86	0.87	1.09	0.44	0.44	0.23	0.00	0.85	0.11	0.00	0.09
Avail Cap(c_a), veh/h	72	2058	1116	599	2583	1405	342	0	704	273	0	384
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.2	24.4	24.7	49.0	0.0	0.0	58.9	0.0	62.7	56.4	0.0	56.1
Incr Delay (d2), s/veh	7.8	5.0	9.2	63.7	0.6	1.0	0.2	0.0	3.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	25.2	29.2	14.5	0.2	0.4	1.8	0.0	7.2	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	29.4	33.9	112.7	0.6	1.0	59.1	0.0	65.7	56.5	0.0	56.2
LnGrp LOS	F	C	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2758			2420			428			43	
Approach Delay, s/veh		31.4			30.9			64.9			56.3	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.0	94.7		25.3	6.7	117.9		25.3				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	25.6	76.7		33.0	5.7	* 97		33.0				
Max Q Clear Time (g_c+I1), s	28.0	67.5		4.8	3.8	2.0		19.6				
Green Ext Time (p_c), s	0.0	8.8		0.1	0.0	29.0		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	163.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2630	140	0	2248	0	420
Future Vol, veh/h	2630	140	0	2248	0	420
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2922	156	0	2498	0	467

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1556
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 87
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 85
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 2118.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	85	-	-	-
HCM Lane V/C Ratio	5.49	-	-	-
HCM Control Delay (s)	$ 2118.5	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	51.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1130	418	560	850
Future Volume (Veh/h)	0	0	1130	418	560	850
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1228	454	609	924
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2908	614			1682	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2908	614			1682	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	435			377	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	819	561	303	609	462	462
Volume Left	0	0	0	609	0	0
Volume Right	0	151	303	0	0	0
cSH	1700	1700	1700	377	1700	1700
Volume to Capacity	0.48	0.33	0.18	1.62	0.27	0.27
Queue Length 95th (ft)	0	0	0	887	0	0
Control Delay (s)	0.0	0.0	0.0	315.5	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			125.3		
Approach LOS						

Intersection Summary				
Average Delay	59.8			
Intersection Capacity Utilization	73.4%	ICU Level of Service		D
Analysis Period (min)	15			

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	2230	910	442	1576	1288	592	60	1070	560	10	210
Future Volume (veh/h)	160	2230	910	442	1576	1288	592	60	1070	560	10	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	168	2347	0	465	1659	656	623	63	960	589	11	221
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2582		505	2278	1823	677	289	822	661	273	397
Arrive On Green	0.13	0.53	0.00	0.15	0.45	0.45	0.20	0.15	0.15	0.19	0.15	0.15
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2747	3456	1870	1551
Grp Volume(v), veh/h	168	2347	0	465	1659	656	623	63	960	589	11	221
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1373	1728	1870	1551
Q Serve(g_s), s	6.7	49.6	0.0	19.9	40.0	16.0	26.5	4.4	22.6	24.9	0.8	18.6
Cycle Q Clear(g_c), s	6.7	49.6	0.0	19.9	40.0	16.0	26.5	4.4	22.6	24.9	0.8	18.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2582		505	2278	1823	677	289	822	661	273	397
V/C Ratio(X)	0.48	0.91		0.92	0.73	0.36	0.92	0.22	1.17	0.89	0.04	0.56
Avail Cap(c_a), veh/h	392	2582		507	2278	1823	677	289	822	1133	524	605
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	32.5	0.0	63.2	34.1	11.8	59.1	55.5	52.8	59.1	55.0	48.7
Incr Delay (d2), s/veh	0.4	6.1	0.0	21.8	2.0	0.5	19.7	1.7	88.7	2.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	17.8	0.0	10.1	16.4	5.1	13.5	2.2	25.5	11.2	0.4	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	38.6	0.0	85.0	36.1	12.3	78.9	57.2	141.5	61.6	55.1	49.2
LnGrp LOS	E	D		F	D	B	E	E	F	E	E	D
Approach Vol, veh/h		2515	A		2780			1646			821	
Approach Delay, s/veh		40.1			38.7			114.6			58.2	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	64.2	33.4	26.5	19.2	70.9	32.7	27.2
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	22.0	37.0	28.8	42.0	* 17	42.0	48.6	22.2
Max Q Clear Time (g_c+I1), s	21.9	51.6	28.5	20.6	8.7	42.0	26.9	24.6
Green Ext Time (p_c), s	0.0	0.0	0.1	0.4	0.2	0.0	1.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2035 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	720	3010	0	0	2050	1585	0	0	0	1010	0	1236
Future Volume (veh/h)	720	3010	0	0	2050	1585	0	0	0	1010	0	1236
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	758	3168	0	0	2158	1668				1063	0	1301
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	628	8706	0	0	6142	2625				1096	0	1179
Arrive On Green	0.18	1.00	0.00	0.00	0.95	0.94				0.22	0.00	0.23
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	758	3168	0	0	2158	1668				1063	0	1301
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	20.0	0.0	0.0	0.0	2.5	9.7				23.1	0.0	25.5
Cycle Q Clear(g_c), s	20.0	0.0	0.0	0.0	2.5	9.7				23.1	0.0	25.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	628	8706	0	0	6142	2625				1096	0	1179
V/C Ratio(X)	1.21	0.36	0.00	0.00	0.35	0.64				0.97	0.00	1.10
Avail Cap(c_a), veh/h	628	8706	0	0	6142	2625				1096	0	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	0.0	0.2	0.5				42.6	0.0	31.7
Incr Delay (d2), s/veh	107.0	0.1	0.0	0.0	0.2	1.2				20.2	0.0	59.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	0.1	0.0	0.0	0.1	0.4				11.5	0.0	38.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.0	0.1	0.0	0.0	0.3	1.7				62.9	0.0	91.0
LnGrp LOS	F	A	A	A	A	A				E	A	F
Approach Vol, veh/h		3926			3826						2364	
Approach Delay, s/veh		29.4			0.9						78.3	
Approach LOS		C			A						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.0	110.5		28.0		134.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	19.5	52.5		24.0		* 78
Max Q Clear Time (g_c+I1), s	22.0	11.7		27.5		2.0
Green Ext Time (p_c), s	0.0	29.7		0.0		63.2

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	2760	830	170	1650	70	955	110	240	190	110	780
Future Volume (veh/h)	470	2760	830	170	1650	70	955	110	240	190	110	780
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		1.00	1.00		0.95	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	485	2845	315	175	1701	0	985	113	150	196	113	241
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	545	2513	1035	200	1917	472	1062	628	534	259	227	300
Arrive On Green	0.16	0.39	0.39	0.06	0.30	0.00	0.31	0.35	0.35	0.07	0.12	0.12
Sat Flow, veh/h	3456	6434	2651	3456	6434	1585	3456	1777	1511	3456	1870	2469
Grp Volume(v), veh/h	485	2845	315	175	1701	0	985	113	150	196	113	241
Grp Sat Flow(s),veh/h/ln	1728	1609	1325	1728	1609	1585	1728	1777	1511	1728	1870	1234
Q Serve(g_s), s	19.0	54.0	11.4	6.9	34.9	0.0	38.2	6.1	9.9	7.7	7.8	13.1
Cycle Q Clear(g_c), s	19.0	54.0	11.4	6.9	34.9	0.0	38.2	6.1	9.9	7.7	7.8	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	545	2513	1035	200	1917	472	1062	628	534	259	227	300
V/C Ratio(X)	0.89	1.13	0.30	0.88	0.89	0.00	0.93	0.18	0.28	0.76	0.50	0.80
Avail Cap(c_a), veh/h	625	2513	1035	200	1917	472	1225	665	565	507	311	411
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	42.1	29.1	64.6	46.3	0.0	46.4	30.8	32.4	62.7	56.8	59.1
Incr Delay (d2), s/veh	12.5	65.0	0.8	31.2	6.5	0.0	10.7	0.1	0.1	2.4	1.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	31.8	3.8	3.9	14.4	0.0	17.9	2.7	3.7	3.5	3.8	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.6	107.1	29.9	95.8	52.8	0.0	57.1	30.9	32.5	65.1	57.8	65.6
LnGrp LOS	E	F	C	F	D	A	E	C	C	E	E	E
Approach Vol, veh/h		3645			1876			1248			550	
Approach Delay, s/veh		95.4			56.8			51.8			63.9	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	59.0	46.5	20.8	25.8	45.2	14.4	52.9
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	7.6	* 53	48.6	22.1	24.6	34.5	19.9	50.8
Max Q Clear Time (g_c+I1), s	8.9	56.0	40.2	15.1	21.0	36.9	9.7	11.9
Green Ext Time (p_c), s	0.0	0.0	1.9	0.7	0.4	0.0	0.3	1.1

Intersection Summary	
HCM 6th Ctrl Delay	75.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	260	10	380	290	830	0	0	1240	330
Future Volume (veh/h)	0	0	0	260	10	380	290	830	0	0	1240	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				297	0	422	322	922	0	0	1378	367
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1049	0	458	320	2211	0	0	1783	791
Arrive On Green				0.29	0.00	0.29	0.19	1.00	0.00	0.00	0.50	0.50
Sat Flow, veh/h				3563	0	1556	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				297	0	422	322	922	0	0	1378	367
Grp Sat Flow(s),veh/h/ln				1781	0	1556	1728	1777	0	0	1777	1577
Q Serve(g_s), s				6.9	0.0	28.4	10.0	0.0	0.0	0.0	34.1	16.3
Cycle Q Clear(g_c), s				6.9	0.0	28.4	10.0	0.0	0.0	0.0	34.1	16.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1049	0	458	320	2211	0	0	1783	791
V/C Ratio(X)				0.28	0.00	0.92	1.01	0.42	0.00	0.00	0.77	0.46
Avail Cap(c_a), veh/h				1089	0	475	320	2211	0	0	1783	791
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.32	0.32	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.3	0.0	36.9	44.0	0.0	0.0	0.0	21.9	17.5
Incr Delay (d2), s/veh				0.1	0.0	22.9	30.0	0.2	0.0	0.0	3.3	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	13.1	5.1	0.1	0.0	0.0	14.4	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.5	0.0	59.8	74.0	0.2	0.0	0.0	25.2	19.4
LnGrp LOS				C	A	E	F	A	A	A	C	B
Approach Vol, veh/h					719			1244			1745	
Approach Delay, s/veh					47.3			19.3			24.0	
Approach LOS					D			B			C	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		72.2			14.0	58.2		35.8
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 66			9.6	50.7		32.1
Max Q Clear Time (g_c+I1), s		2.0			12.0	36.1		30.4
Green Ext Time (p_c), s		7.0			0.0	12.4		0.6

Intersection Summary	
HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	10	400	0	0	0	0	760	480	700	820	0
Future Volume (veh/h)	350	10	400	0	0	0	0	760	480	700	820	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	397	0	170				0	844	402	778	911	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	532	0	237				0	1221	578	723	2760	0
Arrive On Green	0.15	0.00	0.15				0.00	0.52	0.51	0.42	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2434	1108	3456	3647	0
Grp Volume(v), veh/h	397	0	170				0	640	606	778	911	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1671	1728	1777	0
Q Serve(g_s), s	11.5	0.0	11.0				0.0	29.0	29.7	22.6	0.0	0.0
Cycle Q Clear(g_c), s	11.5	0.0	11.0				0.0	29.0	29.7	22.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	532	0	237				0	927	872	723	2760	0
V/C Ratio(X)	0.75	0.00	0.72				0.00	0.69	0.70	1.08	0.33	0.00
Avail Cap(c_a), veh/h	960	0	427				0	927	872	723	2760	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.63	0.63	0.00
Uniform Delay (d), s/veh	44.0	0.0	43.8				0.0	19.3	19.8	31.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	4.0				0.0	4.2	4.6	49.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.4				0.0	12.5	12.2	12.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	0.0	47.8				0.0	23.5	24.3	80.9	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		567						1246			1689	
Approach Delay, s/veh		46.6						23.9			37.4	
Approach LOS		D						C			D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.0	60.9		20.1		87.9						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 43		28.2		69.1						
Max Q Clear Time (g_c+I1), s	24.6	31.7		13.5		2.0						
Green Ext Time (p_c), s	0.0	7.6		1.7		10.4						

Intersection Summary												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2035 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	460	10	240	660	790	0	0	840	310
Future Volume (veh/h)	0	0	0	460	10	240	660	790	0	0	840	310
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				382	169	258	710	849	0	0	903	333
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				499	187	285	617	2356	0	0	2320	710
Arrive On Green				0.28	0.28	0.27	0.18	0.66	0.00	0.00	0.45	0.45
Sat Flow, veh/h				1781	668	1019	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				382	0	427	710	849	0	0	903	333
Grp Sat Flow(s),veh/h/ln				1781	0	1687	1728	1777	0	0	1702	1585
Q Serve(g_s), s				27.5	0.0	34.2	25.0	14.8	0.0	0.0	16.4	20.6
Cycle Q Clear(g_c), s				27.5	0.0	34.2	25.0	14.8	0.0	0.0	16.4	20.6
Prop In Lane				1.00		0.60	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				499	0	472	617	2356	0	0	2320	710
V/C Ratio(X)				0.77	0.00	0.90	1.15	0.36	0.00	0.00	0.39	0.47
Avail Cap(c_a), veh/h				852	0	807	617	2356	0	0	2320	710
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.20	0.20	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				46.2	0.0	48.9	57.5	10.5	0.0	0.0	25.3	27.0
Incr Delay (d2), s/veh				0.9	0.0	4.4	71.9	0.1	0.0	0.0	0.5	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				12.0	0.0	14.6	17.1	5.7	0.0	0.0	6.8	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				47.1	0.0	53.2	129.4	10.5	0.0	0.0	25.8	29.2
LnGrp LOS				D	A	D	F	B	A	A	C	C
Approach Vol, veh/h					809			1559			1236	
Approach Delay, s/veh					50.3			64.7			26.7	
Approach LOS					D			E			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		96.8			29.0	67.8		43.2				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		63.9			24.1	* 35		66.1				
Max Q Clear Time (g_c+I1), s		16.8			27.0	22.6		36.2				
Green Ext Time (p_c), s		8.7			0.0	6.0		2.1				

Intersection Summary												
HCM 6th Ctrl Delay			48.5									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2035 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	580	10	580	0	0	0	0	860	460	490	810	0
Future Volume (veh/h)	580	10	580	0	0	0	0	860	460	490	810	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	638	0	462				0	935	68	533	880	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1135	0	505				0	1712	532	452	2198	0
Arrive On Green	0.32	0.00	0.32				0.00	0.34	0.34	0.25	0.62	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	638	0	462				0	935	68	533	880	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	19.3	0.0	36.4				0.0	19.4	3.9	33.0	16.3	0.0
Cycle Q Clear(g_c), s	19.3	0.0	36.4				0.0	19.4	3.9	33.0	16.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1135	0	505				0	1712	532	452	2198	0
V/C Ratio(X)	0.56	0.00	0.92				0.00	0.55	0.13	1.18	0.40	0.00
Avail Cap(c_a), veh/h	1973	0	878				0	1712	532	452	2198	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	36.8	0.0	42.6				0.0	35.2	30.0	48.5	12.6	0.0
Incr Delay (d2), s/veh	0.2	0.0	4.4				0.0	1.3	0.5	97.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	14.3				0.0	8.3	1.6	26.8	6.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	0.0	47.0				0.0	36.4	30.5	145.7	13.0	0.0
LnGrp LOS	D	A	D				A	D	C	F	B	A
Approach Vol, veh/h		1100						1003			1413	
Approach Delay, s/veh		41.2						36.0			63.0	
Approach LOS		D						D			E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	37.0	47.6		45.4		84.6
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	32.6	11.9		71.1		* 49
Max Q Clear Time (g_c+I1), s	35.0	21.4		38.4		18.3
Green Ext Time (p_c), s	0.0	0.0		2.1		4.7

Intersection Summary			
HCM 6th Ctrl Delay			48.5
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2770	140	80	1860	30	60	10	130	160	20	80
Future Volume (veh/h)	30	2770	140	80	1860	30	60	10	130	160	20	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	33	3078	156	89	2067	33	67	11	144	178	22	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3012	150	117	3330	53	148	39	283	244	25	101
Arrive On Green	0.03	0.58	0.57	0.06	0.62	0.60	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5181	258	1853	5384	86	427	147	1060	754	95	378
Grp Volume(v), veh/h	33	2087	1147	89	1358	742	222	0	0	289	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1930	1634	0	0	1227	0	0
Q Serve(g_s), s	2.4	78.5	78.5	6.4	32.1	32.2	0.0	0.0	0.0	16.1	0.0	0.0
Cycle Q Clear(g_c), s	2.4	78.5	78.5	6.4	32.1	32.2	15.3	0.0	0.0	31.4	0.0	0.0
Prop In Lane	1.00		0.14	1.00		0.04	0.30		0.65	0.62		0.31
Lane Grp Cap(c), veh/h	48	2058	1104	117	2189	1193	470	0	0	370	0	0
V/C Ratio(X)	0.68	1.01	1.04	0.76	0.62	0.62	0.47	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	82	2058	1104	198	2189	1193	470	0	0	370	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.2	28.3	28.4	62.2	15.9	16.0	42.1	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	6.2	23.4	37.8	3.8	1.3	2.4	3.4	0.0	0.0	15.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	36.6	43.7	3.1	12.3	13.8	6.8	0.0	0.0	11.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	51.7	66.2	66.0	17.3	18.4	45.5	0.0	0.0	64.3	0.0	0.0
LnGrp LOS	E	F	F	E	B	B	D	A	A	E	A	A
Approach Vol, veh/h		3267			2189			222			289	
Approach Delay, s/veh		57.0			19.7			45.5			64.3	
Approach LOS		E			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.5	82.5		40.0	7.5	87.5		40.0
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1
Max Q Clear Time (g_c+I1), s	8.4	80.5		33.4	4.4	34.2		17.3
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	42.4		1.0

Intersection Summary			
HCM 6th Ctrl Delay			43.2
HCM 6th LOS			D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	20	50	159	20	230	70	453	150	241	380	40
Future Volume (veh/h)	40	20	50	159	20	230	70	453	150	241	380	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.92	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	37	54	171	22	247	75	487	161	259	409	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	156	91	343	44	336	103	1110	363	231	1570	164
Arrive On Green	0.06	0.08	0.06	0.22	0.22	0.22	0.06	0.43	0.41	0.13	0.49	0.48
Sat Flow, veh/h	1781	1870	1561	1587	204	1556	1781	2565	840	1781	3221	336
Grp Volume(v), veh/h	32	37	54	193	0	247	75	336	312	259	224	228
Grp Sat Flow(s),veh/h/ln	1781	1870	1561	1791	0	1556	1781	1777	1628	1781	1777	1780
Q Serve(g_s), s	2.0	2.1	3.9	11.0	0.0	17.1	4.8	15.3	15.8	15.0	8.6	8.7
Cycle Q Clear(g_c), s	2.0	2.1	3.9	11.0	0.0	17.1	4.8	15.3	15.8	15.0	8.6	8.7
Prop In Lane	1.00		1.00	0.89		1.00	1.00		0.52	1.00		0.19
Lane Grp Cap(c), veh/h	104	156	91	387	0	336	103	769	704	231	866	868
V/C Ratio(X)	0.31	0.24	0.59	0.50	0.00	0.73	0.73	0.44	0.44	1.12	0.26	0.26
Avail Cap(c_a), veh/h	338	402	297	526	0	457	554	769	704	231	866	868
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	49.6	53.2	39.9	0.0	42.3	53.7	23.0	23.6	50.4	17.4	17.5
Incr Delay (d2), s/veh	0.6	0.3	2.3	2.1	0.0	7.1	3.7	1.8	2.0	96.1	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.6	5.1	0.0	7.2	2.3	6.7	6.5	12.8	3.7	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	49.9	55.5	42.0	0.0	49.3	57.4	24.8	25.7	146.5	18.1	18.2
LnGrp LOS	D	D	E	D	A	D	E	C	C	F	B	B
Approach Vol, veh/h		123			440			723			711	
Approach Delay, s/veh		53.1			46.1			28.5			64.9	
Approach LOS		D			D			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	54.1		13.7	10.7	62.4		29.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	14.6	47.2		22.0	35.6	* 28		31.1				
Max Q Clear Time (g_c+I1), s	17.0	17.8		5.9	6.8	10.7		19.1				
Green Ext Time (p_c), s	0.0	3.3		0.2	0.1	2.2		3.0				

Intersection Summary			
HCM 6th Ctrl Delay		46.9	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	61.8
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	201	421	206	157	431	455
Future Vol, veh/h	201	421	206	157	431	455
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	205	430	210	160	440	464
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	100.3	28.3	48.5
HCM LOS	F	D	E

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	57%
Vol Thru, %	0%	0%	32%	43%
Vol Right, %	0%	100%	68%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	431	455	622	363
LT Vol	431	0	0	206
Through Vol	0	0	201	157
RT Vol	0	455	421	0
Lane Flow Rate	440	464	635	370
Geometry Grp	7	7	2	2
Degree of Util (X)	0.953	0.851	1.123	0.734
Departure Headway (Hd)	8.13	6.895	6.371	7.428
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	449	529	571	489
Service Time	5.83	4.595	4.393	5.428
HCM Lane V/C Ratio	0.98	0.877	1.112	0.757
HCM Control Delay	60.2	37.4	100.3	28.3
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	11.3	8.9	20.3	6

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2035 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	495	0	0	212	100	10	20	20	95	0	10
Future Volume (veh/h)	20	495	0	0	212	100	10	20	20	95	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	707	0	0	303	143	14	29	29	136	0	14
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	648	1602	0	0	1056	485	375	146	146	504	0	332
Arrive On Green	0.45	0.45	0.00	0.00	0.45	0.41	0.17	0.17	0.17	0.21	0.00	0.21
Sat Flow, veh/h	942	3647	0	0	2437	1076	1397	850	850	1154	0	1581
Grp Volume(v), veh/h	29	707	0	0	228	218	14	0	58	136	0	14
Grp Sat Flow(s),veh/h/ln	942	1777	0	0	1777	1642	1397	0	1700	1154	0	1581
Q Serve(g_s), s	0.5	3.2	0.0	0.0	1.9	2.1	0.2	0.0	0.7	2.2	0.0	0.2
Cycle Q Clear(g_c), s	2.5	3.2	0.0	0.0	1.9	2.1	3.1	0.0	0.7	2.9	0.0	0.2
Prop In Lane	1.00		0.00	0.00		0.66	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	648	1602	0	0	801	740	375	0	292	548	0	332
V/C Ratio(X)	0.04	0.44	0.00	0.00	0.28	0.29	0.04	0.00	0.20	0.25	0.00	0.04
Avail Cap(c_a), veh/h	1503	4824	0	0	2412	2230	1913	0	2164	1974	0	2012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	4.4	0.0	0.0	4.1	4.3	10.8	0.0	8.4	9.2	0.0	7.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	4.6	0.0	0.0	4.2	4.5	10.8	0.0	8.5	9.2	0.0	7.4
LnGrp LOS	A	A	A	A	A	A	B	A	A	A	A	A
Approach Vol, veh/h		736			446			72			150	
Approach Delay, s/veh		4.6			4.3			8.9			9.1	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.6		8.9		14.6		8.9				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		31.1		29.1		31.1		* 30				
Max Q Clear Time (g_c+I1), s		5.2		4.9		4.1		5.1				
Green Ext Time (p_c), s		4.5		0.5		2.3		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			5.2									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

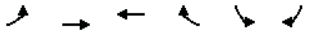
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	645	20	40	362	60	10	10	30	370	20	10
Future Volume (veh/h)	10	645	20	40	362	60	10	10	30	370	20	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.99		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	717	21	44	402	29	11	11	6	411	22	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	1207	35	228	1148	82	395	386	193	798	37	17
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	942	3519	103	716	3349	240	596	710	356	1287	69	31
Grp Volume(v), veh/h	11	362	376	44	212	219	28	0	0	443	0	0
Grp Sat Flow(s),veh/h/ln	942	1777	1845	716	1777	1812	1663	0	0	1387	0	0
Q Serve(g_s), s	0.6	11.8	11.8	3.8	6.2	6.3	0.0	0.0	0.0	14.4	0.0	0.0
Cycle Q Clear(g_c), s	6.9	11.8	11.8	15.6	6.2	6.3	0.5	0.0	0.0	14.9	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.13	0.39		0.21	0.93		0.02
Lane Grp Cap(c), veh/h	341	609	633	228	609	621	974	0	0	852	0	0
V/C Ratio(X)	0.03	0.59	0.59	0.19	0.35	0.35	0.03	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	341	609	633	228	609	621	974	0	0	852	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.8	19.0	19.0	25.4	17.2	17.2	7.4	0.0	0.0	10.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	4.2	4.1	1.9	1.6	1.6	0.1	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.2	5.4	0.7	2.6	2.7	0.2	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	23.2	23.1	27.3	18.7	18.8	7.5	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	C	C	C	B	B	A	A	A	B	A	A
Approach Vol, veh/h		749			475			28			443	
Approach Delay, s/veh		23.1			19.5			7.5			12.9	
Approach LOS		C			B			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		42.0		28.0		42.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		24.0		38.0		24.0		38.0				
Max Q Clear Time (g_c+I1), s		13.8		16.9		17.6		2.5				
Green Ext Time (p_c), s		2.9		1.9		1.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			19.2									
HCM 6th LOS			B									

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2035 PM
02/27/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	755	20	192	190	280	180
Future Volume (vph)	755	20	192	190	280	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3243		3433	1551
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3243		3433	1551
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	839	22	213	211	311	200
RTOR Reduction (vph)	0	0	121	0	0	171
Lane Group Flow (vph)	839	22	303	0	311	29
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	43.7	69.5	21.4		15.4	15.4
Effective Green, g (s)	44.1	70.4	22.3		15.8	15.8
Actuated g/C Ratio	0.40	0.64	0.20		0.14	0.14
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	704	2248	652		489	221
v/s Ratio Prot	c0.47	0.01	c0.09		c0.09	
v/s Ratio Perm						0.02
v/c Ratio	1.19	0.01	0.47		0.64	0.13
Uniform Delay, d1	33.3	7.4	39.0		44.8	41.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	100.0	0.0	0.7		2.0	0.1
Delay (s)	133.4	7.4	39.7		46.8	41.6
Level of Service	F	A	D		D	D
Approach Delay (s)		130.1	39.7		44.7	
Approach LOS		F	D		D	

Intersection Summary				
HCM 2000 Control Delay	84.5	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2035 PM
03/06/2020

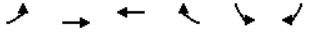


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	20	720	80	20	10	582	890	30	50	1230	70
Future Volume (veh/h)	120	20	720	80	20	10	582	890	30	50	1230	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.92	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	0	332	83	21	7	606	927	28	52	1281	67
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	842	0	362	100	25	8	665	1861	56	67	1856	97
Arrive On Green	0.24	0.00	0.24	0.08	0.08	0.08	0.19	0.53	0.52	0.04	0.37	0.37
Sat Flow, veh/h	3563	0	1532	1326	335	112	3456	3517	106	1781	4964	260
Grp Volume(v), veh/h	140	0	332	111	0	0	606	468	487	52	878	470
Grp Sat Flow(s),veh/h/ln	1781	0	1532	1773	0	0	1728	1777	1847	1781	1702	1820
Q Serve(g_s), s	4.7	0.0	31.7	9.3	0.0	0.0	25.8	25.3	25.3	4.3	32.7	32.7
Cycle Q Clear(g_c), s	4.7	0.0	31.7	9.3	0.0	0.0	25.8	25.3	25.3	4.3	32.7	32.7
Prop In Lane	1.00		1.00	0.75		0.06	1.00		0.06	1.00		0.14
Lane Grp Cap(c), veh/h	842	0	362	134	0	0	665	940	977	67	1272	680
V/C Ratio(X)	0.17	0.00	0.92	0.83	0.00	0.00	0.91	0.50	0.50	0.78	0.69	0.69
Avail Cap(c_a), veh/h	1047	0	450	221	0	0	935	940	977	197	1272	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.00	0.78	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	0.0	55.8	68.4	0.0	0.0	59.3	22.6	22.6	71.6	39.6	39.7
Incr Delay (d2), s/veh	0.1	0.0	17.9	5.1	0.0	0.0	8.2	1.9	1.8	7.0	3.1	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	14.1	4.4	0.0	0.0	12.1	11.1	11.6	2.1	14.3	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	0.0	73.7	73.5	0.0	0.0	67.5	24.5	24.4	78.6	42.7	45.4
LnGrp LOS	D	A	E	E	A	A	E	C	C	E	D	D
Approach Vol, veh/h		472			111			1561			1400	
Approach Delay, s/veh		65.4			73.5			41.2			44.9	
Approach LOS		E			E			D			D	

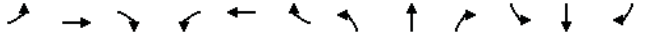
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	83.4		40.4	33.2	60.2		16.2				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	16.6	51.1		44.1	40.6	27.1		18.7				
Max Q Clear Time (g_c+I1), s	6.3	27.3		33.7	27.8	34.7		11.3				
Green Ext Time (p_c), s	0.0	11.4		1.8	1.1	0.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay	46.9		
HCM 6th LOS	D		

Notes
User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	385	540	431	411	380	177
Future Volume (veh/h)	385	540	431	411	380	177
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	423	593	474	94	418	126
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	463	1168	596	955	507	451
Arrive On Green	0.26	0.62	0.32	0.32	0.28	0.28
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	423	593	474	94	418	126
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	20.2	15.3	20.3	2.2	19.3	5.4
Cycle Q Clear(g_c), s	20.2	15.3	20.3	2.2	19.3	5.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	463	1168	596	955	507	451
V/C Ratio(X)	0.91	0.51	0.80	0.10	0.82	0.28
Avail Cap(c_a), veh/h	507	1214	596	955	507	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	9.1	27.3	7.4	29.4	24.4
Incr Delay (d2), s/veh	19.1	0.1	10.5	0.2	14.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	5.5	10.5	1.4	9.9	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.6	9.2	37.8	7.6	43.5	26.0
LnGrp LOS	D	A	D	A	D	C
Approach Vol, veh/h		1016	568		544	
Approach Delay, s/veh		26.4	32.8		39.5	
Approach LOS		C	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		58.9		29.0	26.9	32.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		56.1		24.1	24.6	27.1
Max Q Clear Time (g_c+I1), s		17.3		21.3	22.2	22.3
Green Ext Time (p_c), s		2.8		0.3	0.2	1.0
Intersection Summary						
HCM 6th Ctrl Delay			31.5			
HCM 6th LOS			C			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	830	220	30	571	40	361	20	110	10	20	20
Future Volume (veh/h)	0	830	220	30	571	40	361	20	110	10	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	902	239	33	621	43	392	22	120	11	22	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1328	351	48	1827	126	597	96	526	139	275	252
Arrive On Green	0.00	0.48	0.47	0.03	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	2856	731	1781	3365	233	1356	248	1351	263	707	647
Grp Volume(v), veh/h	0	580	561	33	327	337	392	0	142	55	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1717	1781	1777	1821	1356	0	1598	1617	0	0
Q Serve(g_s), s	0.0	29.8	30.0	2.2	12.2	12.3	26.0	0.0	7.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.8	30.0	2.2	12.2	12.3	28.4	0.0	7.1	2.4	0.0	0.0
Prop In Lane	0.00		0.43	1.00		0.13	1.00		0.85	0.20		0.40
Lane Grp Cap(c), veh/h	0	854	825	48	965	989	597	0	623	666	0	0
V/C Ratio(X)	0.00	0.68	0.68	0.69	0.34	0.34	0.66	0.00	0.23	0.08	0.00	0.00
Avail Cap(c_a), veh/h	0	854	825	72	986	1011	597	0	623	666	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.7	23.9	57.2	15.2	15.2	30.5	0.0	24.5	22.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.3	4.5	6.5	0.2	0.2	2.6	0.0	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.2	13.0	1.1	4.9	5.1	9.8	0.0	2.7	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	28.0	28.4	63.8	15.4	15.4	33.1	0.0	24.7	23.2	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1141			697			534			55	
Approach Delay, s/veh		28.2			17.7			30.9			23.2	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	7.2	61.2		50.2		68.4		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	4.2	32.0		4.4		14.3		30.4				
Green Ext Time (p_c), s	0.0	7.5		0.3		4.1		1.9				
Intersection Summary												
HCM 6th Ctrl Delay			25.7									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	920	20	60	631	20	40
Future Vol, veh/h	920	20	60	631	20	40
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1000	22	65	686	22	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1024	0	1486	513
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	473	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	674	-	115	506
Stage 1	-	-	-	-	312	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	673	-	104	505
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	593	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	24.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	104	505	-	-	673	-
HCM Lane V/C Ratio	0.209	0.086	-	-	0.097	-
HCM Control Delay (s)	48.5	12.8	-	-	10.9	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	0.7	0.3	-	-	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	830	90	340	741	50	110	20	370	30	20	30
Future Volume (veh/h)	50	830	90	340	741	50	110	20	370	30	20	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	874	95	358	780	53	116	21	389	32	21	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	965	105	380	1584	108	443	32	601	129	87	110
Arrive On Green	0.04	0.30	0.30	0.21	0.47	0.47	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	3205	348	1781	3363	228	1347	80	1490	237	216	274
Grp Volume(v), veh/h	53	485	484	358	412	421	116	0	410	85	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1777	1814	1347	0	1571	727	0	0
Q Serve(g_s), s	4.3	38.3	38.3	28.9	23.3	23.4	0.0	0.0	30.8	3.5	0.0	0.0
Cycle Q Clear(g_c), s	4.3	38.3	38.3	28.9	23.3	23.4	17.0	0.0	30.8	34.3	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.13	1.00		0.95	0.38		0.38
Lane Grp Cap(c), veh/h	77	535	535	380	837	855	443	0	634	327	0	0
V/C Ratio(X)	0.69	0.91	0.91	0.94	0.49	0.49	0.26	0.00	0.65	0.26	0.00	0.00
Avail Cap(c_a), veh/h	122	535	535	427	839	856	443	0	634	327	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	69.0	49.1	49.1	56.6	26.6	26.6	31.1	0.0	35.2	34.7	0.0	0.0
Incr Delay (d2), s/veh	4.1	21.5	21.5	26.8	0.4	0.4	1.4	0.0	5.0	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	20.2	20.2	15.8	10.1	10.3	3.1	0.0	12.7	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	70.6	70.6	83.4	27.1	27.1	32.5	0.0	40.2	36.6	0.0	0.0
LnGrp LOS	E	E	E	F	C	C	C	A	D	D	A	A
Approach Vol, veh/h		1022			1191			526			85	
Approach Delay, s/veh		70.7			44.0			38.5			36.6	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.2	48.0		63.0	10.3	72.9		63.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	35.0	44.0		59.0	10.0	69.0		59.0				
Max Q Clear Time (g_c+I1), s	30.9	40.3		36.3	6.3	25.4		32.8				
Green Ext Time (p_c), s	0.3	2.1		0.3	0.0	6.3		2.1				

Intersection Summary		
HCM 6th Ctrl Delay	52.4	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2035 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	580	290	380	370	360	331	782	190	550	1110	370
Future Volume (veh/h)	310	580	290	380	370	360	331	782	190	550	1110	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	611	243	400	389	201	348	823	161	579	1168	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	685	272	458	679	345	409	1270	246	585	1781	543
Arrive On Green	0.11	0.28	0.27	0.13	0.30	0.29	0.12	0.30	0.29	0.17	0.35	0.35
Sat Flow, veh/h	3456	2464	979	3456	2258	1148	3456	4264	827	3456	5106	1556
Grp Volume(v), veh/h	326	440	414	400	305	285	348	656	328	579	1168	121
Grp Sat Flow(s),veh/h/ln	1728	1777	1666	1728	1777	1629	1728	1702	1687	1728	1702	1556
Q Serve(g_s), s	12.0	30.9	31.0	14.8	18.8	19.4	12.8	21.8	22.1	21.7	25.1	7.1
Cycle Q Clear(g_c), s	12.0	30.9	31.0	14.8	18.8	19.4	12.8	21.8	22.1	21.7	25.1	7.1
Prop In Lane	1.00		0.59	1.00		0.70	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	390	494	463	458	535	490	409	1014	502	585	1781	543
V/C Ratio(X)	0.84	0.89	0.89	0.87	0.57	0.58	0.85	0.65	0.65	0.99	0.66	0.22
Avail Cap(c_a), veh/h	486	525	492	473	535	490	447	1014	502	585	1781	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.25	1.00	1.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	45.0	45.3	55.3	38.4	38.9	56.2	39.7	40.1	53.9	35.7	29.9
Incr Delay (d2), s/veh	2.2	5.1	5.5	15.3	2.2	2.6	8.8	2.1	4.3	34.5	1.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	14.3	13.5	7.4	8.6	8.2	6.1	9.4	9.8	12.2	10.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	50.1	50.8	70.6	40.6	41.5	65.0	41.8	44.4	88.4	37.6	30.8
LnGrp LOS	E	D	D	E	D	D	E	D	D	F	D	C
Approach Vol, veh/h		1180			990			1332			1868	
Approach Delay, s/veh		52.7			53.0			48.5			52.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	42.6	21.2	40.2	19.4	49.2	18.7	42.7
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	21.6	34.6	17.4	37.5	16.4	* 40	17.9	37.0
Max Q Clear Time (g_c+I1), s	23.7	24.1	16.8	33.0	14.8	27.1	14.0	21.4
Green Ext Time (p_c), s	0.0	6.5	0.1	2.2	0.1	9.5	0.3	5.5

Intersection Summary	
HCM 6th Ctrl Delay	51.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2035 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	270	470	330	431	743	320	440	670	460	1120	110
Future Volume (veh/h)	40	270	470	330	431	743	320	440	670	460	1120	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	278	0	340	444	766	330	454	0	474	1155	55
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	893		433	650	540	364	1003		583	1229	534
Arrive On Green	0.03	0.25	0.00	0.13	0.35	0.35	0.11	0.28	0.00	0.17	0.35	0.35
Sat Flow, veh/h	1781	3554	1585	3456	1870	1556	3456	3554	1585	3456	3554	1544
Grp Volume(v), veh/h	41	278	0	340	444	766	330	454	0	474	1155	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1556	1728	1777	1585	1728	1777	1544
Q Serve(g_s), s	2.2	6.0	0.0	9.1	19.3	33.0	9.0	10.0	0.0	12.6	29.9	2.3
Cycle Q Clear(g_c), s	2.2	6.0	0.0	9.1	19.3	33.0	9.0	10.0	0.0	12.6	29.9	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	893		433	650	540	364	1003		583	1229	534
V/C Ratio(X)	0.69	0.31		0.79	0.68	1.42	0.91	0.45		0.81	0.94	0.10
Avail Cap(c_a), veh/h	131	893		691	650	540	364	1003		800	1229	534
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.45	0.45	0.00	0.61	0.61	0.61
Uniform Delay (d), s/veh	45.4	28.9	0.0	40.3	26.5	31.0	42.0	28.0	0.0	38.0	30.1	21.1
Incr Delay (d2), s/veh	5.3	0.2	0.0	1.2	2.5	198.6	13.6	0.7	0.0	2.9	10.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.6	0.0	3.9	8.8	41.7	4.5	4.3	0.0	5.5	14.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	29.1	0.0	41.5	29.0	229.6	55.7	28.7	0.0	40.9	40.3	21.3
LnGrp LOS	D	C		D	C	F	E	C		D	D	C
Approach Vol, veh/h		319	A		1550			784	A		1684	
Approach Delay, s/veh		31.9			130.9			40.1			39.9	
Approach LOS		C			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	30.8	15.9	28.3	14.0	36.8	7.2	37.0
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	21.6	16.1	18.6	* 20	9.6	28.1	6.6	31.7
Max Q Clear Time (g_c+I1), s	14.6	12.0	11.1	8.0	11.0	31.9	4.2	35.0
Green Ext Time (p_c), s	1.1	0.8	0.4	1.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2035 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	0	500	0	0	0	0	710	450	1020	600	0
Future Volume (vph)	750	0	500	0	0	0	0	710	450	1020	600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3314	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3314	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	789	0	526	0	0	0	0	747	474	1074	632	0
RTOR Reduction (vph)	0	0	341	0	0	0	0	0	299	0	0	0
Lane Group Flow (vph)	789	0	185	0	0	0	0	747	175	537	1169	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	30.6		30.6					54.1	54.1	47.0	47.0	
Effective Green, g (s)	32.2		32.2					55.1	55.1	48.6	48.6	
Actuated g/C Ratio	0.21		0.21					0.37	0.37	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	736		339					1299	581	521	1073	
v/s Ratio Prot	c0.23							c0.21		0.33	c0.35	
v/s Ratio Perm			0.12						0.11			
v/c Ratio	1.07		0.55					0.58	0.30	1.03	1.09	
Uniform Delay, d1	58.9		52.4					38.1	33.7	50.7	50.7	
Progression Factor	1.00		1.00					0.41	0.20	1.00	1.00	
Incremental Delay, d2	54.2		6.2					0.3	0.1	47.5	55.2	
Delay (s)	113.1		58.6					15.7	6.9	98.2	105.9	
Level of Service	F		E					B	A	F	F	
Approach Delay (s)		91.3			0.0			12.3			103.5	
Approach LOS		F			A			B			F	

Intersection Summary				
HCM 2000 Control Delay	73.5	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	83.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

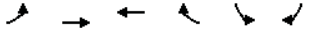
Year 2035 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	110	10	10	100	410	20	40	20	580	30	440
Future Volume (vph)	700	110	10	10	100	410	20	40	20	580	30	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3258			3523	1583		1771		1681	1693	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3258			3523	1583		1771		1681	1693	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	778	122	11	11	111	456	22	44	22	644	33	489
RTOR Reduction (vph)	0	1	0	0	0	73	0	8	0	0	0	269
Lane Group Flow (vph)	389	521	0	0	122	383	0	80	0	341	336	220
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	32.0	32.0			16.0	81.9		11.7		65.9	65.9	65.9
Effective Green, g (s)	33.6	33.6			17.6	81.9		13.2		67.5	67.5	67.5
Actuated g/C Ratio	0.22	0.22			0.12	0.55		0.09		0.45	0.45	0.45
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	360	729			413	864		155		756	761	712
v/s Ratio Prot	c0.24	0.16			0.03	c0.19		c0.05		c0.20	0.20	
v/s Ratio Perm						0.05						0.14
v/c Ratio	1.08	1.03dl			0.30	0.44		0.51		0.45	0.44	0.31
Uniform Delay, d1	58.2	53.8			60.5	20.4		65.3		28.5	28.3	26.4
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.47	0.47	0.80
Incremental Delay, d2	70.7	5.9			1.8	1.7		11.7		0.7	0.6	0.4
Delay (s)	128.9	59.7			62.3	22.1		77.0		14.1	14.0	21.5
Level of Service	F	E			E	C		E		B	B	C
Approach Delay (s)		89.2			30.6			77.0			17.2	
Approach LOS		F			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	61.9%	ICU Level of Service	B	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



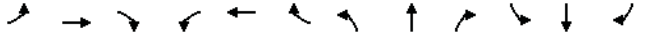
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	760	470	540	392	430	100
Future Volume (veh/h)	760	470	540	392	430	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	809	500	574	0	457	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	827	1471	1041		537	967
Arrive On Green	0.46	0.79	0.29	0.00	0.16	0.15
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	809	500	574	0	457	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	61.2	10.7	18.7	0.0	17.7	0.7
Cycle Q Clear(g_c), s	61.2	10.7	18.7	0.0	17.7	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	827	1471	1041		537	967
V/C Ratio(X)	0.98	0.34	0.55		0.85	0.02
Avail Cap(c_a), veh/h	947	1471	1041		604	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	4.3	40.9	0.0	56.5	10.6
Incr Delay (d2), s/veh	22.0	0.6	2.1	0.0	9.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.1	3.9	8.6	0.0	8.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.1	4.9	43.0	0.0	65.8	10.6
LnGrp LOS	E	A	D		E	B
Approach Vol, veh/h		1309	574	A	477	
Approach Delay, s/veh		37.8	43.0		63.4	
Approach LOS		D	D		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		25.3	67.8	44.2
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.0		22.5	* 73	30.0
Max Q Clear Time (g_c+I1), s		12.7		19.7	63.2	20.7
Green Ext Time (p_c), s		2.2		0.2	0.4	1.9

Intersection Summary						
HCM 6th Ctrl Delay			44.3			
HCM 6th LOS			D			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	20	0	60	1026	50	30	0	0	0	0	60	20
Future Volume (vph)	20	0	60	1026	50	30	0	0	0	0	60	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	65	1115	54	33	0	0	0	0	65	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	22	65	1115	87	87
Volume Left (vph)	22	0	1115	0	0
Volume Right (vph)	0	65	0	33	22
Hadj (s)	0.53	-0.67	0.53	-0.23	-0.12
Departure Headway (s)	6.0	4.8	5.4	4.6	5.8
Degree Utilization, x	0.04	0.09	1.67	0.11	0.14
Capacity (veh/h)	590	730	672	766	611
Control Delay (s)	8.0	7.0	321.5	7.0	9.7
Approach Delay (s)	7.3		298.8		9.7
Approach LOS	A		F		A

Intersection Summary					
Delay			262.1		
Level of Service			F		
Intersection Capacity Utilization			74.9%	ICU Level of Service	D
Analysis Period (min)			15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	936
Future Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	936
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	667	0				0	0	1188
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	1266	0				0	911	1544
Arrive On Green				0.00	0.36	0.00				0.00	0.00	0.49
Sat Flow, veh/h				0	3741	0				0	1870	3170
Grp Volume(v), veh/h				0	667	0				0	0	1188
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1585
Q Serve(g_s), s				0.0	5.2	0.0				0.0	0.0	10.8
Cycle Q Clear(g_c), s				0.0	5.2	0.0				0.0	0.0	10.8
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	1266	0				0	911	1544
V/C Ratio(X)				0.00	0.53	0.00				0.00	0.00	0.77
Avail Cap(c_a), veh/h				0	1517	0				0	2901	4917
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	0.00	1.00
Uniform Delay (d), s/veh				0.0	9.0	0.0				0.0	0.0	7.4
Incr Delay (d2), s/veh				0.0	0.5	0.0				0.0	0.0	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	1.5	0.0				0.0	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	9.4	0.0				0.0	0.0	7.7
LnGrp LOS				A	A	A				A	A	A
Approach Vol, veh/h					667						1188	
Approach Delay, s/veh					9.4						7.7	
Approach LOS					A						A	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						18.6		16.5				
Change Period (Y+Rc), s						4.5		7.0				
Max Green Setting (Gmax), s						51.5		12.0				
Max Q Clear Time (g_c+I1), s						12.8		7.2				
Green Ext Time (p_c), s						1.3		2.3				

Intersection Summary		
HCM 6th Ctrl Delay		8.3
HCM 6th LOS		A

Notes

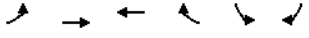
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	108.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	630	170	20	452	10	0	0	10	10
Future Vol, veh/h	0	0	0	630	170	20	452	10	0	0	10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	677	183	22	486	11	0	0	11	11
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

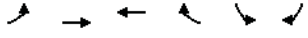
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	137	63.2	11
HCM LOS	F	F	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	99%	0%	100%	0%	0%	0%
Vol Thru, %	1%	100%	0%	89%	100%	0%
Vol Right, %	0%	0%	0%	11%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	455	7	630	190	10	10
LT Vol	452	0	630	0	0	0
Through Vol	3	7	0	170	10	0
RT Vol	0	0	0	20	0	10
Lane Flow Rate	490	7	677	204	11	11
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.976	0.013	1.311	0.363	0.023	0.021
Departure Headway (Hd)	7.834	7.327	6.966	6.388	8.42	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	491	528	566	428	468
Service Time	5.534	5.027	4.666	4.088	6.12	5.39
HCM Lane V/C Ratio	1.054	0.014	1.282	0.36	0.026	0.024
HCM Control Delay	64	10.1	174.5	12.7	11.3	10.6
HCM Lane LOS	F	B	F	B	B	B
HCM 95th-tile Q	12.3	0	28.9	1.6	0.1	0.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	510	308	0	260
Future Volume (vph)	0	0	510	308	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0
Lane Util. Factor			1.00	1.00		0.88
Frpb, ped/bikes			1.00	0.99		1.00
Flpb, ped/bikes			1.00	1.00		1.00
Frt			1.00	0.85		0.85
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			1863	1563		2787
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			1863	1563		2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	543	328	0	277
RTOR Reduction (vph)	0	0	0	152	0	223
Lane Group Flow (vph)	0	0	543	176	0	54
Confl. Peds. (#/hr)	2			2		
Turn Type			NA	Perm		Perm
Protected Phases			6			
Permitted Phases				6		4
Actuated Green, G (s)			15.1	15.1		4.9
Effective Green, g (s)			16.0	16.0		5.8
Actuated g/C Ratio			0.54	0.54		0.19
Clearance Time (s)			4.9	4.9		4.9
Vehicle Extension (s)			3.9	3.9		2.0
Lane Grp Cap (vph)			1000	839		542
v/s Ratio Prot			c0.29			
v/s Ratio Perm				0.11		c0.02
v/c Ratio			0.54	0.21		0.10
Uniform Delay, d1			4.5	3.6		9.9
Progression Factor			1.00	1.00		1.00
Incremental Delay, d2			0.7	0.2		0.0
Delay (s)			5.3	3.8		9.9
Level of Service			A	A		A
Approach Delay (s)		0.0	4.7		9.9	
Approach LOS		A	A		A	

Intersection Summary				
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	29.8	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	388	369	0	600
Future Volume (veh/h)	0	0	388	369	0	600
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.97	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			408	388	0	632
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1481	1284	0	0
Arrive On Green			0.83	0.80	0.00	0.04
Sat Flow, veh/h			1870	1541	0	
Grp Volume(v), veh/h			408	388	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1541		
Q Serve(g_s), s			1.2	1.6		
Cycle Q Clear(g_c), s			1.2	1.6		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			1481	1284		
V/C Ratio(X)			0.28	0.30		
Avail Cap(c_a), veh/h			1481	1284		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.4	0.6		
Incr Delay (d2), s/veh			0.5	0.6		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.9	1.2		
LnGrp LOS			A	A		
Approach Vol, veh/h			796			
Approach Delay, s/veh			1.0			
Approach LOS			A			

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	24.0
Change Period (Y+Rc), s	4.9
Max Green Setting (Gmax), s	19.1
Max Q Clear Time (g_c+I1), s	3.6
Green Ext Time (p_c), s	3.3

Intersection Summary	
HCM 6th Ctrl Delay	1.0
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	40.6
Intersection LOS	E

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	610	928	0	0	170	0
Future Vol, veh/h	610	928	0	0	170	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	678	1031	0	0	189	0
Number of Lanes	1	2	0	0	1	0

Approach	EB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		EB
Conflicting Lanes Right	0	3
HCM Control Delay	43.4	15.3
HCM LOS	E	C

Lane	EBLn1	EBLn2	EBLn3	SBLn1
Vol Left, %	100%	0%	0%	100%
Vol Thru, %	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	610	464	464	170
LT Vol	610	0	0	170
Through Vol	0	464	464	0
RT Vol	0	0	0	0
Lane Flow Rate	678	516	516	189
Geometry Grp	7	7	7	7
Degree of Util (X)	1.087	0.755	0.505	0.396
Departure Headway (Hd)	5.775	5.271	3.526	7.681
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	630	686	1016	472
Service Time	3.52	3.017	1.271	5.381
HCM Lane V/C Ratio	1.076	0.752	0.508	0.4
HCM Control Delay	84.9	22.5	9.9	15.3
HCM Lane LOS	F	C	A	C
HCM 95th-tile Q	19.6	6.9	2.9	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	796	192	0	0	0	441
Future Volume (vph)	796	192	0	0	0	441
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.97					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3436					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3436					1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	847	204	0	0	0	469
RTOR Reduction (vph)	47	0	0	0	0	45
Lane Group Flow (vph)	1004	0	0	0	0	424
Confl. Peds. (#/hr)					18	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	18.0					18.0
Effective Green, g (s)	19.0					18.0
Actuated g/C Ratio	0.42					0.40
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1450					644
v/s Ratio Prot	c0.29					
v/s Ratio Perm						c0.26
v/c Ratio	0.69					0.66
Uniform Delay, d1	10.6					11.0
Progression Factor	1.00					1.00
Incremental Delay, d2	2.7					5.2
Delay (s)	13.4					16.2
Level of Service	B					B
Approach Delay (s)	13.4			0.0	16.2	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX X

YEAR 2035 FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5260	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1384
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7820	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2803
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.23
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6790	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1429
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10080	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2145
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7153	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1902
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10590	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2229
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6435	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1369
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9498	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1649
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6970	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1515
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9974	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2078
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	46.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7260	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1545
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10770	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2221
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.07
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10270	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2257
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.7
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7910	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1665
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9860	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1846
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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Project Information

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Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7590	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1332
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11900	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2532
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

Analyst		Date	03/20/2019
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Jurisdiction	SR163 North of Friars Road SB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9250	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2409
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.06
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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Project Information

Analyst		Date	03/20/2019
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Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9052	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3244
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7002	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1228
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

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Jurisdiction	SR163 South of I-8 NB – Year 2035 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11150	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2934
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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Project Information

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Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8600	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2955
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7790	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2072
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6530	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2316
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10050	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2094
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8420	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1754
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10652	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2717
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.20
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8850	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1844
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9394	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1937
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.93
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	50.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.1
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8424	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1462
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10310	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2126
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.94
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8572	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1786
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10740	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2214
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9000	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1875
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9160	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2013
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10930	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2254
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8790	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1575
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10490	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1802
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9340	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1946
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9910	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2554
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6834	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2324
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7666	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1389
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9057	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2334
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2035 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9220	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	3168
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX Y

YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION ANALYSIS CALCULATION SHEETS

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	637	518	1330	495	217	830	
Future Volume (veh/h)	637	518	1330	495	217	830	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	671	279	1400	103	228	874	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	778	346	1942	1165	293	2340	
Arrive On Green	0.22	0.22	0.53	0.53	0.08	0.66	
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647	
Grp Volume(v), veh/h	671	279	1400	103	228	874	
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777	
Q Serve(g_s), s	18.3	16.8	29.2	1.8	6.5	11.2	
Cycle Q Clear(g_c), s	18.3	16.8	29.2	1.8	6.5	11.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	778	346	1942	1165	293	2340	
V/C Ratio(X)	0.86	0.81	0.72	0.09	0.78	0.37	
Avail Cap(c_a), veh/h	1480	658	2980	1603	330	3412	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	37.9	37.3	18.0	3.4	45.1	7.8	
Incr Delay (d2), s/veh	1.1	1.7	0.7	0.0	8.5	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	7.7	6.4	11.0	1.1	3.1	3.9	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	39.0	39.0	18.7	3.5	53.6	8.0	
LnGrp LOS	D	D	B	A	D	A	
Approach Vol, veh/h	950		1503			1102	
Approach Delay, s/veh	39.0		17.7			17.5	
Approach LOS	D		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.9	59.5				72.5	28.2
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	9.6	81.8				* 97	41.8
Max Q Clear Time (g_c+I1), s	8.5	31.2				13.2	20.3
Green Ext Time (p_c), s	0.1	22.1				18.4	1.7

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	105	60	150	130	235	1316	148	150	801	200
Future Volume (veh/h)	60	60	105	60	150	130	235	1316	148	150	801	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	67	117	67	167	144	261	1462	164	167	890	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	188	150	86	218	173	322	2139	1008	174	2155	1000
Arrive On Green	0.03	0.10	0.10	0.05	0.12	0.12	0.09	0.60	0.60	0.10	0.61	0.61
Sat Flow, veh/h	3456	1870	1492	1781	1870	1479	3456	3554	1548	1781	3554	1565
Grp Volume(v), veh/h	67	67	117	67	167	144	261	1462	164	167	890	222
Grp Sat Flow(s),veh/h/ln	1728	1870	1492	1781	1870	1479	1728	1777	1548	1781	1777	1565
Q Serve(g_s), s	2.5	4.3	9.9	4.8	11.2	12.3	9.6	35.9	5.3	12.0	17.0	7.7
Cycle Q Clear(g_c), s	2.5	4.3	9.9	4.8	11.2	12.3	9.6	35.9	5.3	12.0	17.0	7.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	188	150	86	218	173	322	2139	1008	174	2155	1000
V/C Ratio(X)	0.61	0.36	0.78	0.78	0.77	0.83	0.81	0.68	0.16	0.96	0.41	0.22
Avail Cap(c_a), veh/h	292	449	358	131	423	335	926	2139	1008	174	2155	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.7	54.2	56.7	60.8	55.3	55.8	57.4	17.4	8.8	58.0	13.3	9.8
Incr Delay (d2), s/veh	2.0	1.1	8.5	7.1	2.1	4.0	1.9	1.8	0.3	56.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.1	4.1	2.3	5.4	4.8	4.3	14.7	1.9	8.1	6.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	55.3	65.2	67.9	57.4	59.8	59.3	19.2	9.2	114.1	13.9	10.4
LnGrp LOS	E	E	E	E	E	E	E	B	A	F	B	B
Approach Vol, veh/h		251			378			1887			1279	
Approach Delay, s/veh		62.1			60.2			23.8			26.4	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	83.0	10.6	18.5	16.4	83.6	8.5	20.6
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	12.6	77.7	9.5	* 31	34.6	* 56	10.9	29.2
Max Q Clear Time (g_c+I1), s	14.0	37.9	6.8	11.9	11.6	19.0	4.5	14.3
Green Ext Time (p_c), s	0.0	25.9	0.0	0.7	0.5	13.6	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1746	10	480	290	0	0	0	0	360	10	921
Future Volume (veh/h)	0	1746	10	480	290	0	0	0	0	360	10	921
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1819	-11	500	302	0				375	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1942	840	562	2543	0				383	10	
Arrive On Green	0.00	0.53	0.00	0.16	0.72	0.00				0.22	0.22	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1737	46	1585
Grp Volume(v), veh/h	0	1819	-11	500	302	0				385	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	69.5	0.0	20.6	4.0	0.0				32.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	69.5	0.0	20.6	4.0	0.0				32.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1942	840	562	2543	0				393	0	
V/C Ratio(X)	0.00	0.94	-0.01	0.89	0.12	0.00				0.98	0.00	
Avail Cap(c_a), veh/h	0	2053	888	684	2772	0				393	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.9	0.0	61.9	6.6	0.0				58.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.4	0.0	1.3	0.0	0.0				39.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	32.4	0.0	9.5	1.5	0.0				18.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.3	0.0	63.2	6.6	0.0				97.8	0.0	0.0
LnGrp LOS	A	D	A	E	A	A				F	A	
Approach Vol, veh/h		1808			802						385	A
Approach Delay, s/veh		41.5			41.9						97.8	
Approach LOS		D			D						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	27.9	84.5		37.7		112.3						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 29	84.0		23.4		117.0						
Max Q Clear Time (g_c+I1), s	22.6	71.5		34.2		6.0						
Green Ext Time (p_c), s	1.0	8.0		0.0		1.4						

Intersection Summary												
HCM 6th Ctrl Delay			48.9									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1526	720	0	0	620	670	100	30	340	0	0	0
Future Volume (veh/h)	1526	720	0	0	620	670	100	30	340	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1606	758	0	0	653	576	105	32	21			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1590	3048	0	0	656	573	89	27	102			
Arrive On Green	0.46	0.86	0.00	0.00	0.37	0.37	0.06	0.06	0.06			
Sat Flow, veh/h	3456	3647	0	0	1890	1568	1381	421	1585			
Grp Volume(v), veh/h	1606	758	0	0	646	583	137	0	21			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1588	1801	0	1585			
Q Serve(g_s), s	59.8	5.0	0.0	0.0	47.1	47.5	8.4	0.0	1.6			
Cycle Q Clear(g_c), s	59.8	5.0	0.0	0.0	47.1	47.5	8.4	0.0	1.6			
Prop In Lane	1.00		0.00	0.00		0.99	0.77		1.00			
Lane Grp Cap(c), veh/h	1590	3048	0	0	649	580	116	0	102			
V/C Ratio(X)	1.01	0.25	0.00	0.00	0.99	1.01	1.18	0.00	0.21			
Avail Cap(c_a), veh/h	1590	3048	0	0	649	580	116	0	102			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.31	0.31	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.1	1.7	0.0	0.0	41.1	41.3	60.8	0.0	57.6			
Incr Delay (d2), s/veh	15.2	0.0	0.0	0.0	33.9	38.6	138.7	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	27.8	1.1	0.0	0.0	26.4	24.5	8.3	0.0	1.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	1.7	0.0	0.0	75.0	79.9	199.5	0.0	58.0			
LnGrp LOS	F	A	A	A	E	F	F	A	E			
Approach Vol, veh/h		2364			1229			158				
Approach Delay, s/veh		34.7			77.3			180.7				
Approach LOS		C			E			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		117.0		13.0	64.0	53.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		111.5		8.4	* 60	47.5						
Max Q Clear Time (g_c+I1), s		7.0		10.4	61.8	49.5						
Green Ext Time (p_c), s		4.0		0.0	0.0	0.0						

Intersection Summary												
HCM 6th Ctrl Delay			54.8									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Linda Vista Rd. & Via Las Cumbres

Year 2035 + P1 + P2 + P3 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	610	105	236	950	30	395	40	384	50	50	80
Future Volume (veh/h)	40	610	105	236	950	30	395	40	384	50	50	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	678	117	262	1056	33	439	44	427	56	56	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	1132	479	284	1567	49	460	634	781	72	227	187
Arrive On Green	0.03	0.32	0.32	0.16	0.45	0.45	0.26	0.34	0.34	0.04	0.12	0.12
Sat Flow, veh/h	1781	3554	1505	1781	3513	110	1781	1870	1558	1781	1870	1538
Grp Volume(v), veh/h	44	678	117	262	534	555	439	44	427	56	56	89
Grp Sat Flow(s),veh/h/ln	1781	1777	1505	1781	1777	1846	1781	1870	1558	1781	1870	1538
Q Serve(g_s), s	3.6	23.3	8.3	21.0	34.5	34.5	35.2	2.3	27.4	4.5	3.9	7.8
Cycle Q Clear(g_c), s	3.6	23.3	8.3	21.0	34.5	34.5	35.2	2.3	27.4	4.5	3.9	7.8
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	57	1132	479	284	793	824	460	634	781	72	227	187
V/C Ratio(X)	0.78	0.60	0.24	0.92	0.67	0.67	0.96	0.07	0.55	0.78	0.25	0.48
Avail Cap(c_a), veh/h	106	1132	479	314	793	824	486	654	798	179	335	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.7	41.6	36.5	60.0	31.8	31.8	53.0	32.4	25.1	68.9	57.7	59.4
Incr Delay (d2), s/veh	8.1	2.3	1.2	28.6	4.5	4.4	28.4	0.0	0.4	6.6	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	10.7	3.3	11.8	15.8	16.4	19.3	1.1	10.3	2.2	1.9	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.8	44.0	37.7	88.7	36.4	36.2	81.4	32.5	25.5	75.5	57.9	60.1
LnGrp LOS	E	D	D	F	D	D	F	C	C	E	E	E
Approach Vol, veh/h		839			1351			910			201	
Approach Delay, s/veh		44.9			46.4			52.8			63.8	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.5	52.9	41.8	22.8	9.0	71.4	10.3	54.3
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	25.6	* 34	39.6	* 26	8.6	50.4	14.6	50.7
Max Q Clear Time (g_c+I1), s	23.0	25.3	37.2	9.8	5.6	36.5	6.5	29.4
Green Ext Time (p_c), s	0.1	2.4	0.2	0.3	0.0	4.4	0.0	1.0

Intersection Summary		
HCM 6th Ctrl Delay	48.9	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2035 + P1 + P2 + P3 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	365	200	20	20	1076	570	0	0	20	110	20	295
Future Volume (vph)	365	200	20	20	1076	570	0	0	20	110	20	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.95				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.97	1.00
Satd. Flow (prot)	3433	3481		1770	3335				1516	1681	1710	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.97	1.00
Satd. Flow (perm)	3433	3481		1770	3335				1516	1681	1710	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	406	222	22	22	1196	633	0	0	22	122	22	328
RTOR Reduction (vph)	0	5	0	0	43	0	0	0	21	0	0	160
Lane Group Flow (vph)	406	239	0	22	1786	0	0	0	1	72	72	168
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	13.6	78.8		3.6	68.8				3.2	30.0	30.0	43.6
Effective Green, g (s)	13.6	78.8		3.6	68.8				3.2	30.0	30.0	43.6
Actuated g/C Ratio	0.10	0.59		0.03	0.51				0.02	0.22	0.22	0.32
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	347	2043		47	1709				36	375	382	509
v/s Ratio Prot	c0.12	0.07		0.01	c0.54					0.04	0.04	c0.03
v/s Ratio Perm									c0.00			0.07
v/c Ratio	1.17	0.12		0.47	1.05				0.01	0.19	0.19	0.33
Uniform Delay, d1	60.3	12.3		64.4	32.7				64.0	42.3	42.2	34.3
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	103.0	0.0		2.7	34.6				0.2	1.1	1.1	0.1
Delay (s)	163.3	12.3		67.0	67.3				64.1	43.4	43.3	34.4
Level of Service	F	B		E	E				E	D	D	C
Approach Delay (s)		106.6			67.3			64.1			37.1	
Approach LOS		F			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	71.1	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	134.2	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	95.7%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	240	502	1235	1102	367	100
Future Volume (vph)	240	502	1235	1102	367	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1542	3430	1420
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1542	3430	1420
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	528	1300	1160	386	105
RTOR Reduction (vph)	0	0	0	267	2	59
Lane Group Flow (vph)	253	528	1300	893	395	35
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	19.5	73.6	50.1	81.0	30.9	30.9
Effective Green, g (s)	19.5	73.6	50.1	81.0	30.9	30.9
Actuated g/C Ratio	0.15	0.55	0.37	0.60	0.23	0.23
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	257	1940	1321	930	789	326
v/s Ratio Prot	c0.14	0.15	c0.37	c0.22	0.12	
v/s Ratio Perm				0.36		0.03
v/c Ratio	0.98	0.27	0.98	0.96	0.50	0.11
Uniform Delay, d1	57.2	16.1	41.7	25.1	44.9	40.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	51.3	0.1	21.2	20.8	1.0	0.3
Delay (s)	108.5	16.2	62.9	45.9	46.0	41.1
Level of Service	F	B	E	D	D	D
Approach Delay (s)		46.1	54.9		45.1	
Approach LOS		D	D		D	

Intersection Summary				
HCM 2000 Control Delay	51.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	134.2	Sum of lost time (s)	18.9
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	778	30	20	2507	166	80	10	50	105	10	50
Future Volume (veh/h)	70	778	30	20	2507	166	80	10	50	105	10	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	819	26	21	2639	167	84	11	-10	111	11	-3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	2600	83	53	2473	155	192	20	184	239	217	0
Arrive On Green	0.04	0.74	0.74	0.03	0.73	0.73	0.12	0.12	0.00	0.12	0.12	0.00
Sat Flow, veh/h	1781	3511	111	1781	3394	212	1217	172	1585	1395	1870	0
Grp Volume(v), veh/h	74	414	431	21	1367	1439	95	0	-10	111	8	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1846	1781	1777	1830	1389	0	1585	1395	1870	0
Q Serve(g_s), s	5.6	10.6	10.6	1.6	98.1	98.1	8.4	0.0	0.0	0.0	0.5	0.0
Cycle Q Clear(g_c), s	5.6	10.6	10.6	1.6	98.1	98.1	8.9	0.0	0.0	8.0	0.5	0.0
Prop In Lane	1.00		0.06	1.00		0.12	0.88		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	74	1316	1367	53	1294	1333	212	0	184	239	217	0
V/C Ratio(X)	1.00	0.31	0.32	0.40	1.06	1.08	0.45	0.00	-0.05	0.46	0.04	0.00
Avail Cap(c_a), veh/h	74	1316	1367	79	1294	1333	374	0	365	399	431	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	64.5	5.9	5.9	64.1	18.3	18.3	56.7	0.0	0.0	56.1	52.8	0.0
Incr Delay (d2), s/veh	104.2	0.6	0.6	1.8	41.2	49.1	0.6	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	3.5	3.7	0.7	46.3	50.6	3.1	0.0	0.0	3.6	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	168.7	6.5	6.5	65.9	59.5	67.4	57.2	0.0	0.0	56.7	52.8	0.0
LnGrp LOS	F	A	A	E	F	F	E	A	A	E	D	A
Approach Vol, veh/h		919			2827			85			119	
Approach Delay, s/veh		19.6			63.6			64.0			56.4	
Approach LOS		B			E			E			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	8.4	105.7	20.6	10.0	104.1	20.6
Change Period (Y+Rc), s	4.4	* 6	4.9	4.4	6.0	4.9
Max Green Setting (Gmax), s	6.0	* 98	31.0	5.6	98.1	31.0
Max Q Clear Time (g_c+I1), s	3.6	12.6	10.0	7.6	100.1	10.9
Green Ext Time (p_c), s	0.0	19.4	0.1	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	864	1583	50	60	50
Future Vol, veh/h	60	864	1583	50	60	50
Conflicting Peds, #/hr	37	0	0	37	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	939	1721	54	65	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1812	0	-	0	2385	925
Stage 1	-	-	-	-	1785	-
Stage 2	-	-	-	-	600	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	335	-	-	-	~ 28	271
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	511	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	325	-	-	-	~ 21	263
Mov Cap-2 Maneuver	-	-	-	-	75	-
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	495	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	181.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	325	-	-	-	111
HCM Lane V/C Ratio	0.201	-	-	-	1.077
HCM Control Delay (s)	18.8	-	-	-	181.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	7.3

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	894	20	0	1633	0	87
Future Vol, veh/h	894	20	0	1633	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	972	22	0	1775	0	95

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	497
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	519
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	519
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	519	-	-	-
HCM Lane V/C Ratio	0.182	-	-	-
HCM Control Delay (s)	13.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	722	51	10	2208	636	277	102	58	230	31	160
Future Volume (veh/h)	188	722	51	10	2208	636	277	102	58	230	31	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	209	802	55	11	2453	536	301	111	63	256	34	50
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	1913	131	18	1832	792	199	125	71	281	37	276
Arrive On Green	0.06	0.57	0.57	0.01	0.52	0.52	0.11	0.11	0.11	0.18	0.18	0.18
Sat Flow, veh/h	1781	3366	231	1781	3554	1536	1781	1120	636	1581	210	1550
Grp Volume(v), veh/h	209	423	434	11	2453	536	301	0	174	290	0	50
Grp Sat Flow(s),veh/h/ln	1781	1777	1820	1781	1777	1536	1781	0	1756	1791	0	1550
Q Serve(g_s), s	8.6	19.4	19.4	0.9	74.0	37.3	16.0	0.0	14.0	22.8	0.0	3.9
Cycle Q Clear(g_c), s	8.6	19.4	19.4	0.9	74.0	37.3	16.0	0.0	14.0	22.8	0.0	3.9
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.36	0.88		1.00
Lane Grp Cap(c), veh/h	107	1010	1034	18	1832	792	199	0	196	319	0	276
V/C Ratio(X)	1.96	0.42	0.42	0.62	1.34	0.68	1.52	0.00	0.89	0.91	0.00	0.18
Avail Cap(c_a), veh/h	107	1010	1034	50	1832	792	199	0	196	399	0	346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.5	17.5	17.6	70.8	34.8	25.9	63.8	0.0	62.9	57.9	0.0	50.1
Incr Delay (d2), s/veh	463.2	1.3	1.3	31.0	156.3	4.6	256.2	0.0	35.5	19.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	7.9	8.1	0.5	69.6	14.0	21.4	0.0	8.2	12.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	530.7	18.8	18.8	101.8	191.0	30.5	320.0	0.0	98.4	77.1	0.0	50.2
LnGrp LOS	F	B	B	F	F	C	F	A	F	E	A	D
Approach Vol, veh/h		1066			3000			475			340	
Approach Delay, s/veh		119.2			162.0			238.8			73.2	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	87.5		30.6	13.0	79.9		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 79		32.0	8.6	74.0		16.0				
Max Q Clear Time (g_c+I1), s	2.9	21.4		24.8	10.6	76.0		18.0				
Green Ext Time (p_c), s	0.0	4.1		0.7	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		153.9	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
03/18/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	958	131	78	2384	141	86
Future Volume (veh/h)	958	131	78	2384	141	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	1041	142	85	2591	123	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1754	239	142	2519	209	189
Arrive On Green	0.56	0.56	0.08	0.71	0.12	0.12
Sat Flow, veh/h	3236	428	1781	3647	1781	1610
Grp Volume(v), veh/h	588	595	85	2591	123	125
Grp Sat Flow(s),veh/h/ln	1777	1793	1781	1777	1781	1610
Q Serve(g_s), s	13.6	13.6	2.9	44.1	4.1	4.6
Cycle Q Clear(g_c), s	13.6	13.6	2.9	44.1	4.1	4.6
Prop In Lane		0.24	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	992	1001	142	2519	209	189
V/C Ratio(X)	0.59	0.59	0.60	1.03	0.59	0.66
Avail Cap(c_a), veh/h	992	1001	421	2519	2723	2461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	9.1	27.6	9.1	26.0	26.3
Incr Delay (d2), s/veh	1.0	1.0	4.0	25.7	2.6	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	3.9	1.3	15.4	1.8	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.0	10.0	31.6	34.8	28.6	30.2
LnGrp LOS	B	B	C	F	C	C
Approach Vol, veh/h	1183			2676	248	
Approach Delay, s/veh	10.0			34.7	29.4	
Approach LOS	B			C	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.4	40.6				50.0		12.2
Change Period (Y+Rc), s	4.4	* 5.9				5.9		4.9
Max Green Setting (Gmax), s	14.7	* 25				44.1		95.1
Max Q Clear Time (g_c+I1), s	4.9	15.6				46.1		6.6
Green Ext Time (p_c), s	0.1	4.8				0.0		0.8

Intersection Summary			
HCM 6th Ctrl Delay		27.2	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1020	41	0	2462	0	44
Future Vol, veh/h	1020	41	0	2462	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1109	45	0	2676	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	577
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	460
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	460
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	460	-	-	-
HCM Lane V/C Ratio	0.104	-	-	-
HCM Control Delay (s)	13.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	1044	20	41	2404	58	116
Future Volume (veh/h)	0	1044	20	41	2404	58	116
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		1135	17	45	2613	63	124
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2612	39	71	2848	65	129
Arrive On Green		0.73	0.73	0.04	0.80	0.12	0.12
Sat Flow, veh/h		3677	54	1781	3647	552	1086
Grp Volume(v), veh/h		563	589	45	2613	188	0
Grp Sat Flow(s),veh/h/ln		1777	1861	1781	1777	1647	0
Q Serve(g_s), s		16.9	17.0	3.4	74.4	15.3	0.0
Cycle Q Clear(g_c), s		16.9	17.0	3.4	74.4	15.3	0.0
Prop In Lane			0.03	1.00		0.34	0.66
Lane Grp Cap(c), veh/h		1295	1356	71	2848	195	0
V/C Ratio(X)		0.43	0.43	0.63	0.92	0.96	0.00
Avail Cap(c_a), veh/h		1452	1520	114	3024	195	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh		7.3	7.3	63.8	10.1	59.1	0.0
Incr Delay (d2), s/veh		0.2	0.2	9.0	4.9	53.4	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.5	5.8	1.7	21.2	9.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		7.5	7.5	72.8	14.9	112.5	0.0
LnGrp LOS		A	A	E	B	F	A
Approach Vol, veh/h		1152			2658	188	
Approach Delay, s/veh		7.5			15.9	112.5	
Approach LOS		A			B	F	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.8	104.2			114.0	20.9
Change Period (Y+Rc), s	4.4	5.9			* 5.9	4.9
Max Green Setting (Gmax), s	8.6	110.2			* 1.1E2	16.0
Max Q Clear Time (g_c+I1), s	5.4	19.0			76.4	17.3
Green Ext Time (p_c), s	0.0	8.9			31.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1080	170	631	2262	10	423	20	199	30	20	10
Future Volume (veh/h)	20	1080	170	631	2262	10	423	20	199	30	20	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	1200	189	701	2513	11	470	22	221	33	22	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1971	310	634	2219	10	283	11	693	37	21	4
Arrive On Green	0.02	0.44	0.44	0.18	0.61	0.61	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	4435	698	3456	3628	16	914	43	1572	0	81	16
Grp Volume(v), veh/h	22	921	468	701	1230	1294	492	0	221	66	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1729	1728	1777	1867	957	0	1572	98	0	0
Q Serve(g_s), s	1.8	29.9	29.9	26.6	88.7	88.7	0.0	0.0	13.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	29.9	29.9	26.6	88.7	88.7	37.1	0.0	13.3	37.1	0.0	0.0
Prop In Lane	1.00		0.40	1.00		0.01	0.96		1.00	0.50		0.17
Lane Grp Cap(c), veh/h	29	1513	769	634	1087	1142	293	0	693	62	0	0
V/C Ratio(X)	0.76	0.61	0.61	1.11	1.13	1.13	1.68	0.00	0.32	1.06	0.00	0.00
Avail Cap(c_a), veh/h	57	1552	788	634	1087	1142	293	0	693	62	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	30.7	30.7	59.2	28.1	28.2	57.0	0.0	26.5	58.0	0.0	0.0
Incr Delay (d2), s/veh	14.1	0.7	1.3	50.1	60.3	61.2	318.9	0.0	1.2	131.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.0	12.3	15.8	52.0	54.9	37.0	0.0	5.3	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.2	31.3	32.0	109.3	88.5	89.3	375.9	0.0	27.7	189.8	0.0	0.0
LnGrp LOS	F	C	C	F	F	F	F	A	C	F	A	A
Approach Vol, veh/h		1411			3225			713			66	
Approach Delay, s/veh		32.4			93.4			268.0			189.8	
Approach LOS		C			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.0	70.4		42.0	6.8	94.6		42.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	26.6	66.1		37.1	4.6	* 89		37.1				
Max Q Clear Time (g_c+I1), s	28.6	31.9		39.1	3.8	90.7		39.1				
Green Ext Time (p_c), s	0.0	10.6		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	101.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1274	20	110	2738	20	10	10	30	70	10	40
Future Volume (veh/h)	30	1274	20	110	2738	20	10	10	30	70	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	1385	18	120	2976	22	11	11	8	76	11	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	3642	47	169	2784	1242	95	53	38	104	20	76
Arrive On Green	0.70	0.70	0.70	0.05	0.78	0.78	0.05	0.05	0.05	0.06	0.06	0.06
Sat Flow, veh/h	79	5193	67	3456	3554	1585	1781	982	714	1781	333	1303
Grp Volume(v), veh/h	33	908	495	120	2976	22	11	0	19	76	0	54
Grp Sat Flow(s),veh/h/ln	79	1702	1857	1728	1777	1585	1781	0	1697	1781	0	1636
Q Serve(g_s), s	0.0	14.3	14.3	4.5	103.4	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Cycle Q Clear(g_c), s	92.6	14.3	14.3	4.5	103.4	0.4	0.8	0.0	1.4	5.5	0.0	4.2
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.42	1.00		0.80
Lane Grp Cap(c), veh/h	55	2387	1302	169	2784	1242	95	0	91	104	0	96
V/C Ratio(X)	0.60	0.38	0.38	0.71	1.07	0.02	0.12	0.00	0.21	0.73	0.00	0.56
Avail Cap(c_a), veh/h	55	2387	1302	191	2784	1242	418	0	399	216	0	198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.64	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.0	8.0	8.0	61.9	14.3	3.1	59.5	0.0	59.8	61.1	0.0	60.5
Incr Delay (d2), s/veh	28.0	0.3	0.5	7.8	39.0	0.0	0.2	0.0	0.4	9.3	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.7	5.2	2.1	43.2	0.1	0.4	0.0	0.6	2.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.0	8.3	8.6	69.7	53.3	3.2	59.7	0.0	60.2	70.4	0.0	65.6
LnGrp LOS	F	A	A	E	F	A	E	A	E	E	A	E
Approach Vol, veh/h		1436			3118			30			130	
Approach Delay, s/veh		10.4			53.6			60.0			68.4	
Approach LOS		B			D			E			E	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	10.8	98.0		11.7		108.8		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	7.3	59.5		16.0		* 63		31.0				
Max Q Clear Time (g_c+I1), s	6.5	94.6		7.5		105.4		3.4				
Green Ext Time (p_c), s	0.0	0.0		0.3		0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1324	30	210	2798	10	10	10	30	30	10	10
Future Volume (veh/h)	10	1324	30	210	2798	10	10	10	30	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1409	32	223	2977	11	11	27	22	32	11	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	18	3660	83	287	4124	15	148	137	114	144	62	62
Arrive On Green	0.01	0.71	0.71	0.08	0.79	0.79	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	5135	117	3456	5251	19	1374	1870	1566	1342	852	852
Grp Volume(v), veh/h	11	934	507	223	1928	1060	11	27	22	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1847	1728	1702	1866	1374	1870	1566	1342	0	1704
Q Serve(g_s), s	0.7	12.2	12.2	7.1	31.4	31.6	0.8	1.5	1.5	2.6	0.0	1.4
Cycle Q Clear(g_c), s	0.7	12.2	12.2	7.1	31.4	31.6	2.2	1.5	1.5	4.1	0.0	1.4
Prop In Lane	1.00		0.06	1.00		0.01	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	18	2426	1317	287	2673	1466	148	137	114	144	0	125
V/C Ratio(X)	0.60	0.39	0.39	0.78	0.72	0.72	0.07	0.20	0.19	0.22	0.00	0.18
Avail Cap(c_a), veh/h	67	2426	1317	481	2673	1466	417	503	421	407	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.2	6.4	6.4	50.3	6.0	6.0	49.8	48.8	48.8	50.7	0.0	48.7
Incr Delay (d2), s/veh	10.9	0.5	0.9	1.7	1.7	3.1	0.1	0.3	0.3	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.6	4.1	3.0	7.6	8.9	0.3	0.7	0.6	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	6.8	7.2	52.1	7.7	9.1	49.9	49.1	49.1	51.0	0.0	49.0
LnGrp LOS	E	A	A	D	A	A	D	D	D	D	A	D
Approach Vol, veh/h		1452			3211			60			54	
Approach Delay, s/veh		7.4			11.2			49.2			50.2	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	85.2		13.1	5.6	93.4		13.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	15.6	51.6		30.1	4.2	* 63		30.1				
Max Q Clear Time (g_c+I1), s	9.1	14.2		6.1	2.7	33.6		4.2				
Green Ext Time (p_c), s	0.2	15.0		0.1	0.0	27.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		11.0
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1334	70	0	2698	0	50
Future Vol, veh/h	1334	70	0	2698	0	50
Conflicting Peds, #/hr	0	10	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1482	78	0	2998	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	790
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	286
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	283
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.8
HCM LOS			C

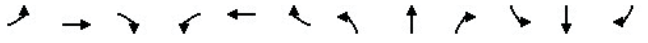
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	283	-	-	-
HCM Lane V/C Ratio	0.196	-	-	-
HCM Control Delay (s)	20.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	868	233	680	595
Future Volume (Veh/h)	0	0	868	233	680	595
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	943	253	739	647
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2744	472			1196	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2744	472			1196	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	539			579	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	629	399	169	739	324	324
Volume Left	0	0	0	739	0	0
Volume Right	0	84	169	0	0	0
cSH	1700	1700	1700	579	1700	1700
Volume to Capacity	0.37	0.23	0.10	1.28	0.19	0.19
Queue Length 95th (ft)	0	0	0	735	0	0
Control Delay (s)	0.0	0.0	0.0	159.3	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			84.9		
Approach LOS						

Intersection Summary			
Average Delay		45.6	
Intersection Capacity Utilization		70.8%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	988	358	227	1859	873	903	40	970	430	10	125
Future Volume (veh/h)	88	988	358	227	1859	873	903	40	970	430	10	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	94	1051	0	241	1978	929	961	43	1032	457	11	133
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	2761		296	2121	1549	880	377	794	515	187	312
Arrive On Green	0.10	0.43	0.00	0.09	0.42	0.42	0.25	0.20	0.20	0.15	0.10	0.10
Sat Flow, veh/h	3456	6434	1585	3456	5106	2728	3456	1870	2753	3456	1870	1563
Grp Volume(v), veh/h	94	1051	0	241	1978	929	961	43	1032	457	11	133
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1563
Q Serve(g_s), s	3.8	16.7	0.0	10.3	55.5	33.8	38.2	2.8	30.3	19.5	0.8	11.2
Cycle Q Clear(g_c), s	3.8	16.7	0.0	10.3	55.5	33.8	38.2	2.8	30.3	19.5	0.8	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	2761		296	2121	1549	880	377	794	515	187	312
V/C Ratio(X)	0.28	0.38		0.81	0.93	0.60	1.09	0.11	1.30	0.89	0.06	0.43
Avail Cap(c_a), veh/h	346	2761		530	2121	1549	880	377	794	1203	524	593
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.7	29.2	0.0	67.4	41.9	21.6	55.9	48.9	53.5	62.6	61.1	52.7
Incr Delay (d2), s/veh	0.2	0.4	0.0	5.3	8.9	1.7	58.6	0.6	144.0	2.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.4	0.0	4.7	24.1	11.1	23.8	1.4	30.8	8.7	0.4	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	29.6	0.0	72.7	50.8	23.3	114.5	49.5	197.5	64.7	61.2	53.1
LnGrp LOS	E	C		E	D	C	F	D	F	E	E	D
Approach Vol, veh/h		1145	A		3148			2036			601	
Approach Delay, s/veh		32.4			44.3			155.2			62.1	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.8	71.4	42.2	19.6	18.9	69.3	26.9	34.9
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	23.0	27.2	38.2	42.0	* 15	35.0	52.2	27.4
Max Q Clear Time (g_c+I1), s	12.3	18.7	40.2	13.2	5.8	57.5	21.5	32.3
Green Ext Time (p_c), s	0.6	3.1	0.0	0.3	0.1	0.0	0.9	0.0

Intersection Summary		
HCM 6th Ctrl Delay	76.5	
HCM 6th LOS	E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2035 + P1 + P2 + P3 AM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	711	1647	0	0	2021	1175	0	0	0	1450	0	938
Future Volume (veh/h)	711	1647	0	0	2021	1175	0	0	0	1450	0	938
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	748	1734	0	0	2127	1237				1526	0	987
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	480	6194	0	0	4112	1783				1744	0	1356
Arrive On Green	0.14	0.83	0.00	0.00	0.64	0.64				0.35	0.00	0.35
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	748	1734	0	0	2127	1237				1526	0	987
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	12.5	4.7	0.0	0.0	16.0	25.9				25.6	0.0	25.3
Cycle Q Clear(g_c), s	12.5	4.7	0.0	0.0	16.0	25.9				25.6	0.0	25.3
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	480	6194	0	0	4112	1783				1744	0	1356
V/C Ratio(X)	1.56	0.28	0.00	0.00	0.52	0.69				0.87	0.00	0.73
Avail Cap(c_a), veh/h	480	6194	0	0	4112	1783				1786	0	1379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	1.7	0.0	0.0	8.8	10.5				27.5	0.0	18.4
Incr Delay (d2), s/veh	261.1	0.1	0.0	0.0	0.5	2.3				5.1	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.4	0.5	0.0	0.0	5.0	7.4				10.6	0.0	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	299.8	1.8	0.0	0.0	9.2	12.8				32.7	0.0	20.3
LnGrp LOS	F	A	A	A	A	B				C	A	C
Approach Vol, veh/h		2482			3364						2513	
Approach Delay, s/veh		91.6			10.5						27.8	
Approach LOS		F			B						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	63.8		35.2		80.8
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	12.5	31.5		32.0		* 50
Max Q Clear Time (g_c+I1), s	14.5	27.9		27.6		6.7
Green Ext Time (p_c), s	0.0	3.4		3.6		17.7

Intersection Summary	
HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
02/27/2020

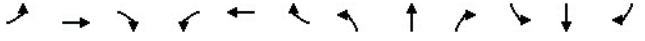
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	836	1352	560	151	2206	60	445	140	98	50	60	355
Future Volume (veh/h)	836	1352	560	151	2206	60	445	140	98	50	60	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	871	1408	583	157	2298	62	464	146	102	52	62	370
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	675	3110	1315	209	2243	543	510	551	356	131	300	423
Arrive On Green	0.20	0.48	0.48	0.06	0.35	0.35	0.15	0.27	0.27	0.04	0.16	0.16
Sat Flow, veh/h	3456	6434	2721	3456	6434	1559	3456	2040	1318	3456	1870	2638
Grp Volume(v), veh/h	871	1408	583	157	2298	62	464	126	122	52	62	370
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1581	1728	1870	1319
Q Serve(g_s), s	26.6	19.7	19.2	6.1	47.5	3.7	18.0	7.6	8.3	2.0	3.9	18.7
Cycle Q Clear(g_c), s	26.6	19.7	19.2	6.1	47.5	3.7	18.0	7.6	8.3	2.0	3.9	18.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	675	3110	1315	209	2243	543	510	480	427	131	300	423
V/C Ratio(X)	1.29	0.45	0.44	0.75	1.02	0.11	0.91	0.26	0.29	0.40	0.21	0.87
Avail Cap(c_a), veh/h	675	3110	1315	446	2243	543	522	640	570	167	482	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	23.3	23.1	63.0	44.4	30.1	57.2	39.1	39.3	64.0	49.7	55.9
Incr Delay (d2), s/veh	142.0	0.5	1.1	2.1	25.6	0.4	19.4	0.1	0.1	1.0	0.2	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.6	7.3	6.4	2.7	22.1	1.5	9.2	3.4	3.3	0.9	1.9	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	196.8	23.8	24.2	65.1	69.9	30.5	76.6	39.2	39.5	65.1	49.9	61.5
LnGrp LOS	F	C	C	E	F	C	E	D	D	E	D	E
Approach Vol, veh/h		2862			2517			712			484	
Approach Delay, s/veh		76.5			68.7			63.6			60.4	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	72.4	24.5	26.8	31.0	54.0	9.6	41.7
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	17.6	* 58	20.6	35.1	26.6	47.5	6.6	49.1
Max Q Clear Time (g_c+I1), s	8.1	21.7	20.0	20.7	28.6	49.5	4.0	10.3
Green Ext Time (p_c), s	0.2	22.4	0.1	1.2	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	70.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	220	10	430	170	602	0	0	505	385
Future Volume (veh/h)	0	0	0	220	10	430	170	602	0	0	505	385
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				240	0	453	179	634	0	0	532	405
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1124	0	491	249	1990	0	0	1560	692
Arrive On Green				0.32	0.00	0.32	0.14	1.00	0.00	0.00	0.44	0.44
Sat Flow, veh/h				3563	0	1557	3456	3647	0	0	3647	1576
Grp Volume(v), veh/h				240	0	453	179	634	0	0	532	405
Grp Sat Flow(s),veh/h/ln				1781	0	1557	1728	1777	0	0	1777	1576
Q Serve(g_s), s				4.4	0.0	25.3	4.5	0.0	0.0	0.0	8.9	17.5
Cycle Q Clear(g_c), s				4.4	0.0	25.3	4.5	0.0	0.0	0.0	8.9	17.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1124	0	491	249	1990	0	0	1560	692
V/C Ratio(X)				0.21	0.00	0.92	0.72	0.32	0.00	0.00	0.34	0.59
Avail Cap(c_a), veh/h				1231	0	538	407	1990	0	0	1560	692
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.6	0.0	29.7	37.6	0.0	0.0	0.0	16.7	19.1
Incr Delay (d2), s/veh				0.1	0.0	20.6	1.4	0.4	0.0	0.0	0.6	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	11.5	1.8	0.1	0.0	0.0	3.6	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.7	0.0	50.3	39.0	0.4	0.0	0.0	17.3	22.7
LnGrp LOS				C	A	D	D	A	A	A	B	C
Approach Vol, veh/h					693			813			937	
Approach Delay, s/veh					40.7			8.9			19.6	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.7			10.9	45.8		33.3				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			10.6	32.7		31.1				
Max Q Clear Time (g_c+I1), s		2.0			6.5	19.5		27.3				
Green Ext Time (p_c), s		4.3			0.1	6.8		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		22.0	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	20	210	0	0	0	0	538	150	230	545	0
Future Volume (veh/h)	205	20	210	0	0	0	0	538	150	230	545	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	40				0	578	133	247	586	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1806	414	318	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.63	0.63	0.18	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2964	659	3456	3647	0
Grp Volume(v), veh/h	236	0	40				0	357	354	247	586	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1752	1728	1777	0
Q Serve(g_s), s	5.7	0.0	2.1				0.0	8.4	8.4	6.1	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	2.1				0.0	8.4	8.4	6.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	1118	1102	318	2737	0
V/C Ratio(X)	0.60	0.00	0.23				0.00	0.32	0.32	0.78	0.21	0.00
Avail Cap(c_a), veh/h	1073	0	477				0	1118	1102	445	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.96	0.96	0.00
Uniform Delay (d), s/veh	38.1	0.0	36.5				0.0	7.7	7.7	35.9	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.6				0.0	0.8	0.8	3.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.8				0.0	3.1	3.1	2.5	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	37.1				0.0	8.5	8.5	39.2	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		276						711			833	
Approach Delay, s/veh		39.2						8.5			11.7	
Approach LOS		D						A			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.7	62.4		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	11.6	* 37		27.1		52.2						
Max Q Clear Time (g_c+I1), s	8.1	10.4		7.7		2.0						
Green Ext Time (p_c), s	0.2	6.9		0.8		5.6						

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2035 + P1 + P2 + P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	230	20	220	650	642	0	0	430	130
Future Volume (veh/h)	0	0	0	230	20	220	650	642	0	0	430	130
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				235	20	224	663	655	0	0	439	133
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				322	24	266	541	2517	0	0	2539	788
Arrive On Green				0.18	0.18	0.18	0.16	0.71	0.00	0.00	0.50	0.50
Sat Flow, veh/h				1781	132	1474	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				235	0	244	663	655	0	0	439	133
Grp Sat Flow(s),veh/h/ln				1781	0	1605	1728	1777	0	0	1702	1585
Q Serve(g_s), s				11.2	0.0	13.2	14.1	5.9	0.0	0.0	4.3	4.1
Cycle Q Clear(g_c), s				11.2	0.0	13.2	14.1	5.9	0.0	0.0	4.3	4.1
Prop In Lane				1.00		0.92	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				322	0	290	541	2517	0	0	2539	788
V/C Ratio(X)				0.73	0.00	0.84	1.22	0.26	0.00	0.00	0.17	0.17
Avail Cap(c_a), veh/h				576	0	519	541	2517	0	0	2539	788
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.8	0.0	35.6	38.0	4.7	0.0	0.0	12.4	12.4
Incr Delay (d2), s/veh				1.2	0.0	2.6	114.8	0.2	0.0	0.0	0.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.7	0.0	5.1	14.5	1.8	0.0	0.0	1.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.0	0.0	38.2	152.8	4.9	0.0	0.0	12.6	12.9
LnGrp LOS				D	A	D	F	A	A	A	B	B
Approach Vol, veh/h					479			1318			572	
Approach Delay, s/veh					37.1			79.3			12.7	
Approach LOS					D			E			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	68.8		19.0	49.8		21.2						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	50.9		14.1	* 32		29.1						
Max Q Clear Time (g_c+I1), s	7.9		16.1	6.3		15.2						
Green Ext Time (p_c), s	6.1		0.0	3.6		1.0						

Intersection Summary		
HCM 6th Ctrl Delay	54.7	
HCM 6th LOS	D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2035 + P1 + P2 + P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	80	382	0	0	0	0	810	260	220	410	0
Future Volume (veh/h)	472	80	382	0	0	0	0	810	260	220	410	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	557	0	402				0	853	274	232	432	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1038	0	460				0	1922	583	271	2074	0
Arrive On Green	0.29	0.00	0.29				0.00	0.38	0.38	0.15	0.58	0.00
Sat Flow, veh/h	3563	0	1580				0	5274	1548	1781	3647	0
Grp Volume(v), veh/h	557	0	402				0	853	274	232	432	0
Grp Sat Flow(s),veh/h/ln	1781	0	1580				0	1702	1548	1781	1777	0
Q Serve(g_s), s	10.5	0.0	19.3				0.0	10.0	10.7	10.2	4.6	0.0
Cycle Q Clear(g_c), s	10.5	0.0	19.3				0.0	10.0	10.7	10.2	4.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1038	0	460				0	1922	583	271	2074	0
V/C Ratio(X)	0.54	0.00	0.87				0.00	0.44	0.47	0.86	0.21	0.00
Avail Cap(c_a), veh/h	1514	0	672				0	1922	583	325	2074	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.93	0.93	0.00
Uniform Delay (d), s/veh	23.8	0.0	26.9				0.0	18.7	18.9	33.1	7.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	6.3				0.0	0.7	2.7	14.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	7.4				0.0	3.9	4.1	5.3	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	0.0	33.3				0.0	19.4	21.6	47.3	8.1	0.0
LnGrp LOS	C	A	C				A	B	C	D	A	A
Approach Vol, veh/h		959						1127			664	
Approach Delay, s/veh		27.9						20.0			21.8	
Approach LOS		C						B			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.6	35.2		28.2		51.8						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	14.6	17.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	12.2	12.7		21.3		6.6						
Green Ext Time (p_c), s	0.1	2.7		1.6		2.0						

Intersection Summary		
HCM 6th Ctrl Delay	23.2	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1092	60	200	2040	240	170	60	90	10	10	20
Future Volume (veh/h)	110	1092	60	200	2040	240	170	60	90	10	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.98		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	117	1162	64	213	2170	255	181	64	96	11	11	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	2311	127	241	2423	280	287	90	130	138	144	234
Arrive On Green	0.08	0.45	0.45	0.13	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1853	5143	283	1853	4826	558	817	304	439	343	484	790
Grp Volume(v), veh/h	117	800	426	213	1582	843	341	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1886	1853	1770	1843	1560	0	0	1617	0	0
Q Serve(g_s), s	7.8	20.1	20.1	14.1	50.3	52.5	22.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.8	20.1	20.1	14.1	50.3	52.5	24.4	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.30	0.53		0.28	0.26		0.49
Lane Grp Cap(c), veh/h	143	1591	847	241	1777	925	507	0	0	516	0	0
V/C Ratio(X)	0.82	0.50	0.50	0.89	0.89	0.91	0.67	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	202	1591	847	305	1777	925	507	0	0	516	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.8	24.5	24.5	53.5	28.0	28.6	39.3	0.0	0.0	31.7	0.0	0.0
Incr Delay (d2), s/veh	11.4	1.1	2.1	18.8	7.2	14.6	7.0	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.3	9.1	7.7	21.4	25.1	10.3	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	25.6	26.6	72.2	35.2	43.2	46.2	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	E	C	C	E	D	D	D	A	A	C	A	A
Approach Vol, veh/h		1343			2638			341			43	
Approach Delay, s/veh		29.6			40.7			46.2			32.0	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.6	62.4		42.0	14.0	69.0		42.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	20.6	51.8		37.1	13.6	58.8		37.1				
Max Q Clear Time (g_c+I1), s	16.1	22.1		4.2	9.8	54.5		26.4				
Green Ext Time (p_c), s	0.1	22.7		0.2	0.0	4.3		1.3				

Intersection Summary		
HCM 6th Ctrl Delay		37.7
HCM 6th LOS		D

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	87	10	521	767	20
Future Vol, veh/h	0	87	10	521	767	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	95	11	566	834	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	428	856	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	575	780	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	575	780	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	780	-	575	-	-
HCM Lane V/C Ratio	0.014	-	0.164	-	-
HCM Control Delay (s)	9.7	-	12.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 AM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	156	402	231	66	120	179	238	201	231	422	50
Future Volume (veh/h)	20	156	402	231	66	120	179	238	201	231	422	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	159	410	236	67	122	183	243	205	236	431	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	666	563	281	63	556	210	629	500	228	1131	133
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.12	0.35	0.35	0.13	0.36	0.36
Sat Flow, veh/h	1194	1870	1581	621	176	1561	1781	1819	1445	1781	3177	373
Grp Volume(v), veh/h	20	159	410	303	0	122	183	237	211	236	240	242
Grp Sat Flow(s),veh/h/ln	1194	1870	1581	797	0	1561	1781	1777	1487	1781	1777	1774
Q Serve(g_s), s	0.0	6.4	24.1	31.7	0.0	5.8	10.8	10.8	11.6	13.7	10.7	10.9
Cycle Q Clear(g_c), s	38.1	6.4	24.1	38.1	0.0	5.8	10.8	10.8	11.6	13.7	10.7	10.9
Prop In Lane	1.00		1.00	0.78		1.00	1.00		0.97	1.00		0.21
Lane Grp Cap(c), veh/h	67	666	563	344	0	556	210	614	514	228	633	632
V/C Ratio(X)	0.30	0.24	0.73	0.88	0.00	0.22	0.87	0.39	0.41	1.03	0.38	0.38
Avail Cap(c_a), veh/h	67	666	563	344	0	556	210	614	514	228	633	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	24.2	29.9	38.6	0.0	24.1	46.4	26.4	26.7	46.7	25.6	25.7
Incr Delay (d2), s/veh	0.9	0.1	4.1	23.5	0.0	0.4	29.6	1.8	2.4	68.9	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.8	9.6	10.2	0.0	2.2	6.5	4.8	4.4	10.4	4.8	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.4	24.3	34.1	62.2	0.0	24.5	76.0	28.2	29.1	115.6	27.4	27.5
LnGrp LOS	D	C	C	E	A	C	E	C	C	F	C	C
Approach Vol, veh/h		589			425			631			718	
Approach Delay, s/veh		32.1			51.4			42.4			56.4	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.1	43.9		45.0	17.0	45.0		45.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	13.7	35.0		38.1	12.6	* 38		38.1				
Max Q Clear Time (g_c+I1), s	15.7	13.6		40.1	12.8	12.9		40.1				
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	2.7		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		45.7
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2035 + P1 + P2 + P3 AM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	322	0	24	0	0	0	85	66	0	0	350	621
Future Volume (veh/h)	322	0	24	0	0	0	85	66	0	0	350	621
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	358	0	17				92	72	0	0	380	675
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	566	0	252				207	2235	0	4	1683	751
Arrive On Green	0.16	0.00	0.16				0.06	0.63	0.00	0.00	0.47	0.47
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	358	0	17				92	72	0	0	380	675
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	4.3	0.0	0.4				1.2	0.4	0.0	0.0	2.9	18.0
Cycle Q Clear(g_c), s	4.3	0.0	0.4				1.2	0.4	0.0	0.0	2.9	18.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	566	0	252				207	2235	0	4	1683	751
V/C Ratio(X)	0.63	0.00	0.07				0.44	0.03	0.00	0.00	0.23	0.90
Avail Cap(c_a), veh/h	1397	0	621				307	2235	0	154	1816	810
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	16.5				21.0	3.2	0.0	0.0	7.2	11.1
Incr Delay (d2), s/veh	1.2	0.0	0.1				1.5	0.0	0.0	0.0	0.1	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.4				0.5	0.1	0.0	0.0	0.8	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	16.6				22.4	3.3	0.0	0.0	7.2	23.5
LnGrp LOS	B	A	B				C	A	A	A	A	C
Approach Vol, veh/h		375						164			1055	
Approach Delay, s/veh		19.2						14.0			17.7	
Approach LOS		B						B			B	

Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	0.0	33.9		12.2	7.2	26.8						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9						
Max Green Setting (Gmax), s	4.0	23.7		18.1	4.1	23.6						
Max Q Clear Time (g_c+I1), s	0.0	2.4		6.3	3.2	20.0						
Green Ext Time (p_c), s	0.0	0.3		1.1	0.0	1.8						

Intersection Summary		
HCM 6th Ctrl Delay		17.7
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	263	0	373	306	0	17	0	66	0	0	0
Future Volume (veh/h)	0	263	0	373	306	0	17	0	66	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870			
Adj Flow Rate, veh/h	0	286	0	405	333	0	18	0	72			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2			
Cap, veh/h	0	2058	0	903	2058	0	135	0	120			
Arrive On Green	0.00	0.58	0.00	0.58	0.58	0.00	0.08	0.00	0.08			
Sat Flow, veh/h	0	3741	0	1093	3647	0	1781	0	1585			
Grp Volume(v), veh/h	0	286	0	405	333	0	18	0	72			
Grp Sat Flow(s),veh/h/ln	0	1777	0	1093	1777	0	1781	0	1585			
Q Serve(g_s), s	0.0	0.9	0.0	6.2	1.0	0.0	0.2	0.0	1.0			
Cycle Q Clear(g_c), s	0.0	0.9	0.0	7.1	1.0	0.0	0.2	0.0	1.0			
Prop In Lane	0.00		0.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2058	0	903	2058	0	135	0	120			
V/C Ratio(X)	0.00	0.14	0.00	0.45	0.16	0.00	0.13	0.00	0.60			
Avail Cap(c_a), veh/h	0	5517	0	1968	5517	0	1229	0	1094			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	2.2	0.0	3.9	2.3	0.0	10.0	0.0	10.4			
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0	4.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.3	0.0	4.2	2.3	0.0	10.4	0.0	15.1			
LnGrp LOS	A	A	A	A	A	A	B	A	B			
Approach Vol, veh/h		286			738			90				
Approach Delay, s/veh		2.3			3.3			14.1				
Approach LOS		A			A			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		5.8		17.4				17.4				
Change Period (Y+Rc), s		4.0		4.0				4.0				
Max Green Setting (Gmax), s		16.0		36.0				36.0				
Max Q Clear Time (g_c+I1), s		3.0		2.9				9.1				
Green Ext Time (p_c), s		0.3		2.0				4.3				
Intersection Summary												
HCM 6th Ctrl Delay			3.9									
HCM 6th LOS			A									

Intersection	
Intersection Delay, s/veh	23.2
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	181	289	87	155	315	222
Future Vol, veh/h	181	289	87	155	315	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	321	97	172	350	247
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	30.1	15.8	20.6
HCM LOS	D	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	36%
Vol Thru, %	0%	0%	39%	64%
Vol Right, %	0%	100%	61%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	315	222	470	242
LT Vol	315	0	0	87
Through Vol	0	0	181	155
RT Vol	0	222	289	0
Lane Flow Rate	350	247	522	269
Geometry Grp	7	7	2	2
Degree of Util (X)	0.707	0.415	0.825	0.488
Departure Headway (Hd)	7.273	6.05	5.69	6.533
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	497	592	632	549
Service Time	5.046	3.822	3.762	4.62
HCM Lane V/C Ratio	0.704	0.417	0.826	0.49
HCM Control Delay	25.9	13.1	30.1	15.8
HCM Lane LOS	D	B	D	C
HCM 95th-tile Q	5.5	2	8.7	2.7

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2035 + P1 + P2 + P3 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	332	0	0	242	50	10	20	30	150	0	10
Future Volume (veh/h)	10	332	0	0	242	50	10	20	30	150	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	357	0	0	260	54	11	22	32	161	0	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	638	1214	0	0	998	203	410	129	187	562	0	296
Arrive On Green	0.34	0.34	0.00	0.00	0.34	0.34	0.19	0.19	0.19	0.19	0.00	0.19
Sat Flow, veh/h	1060	3647	0	0	3017	595	1398	686	998	1149	0	1575
Grp Volume(v), veh/h	11	357	0	0	156	158	11	0	54	161	0	11
Grp Sat Flow(s),veh/h/ln	1060	1777	0	0	1777	1742	1398	0	1683	1149	0	1575
Q Serve(g_s), s	0.2	1.5	0.0	0.0	1.3	1.4	0.2	0.0	0.6	2.4	0.0	0.1
Cycle Q Clear(g_c), s	1.5	1.5	0.0	0.0	1.3	1.4	3.1	0.0	0.6	2.9	0.0	0.1
Prop In Lane	1.00		0.00	0.00		0.34	1.00		0.59	1.00		1.00
Lane Grp Cap(c), veh/h	638	1214	0	0	607	595	410	0	316	562	0	296
V/C Ratio(X)	0.02	0.29	0.00	0.00	0.26	0.27	0.03	0.00	0.17	0.29	0.00	0.04
Avail Cap(c_a), veh/h	1198	3089	0	0	1545	1514	1692	0	1859	1734	0	1672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.5	5.0	0.0	0.0	4.9	5.0	9.5	0.0	7.1	8.3	0.0	6.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	5.1	0.0	0.0	5.1	5.1	9.6	0.0	7.2	8.4	0.0	6.9
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		368			314			65			172	
Approach Delay, s/veh		5.1			5.1			7.6			8.3	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.0		8.8		12.0		8.8				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		18.1		22.1		18.1		* 23				
Max Q Clear Time (g_c+I1), s		3.5		4.9		3.4		5.1				
Green Ext Time (p_c), s		1.7		0.5		1.3		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			5.9									
HCM 6th LOS			A									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

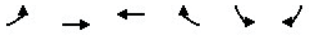
HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

Year 2035 + P1 + P2 + P3 AM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	451	10	10	262	40	20	20	40	80	10	10
Future Volume (veh/h)	10	451	10	10	262	40	20	20	40	80	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.95	0.98		0.95	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	485	11	11	282	15	22	22	8	86	11	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	500	1520	34	402	1466	78	353	340	113	625	78	44
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1053	3547	80	886	3421	181	613	744	247	1162	171	96
Grp Volume(v), veh/h	11	243	253	11	146	151	52	0	0	104	0	0
Grp Sat Flow(s),veh/h/ln	1053	1777	1850	886	1777	1825	1604	0	0	1429	0	0
Q Serve(g_s), s	0.5	6.3	6.3	0.6	3.6	3.6	0.0	0.0	0.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	4.1	6.3	6.3	6.9	3.6	3.6	1.1	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.10	0.42		0.15	0.83		0.07
Lane Grp Cap(c), veh/h	500	762	793	402	762	782	806	0	0	747	0	0
V/C Ratio(X)	0.02	0.32	0.32	0.03	0.19	0.19	0.06	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	500	762	793	402	762	782	806	0	0	747	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.7	13.2	13.2	15.5	12.4	12.5	10.6	0.0	0.0	11.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.1	1.1	0.1	0.6	0.6	0.2	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.5	2.6	0.1	1.4	1.5	0.4	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	14.3	14.3	15.7	13.0	13.0	10.8	0.0	0.0	11.4	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		507			308			52			104	
Approach Delay, s/veh		14.3			13.1			10.8			11.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.0		36.0		34.0		36.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		30.0		32.0		30.0		32.0				
Max Q Clear Time (g_c+I1), s		8.3		4.7		8.9		3.1				
Green Ext Time (p_c), s		2.4		0.3		1.4		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	438	59	121	110	150	126
Future Volume (vph)	438	59	121	110	150	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.93		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3230		3433	1529
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3230		3433	1529
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	487	66	134	122	167	140
RTOR Reduction (vph)	0	0	96	0	0	125
Lane Group Flow (vph)	487	66	160	0	167	15
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	30.8	54.4	19.2		9.8	9.8
Effective Green, g (s)	30.8	54.4	19.2		9.8	9.8
Actuated g/C Ratio	0.34	0.61	0.21		0.11	0.11
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	609	2151	692		375	167
v/s Ratio Prot	c0.28	0.02	c0.05		c0.05	
v/s Ratio Perm						0.01
v/c Ratio	0.80	0.03	0.23		0.45	0.09
Uniform Delay, d1	26.6	7.0	29.1		37.3	35.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	0.0	0.2		0.3	0.1
Delay (s)	33.4	7.0	29.3		37.6	35.9
Level of Service	C	A	C		D	D
Approach Delay (s)		30.2	29.3		36.8	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	21.7
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



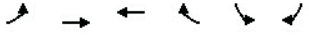
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	20	270	20	20	20	416	670	80	40	530	105
Future Volume (veh/h)	79	20	270	20	20	20	416	670	80	40	530	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.86	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	65	143	21	21	5	443	713	73	43	564	82
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	272	223	27	27	6	489	2112	216	55	2427	347
Arrive On Green	0.15	0.15	0.15	0.03	0.03	0.03	0.14	0.65	0.65	0.03	0.54	0.54
Sat Flow, veh/h	1781	1870	1533	787	787	187	3456	3252	333	1781	4500	643
Grp Volume(v), veh/h	52	65	143	47	0	0	443	389	397	43	424	222
Grp Sat Flow(s),veh/h/ln	1781	1870	1533	1762	0	0	1728	1777	1807	1781	1702	1739
Q Serve(g_s), s	3.6	4.3	12.3	3.7	0.0	0.0	17.7	13.8	13.8	3.4	9.2	9.4
Cycle Q Clear(g_c), s	3.6	4.3	12.3	3.7	0.0	0.0	17.7	13.8	13.8	3.4	9.2	9.4
Prop In Lane	1.00		1.00	0.45		0.11	1.00		0.18	1.00		0.37
Lane Grp Cap(c), veh/h	259	272	223	61	0	0	489	1154	1174	55	1836	938
V/C Ratio(X)	0.20	0.24	0.64	0.77	0.00	0.00	0.91	0.34	0.34	0.78	0.23	0.24
Avail Cap(c_a), veh/h	485	509	417	215	0	0	508	1154	1174	135	1836	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	53.0	56.4	67.0	0.0	0.0	59.2	11.0	11.0	67.3	17.0	17.0
Incr Delay (d2), s/veh	0.5	0.6	3.8	7.4	0.0	0.0	18.9	0.8	0.8	8.3	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.1	5.0	1.8	0.0	0.0	9.0	5.6	5.7	1.7	3.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	53.5	60.2	74.5	0.0	0.0	78.1	11.8	11.8	75.6	17.3	17.6
LnGrp LOS	D	D	E	E	A	A	E	B	B	E	B	B
Approach Vol, veh/h		260			47			1229			689	
Approach Delay, s/veh		57.1			74.5			35.7			21.0	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	96.2		25.3	24.2	80.8		9.7				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.6	54.7		38.1	20.6	44.7		17.1				
Max Q Clear Time (g_c+I1), s	5.4	15.8		14.3	19.7	11.4		5.7				
Green Ext Time (p_c), s	0.0	11.2		1.3	0.1	8.3		0.1				

Intersection Summary			
HCM 6th Ctrl Delay	34.5		
HCM 6th LOS	C		

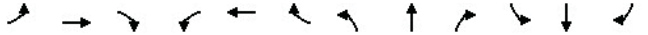
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	212	220	790	375	175	161
Future Volume (veh/h)	212	220	790	375	175	161
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	244	878	201	194	159
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	257	1293	931	1105	356	317
Arrive On Green	0.14	0.69	0.50	0.50	0.20	0.20
Sat Flow, veh/h	1781	1870	1870	1583	1781	1585
Grp Volume(v), veh/h	236	244	878	201	194	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1583	1781	1585
Q Serve(g_s), s	11.8	4.2	40.0	4.0	8.8	8.0
Cycle Q Clear(g_c), s	11.8	4.2	40.0	4.0	8.8	8.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	257	1293	931	1105	356	317
V/C Ratio(X)	0.92	0.19	0.94	0.18	0.54	0.50
Avail Cap(c_a), veh/h	257	1293	931	1105	356	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	4.9	21.4	4.7	32.3	32.0
Incr Delay (d2), s/veh	34.2	0.0	18.6	0.4	5.9	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	1.4	20.8	2.3	4.3	7.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.2	5.0	40.0	5.1	38.2	37.6
LnGrp LOS	E	A	D	A	D	D
Approach Vol, veh/h		480	1079		353	
Approach Delay, s/veh		38.0	33.5		37.9	
Approach LOS		D	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.1		22.9	17.4	49.7
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		62.2		18.0	13.0	44.8
Max Q Clear Time (g_c+I1), s		6.2		10.8	13.8	42.0
Green Ext Time (p_c), s		1.0		0.4	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	279	156	140	516	20	219	20	90	20	10	10
Future Volume (veh/h)	0	279	156	140	516	20	219	20	90	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	294	83	147	543	19	231	21	43	21	11	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	791	218	183	1594	56	673	220	450	410	206	67
Arrive On Green	0.00	0.29	0.29	0.10	0.46	0.46	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	0	2825	755	1781	3499	122	1398	547	1121	819	512	166
Grp Volume(v), veh/h	0	189	188	147	275	287	231	0	64	36	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1709	1781	1777	1845	1398	0	1669	1498	0	0
Q Serve(g_s), s	0.0	5.9	6.1	5.6	7.0	7.0	6.0	0.0	1.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.9	6.1	5.6	7.0	7.0	7.7	0.0	1.7	1.7	0.0	0.0
Prop In Lane	0.00		0.44	1.00		0.07	1.00		0.67	0.58		0.11
Lane Grp Cap(c), veh/h	0	514	495	183	809	840	673	0	669	683	0	0
V/C Ratio(X)	0.00	0.37	0.38	0.80	0.34	0.34	0.34	0.00	0.10	0.05	0.00	0.00
Avail Cap(c_a), veh/h	0	514	495	194	815	846	673	0	669	683	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.7	19.8	30.6	12.2	12.2	14.7	0.0	13.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.0	2.2	18.2	0.2	0.2	0.3	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	2.6	3.3	2.5	2.6	2.4	0.0	0.6	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.7	22.0	48.8	12.5	12.5	15.0	0.0	13.1	12.9	0.0	0.0
LnGrp LOS	A	C	C	D	B	B	B	A	B	B	A	A
Approach Vol, veh/h		377			709			295			36	
Approach Delay, s/veh		21.9			20.0			14.6			12.9	
Approach LOS		C			B			B			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	11.6	25.3		32.9		36.9		32.9				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	7.6	* 20		28.0		32.0		28.0				
Max Q Clear Time (g_c+I1), s	7.6	8.1		3.7		9.0		9.7				
Green Ext Time (p_c), s	0.0	1.5		0.1		3.1		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	339	10	80	606	10	40
Future Vol, veh/h	339	10	80	606	10	40
Conflicting Peds, #/hr	0	3	3	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	357	11	84	638	11	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	371	0	854	187
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	488	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1184	-	298	823
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1181	-	276	821
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	276	821	-	-	1181	-
HCM Lane V/C Ratio	0.038	0.051	-	-	0.071	-
HCM Control Delay (s)	18.6	9.6	-	-	8.3	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	283	56	130	621	20	55	20	50	40	20	20
Future Volume (veh/h)	20	283	56	130	621	20	55	20	50	40	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	298	59	137	654	21	58	21	53	42	21	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	79	884	172	139	1170	38	756	229	579	406	203	183
Arrive On Green	0.04	0.30	0.30	0.08	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	1781	2947	574	1781	3509	113	1360	469	1183	707	414	374
Grp Volume(v), veh/h	21	178	179	137	331	344	58	0	74	84	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1744	1781	1777	1845	1360	0	1652	1496	0	0
Q Serve(g_s), s	1.0	7.0	7.2	6.9	13.7	13.8	0.0	0.0	2.2	0.3	0.0	0.0
Cycle Q Clear(g_c), s	1.0	7.0	7.2	6.9	13.7	13.8	1.6	0.0	2.2	2.5	0.0	0.0
Prop In Lane	1.00		0.33	1.00		0.06	1.00		0.72	0.50		0.25
Lane Grp Cap(c), veh/h	79	533	523	139	592	615	756	0	808	791	0	0
V/C Ratio(X)	0.27	0.33	0.34	0.99	0.56	0.56	0.08	0.00	0.09	0.11	0.00	0.00
Avail Cap(c_a), veh/h	139	533	523	139	592	615	756	0	808	791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.6	24.5	24.6	41.5	24.6	24.6	12.2	0.0	12.3	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.7	1.7	1.8	72.8	1.2	1.1	0.2	0.0	0.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.1	3.2	5.8	5.8	6.0	0.6	0.0	0.8	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	26.2	26.4	114.2	25.8	25.7	12.4	0.0	12.5	12.6	0.0	0.0
LnGrp LOS	D	C	C	F	C	C	B	A	B	B	A	A
Approach Vol, veh/h		378			812			132			84	
Approach Delay, s/veh		27.2			40.7			12.5			12.6	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	31.0		48.0	8.0	34.0		48.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	7.0	27.0		44.0	7.0	27.0		44.0				
Max Q Clear Time (g_c+I1), s	8.9	9.2		4.5	3.0	15.8		4.2				
Green Ext Time (p_c), s	0.0	2.0		0.3	0.0	3.2		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		32.7	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	122	121	110	420	260	369	786	90	170	450	200
Future Volume (veh/h)	121	122	121	110	420	260	369	786	90	170	450	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	131	75	118	452	148	397	845	78	183	484	88
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	521	279	166	610	198	336	2446	225	233	2474	765
Arrive On Green	0.05	0.24	0.24	0.05	0.23	0.23	0.19	1.00	1.00	0.07	0.48	0.48
Sat Flow, veh/h	3456	2216	1186	3456	2631	854	3456	4757	437	3456	5106	1579
Grp Volume(v), veh/h	130	103	103	118	304	296	397	604	319	183	484	88
Grp Sat Flow(s),veh/h/ln	1728	1777	1625	1728	1777	1709	1728	1702	1790	1728	1702	1579
Q Serve(g_s), s	5.2	6.6	7.2	4.7	22.2	22.5	13.6	0.0	0.0	7.3	7.6	4.3
Cycle Q Clear(g_c), s	5.2	6.6	7.2	4.7	22.2	22.5	13.6	0.0	0.0	7.3	7.6	4.3
Prop In Lane	1.00		0.73	1.00		0.50	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	178	418	382	166	412	396	336	1750	920	233	2474	765
V/C Ratio(X)	0.73	0.25	0.27	0.71	0.74	0.75	1.18	0.34	0.35	0.78	0.20	0.11
Avail Cap(c_a), veh/h	286	610	558	311	623	599	336	1750	920	385	2474	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	0.59	0.59	0.59	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.4	43.5	43.7	65.7	49.9	50.0	56.4	0.0	0.0	64.3	20.5	19.7
Incr Delay (d2), s/veh	2.1	0.3	0.4	2.1	5.0	5.4	99.2	0.3	0.6	2.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.0	3.0	2.1	10.5	10.3	9.9	0.1	0.2	3.3	3.1	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.5	43.8	44.1	67.8	54.8	55.4	155.6	0.3	0.6	66.5	20.7	20.0
LnGrp LOS	E	D	D	E	D	E	F	A	A	E	C	B
Approach Vol, veh/h		336			718			1320			755	
Approach Delay, s/veh		53.0			57.2			47.1			31.7	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	77.2	11.1	37.8	18.0	73.0	11.6	37.3
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	15.6	44.8	12.6	48.1	13.6	* 47	11.6	49.1
Max Q Clear Time (g_c+I1), s	9.3	2.0	6.7	9.2	15.6	9.6	7.2	24.5
Green Ext Time (p_c), s	0.2	13.4	0.1	1.4	0.0	7.4	0.1	6.9

Intersection Summary	
HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	100	146	290	459	820	300	355	320	180	411	50
Future Volume (veh/h)	10	100	146	290	459	820	300	355	320	180	411	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	104	0	302	478	368	312	370	0	188	428	27
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	16	666		354	525	441	368	1823		212	1663	732
Arrive On Green	0.01	0.19	0.00	0.10	0.28	0.28	0.11	0.51	0.00	0.12	0.94	0.94
Sat Flow, veh/h	1781	3554	1585	3456	1870	1571	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	10	104	0	302	478	368	312	370	0	188	428	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1571	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	0.8	3.4	0.0	12.0	34.6	30.8	12.4	7.9	0.0	7.5	1.4	0.2
Cycle Q Clear(g_c), s	0.8	3.4	0.0	12.0	34.6	30.8	12.4	7.9	0.0	7.5	1.4	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	666		354	525	441	368	1823		212	1663	732
V/C Ratio(X)	0.61	0.16		0.85	0.91	0.83	0.85	0.20		0.89	0.26	0.04
Avail Cap(c_a), veh/h	51	1180		484	824	693	657	1823		212	1663	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.89	0.89	0.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	69.1	47.6	0.0	61.8	48.7	47.3	61.4	18.5	0.0	60.9	2.4	2.4
Incr Delay (d2), s/veh	12.8	0.1	0.0	8.1	6.8	2.7	1.9	0.2	0.0	31.9	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.0	5.7	17.1	12.4	5.6	3.4	0.0	4.1	0.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.9	47.7	0.0	69.9	55.5	50.0	63.3	18.7	0.0	92.8	2.8	2.5
LnGrp LOS	F	D		E	E	D	E	B		F	A	A
Approach Vol, veh/h		114	A		1148			682	A		643	
Approach Delay, s/veh		50.7			57.5			39.2			29.1	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	76.7	18.7	31.5	19.3	70.4	5.7	44.6
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	8.6	46.7	19.6	* 47	26.6	28.7	4.0	61.7
Max Q Clear Time (g_c+I1), s	9.5	9.9	14.0	5.4	14.4	3.4	2.8	36.6
Green Ext Time (p_c), s	0.0	1.7	0.3	0.7	0.5	4.7	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	470	0	590	0	0	0	0	485	160	359	458	0
Future Volume (vph)	470	0	590	0	0	0	0	485	160	359	458	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3362	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3362	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	490	0	615	0	0	0	0	505	167	374	477	0
RTOR Reduction (vph)	0	0	443	0	0	0	0	0	107	0	0	0
Lane Group Flow (vph)	490	0	172	0	0	0	0	505	60	277	574	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	37.8		37.8					48.6	48.6	30.3	30.3	
Effective Green, g (s)	37.8		37.8					48.6	48.6	30.3	30.3	
Actuated g/C Ratio	0.28		0.28					0.36	0.36	0.22	0.22	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	961		443					1274	569	361	754	
v/s Ratio Prot	c0.14							c0.14		c0.17	0.17	
v/s Ratio Perm			0.11						0.04			
v/c Ratio	0.51		0.39					0.40	0.11	0.77	0.76	
Uniform Delay, d1	40.8		39.3					32.3	28.7	49.0	49.0	
Progression Factor	1.00		1.00					0.56	0.03	1.00	1.00	
Incremental Delay, d2	1.9		2.6					0.1	0.0	10.0	4.8	
Delay (s)	42.8		41.8					18.1	1.0	59.0	53.8	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		42.2			0.0			13.9			55.5	
Approach LOS		D			A			B			E	

Intersection Summary				
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			

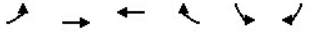
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	40	10	20	130	335	20	20	20	396	90	521
Future Volume (vph)	310	40	10	20	130	335	20	20	20	396	90	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		0.98		0.95	0.97	1.00
Satd. Flow (prot)	1610	3242			3515	1583		1750		1681	1715	1562
Flt Permitted	0.95	0.96			0.99	1.00		0.98		0.95	0.97	1.00
Satd. Flow (perm)	1610	3242			3515	1583		1750		1681	1715	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	333	43	11	22	140	360	22	22	22	426	97	560
RTOR Reduction (vph)	0	2	0	0	0	186	0	14	0	0	0	356
Lane Group Flow (vph)	166	219	0	0	162	174	0	52	0	260	263	204
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	65.2		18.9		49.2	49.2	49.2
Effective Green, g (s)	26.5	26.5			16.0	65.2		18.9		49.2	49.2	49.2
Actuated g/C Ratio	0.20	0.20			0.12	0.48		0.14		0.36	0.36	0.36
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	316	636			416	764		245		612	625	569
v/s Ratio Prot	c0.10	0.07			c0.05	0.08		c0.03		c0.15	0.15	
v/s Ratio Perm						0.03						0.13
v/c Ratio	0.53	0.34			0.39	0.23		0.21		0.42	0.42	0.36
Uniform Delay, d1	48.6	46.8			55.0	20.3		51.5		32.3	32.2	31.4
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.77	0.77	3.03
Incremental Delay, d2	6.1	1.5			2.7	0.7		2.0		1.6	1.6	1.3
Delay (s)	54.7	48.2			57.7	21.0		53.4		26.5	26.4	96.3
Level of Service	D	D			E	C		D		C	C	F
Approach Delay (s)		51.0			32.4			53.4			62.6	
Approach LOS		D			C			D			E	

Intersection Summary				
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	65.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	230	200	1866	387	270	150
Future Volume (veh/h)	230	200	1866	387	270	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	242	211	1964	0	284	140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	249	1551	2345		334	375
Arrive On Green	0.14	0.83	0.66	0.00	0.10	0.10
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	242	211	1964	0	284	140
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	19.2	3.1	59.5	0.0	11.5	10.5
Cycle Q Clear(g_c), s	19.2	3.1	59.5	0.0	11.5	10.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	249	1551	2345		334	375
V/C Ratio(X)	0.97	0.14	0.84		0.85	0.37
Avail Cap(c_a), veh/h	249	1551	2345		537	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.7	2.3	18.3	0.0	63.0	45.3
Incr Delay (d2), s/veh	48.9	0.2	3.8	0.0	3.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	1.0	24.3	0.0	5.2	9.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	109.6	2.5	22.1	0.0	66.9	45.5
LnGrp LOS	F	A	C		E	D
Approach Vol, veh/h		453	1964	A	424	
Approach Delay, s/veh		59.7	22.1		59.8	
Approach LOS		E	C		E	

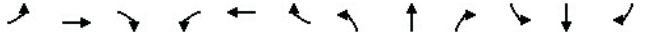
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		122.5		19.2	24.0	98.5
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		117.5		22.0	* 20	93.5
Max Q Clear Time (g_c+I1), s		5.1		13.5	21.2	61.5
Green Ext Time (p_c), s		0.8		0.2	0.0	15.5

Intersection Summary		
HCM 6th Ctrl Delay		33.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	20	0	70	1319	60	10	0	0	0	0	20	20
Future Volume (vph)	20	0	70	1319	60	10	0	0	0	0	20	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	76	1434	65	11	0	0	0	0	22	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	22	76	1434	76	44
Volume Left (vph)	22	0	1434	0	0
Volume Right (vph)	0	76	0	11	22
Hadj (s)	0.53	-0.67	0.53	-0.07	-0.27
Departure Headway (s)	5.8	4.6	5.2	4.6	5.6
Degree Utilization, x	0.04	0.10	2.09	0.10	0.07
Capacity (veh/h)	613	766	695	762	623
Control Delay (s)	7.8	6.9	507.6	6.9	9.0
Approach Delay (s)	7.1		482.4		9.0
Approach LOS	A		F		A

Intersection Summary				
Delay		441.6		
Level of Service		F		
Intersection Capacity Utilization		90.7%	ICU Level of Service	E
Analysis Period (min)		15		

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Year 2035 + P1 + P2 + P3 AM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	1059
Future Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	1059
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	1489	0				0	963	750
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	1451	0				0	927	786
Arrive On Green				0.00	0.41	0.00				0.00	0.50	0.50
Sat Flow, veh/h				0	3741	0				0	1870	1585
Grp Volume(v), veh/h				0	1489	0				0	963	750
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1585
Q Serve(g_s), s				0.0	49.0	0.0				0.0	59.5	54.3
Cycle Q Clear(g_c), s				0.0	49.0	0.0				0.0	59.5	54.3
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	1451	0				0	927	786
V/C Ratio(X)				0.00	1.03	0.00				0.00	1.04	0.95
Avail Cap(c_a), veh/h				0	1451	0				0	927	786
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	35.5	0.0				0.0	30.3	28.9
Incr Delay (d2), s/veh				0.0	30.5	0.0				0.0	40.0	21.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	26.8	0.0				0.0	35.9	24.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	66.0	0.0				0.0	70.2	50.4
LnGrp LOS				A	F	A				A	F	D
Approach Vol, veh/h					1489						1713	
Approach Delay, s/veh					66.0						61.5	
Approach LOS					E						E	

Timer - Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				64.0		56.0						
Change Period (Y+Rc), s				4.5		7.0						
Max Green Setting (Gmax), s				59.5		49.0						
Max Q Clear Time (g_c+I1), s				61.5		51.0						
Green Ext Time (p_c), s				0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			63.6									
HCM 6th LOS			E									

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th AWSC
48: I-8 WB Ramps & Hotel Circle N.

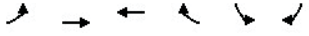
Year 2035 + P1 + P2 + P3 AM
03/23/2020

Intersection	
Intersection Delay, s/veh	259.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	342	312	222	758	582	0	0	19	225
Future Vol, veh/h	0	0	0	342	312	222	758	582	0	0	19	225
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	364	332	236	806	619	0	0	20	239
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

Approach				WB			NB				SB	
Opposing Approach							SB				NB	
Opposing Lanes				0			2				2	
Conflicting Approach Left				NB							WB	
Conflicting Lanes Left				2			0				2	
Conflicting Approach Right				SB			WB					
Conflicting Lanes Right				2			2				0	
HCM Control Delay				84.1			417.2				21.6	
HCM LOS				F			F				C	

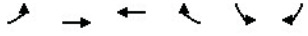
Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	80%	0%	100%	0%	0%	0%
Vol Thru, %	20%	100%	0%	58%	100%	0%
Vol Right, %	0%	0%	0%	42%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	952	388	342	534	19	225
LT Vol	758	0	342	0	0	0
Through Vol	194	388	0	312	19	0
RT Vol	0	0	0	222	0	225
Lane Flow Rate	1013	413	364	568	20	239
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	2.211	0.856	0.807	1.136	0.048	0.526
Departure Headway (Hd)	8.148	7.739	8.899	8.09	10.255	9.526
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	456	471	411	454	351	381
Service Time	5.848	5.439	6.599	5.79	7.955	7.226
HCM Lane V/C Ratio	2.221	0.877	0.886	1.251	0.057	0.627
HCM Control Delay	570.3	41.5	39.7	112.6	13.5	22.3
HCM Lane LOS	F	E	E	F	B	C
HCM 95th-tile Q	72	8.7	7.2	18.1	0.2	2.9



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	602	305	0	243
Future Volume (vph)	0	0	602	305	0	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.9			4.9
Lane Util. Factor			0.95			0.88
Frpb, ped/bikes			0.99			0.98
Flpb, ped/bikes			1.00			1.00
Frt			0.95			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			3343			2726
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3343			2726
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	669	339	0	270
RTOR Reduction (vph)	0	0	116	0	0	212
Lane Group Flow (vph)	0	0	892	0	0	58
Confl. Peds. (#/hr)	5			5		2
Confl. Bikes (#/hr)				3		
Turn Type			NA			Perm
Protected Phases			6			
Permitted Phases						4
Actuated Green, G (s)			14.6			5.1
Effective Green, g (s)			14.6			5.1
Actuated g/C Ratio			0.49			0.17
Clearance Time (s)			4.9			4.9
Vehicle Extension (s)			3.9			2.0
Lane Grp Cap (vph)			1654			471
v/s Ratio Prot			c0.27			
v/s Ratio Perm						c0.02
v/c Ratio			0.54			0.12
Uniform Delay, d1			5.1			10.3
Progression Factor			1.00			1.00
Incremental Delay, d2			0.4			0.0
Delay (s)			5.6			10.4
Level of Service			A			B
Approach Delay (s)		0.0	5.6		10.4	
Approach LOS		A	A		B	

Intersection Summary				
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	29.5	Sum of lost time (s)	9.8
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	551	242	0	806
Future Volume (veh/h)	0	0	551	242	0	806
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			599	263	0	876
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1891	830	0	0
Arrive On Green			0.79	0.79	0.00	0.00
Sat Flow, veh/h			2497	1054	0	
Grp Volume(v), veh/h			443	419	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1681		
Q Serve(g_s), s			1.6	1.6		
Cycle Q Clear(g_c), s			1.6	1.6		
Prop In Lane				0.63		
Lane Grp Cap(c), veh/h			1398	1323		
V/C Ratio(X)			0.32	0.32		
Avail Cap(c_a), veh/h			1398	1323		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.7	0.7		
Incr Delay (d2), s/veh			0.6	0.6		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.3	1.3		
LnGrp LOS			A	A		
Approach Vol, veh/h			862			
Approach Delay, s/veh			1.3			
Approach LOS			A			

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	23.0
Change Period (Y+Rc), s	4.9
Max Green Setting (Gmax), s	18.1
Max Q Clear Time (g_c+I1), s	3.6
Green Ext Time (p_c), s	3.4

Intersection Summary	
HCM 6th Ctrl Delay	1.3
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	34.8
Intersection LOS	D

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	210	496	0	0	497	0
Future Vol, veh/h	210	496	0	0	497	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	528	0	0	529	0
Number of Lanes	1	2	0	0	1	0

Approach	EB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		EB
Conflicting Lanes Right	0	3
HCM Control Delay	13.2	65.6
HCM LOS	B	F

Lane	EBLn1	EBLn2	EBLn3	SBLn1
Vol Left, %	100%	0%	0%	100%
Vol Thru, %	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	248	248	497
LT Vol	210	0	0	497
Through Vol	0	248	248	0
RT Vol	0	0	0	0
Lane Flow Rate	223	264	264	529
Geometry Grp	7	7	7	7
Degree of Util (X)	0.432	0.473	0.344	1.002
Departure Headway (Hd)	6.966	6.458	4.693	6.824
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	516	557	762	534
Service Time	4.724	4.215	2.45	4.553
HCM Lane V/C Ratio	0.432	0.474	0.346	0.991
HCM Control Delay	15	14.9	9.9	65.6
HCM Lane LOS	B	B	A	F
HCM 95th-tile Q	2.2	2.5	1.5	14.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	724	299	0	0	0	239
Future Volume (vph)	724	299	0	0	0	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	0.99					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.96					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3363					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3363					1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	804	332	0	0	0	266
RTOR Reduction (vph)	100	0	0	0	0	44
Lane Group Flow (vph)	1036	0	0	0	0	222
Confl. Peds. (#/hr)		1	1		6	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	18.0					18.0
Effective Green, g (s)	18.0					18.0
Actuated g/C Ratio	0.40					0.40
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1345					644
v/s Ratio Prot	c0.31					
v/s Ratio Perm						c0.14
v/c Ratio	0.77					0.34
Uniform Delay, d1	11.7					9.4
Progression Factor	1.00					1.00
Incremental Delay, d2	4.3					1.5
Delay (s)	16.0					10.9
Level of Service	B					B
Approach Delay (s)	16.0			0.0	10.9	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
53: Street J & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 AM
03/18/2020



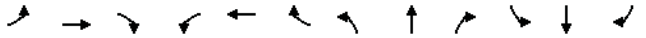
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	7	0	0	0	50	0	0
Future Volume (veh/h)	0	0	0	0	0	7	0	0	0	50	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	0	0	8	0	0	0	54	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	22	0	0	0	14	0	105	0	921	0	0
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.00
Sat Flow, veh/h	0	1409	0	0	0	1194	0	1870	0	1418	0	0
Grp Volume(v), veh/h	0	0	0	0	0	8	0	0	0	54	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	0	0	1194	0	1870	0	1418	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0
Prop In Lane	0.00		0.00	0.00		1.00	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	22	0	0	0	14	0	105	0	921	0	0
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	0	3497	0	0	0	2233	0	3497	0	3492	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	4.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	32.1	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.0	36.3	0.0	0.0	0.0	4.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	D	A	A	A	A	A	A
Approach Vol, veh/h		0			8			0			54	
Approach Delay, s/veh		0.0			36.3			0.0			4.0	
Approach LOS					D						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		4.5		4.1		4.5		4.1				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		2.3		2.1				
Green Ext Time (p_c), s		0.0		0.0		0.1		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
57: Project Dwy. Street "B" & Office Dwy.

Year 2035 + P1 + P2 + P3 AM
03/25/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	0	131	13	131	249	14	20	0
Future Volume (veh/h)	0	0	0	192	0	131	13	131	249	14	20	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	209	0	142	14	142	271	15	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	16	0	363	362	323	27	462	714	28	463	0
Arrive On Green	0.00	0.00	0.00	0.20	0.00	0.20	0.01	0.25	0.25	0.02	0.25	0.00
Sat Flow, veh/h	1781	3647	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	0	0	0	209	0	142	14	142	271	15	22	0
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	1.8	0.2	1.4	2.5	0.2	0.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.4	0.0	1.8	0.2	1.4	2.5	0.2	0.2	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	8	16	0	363	362	323	27	462	714	28	463	0
V/C Ratio(X)	0.00	0.00	0.00	0.58	0.00	0.44	0.53	0.31	0.38	0.53	0.05	0.00
Avail Cap(c_a), veh/h	317	2529	0	634	1581	1410	317	1331	1451	317	1331	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.1	0.0	7.8	11.0	6.9	4.1	11.0	6.4	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.9	15.3	0.4	0.3	14.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.6	0.0	0.4	0.2	0.3	0.2	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	9.5	0.0	8.8	26.3	7.3	4.4	25.4	6.5	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		0			351			427			37	
Approach Delay, s/veh		0.0			9.2			6.1			14.2	
Approach LOS					A			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.4	9.5	8.6	0.0	4.3	9.6	0.0	8.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	16.0	8.0	16.0	4.0	16.0	4.0	20.0				
Max Q Clear Time (g_c+I1), s	2.2	4.5	4.4	0.0	2.2	2.2	0.0	3.8				
Green Ext Time (p_c), s	0.0	1.4	0.2	0.0	0.0	0.0	0.0	0.7				

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary — Year 2035 + P1 + P2 + P3 PM
1: Sea World Dr. & Friars Rd. — 02/27/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	577	297	1310	866	698	1400	
Future Volume (veh/h)	577	297	1310	866	698	1400	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	595	172	1351	859	720	1443	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	704	313	1769	1085	744	2619	
Arrive On Green	0.20	0.20	0.50	0.50	0.22	0.74	
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647	
Grp Volume(v), veh/h	595	172	1351	859	720	1443	
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777	
Q Serve(g_s), s	21.7	13.1	41.5	50.9	27.8	24.2	
Cycle Q Clear(g_c), s	21.7	13.1	41.5	50.9	27.8	24.2	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	704	313	1769	1085	744	2619	
V/C Ratio(X)	0.85	0.55	0.76	0.79	0.97	0.55	
Avail Cap(c_a), veh/h	794	353	1821	1108	744	2692	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	52.0	48.6	27.4	14.0	52.3	7.8	
Incr Delay (d2), s/veh	6.9	0.6	2.1	4.2	24.9	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	10.1	5.1	17.1	30.3	14.6	8.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	58.9	49.2	29.5	18.1	77.3	8.3	
LnGrp LOS	E	D	C	B	E	A	
Approach Vol, veh/h	767		2210			2163	
Approach Delay, s/veh	56.7		25.1			31.3	
Approach LOS	E		C			C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	33.0	71.0				104.0	30.6
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	28.6	66.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	29.8	52.9				26.2	23.7
Green Ext Time (p_c), s	0.0	11.9				41.1	0.7

Intersection Summary			
HCM 6th Ctrl Delay		32.4	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary — Year 2035 + P1 + P2 + P3 PM
2: Sea World Dr./Sea World Dr. & E. Mission Bay Dr./Pacific Hwy — 02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	180	337	176	70	200	179	1391	276	170	1415	170
Future Volume (veh/h)	200	180	337	176	70	200	179	1391	276	170	1415	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	222	200	244	196	78	222	199	1546	229	189	1572	189
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	382	311	143	376	303	210	1627	807	163	1732	888
Arrive On Green	0.09	0.20	0.20	0.08	0.20	0.20	0.06	0.46	0.44	0.09	0.49	0.48
Sat Flow, veh/h	3456	1870	1526	1781	1870	1504	3456	3554	1544	1781	3554	1565
Grp Volume(v), veh/h	222	200	244	196	78	222	199	1546	229	189	1572	189
Grp Sat Flow(s),veh/h/ln	1728	1870	1526	1781	1870	1504	1728	1777	1544	1781	1777	1565
Q Serve(g_s), s	6.2	9.4	14.9	7.9	3.4	13.6	5.7	41.1	8.2	9.0	40.1	5.9
Cycle Q Clear(g_c), s	6.2	9.4	14.9	7.9	3.4	13.6	5.7	41.1	8.2	9.0	40.1	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	301	382	311	143	376	303	210	1627	807	163	1732	888
V/C Ratio(X)	0.74	0.52	0.78	1.37	0.21	0.73	0.95	0.95	0.28	1.16	0.91	0.21
Avail Cap(c_a), veh/h	316	610	497	143	589	473	210	1627	807	163	1732	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	34.9	37.1	45.3	32.8	36.9	46.1	25.6	13.3	44.8	23.2	10.5
Incr Delay (d2), s/veh	7.2	1.1	4.3	205.3	0.1	1.3	46.2	13.3	0.9	120.5	8.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.3	5.9	11.6	1.6	5.0	3.8	19.4	2.9	9.4	17.8	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	36.1	41.5	250.6	32.9	38.2	92.3	38.9	14.2	165.3	31.7	11.1
LnGrp LOS	D	D	D	F	C	D	F	D	B	F	C	B
Approach Vol, veh/h		666			496			1974			1950	
Approach Delay, s/veh		43.0			121.3			41.4			42.7	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	49.1	11.9	24.5	10.0	52.1	12.6	23.8
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.5	4.4	* 5.3	4.4	5.5
Max Green Setting (Gmax), s	8.6	43.7	7.5	* 31	5.6	* 47	8.6	29.5
Max Q Clear Time (g_c+I1), s	11.0	43.1	9.9	16.9	7.7	42.1	8.2	15.6
Green Ext Time (p_c), s	0.0	0.5	0.0	1.7	0.0	4.3	0.0	0.6

Intersection Summary			
HCM 6th Ctrl Delay		49.9	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1301	20	400	580	0	0	0	0	380	10	1735
Future Volume (veh/h)	0	1301	20	400	580	0	0	0	0	380	10	1735
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1355	21	417	604	0				396	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1503	670	490	2131	0				557	14	
Arrive On Green	0.00	0.42	0.42	0.14	0.60	0.00				0.32	0.32	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1739	44	1585
Grp Volume(v), veh/h	0	1355	21	417	604	0				406	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	42.7	0.9	14.1	9.8	0.0				24.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	42.7	0.9	14.1	9.8	0.0				24.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1503	670	490	2131	0				571	0	
V/C Ratio(X)	0.00	0.90	0.03	0.85	0.28	0.00				0.71	0.00	
Avail Cap(c_a), veh/h	0	1718	766	657	2517	0				571	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.3	20.2	50.3	11.6	0.0				35.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.9	0.0	0.8	0.0	0.0				3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.1	0.3	6.2	3.8	0.0				10.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	38.2	20.3	51.1	11.6	0.0				39.4	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				D	A	
Approach Vol, veh/h		1376			1021						406	A
Approach Delay, s/veh		37.9			27.7						39.4	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	21.2	55.8		43.0		77.0						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 23	58.0		25.4		85.0						
Max Q Clear Time (g_c+I1), s	16.1	44.7		26.0		11.8						
Green Ext Time (p_c), s	0.9	6.1		0.0		3.0						

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1111	760	0	0	680	620	310	20	690	0	0	0
Future Volume (veh/h)	1111	760	0	0	680	620	310	20	690	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1157	792	0	0	708	430	323	21	490			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1089	2384	0	0	682	413	411	27	388			
Arrive On Green	0.31	0.67	0.00	0.00	0.32	0.32	0.25	0.25	0.25			
Sat Flow, veh/h	3456	3647	0	0	2221	1288	1677	109	1585			
Grp Volume(v), veh/h	1157	792	0	0	591	547	344	0	490			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1638	1786	0	1585			
Q Serve(g_s), s	37.8	11.3	0.0	0.0	38.5	38.5	21.6	0.0	29.4			
Cycle Q Clear(g_c), s	37.8	11.3	0.0	0.0	38.5	38.5	21.6	0.0	29.4			
Prop In Lane	1.00		0.00	0.00		0.79	0.94		1.00			
Lane Grp Cap(c), veh/h	1089	2384	0	0	570	526	438	0	388			
V/C Ratio(X)	1.06	0.33	0.00	0.00	1.04	1.04	0.79	0.00	1.26			
Avail Cap(c_a), veh/h	1089	2384	0	0	570	526	438	0	388			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.46	0.46	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.1	8.4	0.0	0.0	40.8	40.8	42.4	0.0	45.3			
Incr Delay (d2), s/veh	37.9	0.0	0.0	0.0	47.5	50.2	8.4	0.0	137.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	21.6	4.1	0.0	0.0	24.1	22.6	10.5	0.0	37.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.0	8.4	0.0	0.0	88.3	90.9	50.8	0.0	182.3			
LnGrp LOS	F	A	A	A	F	F	D	A	F			
Approach Vol, veh/h		1949			1138			834				
Approach Delay, s/veh		50.3			89.6			128.1				
Approach LOS		D			F			F				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		86.0		34.0	42.0	44.0						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		80.5		29.4	* 38	38.5						
Max Q Clear Time (g_c+I1), s		13.3		31.4	39.8	40.5						
Green Ext Time (p_c), s		4.2		0.0	0.0	0.0						

Intersection Summary	
HCM 6th Ctrl Delay	78.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	880	437	386	970	60	169	50	306	30	50	50
Future Volume (veh/h)	80	880	437	386	970	60	169	50	306	30	50	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	89	978	486	429	1078	67	188	56	340	33	56	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	1332	556	435	1888	117	216	436	732	47	255	212
Arrive On Green	0.07	0.37	0.37	0.24	0.56	0.54	0.12	0.23	0.23	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1483	1781	3392	211	1781	1870	1516	1781	1870	1554
Grp Volume(v), veh/h	89	978	486	429	564	581	188	56	340	33	56	56
Grp Sat Flow(s),veh/h/ln	1781	1777	1483	1781	1777	1826	1781	1870	1516	1781	1870	1554
Q Serve(g_s), s	6.6	32.0	41.1	32.4	27.9	28.0	14.0	3.2	20.6	2.5	3.6	4.4
Cycle Q Clear(g_c), s	6.6	32.0	41.1	32.4	27.9	28.0	14.0	3.2	20.6	2.5	3.6	4.4
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	116	1332	556	435	989	1016	216	436	732	47	255	212
V/C Ratio(X)	0.77	0.73	0.87	0.99	0.57	0.57	0.87	0.13	0.46	0.70	0.22	0.26
Avail Cap(c_a), veh/h	224	1332	556	435	989	1016	226	463	754	140	373	310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.1	36.4	39.2	50.8	19.5	19.6	58.2	40.9	24.3	65.2	51.9	52.2
Incr Delay (d2), s/veh	4.0	3.6	17.2	39.0	2.4	2.3	26.4	0.0	0.2	6.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	14.5	17.5	19.1	12.0	12.4	7.9	1.5	7.4	1.2	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	40.0	56.5	89.8	21.9	21.9	84.6	40.9	24.4	71.9	52.1	52.5
LnGrp LOS	E	D	E	F	C	C	F	D	C	E	D	D
Approach Vol, veh/h		1553			1574			584			145	
Approach Delay, s/veh		46.7			40.4			45.4			56.7	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.0	54.9	20.4	22.7	12.8	79.1	7.6	35.5
Change Period (Y+Rc), s	4.4	* 6.7	4.4	* 5.2	4.4	6.7	4.4	5.2
Max Green Setting (Gmax), s	32.6	* 40	16.7	* 26	16.6	55.3	10.2	32.2
Max Q Clear Time (g_c+I1), s	34.4	43.1	16.0	6.4	8.6	30.0	4.5	22.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.1	5.8	0.0	0.7

Intersection Summary		
HCM 6th Ctrl Delay	44.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	647	799	30	10	529	150	0	0	30	250	30	459
Future Volume (vph)	647	799	30	10	529	150	0	0	30	250	30	459
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3514		1770	3408				1524	1681	1702	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3514		1770	3408				1524	1681	1702	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	719	888	33	11	588	167	0	0	33	278	33	510
RTOR Reduction (vph)	0	2	0	0	23	0	0	0	32	0	0	232
Lane Group Flow (vph)	719	919	0	11	732	0	0	0	1	147	164	278
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.6	43.3		0.8	26.5				3.2	30.1	30.1	47.7
Effective Green, g (s)	18.0	44.2		1.2	27.4				3.2	31.4	31.4	48.5
Actuated g/C Ratio	0.19	0.46		0.01	0.29				0.03	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	643	1617		22	972				50	549	556	793
v/s Ratio Prot	c0.21	0.26		0.01	c0.21					0.09	0.10	c0.07
v/s Ratio Perm									c0.00			0.11
v/c Ratio	1.12	0.57		0.50	0.75				0.02	0.27	0.29	0.35
Uniform Delay, d1	39.0	18.9		47.1	31.2				44.9	23.8	24.1	14.3
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	72.6	0.5		6.4	5.4				0.2	1.2	1.3	0.1
Delay (s)	111.6	19.4		53.5	36.6				45.1	25.0	25.4	14.4
Level of Service	F	B		D	D				D	C	C	B
Approach Delay (s)		59.8			36.9			45.1			18.5	
Approach LOS		E			D			D			B	

Intersection Summary				
HCM 2000 Control Delay	43.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	73.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	1474	694	608	898	210
Future Volume (vph)	150	1474	694	608	898	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1546	3432	1419
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1546	3432	1419
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	156	1535	723	633	935	219
RTOR Reduction (vph)	0	0	0	230	1	49
Lane Group Flow (vph)	156	1535	723	403	956	148
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	13.7	58.9	41.2	77.9	36.7	36.7
Effective Green, g (s)	14.1	60.9	42.8	79.7	37.6	37.6
Actuated g/C Ratio	0.11	0.49	0.34	0.64	0.30	0.30
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	199	1721	1209	984	1030	426
v/s Ratio Prot	0.09	c0.43	0.20	0.12	c0.28	
v/s Ratio Perm				0.14		0.10
v/c Ratio	0.78	0.89	0.60	0.41	0.93	0.35
Uniform Delay, d1	54.1	29.2	34.1	11.2	42.5	34.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.8	7.5	1.0	0.6	14.3	1.0
Delay (s)	70.9	36.6	35.1	11.8	56.8	35.2
Level of Service	E	D	D	B	E	D
Approach Delay (s)		39.8	24.2		53.1	
Approach LOS		D	C		D	

Intersection Summary				
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	125.2	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	75.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	2401	60	50	1241	99	40	10	20	250	10	90
Future Volume (veh/h)	90	2401	60	50	1241	99	40	10	20	250	10	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	2475	58	52	1279	91	41	10	7	258	10	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	2357	55	65	2142	152	261	59	340	276	68	284
Arrive On Green	0.07	0.66	0.65	0.04	0.64	0.62	0.22	0.22	0.22	0.22	0.22	0.21
Sat Flow, veh/h	1781	3546	83	1781	3362	239	1004	273	1570	1384	311	1308
Grp Volume(v), veh/h	93	1234	1299	52	675	695	51	0	7	258	0	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1852	1781	1777	1824	1277	0	1570	1384	0	1619
Q Serve(g_s), s	7.7	99.9	99.9	4.4	33.4	33.7	3.9	0.0	0.5	24.8	0.0	3.9
Cycle Q Clear(g_c), s	7.7	99.9	99.9	4.4	33.4	33.7	7.8	0.0	0.5	32.6	0.0	3.9
Prop In Lane	1.00		0.04	1.00		0.13	0.80		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	118	1181	1231	65	1132	1162	320	0	340	276	0	351
V/C Ratio(X)	0.79	1.04	1.06	0.80	0.60	0.60	0.16	0.00	0.02	0.93	0.00	0.15
Avail Cap(c_a), veh/h	185	1181	1231	65	1132	1162	320	0	340	276	0	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	69.1	25.2	25.2	71.8	16.0	16.1	50.1	0.0	46.3	64.2	0.0	47.9
Incr Delay (d2), s/veh	4.6	38.7	41.5	45.6	2.3	2.3	0.1	0.0	0.0	36.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	49.6	52.6	2.8	13.3	13.8	1.6	0.0	0.2	12.8	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.7	63.9	66.8	117.4	18.3	18.4	50.2	0.0	46.3	100.4	0.0	48.0
LnGrp LOS	E	F	F	F	B	B	D	A	D	F	A	D
Approach Vol, veh/h		2626			1422			58			310	
Approach Delay, s/veh		65.7			21.9			49.7			91.6	
Approach LOS		E			C			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	104.2		36.6	14.0	99.7		36.6				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	5.1	* 98		31.7	15.2	87.8		31.7				
Max Q Clear Time (g_c+I1), s	6.4	101.9		34.6	9.7	35.7		9.8				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	36.1		0.1				

Intersection Summary				
HCM 6th Ctrl Delay	53.2			
HCM 6th LOS	D			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	2351	1400	60	70	40
Future Vol, veh/h	50	2351	1400	60	70	40
Conflicting Peds, #/hr	36	0	0	36	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	65	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	2555	1522	65	76	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1623	0	-	0	2978	830
Stage 1	-	-	-	-	1591	-
Stage 2	-	-	-	-	1387	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	397	-	-	-	~ 11	313
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	197	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	385	-	-	-	~ 9	304
Mov Cap-2 Maneuver	-	-	-	-	~ 65	-
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	191	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	283.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	385	-	-	-	91
HCM Lane V/C Ratio	0.141	-	-	-	1.314
HCM Control Delay (s)	15.9	-	-	-	283.6
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	8.7

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2100	66	0	1460	0	55
Future Vol, veh/h	2100	66	0	1460	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2283	72	0	1587	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1178
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	184
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	184
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	33.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	184	-	-	-
HCM Lane V/C Ratio	0.325	-	-	-
HCM Control Delay (s)	33.7	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	2128	165	33	1081	339	173	64	36	516	99	180
Future Volume (veh/h)	276	2128	165	33	1081	339	173	64	36	516	99	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	2240	174	35	1138	219	182	67	38	543	104	112
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	1783	136	45	1366	580	190	120	68	328	63	357
Arrive On Green	0.18	0.53	0.52	0.03	0.38	0.38	0.11	0.11	0.11	0.23	0.22	0.23
Sat Flow, veh/h	1781	3334	255	1781	3554	1508	1781	1120	635	1506	289	1585
Grp Volume(v), veh/h	291	1176	1238	35	1138	219	182	0	105	647	0	112
Grp Sat Flow(s),veh/h/ln	1781	1777	1812	1781	1777	1508	1781	0	1756	1795	0	1585
Q Serve(g_s), s	24.1	80.2	80.2	2.9	43.5	15.7	15.2	0.0	8.5	32.7	0.0	8.8
Cycle Q Clear(g_c), s	24.1	80.2	80.2	2.9	43.5	15.7	15.2	0.0	8.5	32.7	0.0	8.8
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.36	0.84		1.00
Lane Grp Cap(c), veh/h	315	950	969	45	1366	580	190	0	187	391	0	357
V/C Ratio(X)	0.92	1.24	1.28	0.78	0.83	0.38	0.96	0.00	0.56	1.65	0.00	0.31
Avail Cap(c_a), veh/h	321	950	969	48	1366	580	190	0	187	391	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.7	34.9	35.0	72.7	41.8	33.2	66.7	0.0	63.7	58.2	0.0	48.4
Incr Delay (d2), s/veh	30.4	116.1	133.0	53.8	6.1	1.9	53.0	0.0	3.7	305.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	63.0	68.8	2.0	19.6	6.0	9.8	0.0	4.0	48.0	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.1	151.0	168.0	126.5	47.9	35.1	119.6	0.0	67.4	363.3	0.0	48.6
LnGrp LOS	F	F	F	F	D	D	F	A	E	F	A	D
Approach Vol, veh/h		2705			1392			287			759	
Approach Delay, s/veh		152.3			47.9			100.5			316.9	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	84.4		37.8	30.5	61.7		20.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 79		32.7	26.6	55.3		16.0				
Max Q Clear Time (g_c+I1), s	4.9	82.2		34.7	26.1	45.5		17.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			145.4
HCM 6th LOS			F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
03/18/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2061	269	239	1415	198	102
Future Volume (veh/h)	2061	269	239	1415	198	102
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	2240	268	260	1538	135	140
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	2078	244	228	2879	190	172
Arrive On Green	0.65	0.65	0.13	0.81	0.11	0.11
Sat Flow, veh/h	3297	376	1781	3647	1781	1610
Grp Volume(v), veh/h	1222	1286	260	1538	135	140
Grp Sat Flow(s),veh/h/ln	1777	1803	1781	1777	1781	1610
Q Serve(g_s), s	84.3	84.3	16.6	18.8	9.5	11.1
Cycle Q Clear(g_c), s	84.3	84.3	16.6	18.8	9.5	11.1
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1153	1169	228	2879	190	172
V/C Ratio(X)	1.06	1.10	1.14	0.53	0.71	0.82
Avail Cap(c_a), veh/h	1153	1169	228	2879	467	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.8	56.7	4.1	56.1	56.8
Incr Delay (d2), s/veh	44.0	58.0	103.5	0.2	4.9	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.0	49.2	13.8	4.5	4.5	4.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	66.8	80.9	160.2	4.3	61.0	65.8
LnGrp LOS	F	F	F	A	E	E
Approach Vol, veh/h	2508			1798	275	
Approach Delay, s/veh	74.0			26.9	63.4	
Approach LOS	E			C	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	21.0	90.2				111.2		18.8
Change Period (Y+Rc), s	4.4	* 5.9				5.9		4.9
Max Green Setting (Gmax), s	16.6	* 84				105.1		34.1
Max Q Clear Time (g_c+I1), s	18.6	86.3				20.8		13.1
Green Ext Time (p_c), s	0.0	0.0				17.6		0.8

Intersection Summary			
HCM 6th Ctrl Delay			54.9
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2462	132	0	1504	0	6
Future Vol, veh/h	2462	132	0	1504	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2676	143	0	1635	0	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1410
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	128
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	128
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	34.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	128	-	-	-
HCM Lane V/C Ratio	0.051	-	-	-
HCM Control Delay (s)	34.6	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	2423	66	132	1468	36	73
Future Volume (veh/h)	0	2423	66	132	1468	36	73
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h		2634	71	143	1596	39	79
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	0	0
Cap, veh/h		2644	71	78	2919	58	117
Arrive On Green		0.75	0.75	0.04	0.82	0.11	0.11
Sat Flow, veh/h		3629	95	1781	3647	540	1093
Grp Volume(v), veh/h		1318	1387	143	1596	119	0
Grp Sat Flow(s),veh/h/ln		1777	1853	1781	1777	1647	0
Q Serve(g_s), s		108.5	112.2	6.6	21.8	10.4	0.0
Cycle Q Clear(g_c), s		108.5	112.2	6.6	21.8	10.4	0.0
Prop In Lane			0.05	1.00		0.33	0.66
Lane Grp Cap(c), veh/h		1329	1386	78	2919	176	0
V/C Ratio(X)		0.99	1.00	1.82	0.55	0.68	0.00
Avail Cap(c_a), veh/h		1329	1386	78	2919	176	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.71	0.71	1.00	0.00
Uniform Delay (d), s/veh		18.4	18.9	71.7	4.3	64.5	0.0
Incr Delay (d2), s/veh		22.6	24.3	404.2	0.2	10.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		43.7	47.5	11.8	5.7	4.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		41.0	43.2	475.9	4.5	74.5	0.0
LnGrp LOS		D	F	F	A	E	A
Approach Vol, veh/h		2705			1739	119	
Approach Delay, s/veh		42.2			43.3	74.5	
Approach LOS		D			D	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	118.1				129.1		20.9
Change Period (Y+Rc), s	4.4	5.9				* 5.9		4.9
Max Green Setting (Gmax), s	6.6	112.2				* 1.1E2		16.0
Max Q Clear Time (g_c+I1), s	8.6	114.2				23.8		12.4
Green Ext Time (p_c), s	0.0	0.0				19.1		0.1

Intersection Summary		
HCM 6th Ctrl Delay		43.4
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2280	476	588	1401	20	380	10	650	10	20	20
Future Volume (veh/h)	10	2280	476	588	1401	20	380	10	650	10	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	2375	445	612	1459	19	396	10	652	10	21	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2122	375	478	2187	28	226	4	653	37	60	0
Arrive On Green	0.01	0.49	0.47	0.14	0.61	0.60	0.28	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	1781	4351	769	3456	3591	47	610	15	1563	0	214	0
Grp Volume(v), veh/h	10	1828	992	612	721	757	406	0	652	31	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1716	1728	1777	1860	625	0	1563	214	0	0
Q Serve(g_s), s	0.7	63.4	63.4	18.0	34.7	34.8	0.0	0.0	36.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	63.4	63.4	18.0	34.7	34.8	36.6	0.0	36.1	36.6	0.0	0.0
Prop In Lane	1.00		0.45	1.00		0.03	0.98		1.00	0.32		0.00
Lane Grp Cap(c), veh/h	22	1660	837	478	1082	1133	231	0	653	97	0	0
V/C Ratio(X)	0.45	1.10	1.19	1.28	0.67	0.67	1.76	0.00	1.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	60	1660	837	478	1082	1133	231	0	653	97	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.60	0.60	0.60	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	63.8	33.3	33.7	56.0	16.7	16.7	51.0	0.0	38.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	46.4	84.9	135.2	2.0	1.9	358.9	0.0	34.7	8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	34.9	44.3	16.6	13.4	14.1	30.7	0.0	26.6	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	79.7	118.6	191.2	18.7	18.6	409.9	0.0	72.7	46.6	0.0	0.0
LnGrp LOS	E	F	F	F	B	B	F	A	E	D	A	A
Approach Vol, veh/h		2830			2090			1058			31	
Approach Delay, s/veh		93.3			69.2			202.1			46.6	
Approach LOS		F			E			F			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.0	67.4		40.6	5.6	83.8		40.6				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	17.6	61.5		35.7	4.0	* 76		35.7				
Max Q Clear Time (g_c+I1), s	20.0	65.4		38.6	2.7	36.8		38.6				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	17.3		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	103.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2591	70	310	1799	70	50	10	300	30	10	20
Future Volume (veh/h)	40	2591	70	310	1799	70	50	10	300	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	2644	64	316	1836	76	51	11	225	33	11	22
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	3263	78	207	2567	1131	294	12	248	56	18	35
Arrive On Green	0.63	0.64	0.63	0.06	0.72	0.71	0.17	0.16	0.17	0.03	0.03	0.03
Sat Flow, veh/h	235	5126	123	3456	3554	1585	1781	74	1522	1781	557	1113
Grp Volume(v), veh/h	43	1750	958	316	1836	76	51	0	236	33	0	33
Grp Sat Flow(s),veh/h/ln	235	1702	1846	1728	1777	1585	1781	0	1596	1781	0	1670
Q Serve(g_s), s	19.6	57.7	58.9	9.0	44.5	2.2	3.7	0.0	21.8	2.7	0.0	2.9
Cycle Q Clear(g_c), s	51.1	57.7	58.9	9.0	44.5	2.2	3.7	0.0	21.8	2.7	0.0	2.9
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.95	1.00		0.67
Lane Grp Cap(c), veh/h	146	2167	1175	207	2567	1131	294	0	260	56	0	53
V/C Ratio(X)	0.29	0.81	0.82	1.52	0.72	0.07	0.17	0.00	0.91	0.59	0.00	0.63
Avail Cap(c_a), veh/h	146	2167	1175	207	2567	1131	373	0	330	190	0	178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.2	20.4	20.7	70.5	12.0	6.5	53.8	0.0	61.5	71.7	0.0	71.8
Incr Delay (d2), s/veh	0.5	0.3	0.6	258.8	1.7	0.1	0.1	0.0	21.6	9.4	0.0	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	21.0	23.3	11.4	15.8	0.7	1.7	0.0	10.4	1.4	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	20.7	21.3	329.3	13.7	6.6	53.9	0.0	83.1	81.1	0.0	83.4
LnGrp LOS	C	C	C	F	B	A	D	A	F	F	A	F
Approach Vol, veh/h		2751			2228			287			66	
Approach Delay, s/veh		21.1			58.2			77.9			82.2	
Approach LOS		C			E			E			F	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.0	99.5		8.7		112.5		28.8				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	8.6	76.2		16.0		* 78		31.0				
Max Q Clear Time (g_c+I1), s	11.0	60.9		4.9		46.5		23.8				
Green Ext Time (p_c), s	0.0	14.4		0.1		22.2		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	2921	60	620	2059	30	50	10	350	20	10	10
Future Volume (veh/h)	20	2921	60	620	2059	30	50	10	350	20	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	3075	63	653	2167	32	53	0	375	21	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	3149	64	576	3935	58	226	0	442	189	120	120
Arrive On Green	0.02	0.61	0.60	0.33	1.00	1.00	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	5149	105	3456	5182	76	1368	0	3116	997	850	850
Grp Volume(v), veh/h	21	2025	1113	653	1422	777	53	0	375	21	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1850	1728	1702	1855	1368	0	1558	997	0	1699
Q Serve(g_s), s	1.8	85.6	88.0	25.0	0.0	0.0	5.3	0.0	17.6	2.8	0.0	1.7
Cycle Q Clear(g_c), s	1.8	85.6	88.0	25.0	0.0	0.0	7.0	0.0	17.6	2.8	0.0	1.7
Prop In Lane	1.00		0.06	1.00		0.04	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	32	2082	1131	576	2585	1408	226	0	442	189	0	241
V/C Ratio(X)	0.65	0.97	0.98	1.13	0.55	0.55	0.23	0.00	0.85	0.11	0.00	0.09
Avail Cap(c_a), veh/h	72	2082	1131	576	2585	1408	314	0	642	253	0	350
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	73.2	27.9	28.4	50.0	0.0	0.0	59.0	0.0	62.8	56.4	0.0	56.2
Incr Delay (d2), s/veh	7.8	14.3	23.1	80.1	0.8	1.6	0.2	0.0	5.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	35.7	42.6	15.3	0.3	0.6	1.9	0.0	7.3	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	42.2	51.6	130.1	0.8	1.6	59.2	0.0	67.8	56.5	0.0	56.2
LnGrp LOS	F	D	D	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		3159			2852			428			43	
Approach Delay, s/veh		45.8			30.6			66.7			56.4	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.0	95.7		25.3	6.7	118.0		25.3				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	24.6	80.7		30.0	5.7	* 1E2		30.0				
Max Q Clear Time (g_c+I1), s	27.0	90.0		4.8	3.8	2.0		19.6				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	47.4		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		40.6
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	210.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3011	140	0	2659	0	420
Future Vol, veh/h	3011	140	0	2659	0	420
Conflicting Peds, #/hr	0	17	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3346	156	0	2954	0	467

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1768
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 62
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 61
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 3123.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	61	-	-	-
HCM Lane V/C Ratio	7.65	-	-	-
HCM Control Delay (s)	$ 3123.1	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	54	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1159	418	560	873
Future Volume (Veh/h)	0	0	1159	418	560	873
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1260	454	609	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			346			
pX, platoon unblocked						
vC, conflicting volume	2952	630			1714	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2952	630			1714	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	424			366	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	840	571	303	609	474	474
Volume Left	0	0	0	609	0	0
Volume Right	0	151	303	0	0	0
cSH	1700	1700	1700	366	1700	1700
Volume to Capacity	0.49	0.34	0.18	1.66	0.28	0.28
Queue Length 95th (ft)	0	0	0	916	0	0
Control Delay (s)	0.0	0.0	0.0	336.6	0.0	0.0
Lane LOS				F		
Approach Delay (s)	0.0			131.6		
Approach LOS						

Intersection Summary				
Average Delay		62.7		
Intersection Capacity Utilization		74.2%	ICU Level of Service	D
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	2545	946	442	1763	1288	792	60	1070	560	10	233
Future Volume (veh/h)	189	2545	946	442	1763	1288	792	60	1070	560	10	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	2679	0	465	1856	730	834	63	1060	589	11	245
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2718		346	2150	1752	719	336	762	660	297	418
Arrive On Green	0.20	0.84	0.00	0.10	0.42	0.42	0.21	0.18	0.18	0.19	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2748	3456	1870	1552
Grp Volume(v), veh/h	199	2679	0	465	1856	730	834	63	1060	589	11	245
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1374	1728	1870	1552
Q Serve(g_s), s	7.8	58.0	0.0	15.0	49.6	19.8	31.2	4.3	26.4	24.9	0.7	20.6
Cycle Q Clear(g_c), s	7.8	58.0	0.0	15.0	49.6	19.8	31.2	4.3	26.4	24.9	0.7	20.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2718		346	2150	1752	719	336	762	660	297	418
V/C Ratio(X)	0.57	0.99		1.35	0.86	0.42	1.16	0.19	1.39	0.89	0.04	0.59
Avail Cap(c_a), veh/h	350	2718		346	2150	1752	719	336	762	1083	524	606
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.8	11.2	0.0	67.5	39.5	14.0	59.4	52.2	54.4	59.2	53.4	47.9
Incr Delay (d2), s/veh	1.4	14.2	0.0	173.3	4.8	0.7	87.1	1.2	183.9	3.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.8	0.0	14.8	21.0	6.4	22.4	2.2	33.8	11.3	0.4	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	25.5	0.0	240.8	44.3	14.8	146.5	53.4	238.2	62.5	53.4	48.3
LnGrp LOS	E	C		F	D	B	F	D	F	E	D	D
Approach Vol, veh/h		2878	A		3051			1957			845	
Approach Delay, s/veh		27.7			67.2			193.2			58.3	
Approach LOS		C			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	67.4	35.2	28.4	19.2	67.2	32.7	31.0
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	15.0	42.2	30.6	42.0	* 15	42.0	46.4	26.2
Max Q Clear Time (g_c+I1), s	17.0	60.0	33.2	22.6	9.8	51.6	26.9	28.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.2	0.0	1.1	0.0

Intersection Summary		
HCM 6th Ctrl Delay	81.6	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2035 + P1 + P2 + P3 PM
03/06/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	952	3093	0	0	2185	1585	0	0	0	1010	0	1288
Future Volume (veh/h)	952	3093	0	0	2185	1585	0	0	0	1010	0	1288
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	1002	3256	0	0	2300	1563				1063	0	1330
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	628	8434	0	0	5908	2523				1279	0	1281
Arrive On Green	0.18	1.00	0.00	0.00	0.92	0.90				0.25	0.00	0.27
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	1002	3256	0	0	2300	1563				1063	0	1330
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	20.0	0.0	0.0	0.0	5.0	13.4				22.0	0.0	29.5
Cycle Q Clear(g_c), s	20.0	0.0	0.0	0.0	5.0	13.4				22.0	0.0	29.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	628	8434	0	0	5908	2523				1279	0	1281
V/C Ratio(X)	1.59	0.39	0.00	0.00	0.39	0.62				0.83	0.00	1.04
Avail Cap(c_a), veh/h	628	8434	0	0	5908	2523				1279	0	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	0.0	0.6	1.1				38.8	0.0	29.7
Incr Delay (d2), s/veh	274.9	0.1	0.0	0.0	0.2	1.2				4.8	0.0	35.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.2	0.1	0.0	0.0	0.1	0.4				9.5	0.0	36.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	319.9	0.1	0.0	0.0	0.8	2.3				43.6	0.0	65.5
LnGrp LOS	F	A	A	A	A	A				D	A	F
Approach Vol, veh/h		4258			3863						2393	
Approach Delay, s/veh		75.4			1.4						55.7	
Approach LOS		E			A						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.0	106.5		32.0		130.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	19.5	48.5		28.0		* 74
Max Q Clear Time (g_c+I1), s	22.0	15.4		31.5		2.0
Green Ext Time (p_c), s	0.0	26.0		0.0		62.2

Intersection Summary	
HCM 6th Ctrl Delay	43.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
02/27/2020

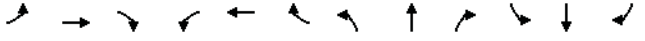
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	489	2824	830	189	1766	70	955	110	301	190	110	800
Future Volume (veh/h)	489	2824	830	189	1766	70	955	110	301	190	110	800
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		1.00	1.00		0.95	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	504	2911	321	195	1821	0	985	113	198	196	113	423
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	556	2902	1201	160	2208	544	867	588	499	204	260	348
Arrive On Green	0.16	0.45	0.45	0.05	0.34	0.00	0.25	0.33	0.33	0.06	0.14	0.14
Sat Flow, veh/h	3456	6434	2662	3456	6434	1585	3456	1777	1508	3456	1870	2505
Grp Volume(v), veh/h	504	2911	321	195	1821	0	985	113	198	196	113	423
Grp Sat Flow(s),veh/h/ln	1728	1609	1331	1728	1609	1585	1728	1777	1508	1728	1870	1253
Q Serve(g_s), s	21.6	68.1	11.4	7.0	39.2	0.0	37.9	6.9	15.4	8.5	8.4	21.0
Cycle Q Clear(g_c), s	21.6	68.1	11.4	7.0	39.2	0.0	37.9	6.9	15.4	8.5	8.4	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	556	2902	1201	160	2208	544	867	588	499	204	260	348
V/C Ratio(X)	0.91	1.00	0.27	1.22	0.82	0.00	1.14	0.19	0.40	0.96	0.43	1.21
Avail Cap(c_a), veh/h	595	2902	1201	160	2208	544	867	588	499	204	260	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.2	41.5	25.9	72.0	45.4	0.0	56.5	36.1	39.3	70.9	59.6	65.0
Incr Delay (d2), s/veh	16.3	17.5	0.5	141.3	3.7	0.0	75.1	0.1	0.2	51.9	0.7	119.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	29.3	3.8	6.2	15.8	0.0	25.6	3.0	5.8	5.3	4.0	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	58.9	26.4	213.3	49.1	0.0	131.7	36.1	39.5	122.8	60.3	184.9
LnGrp LOS	E	F	C	F	D	A	F	D	D	F	E	F
Approach Vol, veh/h		3736			2016			1296			732	
Approach Delay, s/veh		58.8			65.0			109.3			149.0	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	73.1	41.9	25.0	28.3	55.8	12.9	54.0
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	6.6	* 67	37.5	20.1	25.6	46.6	8.5	49.1
Max Q Clear Time (g_c+I1), s	9.0	70.1	39.9	23.0	23.6	41.2	10.5	17.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.3	4.9	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	77.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	260	10	380	290	868	0	0	1263	347
Future Volume (veh/h)	0	0	0	260	10	380	290	868	0	0	1263	347
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				297	0	422	322	964	0	0	1403	386
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1049	0	458	288	2211	0	0	1816	806
Arrive On Green				0.29	0.00	0.29	0.17	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				3563	0	1556	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				297	0	422	322	964	0	0	1403	386
Grp Sat Flow(s),veh/h/ln				1781	0	1556	1728	1777	0	0	1777	1577
Q Serve(g_s), s				6.9	0.0	28.4	9.0	0.0	0.0	0.0	34.5	17.1
Cycle Q Clear(g_c), s				6.9	0.0	28.4	9.0	0.0	0.0	0.0	34.5	17.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1049	0	458	288	2211	0	0	1816	806
V/C Ratio(X)				0.28	0.00	0.92	1.12	0.44	0.00	0.00	0.77	0.48
Avail Cap(c_a), veh/h				1089	0	475	288	2211	0	0	1816	806
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.31	0.31	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.3	0.0	36.9	45.0	0.0	0.0	0.0	21.3	17.1
Incr Delay (d2), s/veh				0.1	0.0	22.9	67.6	0.2	0.0	0.0	3.3	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.9	0.0	13.1	6.2	0.1	0.0	0.0	14.5	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				29.5	0.0	59.8	112.6	0.2	0.0	0.0	24.6	19.1
LnGrp LOS				C	A	E	F	A	A	A	C	B
Approach Vol, veh/h					719			1286			1789	
Approach Delay, s/veh					47.3			28.3			23.4	
Approach LOS					D			C			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.2			13.0	59.2		35.8				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 66			8.6	51.7		32.1				
Max Q Clear Time (g_c+I1), s		2.0			11.0	36.5		30.4				
Green Ext Time (p_c), s		7.5			0.0	13.0		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		29.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	359	10	400	0	0	0	0	789	480	700	843	0
Future Volume (veh/h)	359	10	400	0	0	0	0	789	480	700	843	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	407	0	170				0	877	402	778	937	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	543	0	241				0	1254	570	691	2749	0
Arrive On Green	0.15	0.00	0.15				0.00	0.53	0.52	0.40	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2467	1080	3456	3647	0
Grp Volume(v), veh/h	407	0	170				0	655	624	778	937	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1676	1728	1777	0
Q Serve(g_s), s	11.8	0.0	11.0				0.0	29.7	30.5	21.6	0.0	0.0
Cycle Q Clear(g_c), s	11.8	0.0	11.0				0.0	29.7	30.5	21.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.64	1.00		0.00
Lane Grp Cap(c), veh/h	543	0	241				0	939	885	691	2749	0
V/C Ratio(X)	0.75	0.00	0.70				0.00	0.70	0.70	1.13	0.34	0.00
Avail Cap(c_a), veh/h	960	0	427				0	939	885	691	2749	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.60	0.60	0.00
Uniform Delay (d), s/veh	43.8	0.0	43.5				0.0	19.0	19.5	32.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	3.7				0.0	4.3	4.7	68.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	4.4				0.0	12.8	12.5	13.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	47.2				0.0	23.3	24.2	100.6	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	F	A	A
Approach Vol, veh/h		577						1279			1715	
Approach Delay, s/veh		46.3						23.8			45.7	
Approach LOS		D						C			D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.0	61.6		20.4		87.6						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	21.6	* 44		28.2		69.1						
Max Q Clear Time (g_c+I1), s	23.6	32.5		13.8		2.0						
Green Ext Time (p_c), s	0.0	7.8		1.7		10.8						

Intersection Summary			
HCM 6th Ctrl Delay		38.0	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2035 + P1 + P2 + P3 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	460	10	240	699	828	0	0	840	349
Future Volume (veh/h)	0	0	0	460	10	240	699	828	0	0	840	349
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				382	169	258	752	890	0	0	903	375
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				485	182	278	666	2382	0	0	2285	699
Arrive On Green				0.27	0.27	0.27	0.19	0.67	0.00	0.00	0.45	0.44
Sat Flow, veh/h				1781	668	1019	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				382	0	427	752	890	0	0	903	375
Grp Sat Flow(s),veh/h/ln				1781	0	1687	1728	1777	0	0	1702	1585
Q Serve(g_s), s				27.8	0.0	34.5	27.0	15.4	0.0	0.0	16.6	24.2
Cycle Q Clear(g_c), s				27.8	0.0	34.5	27.0	15.4	0.0	0.0	16.6	24.2
Prop In Lane				1.00		0.60	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				485	0	460	666	2382	0	0	2285	699
V/C Ratio(X)				0.79	0.00	0.93	1.13	0.37	0.00	0.00	0.40	0.54
Avail Cap(c_a), veh/h				509	0	482	666	2382	0	0	2285	699
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.53	0.53	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				47.2	0.0	49.9	56.5	10.1	0.0	0.0	26.0	28.6
Incr Delay (d2), s/veh				6.9	0.0	23.4	68.4	0.2	0.0	0.0	0.5	2.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				13.0	0.0	17.2	18.1	6.0	0.0	0.0	6.9	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				54.1	0.0	73.2	124.9	10.4	0.0	0.0	26.5	31.6
LnGrp LOS				D	A	E	F	B	A	A	C	C
Approach Vol, veh/h					809			1642			1278	
Approach Delay, s/veh					64.2			62.8			28.0	
Approach LOS					E			E			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		97.9			31.0	66.9		42.1				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		90.9			26.1	* 60		39.1				
Max Q Clear Time (g_c+I1), s		17.4			29.0	26.2		36.5				
Green Ext Time (p_c), s		9.6			0.0	9.5		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		51.2	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2035 + P1 + P2 + P3 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	618	10	618	0	0	0	0	899	460	490	810	0
Future Volume (veh/h)	618	10	618	0	0	0	0	899	460	490	810	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	680	0	535				0	977	108	533	880	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1296	0	577				0	1520	472	438	2037	0
Arrive On Green	0.36	0.00	0.36				0.00	0.30	0.30	0.25	0.57	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	680	0	535				0	977	108	533	880	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	19.5	0.0	42.1				0.0	21.6	6.7	32.0	18.3	0.0
Cycle Q Clear(g_c), s	19.5	0.0	42.1				0.0	21.6	6.7	32.0	18.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1296	0	577				0	1520	472	438	2037	0
V/C Ratio(X)	0.52	0.00	0.93				0.00	0.64	0.23	1.22	0.43	0.00
Avail Cap(c_a), veh/h	1754	0	780				0	1520	472	438	2037	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	32.5	0.0	39.7				0.0	39.6	34.4	49.0	15.7	0.0
Incr Delay (d2), s/veh	0.1	0.0	12.3				0.0	2.1	1.1	114.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	17.6				0.0	9.4	2.8	28.1	7.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	52.0				0.0	41.8	35.5	163.6	16.4	0.0
LnGrp LOS	C	A	D				A	D	D	F	B	A
Approach Vol, veh/h		1215						1085			1413	
Approach Delay, s/veh		41.1						41.1			71.9	
Approach LOS		D						D			E	

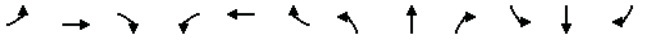
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.0	42.7		51.3		78.7						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	31.6	20.9		63.1		* 57						
Max Q Clear Time (g_c+I1), s	34.0	23.6		44.1		20.3						
Green Ext Time (p_c), s	0.0	0.0		2.3		4.8						

Intersection Summary			
HCM 6th Ctrl Delay		52.8	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2808	140	80	1899	30	60	10	130	160	20	80
Future Volume (veh/h)	30	2808	140	80	1899	30	60	10	130	160	20	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	33	3120	156	89	2110	33	67	11	144	178	22	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3014	148	117	3331	52	148	39	283	244	25	101
Arrive On Green	0.03	0.58	0.57	0.06	0.62	0.60	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5184	255	1853	5386	84	427	147	1060	754	95	378
Grp Volume(v), veh/h	33	2114	1162	89	1386	757	222	0	0	289	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1899	1853	1770	1930	1634	0	0	1227	0	0
Q Serve(g_s), s	2.4	78.5	78.5	6.4	33.1	33.3	0.0	0.0	0.0	16.1	0.0	0.0
Cycle Q Clear(g_c), s	2.4	78.5	78.5	6.4	33.1	33.3	15.3	0.0	0.0	31.4	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.04	0.30		0.65	0.62		0.31
Lane Grp Cap(c), veh/h	48	2058	1104	117	2189	1194	470	0	0	370	0	0
V/C Ratio(X)	0.68	1.03	1.05	0.76	0.63	0.63	0.47	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	82	2058	1104	198	2189	1194	470	0	0	370	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.2	28.3	28.4	62.2	16.2	16.2	42.1	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	6.2	27.2	41.9	3.8	1.4	2.6	3.4	0.0	0.0	15.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	37.7	45.0	3.1	12.7	14.3	6.8	0.0	0.0	11.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	55.4	70.3	66.0	17.6	18.8	45.5	0.0	0.0	64.3	0.0	0.0
LnGrp LOS	E	F	F	E	B	B	D	A	A	E	A	A
Approach Vol, veh/h		3309			2232			222			289	
Approach Delay, s/veh		60.8			19.9			45.5			64.3	
Approach LOS		E			B			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	82.5		40.0	7.5	87.5		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1				
Max Q Clear Time (g_c+I1), s	8.4	80.5		33.4	4.4	35.3		17.3				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	41.7		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		45.3
HCM 6th LOS		D

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	33	870	889	66
Future Vol, veh/h	0	55	33	870	889	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	36	946	966	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	519	1038	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	502	665	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	502	665	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	665	-	502	-	-
HCM Lane V/C Ratio	0.054	-	0.119	-	-
HCM Control Delay (s)	10.7	-	13.1	-	-
HCM Lane LOS	B	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	111	261	210	169	263	509	687	467	296	438	73
Future Volume (veh/h)	40	111	261	210	169	263	509	687	467	296	438	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.90	1.00		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	119	281	226	182	283	547	739	502	318	471	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	328	244	241	194	373	514	714	478	188	503	82
Arrive On Green	0.15	0.18	0.15	0.24	0.24	0.24	0.29	0.37	0.35	0.11	0.17	0.16
Sat Flow, veh/h	1781	1870	1576	1008	812	1557	1781	1947	1303	1781	2962	485
Grp Volume(v), veh/h	43	119	281	408	0	283	547	673	568	318	280	269
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1820	0	1557	1781	1777	1474	1781	1777	1670
Q Serve(g_s), s	3.0	8.0	22.0	31.2	0.0	24.0	41.0	52.1	52.1	15.0	22.1	22.6
Cycle Q Clear(g_c), s	3.0	8.0	22.0	31.2	0.0	24.0	41.0	52.1	52.1	15.0	22.1	22.6
Prop In Lane	1.00		1.00	0.55		1.00	1.00		0.88	1.00		0.29
Lane Grp Cap(c), veh/h	276	328	244	436	0	373	514	652	541	188	302	283
V/C Ratio(X)	0.16	0.36	1.15	0.94	0.00	0.76	1.06	1.03	1.05	1.69	0.93	0.95
Avail Cap(c_a), veh/h	276	328	244	436	0	373	514	652	541	188	302	283
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	51.6	60.0	52.9	0.0	50.2	50.5	44.9	46.2	63.5	58.1	58.5
Incr Delay (d2), s/veh	0.1	0.3	104.5	28.4	0.0	10.3	57.6	44.0	52.4	332.4	36.5	41.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.8	15.9	17.7	0.0	10.4	26.4	30.7	26.9	24.2	13.0	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	51.8	164.5	81.3	0.0	60.5	108.1	88.9	98.7	395.9	94.6	100.2
LnGrp LOS	D	D	F	F	A	E	F	F	F	F	F	F
Approach Vol, veh/h		443			691			1788			867	
Approach Delay, s/veh		123.3			72.8			97.9			206.8	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.0	56.1		28.9	45.0	30.1		38.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	14.6	47.2		22.0	40.6	* 23		31.1				
Max Q Clear Time (g_c+I1), s	17.0	54.1		24.0	43.0	24.6		33.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			121.2									
HCM 6th LOS			F									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2035 + P1 + P2 + P3 PM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	878	0	164	0	0	0	59	608	0	0	640	279
Future Volume (veh/h)	878	0	164	0	0	0	59	608	0	0	640	279
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1009	0	119				64	661	0	0	696	303
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	1219	0	542				159	1408	0	3	948	423
Arrive On Green	0.34	0.00	0.34				0.05	0.40	0.00	0.00	0.27	0.27
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	1009	0	119				64	661	0	0	696	303
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	13.7	0.0	2.8				0.9	7.3	0.0	0.0	9.4	9.1
Cycle Q Clear(g_c), s	13.7	0.0	2.8				0.9	7.3	0.0	0.0	9.4	9.1
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	1219	0	542				159	1408	0	3	948	423
V/C Ratio(X)	0.83	0.00	0.22				0.40	0.47	0.00	0.00	0.73	0.72
Avail Cap(c_a), veh/h	1425	0	634				262	1408	0	135	1125	502
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	12.3				24.4	11.8	0.0	0.0	17.6	17.5
Incr Delay (d2), s/veh	3.7	0.0	0.2				1.6	0.2	0.0	0.0	2.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0				0.4	2.5	0.0	0.0	3.7	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.0	12.5				26.1	12.1	0.0	0.0	19.7	21.5
LnGrp LOS	B	A	B				C	B	A	A	B	C
Approach Vol, veh/h		1128						725			999	
Approach Delay, s/veh		18.9						13.3			20.2	
Approach LOS		B						B			C	

Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	0.0	27.8		24.9	6.8	21.0						
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	6.9						
Max Green Setting (Gmax), s	4.0	16.7		21.1	4.0	16.7						
Max Q Clear Time (g_c+I1), s	0.0	9.3		15.7	2.9	11.4						
Green Ext Time (p_c), s	0.0	2.6		2.3	0.0	2.6						

Intersection Summary												
HCM 6th Ctrl Delay			17.9									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
31: Office Dwy. & Project Dwy. Street "U"

Year 2035 + P1 + P2 + P3 PM
03/18/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	453	0	118	151	0	133	0	522	0	0	0
Future Volume (veh/h)	0	453	0	118	151	0	133	0	522	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870			
Adj Flow Rate, veh/h	0	492	0	128	164	0	145	0	567			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2			
Cap, veh/h	0	1149	0	396	1149	0	807	0	718			
Arrive On Green	0.00	0.32	0.00	0.32	0.32	0.00	0.45	0.00	0.45			
Sat Flow, veh/h	0	3741	0	905	3647	0	1781	0	1585			
Grp Volume(v), veh/h	0	492	0	128	164	0	145	0	567			
Grp Sat Flow(s),veh/h/ln	0	1777	0	905	1777	0	1781	0	1585			
Q Serve(g_s), s	0.0	3.9	0.0	4.6	1.2	0.0	1.7	0.0	10.9			
Cycle Q Clear(g_c), s	0.0	3.9	0.0	8.5	1.2	0.0	1.7	0.0	10.9			
Prop In Lane	0.00		0.00	1.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	1149	0	396	1149	0	807	0	718			
V/C Ratio(X)	0.00	0.43	0.00	0.32	0.14	0.00	0.18	0.00	0.79			
Avail Cap(c_a), veh/h	0	1888	0	584	1888	0	1146	0	1020			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	9.5	0.0	12.8	8.6	0.0	5.8	0.0	8.3			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.5	0.1	0.0	0.1	0.0	2.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0	0.8	0.3	0.0	0.4	0.0	2.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.8	0.0	13.3	8.6	0.0	5.9	0.0	11.1			
LnGrp LOS	A	A	A	B	A	A	A	A	B			
Approach Vol, veh/h		492			292			712				
Approach Delay, s/veh		9.8			10.7			10.1				
Approach LOS		A			B			B				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		20.2		15.6				15.6				
Change Period (Y+Rc), s		4.0		4.0				4.0				
Max Green Setting (Gmax), s		23.0		19.0				19.0				
Max Q Clear Time (g_c+I1), s		12.9		5.9				10.5				
Green Ext Time (p_c), s		3.3		2.7				1.1				

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

HCM 6th AWSC
32: Avenida Del Rio & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 PM
02/27/2020

Intersection	
Intersection Delay, s/veh	166.2
Intersection LOS	F

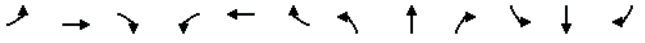
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	330	587	206	147	543	455
Future Vol, veh/h	330	587	206	147	543	455
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	599	210	150	554	464
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	301.9	29.1	90
HCM LOS	F	D	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	58%
Vol Thru, %	0%	0%	36%	42%
Vol Right, %	0%	100%	64%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	543	455	917	353
LT Vol	543	0	0	206
Through Vol	0	0	330	147
RT Vol	0	455	587	0
Lane Flow Rate	554	464	936	360
Geometry Grp	7	7	2	2
Degree of Util (X)	1.184	0.838	1.614	0.715
Departure Headway (Hd)	8.835	7.591	6.475	8.162
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	416	483	571	447
Service Time	6.535	5.291	4.475	6.162
HCM Lane V/C Ratio	1.332	0.961	1.639	0.805
HCM Control Delay	133.1	38.6	301.9	29.1
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	18.9	8.3	49.5	5.6

HCM 6th Signalized Intersection Summary
33: Hazard Center West Drwy. & Hazard Center Dr.

Year 2035 + P1 + P2 + P3 PM
03/09/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	624	0	0	202	100	10	20	20	95	0	10
Future Volume (veh/h)	20	624	0	0	202	100	10	20	20	95	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	891	0	0	289	143	14	29	29	136	0	14
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	668	1767	0	0	1147	551	337	147	147	466	0	325
Arrive On Green	0.50	0.50	0.00	0.00	0.50	0.46	0.17	0.17	0.17	0.21	0.00	0.21
Sat Flow, veh/h	955	3647	0	0	2400	1107	1397	850	850	1150	0	1580
Grp Volume(v), veh/h	29	891	0	0	221	211	14	0	58	136	0	14
Grp Sat Flow(s),veh/h/ln	955	1777	0	0	1777	1637	1397	0	1700	1150	0	1580
Q Serve(g_s), s	0.5	4.5	0.0	0.0	1.9	2.1	0.3	0.0	0.8	2.5	0.0	0.2
Cycle Q Clear(g_c), s	2.6	4.5	0.0	0.0	1.9	2.1	3.6	0.0	0.8	3.3	0.0	0.2
Prop In Lane	1.00		0.00	0.00		0.68	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	668	1767	0	0	883	814	337	0	293	504	0	325
V/C Ratio(X)	0.04	0.50	0.00	0.00	0.25	0.26	0.04	0.00	0.20	0.27	0.00	0.04
Avail Cap(c_a), veh/h	1399	4486	0	0	2243	2066	1548	0	1768	1623	0	1643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.7	4.5	0.0	0.0	3.9	4.1	12.3	0.0	9.6	10.5	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.2	0.2	0.1	0.0	0.2	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	4.7	0.0	0.0	4.0	4.2	12.3	0.0	9.7	10.6	0.0	8.6
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		920			432			72			150	
Approach Delay, s/veh		4.7			4.1			10.2			10.4	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.4		9.5		17.4		9.5				
Change Period (Y+Rc), s		4.9		4.9		4.9		* 4.9				
Max Green Setting (Gmax), s		33.1		27.1		33.1		* 28				
Max Q Clear Time (g_c+I1), s		6.5		5.3		4.1		5.6				
Green Ext Time (p_c), s		6.0		0.5		2.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		5.3	
HCM 6th LOS		A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Hazard Center East Drwy. & Hazard Center Dr.

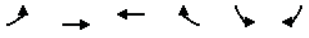
Year 2035 + P1 + P2 + P3 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	764	20	40	349	60	10	10	30	370	20	10
Future Volume (veh/h)	10	764	20	40	349	60	10	10	30	370	20	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	1.00		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	849	21	44	388	29	11	11	6	411	22	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	1213	30	189	1145	85	395	386	193	798	37	17
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	953	3539	88	635	3339	248	596	710	356	1287	69	31
Grp Volume(v), veh/h	11	426	444	44	205	212	28	0	0	443	0	0
Grp Sat Flow(s),veh/h/ln	953	1777	1849	635	1777	1810	1663	0	0	1387	0	0
Q Serve(g_s), s	0.6	14.5	14.5	4.5	6.0	6.1	0.0	0.0	0.0	14.4	0.0	0.0
Cycle Q Clear(g_c), s	6.7	14.5	14.5	19.0	6.0	6.1	0.5	0.0	0.0	14.9	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.14	0.39		0.21	0.93		0.02
Lane Grp Cap(c), veh/h	347	609	634	189	609	621	974	0	0	852	0	0
V/C Ratio(X)	0.03	0.70	0.70	0.23	0.34	0.34	0.03	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	347	609	634	189	609	621	974	0	0	852	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.6	19.9	19.9	28.1	17.1	17.1	7.4	0.0	0.0	10.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	6.6	6.3	2.9	1.5	1.5	0.1	0.0	0.0	2.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	6.7	6.9	0.8	2.5	2.6	0.2	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	26.5	26.2	31.0	18.6	18.6	7.5	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	C	C	C	B	B	A	A	A	B	A	A
Approach Vol, veh/h		881			461			28			443	
Approach Delay, s/veh		26.2			19.8			7.5			12.9	
Approach LOS		C			B			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		42.0		28.0		42.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		24.0		38.0		24.0		38.0				
Max Q Clear Time (g_c+I1), s		16.5		16.9		21.0		2.5				
Green Ext Time (p_c), s		2.8		1.9		0.7		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		21.1	
HCM 6th LOS		C	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	825	60	127	190	280	216
Future Volume (vph)	825	60	127	190	280	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.91		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3183		3433	1551
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3183		3433	1551
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	917	67	141	211	311	240
RTOR Reduction (vph)	0	0	172	0	0	205
Lane Group Flow (vph)	917	67	180	0	311	35
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	44.2	68.1	19.5		15.5	15.5
Effective Green, g (s)	44.6	69.0	20.4		15.9	15.9
Actuated g/C Ratio	0.41	0.63	0.19		0.15	0.15
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	722	2234	594		499	225
v/s Ratio Prot	c0.52	0.02	c0.06		c0.09	
v/s Ratio Perm						0.02
v/c Ratio	1.27	0.03	0.30		0.62	0.16
Uniform Delay, d1	32.3	7.6	38.3		43.9	40.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	132.3	0.0	0.4		1.7	0.1
Delay (s)	164.7	7.6	38.7		45.6	40.9
Level of Service	F	A	D		D	D
Approach Delay (s)		154.0	38.7		43.6	
Approach LOS		F	D		D	

Intersection Summary				
HCM 2000 Control Delay	100.2	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	109.3	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



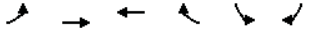
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	20	720	80	20	10	490	890	30	50	1230	97
Future Volume (veh/h)	160	20	720	80	20	10	490	890	30	50	1230	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.92	1.00		0.96	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	182	0	379	83	21	7	510	927	28	52	1281	93
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	948	0	409	100	25	8	567	1757	53	67	1806	131
Arrive On Green	0.27	0.00	0.27	0.08	0.08	0.08	0.16	0.50	0.49	0.04	0.37	0.36
Sat Flow, veh/h	3563	0	1536	1326	335	112	3456	3517	106	1781	4853	352
Grp Volume(v), veh/h	182	0	379	111	0	0	510	468	487	52	898	476
Grp Sat Flow(s),veh/h/ln	1781	0	1536	1773	0	0	1728	1777	1846	1781	1702	1801
Q Serve(g_s), s	5.9	0.0	36.1	9.3	0.0	0.0	21.7	26.9	26.9	4.3	33.8	33.8
Cycle Q Clear(g_c), s	5.9	0.0	36.1	9.3	0.0	0.0	21.7	26.9	26.9	4.3	33.8	33.8
Prop In Lane	1.00		1.00	0.75		0.06	1.00		0.06	1.00		0.20
Lane Grp Cap(c), veh/h	948	0	409	134	0	0	567	887	922	67	1267	671
V/C Ratio(X)	0.19	0.00	0.93	0.83	0.00	0.00	0.90	0.53	0.53	0.78	0.71	0.71
Avail Cap(c_a), veh/h	1095	0	472	231	0	0	866	887	922	119	1267	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	53.6	68.4	0.0	0.0	61.5	25.5	25.5	71.6	40.2	40.3
Incr Delay (d2), s/veh	0.1	0.0	20.9	4.9	0.0	0.0	6.1	2.2	2.2	7.1	3.4	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	16.3	4.4	0.0	0.0	10.0	12.0	12.4	2.1	14.8	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	74.5	73.3	0.0	0.0	67.6	27.8	27.7	78.7	43.5	46.5
LnGrp LOS	D	A	E	E	A	A	E	C	C	E	D	D
Approach Vol, veh/h		561			111			1465			1426	
Approach Delay, s/veh		64.2			73.3			41.6			45.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	78.9		44.8	29.0	59.9		16.2				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.0	54.9		46.1	37.6	27.3		19.5				
Max Q Clear Time (g_c+I1), s	6.3	28.9		38.1	23.7	35.8		11.3				
Green Ext Time (p_c), s	0.0	12.0		1.9	0.9	0.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay	47.8		
HCM 6th LOS	D		

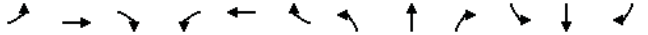
Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	385	540	467	523	546	177
Future Volume (veh/h)	385	540	467	523	546	177
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	423	593	513	217	600	126
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	424	1081	553	995	594	528
Arrive On Green	0.24	0.58	0.30	0.30	0.33	0.33
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	423	593	513	217	600	126
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	21.4	17.6	24.0	5.3	30.0	5.2
Cycle Q Clear(g_c), s	21.4	17.6	24.0	5.3	30.0	5.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	424	1081	553	995	594	528
V/C Ratio(X)	1.00	0.55	0.93	0.22	1.01	0.24
Avail Cap(c_a), veh/h	424	1081	553	995	594	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	11.7	30.8	7.2	30.0	21.7
Incr Delay (d2), s/veh	43.4	0.3	24.1	0.5	39.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	6.8	14.1	3.8	18.8	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	77.6	12.1	54.8	7.7	69.6	22.8
LnGrp LOS	E	B	D	A	F	C
Approach Vol, veh/h		1016	730		726	
Approach Delay, s/veh		39.4	40.8		61.4	
Approach LOS		D	D		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.0		34.0	25.4	30.6
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		51.1		29.1	21.0	25.7
Max Q Clear Time (g_c+I1), s		19.6		32.0	23.4	26.0
Green Ext Time (p_c), s		2.7		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	977	239	30	699	40	381	20	110	10	20	20
Future Volume (veh/h)	0	977	239	30	699	40	381	20	110	10	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1062	260	33	760	43	414	22	120	11	22	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1355	330	48	1853	105	597	96	526	139	275	252
Arrive On Green	0.00	0.48	0.47	0.03	0.54	0.53	0.39	0.39	0.38	0.39	0.39	0.38
Sat Flow, veh/h	0	2911	686	1781	3413	193	1356	248	1351	263	707	647
Grp Volume(v), veh/h	0	667	655	33	396	407	414	0	142	55	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1727	1781	1777	1829	1356	0	1598	1617	0	0
Q Serve(g_s), s	0.0	37.0	37.7	2.2	15.5	15.6	28.4	0.0	7.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	37.0	37.7	2.2	15.5	15.6	30.8	0.0	7.1	2.4	0.0	0.0
Prop In Lane	0.00		0.40	1.00		0.11	1.00		0.85	0.20		0.40
Lane Grp Cap(c), veh/h	0	854	830	48	965	993	597	0	623	666	0	0
V/C Ratio(X)	0.00	0.78	0.79	0.69	0.41	0.41	0.69	0.00	0.23	0.08	0.00	0.00
Avail Cap(c_a), veh/h	0	854	830	72	986	1015	597	0	623	666	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	25.6	25.9	57.2	15.9	16.0	31.2	0.0	24.5	22.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.0	7.5	6.5	0.2	0.2	3.4	0.0	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.8	16.8	1.1	6.2	6.4	10.7	0.0	2.7	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.6	33.4	63.8	16.2	16.2	34.6	0.0	24.7	23.2	0.0	0.0
LnGrp LOS	A	C	C	E	B	B	C	A	C	C	A	A
Approach Vol, veh/h		1322			836			556			55	
Approach Delay, s/veh		33.0			18.1			32.1			23.2	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	7.2	61.2		50.2		68.4		50.2				
Change Period (Y+Rc), s	4.4	* 5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s	4.4	* 56		45.3		64.7		45.3				
Max Q Clear Time (g_c+I1), s	4.2	39.7		4.4		17.6		32.8				
Green Ext Time (p_c), s	0.0	7.6		0.3		5.2		1.9				

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1067	20	60	759	20	40
Future Vol, veh/h	1067	20	60	759	20	40
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	275	-	0	25
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1160	22	65	825	22	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1184	0	1716	593
Stage 1	-	-	-	-	1173	-
Stage 2	-	-	-	-	543	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	586	-	81	449
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	546	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	585	-	72	448
Mov Cap-2 Maneuver	-	-	-	-	72	-
Stage 1	-	-	-	-	227	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	34.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	72	448	-	-	585	-
HCM Lane V/C Ratio	0.302	0.097	-	-	0.111	-
HCM Control Delay (s)	75.3	13.9	-	-	11.9	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	1.1	0.3	-	-	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	958	109	340	850	50	130	20	370	30	20	30
Future Volume (veh/h)	50	958	109	340	850	50	130	20	370	30	20	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	1008	115	358	895	53	137	21	389	32	21	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	1170	133	333	1735	103	381	29	546	104	70	85
Arrive On Green	0.04	0.37	0.37	0.19	0.51	0.51	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1781	3190	364	1781	3397	201	1347	80	1489	193	192	232
Grp Volume(v), veh/h	53	561	562	358	468	480	137	0	410	85	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1777	1822	1347	0	1570	617	0	0
Q Serve(g_s), s	4.4	43.9	43.9	28.0	26.3	26.3	0.0	0.0	33.6	4.2	0.0	0.0
Cycle Q Clear(g_c), s	4.4	43.9	43.9	28.0	26.3	26.3	22.8	0.0	33.6	37.8	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.11	1.00		0.95	0.38		0.38
Lane Grp Cap(c), veh/h	76	652	651	333	907	930	381	0	576	259	0	0
V/C Ratio(X)	0.70	0.86	0.86	1.08	0.52	0.52	0.36	0.00	0.71	0.33	0.00	0.00
Avail Cap(c_a), veh/h	119	652	651	333	907	930	381	0	576	259	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	70.8	44.0	44.0	61.0	24.4	24.4	37.3	0.0	40.7	41.6	0.0	0.0
Incr Delay (d2), s/veh	4.2	14.0	14.1	71.3	0.5	0.5	2.6	0.0	7.3	3.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	21.8	21.9	19.3	11.3	11.5	4.3	0.0	14.2	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.0	58.0	58.1	132.3	24.9	24.9	40.0	0.0	48.0	44.9	0.0	0.0
LnGrp LOS	E	E	E	F	C	C	D	A	D	D	A	A
Approach Vol, veh/h		1176			1306			547			85	
Approach Delay, s/veh		58.8			54.3			46.0			44.9	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	32.0	59.0		59.0	10.4	80.6		59.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	28.0	55.0		55.0	10.0	73.0		55.0				
Max Q Clear Time (g_c+I1), s	30.0	45.9		39.8	6.4	28.3		35.6				
Green Ext Time (p_c), s	0.0	5.0		0.2	0.0	7.6		2.0				

Intersection Summary		
HCM 6th Ctrl Delay	54.3	
HCM 6th LOS	D	

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2035 + P1 + P2 + P3 PM
03/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	618	368	380	409	360	397	690	190	550	1110	373
Future Volume (veh/h)	320	618	368	380	409	360	397	690	190	550	1110	373
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	651	289	400	431	202	418	726	146	579	1168	198
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	710	315	452	742	344	478	1122	223	633	1580	481
Arrive On Green	0.12	0.30	0.29	0.13	0.32	0.31	0.14	0.26	0.25	0.18	0.31	0.31
Sat Flow, veh/h	3456	2374	1054	3456	2337	1083	3456	4243	842	3456	5106	1553
Grp Volume(v), veh/h	337	487	453	400	326	307	418	581	291	579	1168	198
Grp Sat Flow(s),veh/h/ln	1728	1777	1652	1728	1777	1643	1728	1702	1681	1728	1702	1553
Q Serve(g_s), s	12.4	34.4	34.4	14.8	20.0	20.4	15.4	19.7	20.1	21.4	26.6	13.1
Cycle Q Clear(g_c), s	12.4	34.4	34.4	14.8	20.0	20.4	15.4	19.7	20.1	21.4	26.6	13.1
Prop In Lane	1.00		0.64	1.00		0.66	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	399	532	494	452	564	522	478	900	445	633	1580	481
V/C Ratio(X)	0.85	0.92	0.92	0.89	0.58	0.59	0.87	0.64	0.66	0.91	0.74	0.41
Avail Cap(c_a), veh/h	452	547	508	452	564	522	510	900	445	638	1580	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	1.00	1.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.4	44.0	44.3	55.5	37.1	37.6	54.9	42.4	42.8	52.1	40.2	35.5
Incr Delay (d2), s/veh	4.3	8.8	9.3	18.0	2.2	2.5	9.6	2.3	4.8	17.4	3.1	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	16.4	15.3	7.6	9.1	8.6	7.3	8.6	9.0	10.8	11.6	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	52.7	53.6	73.5	39.3	40.1	64.5	44.7	47.6	69.5	43.3	38.1
LnGrp LOS	E	D	D	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1277			1033			1290			1945	
Approach Delay, s/veh		55.1			52.8			51.8			50.6	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.8	38.3	21.0	42.9	22.0	44.1	19.0	44.9
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	23.6	31.8	16.6	39.1	18.8	* 37	16.6	39.1
Max Q Clear Time (g_c+I1), s	23.4	22.1	16.8	36.4	17.4	28.6	14.4	22.4
Green Ext Time (p_c), s	0.0	5.5	0.0	1.6	0.2	6.6	0.2	6.1

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2035 + P1 + P2 + P3 PM
02/27/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	270	489	330	448	697	323	460	670	460	1198	110
Future Volume (veh/h)	40	270	489	330	448	697	323	460	670	460	1198	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	278	0	340	462	719	333	474	0	474	1235	55
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	874		425	636	529	356	1180		437	1262	549
Arrive On Green	0.03	0.25	0.00	0.12	0.34	0.34	0.10	0.33	0.00	0.13	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1544
Grp Volume(v), veh/h	41	278	0	340	462	719	333	474	0	474	1235	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1544
Q Serve(g_s), s	2.2	6.1	0.0	9.1	20.6	32.3	9.1	9.8	0.0	12.0	32.6	2.3
Cycle Q Clear(g_c), s	2.2	6.1	0.0	9.1	20.6	32.3	9.1	9.8	0.0	12.0	32.6	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	874		425	636	529	356	1180		437	1262	549
V/C Ratio(X)	0.69	0.32		0.80	0.73	1.36	0.93	0.40		1.09	0.98	0.10
Avail Cap(c_a), veh/h	148	980		509	636	529	356	1180		437	1262	549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.44	0.44	0.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	45.4	29.3	0.0	40.5	27.5	31.4	42.3	24.5	0.0	41.5	30.3	20.5
Incr Delay (d2), s/veh	5.3	0.2	0.0	6.2	3.6	173.8	17.4	0.4	0.0	55.1	12.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.6	0.0	4.2	9.5	37.2	4.7	4.1	0.0	8.4	15.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	29.5	0.0	46.7	31.1	205.1	59.7	24.9	0.0	96.6	42.9	20.6
LnGrp LOS	D	C		D	C	F	E	C		F	D	C
Approach Vol, veh/h		319	A		1521			807	A		1764	
Approach Delay, s/veh		32.2			116.9			39.3			56.6	
Approach LOS		C			F			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	35.5	15.7	27.8	13.8	37.7	7.2	36.3
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	11.6	25.9	13.6	* 25	9.4	28.1	7.5	31.0
Max Q Clear Time (g_c+I1), s	14.0	11.8	11.1	8.1	11.1	34.6	4.2	34.3
Green Ext Time (p_c), s	0.0	1.8	0.2	1.6	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	72.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2035 + P1 + P2 + P3 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	0	500	0	0	0	0	733	450	1088	629	0
Future Volume (vph)	750	0	500	0	0	0	0	733	450	1088	629	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3313	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3313	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	789	0	526	0	0	0	0	772	474	1145	662	0
RTOR Reduction (vph)	0	0	341	0	0	0	0	0	308	0	0	0
Lane Group Flow (vph)	789	0	185	0	0	0	0	772	166	572	1235	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	31.9		31.9					50.9	50.9	48.9	48.9	
Effective Green, g (s)	33.5		33.5					51.9	51.9	50.5	50.5	
Actuated g/C Ratio	0.22		0.22					0.35	0.35	0.34	0.34	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	766		353					1224	547	542	1115	
v/s Ratio Prot	c0.23							c0.22		0.36	c0.37	
v/s Ratio Perm			0.12						0.10			
v/c Ratio	1.03		0.52					0.63	0.30	1.06	1.11	
Uniform Delay, d1	58.2		51.2					41.0	35.8	49.8	49.8	
Progression Factor	1.00		1.00					0.42	0.25	1.00	1.00	
Incremental Delay, d2	40.4		5.5					0.5	0.1	54.1	61.5	
Delay (s)	98.7		56.7					17.8	9.1	103.8	111.3	
Level of Service	F		E					B	A	F	F	
Approach Delay (s)		81.9			0.0			14.5			108.9	
Approach LOS		F			A			B			F	

Intersection Summary			
HCM 2000 Control Delay	73.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

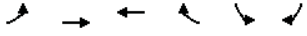
Year 2035 + P1 + P2 + P3 PM
02/27/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	703	110	10	10	100	430	20	40	20	599	30	450
Future Volume (vph)	703	110	10	10	100	430	20	40	20	599	30	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.97		1.00	1.00	0.85
Flt Protected	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3258			3523	1583		1771		1681	1693	1583
Flt Permitted	0.95	0.96			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3258			3523	1583		1771		1681	1693	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	781	122	11	11	111	478	22	44	22	666	33	500
RTOR Reduction (vph)	0	1	0	0	0	73	0	8	0	0	0	264
Lane Group Flow (vph)	390	523	0	0	122	405	0	80	0	353	346	236
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	28.8	28.8			16.0	85.1		11.7		69.1	69.1	69.1
Effective Green, g (s)	30.4	30.4			17.6	85.1		13.2		70.7	70.7	70.7
Actuated g/C Ratio	0.20	0.20			0.12	0.57		0.09		0.47	0.47	0.47
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	326	660			413	898		155		792	797	746
v/s Ratio Prot	c0.24	0.16			0.03	c0.21		c0.05		c0.21	0.20	
v/s Ratio Perm						0.05						0.15
v/c Ratio	1.20	1.15dl			0.30	0.45		0.51		0.45	0.43	0.32
Uniform Delay, d1	59.8	56.8			60.5	18.9		65.3		26.5	26.4	24.6
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.47	0.46	0.84
Incremental Delay, d2	114.3	9.5			1.8	1.6		11.7		0.6	0.6	0.4
Delay (s)	174.1	66.3			62.3	20.5		77.0		13.0	12.8	20.9
Level of Service	F	E			E	C		E		B	B	C
Approach Delay (s)		112.3			29.0			77.0			16.2	
Approach LOS		F			C			E			B	

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



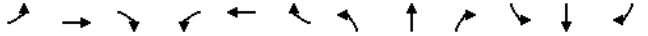
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	760	519	609	808	430	100
Future Volume (veh/h)	760	519	609	808	430	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	809	552	648	0	457	20
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	827	1471	1042		537	967
Arrive On Green	0.46	0.79	0.29	0.00	0.16	0.15
Sat Flow, veh/h	1781	1870	3647	1585	3456	1585
Grp Volume(v), veh/h	809	552	648	0	457	20
Grp Sat Flow(s),veh/h/ln	1781	1870	1777	1585	1728	1585
Q Serve(g_s), s	61.2	12.3	21.7	0.0	17.7	0.7
Cycle Q Clear(g_c), s	61.2	12.3	21.7	0.0	17.7	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	827	1471	1042		537	967
V/C Ratio(X)	0.98	0.38	0.62		0.85	0.02
Avail Cap(c_a), veh/h	908	1471	1042		604	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	36.1	4.4	42.0	0.0	56.5	10.6
Incr Delay (d2), s/veh	23.2	0.7	2.8	0.0	9.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.3	4.4	9.9	0.0	8.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.4	5.2	44.8	0.0	65.8	10.6
LnGrp LOS	E	A	D		E	B
Approach Vol, veh/h		1361	648	A	477	
Approach Delay, s/veh		37.4	44.8		63.4	
Approach LOS		D	D		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		112.0		25.3	67.7	44.3
Change Period (Y+Rc), s		5.0		5.5	* 4.2	5.0
Max Green Setting (Gmax), s		107.0		22.5	* 70	33.0
Max Q Clear Time (g_c+I1), s		14.3		19.7	63.2	23.7
Green Ext Time (p_c), s		2.5		0.2	0.3	2.2

Intersection Summary	
HCM 6th Ctrl Delay	44.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	20	0	60	1542	50	30	0	0	0	0	60	20
Future Volume (vph)	20	0	60	1542	50	30	0	0	0	0	60	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	65	1676	54	33	0	0	0	0	65	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	22	65	1676	87	87
Volume Left (vph)	22	0	1676	0	0
Volume Right (vph)	0	65	0	33	22
Hadj (s)	0.53	-0.67	0.53	-0.23	-0.12
Departure Headway (s)	6.0	4.8	5.4	4.6	5.8
Degree Utilization, x	0.04	0.09	2.51	0.11	0.14
Capacity (veh/h)	590	730	680	766	611
Control Delay (s)	8.0	7.0	695.6	7.0	9.7
Approach Delay (s)	7.3		661.6		9.7
Approach LOS	A		F		A

Intersection Summary					
Delay	602.9				
Level of Service	F				
Intersection Capacity Utilization	103.5%	ICU Level of Service	G		
Analysis Period (min)	15				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	1452
Future Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	1452
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	667	0				0	0	1761
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	880	0				0	1175	1992
Arrive On Green				0.00	0.25	0.00				0.00	0.00	0.63
Sat Flow, veh/h				0	3741	0				0	1870	3170
Grp Volume(v), veh/h				0	667	0				0	0	1761
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1585
Q Serve(g_s), s				0.0	7.7	0.0				0.0	0.0	20.6
Cycle Q Clear(g_c), s				0.0	7.7	0.0				0.0	0.0	20.6
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	880	0				0	1175	1992
V/C Ratio(X)				0.00	0.76	0.00				0.00	0.00	0.88
Avail Cap(c_a), veh/h				0	880	0				0	2464	4177
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	0.00	1.00
Uniform Delay (d), s/veh				0.0	15.5	0.0				0.0	0.0	6.9
Incr Delay (d2), s/veh				0.0	4.1	0.0				0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	3.1	0.0				0.0	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	19.6	0.0				0.0	0.0	7.4
LnGrp LOS				A	B	A				A	A	A
Approach Vol, veh/h					667						1761	
Approach Delay, s/veh					19.6						7.4	
Approach LOS					B						A	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						29.4		15.0				
Change Period (Y+Rc), s						4.5		7.0				
Max Green Setting (Gmax), s						55.5		8.0				
Max Q Clear Time (g_c+I1), s						22.6		9.7				
Green Ext Time (p_c), s						2.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		10.8
HCM 6th LOS		B

Notes

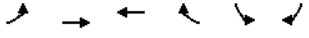
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	213.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	748	258	84	452	446	0	0	82	436
Future Vol, veh/h	0	0	0	748	258	84	452	446	0	0	82	436
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	804	277	90	486	480	0	0	88	469
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

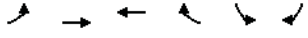
Approach				WB			NB				SB	
Opposing Approach							SB				NB	
Opposing Lanes				0			2				2	
Conflicting Approach Left				NB							WB	
Conflicting Lanes Left				2			0				2	
Conflicting Approach Right				SB			WB					
Conflicting Lanes Right				2			2				0	
HCM Control Delay				304.8			184.3				69.9	
HCM LOS				F			F				F	

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	75%	0%	100%	0%	0%	0%
Vol Thru, %	25%	100%	0%	75%	100%	0%
Vol Right, %	0%	0%	0%	25%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	601	297	748	342	82	436
LT Vol	452	0	748	0	0	0
Through Vol	149	297	0	258	82	0
RT Vol	0	0	0	84	0	436
Lane Flow Rate	646	320	804	368	88	469
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.496	0.707	1.884	0.793	0.207	1.009
Departure Headway (Hd)	9.315	8.923	8.941	8.246	10.28	9.548
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	394	409	418	441	352	384
Service Time	7.015	6.623	6.641	5.946	7.98	7.248
HCM Lane V/C Ratio	1.64	0.782	1.923	0.834	0.25	1.221
HCM Control Delay	260.5	30.5	427.7	35.9	15.6	80.1
HCM Lane LOS	F	D	F	E	C	F
HCM 95th-tile Q	31	5.3	50.2	7.1	0.8	12.2



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	574	479	0	466
Future Volume (vph)	0	0	574	479	0	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0
Lane Util. Factor			1.00	1.00		0.88
Frpb, ped/bikes			1.00	0.99		1.00
Flpb, ped/bikes			1.00	1.00		1.00
Frt			1.00	0.85		0.85
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			1863	1563		2787
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			1863	1563		2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	611	510	0	496
RTOR Reduction (vph)	0	0	0	251	0	239
Lane Group Flow (vph)	0	0	611	259	0	257
Confl. Peds. (#/hr)	2			2		
Turn Type			NA	Perm		Perm
Protected Phases			6			
Permitted Phases				6		4
Actuated Green, G (s)			16.6	16.6		8.0
Effective Green, g (s)			17.5	17.5		8.9
Actuated g/C Ratio			0.51	0.51		0.26
Clearance Time (s)			4.9	4.9		4.9
Vehicle Extension (s)			3.9	3.9		2.0
Lane Grp Cap (vph)			947	795		721
v/s Ratio Prot			c0.33			
v/s Ratio Perm				0.17		c0.09
v/c Ratio			0.65	0.33		0.36
Uniform Delay, d1			6.2	5.0		10.4
Progression Factor			1.00	1.00		1.00
Incremental Delay, d2			1.7	0.3		0.1
Delay (s)			7.9	5.3		10.5
Level of Service			A	A		B
Approach Delay (s)		0.0	6.7		10.5	
Approach LOS		A	A		B	

Intersection Summary				
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	34.4	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	53.2%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	587	369	0	636
Future Volume (veh/h)	0	0	587	369	0	636
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.97	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			618	388	0	669
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1739	1092	0	0
Arrive On Green			0.84	0.80	0.00	0.04
Sat Flow, veh/h			2164	1299	0	
Grp Volume(v), veh/h			530	476	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1593		
Q Serve(g_s), s			1.7	2.0		
Cycle Q Clear(g_c), s			1.7	2.0		
Prop In Lane				0.82		
Lane Grp Cap(c), veh/h			1493	1338		
V/C Ratio(X)			0.36	0.36		
Avail Cap(c_a), veh/h			1493	1338		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.5	0.6		
Incr Delay (d2), s/veh			0.7	0.7		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.3	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.1	1.3		
LnGrp LOS			A	A		
Approach Vol, veh/h			1006			
Approach Delay, s/veh			1.2			
Approach LOS			A			

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	25.0
Change Period (Y+Rc), s	4.9
Max Green Setting (Gmax), s	20.1
Max Q Clear Time (g_c+I1), s	4.0
Green Ext Time (p_c), s	4.4

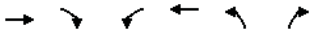
Intersection Summary	
HCM 6th Ctrl Delay	1.2
HCM 6th LOS	A

Intersection	
Intersection Delay, s/veh	58.5
Intersection LOS	F

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	610	999	0	0	298	0
Future Vol, veh/h	610	999	0	0	298	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	678	1110	0	0	331	0
Number of Lanes	1	2	0	0	1	0

Approach	EB	SB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left	SB	
Conflicting Lanes Left	1	0
Conflicting Approach Right		EB
Conflicting Lanes Right	0	3
HCM Control Delay	64.4	26.5
HCM LOS	F	D

Lane	EBLn1	EBLn2	EBLn3	SBLn1
Vol Left, %	100%	0%	0%	100%
Vol Thru, %	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	610	500	500	298
LT Vol	610	0	0	298
Through Vol	0	500	500	0
RT Vol	0	0	0	0
Lane Flow Rate	678	555	555	331
Geometry Grp	7	7	7	7
Degree of Util (X)	1.194	0.9	0.629	0.698
Departure Headway (Hd)	6.343	5.837	4.082	7.769
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	569	616	877	467
Service Time	4.12	3.614	1.858	5.469
HCM Lane V/C Ratio	1.192	0.901	0.633	0.709
HCM Control Delay	125.9	40	13.6	26.5
HCM Lane LOS	F	E	B	D
HCM 95th-tile Q	24	11	4.6	5.3



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	976	211	0	0	0	461
Future Volume (vph)	976	211	0	0	0	461
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.97					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3445					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3445					1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1038	224	0	0	0	490
RTOR Reduction (vph)	40	0	0	0	0	24
Lane Group Flow (vph)	1222	0	0	0	0	466
Confl. Peds. (#/hr)					18	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	18.0					18.0
Effective Green, g (s)	19.0					18.0
Actuated g/C Ratio	0.42					0.40
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1454					644
v/s Ratio Prot	c0.35					
v/s Ratio Perm						c0.29
v/c Ratio	0.84					0.72
Uniform Delay, d1	11.6					11.4
Progression Factor	1.00					1.00
Incremental Delay, d2	6.0					6.9
Delay (s)	17.6					18.3
Level of Service	B					B
Approach Delay (s)	17.6			0.0	18.3	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	51	0	0	0	16	0	0
Future Volume (veh/h)	0	0	0	0	0	51	0	0	0	16	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	0	0	55	0	0	0	17	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	107	0	0	0	91	0	35	0	858	0	0
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.02	0.00	0.00
Sat Flow, veh/h	0	1870	0	0	0	1585	0	1870	0	1418	0	0
Grp Volume(v), veh/h	0	0	0	0	0	55	0	0	0	17	0	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	0	0	1585	0	1870	0	1418	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Prop In Lane	0.00		0.00	0.00		1.00	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	107	0	0	0	91	0	35	0	858	0	0
V/C Ratio(X)	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.02	0.00	0.00
Avail Cap(c_a), veh/h	0	3457	0	0	0	2930	0	3457	0	3452	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	0.0	0.0	10.4	0.0	0.0	0.0	4.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	B	A	A	A	A	A	A
Approach Vol, veh/h		0			55			0			17	
Approach Delay, s/veh		0.0			10.4			0.0			4.2	
Approach LOS					B						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		4.2		4.5		4.2		4.5				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		16.0		16.0		16.0		16.0				
Max Q Clear Time (g_c+I1), s		0.0		0.0		2.1		2.3				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.9	
HCM 6th LOS		A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	242	0	42	102	42	340	113	153	0
Future Volume (veh/h)	0	0	0	242	0	42	102	42	340	113	153	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	263	0	46	111	46	370	123	166	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	13	0	393	392	349	147	498	772	156	508	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.22	0.08	0.27	0.27	0.09	0.27	0.00
Sat Flow, veh/h	1781	3647	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	0	0	0	263	0	46	111	46	370	123	166	0
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	3.8	0.0	0.7	1.7	0.5	4.4	1.9	2.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.8	0.0	0.7	1.7	0.5	4.4	1.9	2.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	6	13	0	393	392	349	147	498	772	156	508	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00	0.13	0.76	0.09	0.48	0.79	0.33	0.00
Avail Cap(c_a), veh/h	253	2016	0	758	1512	1349	316	1061	1248	316	1061	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.1	0.0	8.8	12.7	7.8	4.8	12.6	8.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.0	0.0	0.2	7.7	0.1	0.5	8.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.2	0.0	0.2	0.8	0.1	0.6	0.9	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.0	0.0	9.0	20.4	7.9	5.3	21.1	8.6	0.0
LnGrp LOS	A	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		0			309			527			289	
Approach Delay, s/veh		0.0			11.6			8.7			13.9	
Approach LOS					B			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	11.5	10.2	0.0	6.3	11.7	0.0	10.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	5.0	16.0	12.0	16.0	5.0	16.0	4.0	24.0				
Max Q Clear Time (g_c+I1), s	3.9	6.4	5.8	0.0	3.7	4.0	0.0	2.7				
Green Ext Time (p_c), s	0.0	1.1	0.4	0.0	0.0	0.6	0.0	0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.8	
HCM 6th LOS		B	

APPENDIX Z

YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5391	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1419
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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1. I-8 from I-5 to Morena Boulevard EB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7892	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2829
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.24
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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1. I-8 from I-5 to Morena Boulevard WB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6957	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_P), pc/h/ln	1465
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10171	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	2164
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.5
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7534	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2004
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10681	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2249
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.99
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6649	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1415
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9862	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1712
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.7
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7090	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1541
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10151	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2115
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7429	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1581
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road EB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11003	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2269
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road WB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10425	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_p), pc/h/ln	2291
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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7. I-5 North of Sea World Drive NB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8032	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1691
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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7. I-5 North of Sea World Drive SB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9869	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1848
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 NB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7661	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1344
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.2
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 SB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	12098	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2574
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.13
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9493	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2472
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9080	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	3254
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.43
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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10. SR163 from Friars Road to I-8 NB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7121	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1249
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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10. SR163 from Friars Road to I-8 SB – Year 2035 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11297	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	2973
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2035 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8744	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	3005
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.32
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7891	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2099
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6679	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2368
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10178	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	2120
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8609	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1794
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11196	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2856
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.26
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9039	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1883
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9810	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2023
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.8
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8718	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1514
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10517	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2168
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.4
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road EB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8733	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1819
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.2
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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5. I-8 from SR163 to Mission Center Road WB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11015	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2271
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road EB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9223	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1921
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road WB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive NB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9323	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.91	Flow Rate (v_P), pc/h/ln	2049
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 North of Sea World Drive SB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11117	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_P), pc/h/ln	2292
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8862	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	1588
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 NB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10512	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_P), pc/h/ln	1806
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 SB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9633	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	2007
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.1
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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9. SR163 North of Friars Road NB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10166	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_P), pc/h/ln	2620
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.19
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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9. SR163 North of Friars Road SB – Year 2035 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6961	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2368
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.04
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7721	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1399
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9238	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2381
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.16
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	03/20/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2035 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9404	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	3232
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX AA

YEAR 2050 INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2050 AM
03/11/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	510	124	1250	551	130	760	
Future Volume (veh/h)	510	124	1250	551	130	760	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	537	-135	1316	162	137	800	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	648	288	2009	1135	214	2361	
Arrive On Green	0.18	0.00	0.55	0.55	0.06	0.66	
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647	
Grp Volume(v), veh/h	537	-135	1316	162	137	800	
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777	
Q Serve(g_s), s	11.7	0.0	20.4	2.6	3.1	7.9	
Cycle Q Clear(g_c), s	11.7	0.0	20.4	2.6	3.1	7.9	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	648	288	2009	1135	214	2361	
V/C Ratio(X)	0.83	-0.47	0.66	0.14	0.64	0.34	
Avail Cap(c_a), veh/h	1757	782	3670	1836	540	4342	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	31.8	0.0	12.9	3.3	37.0	5.9	
Incr Delay (d2), s/veh	1.1	0.0	0.5	0.1	1.2	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.8	0.0	6.9	1.2	1.3	2.5	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	32.9	0.0	13.4	3.4	38.2	6.1	
LnGrp LOS	C	A	B	A	D	A	
Approach Vol, veh/h	402		1478			937	
Approach Delay, s/veh	43.9		12.3			10.8	
Approach LOS	D		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.4	50.4				59.8	20.9
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	12.6	80.8				* 99	39.8
Max Q Clear Time (g_c+I1), s	5.1	22.4				9.9	13.7
Green Ext Time (p_c), s	0.1	21.8				16.1	1.0

Intersection Summary			
HCM 6th Ctrl Delay		16.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2050 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1366	30	420	260	0	0	0	0	310	5	690
Future Volume (veh/h)	0	1366	30	420	260	0	0	0	0	310	5	690
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1423	10	438	271	0				323	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1573	680	492	2115	0				598	9	
Arrive On Green	0.00	0.43	0.43	0.14	0.60	0.00				0.34	0.34	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1755	27	1585
Grp Volume(v), veh/h	0	1423	10	438	271	0				328	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	54.3	0.5	18.1	5.0	0.0				22.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	54.3	0.5	18.1	5.0	0.0				22.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1573	680	492	2115	0				608	0	
V/C Ratio(X)	0.00	0.90	0.01	0.89	0.13	0.00				0.54	0.00	
Avail Cap(c_a), veh/h	0	1882	814	565	2488	0				608	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.58	0.58	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	40.0	24.6	63.5	13.3	0.0				39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	5.3	0.0	9.3	0.0	0.0				0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	25.5	0.2	8.9	2.1	0.0				10.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.3	24.6	72.8	13.3	0.0				40.5	0.0	0.0
LnGrp LOS	A	D	C	E	B	A				D	A	
Approach Vol, veh/h		1433			709						328	A
Approach Delay, s/veh		45.2			50.1						40.5	
Approach LOS		D			D						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.9	69.3		55.7		94.3						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 24	77.0		35.4		105.0						
Max Q Clear Time (g_c+I1), s	20.1	56.3		24.3		7.0						
Green Ext Time (p_c), s	0.6	8.0		0.6		1.3						

Intersection Summary			
HCM 6th Ctrl Delay		46.0	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1106	570	0	0	580	480	100	30	270	0	0	0
Future Volume (veh/h)	1106	570	0	0	580	480	100	30	270	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1164	600	0	0	611	371	105	32	16			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1250	2532	0	0	677	411	290	88	333			
Arrive On Green	0.36	0.71	0.00	0.00	0.32	0.32	0.21	0.21	0.21			
Sat Flow, veh/h	3456	3647	0	0	2218	1290	1381	421	1585			
Grp Volume(v), veh/h	1164	600	0	0	511	471	137	0	16			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1638	1801	0	1585			
Q Serve(g_s), s	42.2	7.6	0.0	0.0	35.8	35.8	8.5	0.0	1.0			
Cycle Q Clear(g_c), s	42.2	7.6	0.0	0.0	35.8	35.8	8.5	0.0	1.0			
Prop In Lane	1.00		0.00	0.00		0.79	0.77		1.00			
Lane Grp Cap(c), veh/h	1250	2532	0	0	566	522	378	0	333			
V/C Ratio(X)	0.93	0.24	0.00	0.00	0.90	0.90	0.36	0.00	0.05			
Avail Cap(c_a), veh/h	1350	2857	0	0	677	624	378	0	333			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	39.9	6.5	0.0	0.0	42.4	42.4	43.9	0.0	41.0			
Incr Delay (d2), s/veh	7.8	0.0	0.0	0.0	12.6	13.5	0.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	19.0	2.7	0.0	0.0	17.6	16.3	3.8	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	6.5	0.0	0.0	55.0	55.9	44.1	0.0	41.0			
LnGrp LOS	D	A	A	A	D	E	D	A	D			
Approach Vol, veh/h		1764			982			153				
Approach Delay, s/veh		33.7			55.4			43.8				
Approach LOS		C			E			D				

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	98.1	31.9	51.2	46.9
Change Period (Y+Rc), s	5.5	4.6	* 4.2	5.5
Max Green Setting (Gmax), s	104.5	15.4	* 51	49.5
Max Q Clear Time (g_c+I1), s	9.6	10.5	44.2	37.8
Green Ext Time (p_c), s	3.0	0.1	2.9	3.6

Intersection Summary		
HCM 6th Ctrl Delay	41.6	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	306	93	20	60	835	520	0	0	20	90	10	219
Future Volume (vph)	306	93	20	60	835	520	0	0	20	90	10	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.94				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3425		1770	3313				1517	1681	1701	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3425		1770	3313				1517	1681	1701	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	340	103	22	67	928	578	0	0	22	100	11	243
RTOR Reduction (vph)	0	10	0	0	61	0	0	0	21	0	0	159
Lane Group Flow (vph)	340	115	0	67	1445	0	0	0	1	55	56	84
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	15.7	72.5		7.9	64.7				3.2	30.2	30.2	45.9
Effective Green, g (s)	15.7	72.5		7.9	64.7				3.2	30.2	30.2	45.9
Actuated g/C Ratio	0.12	0.55		0.06	0.49				0.02	0.23	0.23	0.35
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	407	1875		105	1618				36	383	387	543
v/s Ratio Prot	c0.10	0.03		0.04	c0.44					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.84	0.06		0.64	0.89				0.01	0.14	0.14	0.16
Uniform Delay, d1	57.1	14.0		60.9	30.7				63.1	40.8	40.8	29.9
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.0		9.0	8.0				0.2	0.8	0.8	0.0
Delay (s)	70.3	14.0		69.8	38.7				63.2	41.6	41.6	29.9
Level of Service	E	B		E	D				E	D	D	C
Approach Delay (s)		55.2			40.0			63.2			33.6	
Approach LOS		E			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	132.4	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	85.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	290	381	644	608	179	120
Future Volume (vph)	290	381	644	608	179	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.98	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1770	3539	3539	1540	3384	1417
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1770	3539	3539	1540	3384	1417
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	401	678	640	188	126
RTOR Reduction (vph)	0	0	0	299	9	85
Lane Group Flow (vph)	305	401	678	341	207	13
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	23.1	67.3	40.2	54.7	14.5	14.5
Effective Green, g (s)	23.1	67.3	40.2	54.7	14.5	14.5
Actuated g/C Ratio	0.21	0.61	0.36	0.50	0.13	0.13
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	370	2159	1289	763	444	186
v/s Ratio Prot	c0.17	0.11	c0.19	0.06	c0.06	
v/s Ratio Perm				0.16		0.01
v/c Ratio	0.82	0.19	0.53	0.45	0.47	0.07
Uniform Delay, d1	41.7	9.5	27.6	18.0	44.3	42.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.1	1.5	0.9	1.6	0.3
Delay (s)	54.9	9.5	29.1	18.9	45.9	42.3
Level of Service	D	A	C	B	D	D
Approach Delay (s)		29.1	24.1		44.8	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.3	Sum of lost time (s)	18.9
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	329	50	50	1342	139	70	20	50	82	20	50
Future Volume (veh/h)	55	329	50	50	1342	139	70	20	50	82	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	346	47	53	1413	138	74	21	-10	86	21	-3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	2263	304	81	2372	230	167	40	176	227	208	0
Arrive On Green	0.04	0.72	0.72	0.05	0.73	0.73	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1781	3134	421	1781	3269	317	1044	356	1585	1383	1870	0
Grp Volume(v), veh/h	58	195	198	53	764	787	95	0	-10	86	18	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1778	1781	1777	1810	1400	0	1585	1383	1870	0
Q Serve(g_s), s	4.1	4.3	4.4	3.7	26.1	26.7	7.3	0.0	0.0	0.0	1.1	0.0
Cycle Q Clear(g_c), s	4.1	4.3	4.4	3.7	26.1	26.7	8.4	0.0	0.0	6.3	1.1	0.0
Prop In Lane	1.00		0.24	1.00		0.18	0.78		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	75	1283	1284	81	1289	1313	207	0	176	227	208	0
V/C Ratio(X)	0.78	0.15	0.15	0.66	0.59	0.60	0.46	0.00	-0.06	0.38	0.09	0.00
Avail Cap(c_a), veh/h	164	1283	1284	152	1289	1313	426	0	416	435	491	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.8	5.5	5.5	59.3	8.3	8.4	53.7	0.0	0.0	52.6	50.3	0.0
Incr Delay (d2), s/veh	6.3	0.3	0.3	3.4	2.0	2.0	0.6	0.0	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.4	1.5	1.7	8.8	9.2	2.9	0.0	0.0	2.6	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	5.7	5.7	62.6	10.3	10.4	54.3	0.0	0.0	53.0	50.4	0.0
LnGrp LOS	E	A	A	E	B	B	D	A	A	D	D	A
Approach Vol, veh/h		451			1604			85			104	
Approach Delay, s/veh		13.5			12.1			60.7			52.5	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	97.1		18.9	9.7	97.5		18.9				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	10.8	* 91		33.1	11.6	90.0		33.1				
Max Q Clear Time (g_c+I1), s	5.7	6.4		8.3	6.1	28.7		10.4				
Green Ext Time (p_c), s	0.0	6.8		0.2	0.0	46.9		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	16.1	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Year 2050 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	325	0	0	1062	442	0	0	0	338	0	140
Future Volume (veh/h)	94	325	0	0	1062	442	0	0	0	338	0	140
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	104	361	0	0	1180	320				376	0	28
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	128	2450	0	0	2076	898				404	0	359
Arrive On Green	0.07	0.69	0.00	0.00	0.58	0.58				0.23	0.00	0.23
Sat Flow, veh/h	1781	3647	0	0	3647	1538				1781	0	1585
Grp Volume(v), veh/h	104	361	0	0	1180	320				376	0	28
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1538				1781	0	1585
Q Serve(g_s), s	7.5	4.6	0.0	0.0	27.1	14.3				27.1	0.0	1.8
Cycle Q Clear(g_c), s	7.5	4.6	0.0	0.0	27.1	14.3				27.1	0.0	1.8
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	128	2450	0	0	2076	898				404	0	359
V/C Ratio(X)	0.81	0.15	0.00	0.00	0.57	0.36				0.93	0.00	0.08
Avail Cap(c_a), veh/h	239	2450	0	0	2076	898				665	0	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	59.9	7.0	0.0	0.0	17.0	14.3				49.7	0.0	39.9
Incr Delay (d2), s/veh	4.7	0.1	0.0	0.0	1.1	1.1				9.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.6	0.0	0.0	10.6	5.0				13.1	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.7	7.2	0.0	0.0	18.1	15.4				59.0	0.0	39.9
LnGrp LOS	E	A	A	A	B	B				E	A	D
Approach Vol, veh/h		465			1500						404	
Approach Delay, s/veh		20.0			17.5						57.6	
Approach LOS		C			B						E	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		96.2		34.8	13.8	82.4						
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9						
Max Green Setting (Gmax), s		* 90		48.9	17.6	68.1						
Max Q Clear Time (g_c+I1), s		6.6		29.1	9.5	29.1						
Green Ext Time (p_c), s		1.8		0.6	0.1	8.6						

Intersection Summary												
HCM 6th Ctrl Delay			24.9									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd. /Friars Rd.

Year 2050 AM
03/18/2020



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	335	43	240	1215	36	153
Future Volume (veh/h)	0	335	43	240	1215	36	153
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		364	47	261	1321	39	166
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		918	118	360	2119	262	233
Arrive On Green		0.29	0.29	0.20	0.60	0.15	0.15
Sat Flow, veh/h		3262	406	1781	3647	1781	1585
Grp Volume(v), veh/h		203	208	261	1321	39	166
Grp Sat Flow(s),veh/h/ln		1777	1797	1781	1777	1781	1585
Q Serve(g_s), s		3.9	3.9	5.8	10.1	0.8	4.2
Cycle Q Clear(g_c), s		3.9	3.9	5.8	10.1	0.8	4.2
Prop In Lane			0.23	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		515	521	360	2119	262	233
V/C Ratio(X)		0.39	0.40	0.72	0.62	0.15	0.71
Avail Cap(c_a), veh/h		2375	2403	2098	8582	1231	1095
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		12.0	12.0	15.7	5.5	15.7	17.1
Incr Delay (d2), s/veh		0.5	0.5	2.8	0.3	0.3	4.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.2	1.2	2.0	1.3	0.3	1.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		12.5	12.5	18.5	5.8	15.9	21.1
LnGrp LOS		B	B	B	A	B	C
Approach Vol, veh/h		411			1582	205	
Approach Delay, s/veh		12.5			7.9	20.1	
Approach LOS		B			A	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.9	18.1				31.0		11.1
Change Period (Y+Rc), s	4.4	* 5.9				5.9		4.9
Max Green Setting (Gmax), s	49.6	* 56				101.7		29.1
Max Q Clear Time (g_c+I1), s	7.8	5.9				12.1		6.2
Green Ext Time (p_c), s	0.7	2.3				13.1		0.6

Intersection Summary							
HCM 6th Ctrl Delay			9.9				
HCM 6th LOS			A				

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	330	73	36	1510	10	179	5	66	20	5	5
Future Volume (veh/h)	5	330	73	36	1510	10	179	5	66	20	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	367	59	40	1678	11	199	6	40	22	6	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	11	2707	423	76	2263	15	353	9	420	128	35	26
Arrive On Green	0.01	0.61	0.61	0.02	0.63	0.63	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1781	4442	694	3456	3618	24	1241	37	1571	355	143	107
Grp Volume(v), veh/h	6	279	147	40	823	866	205	0	40	34	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1732	1728	1777	1865	1279	0	1571	604	0	0
Q Serve(g_s), s	0.5	5.1	5.3	1.7	46.9	47.0	0.0	0.0	2.8	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.5	5.1	5.3	1.7	46.9	47.0	22.2	0.0	2.8	23.9	0.0	0.0
Prop In Lane	1.00		0.40	1.00		0.01	0.97		1.00	0.65		0.18
Lane Grp Cap(c), veh/h	11	2074	1055	76	1111	1167	362	0	420	189	0	0
V/C Ratio(X)	0.57	0.13	0.14	0.52	0.74	0.74	0.57	0.00	0.10	0.18	0.00	0.00
Avail Cap(c_a), veh/h	52	2106	1071	110	1111	1167	362	0	420	189	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.9	12.1	12.1	70.1	18.9	19.0	49.7	0.0	40.0	51.6	0.0	0.0
Incr Delay (d2), s/veh	16.6	0.0	0.1	1.6	3.4	3.3	6.3	0.0	0.5	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.9	2.0	0.7	18.8	19.7	7.4	0.0	1.1	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	12.1	12.1	71.7	22.4	22.2	56.0	0.0	40.4	53.7	0.0	0.0
LnGrp LOS	F	B	B	E	C	C	E	A	D	D	A	A
Approach Vol, veh/h		432			1729			245			34	
Approach Delay, s/veh		13.2			23.4			53.5			53.7	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	94.3		40.4	5.3	96.6		40.4				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	4.6	89.7		35.5	4.2	* 91		35.5				
Max Q Clear Time (g_c+I1), s	3.7	7.3		25.9	2.5	49.0		24.2				
Green Ext Time (p_c), s	0.0	2.5		0.0	0.0	22.2		0.7				

Intersection Summary			
HCM 6th Ctrl Delay			25.1
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	458	30	70	1534	0	20	0	90	0	0	0
Future Volume (veh/h)	0	458	30	70	1534	0	20	0	90	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	498	22	76	1667	0	22	0	60	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	3897	171	120	3005	1341	143	0	123	1	1	0
Arrive On Green	0.00	0.78	0.78	0.03	0.85	0.00	0.08	0.00	0.08	0.00	0.00	0.00
Sat Flow, veh/h	298	5010	220	3456	3554	1585	1781	0	1532	1781	1870	0
Grp Volume(v), veh/h	0	337	183	76	1667	0	22	0	60	0	0	0
Grp Sat Flow(s),veh/h/ln	298	1702	1826	1728	1777	1585	1781	0	1532	1781	1870	0
Q Serve(g_s), s	0.0	3.2	3.3	2.9	18.0	0.0	1.5	0.0	5.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.2	3.3	2.9	18.0	0.0	1.5	0.0	5.0	0.0	0.0	0.0
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2648	1420	120	3005	1341	143	0	123	1	1	0
V/C Ratio(X)	0.00	0.13	0.13	0.64	0.55	0.00	0.15	0.00	0.49	0.00	0.00	0.00
Avail Cap(c_a), veh/h	55	2648	1420	147	3005	1341	418	0	360	232	244	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.99	0.99	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	3.6	3.6	62.9	3.0	0.0	56.6	0.0	58.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.2	2.9	0.7	0.0	0.2	0.0	1.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	1.0	1.3	3.6	0.0	0.7	0.0	2.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.7	3.8	65.8	3.7	0.0	56.7	0.0	59.3	0.0	0.0	0.0
LnGrp LOS	A	A	A	E	A	A	E	A	E	A	A	A
Approach Vol, veh/h		520			1743			82			0	
Approach Delay, s/veh		3.7			6.4			58.6			0.0	
Approach LOS		A			A			E				

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	108.1		0.0		117.0		15.0				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	5.6	60.0		17.2		* 62		31.0				
Max Q Clear Time (g_c+I1), s	4.9	5.3		0.0		20.0		7.0				
Green Ext Time (p_c), s	0.0	4.2		0.0		22.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			7.6
HCM 6th LOS			A

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	503	40	100	1524	40	20	5	30	40	5	10
Future Volume (veh/h)	5	503	40	100	1524	40	20	5	30	40	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	535	28	106	1621	38	21	0	35	43	5	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	9	3535	184	184	3898	91	166	0	223	177	37	81
Arrive On Green	0.01	0.71	0.71	0.05	0.76	0.76	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	4965	258	3456	5129	120	1381	0	3130	1357	515	1134
Grp Volume(v), veh/h	5	366	197	106	1076	583	21	0	35	43	0	16
Grp Sat Flow(s),veh/h/ln	1781	1702	1819	1728	1702	1845	1381	0	1565	1357	0	1649
Q Serve(g_s), s	0.3	3.1	3.2	2.7	10.0	10.0	1.3	0.0	0.9	2.7	0.0	0.8
Cycle Q Clear(g_c), s	0.3	3.1	3.2	2.7	10.0	10.0	2.1	0.0	0.9	2.7	0.0	0.8
Prop In Lane	1.00		0.14	1.00		0.07	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	9	2424	1295	184	2587	1403	166	0	223	177	0	118
V/C Ratio(X)	0.54	0.15	0.15	0.58	0.42	0.42	0.13	0.00	0.16	0.24	0.00	0.14
Avail Cap(c_a), veh/h	83	2424	1295	599	2587	1403	529	0	1047	534	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.7	4.2	4.2	41.6	3.8	3.8	40.2	0.0	39.2	40.1	0.0	39.2
Incr Delay (d2), s/veh	16.7	0.1	0.2	1.1	0.5	0.9	0.1	0.0	0.1	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.9	1.1	2.1	2.4	0.4	0.0	0.4	0.9	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	4.3	4.4	42.7	4.3	4.7	40.3	0.0	39.4	40.3	0.0	39.4
LnGrp LOS	E	A	A	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		568			1765			56			59	
Approach Delay, s/veh		4.9			6.7			39.7			40.1	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	69.5		11.3	4.9	73.8		11.3				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	15.6	29.6		30.1	4.2	* 41		30.1				
Max Q Clear Time (g_c+I1), s	4.7	5.2		4.7	2.3	12.0		4.1				
Green Ext Time (p_c), s	0.1	4.1		0.1	0.0	16.6		0.1				

Intersection Summary			
HCM 6th Ctrl Delay			7.9
HCM 6th LOS			A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	171	274	530	1098	480	467	20	810	350	20	99
Future Volume (veh/h)	128	171	274	530	1098	480	467	20	810	350	20	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	182	0	564	1168	511	497	21	862	372	21	105
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	344	2344		627	2270	1558	558	367	1046	427	303	411
Arrive On Green	0.10	0.36	0.00	0.18	0.44	0.44	0.16	0.20	0.20	0.12	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	5106	2729	3456	1870	2753	3456	1870	1564
Grp Volume(v), veh/h	136	182	0	564	1168	511	497	21	862	372	21	105
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	5.5	2.8	0.0	23.9	24.7	14.9	21.1	1.4	29.4	15.9	1.4	8.0
Cycle Q Clear(g_c), s	5.5	2.8	0.0	23.9	24.7	14.9	21.1	1.4	29.4	15.9	1.4	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	2344		627	2270	1558	558	367	1046	427	303	411
V/C Ratio(X)	0.39	0.08		0.90	0.51	0.33	0.89	0.06	0.82	0.87	0.07	0.26
Avail Cap(c_a), veh/h	346	2344		760	2270	1558	691	367	1046	968	524	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	31.2	0.0	60.1	30.0	17.2	61.6	49.0	42.3	64.5	53.3	43.8
Incr Delay (d2), s/veh	0.3	0.1	0.0	11.9	0.8	0.6	11.8	0.3	7.4	2.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.1	0.0	11.3	10.1	4.9	10.2	0.7	15.5	7.1	0.7	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	31.3	0.0	72.0	30.8	17.7	73.4	49.3	49.7	66.7	53.3	43.9
LnGrp LOS	E	C		E	C	B	E	D	D	E	D	D
Approach Vol, veh/h		318	A		2243			1380			498	
Approach Delay, s/veh		45.1			38.2			58.2			61.4	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	61.6	28.2	28.9	19.1	73.7	23.2	34.0				
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6				
Max Green Setting (Gmax), s	33.0	25.4	30.0	42.0	* 15	43.2	42.0	29.4				
Max Q Clear Time (g_c+I1), s	25.9	4.8	23.1	10.0	7.5	26.7	17.9	31.4				
Green Ext Time (p_c), s	1.3	0.6	1.1	0.2	0.1	6.1	0.7	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			47.5
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	337	994	0	0	1404	740	0	0	0	820	0	704
Future Volume (veh/h)	337	994	0	0	1404	740	0	0	0	820	0	704
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	355	1046	0	0	1478	779				863	0	741
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	326	8075	0	0	6015	2608				1322	0	998
Arrive On Green	0.09	1.00	0.00	0.00	0.93	0.93				0.26	0.00	0.26
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	355	1046	0	0	1478	779				863	0	741
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	8.5	0.0	0.0	0.0	1.7	2.3				13.8	0.0	20.9
Cycle Q Clear(g_c), s	8.5	0.0	0.0	0.0	1.7	2.3				13.8	0.0	20.9
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	326	8075	0	0	6015	2608				1322	0	998
V/C Ratio(X)	1.09	0.13	0.00	0.00	0.25	0.30				0.65	0.00	0.74
Avail Cap(c_a), veh/h	326	8075	0	0	6015	2608				1340	0	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	0.0	0.0	0.2	0.3				29.5	0.0	25.3
Incr Delay (d2), s/veh	74.6	0.0	0.0	0.0	0.1	0.3				1.1	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	0.0	0.0	0.0	0.1				5.5	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.3	0.0	0.0	0.0	0.3	0.6				30.6	0.0	28.3
LnGrp LOS	F	A	A	A	A	A				C	A	C
Approach Vol, veh/h		1401			2257						1604	
Approach Delay, s/veh		29.2			0.4						29.5	
Approach LOS		C			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	13.0	90.8		27.7		103.8
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	8.5	43.5		24.0		* 58
Max Q Clear Time (g_c+I1), s	10.5	4.3		22.9		2.0
Green Ext Time (p_c), s	0.0	13.7		0.8		8.5

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	619	710	425	58	1712	80	120	120	37	40	60	232
Future Volume (veh/h)	619	710	425	58	1712	80	120	120	37	40	60	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	645	740	443	60	1783	83	125	125	39	42	62	242
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	701	3347	1416	99	2227	540	175	706	211	123	465	670
Arrive On Green	0.20	0.52	0.52	0.03	0.35	0.35	0.05	0.26	0.26	0.04	0.25	0.25
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2673	798	3456	1870	2692
Grp Volume(v), veh/h	645	740	443	60	1783	83	125	81	83	42	62	242
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1695	1728	1870	1346
Q Serve(g_s), s	24.4	8.3	12.4	2.3	33.4	4.9	4.7	4.7	5.0	1.6	3.4	9.9
Cycle Q Clear(g_c), s	24.4	8.3	12.4	2.3	33.4	4.9	4.7	4.7	5.0	1.6	3.4	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	701	3347	1416	99	2227	540	175	469	447	123	465	670
V/C Ratio(X)	0.92	0.22	0.31	0.60	0.80	0.15	0.71	0.17	0.19	0.34	0.13	0.36
Avail Cap(c_a), veh/h	794	3347	1416	169	2227	540	262	653	623	156	630	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	17.3	18.3	64.0	39.4	30.1	62.3	37.8	37.9	62.7	38.9	41.3
Incr Delay (d2), s/veh	14.0	0.2	0.6	2.2	3.1	0.6	2.9	0.1	0.1	0.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	3.0	4.0	1.0	13.2	2.0	2.2	2.1	2.1	0.7	1.6	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	17.5	18.9	66.1	42.5	30.7	65.2	37.9	38.0	63.6	39.0	41.5
LnGrp LOS	E	B	B	E	D	C	E	D	D	E	D	D
Approach Vol, veh/h		1828			1926			289			346	
Approach Delay, s/veh		35.0			42.8			49.7			43.7	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	75.8	11.1	38.1	31.4	52.6	9.1	40.1
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	6.5	* 69	10.1	44.9	30.6	44.2	6.0	49.0
Max Q Clear Time (g_c+I1), s	4.3	14.4	6.7	11.9	26.4	35.4	3.6	7.0
Green Ext Time (p_c), s	0.0	12.2	0.1	1.0	0.6	7.8	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	160	5	340	160	566	0	0	649	276
Future Volume (veh/h)	0	0	0	160	5	340	160	566	0	0	649	276
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				172	0	358	168	596	0	0	683	291
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				936	0	409	238	2178	0	0	1759	781
Arrive On Green				0.26	0.00	0.26	0.14	1.00	0.00	0.00	0.50	0.50
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				172	0	358	168	596	0	0	683	291
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1577
Q Serve(g_s), s				3.4	0.0	19.8	4.2	0.0	0.0	0.0	10.8	10.3
Cycle Q Clear(g_c), s				3.4	0.0	19.8	4.2	0.0	0.0	0.0	10.8	10.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				936	0	409	238	2178	0	0	1759	781
V/C Ratio(X)				0.18	0.00	0.88	0.71	0.27	0.00	0.00	0.39	0.37
Avail Cap(c_a), veh/h				1310	0	572	407	2178	0	0	1759	781
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.7	0.0	31.8	37.9	0.0	0.0	0.0	14.2	14.1
Incr Delay (d2), s/veh				0.1	0.0	10.8	1.3	0.3	0.0	0.0	0.6	1.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	8.1	1.7	0.1	0.0	0.0	4.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.8	0.0	42.6	39.3	0.3	0.0	0.0	14.9	15.4
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					530			764			974	
Approach Delay, s/veh					37.1			8.9			15.0	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.5			10.6	50.9		28.5				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 47			10.6	30.7		33.1				
Max Q Clear Time (g_c+I1), s		2.0			6.2	12.8		21.8				
Green Ext Time (p_c), s		4.0			0.1	8.9		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		18.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	20	190	0	0	0	0	568	160	190	619	0
Future Volume (veh/h)	159	20	190	0	0	0	0	568	160	190	619	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	187	0	18				0	611	144	204	666	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	0	175				0	1832	431	277	2739	0
Arrive On Green	0.11	0.00	0.11				0.00	0.64	0.64	0.16	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2948	671	3456	3647	0
Grp Volume(v), veh/h	187	0	18				0	380	375	204	666	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1749	1728	1777	0
Q Serve(g_s), s	4.4	0.0	0.9				0.0	8.8	8.8	5.1	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.9				0.0	8.8	8.8	5.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	393	0	175				0	1140	1123	277	2739	0
V/C Ratio(X)	0.48	0.00	0.10				0.00	0.33	0.33	0.74	0.24	0.00
Avail Cap(c_a), veh/h	875	0	389				0	1140	1123	522	2739	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	37.6	0.0	36.0				0.0	7.4	7.4	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.3				0.0	0.8	0.8	1.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.4				0.0	3.2	3.1	2.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	36.3				0.0	8.1	8.2	38.3	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		205						755			870	
Approach Delay, s/veh		38.3						8.1			9.1	
Approach LOS		D						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.6	63.5		14.8		75.2						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	13.6	* 40		22.1		57.2						
Max Q Clear Time (g_c+I1), s	7.1	10.8		6.4		2.0						
Green Ext Time (p_c), s	0.2	7.7		0.5		6.7						

Intersection Summary			
HCM 6th Ctrl Delay		12.0	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	320	20	270	495	496	0	0	630	175
Future Volume (veh/h)	0	0	0	320	20	270	495	496	0	0	630	175
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				312	42	276	505	506	0	0	643	179
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				415	50	327	616	2251	0	0	1991	618
Arrive On Green				0.23	0.23	0.23	0.18	0.63	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1781	214	1404	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				312	0	318	505	506	0	0	643	179
Grp Sat Flow(s),veh/h/ln				1781	0	1618	1728	1777	0	0	1702	1585
Q Serve(g_s), s				12.2	0.0	14.1	10.5	4.6	0.0	0.0	6.6	5.8
Cycle Q Clear(g_c), s				12.2	0.0	14.1	10.5	4.6	0.0	0.0	6.6	5.8
Prop In Lane				1.00		0.87	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				415	0	377	616	2251	0	0	1991	618
V/C Ratio(X)				0.75	0.00	0.84	0.82	0.22	0.00	0.00	0.32	0.29
Avail Cap(c_a), veh/h				715	0	649	742	2251	0	0	1991	618
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.7	0.0	27.4	29.7	5.9	0.0	0.0	16.0	15.7
Incr Delay (d2), s/veh				1.0	0.0	2.0	6.1	0.2	0.0	0.0	0.4	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	5.1	4.7	1.5	0.0	0.0	2.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.8	0.0	29.4	35.7	6.1	0.0	0.0	16.4	16.9
LnGrp LOS				C	A	C	D	A	A	A	B	B
Approach Vol, veh/h					630			1011			822	
Approach Delay, s/veh					28.6			20.9			16.5	
Approach LOS					C			C			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.6			18.3	34.3		22.4				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		34.9			16.1	* 14		30.1				
Max Q Clear Time (g_c+I1), s		6.6			12.5	8.6		16.1				
Green Ext Time (p_c), s		4.2			0.8	2.4		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		21.4	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	5	106	0	0	0	0	955	300	220	730	0
Future Volume (veh/h)	36	5	106	0	0	0	0	955	300	220	730	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	42	0	112				0	1005	316	232	768	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	372	0	164				0	2880	874	270	2738	0
Arrive On Green	0.10	0.00	0.10				0.00	0.56	0.56	0.15	0.77	0.00
Sat Flow, veh/h	3563	0	1571				0	5274	1550	1781	3647	0
Grp Volume(v), veh/h	42	0	112				0	1005	316	232	768	0
Grp Sat Flow(s),veh/h/ln	1781	0	1571				0	1702	1550	1781	1777	0
Q Serve(g_s), s	0.9	0.0	5.5				0.0	8.5	8.9	10.2	5.1	0.0
Cycle Q Clear(g_c), s	0.9	0.0	5.5				0.0	8.5	8.9	10.2	5.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	372	0	164				0	2880	874	270	2738	0
V/C Ratio(X)	0.11	0.00	0.68				0.00	0.35	0.36	0.86	0.28	0.00
Avail Cap(c_a), veh/h	1514	0	668				0	2880	874	281	2738	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	32.5	0.0	34.5				0.0	9.5	9.5	33.1	2.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.9				0.0	0.3	1.2	18.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.1				0.0	2.9	3.0	5.7	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	36.4				0.0	9.8	10.7	52.0	2.9	0.0
LnGrp LOS	C	A	D				A	A	B	D	A	A
Approach Vol, veh/h		154						1321			1000	
Approach Delay, s/veh		35.3						10.0			14.3	
Approach LOS		D						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.5	50.2		13.3		66.7						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	12.6	19.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	12.2	10.9		7.5		7.1						
Green Ext Time (p_c), s	0.0	5.2		0.2		3.9						

Intersection Summary			
HCM 6th Ctrl Delay		13.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	946	90	230	1990	220	160	60	120	30	20	40
Future Volume (veh/h)	130	946	90	230	1990	220	160	60	120	30	20	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	138	1006	96	245	2117	234	170	64	128	32	21	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	2201	210	274	2461	268	244	81	155	158	110	187
Arrive On Green	0.09	0.45	0.45	0.15	0.51	0.51	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1853	4919	468	1853	4859	530	719	288	551	428	393	666
Grp Volume(v), veh/h	138	723	379	245	1535	816	362	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1847	1853	1770	1849	1558	0	0	1486	0	0
Q Serve(g_s), s	9.2	17.7	17.8	16.2	47.2	48.8	21.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.2	17.7	17.8	16.2	47.2	48.8	27.0	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.29	0.47		0.35	0.33		0.45
Lane Grp Cap(c), veh/h	164	1584	827	274	1793	936	480	0	0	456	0	0
V/C Ratio(X)	0.84	0.46	0.46	0.90	0.86	0.87	0.75	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	187	1584	827	411	1793	936	480	0	0	456	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.1	24.0	24.0	52.3	26.9	27.3	41.8	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	22.6	1.0	1.8	11.7	5.5	11.0	10.5	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	7.3	7.9	8.2	19.7	22.7	11.8	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.7	24.9	25.8	64.0	32.4	38.3	52.3	0.0	0.0	35.2	0.0	0.0
LnGrp LOS	E	C	C	E	C	D	D	A	A	D	A	A
Approach Vol, veh/h		1240			2596			362			96	
Approach Delay, s/veh		31.2			37.2			52.3			35.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.9	62.1		40.0	15.5	69.5		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	27.7	46.7		35.1	12.6	61.8		35.1				
Max Q Clear Time (g_c+I1), s	18.2	19.8		7.4	11.2	50.8		29.0				
Green Ext Time (p_c), s	0.2	19.4		0.6	0.0	10.9		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			36.7									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	236	26	10	114	82	149	361	139	12	133	39
Future Volume (veh/h)	82	236	26	10	114	82	149	361	139	12	133	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.95	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	241	27	10	116	84	152	368	142	12	136	40
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	291	30	57	451	393	186	1324	501	21	1195	338
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.10	0.53	0.53	0.01	0.44	0.44
Sat Flow, veh/h	304	1154	121	54	1790	1559	1781	2481	938	1781	2712	766
Grp Volume(v), veh/h	352	0	0	126	0	84	152	261	249	12	87	89
Grp Sat Flow(s),veh/h/ln	1579	0	0	1844	0	1559	1781	1777	1642	1781	1777	1702
Q Serve(g_s), s	14.5	0.0	0.0	0.0	0.0	3.8	7.5	7.2	7.5	0.6	2.6	2.8
Cycle Q Clear(g_c), s	19.4	0.0	0.0	4.8	0.0	3.8	7.5	7.2	7.5	0.6	2.6	2.8
Prop In Lane	0.24		0.08	0.08		1.00	1.00		0.57	1.00		0.45
Lane Grp Cap(c), veh/h	447	0	0	507	0	393	186	949	877	21	783	750
V/C Ratio(X)	0.79	0.00	0.00	0.25	0.00	0.21	0.82	0.28	0.28	0.58	0.11	0.12
Avail Cap(c_a), veh/h	666	0	0	747	0	603	334	949	877	83	783	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	0.0	26.9	0.0	26.5	39.3	11.4	11.5	44.1	14.8	14.8
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.5	0.0	0.6	3.3	0.7	0.8	9.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	0.0	2.2	0.0	1.5	3.4	2.9	2.8	0.3	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	0.0	27.5	0.0	27.1	42.6	12.2	12.3	53.6	15.0	15.1
LnGrp LOS	C	A	A	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		352			210			662			188	
Approach Delay, s/veh		34.4			27.3			19.2			17.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	54.8		29.5	13.8	46.4		29.5				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	4.2	47.9		34.7	16.8	* 37		34.7				
Max Q Clear Time (g_c+I1), s	2.6	9.5		21.4	9.5	4.8		6.8				
Green Ext Time (p_c), s	0.0	2.6		1.2	0.1	0.9		2.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.0									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2050 AM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	0	125	0	0	0	349	646	0	0	110	29
Future Volume (veh/h)	103	0	125	0	0	0	349	646	0	0	110	29
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	87				379	702	0	0	120	32
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	423	0	188				487	2066	0	5	1087	485
Arrive On Green	0.12	0.00	0.12				0.14	0.58	0.00	0.00	0.31	0.31
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	158	0	87				379	702	0	0	120	32
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	1.3	0.0	1.7				3.5	3.4	0.0	0.0	0.8	0.5
Cycle Q Clear(g_c), s	1.3	0.0	1.7				3.5	3.4	0.0	0.0	0.8	0.5
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	423	0	188				487	2066	0	5	1087	485
V/C Ratio(X)	0.37	0.00	0.46				0.78	0.34	0.00	0.00	0.11	0.07
Avail Cap(c_a), veh/h	1963	0	873				487	2066	0	218	1980	883
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	13.4				13.5	3.6	0.0	0.0	8.1	8.0
Incr Delay (d2), s/veh	0.5	0.0	1.8				7.9	0.1	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.6				1.6	0.4	0.0	0.0	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	15.2				21.4	3.7	0.0	0.0	8.2	8.1
LnGrp LOS	B	A	B				C	A	A	A	A	A
Approach Vol, veh/h		245						1081			152	
Approach Delay, s/veh		14.3						9.9			8.2	
Approach LOS		B						A			A	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	0.0	23.9		8.8	9.0	14.9
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s	4.0	18.8		18.0	4.6	18.2
Max Q Clear Time (g_c+I1), s	0.0	5.4		3.7	5.5	2.8
Green Ext Time (p_c), s	0.0	4.0		0.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th AWSC
32: Avenida Del Rio & Riverwalk Dr.

Year 2050 AM
03/11/2020

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	311	15	60	231	111	160
Future Vol, veh/h	311	15	60	231	111	160
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	346	17	67	257	123	178
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	14	13.3	11
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	21%
Vol Thru, %	0%	0%	95%	79%
Vol Right, %	0%	100%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	160	326	291
LT Vol	111	0	0	60
Through Vol	0	0	311	231
RT Vol	0	160	15	0
Lane Flow Rate	123	178	362	323
Geometry Grp	7	7	2	2
Degree of Util (X)	0.233	0.276	0.527	0.481
Departure Headway (Hd)	6.813	5.595	5.24	5.356
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	528	642	688	673
Service Time	4.547	3.328	3.27	3.387
HCM Lane V/C Ratio	0.233	0.277	0.526	0.48
HCM Control Delay	11.6	10.5	14	13.3
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.9	1.1	3.1	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	76	218	305	150	95	114
Future Volume (vph)	76	218	305	150	95	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3331		1770	1530
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3331		1770	1530
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	84	242	339	167	106	127
RTOR Reduction (vph)	0	0	42	0	0	113
Lane Group Flow (vph)	84	242	464	0	106	14
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	6.6	35.4	24.4		7.5	7.5
Effective Green, g (s)	6.6	35.4	24.4		7.5	7.5
Actuated g/C Ratio	0.10	0.53	0.37		0.11	0.11
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	174	1875	1216		198	171
v/s Ratio Prot	c0.05	0.07	c0.14		c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.48	0.13	0.38		0.54	0.08
Uniform Delay, d1	28.5	7.9	15.6		28.0	26.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.0	0.3		1.4	0.1
Delay (s)	29.3	8.0	15.9		29.4	26.6
Level of Service	C	A	B		C	C
Approach Delay (s)		13.4	15.9		27.9	
Approach LOS		B	B		C	

Intersection Summary				
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	20	210	30	40	20	300	600	80	40	490	135
Future Volume (veh/h)	78	20	210	30	40	20	300	600	80	40	490	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.93	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	64	223	32	43	21	319	638	85	43	521	144
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	410	340	41	55	27	407	1404	187	56	1434	385
Arrive On Green	0.22	0.22	0.22	0.07	0.07	0.07	0.12	0.45	0.45	0.03	0.36	0.36
Sat Flow, veh/h	1781	1870	1550	580	779	381	3456	3148	419	1781	3984	1068
Grp Volume(v), veh/h	52	64	223	96	0	0	319	360	363	43	443	222
Grp Sat Flow(s),veh/h/ln	1781	1870	1550	1740	0	0	1728	1777	1789	1781	1702	1648
Q Serve(g_s), s	1.7	2.1	9.8	4.0	0.0	0.0	6.7	10.5	10.5	1.8	7.1	7.4
Cycle Q Clear(g_c), s	1.7	2.1	9.8	4.0	0.0	0.0	6.7	10.5	10.5	1.8	7.1	7.4
Prop In Lane	1.00		1.00	0.33		0.22	1.00		0.23	1.00		0.65
Lane Grp Cap(c), veh/h	391	410	340	123	0	0	407	793	798	56	1225	593
V/C Ratio(X)	0.13	0.16	0.66	0.78	0.00	0.00	0.78	0.45	0.46	0.76	0.36	0.37
Avail Cap(c_a), veh/h	790	829	687	187	0	0	464	793	798	167	1225	593
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	23.5	26.5	34.0	0.0	0.0	31.9	14.3	14.3	35.8	17.5	17.6
Incr Delay (d2), s/veh	0.2	0.2	2.8	5.2	0.0	0.0	6.4	1.9	1.9	7.7	0.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	3.7	1.8	0.0	0.0	3.1	4.3	4.3	0.9	2.8	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	23.7	29.3	39.3	0.0	0.0	38.3	16.2	16.2	43.4	18.4	19.4
LnGrp LOS	C	C	C	D	A	A	D	B	B	D	B	B
Approach Vol, veh/h		339			96			1042			708	
Approach Delay, s/veh		27.3			39.3			23.0			20.2	
Approach LOS		C			D			C			C	

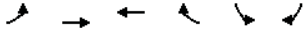
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	38.5		20.3	12.8	32.1		9.2				
Change Period (Y+Rc), s	4.0	5.3		4.0	4.0	* 5.3		4.0				
Max Green Setting (Gmax), s	7.0	29.7		33.0	10.0	* 27		8.0				
Max Q Clear Time (g_c+I1), s	3.8	12.5		11.8	8.7	9.4		6.0				
Green Ext Time (p_c), s	0.0	7.1		1.7	0.1	6.5		0.0				

Intersection Summary				
HCM 6th Ctrl Delay	23.5			
HCM 6th LOS	C			

Notes

User approved volume balancing among the lanes for turning movement.

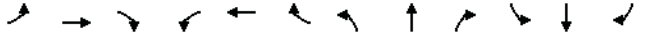
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	120	124	211	525	310
Future Volume (veh/h)	90	120	124	211	525	310
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	133	138	18	583	324
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	127	771	542	1211	845	752
Arrive On Green	0.07	0.41	0.29	0.29	0.47	0.47
Sat Flow, veh/h	1781	1870	1870	1582	1781	1585
Grp Volume(v), veh/h	100	133	138	18	583	324
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1582	1781	1585
Q Serve(g_s), s	4.8	3.9	4.9	0.2	22.1	11.7
Cycle Q Clear(g_c), s	4.8	3.9	4.9	0.2	22.1	11.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	127	771	542	1211	845	752
V/C Ratio(X)	0.78	0.17	0.25	0.01	0.69	0.43
Avail Cap(c_a), veh/h	197	845	542	1211	845	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	16.1	23.6	2.4	17.8	15.0
Incr Delay (d2), s/veh	4.5	0.0	1.1	0.0	4.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.6	2.3	0.3	9.5	12.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.1	16.1	24.7	2.5	22.3	16.8
LnGrp LOS	D	B	C	A	C	B
Approach Vol, veh/h		233	156		907	
Approach Delay, s/veh		28.1	22.1		20.4	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.6		46.0	10.6	30.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		39.1		41.1	9.6	25.1
Max Q Clear Time (g_c+I1), s		5.9		24.1	6.8	6.9
Green Ext Time (p_c), s		0.5		1.5	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	66	34	130	375	250	179	570	120	150	390	136
Future Volume (veh/h)	90	66	34	130	375	250	179	570	120	150	390	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	71	-18	140	403	137	192	613	110	161	419	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	726	0	192	568	191	240	2374	420	211	2736	847
Arrive On Green	0.04	0.20	0.00	0.06	0.22	0.22	0.14	1.00	1.00	0.06	0.54	0.54
Sat Flow, veh/h	3456	3647	0	3456	2606	875	3456	4362	771	3456	5106	1580
Grp Volume(v), veh/h	97	53	0	140	273	267	192	476	247	161	419	19
Grp Sat Flow(s),veh/h/ln	1728	1777	0	1728	1777	1704	1728	1702	1729	1728	1702	1580
Q Serve(g_s), s	3.9	1.7	0.0	5.6	19.9	20.3	7.5	0.0	0.0	6.4	5.8	0.8
Cycle Q Clear(g_c), s	3.9	1.7	0.0	5.6	19.9	20.3	7.5	0.0	0.0	6.4	5.8	0.8
Prop In Lane	1.00		0.00	1.00		0.51	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	145	726	0	192	387	371	240	1852	941	211	2736	847
V/C Ratio(X)	0.67	0.07	0.00	0.73	0.71	0.72	0.80	0.26	0.26	0.76	0.15	0.02
Avail Cap(c_a), veh/h	533	1246	0	657	687	659	385	1852	941	360	2736	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.00	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.1	45.0	0.0	65.1	50.6	50.8	59.4	0.0	0.0	64.7	16.4	15.3
Incr Delay (d2), s/veh	1.9	0.0	0.0	2.0	4.5	5.0	2.1	0.3	0.6	2.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.8	0.0	2.5	9.4	9.2	3.2	0.1	0.2	2.9	2.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	45.0	0.0	67.1	55.1	55.8	61.4	0.3	0.6	66.9	16.5	15.3
LnGrp LOS	E	D	A	E	E	E	E	A	A	E	B	B
Approach Vol, veh/h		150			680			915			599	
Approach Delay, s/veh		59.9			57.8			13.2			30.0	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	81.4	12.2	33.5	14.1	80.2	10.3	35.4				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	14.6	30.8	26.6	49.1	15.6	* 30	21.6	54.1				
Max Q Clear Time (g_c+I1), s	8.4	2.0	7.6	3.7	9.5	7.8	5.9	22.3				
Green Ext Time (p_c), s	0.1	8.8	0.2	0.3	0.2	4.9	0.1	6.7				

Intersection Summary	
HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	170	169	280	316	487	166	302	290	220	284	60
Future Volume (veh/h)	20	170	169	280	316	487	166	302	290	220	284	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	177	0	292	329	21	173	315	0	229	296	37
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	417		346	377	316	223	2008		282	2069	911
Arrive On Green	0.02	0.12	0.00	0.10	0.20	0.20	0.06	0.57	0.00	0.16	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1566	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	21	177	0	292	329	21	173	315	0	229	296	37
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1566	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	1.6	6.5	0.0	11.6	23.9	1.5	6.9	5.9	0.0	8.9	0.0	0.0
Cycle Q Clear(g_c), s	1.6	6.5	0.0	11.6	23.9	1.5	6.9	5.9	0.0	8.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	28	417		346	377	316	223	2008		282	2069	911
V/C Ratio(X)	0.74	0.42		0.84	0.87	0.07	0.77	0.16		0.81	0.14	0.04
Avail Cap(c_a), veh/h	97	992		583	731	612	385	2008		484	2069	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.94	0.94	0.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	68.6	57.4	0.0	61.9	54.1	45.2	64.5	14.5	0.0	57.5	0.0	0.0
Incr Delay (d2), s/veh	13.0	0.7	0.0	2.2	2.5	0.0	2.0	0.2	0.0	5.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.0	0.0	5.2	11.5	0.6	3.1	2.5	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.6	58.1	0.0	64.1	56.7	45.3	66.5	14.7	0.0	62.9	0.1	0.1
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		198	A		642			488	A		562	
Approach Delay, s/veh		60.6			59.7			33.1			25.7	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	84.0	18.4	21.7	13.5	86.4	6.6	33.5
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	19.6	39.1	23.6	* 39	15.6	43.1	7.6	54.7
Max Q Clear Time (g_c+I1), s	10.9	7.9	13.6	8.5	8.9	2.0	3.6	25.9
Green Ext Time (p_c), s	0.5	1.4	0.4	1.1	0.2	3.7	0.0	1.3

Intersection Summary		
HCM 6th Ctrl Delay	42.8	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2050 AM
03/11/2020

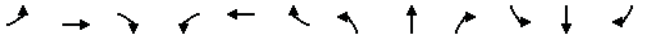
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	430	0	420	0	0	0	0	329	140	314	418	0
Future Volume (vph)	430	0	420	0	0	0	0	329	140	314	418	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3365	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3365	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	448	0	438	0	0	0	0	343	146	327	435	0
RTOR Reduction (vph)	0	0	310	0	0	0	0	0	93	0	0	0
Lane Group Flow (vph)	448	0	128	0	0	0	0	343	53	249	513	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	39.6		39.6					48.6	48.6	28.5	28.5	
Effective Green, g (s)	39.6		39.6					48.6	48.6	28.5	28.5	
Actuated g/C Ratio	0.29		0.29					0.36	0.36	0.21	0.21	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	1007		464					1274	569	339	710	
v/s Ratio Prot	c0.13							c0.10		c0.15	0.15	
v/s Ratio Perm			0.08						0.03			
v/c Ratio	0.44		0.28					0.27	0.09	0.73	0.72	
Uniform Delay, d1	38.8		36.7					30.6	28.6	49.7	49.6	
Progression Factor	1.00		1.00					0.60	0.11	1.00	1.00	
Incremental Delay, d2	1.4		1.5					0.0	0.0	8.5	3.9	
Delay (s)	40.2		38.2					18.3	3.1	58.2	53.5	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		39.2			0.0			13.8			55.0	
Approach LOS		D			A			B			E	

Intersection Summary					
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	0.47				
Actuated Cycle Length (s)	135.0	Sum of lost time (s)		24.4	
Intersection Capacity Utilization	54.6%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2050 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	90	20	20	260	222	20	30	20	319	100	420
Future Volume (vph)	216	90	20	20	260	222	20	30	20	319	100	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.98			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3262			3526	1583		1764		1681	1724	1562
Flt Permitted	0.95	0.98			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3262			3526	1583		1764		1681	1724	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	232	97	22	22	280	239	22	32	22	343	108	452
RTOR Reduction (vph)	0	6	0	0	0	117	0	11	0	0	0	276
Lane Group Flow (vph)	116	229	0	0	302	122	0	65	0	223	228	176
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.0	68.7		15.4		52.7	52.7	52.7
Effective Green, g (s)	26.5	26.5			16.0	68.7		15.4		52.7	52.7	52.7
Actuated g/C Ratio	0.20	0.20			0.12	0.51		0.11		0.39	0.39	0.39
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	316	640			417	805		201		656	672	609
v/s Ratio Prot	c0.07	0.07			c0.09	0.06		c0.04		c0.13	0.13	
v/s Ratio Perm						0.02						0.11
v/c Ratio	0.37	0.36			0.72	0.15		0.33		0.34	0.34	0.29
Uniform Delay, d1	47.0	46.9			57.4	17.6		55.0		28.9	28.9	28.3
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.73	0.73	2.78
Incremental Delay, d2	3.3	1.6			10.5	0.4		4.3		1.2	1.2	1.0
Delay (s)	50.3	48.5			67.8	18.0		59.3		22.2	22.2	79.7
Level of Service	D	D			E	B		E		C	C	E
Approach Delay (s)		49.1			45.8			59.3			51.0	
Approach LOS		D			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	58.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2050 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	0	0	0	0	424	50	0	0	0	0	20	150
Future Volume (vph)	0	0	0	0	424	50	0	0	0	0	20	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	461	54	0	0	0	0	22	163

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	515	185
Volume Left (vph)	0	0	0	0	0
Volume Right (vph)	0	0	0	54	163
Hadj (s)	0.00	0.00	0.00	-0.04	-0.49
Departure Headway (s)	5.5	5.5	5.0	4.9	4.8
Degree Utilization, x	0.00	0.00	0.00	0.71	0.24
Capacity (veh/h)	626	626	727	710	693
Control Delay (s)	7.3	7.3	6.8	17.7	9.3
Approach Delay (s)	0.0		17.7		9.3
Approach LOS	A		C		A

Intersection Summary				
Delay	15.5			
Level of Service	C			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	165.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	260	260	20	758	30	0	0	10	10
Future Vol, veh/h	0	0	0	260	260	20	758	30	0	0	10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	277	277	21	806	32	0	0	11	11
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

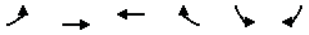
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	18.9	269.5	10.3
HCM LOS	C	F	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	99%	0%	100%	0%	0%	0%
Vol Thru, %	1%	100%	0%	93%	100%	0%
Vol Right, %	0%	0%	0%	7%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	768	20	260	280	10	10
LT Vol	758	0	260	0	0	0
Through Vol	10	20	0	260	10	0
RT Vol	0	0	0	20	0	10
Lane Flow Rate	817	21	277	298	11	11
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.553	0.037	0.535	0.531	0.021	0.019
Departure Headway (Hd)	6.841	6.341	8.044	7.487	7.81	7.083
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	568	451	486	461	508
Service Time	4.541	4.041	5.744	5.187	5.51	4.783
HCM Lane V/C Ratio	1.516	0.037	0.614	0.613	0.024	0.022
HCM Control Delay	276.3	9.3	19.6	18.3	10.7	9.9
HCM Lane LOS	F	A	C	C	B	A
HCM 95th-tile Q	43.4	0.1	3.1	3.1	0.1	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	381	185	0	235
Future Volume (vph)	0	0	381	185	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.9			4.9
Lane Util. Factor			0.95			0.88
Frpb, ped/bikes			0.99			0.98
Flpb, ped/bikes			1.00			1.00
Frt			0.95			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			3348			2727
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3348			2727
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	423	206	0	261
RTOR Reduction (vph)	0	0	117	0	0	211
Lane Group Flow (vph)	0	0	512	0	0	50
Confl. Peds. (#/hr)	5			5		2
Confl. Bikes (#/hr)				3		
Turn Type			NA			Perm
Protected Phases			6			
Permitted Phases						4
Actuated Green, G (s)			11.1			4.9
Effective Green, g (s)			11.1			4.9
Actuated g/C Ratio			0.43			0.19
Clearance Time (s)			4.9			4.9
Vehicle Extension (s)			3.9			2.0
Lane Grp Cap (vph)			1440			517
v/s Ratio Prot			c0.15			
v/s Ratio Perm						c0.02
v/c Ratio			0.36			0.10
Uniform Delay, d1			4.9			8.6
Progression Factor			1.00			1.00
Incremental Delay, d2			0.2			0.0
Delay (s)			5.1			8.7
Level of Service			A			A
Approach Delay (s)		0.0	5.1		8.7	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	25.8	Sum of lost time (s)	9.8
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	432	450	0	134
Future Volume (veh/h)	0	0	432	450	0	134
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			470	489	0	146
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1429	1274	0	0
Arrive On Green			0.80	0.80	0.00	0.00
Sat Flow, veh/h			1870	1585	0	
Grp Volume(v), veh/h			470	489	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1585		
Q Serve(g_s), s			1.8	2.2		
Cycle Q Clear(g_c), s			1.8	2.2		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			1429	1274		
V/C Ratio(X)			0.33	0.38		
Avail Cap(c_a), veh/h			1429	1274		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.7	0.7		
Incr Delay (d2), s/veh			0.6	0.9		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.3	1.6		
LnGrp LOS			A	A		
Approach Vol, veh/h			959			
Approach Delay, s/veh			1.4			
Approach LOS			A			
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						25.0
Change Period (Y+Rc), s						4.9
Max Green Setting (Gmax), s						20.1
Max Q Clear Time (g_c+I1), s						4.2
Green Ext Time (p_c), s						4.1

Intersection Summary	
HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	150	739	0	0	0	732
Future Volume (vph)	150	739	0	0	0	732
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	0.98					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.88					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3043					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3043					1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	821	0	0	0	813
RTOR Reduction (vph)	511	0	0	0	0	355
Lane Group Flow (vph)	477	0	0	0	0	458
Confl. Peds. (#/hr)		1	1		6	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	17.0					19.0
Effective Green, g (s)	17.0					19.0
Actuated g/C Ratio	0.38					0.42
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1149					680
v/s Ratio Prot	c0.16					
v/s Ratio Perm						c0.28
v/c Ratio	0.42					0.67
Uniform Delay, d1	10.3					10.5
Progression Factor	1.00					1.00
Incremental Delay, d2	1.1					5.3
Delay (s)	11.4					15.8
Level of Service	B					B
Approach Delay (s)	11.4			0.0	15.8	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
53: Street J & Riverwalk Dr.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	15	0	39	0	517	16	9	579	0
Future Volume (veh/h)	0	0	0	15	0	39	0	517	16	9	579	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	16	0	42	0	562	17	10	629	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	7	0	257	0	229	6	745	23	19	1061	0
Arrive On Green	0.00	0.00	0.00	0.14	0.00	0.14	0.00	0.41	0.41	0.01	0.57	0.00
Sat Flow, veh/h	0	-74814	0	1781	0	1585	1781	1806	55	1781	1870	0
Grp Volume(v), veh/h	0	0	0	16	0	42	0	0	579	10	629	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	0	1861	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.6	0.0	0.0	7.4	0.2	6.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.2	0.0	0.6	0.0	0.0	7.4	0.2	6.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	0	7	0	257	0	229	6	0	768	19	1061	0
V/C Ratio(X)	0.00	0.00	0.00	0.06	0.00	0.18	0.00	0.00	0.75	0.52	0.59	0.00
Avail Cap(c_a), veh/h	0	1146	0	4880	0	5542	321	0	1073	321	1079	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.3	0.0	10.4	0.0	0.0	6.9	13.7	3.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	2.0	20.6	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	1.8	0.2	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	10.4	0.0	10.8	0.0	0.0	8.9	34.2	4.8	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			58			579			639	
Approach Delay, s/veh		0.0			10.7			8.9			5.2	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	4.3	15.4	8.0	0.0	0.0	19.7		8.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	16.0	76.0	17.0	5.0	16.0		97.0
Max Q Clear Time (g_c+I1), s	2.2	9.4	2.2	0.0	0.0	8.1		2.6
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
54: CVC & Project Dwy. Street "B"

Year 2050 AM
03/19/2020

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	435	85	448	40	83	461	
Future Volume (veh/h)	435	85	448	40	83	461	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	473	92	487	43	90	501	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	565	503	586	52	114	937	
Arrive On Green	0.32	0.32	0.35	0.35	0.06	0.50	
Sat Flow, veh/h	1781	1585	1694	150	1781	1870	
Grp Volume(v), veh/h	473	92	0	530	90	501	
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1843	1781	1870	
Q Serve(g_s), s	10.9	1.8	0.0	11.6	2.2	8.0	
Cycle Q Clear(g_c), s	10.9	1.8	0.0	11.6	2.2	8.0	
Prop In Lane	1.00	1.00		0.08	1.00		
Lane Grp Cap(c), veh/h	565	503	0	638	114	937	
V/C Ratio(X)	0.84	0.18	0.00	0.83	0.79	0.53	
Avail Cap(c_a), veh/h	770	685	0	797	203	1191	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	14.0	10.9	0.0	13.2	20.3	7.5	
Incr Delay (d2), s/veh	6.0	0.2	0.0	6.1	11.6	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.5	0.6	0.0	4.9	1.2	2.3	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.9	11.1	0.0	19.3	31.9	8.0	
LnGrp LOS	B	B	A	B	C	A	
Approach Vol, veh/h	565		530			591	
Approach Delay, s/veh	18.5		19.3			11.6	
Approach LOS	B		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	19.2				26.0	17.9
Change Period (Y+Rc), s	4.0	4.0				4.0	4.0
Max Green Setting (Gmax), s	5.0	19.0				28.0	19.0
Max Q Clear Time (g_c+I1), s	4.2	13.6				10.0	12.9
Green Ext Time (p_c), s	0.0	1.6				3.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
55: Street J & Hotel Circle N.

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	85	338	190	520	298	0	0	752	143
Future Volume (veh/h)	0	0	0	85	338	190	520	298	0	0	752	143
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				92	367	207	565	324	0	0	817	155
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				128	541	294	624	2448	0	0	1032	437
Arrive On Green				0.19	0.19	0.19	0.35	0.69	0.00	0.00	0.28	0.28
Sat Flow, veh/h				691	2921	1585	1781	3647	0	0	3741	1585
Grp Volume(v), veh/h				244	215	207	565	324	0	0	817	155
Grp Sat Flow(s),veh/h/ln				1836	1777	1585	1781	1777	0	0	1870	1585
Q Serve(g_s), s				8.0	7.1	7.8	19.2	2.0	0.0	0.0	12.9	5.0
Cycle Q Clear(g_c), s				8.0	7.1	7.8	19.2	2.0	0.0	0.0	12.9	5.0
Prop In Lane				0.38		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				340	329	294	624	2448	0	0	1032	437
V/C Ratio(X)				0.72	0.65	0.70	0.91	0.13	0.00	0.00	0.79	0.35
Avail Cap(c_a), veh/h				462	447	399	756	2849	0	0	1176	498
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.4	24.0	24.3	19.7	3.4	0.0	0.0	21.3	18.5
Incr Delay (d2), s/veh				3.4	2.2	3.5	12.8	0.0	0.0	0.0	3.3	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	3.0	3.0	9.4	0.5	0.0	0.0	5.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.8	26.2	27.8	32.5	3.4	0.0	0.0	24.7	19.0
LnGrp LOS				C	C	C	C	A	A	A	C	B
Approach Vol, veh/h					666			889			972	
Approach Delay, s/veh					27.3			21.9			23.8	
Approach LOS					C			C			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		47.8			26.3	21.5		15.8				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		51.0			27.0	20.0		16.0				
Max Q Clear Time (g_c+I1), s		4.0			21.2	14.9		10.0				
Green Ext Time (p_c), s		2.4			1.1	2.7		1.8				

Intersection Summary			
HCM 6th Ctrl Delay		24.0	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
56: Hotel Circle S. & Street J

Year 2050 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	700	30	0	0	0	0	120	60	1337	100	0
Future Volume (veh/h)	298	700	30	0	0	0	0	120	60	1337	100	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	324	761	33				0	130	65	1453	109	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	447	872	38				0	163	81	1592	1214	0
Arrive On Green	0.25	0.25	0.25				0.00	0.14	0.14	0.46	0.65	0.00
Sat Flow, veh/h	1781	3470	150				0	1176	588	3456	1870	0
Grp Volume(v), veh/h	324	390	404				0	0	195	1453	109	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1843				0	0	1764	1728	1870	0
Q Serve(g_s), s	13.3	16.9	16.9				0.0	0.0	8.6	31.4	1.7	0.0
Cycle Q Clear(g_c), s	13.3	16.9	16.9				0.0	0.0	8.6	31.4	1.7	0.0
Prop In Lane	1.00		0.08				0.00		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	447	446	463				0	0	244	1592	1214	0
V/C Ratio(X)	0.72	0.87	0.87				0.00	0.00	0.80	0.91	0.09	0.00
Avail Cap(c_a), veh/h	467	465	483				0	0	374	1724	1423	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.5	28.8	28.8				0.0	0.0	33.5	20.1	5.2	0.0
Incr Delay (d2), s/veh	5.3	16.1	15.7				0.0	0.0	6.8	7.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	8.9	9.2				0.0	0.0	4.0	13.1	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	44.9	44.5				0.0	0.0	40.2	27.6	5.3	0.0
LnGrp LOS	C	D	D				A	A	D	C	A	A
Approach Vol, veh/h		1118						195			1562	
Approach Delay, s/veh		41.2						40.2			26.0	
Approach LOS		D						D			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	40.9	15.1		24.1		56.0						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	40.0	17.0		21.0		61.0						
Max Q Clear Time (g_c+I1), s	33.4	10.6		18.9		3.7						
Green Ext Time (p_c), s	3.6	0.5		1.3		0.7						

Intersection Summary			
HCM 6th Ctrl Delay		32.9	
HCM 6th LOS		C	

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2050 PM
03/11/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	481	73	1410	719	286	1390
Future Volume (veh/h)	481	73	1410	719	286	1390
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	496	-59	1454	707	295	1433
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	634	282	2155	1223	367	2636
Arrive On Green	0.18	0.00	0.61	0.61	0.11	0.74
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	496	-59	1454	707	295	1433
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	14.6	0.0	29.9	19.8	9.2	19.2
Cycle Q Clear(g_c), s	14.6	0.0	29.9	19.8	9.2	19.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	634	282	2155	1223	367	2636
V/C Ratio(X)	0.78	-0.21	0.67	0.58	0.80	0.54
Avail Cap(c_a), veh/h	974	433	2752	1484	409	3302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	0.0	14.4	4.7	47.9	6.1
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.6	8.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	10.6	11.2	4.4	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.1	0.0	15.0	5.3	56.8	6.5
LnGrp LOS	D	A	B	A	E	A
Approach Vol, veh/h	437		2161			1728
Approach Delay, s/veh	50.0		11.8			15.1
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.7	70.6				86.2	23.6
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	12.6	82.8				* 1E2	27.8
Max Q Clear Time (g_c+I1), s	11.2	31.9				21.2	16.6
Green Ext Time (p_c), s	0.1	32.5				42.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1069	160	290	580	0	0	0	0	330	10	1191
Future Volume (veh/h)	0	1069	160	290	580	0	0	0	0	330	10	1191
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1114	167	302	604	0				344	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1267	565	364	1766	0				733	21	
Arrive On Green	0.00	0.36	0.36	0.11	0.50	0.00				0.42	0.42	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1733	50	1585
Grp Volume(v), veh/h	0	1114	167	302	604	0				354	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	35.3	9.1	10.3	12.4	0.0				17.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	35.3	9.1	10.3	12.4	0.0				17.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1267	565	364	1766	0				755	0	
V/C Ratio(X)	0.00	0.88	0.30	0.83	0.34	0.00				0.47	0.00	
Avail Cap(c_a), veh/h	0	1570	700	455	2162	0				755	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.32	0.32	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	36.2	27.8	52.6	18.3	0.0				24.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.5	0.1	3.5	0.0	0.0				0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.9	3.5	4.6	5.1	0.0				7.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	40.7	27.9	56.1	18.3	0.0				25.1	0.0	0.0
LnGrp LOS	A	D	C	E	B	A				C	A	
Approach Vol, veh/h		1281			906						354	A
Approach Delay, s/veh		39.0			30.9						25.1	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.8	47.8		55.4		64.6						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 16	53.0		37.4		73.0						
Max Q Clear Time (g_c+I1), s	12.3	37.3		19.1		14.4						
Green Ext Time (p_c), s	0.4	5.5		0.7		3.0						

Intersection Summary	
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	739	660	0	0	550	530	320	20	620	0	0	0
Future Volume (veh/h)	739	660	0	0	550	530	320	20	620	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	770	688	0	0	573	336	333	21	422			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	820	2008	0	0	631	370	589	37	556			
Arrive On Green	0.24	0.57	0.00	0.00	0.29	0.29	0.35	0.35	0.35			
Sat Flow, veh/h	3456	3647	0	0	2250	1264	1680	106	1585			
Grp Volume(v), veh/h	770	688	0	0	472	437	354	0	422			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1643	1786	0	1585			
Q Serve(g_s), s	26.2	12.5	0.0	0.0	30.7	30.7	19.3	0.0	28.3			
Cycle Q Clear(g_c), s	26.2	12.5	0.0	0.0	30.7	30.7	19.3	0.0	28.3			
Prop In Lane	1.00		0.00	0.00		0.77	0.94		1.00			
Lane Grp Cap(c), veh/h	820	2008	0	0	520	481	627	0	556			
V/C Ratio(X)	0.94	0.34	0.00	0.00	0.91	0.91	0.56	0.00	0.76			
Avail Cap(c_a), veh/h	829	2147	0	0	585	541	627	0	556			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.77	0.77	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.9	14.1	0.0	0.0	40.9	40.9	31.5	0.0	34.5			
Incr Delay (d2), s/veh	15.0	0.0	0.0	0.0	15.8	16.9	0.7	0.0	5.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.9	5.0	0.0	0.0	15.6	14.6	8.4	0.0	24.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	14.1	0.0	0.0	56.7	57.8	32.3	0.0	39.9			
LnGrp LOS	E	B	A	A	E	E	C	A	D			
Approach Vol, veh/h		1458			909			776				
Approach Delay, s/veh		38.3			57.2			36.4				
Approach LOS		D			E			D				

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	73.3	46.7	32.7	40.6
Change Period (Y+Rc), s	5.5	4.6	* 4.2	5.5
Max Green Setting (Gmax), s	72.5	37.4	* 29	39.5
Max Q Clear Time (g_c+I1), s	14.5	30.3	28.2	32.7
Green Ext Time (p_c), s	3.5	0.8	0.2	2.4

Intersection Summary	
HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	507	478	30	20	187	150	0	0	40	260	20	443
Future Volume (vph)	507	478	30	20	187	150	0	0	40	260	20	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.93				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3499		1770	3276				1525	1681	1697	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3499		1770	3276				1525	1681	1697	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	563	531	33	22	208	167	0	0	44	289	22	492
RTOR Reduction (vph)	0	4	0	0	120	0	0	0	43	0	0	241
Lane Group Flow (vph)	563	560	0	22	255	0	0	0	1	153	158	251
Confl. Peds. (#/hr)			8	90		5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	17.4	40.9		2.0	25.5				3.2	30.1	30.1	47.5
Effective Green, g (s)	17.8	41.8		2.4	26.4				3.2	31.4	31.4	48.3
Actuated g/C Ratio	0.19	0.44		0.03	0.28				0.03	0.33	0.33	0.51
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	644	1542		44	912				51	556	562	799
v/s Ratio Prot	c0.16	c0.16		0.01	0.08					0.09	0.09	c0.06
v/s Ratio Perm									c0.00			0.10
v/c Ratio	0.87	0.36		0.50	0.28				0.03	0.28	0.28	0.31
Uniform Delay, d1	37.4	17.6		45.6	26.8				44.3	23.3	23.4	13.6
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	0.2		3.2	0.8				0.2	1.2	1.2	0.1
Delay (s)	49.6	17.8		48.8	27.5				44.5	24.6	24.6	13.7
Level of Service	D	B		D	C				D	C	C	B
Approach Delay (s)		33.7			28.7			44.5			17.9	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	805	294	242	312	220
Future Volume (vph)	160	805	294	242	312	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1770	3539	3539	1534	3412	1416
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1770	3539	3539	1534	3412	1416
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	839	306	252	325	229
RTOR Reduction (vph)	0	0	0	101	4	169
Lane Group Flow (vph)	167	839	306	151	344	37
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.4	69.1	49.7	68.5	18.8	18.8
Effective Green, g (s)	15.8	71.1	51.3	70.3	19.7	19.7
Actuated g/C Ratio	0.13	0.61	0.44	0.60	0.17	0.17
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	238	2148	1550	920	574	238
v/s Ratio Prot	c0.09	c0.24	0.09	0.03	c0.10	
v/s Ratio Perm				0.07		0.03
v/c Ratio	0.70	0.39	0.20	0.16	0.60	0.16
Uniform Delay, d1	48.4	11.8	20.2	10.4	45.0	41.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	0.5	0.1	0.2	2.5	0.6
Delay (s)	55.8	12.4	20.3	10.6	47.6	42.2
Level of Service	E	B	C	B	D	D
Approach Delay (s)		19.6	15.9		45.6	
Approach LOS		B	B		D	

Intersection Summary				
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	117.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1063	50	50	626	64	20	20	30	166	20	75
Future Volume (veh/h)	20	1063	50	50	626	64	20	20	30	166	20	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1096	48	52	645	55	21	21	17	171	21	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	36	2272	99	87	2276	194	178	164	302	286	145	180
Arrive On Green	0.02	0.66	0.64	0.05	0.69	0.67	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3462	152	1781	3311	282	688	850	1568	1356	755	935
Grp Volume(v), veh/h	21	562	582	52	346	354	42	0	17	171	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1816	1538	0	1568	1356	0	1689
Q Serve(g_s), s	1.4	19.2	19.2	3.4	9.1	9.2	0.3	0.0	1.1	14.5	0.0	2.8
Cycle Q Clear(g_c), s	1.4	19.2	19.2	3.4	9.1	9.2	3.1	0.0	1.1	17.6	0.0	2.8
Prop In Lane	1.00		0.08	1.00		0.16	0.50		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	36	1166	1206	87	1222	1249	341	0	302	286	0	326
V/C Ratio(X)	0.59	0.48	0.48	0.60	0.28	0.28	0.12	0.00	0.06	0.60	0.00	0.14
Avail Cap(c_a), veh/h	118	1166	1206	281	1329	1358	560	0	521	476	0	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.5	10.4	10.4	56.1	7.3	7.4	40.2	0.0	39.7	47.8	0.0	40.6
Incr Delay (d2), s/veh	5.6	1.4	1.4	2.4	0.6	0.6	0.1	0.0	0.0	0.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.0	7.3	1.6	3.2	3.3	1.0	0.0	0.4	4.9	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	11.8	11.8	58.5	7.9	7.9	40.3	0.0	39.7	48.5	0.0	40.6
LnGrp LOS	E	B	B	E	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1165			752			59			218	
Approach Delay, s/veh		12.8			11.4			40.1			46.8	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	83.3		27.2	6.4	86.8		27.2				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	18.6	* 77		39.1	7.6	88.0		39.1				
Max Q Clear Time (g_c+I1), s	5.4	21.2		19.6	3.4	11.2		5.1				
Green Ext Time (p_c), s	0.0	27.9		0.4	0.0	15.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	16.4	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
11: Friars Rd. /Friars Rd. & Via Las Cumbres

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	811	0	0	459	242	0	0	0	438	0	120
Future Volume (veh/h)	152	811	0	0	459	242	0	0	0	438	0	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	160	854	0	0	483	117				461	0	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	199	2250	0	0	1723	736				511	0	455
Arrive On Green	0.11	0.63	0.00	0.00	0.48	0.48				0.29	0.00	0.29
Sat Flow, veh/h	1781	3647	0	0	3647	1518				1781	0	1585
Grp Volume(v), veh/h	160	854	0	0	483	117				461	0	49
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1518				1781	0	1585
Q Serve(g_s), s	9.0	11.9	0.0	0.0	8.3	4.4				25.6	0.0	2.3
Cycle Q Clear(g_c), s	9.0	11.9	0.0	0.0	8.3	4.4				25.6	0.0	2.3
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	199	2250	0	0	1723	736				511	0	455
V/C Ratio(X)	0.81	0.38	0.00	0.00	0.28	0.16				0.90	0.00	0.11
Avail Cap(c_a), veh/h	434	2250	0	0	1723	736				989	0	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	44.5	9.1	0.0	0.0	15.8	14.8				35.2	0.0	26.9
Incr Delay (d2), s/veh	2.9	0.5	0.0	0.0	0.4	0.5				2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.0	0.0	0.0	3.2	1.5				11.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	9.6	0.0	0.0	16.2	15.2				37.7	0.0	27.0
LnGrp LOS	D	A	A	A	B	B				D	A	C
Approach Vol, veh/h		1014			600						510	
Approach Delay, s/veh		15.6			16.0						36.7	
Approach LOS		B			B						D	

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		69.2		33.4	15.4	53.8			
Change Period (Y+Rc), s		* 5.9		5.1	4.4	5.9			
Max Green Setting (Gmax), s		* 63		55.9	24.6	34.1			
Max Q Clear Time (g_c+I1), s		13.9		27.6	11.0	10.3			
Green Ext Time (p_c), s		4.8		0.8	0.2	2.5			

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd. /Friars Rd.

Year 2050 PM
03/18/2020



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (veh/h)	0	916	29	161	548	77	134
Future Volume (veh/h)	0	916	29	161	548	77	134
Initial Q (Qb), veh		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)			1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		996	32	175	596	84	146
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %		2	2	2	2	2	2
Cap, veh/h		1583	51	183	2330	248	220
Arrive On Green		0.45	0.45	0.10	0.66	0.14	0.14
Sat Flow, veh/h		3608	113	1781	3647	1781	1585
Grp Volume(v), veh/h		504	524	175	596	84	146
Grp Sat Flow(s),veh/h/ln		1777	1850	1781	1777	1781	1585
Q Serve(g_s), s		8.5	8.5	3.8	2.7	1.7	3.4
Cycle Q Clear(g_c), s		8.5	8.5	3.8	2.7	1.7	3.4
Prop In Lane			0.06	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		801	834	183	2330	248	220
V/C Ratio(X)		0.63	0.63	0.96	0.26	0.34	0.66
Avail Cap(c_a), veh/h		2188	2278	183	4376	731	651
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		8.2	8.2	17.4	2.8	15.2	15.9
Incr Delay (d2), s/veh		0.8	0.8	54.0	0.1	0.8	3.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.9	1.9	3.9	0.1	0.6	1.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh		9.0	9.0	71.5	2.8	16.0	19.3
LnGrp LOS		A	A	E	A	B	B
Approach Vol, veh/h		1028			771	230	
Approach Delay, s/veh		9.0			18.4	18.1	
Approach LOS		A			B	B	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.0	21.6				29.6		9.4
Change Period (Y+Rc), s	4.0	4.0				4.0		4.0
Max Green Setting (Gmax), s	4.0	48.0				48.0		16.0
Max Q Clear Time (g_c+I1), s	5.8	10.5				4.7		5.4
Green Ext Time (p_c), s	0.0	7.1				4.1		0.5

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1404	268	123	622	30	172	20	102	10	10	10
Future Volume (veh/h)	20	1404	268	123	622	30	172	20	102	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1462	279	128	648	31	179	21	106	10	10	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	2381	453	187	2017	96	213	19	497	36	35	17
Arrive On Green	0.02	0.55	0.54	0.05	0.59	0.58	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1781	4294	817	3456	3447	165	610	72	1562	0	130	65
Grp Volume(v), veh/h	21	1158	583	128	334	345	200	0	106	30	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1707	1728	1777	1835	682	0	1562	195	0	0
Q Serve(g_s), s	1.6	31.0	31.4	4.9	13.0	13.0	0.0	0.0	6.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	31.0	31.4	4.9	13.0	13.0	36.0	0.0	6.7	36.0	0.0	0.0
Prop In Lane	1.00		0.48	1.00		0.09	0.89		1.00	0.33		0.33
Lane Grp Cap(c), veh/h	34	1888	947	187	1040	1074	232	0	497	88	0	0
V/C Ratio(X)	0.62	0.61	0.62	0.68	0.32	0.32	0.86	0.00	0.21	0.34	0.00	0.00
Avail Cap(c_a), veh/h	106	1916	961	282	1040	1074	232	0	497	88	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.23	0.23	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	20.3	20.7	62.7	14.3	14.3	51.1	0.0	33.8	40.8	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.1	0.3	1.6	0.8	0.8	31.8	0.0	1.0	10.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	11.6	11.9	2.2	5.2	5.3	9.0	0.0	2.7	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	20.4	21.0	64.3	15.1	15.1	82.9	0.0	34.7	51.2	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	F	A	C	D	A	A
Approach Vol, veh/h		1762			807			306			30	
Approach Delay, s/veh		21.2			22.9			66.2			51.2	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	78.9		40.0	6.6	83.6		40.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	10.6	74.1		35.1	7.6	* 78		35.1				
Max Q Clear Time (g_c+I1), s	6.9	33.4		38.0	3.6	15.0		38.0				
Green Ext Time (p_c), s	0.1	15.8		0.0	0.0	5.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		26.7	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1585	140	310	679	340	110	0	220	0	0	0
Future Volume (veh/h)	0	1585	140	310	679	340	110	0	220	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1617	136	316	693	370	112	0	143	0	0	0
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3370	283	373	2975	1313	194	0	168	1	1	0
Arrive On Green	0.00	0.70	0.69	0.11	0.84	0.83	0.11	0.00	0.11	0.00	0.00	0.00
Sat Flow, veh/h	531	4791	402	3456	3554	1585	1781	0	1585	1781	1870	0
Grp Volume(v), veh/h	0	1148	605	316	693	370	112	0	143	0	0	0
Grp Sat Flow(s),veh/h/ln	531	1702	1790	1728	1777	1585	1781	0	1585	1781	1870	0
Q Serve(g_s), s	0.0	22.6	22.8	13.5	5.9	7.8	9.0	0.0	13.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	22.6	22.8	13.5	5.9	7.8	9.0	0.0	13.3	0.0	0.0	0.0
Prop In Lane	1.00		0.22	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	48	2394	1259	373	2975	1313	194	0	168	1	1	0
V/C Ratio(X)	0.00	0.48	0.48	0.85	0.23	0.28	0.58	0.00	0.85	0.00	0.00	0.00
Avail Cap(c_a), veh/h	48	2394	1259	493	2975	1313	380	0	334	190	200	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.78	0.78	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.0	10.1	65.7	2.5	2.9	63.6	0.0	65.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	8.2	0.2	0.5	1.0	0.0	4.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.8	8.5	6.3	1.5	1.9	4.1	0.0	5.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.5	11.1	73.9	2.7	3.4	64.6	0.0	70.2	0.0	0.0	0.0
LnGrp LOS	A	B	B	E	A	A	E	A	E	A	A	A
Approach Vol, veh/h		1753			1379			255			0	
Approach Delay, s/veh		10.7			19.2			67.7			0.0	
Approach LOS		B			B			E				

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	20.2	109.5		0.0		129.7		20.3				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	21.0	63.2		16.0		* 80		31.6				
Max Q Clear Time (g_c+I1), s	15.5	24.8		0.0		9.8		15.3				
Green Ext Time (p_c), s	0.3	20.2		0.0		9.5		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		18.4	
HCM 6th LOS		B	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1665	110	680	739	20	70	5	230	30	10	10
Future Volume (veh/h)	30	1665	110	680	739	20	70	5	230	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	1753	116	716	778	21	74	0	245	32	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	2925	193	763	4051	109	169	0	312	160	85	85
Arrive On Green	0.03	0.60	0.59	0.44	1.00	1.00	0.10	0.00	0.10	0.10	0.10	0.09
Sat Flow, veh/h	1781	4887	323	3456	5108	138	1359	0	3095	1116	846	846
Grp Volume(v), veh/h	32	1220	649	716	518	281	74	0	245	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1806	1728	1702	1842	1359	0	1547	1116	0	1692
Q Serve(g_s), s	2.7	33.6	33.9	29.6	0.0	0.0	7.9	0.0	11.6	4.0	0.0	1.8
Cycle Q Clear(g_c), s	2.7	33.6	33.9	29.6	0.0	0.0	9.7	0.0	11.6	4.0	0.0	1.8
Prop In Lane	1.00		0.18	1.00		0.07	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	46	2037	1081	763	2699	1461	169	0	312	160	0	170
V/C Ratio(X)	0.70	0.60	0.60	0.94	0.19	0.19	0.44	0.00	0.79	0.20	0.00	0.13
Avail Cap(c_a), veh/h	86	2037	1081	945	2699	1461	313	0	640	279	0	350
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.5	18.8	19.0	40.9	0.0	0.0	65.9	0.0	65.9	62.4	0.0	61.7
Incr Delay (d2), s/veh	7.1	1.3	2.5	13.4	0.2	0.3	0.7	0.0	1.7	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	12.9	14.2	11.3	0.1	0.1	2.8	0.0	4.7	1.1	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.6	20.2	21.4	54.3	0.2	0.3	66.5	0.0	67.5	62.7	0.0	61.8
LnGrp LOS	E	C	C	D	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1901			1515			319			54	
Approach Delay, s/veh		21.6			25.8			67.3			62.3	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	37.1	93.8		19.1	7.8	123.1		19.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	40.6	64.6		30.1	6.8	* 99		30.1				
Max Q Clear Time (g_c+I1), s	31.6	35.9		6.0	4.7	2.0		13.6				
Green Ext Time (p_c), s	1.1	18.4		0.1	0.0	7.4		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	999	722	480	1024	280	241	60	950	480	30	175
Future Volume (veh/h)	205	999	722	480	1024	280	241	60	950	480	30	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	1052	0	505	1078	-405	254	63	834	505	32	184
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2917		577	2650	1957	408	200	747	575	283	405
Arrive On Green	0.20	0.91	0.00	0.17	0.52	0.00	0.12	0.11	0.10	0.17	0.15	0.16
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2742	3456	1870	1552
Grp Volume(v), veh/h	216	1052	0	505	1078	-405	254	63	834	505	32	184
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1371	1728	1870	1552
Q Serve(g_s), s	8.5	3.4	0.0	21.4	19.3	0.0	10.5	4.7	15.4	21.4	2.2	15.0
Cycle Q Clear(g_c), s	8.5	3.4	0.0	21.4	19.3	0.0	10.5	4.7	15.4	21.4	2.2	15.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2917		577	2650	1957	408	200	747	575	283	405
V/C Ratio(X)	0.62	0.36		0.88	0.41	-0.21	0.62	0.32	1.12	0.88	0.11	0.45
Avail Cap(c_a), veh/h	359	2917		945	2650	1957	408	200	747	1023	525	607
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	4.0	0.0	61.0	22.0	0.0	63.0	61.9	54.9	61.0	55.0	46.7
Incr Delay (d2), s/veh	2.2	0.3	0.0	5.3	0.5	0.0	7.0	4.1	69.7	1.8	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.0	0.0	9.6	7.6	0.0	5.0	2.5	21.3	9.6	1.1	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.3	4.3	0.0	66.3	22.5	0.0	70.0	66.0	124.6	62.8	55.1	47.0
LnGrp LOS	E	A		E	C	A	E	E	F	E	E	D
Approach Vol, veh/h		1268	A		1178			1151			721	
Approach Delay, s/veh		13.7			49.0			109.3			58.4	
Approach LOS		B			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.0	72.0	21.7	27.3	19.2	81.8	29.0	20.0				
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6				
Max Green Setting (Gmax), s	41.0	29.6	17.1	42.1	* 15	55.0	43.8	15.4				
Max Q Clear Time (g_c+I1), s	23.4	5.4	12.5	17.0	10.5	21.3	23.4	17.4				
Green Ext Time (p_c), s	1.6	4.7	0.2	0.4	0.2	5.1	1.0	0.0				

Intersection Summary	
HCM 6th Ctrl Delay	56.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	1899	0	0	1046	990	0	0	0	720	0	738
Future Volume (veh/h)	530	1899	0	0	1046	990	0	0	0	720	0	738
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	558	1999	0	0	1101	1042				758	0	777
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	480	8829	0	0	6521	2781				1251	0	1160
Arrive On Green	0.14	1.00	0.00	0.00	1.00	1.00				0.25	0.00	0.27
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	558	1999	0	0	1101	1042				758	0	777
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	12.5	0.0	0.0	0.0	0.0	0.2				12.0	0.0	20.3
Cycle Q Clear(g_c), s	12.5	0.0	0.0	0.0	0.0	0.2				12.0	0.0	20.3
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	480	8829	0	0	6521	2781				1251	0	1160
V/C Ratio(X)	1.16	0.23	0.00	0.00	0.17	0.37				0.61	0.00	0.67
Avail Cap(c_a), veh/h	480	8829	0	0	6521	2781				1256	0	1162
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	0.0	0.0	0.0	0.0				29.9	0.0	21.3
Incr Delay (d2), s/veh	93.5	0.1	0.0	0.0	0.1	0.4				0.6	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	0.0	0.0	0.0	0.0	0.1				4.8	0.0	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.3	0.1	0.0	0.0	0.1	0.4				30.5	0.0	22.5
LnGrp LOS	F	A	A	A	A	A				C	A	C
Approach Vol, veh/h		2557			2143						1535	
Approach Delay, s/veh		28.9			0.2						26.4	
Approach LOS		C			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	16.0	96.6		26.9		112.6
Change Period (Y+Rc), s	4.0	5.5		4.5		* 5.5
Max Green Setting (Gmax), s	12.0	41.5		22.5		* 59
Max Q Clear Time (g_c+I1), s	14.5	2.2		22.3		2.0
Green Ext Time (p_c), s	0.0	11.1		0.1		24.9

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	359	1710	550	313	1160	350	380	130	247	190	230	496
Future Volume (veh/h)	359	1710	550	313	1160	350	380	130	247	190	230	496
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	370	1763	26	323	1196	289	392	134	158	196	237	-52
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	2646	1092	361	2563	621	454	533	450	230	440	656
Arrive On Green	0.12	0.41	0.41	0.10	0.40	0.40	0.13	0.30	0.29	0.07	0.24	0.00
Sat Flow, veh/h	3456	6434	2655	3456	6434	1558	3456	1777	1501	3456	1870	2790
Grp Volume(v), veh/h	370	1763	26	323	1196	289	392	134	158	196	237	-52
Grp Sat Flow(s),veh/h/ln	1728	1609	1328	1728	1609	1558	1728	1777	1501	1728	1870	1395
Q Serve(g_s), s	15.2	32.1	0.8	13.3	19.8	19.8	16.1	8.2	12.0	8.1	16.0	0.0
Cycle Q Clear(g_c), s	15.2	32.1	0.8	13.3	19.8	19.8	16.1	8.2	12.0	8.1	16.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	430	2646	1092	361	2563	621	454	533	450	230	440	656
V/C Ratio(X)	0.86	0.67	0.02	0.89	0.47	0.47	0.86	0.25	0.35	0.85	0.54	-0.08
Avail Cap(c_a), veh/h	567	2646	1092	361	2563	621	596	614	519	230	448	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.0	34.5	25.3	63.9	32.1	32.1	61.4	38.3	39.9	66.7	48.4	0.0
Incr Delay (d2), s/veh	8.3	1.3	0.0	22.9	0.6	2.5	8.7	0.1	0.2	24.6	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	12.4	0.3	6.9	7.7	8.0	7.6	3.7	4.5	4.4	7.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.3	35.8	25.3	86.7	32.7	34.6	70.1	38.4	40.1	91.3	49.3	0.0
LnGrp LOS	E	D	C	F	C	C	E	D	D	F	D	A
Approach Vol, veh/h		2159			1808			684			381	
Approach Delay, s/veh		41.6			42.7			57.0			77.6	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	64.4	23.0	37.9	22.0	61.5	13.6	47.3
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	14.7	* 58	24.5	33.7	23.3	48.3	9.2	49.0
Max Q Clear Time (g_c+I1), s	15.3	34.1	18.1	18.0	17.2	21.8	10.1	14.0
Green Ext Time (p_c), s	0.0	16.9	0.5	0.9	0.4	15.6	0.0	1.3

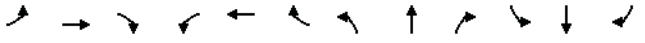
Intersection Summary	
HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	370	10	240	270	738	0	0	925	317
Future Volume (veh/h)	0	0	0	370	10	240	270	738	0	0	925	317
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				419	0	267	300	820	0	0	1028	352
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				764	0	333	376	2495	0	0	2009	892
Arrive On Green				0.21	0.00	0.21	0.14	0.93	0.00	0.00	0.57	0.57
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				419	0	267	300	820	0	0	1028	352
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1577
Q Serve(g_s), s				11.3	0.0	17.6	9.1	2.4	0.0	0.0	19.1	13.5
Cycle Q Clear(g_c), s				11.3	0.0	17.6	9.1	2.4	0.0	0.0	19.1	13.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				764	0	333	376	2495	0	0	2009	892
V/C Ratio(X)				0.55	0.00	0.80	0.80	0.33	0.00	0.00	0.51	0.39
Avail Cap(c_a), veh/h				1089	0	474	544	2495	0	0	2009	892
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.51	0.51	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.8	0.0	40.2	45.0	1.1	0.0	0.0	14.3	13.1
Incr Delay (d2), s/veh				0.6	0.0	6.4	1.6	0.2	0.0	0.0	0.9	1.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	7.0	3.8	0.6	0.0	0.0	7.6	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.4	0.0	46.7	46.7	1.3	0.0	0.0	15.3	14.4
LnGrp LOS				D	A	D	D	A	A	A	B	B
Approach Vol, veh/h					686			1120			1380	
Approach Delay, s/veh					41.6			13.5			15.1	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		80.8			15.8	65.1		27.2				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 66			16.6	43.7		32.1				
Max Q Clear Time (g_c+I1), s		4.4			11.1	21.1		19.6				
Green Ext Time (p_c), s		6.0			0.3	14.7		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		20.2	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	10	440	0	0	0	0	725	480	590	705	0
Future Volume (veh/h)	283	10	440	0	0	0	0	725	480	590	705	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	322	0	215				0	806	402	656	783	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	605	0	269				0	1166	579	703	2687	0
Arrive On Green	0.17	0.00	0.17				0.00	0.51	0.50	0.41	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2394	1142	3456	3647	0
Grp Volume(v), veh/h	322	0	215				0	622	586	656	783	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1665	1728	1777	0
Q Serve(g_s), s	8.9	0.0	14.1				0.0	28.7	29.2	19.6	0.0	0.0
Cycle Q Clear(g_c), s	8.9	0.0	14.1				0.0	28.7	29.2	19.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.69	1.00		0.00
Lane Grp Cap(c), veh/h	605	0	269				0	901	844	703	2687	0
V/C Ratio(X)	0.53	0.00	0.80				0.00	0.69	0.69	0.93	0.29	0.00
Avail Cap(c_a), veh/h	891	0	396				0	901	844	755	2687	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	40.9	0.0	43.0				0.0	20.2	20.6	31.3	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	7.0				0.0	4.3	4.7	14.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.8				0.0	12.5	12.0	7.8	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	0.0	50.0				0.0	24.5	25.3	46.1	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	D	A	A
Approach Vol, veh/h		537						1208			1439	
Approach Delay, s/veh		45.0						24.9			21.1	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.4	59.3		22.3		85.7						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	23.6	* 44		26.1		71.2						
Max Q Clear Time (g_c+I1), s	21.6	31.2		16.1		2.0						
Green Ext Time (p_c), s	0.4	8.2		1.4		8.3						

Intersection Summary			
HCM 6th Ctrl Delay		26.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	430	10	450	612	1128	0	0	890	262
Future Volume (veh/h)	0	0	0	430	10	450	612	1128	0	0	890	262
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				462	11	484	658	1213	0	0	957	282
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				606	12	529	756	2086	0	0	1685	510
Arrive On Green				0.34	0.34	0.33	0.44	1.00	0.00	0.00	0.33	0.32
Sat Flow, veh/h				1781	35	1555	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				462	0	495	658	1213	0	0	957	282
Grp Sat Flow(s),veh/h/ln				1781	0	1590	1728	1777	0	0	1702	1585
Q Serve(g_s), s				25.4	0.0	32.8	19.0	0.0	0.0	0.0	17.0	16.1
Cycle Q Clear(g_c), s				25.4	0.0	32.8	19.0	0.0	0.0	0.0	17.0	16.1
Prop In Lane				1.00		0.98	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				606	0	541	756	2086	0	0	1685	510
V/C Ratio(X)				0.76	0.00	0.91	0.87	0.58	0.00	0.00	0.57	0.55
Avail Cap(c_a), veh/h				680	0	607	974	2086	0	0	1685	510
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.59	0.59	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.3	0.0	35.2	29.5	0.0	0.0	0.0	30.4	30.8
Incr Delay (d2), s/veh				3.8	0.0	16.5	4.5	0.7	0.0	0.0	1.4	4.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.0	0.0	14.5	6.5	0.2	0.0	0.0	7.1	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				36.1	0.0	51.7	34.0	0.7	0.0	0.0	31.8	35.0
LnGrp LOS				D	A	D	C	A	A	A	C	D
Approach Vol, veh/h					957			1871			1239	
Approach Delay, s/veh					44.2			12.4			32.5	
Approach LOS					D			B			C	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	68.6		28.1	40.5		41.4						
Change Period (Y+Rc), s	5.1		4.9	* 5.1		4.9						
Max Green Setting (Gmax), s	58.9		30.1	* 24		41.1						
Max Q Clear Time (g_c+I1), s	2.0		21.0	19.0		34.8						
Green Ext Time (p_c), s	15.4		2.1	3.2		1.7						

Intersection Summary	
HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	563	10	298	0	0	0	0	1177	930	270	1050	0
Future Volume (veh/h)	563	10	298	0	0	0	0	1177	930	270	1050	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	620	0	324				0	1279	1011	293	1141	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	847	0	377				0	2453	762	308	2444	0
Arrive On Green	0.24	0.00	0.24				0.00	0.48	0.48	0.35	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	620	0	324				0	1279	1011	293	1141	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	17.7	0.0	21.5				0.0	19.1	52.9	17.6	0.0	0.0
Cycle Q Clear(g_c), s	17.7	0.0	21.5				0.0	19.1	52.9	17.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	847	0	377				0	2453	762	308	2444	0
V/C Ratio(X)	0.73	0.00	0.86				0.00	0.52	1.33	0.95	0.47	0.00
Avail Cap(c_a), veh/h	1555	0	692				0	2453	762	308	2444	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	38.7	0.0	40.2				0.0	19.8	28.6	35.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	2.3				0.0	0.8	156.4	31.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	8.3				0.0	7.6	52.1	8.9	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	42.4				0.0	20.6	185.0	66.8	0.5	0.0
LnGrp LOS	D	A	D				A	C	F	E	A	A
Approach Vol, veh/h		944						2290			1434	
Approach Delay, s/veh		40.3						93.2			14.0	
Approach LOS		D						F			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.0	56.9		30.1		79.9						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	18.6	29.9		47.1		* 53						
Max Q Clear Time (g_c+I1), s	19.6	54.9		23.5		2.0						
Green Ext Time (p_c), s	0.0	0.0		1.7		7.0						

Intersection Summary	
HCM 6th Ctrl Delay	58.2
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2493	160	180	1772	60	150	10	180	190	20	80
Future Volume (veh/h)	40	2493	160	180	1772	60	150	10	180	190	20	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	44	2770	178	200	1969	67	167	11	200	211	22	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	2746	173	198	3220	109	223	14	223	238	20	82
Arrive On Green	0.03	0.54	0.52	0.11	0.61	0.59	0.27	0.27	0.26	0.27	0.27	0.26
Sat Flow, veh/h	1853	5106	321	1853	5274	179	692	52	836	725	76	306
Grp Volume(v), veh/h	44	1903	1045	200	1321	715	378	0	0	322	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1887	1853	1770	1913	1580	0	0	1107	0	0
Q Serve(g_s), s	3.2	72.5	72.6	14.4	31.3	31.5	0.0	0.0	0.0	4.8	0.0	0.0
Cycle Q Clear(g_c), s	3.2	72.5	72.6	14.4	31.3	31.5	31.2	0.0	0.0	36.0	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.09	0.44		0.53	0.66		0.28
Lane Grp Cap(c), veh/h	63	1904	1015	198	2161	1168	460	0	0	339	0	0
V/C Ratio(X)	0.70	1.00	1.03	1.01	0.61	0.61	0.82	0.00	0.00	0.95	0.00	0.00
Avail Cap(c_a), veh/h	82	1904	1015	198	2161	1168	460	0	0	339	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.5	31.2	31.4	60.3	16.3	16.4	47.9	0.0	0.0	51.6	0.0	0.0
Incr Delay (d2), s/veh	9.0	20.5	36.2	67.2	1.3	2.4	15.2	0.0	0.0	37.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	33.7	40.5	10.3	12.0	13.5	14.2	0.0	0.0	14.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.5	51.7	67.6	127.5	17.6	18.8	63.2	0.0	0.0	89.1	0.0	0.0
LnGrp LOS	E	D	F	F	B	B	E	A	A	F	A	A
Approach Vol, veh/h		2992			2236			378			322	
Approach Delay, s/veh		57.5			27.8			63.2			89.1	
Approach LOS		E			C			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.4	76.6		40.0	8.6	86.4		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	14.0	70.4		35.1	5.6	78.8		35.1				
Max Q Clear Time (g_c+I1), s	16.4	74.6		38.0	5.2	33.5		33.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	42.7		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			48.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2050 PM
03/18/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	119	79	131	404	164	74	252	327	57	279	120
Future Volume (veh/h)	114	119	79	131	404	164	74	252	327	57	279	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	128	85	141	434	176	80	271	352	61	300	129
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	213	144	150	462	516	106	691	560	77	857	357
Arrive On Green	0.09	0.11	0.09	0.33	0.33	0.33	0.06	0.39	0.37	0.04	0.36	0.35
Sat Flow, veh/h	1781	1870	1570	453	1395	1560	1781	1777	1440	1781	2401	1001
Grp Volume(v), veh/h	123	128	85	575	0	176	80	271	352	61	220	209
Grp Sat Flow(s),veh/h/ln	1781	1870	1570	1848	0	1560	1781	1777	1440	1781	1777	1625
Q Serve(g_s), s	8.8	8.5	6.8	39.3	0.0	11.1	5.7	14.3	26.1	4.4	11.8	12.4
Cycle Q Clear(g_c), s	8.8	8.5	6.8	39.3	0.0	11.1	5.7	14.3	26.1	4.4	11.8	12.4
Prop In Lane	1.00		1.00	0.25		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	164	213	144	612	0	516	106	691	560	77	634	580
V/C Ratio(X)	0.75	0.60	0.59	0.94	0.00	0.34	0.75	0.39	0.63	0.79	0.35	0.36
Avail Cap(c_a), veh/h	302	358	266	612	0	516	177	691	560	77	634	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.6	54.7	56.7	42.2	0.0	32.8	60.2	28.6	33.4	61.6	30.7	31.1
Incr Delay (d2), s/veh	2.6	1.0	1.4	23.3	0.0	0.8	4.0	1.7	5.3	39.5	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	4.1	2.7	21.7	0.0	4.3	2.7	6.5	10.0	2.8	5.4	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	55.7	58.1	65.5	0.0	33.6	64.2	30.3	38.7	101.1	32.2	32.8
LnGrp LOS	E	E	E	E	A	C	E	C	D	F	C	C
Approach Vol, veh/h		336			751			703			490	
Approach Delay, s/veh		58.0			58.0			38.4			41.0	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.6	54.5		18.8	11.7	52.4		47.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	5.2	47.6		22.0	12.5	* 42		40.1				
Max Q Clear Time (g_c+I1), s	6.4	28.1		10.8	7.7	14.4		41.3				
Green Ext Time (p_c), s	0.0	3.2		0.6	0.0	2.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			48.3									
HCM 6th LOS			D									

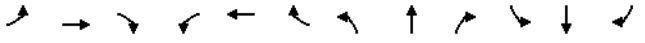
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2050 PM
03/19/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	0	92	0	0	0	335	787	0	0	330	159
Future Volume (veh/h)	95	0	92	0	0	0	335	787	0	0	330	159
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	0	67				364	855	0	0	359	173
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	341	0	152				438	1861	0	5	980	437
Arrive On Green	0.10	0.00	0.10				0.13	0.52	0.00	0.00	0.28	0.28
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	134	0	67				364	855	0	0	359	173
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	1.3	0.0	1.4				3.7	5.5	0.0	0.0	3.0	3.2
Cycle Q Clear(g_c), s	1.3	0.0	1.4				3.7	5.5	0.0	0.0	3.0	3.2
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	0	152				438	1861	0	5	980	437
V/C Ratio(X)	0.39	0.00	0.44				0.83	0.46	0.00	0.00	0.37	0.40
Avail Cap(c_a), veh/h	1571	0	699				438	1861	0	196	1587	708
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	15.5				15.5	5.4	0.0	0.0	10.6	10.7
Incr Delay (d2), s/veh	0.7	0.0	2.0				12.7	0.2	0.0	0.0	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.4				2.0	1.1	0.0	0.0	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	17.5				28.1	5.6	0.0	0.0	10.8	11.3
LnGrp LOS	B	A	B				C	A	A	A	B	B
Approach Vol, veh/h		201						1219			532	
Approach Delay, s/veh		16.6						12.3			11.0	
Approach LOS		B						B			B	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	0.0	25.9		10.4	9.0	16.9
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	6.9
Max Green Setting (Gmax), s	4.0	16.8		16.0	4.6	16.2
Max Q Clear Time (g_c+I1), s	0.0	7.5		3.4	5.7	5.2
Green Ext Time (p_c), s	0.0	4.0		0.5	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th AWSC
32: Avenida Del Rio & Riverwalk Dr.

Year 2050 PM
03/11/2020

Intersection	
Intersection Delay, s/veh	45.5
Intersection LOS	E

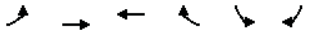
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	201	202	240	409	117	230
Future Vol, veh/h	201	202	240	409	117	230
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	205	206	245	417	119	235
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	19.4	78.6	13.9
HCM LOS	C	F	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	37%
Vol Thru, %	0%	0%	50%	63%
Vol Right, %	0%	100%	50%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	230	403	649
LT Vol	117	0	0	240
Through Vol	0	0	201	409
RT Vol	0	230	202	0
Lane Flow Rate	119	235	411	662
Geometry Grp	7	7	2	2
Degree of Util (X)	0.255	0.423	0.654	1.066
Departure Headway (Hd)	7.947	6.715	5.901	5.793
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	455	540	617	629
Service Time	5.647	4.415	3.901	3.834
HCM Lane V/C Ratio	0.262	0.435	0.666	1.052
HCM Control Delay	13.3	14.2	19.4	78.6
HCM Lane LOS	B	B	C	F
HCM 95th-tile Q	1	2.1	4.8	18.5

HCM Signalized Intersection Capacity Analysis
35: Hazard Center Dr. & Frazee Rd.

Year 2050 PM
03/11/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	150	792	423	150	180	100
Future Volume (vph)	150	792	423	150	180	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3384		1770	1555
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3384		1770	1555
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	880	470	167	200	111
RTOR Reduction (vph)	0	0	23	0	0	89
Lane Group Flow (vph)	167	880	614	0	200	22
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	15.0	46.1	26.7		16.9	16.9
Effective Green, g (s)	15.4	47.0	27.6		17.3	17.3
Actuated g/C Ratio	0.17	0.53	0.31		0.20	0.20
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	309	1888	1060		347	305
v/s Ratio Prot	c0.09	0.25	c0.18		c0.11	
v/s Ratio Perm						0.01
v/c Ratio	0.54	0.47	0.58		0.58	0.07
Uniform Delay, d1	33.1	12.8	25.4		32.1	28.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	0.2	0.9		1.4	0.0
Delay (s)	34.2	13.0	26.3		33.5	28.9
Level of Service	C	B	C		C	C
Approach Delay (s)		16.4	26.3		31.9	
Approach LOS		B	C		C	

Intersection Summary				
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	20	720	80	50	50	460	830	20	60	900	63
Future Volume (veh/h)	232	20	720	80	50	50	460	830	20	60	900	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.93	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	257	0	750	83	52	52	479	865	21	62	938	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1493	0	648	65	40	40	530	1156	28	80	1057	74
Arrive On Green	0.42	0.00	0.42	0.09	0.09	0.09	0.15	0.33	0.32	0.04	0.22	0.21
Sat Flow, veh/h	3563	0	1547	757	474	474	3456	3541	86	1781	4862	341
Grp Volume(v), veh/h	257	0	750	187	0	0	479	434	452	62	656	348
Grp Sat Flow(s),veh/h/ln	1781	0	1547	1706	0	0	1728	1777	1850	1781	1702	1799
Q Serve(g_s), s	5.8	0.0	54.0	11.0	0.0	0.0	17.6	28.1	28.1	4.4	24.1	24.2
Cycle Q Clear(g_c), s	5.8	0.0	54.0	11.0	0.0	0.0	17.6	28.1	28.1	4.4	24.1	24.2
Prop In Lane	1.00		1.00	0.44		0.28	1.00		0.05	1.00		0.19
Lane Grp Cap(c), veh/h	1493	0	648	146	0	0	530	580	604	80	740	391
V/C Ratio(X)	0.17	0.00	1.16	1.28	0.00	0.00	0.90	0.75	0.75	0.78	0.89	0.89
Avail Cap(c_a), veh/h	1493	0	648	146	0	0	563	580	604	290	740	391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	37.4	58.9	0.0	0.0	53.6	38.7	38.7	60.9	48.9	49.0
Incr Delay (d2), s/veh	0.1	0.0	87.2	169.8	0.0	0.0	16.8	8.6	8.3	5.9	14.8	24.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	35.7	11.6	0.0	0.0	8.9	13.6	14.1	2.1	11.7	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	0.0	124.6	228.8	0.0	0.0	70.4	47.2	47.0	66.8	63.7	73.9
LnGrp LOS	C	A	F	F	A	A	E	D	D	E	E	E
Approach Vol, veh/h		1007			187			1365			1066	
Approach Delay, s/veh		98.8			228.8			55.3			67.2	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	46.1		58.0	23.8	32.1		15.0				
Change Period (Y+Rc), s	4.0	5.3		4.0	4.0	* 5.3		4.0				
Max Green Setting (Gmax), s	21.0	26.7		54.0	21.0	* 27		11.0				
Max Q Clear Time (g_c+I1), s	6.4	30.1		56.0	19.6	26.2		13.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	0.5		0.0				

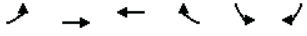
Intersection Summary			
HCM 6th Ctrl Delay	79.8		
HCM 6th LOS	E		

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

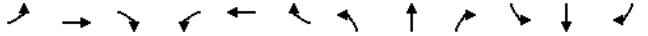
Year 2050 PM
03/11/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	280	270	407	302	490
Future Volume (veh/h)	490	280	270	407	302	490
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	538	308	297	89	332	469
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	580	1261	566	847	414	369
Arrive On Green	0.33	0.67	0.30	0.30	0.23	0.23
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	538	308	297	89	332	469
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	25.1	5.5	11.3	2.4	15.1	20.0
Cycle Q Clear(g_c), s	25.1	5.5	11.3	2.4	15.1	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	580	1261	566	847	414	369
V/C Ratio(X)	0.93	0.24	0.53	0.11	0.80	1.27
Avail Cap(c_a), veh/h	663	1349	566	847	414	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	5.5	24.9	9.8	31.1	33.0
Incr Delay (d2), s/veh	17.1	0.0	3.5	0.2	15.0	142.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	1.8	5.4	1.4	8.0	30.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.2	5.5	28.3	10.1	46.1	175.0
LnGrp LOS	D	A	C	B	D	F
Approach Vol, veh/h		846	386		801	
Approach Delay, s/veh		30.7	24.1		121.6	
Approach LOS		C	C		F	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		62.0		24.0	32.0	30.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		61.1		19.1	31.6	25.1
Max Q Clear Time (g_c+I1), s		7.5		22.0	27.1	13.3
Green Ext Time (p_c), s		1.2		0.0	0.5	1.0
Intersection Summary						
HCM 6th Ctrl Delay			65.3			
HCM 6th LOS			E			

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	538	260	300	282	290	205	720	250	460	920	289
Future Volume (veh/h)	256	538	260	300	282	290	205	720	250	460	920	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	269	566	214	316	297	126	216	758	209	484	968	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	652	246	372	672	278	271	1477	402	530	2286	700
Arrive On Green	0.09	0.26	0.25	0.11	0.28	0.27	0.08	0.37	0.36	0.15	0.45	0.45
Sat Flow, veh/h	3456	2505	944	3456	2431	1004	3456	3962	1079	3456	5106	1563
Grp Volume(v), veh/h	269	401	379	316	215	208	216	650	317	484	968	36
Grp Sat Flow(s),veh/h/ln	1728	1777	1672	1728	1777	1658	1728	1702	1637	1728	1702	1563
Q Serve(g_s), s	11.5	32.3	32.5	13.5	14.9	15.6	9.2	22.2	22.7	20.7	19.4	2.0
Cycle Q Clear(g_c), s	11.5	32.3	32.5	13.5	14.9	15.6	9.2	22.2	22.7	20.7	19.4	2.0
Prop In Lane	1.00		0.56	1.00		0.61	1.00		0.66	1.00		1.00
Lane Grp Cap(c), veh/h	325	462	435	372	491	458	271	1269	610	530	2286	700
V/C Ratio(X)	0.83	0.87	0.87	0.85	0.44	0.45	0.80	0.51	0.52	0.91	0.42	0.05
Avail Cap(c_a), veh/h	438	533	502	470	554	517	359	1269	610	530	2286	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	0.29	1.00	1.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	53.0	53.3	65.7	44.7	45.2	67.9	36.5	37.0	62.5	28.2	23.4
Incr Delay (d2), s/veh	2.2	4.2	4.6	9.5	1.2	1.4	4.6	1.0	2.2	19.9	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	15.0	14.3	6.5	6.8	6.7	4.3	9.5	9.6	10.6	8.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	57.2	58.0	75.2	45.9	46.6	72.5	37.5	39.1	82.5	28.8	23.6
LnGrp LOS	E	E	E	E	D	D	E	D	D	F	C	C
Approach Vol, veh/h		1049			739			1183			1488	
Approach Delay, s/veh		60.5			58.6			44.3			46.1	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	59.8	20.2	43.0	15.8	71.0	18.1	45.1				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	22.6	44.4	20.0	44.1	15.2	* 52	18.6	45.5				
Max Q Clear Time (g_c+I1), s	22.7	24.7	15.5	34.5	11.2	21.4	13.5	17.6				
Green Ext Time (p_c), s	0.0	10.0	0.3	3.6	0.1	13.9	0.2	4.9				
Intersection Summary												
HCM 6th Ctrl Delay			51.1									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	210	249	280	267	459	239	576	670	410	940	130
Future Volume (veh/h)	140	210	249	280	267	459	239	576	670	410	940	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	216	0	289	275	473	246	594	0	423	969	76
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	1114		378	621	517	291	952		473	1139	494
Arrive On Green	0.09	0.31	0.00	0.11	0.33	0.33	0.08	0.27	0.00	0.14	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1542
Grp Volume(v), veh/h	144	216	0	289	275	473	246	594	0	423	969	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1542
Q Serve(g_s), s	7.6	4.2	0.0	7.7	10.9	27.7	6.7	14.0	0.0	11.4	24.2	3.3
Cycle Q Clear(g_c), s	7.6	4.2	0.0	7.7	10.9	27.7	6.7	14.0	0.0	11.4	24.2	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	1114		378	621	517	291	952		473	1139	494
V/C Ratio(X)	0.85	0.19		0.77	0.44	0.92	0.85	0.62		0.89	0.85	0.15
Avail Cap(c_a), veh/h	169	1114		546	636	529	291	952		473	1139	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.54	0.54	0.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	42.3	23.8	0.0	41.1	24.8	30.4	42.9	30.6	0.0	40.3	30.2	23.1
Incr Delay (d2), s/veh	30.9	0.1	0.0	2.1	0.2	20.0	11.2	1.7	0.0	16.6	6.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.8	0.0	3.4	4.8	12.9	3.3	6.1	0.0	5.9	11.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	23.9	0.0	43.2	25.0	50.4	54.1	32.2	0.0	56.9	36.9	23.6
LnGrp LOS	E	C		D	C	D	D	C		E	D	C
Approach Vol, veh/h		360	A		1037			840	A		1468	
Approach Delay, s/veh		43.6			41.7			38.7			42.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	29.4	14.4	34.2	12.0	34.4	13.0	35.6
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	12.6	23.8	14.6	* 25	7.6	28.8	8.6	31.0
Max Q Clear Time (g_c+I1), s	13.4	16.0	9.7	6.2	8.7	26.2	9.6	29.7
Green Ext Time (p_c), s	0.0	1.8	0.3	1.2	0.0	2.0	0.0	0.4

Intersection Summary		
HCM 6th Ctrl Delay	41.3	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2050 PM
03/11/2020

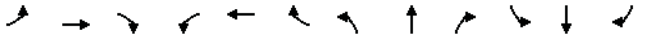
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	840	0	370	0	0	0	0	515	270	954	515	0
Future Volume (vph)	840	0	370	0	0	0	0	515	270	954	515	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3311	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3311	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	884	0	389	0	0	0	0	542	284	1004	542	0
RTOR Reduction (vph)	0	0	225	0	0	0	0	0	193	0	0	0
Lane Group Flow (vph)	884	0	164	0	0	0	0	542	91	502	1044	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	38.6		38.6					47.2	47.2	45.9	45.9	
Effective Green, g (s)	40.2		40.2					48.2	48.2	47.5	47.5	
Actuated g/C Ratio	0.27		0.27					0.32	0.32	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	920		424					1137	508	509	1048	
v/s Ratio Prot	c0.26							c0.15		0.31	c0.32	
v/s Ratio Perm			0.10						0.06			
v/c Ratio	0.96		0.39					0.48	0.18	0.99	1.00	
Uniform Delay, d1	54.1		44.8					40.8	36.7	50.9	51.2	
Progression Factor	1.00		1.00					0.60	0.09	1.00	1.00	
Incremental Delay, d2	21.6		2.6					0.1	0.0	36.1	26.7	
Delay (s)	75.7		47.5					24.7	3.2	87.0	77.9	
Level of Service	E		D					C	A	F	E	
Approach Delay (s)		67.1			0.0			17.3			80.8	
Approach LOS		E			A			B			F	

Intersection Summary			
HCM 2000 Control Delay	61.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	360	20	10	190	416	30	40	30	514	30	341
Future Volume (vph)	329	360	20	10	190	416	30	40	30	514	30	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.99			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3321			3530	1583		1753		1681	1694	1583
Flt Permitted	0.95	0.99			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3321			3530	1583		1753		1681	1694	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	366	400	22	11	211	462	33	44	33	571	33	379
RTOR Reduction (vph)	0	2	0	0	0	119	0	11	0	0	0	198
Lane Group Flow (vph)	183	603	0	0	222	343	0	99	0	303	301	181
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	25.1	25.1			16.0	86.0		14.5		70.0	70.0	70.0
Effective Green, g (s)	26.7	26.7			17.6	86.0		16.0		71.6	71.6	71.6
Actuated g/C Ratio	0.18	0.18			0.12	0.57		0.11		0.48	0.48	0.48
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	286	591			414	907		186		802	808	755
v/s Ratio Prot	0.11	c0.18			c0.06	0.18		c0.06		c0.18	0.18	
v/s Ratio Perm						0.04						0.11
v/c Ratio	0.64	1.02			0.54	0.38		0.53		0.38	0.37	0.24
Uniform Delay, d1	57.2	61.6			62.4	17.4		63.5		25.0	24.9	23.1
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.51	0.51	0.97
Incremental Delay, d2	10.5	42.4			4.9	1.2		10.5		0.8	0.8	0.4
Delay (s)	67.7	104.1			67.3	18.6		74.0		13.6	13.5	22.8
Level of Service	E	F			E	B		E		B	B	C
Approach Delay (s)		95.6			34.4			74.0			17.1	
Approach LOS		F			C			E			B	

Intersection Summary				
HCM 2000 Control Delay	48.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2050 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	0	0	0	0	163	100	0	0	0	0	0	90
Future Volume (vph)	0	0	0	0	163	100	0	0	0	0	0	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	177	109	0	0	0	0	0	98

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	286	98
Volume Left (vph)	0	0	0	0	0
Volume Right (vph)	0	0	0	109	98
Hadj (s)	0.00	0.00	0.00	-0.23	-0.57
Departure Headway (s)	4.9	4.9	4.7	4.5	4.0
Degree Utilization, x	0.00	0.00	0.00	0.36	0.11
Capacity (veh/h)	722	722	763	785	834
Control Delay (s)	6.7	6.7	6.5	8.7	7.5
Approach Delay (s)	0.0		8.7		7.5
Approach LOS	A		A		A

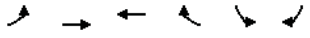
Intersection Summary				
Delay	8.4			
Level of Service	A			
Intersection Capacity Utilization	27.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	108.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	630	170	20	452	10	0	0	10	10
Future Vol, veh/h	0	0	0	630	170	20	452	10	0	0	10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	677	183	22	486	11	0	0	11	11
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

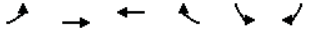
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	137	63.2	11
HCM LOS	F	F	B

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	99%	0%	100%	0%	0%	0%
Vol Thru, %	1%	100%	0%	89%	100%	0%
Vol Right, %	0%	0%	0%	11%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	455	7	630	190	10	10
LT Vol	452	0	630	0	0	0
Through Vol	3	7	0	170	10	0
RT Vol	0	0	0	20	0	10
Lane Flow Rate	490	7	677	204	11	11
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.976	0.013	1.311	0.363	0.023	0.021
Departure Headway (Hd)	7.834	7.327	6.966	6.388	8.42	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	491	528	566	428	468
Service Time	5.534	5.027	4.666	4.088	6.12	5.39
HCM Lane V/C Ratio	1.054	0.014	1.282	0.36	0.026	0.024
HCM Control Delay	64	10.1	174.5	12.7	11.3	10.6
HCM Lane LOS	F	B	F	B	B	B
HCM 95th-tile Q	12.3	0	28.9	1.6	0.1	0.1



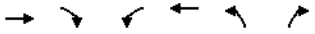
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	544	412	0	422
Future Volume (vph)	0	0	544	412	0	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0
Lane Util. Factor			1.00	1.00		0.88
Frpb, ped/bikes			1.00	0.99		1.00
Flpb, ped/bikes			1.00	1.00		1.00
Frt			1.00	0.85		0.85
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			1863	1563		2787
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			1863	1563		2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	579	438	0	449
RTOR Reduction (vph)	0	0	0	216	0	277
Lane Group Flow (vph)	0	0	579	222	0	172
Confl. Peds. (#/hr)	2			2		
Turn Type			NA	Perm		Perm
Protected Phases			6			
Permitted Phases				6		4
Actuated Green, G (s)			15.6	15.6		7.2
Effective Green, g (s)			16.5	16.5		8.1
Actuated g/C Ratio			0.51	0.51		0.25
Clearance Time (s)			4.9	4.9		4.9
Vehicle Extension (s)			3.9	3.9		2.0
Lane Grp Cap (vph)			942	791		692
v/s Ratio Prot			c0.31			
v/s Ratio Perm				0.14		c0.06
v/c Ratio			0.61	0.28		0.25
Uniform Delay, d1			5.8	4.6		9.8
Progression Factor			1.00	1.00		1.00
Incremental Delay, d2			1.4	0.3		0.1
Delay (s)			7.1	4.9		9.9
Level of Service			A	A		A
Approach Delay (s)		0.0	6.2		9.9	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	32.6	Sum of lost time (s)	8.9
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	636	550	0	330
Future Volume (veh/h)	0	0	636	550	0	330
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.97	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			669	579	0	347
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1553	1325	0	0
Arrive On Green			0.87	0.84	0.00	0.03
Sat Flow, veh/h			1885	1529	0	
Grp Volume(v), veh/h			663	585	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1544		
Q Serve(g_s), s			2.4	2.9		
Cycle Q Clear(g_c), s			2.4	2.9		
Prop In Lane				0.99		
Lane Grp Cap(c), veh/h			1540	1338		
V/C Ratio(X)			0.43	0.44		
Avail Cap(c_a), veh/h			1540	1338		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.4	0.6		
Incr Delay (d2), s/veh			0.9	1.0		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.4	0.4		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.3	1.6		
LnGrp LOS			A	A		
Approach Vol, veh/h			1248			
Approach Delay, s/veh			1.4			
Approach LOS			A			
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						30.0
Change Period (Y+Rc), s						4.9
Max Green Setting (Gmax), s						25.1
Max Q Clear Time (g_c+I1), s						4.9
Green Ext Time (p_c), s						6.4

Intersection Summary	
HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	300	939	0	0	0	886
Future Volume (vph)	300	939	0	0	0	886
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.89					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3137					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3137					1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	319	999	0	0	0	943
RTOR Reduction (vph)	599	0	0	0	0	225
Lane Group Flow (vph)	719	0	0	0	0	718
Confl. Peds. (#/hr)					18	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	17.0					19.0
Effective Green, g (s)	18.0					19.0
Actuated g/C Ratio	0.40					0.42
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1254					680
v/s Ratio Prot	c0.23					
v/s Ratio Perm						c0.45
v/c Ratio	0.57					1.06
Uniform Delay, d1	10.5					13.0
Progression Factor	1.00					1.00
Incremental Delay, d2	1.9					50.3
Delay (s)	12.4					63.3
Level of Service	B					E
Approach Delay (s)	12.4			0.0	63.3	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th Signalized Intersection Summary
53: Riverwalk Dr. & J Street

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	72	0	69	0	973	28	126	957	0
Future Volume (veh/h)	0	0	0	72	0	69	0	973	28	126	957	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	78	0	75	0	1058	30	137	1040	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	0	124	0	117	2	1216	34	174	1537	0
Arrive On Green	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.67	0.67	0.10	0.82	0.00
Sat Flow, veh/h	0	-68367	0	1781	0	1585	1781	1810	51	1781	1870	0
Grp Volume(v), veh/h	0	0	0	78	0	75	0	0	1088	137	1040	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	0	1861	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	3.3	0.0	3.5	0.0	0.0	35.4	5.8	17.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.3	0.0	3.5	0.0	0.0	35.4	5.8	17.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	124	0	117	2	0	1251	174	1537	0
V/C Ratio(X)	0.00	0.00	0.00	0.63	0.00	0.64	0.00	0.00	0.87	0.79	0.68	0.00
Avail Cap(c_a), veh/h	0	390	0	232	0	619	93	0	2279	325	2533	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	34.8	0.0	34.6	0.0	0.0	9.9	33.9	2.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.2	0.0	5.7	0.0	0.0	2.0	7.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.6	0.0	1.5	0.0	0.0	11.5	2.8	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	40.0	0.0	40.3	0.0	0.0	11.9	41.5	3.3	0.0
LnGrp LOS	A	A	A	D	A	D	A	A	B	D	A	A
Approach Vol, veh/h		0			153			1088			1177	
Approach Delay, s/veh		0.0			40.1			11.9			7.7	
Approach LOS					D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	55.6	9.3	0.3	0.0	67.1		9.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	14.0	94.0	10.0	16.0	4.0	104.0		30.0				
Max Q Clear Time (g_c+I1), s	7.8	37.4	5.3	0.0	0.0	19.1		5.5				
Green Ext Time (p_c), s	0.2	14.2	0.1	0.0	0.0	13.1		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
54: Project Dwy. Street "B" & CVC

Year 2050 PM
03/19/2020

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	190	159	792	13	118	910
Future Volume (veh/h)	190	159	792	13	118	910
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	173	861	14	128	989
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	301	268	1208	20	381	1232
Arrive On Green	0.17	0.17	0.66	0.66	0.66	0.66
Sat Flow, veh/h	1781	1585	1835	30	634	1870
Grp Volume(v), veh/h	207	173	0	875	128	989
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1865	634	1870
Q Serve(g_s), s	5.1	4.7	0.0	14.0	7.6	17.8
Cycle Q Clear(g_c), s	5.1	4.7	0.0	14.0	21.6	17.8
Prop In Lane	1.00	1.00		0.02	1.00	
Lane Grp Cap(c), veh/h	301	268	0	1228	381	1232
V/C Ratio(X)	0.69	0.65	0.00	0.71	0.34	0.80
Avail Cap(c_a), veh/h	614	546	0	1447	455	1451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	18.0	0.0	5.1	12.0	5.7
Incr Delay (d2), s/veh	2.8	2.6	0.0	1.4	0.5	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.7	0.0	3.0	0.9	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.9	20.6	0.0	6.5	12.6	8.6
LnGrp LOS	C	C	A	A	B	A
Approach Vol, veh/h	380		875			1117
Approach Delay, s/veh	20.8		6.5			9.1
Approach LOS	C		A			A

Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		34.6				34.6	11.8
Change Period (Y+Rc), s		4.0				4.0	4.0
Max Green Setting (Gmax), s		36.0				36.0	16.0
Max Q Clear Time (g_c+I1), s		16.0				23.6	7.1
Green Ext Time (p_c), s		6.8				7.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
55: Hotel Circle N. & J Street

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	133	891	460	100	246	0	0	808	293
Future Volume (veh/h)	0	0	0	133	891	460	100	246	0	0	808	293
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				145	968	500	109	267	0	0	878	318
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				166	1168	583	139	1654	0	0	1138	482
Arrive On Green				0.37	0.37	0.37	0.08	0.47	0.00	0.00	0.30	0.30
Sat Flow, veh/h				450	3174	1585	1781	3647	0	0	3741	1585
Grp Volume(v), veh/h				595	518	500	109	267	0	0	878	318
Grp Sat Flow(s),veh/h/ln				1848	1777	1585	1781	1777	0	0	1870	1585
Q Serve(g_s), s				14.4	12.5	14.0	2.9	2.1	0.0	0.0	10.2	8.4
Cycle Q Clear(g_c), s				14.4	12.5	14.0	2.9	2.1	0.0	0.0	10.2	8.4
Prop In Lane				0.24		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				680	654	583	139	1654	0	0	1138	482
V/C Ratio(X)				0.88	0.79	0.86	0.78	0.16	0.00	0.00	0.77	0.66
Avail Cap(c_a), veh/h				693	666	594	148	1777	0	0	1247	528
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				14.1	13.5	14.0	21.7	7.4	0.0	0.0	15.2	14.5
Incr Delay (d2), s/veh				11.9	6.4	11.8	22.4	0.0	0.0	0.0	2.8	2.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				7.1	5.2	6.0	2.0	0.6	0.0	0.0	4.1	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.1	19.9	25.8	44.1	7.5	0.0	0.0	18.0	17.2
LnGrp LOS				C	B	C	D	A	A	A	B	B
Approach Vol, veh/h					1613			376			1196	
Approach Delay, s/veh					24.0			18.1			17.8	
Approach LOS					C			B			B	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	26.3		7.7	18.6		21.7						
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0						
Max Green Setting (Gmax), s	24.0		4.0	16.0		18.0						
Max Q Clear Time (g_c+I1), s	4.1		4.9	12.2		16.4						
Green Ext Time (p_c), s	1.6		0.0	2.4		1.3						

Intersection Summary		
HCM 6th Ctrl Delay		21.0
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
56: Hotel Circle S.

Year 2050 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	1000	40	0	0	0	0	20	40	881	60	0
Future Volume (veh/h)	226	1000	40	0	0	0	0	20	40	881	60	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	246	1087	43				0	22	43	958	65	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	690	1350	53				0	38	74	1141	877	0
Arrive On Green	0.39	0.39	0.39				0.00	0.07	0.07	0.33	0.47	0.00
Sat Flow, veh/h	1781	3485	138				0	566	1106	3456	1870	0
Grp Volume(v), veh/h	246	554	576				0	0	65	958	65	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1846				0	0	1671	1728	1870	0
Q Serve(g_s), s	5.5	15.5	15.5				0.0	0.0	2.1	14.3	1.1	0.0
Cycle Q Clear(g_c), s	5.5	15.5	15.5				0.0	0.0	2.1	14.3	1.1	0.0
Prop In Lane	1.00		0.07				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	690	688	715				0	0	112	1141	877	0
V/C Ratio(X)	0.36	0.81	0.81				0.00	0.00	0.58	0.84	0.07	0.00
Avail Cap(c_a), veh/h	768	766	795				0	0	510	1365	1444	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.1	15.2	15.2				0.0	0.0	25.2	17.3	8.1	0.0
Incr Delay (d2), s/veh	0.3	5.7	5.6				0.0	0.0	4.7	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	6.4	6.6				0.0	0.0	0.9	5.6	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	20.9	20.7				0.0	0.0	30.0	21.4	8.2	0.0
LnGrp LOS	B	C	C				A	A	C	C	A	A
Approach Vol, veh/h		1376						65			1023	
Approach Delay, s/veh		19.3						30.0			20.6	
Approach LOS		B						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	22.4	7.7		25.6		30.1						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	22.0	17.0		24.0		43.0						
Max Q Clear Time (g_c+I1), s	16.3	4.1		17.5		3.1						
Green Ext Time (p_c), s	2.1	0.2		4.1		0.3						

Intersection Summary		
HCM 6th Ctrl Delay		20.1
HCM 6th LOS		C

APPENDIX BB

YEAR 2050 FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6084	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1601
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7063	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2532
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7893	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1662
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.5
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9164	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1950
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.3
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7078	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1882
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8199	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1726
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7503	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1596
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8706	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1512
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6530	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1420
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7585	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1580
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8445	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1797
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.9
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9819	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2025
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10475	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_p), pc/h/ln	1962
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7784	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1366
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10778	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2293
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.01
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7201	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1875
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7079	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2537
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7291	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1279
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7481	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1969
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	48.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2050 AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7723	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2654
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.17
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8065	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2145
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5304	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1881
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.6
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10464	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2180
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.08
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6881	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1434
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9371	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2390
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6193	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1290
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9935	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2048
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6507	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1130
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8657	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1785
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.6
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5682	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1184
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11205	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2310
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7347	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1531
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8900	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1595
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9161	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1574
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8078	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1683
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.2
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9534	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2457
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7284	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2478
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7063	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1280
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7702	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1985
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.6
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2050 PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7452	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2561
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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APPENDIX CC

YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT INTERSECTION ANALYSIS CALCULATION SHEETS

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	545	295	1250	570	190	760	
Future Volume (veh/h)	545	295	1250	570	190	760	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	574	45	1316	182	200	800	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	682	303	1950	1126	282	2362	
Arrive On Green	0.19	0.19	0.53	0.53	0.08	0.66	
Sat Flow, veh/h	3563	1585	3703	1546	3456	3647	
Grp Volume(v), veh/h	574	45	1316	182	200	800	
Grp Sat Flow(s),veh/h/ln	1781	1585	1833	1546	1728	1777	
Q Serve(g_s), s	13.4	2.0	22.6	3.2	4.9	8.4	
Cycle Q Clear(g_c), s	13.4	2.0	22.6	3.2	4.9	8.4	
Prop In Lane	1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	682	303	1950	1126	282	2362	
V/C Ratio(X)	0.84	0.15	0.67	0.16	0.71	0.34	
Avail Cap(c_a), veh/h	1686	750	3267	1681	625	4024	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	33.6	29.0	14.7	3.7	38.6	6.3	
Incr Delay (d2), s/veh	1.1	0.1	0.6	0.1	1.2	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.5	0.7	8.0	1.6	2.1	2.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	34.7	29.1	15.3	3.8	39.8	6.4	
LnGrp LOS	C	C	B	A	D	A	
Approach Vol, veh/h	619		1498			1000	
Approach Delay, s/veh	34.3		13.9			13.1	
Approach LOS	C		B			B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.4	52.1				63.5	22.7
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	15.6	76.8				* 98	40.8
Max Q Clear Time (g_c+I1), s	6.9	24.6				10.4	15.4
Green Ext Time (p_c), s	0.2	21.3				16.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1480	30	420	260	0	0	0	0	310	5	730
Future Volume (veh/h)	0	1480	30	420	260	0	0	0	0	310	5	730
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1542	10	438	271	0				323	5	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1666	720	492	2206	0				554	9	
Arrive On Green	0.00	0.45	0.45	0.14	0.62	0.00				0.32	0.32	0.00
Sat Flow, veh/h	0	3703	1585	3563	3647	0				1755	27	1585
Grp Volume(v), veh/h	0	1542	10	438	271	0				328	0	0
Grp Sat Flow(s),veh/h/ln	0	1833	1585	1781	1777	0				1783	0	1585
Q Serve(g_s), s	0.0	59.4	0.5	18.1	4.7	0.0				23.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	59.4	0.5	18.1	4.7	0.0				23.2	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1666	720	492	2206	0				562	0	
V/C Ratio(X)	0.00	0.93	0.01	0.89	0.12	0.00				0.58	0.00	
Avail Cap(c_a), veh/h	0	1809	782	565	2417	0				562	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.49	0.49	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	38.5	22.5	63.5	11.7	0.0				43.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.9	0.0	8.0	0.0	0.0				1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	28.3	0.2	8.8	1.9	0.0				10.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	46.4	22.5	71.5	11.7	0.0				44.1	0.0	0.0
LnGrp LOS	A	D	C	E	B	A				D	A	
Approach Vol, veh/h		1552			709						328	A
Approach Delay, s/veh		46.3			48.7						44.1	
Approach LOS		D			D						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.9	73.2		51.9		98.1						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 24	74.0		38.4		102.0						
Max Q Clear Time (g_c+I1), s	20.1	61.4		25.2		6.7						
Green Ext Time (p_c), s	0.6	6.8		0.6		1.3						

Intersection Summary	
HCM 6th Ctrl Delay	46.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1220	570	0	0	580	480	100	30	270	0	0	0
Future Volume (veh/h)	1220	570	0	0	580	480	100	30	270	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	1284	600	0	0	611	376	105	32	-53			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1369	2646	0	0	668	411	245	75	282			
Arrive On Green	0.40	0.74	0.00	0.00	0.32	0.32	0.18	0.18	0.00			
Sat Flow, veh/h	3456	3647	0	0	2206	1300	1381	421	1585			
Grp Volume(v), veh/h	1284	600	0	0	514	473	137	0	-53			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1636	1801	0	1585			
Q Serve(g_s), s	46.4	6.7	0.0	0.0	36.2	36.2	8.8	0.0	0.0			
Cycle Q Clear(g_c), s	46.4	6.7	0.0	0.0	36.2	36.2	8.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.79	0.77		1.00			
Lane Grp Cap(c), veh/h	1369	2646	0	0	562	517	320	0	282			
V/C Ratio(X)	0.94	0.23	0.00	0.00	0.91	0.91	0.43	0.00	-0.19			
Avail Cap(c_a), veh/h	1457	2873	0	0	630	580	320	0	282			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.55	0.55	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	37.7	5.1	0.0	0.0	42.8	42.8	47.6	0.0	0.0			
Incr Delay (d2), s/veh	7.1	0.0	0.0	0.0	16.0	17.1	0.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	20.7	2.3	0.0	0.0	18.3	17.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	5.1	0.0	0.0	58.8	59.8	47.9	0.0	0.0			
LnGrp LOS	D	A	A	A	E	E	D	A	A			
Approach Vol, veh/h		1884			987			84				
Approach Delay, s/veh		32.2			59.3			78.1				
Approach LOS		C			E			E				

Timer - Assigned Phs		2		4	5	6			
Phs Duration (G+Y+Rc), s		102.3		27.7	55.7	46.6			
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5			
Max Green Setting (Gmax), s		105.1		14.8	* 55	46.1			
Max Q Clear Time (g_c+I1), s		8.7		10.8	48.4	38.2			
Green Ext Time (p_c), s		3.0		0.1	3.1	2.9			

Intersection Summary		
HCM 6th Ctrl Delay	42.5	
HCM 6th LOS	D	

Notes

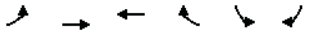
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
6: Taylor St. & Morena Blvd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	120	20	60	860	520	0	0	20	90	10	230
Future Volume (vph)	310	120	20	60	860	520	0	0	20	90	10	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.94	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.94				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3447		1770	3317				1517	1681	1701	1569
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3447		1770	3317				1517	1681	1701	1569
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	344	133	22	67	956	578	0	0	22	100	11	256
RTOR Reduction (vph)	0	8	0	0	57	0	0	0	21	0	0	168
Lane Group Flow (vph)	344	147	0	67	1477	0	0	0	1	55	56	88
Confl. Peds. (#/hr)	3		3	3		3	1		19	19		1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	15.4	73.1		7.9	65.6				3.2	30.1	30.1	45.5
Effective Green, g (s)	15.4	73.1		7.9	65.6				3.2	30.1	30.1	45.5
Actuated g/C Ratio	0.12	0.55		0.06	0.49				0.02	0.23	0.23	0.34
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	397	1895		105	1637				36	380	385	537
v/s Ratio Prot	c0.10	0.04		0.04	c0.45					0.03	0.03	c0.02
v/s Ratio Perm									c0.00			0.04
v/c Ratio	0.87	0.08		0.64	0.90				0.01	0.14	0.15	0.16
Uniform Delay, d1	57.7	14.1		61.1	30.7				63.3	41.1	41.1	30.4
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	17.1	0.0		9.0	8.5				0.2	0.8	0.8	0.1
Delay (s)	74.9	14.1		70.1	39.2				63.5	41.9	41.9	30.5
Level of Service	E	B		E	D				E	D	D	C
Approach Delay (s)		56.0			40.5			63.5			33.9	
Approach LOS		E			D			E			C	

Intersection Summary				
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	132.9	Sum of lost time (s)	18.6	
Intersection Capacity Utilization	86.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	290	460	850	780	250	120
Future Volume (vph)	290	460	850	780	250	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1540	3421	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1540	3421	1418
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	484	895	821	263	126
RTOR Reduction (vph)	0	0	0	286	3	95
Lane Group Flow (vph)	305	484	895	535	273	18
Confl. Peds. (#/hr)	19			19	35	2
Confl. Bikes (#/hr)				6		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	24.2	72.6	44.4	63.0	18.6	18.6
Effective Green, g (s)	24.2	72.6	44.4	63.0	18.6	18.6
Actuated g/C Ratio	0.20	0.61	0.37	0.53	0.16	0.16
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	357	2142	1310	809	530	219
v/s Ratio Prot	c0.17	0.14	c0.25	c0.10	0.08	
v/s Ratio Perm				0.25		0.01
v/c Ratio	0.85	0.23	0.68	0.66	0.52	0.08
Uniform Delay, d1	46.2	10.8	31.8	20.7	46.5	43.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.1	0.1	2.9	2.7	1.7	0.3
Delay (s)	63.3	10.9	34.7	23.4	48.2	43.7
Level of Service	E	B	C	C	D	D
Approach Delay (s)		31.1	29.3		46.9	
Approach LOS		C	C		D	

Intersection Summary				
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	18.9	
Intersection Capacity Utilization	74.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	480	50	50	1720	150	70	20	50	90	20	50
Future Volume (veh/h)	55	480	50	50	1720	150	70	20	50	90	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.98		1.00	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	505	47	53	1811	150	74	21	-10	95	21	-3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	2366	219	80	2411	197	170	41	182	230	214	0
Arrive On Green	0.04	0.72	0.72	0.04	0.73	0.73	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1781	3277	304	1781	3324	271	1047	361	1585	1383	1870	0
Grp Volume(v), veh/h	58	273	279	53	955	1006	95	0	-10	95	18	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1804	1781	1777	1819	1408	0	1585	1383	1870	0
Q Serve(g_s), s	4.2	6.5	6.6	3.8	41.3	43.9	7.4	0.0	0.0	0.0	1.1	0.0
Cycle Q Clear(g_c), s	4.2	6.5	6.6	3.8	41.3	43.9	8.5	0.0	0.0	7.1	1.1	0.0
Prop In Lane	1.00		0.17	1.00		0.15	0.78		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	75	1283	1303	80	1289	1319	211	0	182	230	214	0
V/C Ratio(X)	0.78	0.21	0.21	0.66	0.74	0.76	0.45	0.00	-0.06	0.41	0.08	0.00
Avail Cap(c_a), veh/h	119	1283	1303	143	1304	1334	397	0	384	406	453	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	61.3	5.9	5.9	60.7	10.6	10.9	54.6	0.0	0.0	53.8	51.1	0.0
Incr Delay (d2), s/veh	6.4	0.4	0.4	3.5	3.9	4.2	0.6	0.0	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.2	2.3	1.8	14.4	15.8	3.0	0.0	0.0	2.9	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	6.3	6.3	64.2	14.4	15.1	55.1	0.0	0.0	54.2	51.2	0.0
LnGrp LOS	E	A	A	E	B	B	E	A	A	D	D	A
Approach Vol, veh/h		610			2014			85			113	
Approach Delay, s/veh		12.1			16.1			61.6			53.8	
Approach LOS		B			B			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	99.3		19.7	9.8	99.7		19.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	10.4	* 93		31.3	8.6	94.8		31.3				
Max Q Clear Time (g_c+I1), s	5.8	8.6		9.1	6.2	45.9		10.5				
Green Ext Time (p_c), s	0.0	10.4		0.2	0.0	45.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	18.1	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	450	40	8	1270	465	137	68	46	350	24	140
Future Volume (veh/h)	140	450	40	8	1270	465	137	68	46	350	24	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	500	43	9	1411	346	149	74	50	389	26	28
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	1722	148	15	1521	656	173	101	68	409	27	379
Arrive On Green	0.10	0.52	0.52	0.01	0.43	0.43	0.10	0.10	0.10	0.24	0.24	0.24
Sat Flow, veh/h	1781	3302	283	1781	3554	1532	1781	1041	703	1675	112	1554
Grp Volume(v), veh/h	156	268	275	9	1411	346	149	0	124	415	0	28
Grp Sat Flow(s),veh/h/ln	1781	1777	1808	1781	1777	1532	1781	0	1744	1787	0	1554
Q Serve(g_s), s	12.7	12.5	12.6	0.7	55.5	24.6	12.1	0.0	10.2	33.7	0.0	2.0
Cycle Q Clear(g_c), s	12.7	12.5	12.6	0.7	55.5	24.6	12.1	0.0	10.2	33.7	0.0	2.0
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.40	0.94		1.00
Lane Grp Cap(c), veh/h	176	926	943	15	1521	656	173	0	170	436	0	379
V/C Ratio(X)	0.88	0.29	0.29	0.60	0.93	0.53	0.86	0.00	0.73	0.95	0.00	0.07
Avail Cap(c_a), veh/h	176	926	943	48	1521	656	193	0	189	447	0	389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.6	19.9	19.9	72.9	40.0	31.2	65.5	0.0	64.7	54.9	0.0	42.9
Incr Delay (d2), s/veh	36.2	0.8	0.8	33.5	11.3	3.0	28.1	0.0	12.0	29.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	5.3	5.4	0.5	25.6	9.4	6.9	0.0	5.1	18.8	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.8	20.7	20.7	106.4	51.3	34.2	93.6	0.0	76.6	84.7	0.0	42.9
LnGrp LOS	F	C	C	F	D	C	F	A	E	F	A	D
Approach Vol, veh/h		699			1766			273			443	
Approach Delay, s/veh		38.8			48.2			85.9			82.1	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	82.8		41.1	19.0	69.0		18.4				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 74		36.9	14.6	63.1		16.0				
Max Q Clear Time (g_c+I1), s	2.7	14.6		35.7	14.7	57.5		14.1				
Green Ext Time (p_c), s	0.0	2.3		0.2	0.0	3.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		54.1	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/19/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	450	110	280	1270	220	210
Future Volume (veh/h)	450	110	280	1270	220	210
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	489	120	304	1380	234	234
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	790	193	388	2073	364	329
Arrive On Green	0.28	0.28	0.22	0.58	0.20	0.20
Sat Flow, veh/h	2925	691	1781	3647	1781	1610
Grp Volume(v), veh/h	306	303	304	1380	234	234
Grp Sat Flow(s),veh/h/ln	1777	1746	1781	1777	1781	1610
Q Serve(g_s), s	7.6	7.7	8.2	13.4	6.1	6.9
Cycle Q Clear(g_c), s	7.6	7.7	8.2	13.4	6.1	6.9
Prop In Lane		0.40	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	495	487	388	2073	364	329
V/C Ratio(X)	0.62	0.62	0.78	0.67	0.64	0.71
Avail Cap(c_a), veh/h	1760	1729	1775	7354	1196	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	16.0	18.7	7.2	18.5	18.8
Incr Delay (d2), s/veh	1.3	1.3	3.5	0.4	1.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.6	3.1	2.7	2.4	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	17.3	22.2	7.6	20.4	21.7
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	609			1684	468	
Approach Delay, s/veh	17.2			10.2	21.1	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.5	20.1				35.5	15.3
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	50.6	* 50				105.1	34.1
Max Q Clear Time (g_c+I1), s	10.2	9.7				15.4	8.9
Green Ext Time (p_c), s	0.9	3.7				14.2	1.5

Intersection Summary			
HCM 6th Ctrl Delay		13.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	580	80	120	1590	10	180	5	120	20	5	5
Future Volume (veh/h)	5	580	80	120	1590	10	180	5	120	20	5	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	644	89	133	1767	11	200	6	133	22	6	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	11	2561	350	181	2214	14	368	10	485	134	37	28
Arrive On Green	0.01	0.57	0.57	0.05	0.61	0.61	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	4532	619	3456	3620	23	1248	37	1572	364	143	109
Grp Volume(v), veh/h	6	482	251	133	867	911	206	0	133	34	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1746	1728	1777	1866	1286	0	1572	615	0	0
Q Serve(g_s), s	0.5	10.4	10.6	5.5	53.6	53.8	0.0	0.0	9.3	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.5	10.4	10.6	5.5	53.6	53.8	22.0	0.0	9.3	23.8	0.0	0.0
Prop In Lane	1.00		0.35	1.00		0.01	0.97		1.00	0.65		0.18
Lane Grp Cap(c), veh/h	11	1924	987	181	1087	1141	378	0	485	198	0	0
V/C Ratio(X)	0.57	0.25	0.25	0.73	0.80	0.80	0.55	0.00	0.27	0.17	0.00	0.00
Avail Cap(c_a), veh/h	57	1924	987	467	1087	1141	378	0	485	198	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.9	16.0	16.0	67.7	21.3	21.4	48.3	0.0	37.9	50.0	0.0	0.0
Incr Delay (d2), s/veh	16.6	0.1	0.1	1.5	4.3	4.1	5.6	0.0	1.4	1.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.9	4.1	2.4	21.8	22.9	7.3	0.0	3.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	16.0	16.1	69.2	25.6	25.5	53.9	0.0	39.3	51.9	0.0	0.0
LnGrp LOS	F	B	B	E	C	C	D	A	D	D	A	A
Approach Vol, veh/h		739			1911			339			34	
Approach Delay, s/veh		16.7			28.6			48.1			51.9	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	87.8		42.0	5.3	94.6		42.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	19.6	73.1		37.1	4.6	* 89		37.1				
Max Q Clear Time (g_c+I1), s	7.5	12.6		25.8	2.5	55.8		24.0				
Green Ext Time (p_c), s	0.1	4.7		0.0	0.0	20.9		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		28.1	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	750	30	70	1690	0	20	0	90	0	0	0
Future Volume (veh/h)	0	750	30	70	1690	0	20	0	90	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	815	29	76	1837	0	22	0	73	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	3896	138	120	2978	1328	156	0	135	1	1	0
Arrive On Green	0.00	0.77	0.77	0.03	0.84	0.00	0.09	0.00	0.09	0.00	0.00	0.00
Sat Flow, veh/h	252	5059	180	3456	3554	1585	1781	0	1536	1781	1870	0
Grp Volume(v), veh/h	0	548	296	76	1837	0	22	0	73	0	0	0
Grp Sat Flow(s),veh/h/ln	252	1702	1834	1728	1777	1585	1781	0	1536	1781	1870	0
Q Serve(g_s), s	0.0	5.8	5.8	2.9	22.9	0.0	1.5	0.0	6.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.8	5.8	2.9	22.9	0.0	1.5	0.0	6.0	0.0	0.0	0.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2621	1413	120	2978	1328	156	0	135	1	1	0
V/C Ratio(X)	0.00	0.21	0.21	0.64	0.62	0.00	0.14	0.00	0.54	0.00	0.00	0.00
Avail Cap(c_a), veh/h	55	2621	1413	120	2978	1328	418	0	361	216	227	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.98	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.2	4.2	62.9	3.6	0.0	55.6	0.0	57.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.3	8.1	1.0	0.0	0.2	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	1.8	1.4	4.9	0.0	0.7	0.0	2.4	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.3	4.5	71.0	4.6	0.0	55.8	0.0	58.9	0.0	0.0	0.0
LnGrp LOS	A	A	A	E	A	A	E	A	E	A	A	A
Approach Vol, veh/h		844			1913			95			0	
Approach Delay, s/veh		4.4			7.2			58.2			0.0	
Approach LOS		A			A			E				

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.0	107.1		0.0		116.0		16.0				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	4.6	62.2		16.0		* 62		31.0				
Max Q Clear Time (g_c+I1), s	4.9	7.8		0.0		24.9		8.0				
Green Ext Time (p_c), s	0.0	7.6		0.0		24.3		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		8.1	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	795	40	100	1680	40	20	5	30	40	5	10
Future Volume (veh/h)	5	795	40	100	1680	40	20	5	30	40	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	6	893	45	112	1888	45	22	0	38	45	6	11
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	11	3524	177	190	3882	92	168	0	229	179	43	79
Arrive On Green	0.01	0.71	0.71	0.06	0.76	0.76	0.07	0.00	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1781	4975	250	3456	5127	122	1380	0	3131	1354	586	1075
Grp Volume(v), veh/h	6	610	328	112	1253	680	22	0	38	45	0	17
Grp Sat Flow(s),veh/h/ln	1781	1702	1821	1728	1702	1845	1380	0	1566	1354	0	1661
Q Serve(g_s), s	0.3	5.7	5.8	2.8	12.7	12.8	1.4	0.0	1.0	2.9	0.0	0.9
Cycle Q Clear(g_c), s	0.3	5.7	5.8	2.8	12.7	12.8	2.2	0.0	1.0	2.9	0.0	0.9
Prop In Lane	1.00		0.14	1.00		0.07	1.00		1.00	1.00		0.65
Lane Grp Cap(c), veh/h	11	2411	1290	190	2578	1397	168	0	229	179	0	122
V/C Ratio(X)	0.54	0.25	0.25	0.59	0.49	0.49	0.13	0.00	0.17	0.25	0.00	0.14
Avail Cap(c_a), veh/h	79	2411	1290	599	2578	1397	528	0	1047	533	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	4.7	4.7	41.5	4.2	4.2	40.1	0.0	39.1	40.0	0.0	39.1
Incr Delay (d2), s/veh	14.6	0.3	0.5	1.1	0.7	1.2	0.1	0.0	0.1	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	1.7	1.2	2.7	3.2	0.5	0.0	0.4	1.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	4.9	5.1	42.6	4.9	5.4	40.2	0.0	39.3	40.3	0.0	39.2
LnGrp LOS	E	A	A	D	A	A	D	A	D	D	A	D
Approach Vol, veh/h		944			2045			60			62	
Approach Delay, s/veh		5.3			7.1			39.6			40.0	
Approach LOS		A			A			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	69.2		11.5	5.0	73.6		11.5				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	15.6	29.6		30.1	4.0	* 41		30.1				
Max Q Clear Time (g_c+I1), s	4.8	7.8		4.9	2.3	14.8		4.2				
Green Ext Time (p_c), s	0.1	7.1		0.1	0.0	18.5		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	405	320	530	1150	480	560	20	810	350	20	110
Future Volume (veh/h)	140	405	320	530	1150	480	560	20	810	350	20	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	431	0	564	1223	511	596	21	862	372	21	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	2301		627	2236	1540	651	379	1064	427	266	380
Arrive On Green	0.10	0.36	0.00	0.18	0.44	0.44	0.19	0.20	0.20	0.12	0.14	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2728	3456	1870	2753	3456	1870	1564
Grp Volume(v), veh/h	149	431	0	564	1223	511	596	21	862	372	21	117
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1364	1728	1870	1377	1728	1870	1564
Q Serve(g_s), s	6.1	6.9	0.0	23.9	26.6	15.2	25.4	1.4	30.4	15.9	1.5	9.2
Cycle Q Clear(g_c), s	6.1	6.9	0.0	23.9	26.6	15.2	25.4	1.4	30.4	15.9	1.5	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	345	2301		627	2236	1540	651	379	1064	427	266	380
V/C Ratio(X)	0.43	0.19		0.90	0.55	0.33	0.92	0.06	0.81	0.87	0.08	0.31
Avail Cap(c_a), veh/h	346	2301		760	2236	1540	714	379	1064	968	524	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.5	33.2	0.0	60.1	31.2	17.7	59.7	48.2	41.4	64.5	55.8	46.6
Incr Delay (d2), s/veh	0.3	0.2	0.0	11.9	0.9	0.6	15.7	0.3	6.7	2.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.7	0.0	11.3	10.8	5.0	12.6	0.7	15.3	7.1	0.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.8	33.4	0.0	72.0	32.1	18.3	75.4	48.5	48.1	66.7	55.9	46.8
LnGrp LOS	E	C		E	C	B	E	D	D	E	E	D
Approach Vol, veh/h		580	A		2298			1479			510	
Approach Delay, s/veh		41.2			38.8			59.1			61.7	
Approach LOS		D			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	60.6	32.3	25.9	19.2	72.7	23.2	35.0				
Change Period (Y+Rc), s	4.0	7.0	4.0	4.6	* 4.2	7.0	4.6	4.6				
Max Green Setting (Gmax), s	33.0	24.4	31.0	42.0	* 15	42.2	42.0	30.4				
Max Q Clear Time (g_c+I1), s	25.9	8.9	27.4	11.2	8.1	28.6	17.9	32.4				
Green Ext Time (p_c), s	1.3	1.5	0.9	0.3	0.1	5.9	0.7	0.0				

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	1085	0	0	1440	740	0	0	0	820	0	720
Future Volume (veh/h)	480	1085	0	0	1440	740	0	0	0	820	0	720
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	505	1142	0	0	1516	779				863	0	758
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	480	9352	0	0	6827	2960				1060	0	976
Arrive On Green	0.14	1.00	0.00	0.00	1.00	1.00				0.21	0.00	0.21
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	505	1142	0	0	1516	779				863	0	758
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	12.5	0.0	0.0	0.0	0.0	0.0				14.7	0.0	19.0
Cycle Q Clear(g_c), s	12.5	0.0	0.0	0.0	0.0	0.0				14.7	0.0	19.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	480	9352	0	0	6827	2960				1060	0	976
V/C Ratio(X)	1.05	0.12	0.00	0.00	0.22	0.26				0.81	0.00	0.78
Avail Cap(c_a), veh/h	480	9352	0	0	6827	2960				1060	0	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	0.0	0.0	0.0	0.0				33.8	0.0	26.1
Incr Delay (d2), s/veh	54.9	0.0	0.0	0.0	0.1	0.2				5.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	0.0	0.0	0.0	0.1				6.3	0.0	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.6	0.0	0.0	0.0	0.1	0.2				38.8	0.0	30.1
LnGrp LOS	F	A	A	A	A	A				D	A	C
Approach Vol, veh/h		1647			2295						1621	
Approach Delay, s/veh		28.7			0.1						34.7	
Approach LOS		C			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.0	102.5		23.0		119.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	12.5	44.5		19.0		* 63
Max Q Clear Time (g_c+I1), s	14.5	2.0		21.0		2.0
Green Ext Time (p_c), s	0.0	14.5		0.0		9.7

Intersection Summary		
HCM 6th Ctrl Delay		18.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	630	790	425	80	1740	80	120	120	40	40	60	240
Future Volume (veh/h)	630	790	425	80	1740	80	120	120	40	40	60	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	656	823	443	83	1812	83	125	125	42	42	62	250
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	708	3294	1393	128	2214	536	175	692	222	123	466	670
Arrive On Green	0.20	0.51	0.51	0.04	0.34	0.34	0.05	0.26	0.26	0.04	0.25	0.25
Sat Flow, veh/h	3456	6434	2722	3456	6434	1559	3456	2622	840	3456	1870	2692
Grp Volume(v), veh/h	656	823	443	83	1812	83	125	83	84	42	62	250
Grp Sat Flow(s),veh/h/ln	1728	1609	1361	1728	1609	1559	1728	1777	1685	1728	1870	1346
Q Serve(g_s), s	24.9	9.6	12.7	3.2	34.3	4.9	4.8	4.8	5.2	1.6	3.4	10.3
Cycle Q Clear(g_c), s	24.9	9.6	12.7	3.2	34.3	4.9	4.8	4.8	5.2	1.6	3.4	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	708	3294	1393	128	2214	536	175	469	445	123	466	670
V/C Ratio(X)	0.93	0.25	0.32	0.65	0.82	0.15	0.71	0.18	0.19	0.34	0.13	0.37
Avail Cap(c_a), veh/h	769	3294	1393	194	2214	536	262	653	619	155	629	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	18.2	19.0	63.4	40.0	30.3	62.4	37.9	38.0	62.8	38.9	41.5
Incr Delay (d2), s/veh	15.8	0.2	0.6	2.1	3.5	0.6	2.9	0.1	0.1	0.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	3.5	4.1	1.4	13.6	2.0	2.2	2.1	2.2	0.7	1.6	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.8	18.4	19.6	65.4	43.5	30.9	65.3	38.0	38.1	63.7	39.0	41.7
LnGrp LOS	E	B	B	E	D	C	E	D	D	E	D	D
Approach Vol, veh/h		1922			1978			292			354	
Approach Delay, s/veh		35.5			43.9			49.7			43.8	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	74.8	11.2	38.1	31.7	52.4	9.1	40.1
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	7.5	* 68	10.1	44.9	29.7	45.1	6.0	49.0
Max Q Clear Time (g_c+I1), s	5.2	14.7	6.8	12.3	26.9	36.3	3.6	7.2
Green Ext Time (p_c), s	0.0	13.6	0.1	1.0	0.5	7.8	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay		40.7
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	160	5	340	160	590	0	0	660	280
Future Volume (veh/h)	0	0	0	160	5	340	160	590	0	0	660	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				172	0	358	168	621	0	0	695	295
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				934	0	408	238	2180	0	0	1761	782
Arrive On Green				0.26	0.00	0.26	0.14	1.00	0.00	0.00	0.50	0.50
Sat Flow, veh/h				3563	0	1555	3456	3647	0	0	3647	1577
Grp Volume(v), veh/h				172	0	358	168	621	0	0	695	295
Grp Sat Flow(s),veh/h/ln				1781	0	1555	1728	1777	0	0	1777	1577
Q Serve(g_s), s				3.4	0.0	19.9	4.2	0.0	0.0	0.0	11.0	10.4
Cycle Q Clear(g_c), s				3.4	0.0	19.9	4.2	0.0	0.0	0.0	11.0	10.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				934	0	408	238	2180	0	0	1761	782
V/C Ratio(X)				0.18	0.00	0.88	0.71	0.28	0.00	0.00	0.39	0.38
Avail Cap(c_a), veh/h				1271	0	555	407	2180	0	0	1761	782
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.7	0.0	31.8	37.9	0.0	0.0	0.0	14.2	14.1
Incr Delay (d2), s/veh				0.1	0.0	11.6	1.3	0.3	0.0	0.0	0.7	1.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	8.2	1.7	0.1	0.0	0.0	4.4	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.8	0.0	43.5	39.3	0.3	0.0	0.0	14.9	15.5
LnGrp LOS				C	A	D	D	A	A	A	B	B
Approach Vol, veh/h					530			789			990	
Approach Delay, s/veh					37.7			8.6			15.1	
Approach LOS					D			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.5			10.6	50.9		28.5				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 48			10.6	31.7		32.1				
Max Q Clear Time (g_c+I1), s		2.0			6.2	13.0		21.9				
Green Ext Time (p_c), s		4.2			0.1	9.3		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		18.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	20	190	0	0	0	0	580	160	190	630	0
Future Volume (veh/h)	170	20	190	0	0	0	0	580	160	190	630	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	199	0	18				0	624	144	204	677	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	394	0	175				0	1839	424	277	2738	0
Arrive On Green	0.11	0.00	0.11				0.00	0.64	0.64	0.16	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2961	661	3456	3647	0
Grp Volume(v), veh/h	199	0	18				0	386	382	204	677	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1751	1728	1777	0
Q Serve(g_s), s	4.7	0.0	0.9				0.0	9.0	9.0	5.1	0.0	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.9				0.0	9.0	9.0	5.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.38	1.00		0.00
Lane Grp Cap(c), veh/h	394	0	175				0	1140	1123	277	2738	0
V/C Ratio(X)	0.50	0.00	0.10				0.00	0.34	0.34	0.74	0.25	0.00
Avail Cap(c_a), veh/h	875	0	389				0	1140	1123	522	2738	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.95	0.95	0.00
Uniform Delay (d), s/veh	37.7	0.0	36.0				0.0	7.4	7.4	36.9	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.3				0.0	0.8	0.8	1.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.4				0.0	3.2	3.2	2.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	0.0	36.3				0.0	8.2	8.2	38.3	0.2	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		217						768			881	
Approach Delay, s/veh		38.5						8.2			9.0	
Approach LOS		D						A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.6	63.5		14.9		75.1						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	13.6	* 40		22.1		57.2						
Max Q Clear Time (g_c+I1), s	7.1	11.0		6.7		2.0						
Green Ext Time (p_c), s	0.2	7.8		0.6		6.8						

Intersection Summary			
HCM 6th Ctrl Delay		12.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	320	20	270	510	520	0	0	630	190
Future Volume (veh/h)	0	0	0	320	20	270	510	520	0	0	630	190
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				312	42	276	520	531	0	0	643	194
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				414	50	326	629	2254	0	0	1975	613
Arrive On Green				0.23	0.23	0.23	0.18	0.63	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1781	214	1404	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				312	0	318	520	531	0	0	643	194
Grp Sat Flow(s),veh/h/ln				1781	0	1618	1728	1777	0	0	1702	1585
Q Serve(g_s), s				12.2	0.0	14.1	10.9	4.8	0.0	0.0	6.6	6.4
Cycle Q Clear(g_c), s				12.2	0.0	14.1	10.9	4.8	0.0	0.0	6.6	6.4
Prop In Lane				1.00		0.87	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				414	0	376	629	2254	0	0	1975	613
V/C Ratio(X)				0.75	0.00	0.85	0.83	0.24	0.00	0.00	0.33	0.32
Avail Cap(c_a), veh/h				665	0	604	742	2254	0	0	1975	613
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.8	0.0	27.5	29.5	5.9	0.0	0.0	16.1	16.1
Incr Delay (d2), s/veh				1.1	0.0	3.2	6.5	0.2	0.0	0.0	0.4	1.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	5.3	4.9	1.6	0.0	0.0	2.5	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.8	0.0	30.7	36.0	6.1	0.0	0.0	16.6	17.4
LnGrp LOS				C	A	C	D	A	A	A	B	B
Approach Vol, veh/h					630			1051			837	
Approach Delay, s/veh					29.3			20.9			16.8	
Approach LOS					C			C			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.7			18.6	34.1		22.3				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		37.0			16.1	* 16		28.0				
Max Q Clear Time (g_c+I1), s		6.8			12.9	8.6		16.1				
Green Ext Time (p_c), s		4.5			0.8	3.0		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		21.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	130	0	0	0	0	970	300	220	730	0
Future Volume (veh/h)	60	5	130	0	0	0	0	970	300	220	730	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	67	0	137				0	1021	316	232	768	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	434	0	192				0	2791	847	270	2676	0
Arrive On Green	0.12	0.00	0.12				0.00	0.55	0.55	0.15	0.75	0.00
Sat Flow, veh/h	3563	0	1573				0	5274	1549	1781	3647	0
Grp Volume(v), veh/h	67	0	137				0	1021	316	232	768	0
Grp Sat Flow(s),veh/h/ln	1781	0	1573				0	1702	1549	1781	1777	0
Q Serve(g_s), s	1.3	0.0	6.7				0.0	9.1	9.3	10.2	5.4	0.0
Cycle Q Clear(g_c), s	1.3	0.0	6.7				0.0	9.1	9.3	10.2	5.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	434	0	192				0	2791	847	270	2676	0
V/C Ratio(X)	0.15	0.00	0.71				0.00	0.37	0.37	0.86	0.29	0.00
Avail Cap(c_a), veh/h	1514	0	669				0	2791	847	281	2676	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	31.4	0.0	33.8				0.0	10.3	10.3	33.1	3.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.9				0.0	0.4	1.3	18.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.5				0.0	3.1	3.1	5.7	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	35.6				0.0	10.6	11.6	52.0	3.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		204						1337			1000	
Approach Delay, s/veh		34.3						10.9			14.6	
Approach LOS		C						B			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.5	48.8		14.7		65.3						
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1						
Max Green Setting (Gmax), s	12.6	19.0		34.0		* 36						
Max Q Clear Time (g_c+I1), s	12.2	11.3		8.7		7.4						
Green Ext Time (p_c), s	0.0	5.0		0.3		3.9						

Intersection Summary			
HCM 6th Ctrl Delay		14.2	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	970	60	230	2005	220	160	60	120	30	20	40
Future Volume (veh/h)	130	970	60	230	2005	220	160	60	120	30	20	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	0.99		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	138	1032	64	245	2133	234	170	64	128	32	21	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	2284	141	274	2463	266	244	81	155	158	110	187
Arrive On Green	0.09	0.45	0.45	0.15	0.51	0.51	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1853	5103	316	1853	4863	526	719	288	551	428	393	666
Grp Volume(v), veh/h	138	715	381	245	1545	822	362	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1879	1853	1770	1849	1558	0	0	1486	0	0
Q Serve(g_s), s	9.2	17.5	17.5	16.2	47.7	49.4	21.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.2	17.5	17.5	16.2	47.7	49.4	27.0	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.28	0.47		0.35	0.33		0.45
Lane Grp Cap(c), veh/h	164	1584	841	274	1793	936	480	0	0	456	0	0
V/C Ratio(X)	0.84	0.45	0.45	0.90	0.86	0.88	0.75	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	187	1584	841	411	1793	936	480	0	0	456	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.1	23.9	23.9	52.3	27.0	27.4	41.8	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	22.6	0.9	1.8	11.7	5.7	11.5	10.5	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	7.2	7.9	8.2	20.0	23.1	11.8	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.7	24.8	25.7	64.0	32.7	38.9	52.3	0.0	0.0	35.2	0.0	0.0
LnGrp LOS	E	C	C	E	C	D	D	A	A	D	A	A
Approach Vol, veh/h		1234			2612			362			96	
Approach Delay, s/veh		31.1			37.6			52.3			35.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.9	62.1		40.0	15.5	69.5		40.0				
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	27.7	46.7		35.1	12.6	61.8		35.1				
Max Q Clear Time (g_c+I1), s	18.2	19.5		7.4	11.2	51.4		29.0				
Green Ext Time (p_c), s	0.2	19.5		0.6	0.0	10.3		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	36.9
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	350	120	70	150	90	180	370	150	80	200	70
Future Volume (veh/h)	90	350	120	70	150	90	180	370	150	80	200	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	357	122	71	153	92	184	378	153	82	204	71
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	650	549	141	279	543	222	931	369	106	819	274
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.12	0.38	0.38	0.06	0.32	0.32
Sat Flow, veh/h	1133	1870	1581	249	803	1561	1781	2433	965	1781	2583	865
Grp Volume(v), veh/h	92	357	122	224	0	92	184	274	257	82	138	137
Grp Sat Flow(s),veh/h/ln	1133	1870	1581	1052	0	1561	1781	1777	1621	1781	1777	1671
Q Serve(g_s), s	6.7	13.3	4.7	6.4	0.0	3.5	8.7	9.7	10.1	3.9	5.0	5.3
Cycle Q Clear(g_c), s	26.4	13.3	4.7	19.7	0.0	3.5	8.7	9.7	10.1	3.9	5.0	5.3
Prop In Lane	1.00		1.00	0.32		1.00	1.00		0.60	1.00		0.52
Lane Grp Cap(c), veh/h	219	650	549	421	0	543	222	680	620	106	564	530
V/C Ratio(X)	0.42	0.55	0.22	0.53	0.00	0.17	0.83	0.40	0.41	0.78	0.24	0.26
Avail Cap(c_a), veh/h	377	910	769	616	0	760	465	680	620	239	564	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	22.8	20.0	24.7	0.0	19.6	36.9	19.5	19.6	40.1	21.9	22.0
Incr Delay (d2), s/veh	0.5	0.3	0.1	2.2	0.0	0.3	3.0	1.8	2.0	4.5	1.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.7	1.7	4.2	0.0	1.3	3.9	4.2	4.0	1.8	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	23.0	20.0	27.0	0.0	19.9	40.0	21.3	21.6	44.6	22.9	23.1
LnGrp LOS	D	C	C	C	A	B	D	C	C	D	C	C
Approach Vol, veh/h		571			316			715			357	
Approach Delay, s/veh		24.6			24.9			26.2			28.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	40.0		36.9	15.2	34.3		36.9				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	11.6	33.1		42.1	22.6	* 24		42.1				
Max Q Clear Time (g_c+I1), s	5.9	12.1		28.4	10.7	7.3		21.7				
Green Ext Time (p_c), s	0.0	2.5		1.6	0.2	1.3		3.2				

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2050 + P1 + P2 + P3 AM
03/19/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	0	130	0	0	0	350	650	0	0	110	250
Future Volume (veh/h)	150	0	130	0	0	0	350	650	0	0	110	250
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	0	94				380	707	0	0	120	272
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	471	0	209				479	2035	0	5	1071	478
Arrive On Green	0.13	0.00	0.13				0.14	0.57	0.00	0.00	0.30	0.30
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	207	0	94				380	707	0	0	120	272
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	1.8	0.0	1.8				3.5	3.5	0.0	0.0	0.8	4.8
Cycle Q Clear(g_c), s	1.8	0.0	1.8				3.5	3.5	0.0	0.0	0.8	4.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	471	0	209				479	2035	0	5	1071	478
V/C Ratio(X)	0.44	0.00	0.45				0.79	0.35	0.00	0.00	0.11	0.57
Avail Cap(c_a), veh/h	1933	0	860				479	2035	0	215	1949	869
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	13.3				13.8	3.8	0.0	0.0	8.4	9.8
Incr Delay (d2), s/veh	0.6	0.0	1.5				8.9	0.1	0.0	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.7				1.7	0.5	0.0	0.0	0.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	0.0	14.8				22.7	3.9	0.0	0.0	8.4	10.8
LnGrp LOS	B	A	B				C	A	A	A	A	B
Approach Vol, veh/h		301						1087			392	
Approach Delay, s/veh		14.2						10.5			10.1	
Approach LOS		B						B			B	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	0.0	23.9		9.3	9.0	14.9
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s	4.0	18.8		18.0	4.6	18.2
Max Q Clear Time (g_c+I1), s	0.0	5.5		3.8	5.5	6.8
Green Ext Time (p_c), s	0.0	4.0		0.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th AWSC
32: Avenida Del Rio & Riverwalk Dr.

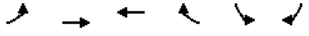
Year 2050 + P1 + P2 + P3 AM
03/11/2020

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	350	100	60	280	150	160
Future Vol, veh/h	350	100	60	280	150	160
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	389	111	67	311	167	178
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	23.6	17.4	12.7
HCM LOS	C	C	B

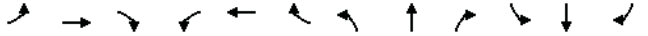
Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	18%
Vol Thru, %	0%	0%	78%	82%
Vol Right, %	0%	100%	22%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	160	450	340
LT Vol	150	0	0	60
Through Vol	0	0	350	280
RT Vol	0	160	100	0
Lane Flow Rate	167	178	500	378
Geometry Grp	7	7	2	2
Degree of Util (X)	0.34	0.302	0.757	0.606
Departure Headway (Hd)	7.343	6.118	5.448	5.777
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	488	585	660	623
Service Time	5.106	3.881	3.502	3.837
HCM Lane V/C Ratio	0.342	0.304	0.758	0.607
HCM Control Delay	13.9	11.5	23.6	17.4
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.5	1.3	6.9	4.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	90	230	320	150	95	140
Future Volume (vph)	90	230	320	150	95	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9	4.9		4.4	4.4
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3338		3433	1538
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3338		3433	1538
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	100	256	356	167	106	156
RTOR Reduction (vph)	0	0	40	0	0	133
Lane Group Flow (vph)	100	256	483	0	106	23
Confl. Peds. (#/hr)	26			26	14	6
Confl. Bikes (#/hr)						3
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	7.2	33.2	21.6		10.0	10.0
Effective Green, g (s)	7.2	33.2	21.6		10.0	10.0
Actuated g/C Ratio	0.11	0.49	0.32		0.15	0.15
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	188	1738	1066		507	227
v/s Ratio Prot	c0.06	0.07	c0.14		c0.03	
v/s Ratio Perm						0.01
v/c Ratio	0.53	0.15	0.45		0.21	0.10
Uniform Delay, d1	28.6	9.4	18.3		25.3	24.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	0.0	0.4		0.1	0.1
Delay (s)	30.1	9.5	18.7		25.4	25.0
Level of Service	C	A	B		C	C
Approach Delay (s)		15.3	18.7		25.2	
Approach LOS		B	B		C	

Intersection Summary				
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	21.7	
Intersection Capacity Utilization	42.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	20	270	30	20	20	300	600	80	40	490	150
Future Volume (veh/h)	90	20	270	30	20	20	300	600	80	40	490	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.91	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	0	287	32	21	21	319	638	85	43	521	160
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	890	0	388	40	26	26	405	1392	185	55	1383	411
Arrive On Green	0.25	0.00	0.25	0.06	0.06	0.06	0.12	0.44	0.44	0.03	0.36	0.36
Sat Flow, veh/h	3563	0	1555	732	480	480	3456	3148	419	1781	3881	1154
Grp Volume(v), veh/h	111	0	287	74	0	0	319	360	363	43	455	226
Grp Sat Flow(s),veh/h/ln	1781	0	1555	1693	0	0	1728	1777	1789	1781	1702	1630
Q Serve(g_s), s	1.9	0.0	13.3	3.4	0.0	0.0	7.0	11.0	11.1	1.9	7.7	8.1
Cycle Q Clear(g_c), s	1.9	0.0	13.3	3.4	0.0	0.0	7.0	11.0	11.1	1.9	7.7	8.1
Prop In Lane	1.00		1.00	0.43		0.28	1.00		0.23	1.00		0.71
Lane Grp Cap(c), veh/h	890	0	388	93	0	0	405	786	792	55	1213	581
V/C Ratio(X)	0.12	0.00	0.74	0.79	0.00	0.00	0.79	0.46	0.46	0.78	0.38	0.39
Avail Cap(c_a), veh/h	1507	0	657	130	0	0	487	786	792	137	1213	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	26.9	36.4	0.0	0.0	33.5	15.2	15.2	37.5	18.7	18.8
Incr Delay (d2), s/veh	0.1	0.0	3.6	13.4	0.0	0.0	5.7	1.9	1.9	8.4	0.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	5.1	1.7	0.0	0.0	3.2	4.6	4.6	0.9	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	30.5	49.8	0.0	0.0	39.2	17.1	17.1	45.9	19.6	20.7
LnGrp LOS	C	A	C	D	A	A	D	B	B	D	B	C
Approach Vol, veh/h		398			74			1042			724	
Approach Delay, s/veh		28.3			49.8			23.9			21.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.8		23.5	13.1	33.1		8.3				
Change Period (Y+Rc), s	4.0	5.3		4.0	4.0	* 5.3		4.0				
Max Green Setting (Gmax), s	6.0	32.7		33.0	11.0	* 28		6.0				
Max Q Clear Time (g_c+I1), s	3.9	13.1		15.3	9.0	10.1		5.4				
Green Ext Time (p_c), s	0.0	7.6		1.8	0.1	6.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

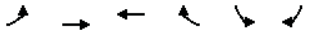
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	90	120	150	250	610	310
Future Volume (veh/h)	90	120	150	250	610	310
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	133	167	62	678	324
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	127	763	536	1214	856	761
Arrive On Green	0.07	0.41	0.29	0.29	0.48	0.48
Sat Flow, veh/h	1781	1870	1870	1582	1781	1585
Grp Volume(v), veh/h	100	133	167	62	678	324
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1582	1781	1585
Q Serve(g_s), s	4.8	4.0	6.1	0.8	28.0	11.7
Cycle Q Clear(g_c), s	4.8	4.0	6.1	0.8	28.0	11.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	127	763	536	1214	856	761
V/C Ratio(X)	0.79	0.17	0.31	0.05	0.79	0.43
Avail Cap(c_a), veh/h	175	813	536	1214	856	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	16.5	24.5	2.5	19.1	14.9
Incr Delay (d2), s/veh	10.0	0.0	1.5	0.1	7.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.7	2.9	1.0	12.5	12.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.1	16.6	26.0	2.6	26.6	16.6
LnGrp LOS	D	B	C	A	C	B
Approach Vol, veh/h		233	229		1002	
Approach Delay, s/veh		31.0	19.7		23.3	
Approach LOS		C	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.7		47.0	10.7	30.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		38.1		42.1	8.6	25.1
Max Q Clear Time (g_c+I1), s		6.0		30.0	6.8	8.1
Green Ext Time (p_c), s		0.5		1.6	0.0	0.6
Intersection Summary						
HCM 6th Ctrl Delay			24.0			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	90	70	130	390	250	210	570	120	150	390	140
Future Volume (veh/h)	90	90	70	130	390	250	210	570	120	150	390	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	97	20	140	419	137	226	613	110	161	419	24
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	607	121	189	580	188	275	2365	418	212	2674	827
Arrive On Green	0.04	0.21	0.21	0.05	0.22	0.22	0.16	1.00	1.00	0.06	0.52	0.52
Sat Flow, veh/h	3456	2938	587	3456	2634	852	3456	4362	771	3456	5106	1580
Grp Volume(v), veh/h	97	57	60	140	281	275	226	476	247	161	419	24
Grp Sat Flow(s),veh/h/ln	1728	1777	1748	1728	1777	1709	1728	1702	1729	1728	1702	1580
Q Serve(g_s), s	3.9	3.7	3.9	5.6	20.5	20.9	8.9	0.0	0.0	6.4	6.0	1.0
Cycle Q Clear(g_c), s	3.9	3.7	3.9	5.6	20.5	20.9	8.9	0.0	0.0	6.4	6.0	1.0
Prop In Lane	1.00		0.34	1.00		0.50	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	143	367	361	189	391	376	275	1846	937	212	2674	827
V/C Ratio(X)	0.68	0.16	0.16	0.74	0.72	0.73	0.82	0.26	0.26	0.76	0.16	0.03
Avail Cap(c_a), veh/h	286	585	576	360	623	599	508	1846	937	410	2674	827
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	45.5	45.6	65.2	50.6	50.7	57.9	0.0	0.0	64.7	17.3	16.1
Incr Delay (d2), s/veh	1.8	0.2	0.2	2.1	4.8	5.2	2.0	0.3	0.6	2.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.7	1.7	2.5	9.7	9.5	3.7	0.1	0.2	2.9	2.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	45.7	45.8	67.3	55.3	56.0	59.9	0.3	0.6	66.8	17.4	16.2
LnGrp LOS	E	D	D	E	E	E	E	A	A	E	B	B
Approach Vol, veh/h		214			696			949			604	
Approach Delay, s/veh		55.8			58.0			14.6			30.5	
Approach LOS		E			E			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	81.1	12.1	33.8	15.5	78.5	10.2	35.7				
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9				
Max Green Setting (Gmax), s	16.6	43.8	14.6	46.1	20.6	* 40	11.6	49.1				
Max Q Clear Time (g_c+I1), s	8.4	2.0	7.6	5.9	10.9	8.0	5.9	22.9				
Green Ext Time (p_c), s	0.2	9.8	0.1	0.7	0.3	5.6	0.1	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	170	180	280	320	510	170	310	290	220	320	60
Future Volume (veh/h)	20	170	180	280	320	510	170	310	290	220	320	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	177	0	292	333	45	177	323	0	229	333	37
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	424		346	381	319	224	2002		281	2061	907
Arrive On Green	0.02	0.12	0.00	0.10	0.20	0.20	0.06	0.56	0.00	0.16	1.00	1.00
Sat Flow, veh/h	1781	3554	1585	3456	1870	1566	3456	3554	1585	3456	3554	1564
Grp Volume(v), veh/h	21	177	0	292	333	45	177	323	0	229	333	37
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1566	1728	1777	1585	1728	1777	1564
Q Serve(g_s), s	1.6	6.5	0.0	11.6	24.2	3.3	7.1	6.1	0.0	9.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	6.5	0.0	11.6	24.2	3.3	7.1	6.1	0.0	9.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	28	424		346	381	319	224	2002		281	2061	907
V/C Ratio(X)	0.74	0.42		0.84	0.87	0.14	0.79	0.16		0.81	0.16	0.04
Avail Cap(c_a), veh/h	109	1069		583	757	634	237	2002		459	2061	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.93	0.93	0.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	68.6	57.2	0.0	61.9	54.0	45.7	64.5	14.7	0.0	57.6	0.0	0.0
Incr Delay (d2), s/veh	13.0	0.7	0.0	2.2	2.5	0.1	13.2	0.2	0.0	5.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.0	0.0	5.2	11.7	1.3	3.5	2.5	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.6	57.8	0.0	64.1	56.6	45.8	77.7	14.8	0.0	63.1	0.2	0.1
LnGrp LOS	F	E		E	E	D	E	B		E	A	A
Approach Vol, veh/h		198	A		670			500	A		599	
Approach Delay, s/veh		60.3			59.1			37.1			24.2	
Approach LOS		E			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	83.8	18.4	22.0	13.5	86.1	6.6	33.8
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	18.6	37.1	23.6	* 42	9.6	46.1	8.6	56.7
Max Q Clear Time (g_c+I1), s	11.0	8.1	13.6	8.5	9.1	2.0	3.6	26.2
Green Ext Time (p_c), s	0.4	1.4	0.4	1.2	0.0	4.2	0.0	1.4

Intersection Summary		
HCM 6th Ctrl Delay	43.0	
HCM 6th LOS	D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2050 + P1 + P2 + P3 AM
03/11/2020

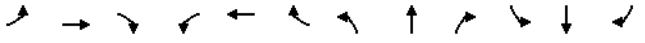
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	430	0	420	0	0	0	0	340	140	350	430	0
Future Volume (vph)	430	0	420	0	0	0	0	340	140	350	430	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3359	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.99	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3359	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	448	0	438	0	0	0	0	354	146	365	448	0
RTOR Reduction (vph)	0	0	316	0	0	0	0	0	92	0	0	0
Lane Group Flow (vph)	448	0	122	0	0	0	0	354	54	263	550	0
Confl. Peds. (#/hr)							7					7
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	37.7		37.7					49.5	49.5	29.5	29.5	
Effective Green, g (s)	37.7		37.7					49.5	49.5	29.5	29.5	
Actuated g/C Ratio	0.28		0.28					0.37	0.37	0.22	0.22	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	958		442					1297	580	351	734	
v/s Ratio Prot	c0.13							c0.10		0.16	c0.16	
v/s Ratio Perm			0.08						0.03			
v/c Ratio	0.47		0.28					0.27	0.09	0.75	0.75	
Uniform Delay, d1	40.3		38.0					30.1	28.0	49.3	49.3	
Progression Factor	1.00		1.00					0.60	0.10	1.00	1.00	
Incremental Delay, d2	1.6		1.6					0.0	0.0	9.0	4.5	
Delay (s)	42.0		39.6					18.0	2.9	58.3	53.8	
Level of Service	D		D					B	A	E	D	
Approach Delay (s)		40.8			0.0			13.6			55.2	
Approach LOS		D			A			B			E	

Intersection Summary				
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	54.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	90	20	20	260	230	20	30	20	330	100	420
Future Volume (vph)	220	90	20	20	260	230	20	30	20	330	100	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.98			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (prot)	1610	3262			3526	1583		1764		1681	1723	1562
Flt Permitted	0.95	0.98			1.00	1.00		0.99		0.95	0.97	1.00
Satd. Flow (perm)	1610	3262			3526	1583		1764		1681	1723	1562
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	237	97	22	22	280	247	22	32	22	355	108	452
RTOR Reduction (vph)	0	6	0	0	0	124	0	10	0	0	0	284
Lane Group Flow (vph)	118	232	0	0	302	123	0	66	0	227	236	168
Confl. Peds. (#/hr)							1					1
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	26.5			16.9	67.2		16.9		50.3	50.3	50.3
Effective Green, g (s)	26.5	26.5			16.9	67.2		16.9		50.3	50.3	50.3
Actuated g/C Ratio	0.20	0.20			0.13	0.50		0.13		0.37	0.37	0.37
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	316	640			441	787		220		626	641	581
v/s Ratio Prot	c0.07	0.07			c0.09	0.06		c0.04		0.14	c0.14	
v/s Ratio Perm						0.02						0.11
v/c Ratio	0.37	0.36			0.68	0.16		0.30		0.36	0.37	0.29
Uniform Delay, d1	47.0	46.9			56.5	18.5		53.7		30.7	30.8	29.8
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.72	0.72	2.75
Incremental Delay, d2	3.4	1.6			8.4	0.4		3.4		1.4	1.4	1.1
Delay (s)	50.4	48.5			64.9	18.9		57.1		23.5	23.7	83.1
Level of Service	D	D			E	B		E		C	C	F
Approach Delay (s)		49.2			44.2			57.1			53.0	
Approach LOS		D			D			E			D	

Intersection Summary				
HCM 2000 Control Delay	49.9	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	58.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
46: Hotel Circle Place/Hotel Circle N.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	0	0	0	0	450	50	0	0	0	0	0	150
Future Volume (vph)	0	0	0	0	450	50	0	0	0	0	0	150
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	489	54	0	0	0	0	0	163

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	543	163
Volume Left (vph)	0	0	0	0	0
Volume Right (vph)	0	0	0	54	163
Hadj (s)	0.00	0.00	0.00	-0.04	-0.57
Departure Headway (s)	5.4	5.4	4.9	4.9	4.8
Degree Utilization, x	0.00	0.00	0.00	0.74	0.22
Capacity (veh/h)	635	635	737	720	690
Control Delay (s)	7.2	7.2	6.7	19.0	9.0
Approach Delay (s)	0.0		19.0		9.0
Approach LOS	A		C		A

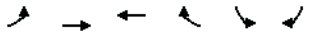
Intersection Summary				
Delay	16.7			
Level of Service	C			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	259.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	351	312	222	758	582	0	0	10	225
Future Vol, veh/h	0	0	0	351	312	222	758	582	0	0	10	225
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	373	332	236	806	619	0	0	11	239
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	83.9	417.8	22.1
HCM LOS	F	F	C

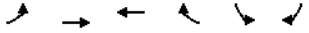
Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	80%	0%	100%	0%	0%	0%
Vol Thru, %	20%	100%	0%	58%	100%	0%
Vol Right, %	0%	0%	0%	42%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	952	388	351	534	10	225
LT Vol	758	0	351	0	0	0
Through Vol	194	388	0	312	10	0
RT Vol	0	0	0	222	0	225
Lane Flow Rate	1013	413	373	568	11	239
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	2.213	0.857	0.826	1.133	0.026	0.528
Departure Headway (Hd)	8.131	7.722	8.876	8.067	10.294	9.565
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	456	471	411	454	350	381
Service Time	5.831	5.422	6.576	5.767	7.994	7.265
HCM Lane V/C Ratio	2.221	0.877	0.908	1.251	0.031	0.627
HCM Control Delay	571.1	41.6	41.9	111.5	13.3	22.5
HCM Lane LOS	F	E	E	F	B	C
HCM 95th-tile Q	72.2	8.8	7.6	18	0.1	3



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	400	200	0	240
Future Volume (vph)	0	0	400	200	0	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.9			4.9
Lane Util. Factor			0.95			0.88
Frpb, ped/bikes			0.99			0.98
Flpb, ped/bikes			1.00			1.00
Frt			0.95			0.85
Flt Protected			1.00			1.00
Satd. Flow (prot)			3345			2727
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3345			2727
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	444	222	0	267
RTOR Reduction (vph)	0	0	126	0	0	216
Lane Group Flow (vph)	0	0	540	0	0	51
Confl. Peds. (#/hr)	5			5		2
Confl. Bikes (#/hr)				3		
Turn Type			NA			Perm
Protected Phases			6			
Permitted Phases						4
Actuated Green, G (s)			11.2			4.9
Effective Green, g (s)			11.2			4.9
Actuated g/C Ratio			0.43			0.19
Clearance Time (s)			4.9			4.9
Vehicle Extension (s)			3.9			2.0
Lane Grp Cap (vph)			1446			515
v/s Ratio Prot			c0.16			
v/s Ratio Perm						c0.02
v/c Ratio			0.37			0.10
Uniform Delay, d1			5.0			8.7
Progression Factor			1.00			1.00
Incremental Delay, d2			0.2			0.0
Delay (s)			5.2			8.7
Level of Service			A			A
Approach Delay (s)		0.0	5.2		8.7	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	25.9	Sum of lost time (s)	9.8
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

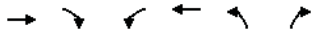
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	440	450	0	160
Future Volume (veh/h)	0	0	440	450	0	160
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			478	489	0	174
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1429	1274	0	0
Arrive On Green			0.80	0.80	0.00	0.00
Sat Flow, veh/h			1870	1585	0	
Grp Volume(v), veh/h			478	489	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1585		
Q Serve(g_s), s			1.8	2.2		
Cycle Q Clear(g_c), s			1.8	2.2		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			1429	1274		
V/C Ratio(X)			0.33	0.38		
Avail Cap(c_a), veh/h			1429	1274		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.7	0.7		
Incr Delay (d2), s/veh			0.6	0.9		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.3	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			1.3	1.6		
LnGrp LOS			A	A		
Approach Vol, veh/h			967			
Approach Delay, s/veh			1.4			
Approach LOS			A			

Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						25.0
Change Period (Y+Rc), s						4.9
Max Green Setting (Gmax), s						20.1
Max Q Clear Time (g_c+I1), s						4.2
Green Ext Time (p_c), s						4.2

Intersection Summary	
HCM 6th Ctrl Delay	1.4
HCM 6th LOS	A



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	150	750	0	0	0	740
Future Volume (vph)	150	750	0	0	0	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	0.98					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.88					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3042					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3042					1611
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	833	0	0	0	822
RTOR Reduction (vph)	518	0	0	0	0	355
Lane Group Flow (vph)	482	0	0	0	0	467
Confl. Peds. (#/hr)		1	1		6	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	17.0					19.0
Effective Green, g (s)	17.0					19.0
Actuated g/C Ratio	0.38					0.42
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1149					680
v/s Ratio Prot	c0.16					
v/s Ratio Perm						c0.29
v/c Ratio	0.42					0.69
Uniform Delay, d1	10.4					10.6
Progression Factor	1.00					1.00
Incremental Delay, d2	1.1					5.6
Delay (s)	11.5					16.1
Level of Service	B					B
Approach Delay (s)	11.5			0.0	16.1	
Approach LOS	B			A	B	

Intersection Summary				
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	81.8%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
53: Street J & Riverwalk Dr.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	140	0	40	530	60	0	20	620	0
Future Volume (veh/h)	0	0	0	140	0	40	530	60	0	20	620	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	152	0	43	576	65	0	22	674	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	2	0	195	0	173	631	1363	0	34	736	0
Arrive On Green	0.00	0.00	0.00	0.11	0.00	0.11	0.35	0.73	0.00	0.02	0.39	0.00
Sat Flow, veh/h	0	-74814	0	1781	0	1585	1781	1870	0	1781	1870	0
Grp Volume(v), veh/h	0	0	0	152	0	43	576	65	0	22	674	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	1870	0	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	7.0	0.0	2.1	26.0	0.8	0.0	1.0	28.7	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.0	0.0	2.1	26.0	0.8	0.0	1.0	28.7	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	2	0	195	0	173	631	1363	0	34	736	0
V/C Ratio(X)	0.00	0.00	0.00	0.78	0.00	0.25	0.91	0.05	0.00	0.65	0.92	0.00
Avail Cap(c_a), veh/h	0	356	0	339	0	678	953	1712	0	106	823	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	36.5	0.0	34.3	25.9	3.2	0.0	41.0	24.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.7	0.0	0.7	9.2	0.0	0.0	18.7	13.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.3	0.0	0.8	12.0	0.2	0.0	0.6	14.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	43.1	0.0	35.0	35.1	3.2	0.0	59.6	38.0	0.0
LnGrp LOS	A	A	A	D	A	D	D	A	A	E	D	A
Approach Vol, veh/h		0			195			641			696	
Approach Delay, s/veh		0.0			41.3			31.9			38.7	
Approach LOS					D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	8
Phs Duration (G+Y+Rc), s	5.6	65.3	13.2	0.0	33.8	37.1	13.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	77.0	16.0	16.0	45.0	37.0	36.0
Max Q Clear Time (g_c+I1), s	3.0	2.8	9.0	0.0	28.0	30.7	4.1
Green Ext Time (p_c), s	0.0	0.4	0.2	0.0	1.8	2.4	0.2

Intersection Summary	
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
54: Project Dwy. Street "B" & CVC

Year 2050 + P1 + P2 + P3 AM
03/19/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	510	90	500	250	90	620
Future Volume (veh/h)	510	90	500	250	90	620
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	554	98	543	272	98	674
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	565	503	504	252	113	1039
Arrive On Green	0.32	0.32	0.43	0.43	0.06	0.56
Sat Flow, veh/h	1781	1585	1176	589	1781	1870
Grp Volume(v), veh/h	554	98	0	815	98	674
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1764	1781	1870
Q Serve(g_s), s	19.4	2.8	0.0	27.0	3.4	15.8
Cycle Q Clear(g_c), s	19.4	2.8	0.0	27.0	3.4	15.8
Prop In Lane	1.00	1.00		0.33	1.00	
Lane Grp Cap(c), veh/h	565	503	0	756	113	1039
V/C Ratio(X)	0.98	0.19	0.00	1.08	0.87	0.65
Avail Cap(c_a), veh/h	565	503	0	756	113	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	15.6	0.0	18.0	29.2	9.7
Incr Delay (d2), s/veh	32.6	0.2	0.0	55.7	46.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	1.0	0.0	21.1	2.9	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.9	15.8	0.0	73.7	75.4	11.2
LnGrp LOS	D	B	A	F	E	B
Approach Vol, veh/h	652		815			772
Approach Delay, s/veh	48.2		73.7			19.3
Approach LOS	D		E			B

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	8.0	31.0	39.0	24.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	27.0	35.0	20.0
Max Q Clear Time (g_c+I1), s	5.4	29.0	17.8	21.4
Green Ext Time (p_c), s	0.0	0.0	4.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
55: Street J & Hotel Circle N.

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	340	350	520	400	0	0	900	230
Future Volume (veh/h)	0	0	0	100	340	350	520	400	0	0	900	230
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				109	370	380	565	435	0	0	978	250
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				168	605	340	597	2411	0	0	1085	460
Arrive On Green				0.21	0.21	0.21	0.33	0.68	0.00	0.00	0.29	0.29
Sat Flow, veh/h				785	2823	1585	1781	3647	0	0	3741	1585
Grp Volume(v), veh/h				254	225	380	565	435	0	0	978	250
Grp Sat Flow(s),veh/h/ln				1831	1777	1585	1781	1777	0	0	1870	1585
Q Serve(g_s), s				9.5	8.5	16.0	23.1	3.3	0.0	0.0	18.8	9.9
Cycle Q Clear(g_c), s				9.5	8.5	16.0	23.1	3.3	0.0	0.0	18.8	9.9
Prop In Lane				0.43		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				393	381	340	597	2411	0	0	1085	460
V/C Ratio(X)				0.65	0.59	1.12	0.95	0.18	0.00	0.00	0.90	0.54
Avail Cap(c_a), veh/h				393	381	340	597	2428	0	0	1103	467
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.8	26.4	29.3	24.2	4.4	0.0	0.0	25.5	22.3
Incr Delay (d2), s/veh				3.7	2.4	84.7	24.4	0.0	0.0	0.0	10.2	1.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.4	3.7	13.8	13.1	0.9	0.0	0.0	9.4	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.5	28.8	114.1	48.6	4.4	0.0	0.0	35.7	23.6
LnGrp LOS				C	C	F	D	A	A	A	D	C
Approach Vol, veh/h					859			1000			1228	
Approach Delay, s/veh					67.0			29.4			33.2	
Approach LOS					E			C			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		54.6			29.0	25.6		20.0				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		51.0			25.0	22.0		16.0				
Max Q Clear Time (g_c+I1), s		5.3			25.1	20.8		18.0				
Green Ext Time (p_c), s		3.3			0.0	0.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		41.4	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
56: Hotel Circle S. & Street J

Year 2050 + P1 + P2 + P3 AM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	700	30	0	0	0	0	120	60	1500	100	0
Future Volume (veh/h)	400	700	30	0	0	0	0	120	60	1500	100	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	435	761	33				0	130	65	1630	109	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	442	862	37				0	161	80	1635	1229	0
Arrive On Green	0.25	0.25	0.25				0.00	0.14	0.14	0.47	0.66	0.00
Sat Flow, veh/h	1781	3470	150				0	1176	588	3456	1870	0
Grp Volume(v), veh/h	435	390	404				0	0	195	1630	109	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1843				0	0	1764	1728	1870	0
Q Serve(g_s), s	20.5	17.8	17.9				0.0	0.0	9.1	39.8	1.8	0.0
Cycle Q Clear(g_c), s	20.5	17.8	17.9				0.0	0.0	9.1	39.8	1.8	0.0
Prop In Lane	1.00		0.08				0.00		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	442	441	458				0	0	241	1635	1229	0
V/C Ratio(X)	0.98	0.88	0.88				0.00	0.00	0.81	1.00	0.09	0.00
Avail Cap(c_a), veh/h	442	441	458				0	0	355	1635	1349	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.6	30.6	30.6				0.0	0.0	35.4	22.2	5.3	0.0
Incr Delay (d2), s/veh	38.3	18.6	18.1				0.0	0.0	8.5	21.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	9.6	9.9				0.0	0.0	4.4	19.5	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.9	49.1	48.7				0.0	0.0	43.9	43.7	5.3	0.0
LnGrp LOS	E	D	D				A	A	D	D	A	A
Approach Vol, veh/h		1229						195			1739	
Approach Delay, s/veh		56.3						43.9			41.3	
Approach LOS		E						D			D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	44.0	15.5		25.0		59.5						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	40.0	17.0		21.0		61.0						
Max Q Clear Time (g_c+I1), s	41.8	11.1		22.5		3.8						
Green Ext Time (p_c), s	0.0	0.5		0.0		0.7						

Intersection Summary			
HCM 6th Ctrl Delay		47.3	
HCM 6th LOS		D	

HCM 6th Signalized Intersection Summary
57: Levi Cushman Street "B" & Office Driveway

Year 2050 + P1 + P2 + P3 AM
03/25/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	0	131	13	131	249	14	20	0
Future Volume (veh/h)	0	0	0	192	0	131	13	131	249	14	20	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	209	0	142	14	142	271	15	22	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	16	0	363	362	323	27	462	714	28	463	0
Arrive On Green	0.00	0.00	0.00	0.20	0.00	0.20	0.01	0.25	0.25	0.02	0.25	0.00
Sat Flow, veh/h	1781	3647	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	0	0	0	209	0	142	14	142	271	15	22	0
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	2.4	0.0	1.8	0.2	1.4	2.5	0.2	0.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.4	0.0	1.8	0.2	1.4	2.5	0.2	0.2	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	8	16	0	363	362	323	27	462	714	28	463	0
V/C Ratio(X)	0.00	0.00	0.00	0.58	0.00	0.44	0.53	0.31	0.38	0.53	0.05	0.00
Avail Cap(c_a), veh/h	317	2529	0	634	1581	1410	317	1331	1451	317	1331	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.1	0.0	7.8	11.0	6.9	4.1	11.0	6.4	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.4	0.0	0.9	15.3	0.4	0.3	14.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.6	0.0	0.4	0.2	0.3	0.2	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	9.5	0.0	8.8	26.3	7.3	4.4	25.4	6.5	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	C	A	A
Approach Vol, veh/h		0			351			427			37	
Approach Delay, s/veh		0.0			9.2			6.1			14.2	
Approach LOS					A			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	9.5	8.6	0.0	4.3	9.6	0.0	8.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	16.0	8.0	16.0	4.0	16.0	4.0	20.0
Max Q Clear Time (g_c+I1), s	2.2	4.5	4.4	0.0	2.2	2.2	0.0	3.8
Green Ext Time (p_c), s	0.0	1.4	0.2	0.0	0.0	0.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
1: Sea World Dr. & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	510	180	1410	760	480	1390
Future Volume (veh/h)	510	180	1410	760	480	1390
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	526	52	1454	750	495	1433
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	660	294	1937	1139	573	2624
Arrive On Green	0.19	0.19	0.55	0.55	0.17	0.74
Sat Flow, veh/h	3563	1585	3647	1551	3456	3647
Grp Volume(v), veh/h	526	52	1454	750	495	1433
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1551	1728	1777
Q Serve(g_s), s	16.3	3.2	36.4	29.2	16.1	20.4
Cycle Q Clear(g_c), s	16.3	3.2	36.4	29.2	16.1	20.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	660	294	1937	1139	573	2624
V/C Ratio(X)	0.80	0.18	0.75	0.66	0.86	0.55
Avail Cap(c_a), veh/h	1016	452	2151	1233	747	3042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	39.7	20.3	8.1	47.0	6.6
Incr Delay (d2), s/veh	1.2	0.1	1.5	1.4	6.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	1.2	14.0	16.5	7.4	6.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.2	39.8	21.8	9.5	53.8	7.0
LnGrp LOS	D	D	C	A	D	A
Approach Vol, veh/h	578		2204			1928
Approach Delay, s/veh	45.6		17.6			19.1
Approach LOS	D		B			B

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	23.2	67.0				90.2	25.4
Change Period (Y+Rc), s	4.4	6.2				* 6.2	6.2
Max Green Setting (Gmax), s	24.6	67.8				* 98	30.8
Max Q Clear Time (g_c+I1), s	18.1	38.4				22.4	18.3
Green Ext Time (p_c), s	0.6	22.4				40.9	0.9

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
3: I-5 SB Ramps & Sea World Dr/Tecolote Rd

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1140	160	290	580	0	0	0	0	330	10	1320
Future Volume (veh/h)	0	1140	160	290	580	0	0	0	0	330	10	1320
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1188	167	302	604	0				344	10	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1325	591	366	1827	0				704	20	
Arrive On Green	0.00	0.37	0.37	0.11	0.51	0.00				0.41	0.41	0.00
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1733	50	1585
Grp Volume(v), veh/h	0	1188	167	302	604	0				354	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1784	0	1585
Q Serve(g_s), s	0.0	37.8	8.9	10.3	11.9	0.0				17.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	37.8	8.9	10.3	11.9	0.0				17.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1325	591	366	1827	0				724	0	
V/C Ratio(X)	0.00	0.90	0.28	0.82	0.33	0.00				0.49	0.00	
Avail Cap(c_a), veh/h	0	1510	674	487	2135	0				724	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.22	0.22	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.4	26.4	52.5	17.1	0.0				26.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.3	0.1	2.0	0.0	0.0				0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.2	3.4	4.6	4.9	0.0				7.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	41.7	26.5	54.5	17.1	0.0				26.6	0.0	0.0
LnGrp LOS	A	D	C	D	B	A				C	A	
Approach Vol, veh/h		1355			906						354	A
Approach Delay, s/veh		39.8			29.6						26.6	
Approach LOS		D			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.9	49.8		53.3		66.7						
Change Period (Y+Rc), s	* 4.2	5.0		4.6		5.0						
Max Green Setting (Gmax), s	* 17	51.0		38.3		72.1						
Max Q Clear Time (g_c+I1), s	12.3	39.8		19.6		13.9						
Green Ext Time (p_c), s	0.5	5.0		0.8		3.0						

Intersection Summary			
HCM 6th Ctrl Delay		34.5	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
4: I-5 NB Ramps & Tecolote Rd

Year 2050 + P1 + P2 + P3 PM
03/11/2020



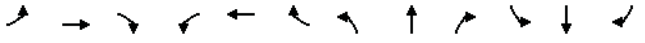
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	810	660	0	0	550	530	320	20	620	0	0	0
Future Volume (veh/h)	810	660	0	0	550	530	320	20	620	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	844	688	0	0	573	336	333	21	417			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	889	2068	0	0	624	366	561	35	529			
Arrive On Green	0.26	0.58	0.00	0.00	0.29	0.29	0.33	0.33	0.33			
Sat Flow, veh/h	3456	3647	0	0	2250	1264	1680	106	1585			
Grp Volume(v), veh/h	844	688	0	0	472	437	354	0	417			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1643	1786	0	1585			
Q Serve(g_s), s	28.8	12.0	0.0	0.0	30.9	30.9	19.8	0.0	28.5			
Cycle Q Clear(g_c), s	28.8	12.0	0.0	0.0	30.9	30.9	19.8	0.0	28.5			
Prop In Lane	1.00		0.00	0.00		0.77	0.94		1.00			
Lane Grp Cap(c), veh/h	889	2068	0	0	514	476	596	0	529			
V/C Ratio(X)	0.95	0.33	0.00	0.00	0.92	0.92	0.59	0.00	0.79			
Avail Cap(c_a), veh/h	893	2156	0	0	557	515	596	0	529			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.72	0.72	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	43.8	13.0	0.0	0.0	41.2	41.3	33.2	0.0	36.1			
Incr Delay (d2), s/veh	15.0	0.0	0.0	0.0	18.7	19.9	1.1	0.0	7.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.1	4.7	0.0	0.0	16.1	15.0	8.7	0.0	24.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	13.0	0.0	0.0	60.0	61.2	34.3	0.0	43.3			
LnGrp LOS	E	B	A	A	E	E	C	A	D			
Approach Vol, veh/h		1532			909			771				
Approach Delay, s/veh		38.2			60.5			39.2				
Approach LOS		D			E			D				

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		75.3		44.7	35.1	40.2						
Change Period (Y+Rc), s		5.5		4.6	* 4.2	5.5						
Max Green Setting (Gmax), s		72.8		37.1	* 31	37.6						
Max Q Clear Time (g_c+I1), s		14.0		30.5	30.8	32.9						
Green Ext Time (p_c), s		3.5		0.7	0.1	1.9						

Intersection Summary			
HCM 6th Ctrl Delay		44.8	
HCM 6th LOS		D	

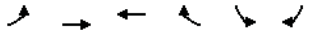
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	520	510	30	20	220	90	0	0	40	260	20	450
Future Volume (vph)	520	510	30	20	220	90	0	0	40	260	20	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95				1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99				0.95	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.96				0.86	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (prot)	3433	3501		1770	3367				1524	1681	1697	1570
Flt Permitted	0.95	1.00		0.95	1.00				1.00	0.95	0.96	1.00
Satd. Flow (perm)	3433	3501		1770	3367				1524	1681	1697	1570
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	578	567	33	22	244	100	0	0	44	289	22	500
RTOR Reduction (vph)	0	3	0	0	39	0	0	0	43	0	0	250
Lane Group Flow (vph)	578	597	0	22	305	0	0	0	1	153	158	250
Confl. Peds. (#/hr)			8			5			24			1
Turn Type	Prot	NA		Prot	NA				Perm	Split	NA	pm+ov
Protected Phases	5	2		1	6					4	4	5
Permitted Phases									8			4
Actuated Green, G (s)	16.6	41.2		2.0	26.6				3.2	30.1	30.1	46.7
Effective Green, g (s)	17.0	42.1		2.4	27.5				3.2	31.4	31.4	47.5
Actuated g/C Ratio	0.18	0.44		0.03	0.29				0.03	0.33	0.33	0.50
Clearance Time (s)	4.4	4.9		4.4	4.9				4.0	5.3	5.3	4.4
Vehicle Extension (s)	2.0	3.3		2.0	3.8				3.0	4.4	4.4	2.0
Lane Grp Cap (vph)	613	1549		44	973				51	555	560	784
v/s Ratio Prot	c0.17	c0.17		0.01	0.09					0.09	0.09	c0.06
v/s Ratio Perm									c0.00			0.10
v/c Ratio	0.94	0.39		0.50	0.31				0.03	0.28	0.28	0.32
Uniform Delay, d1	38.6	17.8		45.8	26.4				44.4	23.5	23.5	14.2
Progression Factor	1.00	1.00		1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	22.9	0.2		3.2	0.8				0.2	1.2	1.3	0.1
Delay (s)	61.5	18.0		49.0	27.3				44.7	24.7	24.8	14.3
Level of Service	E	B		D	C				D	C	C	B
Approach Delay (s)		39.3			28.6			44.7			18.3	
Approach LOS		D			C			D			B	

Intersection Summary				
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	95.1	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	68.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1040	430	360	510	220
Future Volume (vph)	160	1040	430	360	510	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1540	3423	1418
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1540	3423	1418
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	1083	448	375	531	229
RTOR Reduction (vph)	0	0	0	148	2	98
Lane Group Flow (vph)	167	1083	448	227	552	108
Confl. Peds. (#/hr)	23			23	36	3
Confl. Bikes (#/hr)				5		
Turn Type	Prot	NA	NA	pm+ov	Prot	Perm
Protected Phases	5	2	6	4	4	
Permitted Phases				6		4
Actuated Green, G (s)	15.6	64.2	44.6	70.0	25.4	25.4
Effective Green, g (s)	16.0	66.2	46.2	71.8	26.3	26.3
Actuated g/C Ratio	0.13	0.56	0.39	0.60	0.22	0.22
Clearance Time (s)	4.4	6.0	5.6	4.9	4.9	4.9
Vehicle Extension (s)	2.0	4.6	4.2	5.0	5.0	5.0
Lane Grp Cap (vph)	238	1973	1377	931	758	314
v/s Ratio Prot	c0.09	c0.31	0.13	0.05	c0.16	
v/s Ratio Perm				0.09		0.08
v/c Ratio	0.70	0.55	0.33	0.24	0.73	0.34
Uniform Delay, d1	49.1	16.7	25.4	10.9	42.9	38.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	1.1	0.2	0.3	4.3	1.4
Delay (s)	56.5	17.8	25.6	11.2	47.2	40.3
Level of Service	E	B	C	B	D	D
Approach Delay (s)		23.0	19.0		45.3	
Approach LOS		C	B		D	

Intersection Summary				
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	118.7	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	53.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM 6th Signalized Intersection Summary
8: Friars Rd. & Colusa St.

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1495	50	50	880	75	20	20	30	180	20	75
Future Volume (veh/h)	20	1495	50	50	880	75	20	20	30	180	20	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1541	48	52	907	66	21	21	17	186	21	26
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	2346	73	83	2340	170	175	163	307	281	148	183
Arrive On Green	0.02	0.67	0.66	0.05	0.70	0.68	0.20	0.20	0.20	0.20	0.20	0.19
Sat Flow, veh/h	1781	3514	109	1781	3356	244	690	831	1568	1357	755	935
Grp Volume(v), veh/h	21	777	812	52	480	493	42	0	17	186	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	1846	1781	1777	1823	1521	0	1568	1357	0	1690
Q Serve(g_s), s	1.6	35.2	35.6	3.9	15.3	15.4	0.7	0.0	1.2	18.0	0.0	3.1
Cycle Q Clear(g_c), s	1.6	35.2	35.6	3.9	15.3	15.4	3.8	0.0	1.2	21.8	0.0	3.1
Prop In Lane	1.00		0.06	1.00		0.13	0.50		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	34	1186	1233	83	1239	1271	337	0	307	281	0	331
V/C Ratio(X)	0.62	0.66	0.66	0.63	0.39	0.39	0.12	0.00	0.06	0.66	0.00	0.14
Avail Cap(c_a), veh/h	85	1186	1233	144	1245	1278	444	0	414	373	0	446
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.4	13.4	13.5	63.8	8.6	8.6	45.3	0.0	44.6	54.7	0.0	45.6
Incr Delay (d2), s/veh	6.7	2.8	2.8	2.9	0.9	0.9	0.1	0.0	0.0	1.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	13.4	14.1	1.8	5.5	5.7	1.2	0.0	0.5	6.2	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	16.2	16.2	66.8	9.5	9.5	45.4	0.0	44.6	55.7	0.0	45.6
LnGrp LOS	E	B	B	E	A	A	D	A	D	E	A	D
Approach Vol, veh/h		1610			1025			59			233	
Approach Delay, s/veh		17.0			12.4			45.1			53.7	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	95.3		30.7	6.6	99.0		30.7				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	10.6	* 89		35.1	6.1	93.5		35.1				
Max Q Clear Time (g_c+I1), s	5.9	37.6		23.8	3.6	17.4		5.8				
Green Ext Time (p_c), s	0.0	40.3		0.3	0.0	26.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/19/2020



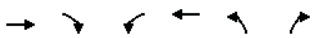
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1090	129	26	610	260	85	43	28	465	78	120
Future Volume (veh/h)	180	1090	129	26	610	260	85	43	28	465	78	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	1147	136	27	642	136	89	45	29	489	82	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1353	160	36	1145	483	123	73	47	519	87	550
Arrive On Green	0.12	0.43	0.41	0.02	0.32	0.32	0.07	0.07	0.07	0.35	0.34	0.35
Sat Flow, veh/h	1781	3182	376	1781	3554	1500	1781	1062	685	1536	258	1585
Grp Volume(v), veh/h	189	639	644	27	642	136	89	0	74	571	0	49
Grp Sat Flow(s),veh/h/ln	1781	1777	1781	1781	1777	1500	1781	0	1747	1794	0	1585
Q Serve(g_s), s	12.1	37.7	38.0	1.8	17.4	7.9	5.7	0.0	4.8	36.0	0.0	2.4
Cycle Q Clear(g_c), s	12.1	37.7	38.0	1.8	17.4	7.9	5.7	0.0	4.8	36.0	0.0	2.4
Prop In Lane	1.00		0.21	1.00		1.00	1.00		0.39	0.86		1.00
Lane Grp Cap(c), veh/h	222	756	758	36	1145	483	123	0	120	606	0	550
V/C Ratio(X)	0.85	0.85	0.85	0.76	0.56	0.28	0.73	0.00	0.62	0.94	0.00	0.09
Avail Cap(c_a), veh/h	275	756	758	61	1145	483	244	0	240	666	0	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.0	30.1	30.3	56.9	32.7	29.5	53.2	0.0	52.8	37.1	0.0	25.7
Incr Delay (d2), s/veh	15.8	11.2	11.5	27.3	2.0	1.5	7.9	0.0	5.0	20.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	17.4	17.7	1.0	7.5	2.9	2.8	0.0	2.3	18.9	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	41.3	41.8	84.2	34.7	30.9	61.1	0.0	57.8	57.3	0.0	25.7
LnGrp LOS	E	D	D	F	C	C	E	A	E	E	A	C
Approach Vol, veh/h		1472			805			163			620	
Approach Delay, s/veh		44.7			35.7			59.7			54.8	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	53.8		44.5	18.6	41.6		12.0				
Change Period (Y+Rc), s	4.0	* 5.9		5.1	4.4	5.9		4.0				
Max Green Setting (Gmax), s	4.0	* 48		43.3	17.6	33.7		16.0				
Max Q Clear Time (g_c+I1), s	3.8	40.0		38.0	14.1	19.4		7.7				
Green Ext Time (p_c), s	0.0	3.9		1.3	0.1	3.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			45.2									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
12: Project Dwy. Street "J" & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/19/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1090	190	290	610	210	170
Future Volume (veh/h)	1090	190	290	610	210	170
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1900
Adj Flow Rate, veh/h	1185	183	315	663	178	182
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1384	213	363	2534	245	222
Arrive On Green	0.45	0.45	0.20	0.71	0.14	0.14
Sat Flow, veh/h	3181	475	1781	3647	1781	1610
Grp Volume(v), veh/h	680	688	315	663	178	182
Grp Sat Flow(s),veh/h/ln	1777	1785	1781	1777	1781	1610
Q Serve(g_s), s	24.7	25.0	12.4	4.8	6.9	7.9
Cycle Q Clear(g_c), s	24.7	25.0	12.4	4.8	6.9	7.9
Prop In Lane		0.27	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	797	800	363	2534	245	222
V/C Ratio(X)	0.85	0.86	0.87	0.26	0.73	0.82
Avail Cap(c_a), veh/h	887	891	466	2909	246	223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	17.9	27.8	3.7	29.9	30.3
Incr Delay (d2), s/veh	7.5	7.9	13.1	0.1	10.2	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	10.2	6.1	0.9	3.5	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.3	25.8	41.0	3.7	40.1	51.5
LnGrp LOS	C	C	D	A	D	D
Approach Vol, veh/h	1368			978	360	
Approach Delay, s/veh	25.5			15.7	45.8	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	19.1	38.3				57.5	14.8
Change Period (Y+Rc), s	4.4	* 5.9				5.9	4.9
Max Green Setting (Gmax), s	18.9	* 36				59.2	10.0
Max Q Clear Time (g_c+I1), s	14.4	27.0				6.8	9.9
Green Ext Time (p_c), s	0.4	5.4				4.7	0.0

Intersection Summary			
HCM 6th Ctrl Delay		24.7	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
15: Fashion Valley Rd. & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1560	270	220	880	30	180	20	190	10	10	10
Future Volume (veh/h)	20	1560	270	220	880	30	180	20	190	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	1625	281	229	917	31	188	21	198	10	10	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	2362	406	293	2107	71	217	19	554	36	35	17
Arrive On Green	0.02	0.54	0.53	0.08	0.60	0.59	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	4372	752	3456	3503	118	610	68	1562	0	127	64
Grp Volume(v), veh/h	21	1263	643	229	465	483	209	0	198	30	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1720	1728	1777	1845	679	0	1562	191	0	0
Q Serve(g_s), s	1.6	36.6	37.3	8.8	19.1	19.1	0.0	0.0	12.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	36.6	37.3	8.8	19.1	19.1	36.8	0.0	12.7	36.8	0.0	0.0
Prop In Lane	1.00		0.44	1.00		0.06	0.90		1.00	0.33		0.33
Lane Grp Cap(c), veh/h	34	1839	929	293	1069	1110	236	0	554	88	0	0
V/C Ratio(X)	0.62	0.69	0.69	0.78	0.44	0.44	0.89	0.00	0.36	0.34	0.00	0.00
Avail Cap(c_a), veh/h	66	1839	929	538	1069	1110	236	0	554	88	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	65.7	22.7	23.1	60.6	14.5	14.5	51.2	0.0	32.3	40.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.1	0.2	1.6	1.2	1.2	35.4	0.0	1.8	10.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	13.8	14.3	3.8	7.5	7.8	9.5	0.0	5.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.3	22.8	23.3	62.2	15.7	15.7	86.6	0.0	34.1	50.8	0.0	0.0
LnGrp LOS	E	C	C	E	B	B	F	A	C	D	A	A
Approach Vol, veh/h		1927			1177			407			30	
Approach Delay, s/veh		23.4			24.8			61.0			50.8	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.4	76.9		40.8	6.6	85.8		40.8				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	20.6	63.3		35.9	4.6	* 80		35.9				
Max Q Clear Time (g_c+I1), s	10.8	39.3		38.8	3.6	21.1		38.8				
Green Ext Time (p_c), s	0.3	14.0		0.0	0.0	9.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		28.4	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
16: Via de la Moda & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1820	140	340	1020	0	110	0	220	0	0	0
Future Volume (veh/h)	0	1820	140	340	1020	0	110	0	220	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1857	136	347	1041	0	112	0	143	0	0	0
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	3371	246	401	2975	1313	194	0	168	1	1	0
Arrive On Green	0.00	0.70	0.69	0.12	0.84	0.00	0.11	0.00	0.11	0.00	0.00	0.00
Sat Flow, veh/h	542	4850	354	3456	3554	1585	1781	0	1585	1781	1870	0
Grp Volume(v), veh/h	0	1301	692	347	1041	0	112	0	143	0	0	0
Grp Sat Flow(s),veh/h/ln	542	1702	1800	1728	1777	1585	1781	0	1585	1781	1870	0
Q Serve(g_s), s	0.0	28.3	28.7	14.8	10.1	0.0	9.0	0.0	13.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.3	28.7	14.8	10.1	0.0	9.0	0.0	13.3	0.0	0.0	0.0
Prop In Lane	1.00		0.20	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	48	2366	1251	401	2975	1313	194	0	168	1	1	0
V/C Ratio(X)	0.00	0.55	0.55	0.87	0.35	0.00	0.58	0.00	0.85	0.00	0.00	0.00
Avail Cap(c_a), veh/h	48	2366	1251	461	2975	1313	378	0	332	190	200	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.68	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.3	11.4	65.1	2.8	0.0	63.6	0.0	65.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	1.2	13.0	0.3	0.0	1.0	0.0	4.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.8	10.8	7.1	2.5	0.0	4.1	0.0	5.6	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.9	12.6	78.1	3.1	0.0	64.6	0.0	70.2	0.0	0.0	0.0
LnGrp LOS	A	B	B	E	A	A	E	A	E	A	A	A
Approach Vol, veh/h		1993			1388			255			0	
Approach Delay, s/veh		12.2			21.9			67.7			0.0	
Approach LOS		B			C			E				
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	21.4	108.3		0.0		129.7		20.3				
Change Period (Y+Rc), s	4.4	5.4		4.0		* 5.4		4.4				
Max Green Setting (Gmax), s	19.6	64.8		16.0		* 81		31.4				
Max Q Clear Time (g_c+I1), s	16.8	30.7		0.0		12.1		15.3				
Green Ext Time (p_c), s	0.2	22.3		0.0		12.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
17: Avenida de la Tiendas & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1900	110	680	1080	20	70	5	230	30	10	10
Future Volume (veh/h)	30	1900	110	680	1080	20	70	5	230	30	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.98	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	2000	116	716	1137	21	74	0	245	32	11	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	3054	176	691	4091	76	169	0	312	160	85	85
Arrive On Green	0.03	0.62	0.61	0.40	1.00	1.00	0.10	0.00	0.10	0.10	0.10	0.09
Sat Flow, veh/h	1781	4933	285	3456	5160	95	1359	0	3095	1116	846	846
Grp Volume(v), veh/h	32	1378	738	716	750	408	74	0	245	32	0	22
Grp Sat Flow(s),veh/h/ln	1781	1702	1814	1728	1702	1851	1359	0	1547	1116	0	1692
Q Serve(g_s), s	2.7	38.8	39.3	30.0	0.0	0.0	7.9	0.0	11.6	4.0	0.0	1.8
Cycle Q Clear(g_c), s	2.7	38.8	39.3	30.0	0.0	0.0	9.6	0.0	11.6	4.0	0.0	1.8
Prop In Lane	1.00		0.16	1.00		0.05	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	46	2108	1123	691	2699	1467	169	0	312	160	0	171
V/C Ratio(X)	0.70	0.65	0.66	1.04	0.28	0.28	0.44	0.00	0.79	0.20	0.00	0.13
Avail Cap(c_a), veh/h	83	2108	1123	691	2699	1467	331	0	681	293	0	372
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.5	18.3	18.4	45.0	0.0	0.0	65.8	0.0	65.9	62.4	0.0	61.6
Incr Delay (d2), s/veh	7.1	1.6	3.0	43.9	0.3	0.5	0.7	0.0	1.7	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	14.7	16.3	14.5	0.1	0.2	2.8	0.0	4.7	1.1	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.6	19.9	21.5	88.9	0.3	0.5	66.5	0.0	67.5	62.7	0.0	61.8
LnGrp LOS	E	B	C	F	A	A	E	A	E	E	A	E
Approach Vol, veh/h		2148			1874			319			54	
Approach Delay, s/veh		21.3			34.2			67.3			62.3	
Approach LOS		C			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.0	96.9		19.1	7.8	123.0		19.1				
Change Period (Y+Rc), s	4.4	5.4		4.9	4.4	* 5.4		4.9				
Max Green Setting (Gmax), s	29.6	73.6		32.1	6.6	* 97		32.1				
Max Q Clear Time (g_c+I1), s	32.0	41.3		6.0	4.7	2.0		13.6				
Green Ext Time (p_c), s	0.0	22.9		0.1	0.0	12.9		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: SR-163 SB Ramp/Ulric St. & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	1190	750	480	1180	280	410	60	950	480	30	190
Future Volume (veh/h)	220	1190	750	480	1180	280	410	60	950	480	30	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	1253	0	505	1242	-331	432	63	934	505	32	200
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	2405		546	2198	1710	769	365	966	576	252	380
Arrive On Green	0.07	0.25	0.00	0.16	0.43	0.00	0.22	0.19	0.19	0.17	0.13	0.14
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	3456	1870	2749	3456	1870	1550
Grp Volume(v), veh/h	232	1253	0	505	1242	-331	432	63	934	505	32	200
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1728	1870	1374	1728	1870	1550
Q Serve(g_s), s	9.8	25.2	0.0	21.6	27.5	0.0	16.7	4.2	28.6	21.4	2.3	16.8
Cycle Q Clear(g_c), s	9.8	25.2	0.0	21.6	27.5	0.0	16.7	4.2	28.6	21.4	2.3	16.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	350	2405		546	2198	1710	769	365	966	576	252	380
V/C Ratio(X)	0.66	0.52		0.92	0.56	-0.19	0.56	0.17	0.97	0.88	0.13	0.53
Avail Cap(c_a), veh/h	382	2405		553	2198	1710	769	365	966	1244	524	605
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.4	44.6	0.0	62.3	32.1	0.0	51.8	50.3	48.1	61.0	57.1	49.4
Incr Delay (d2), s/veh	2.7	0.8	0.0	21.1	1.0	0.0	3.0	1.0	22.1	1.7	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	10.5	0.0	10.9	11.3	0.0	7.6	2.1	20.1	9.6	1.1	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.1	45.4	0.0	83.4	33.2	0.0	54.7	51.3	70.2	62.8	57.2	49.8
LnGrp LOS	E	D		F	C	A	D	D	E	E	E	D
Approach Vol, veh/h		1485	A		1416			1429			737	
Approach Delay, s/veh		49.3			58.8			64.7			59.0	
Approach LOS		D			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.7	60.1	37.4	24.8	19.2	68.6	29.0	33.2
Change Period (Y+Rc), s	4.0	7.0	4.6	4.6	* 4.2	7.0	4.6	4.6
Max Green Setting (Gmax), s	24.0	31.0	32.8	42.0	* 16	38.4	53.4	21.4
Max Q Clear Time (g_c+I1), s	23.6	27.2	18.7	18.8	11.8	29.5	23.4	30.6
Green Ext Time (p_c), s	0.1	2.1	0.7	0.4	0.2	3.8	1.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
21: Friars Rd. & SR-163 NB Ramp

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	660	1960	0	0	1150	990	0	0	0	720	0	790
Future Volume (veh/h)	660	1960	0	0	1150	990	0	0	0	720	0	790
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	695	2063	0	0	1211	1042				758	0	832
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	614	9476	0	0	6791	2898				1005	0	1131
Arrive On Green	0.18	1.00	0.00	0.00	1.00	1.00				0.20	0.00	0.22
Sat Flow, veh/h	3456	7481	0	0	6696	2790				5023	0	2790
Grp Volume(v), veh/h	695	2063	0	0	1211	1042				758	0	832
Grp Sat Flow(s),veh/h/ln	1728	1870	0	0	1609	1395				1674	0	1395
Q Serve(g_s), s	16.0	0.0	0.0	0.0	0.0	0.0				12.8	0.0	19.5
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.0	0.0	0.0				12.8	0.0	19.5
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	614	9476	0	0	6791	2898				1005	0	1131
V/C Ratio(X)	1.13	0.22	0.00	0.00	0.18	0.36				0.75	0.00	0.74
Avail Cap(c_a), veh/h	614	9476	0	0	6791	2898				1005	0	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	0.0	0.0	0.0	0.0				33.9	0.0	22.7
Incr Delay (d2), s/veh	77.7	0.1	0.0	0.0	0.1	0.3				3.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	0.0	0.0	0.0	0.1				5.4	0.0	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.7	0.1	0.0	0.0	0.1	0.3				37.2	0.0	25.2
LnGrp LOS	F	A	A	A	A	A				D	A	C
Approach Vol, veh/h		2758			2253						1590	
Approach Delay, s/veh		28.9			0.2						30.9	
Approach LOS		C			A						C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	20.0	100.5		22.0		120.5
Change Period (Y+Rc), s	4.5	5.5		4.0		* 5.5
Max Green Setting (Gmax), s	15.5	42.5		18.0		* 64
Max Q Clear Time (g_c+I1), s	18.0	2.0		21.5		2.0
Green Ext Time (p_c), s	0.0	12.4		0.0		27.3

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
22: Frazee Rd. & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	370	1760	550	320	1250	350	380	130	270	190	230	510
Future Volume (veh/h)	370	1760	550	320	1250	350	380	130	270	190	230	510
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.95	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	381	1814	32	330	1289	289	392	134	166	196	237	124
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	2630	1085	368	2546	616	454	534	452	229	441	615
Arrive On Green	0.13	0.41	0.41	0.11	0.40	0.40	0.13	0.30	0.29	0.07	0.24	0.24
Sat Flow, veh/h	3456	6434	2655	3456	6434	1557	3456	1777	1502	3456	1870	2607
Grp Volume(v), veh/h	381	1814	32	330	1289	289	392	134	166	196	237	124
Grp Sat Flow(s),veh/h/ln	1728	1609	1327	1728	1609	1557	1728	1777	1502	1728	1870	1304
Q Serve(g_s), s	15.6	33.6	1.0	13.6	21.9	19.9	16.1	8.2	12.6	8.1	16.0	5.5
Cycle Q Clear(g_c), s	15.6	33.6	1.0	13.6	21.9	19.9	16.1	8.2	12.6	8.1	16.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	437	2630	1085	368	2546	616	454	534	452	229	441	615
V/C Ratio(X)	0.87	0.69	0.03	0.90	0.51	0.47	0.86	0.25	0.37	0.85	0.54	0.20
Avail Cap(c_a), veh/h	502	2630	1085	368	2546	616	595	613	518	229	448	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.0	35.2	25.6	63.8	33.0	32.4	61.5	38.2	40.1	66.8	48.4	44.3
Incr Delay (d2), s/veh	12.7	1.5	0.1	23.0	0.7	2.6	8.7	0.1	0.2	24.8	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	13.0	0.3	7.1	8.5	8.0	7.6	3.7	4.8	4.4	7.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	36.7	25.6	86.8	33.7	35.0	70.2	38.3	40.3	91.6	49.2	44.4
LnGrp LOS	E	D	C	F	C	C	E	D	D	F	D	D
Approach Vol, veh/h		2227			1908			692			557	
Approach Delay, s/veh		43.0			43.1			56.9			63.1	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	64.1	23.0	38.1	22.3	61.2	13.6	47.5
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9
Max Green Setting (Gmax), s	15.0	* 58	24.5	33.7	20.6	51.0	9.2	49.0
Max Q Clear Time (g_c+I1), s	15.6	35.6	18.1	18.0	17.6	23.9	10.1	14.6
Green Ext Time (p_c), s	0.0	16.3	0.5	1.2	0.2	16.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
23: Friars Rd. WB & Mission Center Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	370	10	240	270	760	0	0	940	330
Future Volume (veh/h)	0	0	0	370	10	240	270	760	0	0	940	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				419	0	267	300	844	0	0	1044	367
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				766	0	334	320	2494	0	0	2066	917
Arrive On Green				0.21	0.00	0.21	0.19	1.00	0.00	0.00	0.58	0.58
Sat Flow, veh/h				3563	0	1552	3456	3647	0	0	3647	1578
Grp Volume(v), veh/h				419	0	267	300	844	0	0	1044	367
Grp Sat Flow(s),veh/h/ln				1781	0	1552	1728	1777	0	0	1777	1578
Q Serve(g_s), s				11.3	0.0	17.6	9.2	0.0	0.0	0.0	18.8	13.7
Cycle Q Clear(g_c), s				11.3	0.0	17.6	9.2	0.0	0.0	0.0	18.8	13.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				766	0	334	320	2494	0	0	2066	917
V/C Ratio(X)				0.55	0.00	0.80	0.94	0.34	0.00	0.00	0.51	0.40
Avail Cap(c_a), veh/h				1122	0	489	320	2494	0	0	2066	917
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.50	0.50	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.7	0.0	40.2	43.7	0.0	0.0	0.0	13.4	12.3
Incr Delay (d2), s/veh				0.6	0.0	5.9	21.3	0.2	0.0	0.0	0.9	1.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.8	0.0	7.0	4.5	0.1	0.0	0.0	7.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				38.3	0.0	46.1	65.0	0.2	0.0	0.0	14.3	13.6
LnGrp LOS				D	A	D	E	A	A	A	B	B
Approach Vol, veh/h					686			1144			1411	
Approach Delay, s/veh					41.3			17.2			14.1	
Approach LOS					D			B			B	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		80.8			14.0	66.8		27.2
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9
Max Green Setting (Gmax), s		* 65			9.6	49.7		33.1
Max Q Clear Time (g_c+I1), s		2.0			11.2	20.8		19.6
Green Ext Time (p_c), s		6.2			0.0	17.7		2.1

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
24: Mission Center Rd. & Friars Rd. EB

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	10	440	0	0	0	0	740	480	590	720	0
Future Volume (veh/h)	290	10	440	0	0	0	0	740	480	590	720	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	330	0	215				0	822	402	656	800	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	606	0	270				0	1177	573	700	2686	0
Arrive On Green	0.17	0.00	0.17				0.00	0.51	0.50	0.40	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2411	1127	3456	3647	0
Grp Volume(v), veh/h	330	0	215				0	629	595	656	800	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1667	1728	1777	0
Q Serve(g_s), s	9.1	0.0	14.1				0.0	29.1	29.7	19.7	0.0	0.0
Cycle Q Clear(g_c), s	9.1	0.0	14.1				0.0	29.1	29.7	19.7	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.68	1.00		0.00
Lane Grp Cap(c), veh/h	606	0	270				0	903	847	700	2686	0
V/C Ratio(X)	0.54	0.00	0.80				0.00	0.70	0.70	0.94	0.30	0.00
Avail Cap(c_a), veh/h	891	0	396				0	903	847	723	2686	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.82	0.82	0.00
Uniform Delay (d), s/veh	41.0	0.0	43.0				0.0	20.2	20.7	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	6.9				0.0	4.4	4.8	16.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	5.8				0.0	12.7	12.3	8.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	0.0	49.9				0.0	24.7	25.5	48.0	0.2	0.0
LnGrp LOS	D	A	D				A	C	C	D	A	A
Approach Vol, veh/h		545						1224			1456	
Approach Delay, s/veh		45.0						25.1			21.8	
Approach LOS		D						C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.3	59.4		22.4		85.6						
Change Period (Y+Rc), s	4.4	* 5.8		4.9		5.8						
Max Green Setting (Gmax), s	22.6	* 45		26.1		71.2						
Max Q Clear Time (g_c+I1), s	21.7	31.7		16.1		2.0						
Green Ext Time (p_c), s	0.2	8.5		1.4		8.6						

Intersection Summary												
HCM 6th Ctrl Delay			27.0									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
25: Qualcomm Way & Friars Rd. WB

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	430	10	450	640	1150	0	0	890	290
Future Volume (veh/h)	0	0	0	430	10	450	640	1150	0	0	890	290
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				462	11	484	688	1237	0	0	957	312
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				486	10	424	628	2546	0	0	2534	774
Arrive On Green				0.27	0.27	0.26	0.36	1.00	0.00	0.00	0.50	0.49
Sat Flow, veh/h				1781	35	1555	3456	3647	0	0	5274	1585
Grp Volume(v), veh/h				462	0	495	688	1237	0	0	957	312
Grp Sat Flow(s),veh/h/ln				1781	0	1590	1728	1777	0	0	1702	1585
Q Serve(g_s), s				28.0	0.0	30.0	20.0	0.0	0.0	0.0	12.8	13.8
Cycle Q Clear(g_c), s				28.0	0.0	30.0	20.0	0.0	0.0	0.0	12.8	13.8
Prop In Lane				1.00		0.98	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				486	0	434	628	2546	0	0	2534	774
V/C Ratio(X)				0.95	0.00	1.14	1.09	0.49	0.00	0.00	0.38	0.40
Avail Cap(c_a), veh/h				486	0	434	628	2546	0	0	2534	774
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.61	0.61	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.3	0.0	40.4	35.0	0.0	0.0	0.0	17.2	17.9
Incr Delay (d2), s/veh				28.5	0.0	87.8	57.7	0.4	0.0	0.0	0.4	1.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	0.0	21.8	11.8	0.1	0.0	0.0	5.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				67.8	0.0	128.2	92.7	0.4	0.0	0.0	17.6	19.5
LnGrp LOS				E	A	F	F	A	A	A	B	B
Approach Vol, veh/h					957			1925			1269	
Approach Delay, s/veh					99.1			33.4			18.1	
Approach LOS					F			C			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		83.0			24.0	59.0		34.0				
Change Period (Y+Rc), s		5.1			4.9	* 5.1		4.9				
Max Green Setting (Gmax), s		70.9			19.1	* 47		29.1				
Max Q Clear Time (g_c+I1), s		2.0			22.0	15.8		32.0				
Green Ext Time (p_c), s		16.4			0.0	9.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			43.8									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
26: Friars Rd. EB & Qualcomm Way

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	585	10	320	0	0	0	0	1205	930	270	1050	0
Future Volume (veh/h)	585	10	320	0	0	0	0	1205	930	270	1050	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	644	0	348				0	1310	1011	293	1141	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	899	0	400				0	2517	781	259	2392	0
Arrive On Green	0.25	0.00	0.25				0.00	0.49	0.49	0.29	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	5274	1585	1781	3647	0
Grp Volume(v), veh/h	644	0	348				0	1310	1011	293	1141	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1702	1585	1781	1777	0
Q Serve(g_s), s	18.1	0.0	23.1				0.0	19.2	54.2	16.0	0.0	0.0
Cycle Q Clear(g_c), s	18.1	0.0	23.1				0.0	19.2	54.2	16.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	899	0	400				0	2517	781	259	2392	0
V/C Ratio(X)	0.72	0.00	0.87				0.00	0.52	1.29	1.13	0.48	0.00
Avail Cap(c_a), veh/h	1360	0	605				0	2517	781	259	2392	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.89	0.89	0.00
Uniform Delay (d), s/veh	37.5	0.0	39.4				0.0	19.0	27.9	39.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	5.9				0.0	0.8	141.7	92.8	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	9.3				0.0	7.6	50.2	12.5	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	45.3				0.0	19.8	169.6	131.8	0.6	0.0
LnGrp LOS	D	A	D				A	B	F	F	A	A
Approach Vol, veh/h		992						2321			1434	
Approach Delay, s/veh		40.5						85.0			27.4	
Approach LOS		D						F			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	20.0	58.2		31.8		78.2
Change Period (Y+Rc), s	4.4	5.1		4.9		* 5.1
Max Green Setting (Gmax), s	15.6	38.9		41.1		* 59
Max Q Clear Time (g_c+I1), s	18.0	56.2		25.1		2.0
Green Ext Time (p_c), s	0.0	0.0		1.7		7.0

Intersection Summary		
HCM 6th Ctrl Delay		58.3
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
27: River Run Dr. & Friars Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2515	160	180	1800	60	150	10	180	190	20	80
Future Volume (veh/h)	40	2515	160	180	1800	60	150	10	180	190	20	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945	1945
Adj Flow Rate, veh/h	44	2794	178	200	2000	67	167	11	200	211	22	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	2676	167	209	3179	106	228	15	230	245	21	85
Arrive On Green	0.03	0.52	0.51	0.11	0.60	0.59	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1853	5109	319	1853	5277	176	690	54	836	732	76	309
Grp Volume(v), veh/h	44	1918	1054	200	1340	727	378	0	0	322	0	0
Grp Sat Flow(s),veh/h/ln	1853	1770	1888	1853	1770	1913	1580	0	0	1117	0	0
Q Serve(g_s), s	3.2	70.7	70.7	14.5	32.7	32.9	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	3.2	70.7	70.7	14.5	32.7	32.9	30.8	0.0	0.0	37.1	0.0	0.0
Prop In Lane	1.00		0.17	1.00		0.09	0.44		0.53	0.66		0.28
Lane Grp Cap(c), veh/h	63	1854	989	209	2132	1153	473	0	0	351	0	0
V/C Ratio(X)	0.70	1.03	1.07	0.96	0.63	0.63	0.80	0.00	0.00	0.92	0.00	0.00
Avail Cap(c_a), veh/h	121	1854	989	209	2132	1153	473	0	0	351	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	64.5	32.2	32.3	59.6	17.2	17.3	46.9	0.0	0.0	50.6	0.0	0.0
Incr Delay (d2), s/veh	5.1	30.4	47.9	50.1	1.4	2.6	13.3	0.0	0.0	31.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	35.7	42.9	9.6	12.7	14.2	13.8	0.0	0.0	14.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.7	62.6	80.3	109.7	18.6	19.9	60.1	0.0	0.0	81.5	0.0	0.0
LnGrp LOS	E	F	F	F	B	B	E	A	A	F	A	A
Approach Vol, veh/h		3016			2267			378			322	
Approach Delay, s/veh		68.9			27.1			60.1			81.5	
Approach LOS		E			C			E			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.2	74.7		41.1	8.6	85.3		41.1
Change Period (Y+Rc), s	4.4	6.2		4.9	4.4	6.2		4.9
Max Green Setting (Gmax), s	14.8	68.5		36.2	8.4	74.9		36.2
Max Q Clear Time (g_c+I1), s	16.5	72.7		39.1	5.2	34.9		32.8
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	38.0		0.7

Intersection Summary		
HCM 6th Ctrl Delay		53.1
HCM 6th LOS		D

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	190	130	150	520	190	190	320	410	100	300	160
Future Volume (veh/h)	140	190	130	150	520	190	190	320	410	100	300	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.91	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	204	140	161	559	204	204	344	441	108	323	172
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	278	200	124	429	466	234	677	548	93	633	327
Arrive On Green	0.13	0.15	0.13	0.30	0.30	0.30	0.13	0.38	0.36	0.05	0.29	0.28
Sat Flow, veh/h	1781	1870	1574	414	1436	1559	1781	1777	1438	1781	2211	1141
Grp Volume(v), veh/h	151	204	140	720	0	204	204	344	441	108	258	237
Grp Sat Flow(s),veh/h/ln	1781	1870	1574	1850	0	1559	1781	1777	1438	1781	1777	1575
Q Serve(g_s), s	10.8	14.0	11.4	40.0	0.0	14.1	15.0	19.9	37.0	7.0	16.2	17.0
Cycle Q Clear(g_c), s	10.8	14.0	11.4	40.0	0.0	14.1	15.0	19.9	37.0	7.0	16.2	17.0
Prop In Lane	1.00		1.00	0.22		1.00	1.00		1.00	1.00		0.72
Lane Grp Cap(c), veh/h	227	278	200	552	0	466	234	677	548	93	509	451
V/C Ratio(X)	0.67	0.73	0.70	1.30	0.00	0.44	0.87	0.51	0.81	1.16	0.51	0.53
Avail Cap(c_a), veh/h	307	363	271	552	0	466	348	677	548	93	509	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	54.5	56.0	47.0	0.0	37.9	57.0	31.8	38.4	63.5	39.9	40.4
Incr Delay (d2), s/veh	1.3	3.3	2.2	149.3	0.0	1.4	10.4	2.7	12.0	142.8	3.6	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	6.8	4.7	41.2	0.0	5.6	7.5	9.1	14.9	6.9	7.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	57.8	58.2	196.3	0.0	39.3	67.4	34.6	50.4	206.2	43.4	44.8
LnGrp LOS	E	E	E	F	A	D	E	C	D	F	D	D
Approach Vol, veh/h		495			924			989			603	
Approach Delay, s/veh		57.7			161.7			48.4			73.1	
Approach LOS		E			F			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	55.0		23.9	21.6	44.4		44.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	6.6	48.1		23.1	25.8	* 31		37.1				
Max Q Clear Time (g_c+I1), s	9.0	39.0		16.0	17.0	19.0		42.0				
Green Ext Time (p_c), s	0.0	2.9		0.8	0.2	2.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			89.6
HCM 6th LOS			F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
30: Fashion Valley Rd. & Project Dwy. Street "U"

Year 2050 + P1 + P2 + P3 PM
03/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	0	130	0	0	0	350	800	0	0	330	250
Future Volume (veh/h)	350	0	130	0	0	0	350	800	0	0	330	250
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	424	0	94				380	870	0	0	359	272
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	680	0	303				387	1681	0	4	903	403
Arrive On Green	0.19	0.00	0.19				0.11	0.47	0.00	0.00	0.25	0.25
Sat Flow, veh/h	3563	0	1585				3456	3647	0	1781	3554	1585
Grp Volume(v), veh/h	424	0	94				380	870	0	0	359	272
Grp Sat Flow(s),veh/h/ln	1781	0	1585				1728	1777	0	1781	1777	1585
Q Serve(g_s), s	4.5	0.0	2.1				4.5	7.0	0.0	0.0	3.4	6.3
Cycle Q Clear(g_c), s	4.5	0.0	2.1				4.5	7.0	0.0	0.0	3.4	6.3
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	680	0	303				387	1681	0	4	903	403
V/C Ratio(X)	0.62	0.00	0.31				0.98	0.52	0.00	0.00	0.40	0.68
Avail Cap(c_a), veh/h	1388	0	617				387	1681	0	173	1401	625
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	14.3				18.2	7.6	0.0	0.0	12.7	13.8
Incr Delay (d2), s/veh	0.9	0.0	0.6				40.8	0.3	0.0	0.0	0.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.0				3.7	1.9	0.0	0.0	1.2	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	0.0	14.9				59.0	7.8	0.0	0.0	13.0	15.8
LnGrp LOS	B	A	B				E	A	A	A	B	B
Approach Vol, veh/h		518						1250			631	
Approach Delay, s/veh		16.0						23.4			14.2	
Approach LOS		B						C			B	

Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	0.0	26.3		14.7	9.0	17.3						
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	6.9						
Max Green Setting (Gmax), s	4.0	16.8		16.0	4.6	16.2						
Max Q Clear Time (g_c+I1), s	0.0	9.0		6.5	6.5	8.3						
Green Ext Time (p_c), s	0.0	3.6		1.4	0.0	2.1						

Intersection Summary			
HCM 6th Ctrl Delay			19.4
HCM 6th LOS			B

Notes

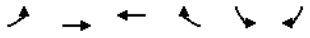
User approved volume balancing among the lanes for turning movement.

Intersection	
Intersection Delay, s/veh	84.8
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	260	290	240	460	200	230
Future Vol, veh/h	260	290	240	460	200	230
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	265	296	245	469	204	235
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	48.8	154.8	16.9
HCM LOS	E	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	34%
Vol Thru, %	0%	0%	47%	66%
Vol Right, %	0%	100%	53%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	230	550	700
LT Vol	200	0	0	240
Through Vol	0	0	260	460
RT Vol	0	230	290	0
Lane Flow Rate	204	235	561	714
Geometry Grp	7	7	2	2
Degree of Util (X)	0.455	0.445	0.935	1.267
Departure Headway (Hd)	8.563	7.322	6.424	6.386
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	424	495	567	571
Service Time	6.263	5.022	4.424	4.438
HCM Lane V/C Ratio	0.481	0.475	0.989	1.25
HCM Control Delay	18.2	15.8	48.8	154.8
HCM Lane LOS	C	C	E	F
HCM 95th-tile Q	2.3	2.3	11.9	28.1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	180	810	440	150	180	120
Future Volume (vph)	180	810	440	150	180	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3389		3433	1552
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3389		3433	1552
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	200	900	489	167	200	133
RTOR Reduction (vph)	0	0	24	0	0	114
Lane Group Flow (vph)	200	900	632	0	200	19
Confl. Peds. (#/hr)	7			7	22	1
Confl. Bikes (#/hr)						4
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	8.6	37.1	24.1		10.2	10.2
Effective Green, g (s)	9.0	38.0	25.0		10.6	10.6
Actuated g/C Ratio	0.12	0.52	0.34		0.15	0.15
Clearance Time (s)	4.4	4.9	4.9		4.4	4.4
Vehicle Extension (s)	2.0	3.7	3.7		2.0	2.0
Lane Grp Cap (vph)	219	1854	1168		501	226
v/s Ratio Prot	c0.11	0.25	c0.19		c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.91	0.49	0.54		0.40	0.09
Uniform Delay, d1	31.4	11.0	19.1		28.1	26.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	37.2	0.3	0.6		0.2	0.1
Delay (s)	68.5	11.3	19.7		28.3	26.8
Level of Service	E	B	B		C	C
Approach Delay (s)		21.7	19.7		27.7	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Mission Center Rd. & Hazard Center Dr.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	20	720	80	50	50	460	830	20	60	900	80
Future Volume (veh/h)	250	20	720	80	50	50	460	830	20	60	900	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.94	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	275	0	750	83	52	52	479	865	21	62	938	83
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1497	0	650	82	52	52	526	1128	27	79	1001	88
Arrive On Green	0.42	0.00	0.42	0.11	0.11	0.11	0.15	0.32	0.31	0.04	0.21	0.20
Sat Flow, veh/h	3563	0	1547	760	476	476	3456	3541	86	1781	4766	420
Grp Volume(v), veh/h	275	0	750	187	0	0	479	434	452	62	669	352
Grp Sat Flow(s),veh/h/ln	1781	0	1547	1713	0	0	1728	1777	1850	1781	1702	1783
Q Serve(g_s), s	7.2	0.0	62.0	16.0	0.0	0.0	20.1	32.5	32.5	5.1	28.5	28.7
Cycle Q Clear(g_c), s	7.2	0.0	62.0	16.0	0.0	0.0	20.1	32.5	32.5	5.1	28.5	28.7
Prop In Lane	1.00		1.00	0.44		0.28	1.00		0.05	1.00		0.24
Lane Grp Cap(c), veh/h	1497	0	650	186	0	0	526	566	590	79	715	374
V/C Ratio(X)	0.18	0.00	1.15	1.01	0.00	0.00	0.91	0.77	0.77	0.78	0.94	0.94
Avail Cap(c_a), veh/h	1497	0	650	186	0	0	585	566	590	145	715	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	42.8	65.8	0.0	0.0	61.6	45.3	45.4	69.8	57.3	57.5
Incr Delay (d2), s/veh	0.1	0.0	86.0	67.8	0.0	0.0	16.4	9.6	9.2	6.3	21.2	33.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	38.9	10.5	0.0	0.0	10.1	15.9	16.5	2.5	14.4	16.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	0.0	128.8	133.6	0.0	0.0	77.9	54.9	54.6	76.1	78.5	91.0
LnGrp LOS	C	A	F	F	A	A	E	D	D	E	E	F
Approach Vol, veh/h		1025			187			1365			1083	
Approach Delay, s/veh		101.5			133.6			62.9			82.4	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	51.0		66.0	26.5	35.1		20.0				
Change Period (Y+Rc), s	4.0	5.3		4.0	4.0	* 5.3		4.0				
Max Green Setting (Gmax), s	12.0	42.7		62.0	25.0	* 30		16.0				
Max Q Clear Time (g_c+I1), s	7.1	34.5		64.0	22.1	30.7		18.0				
Green Ext Time (p_c), s	0.0	5.0		0.0	0.3	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			83.1
HCM 6th LOS			F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
37: Camino de la Reina & Avenida Del Rio

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	280	290	490	390	490
Future Volume (veh/h)	490	280	290	490	390	490
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	538	308	319	180	429	469
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	475	1205	623	949	475	423
Arrive On Green	0.27	0.64	0.33	0.33	0.27	0.27
Sat Flow, veh/h	1781	1870	1870	1580	1781	1585
Grp Volume(v), veh/h	538	308	319	180	429	469
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1580	1781	1585
Q Serve(g_s), s	24.0	6.3	12.3	4.6	20.9	24.0
Cycle Q Clear(g_c), s	24.0	6.3	12.3	4.6	20.9	24.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	475	1205	623	949	475	423
V/C Ratio(X)	1.13	0.26	0.51	0.19	0.90	1.11
Avail Cap(c_a), veh/h	475	1205	623	949	475	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	6.8	24.1	8.1	31.9	33.0
Incr Delay (d2), s/veh	83.0	0.0	3.0	0.4	23.1	76.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.9	2.2	5.8	2.9	11.8	27.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	116.0	6.9	27.1	8.6	55.0	109.9
LnGrp LOS	F	A	C	A	D	F
Approach Vol, veh/h		846	499		898	
Approach Delay, s/veh		76.2	20.4		83.7	
Approach LOS		E	C		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		62.0		28.0	28.0	34.0
Change Period (Y+Rc), s		4.9		4.9	4.4	4.9
Max Green Setting (Gmax), s		57.1		23.1	23.6	29.1
Max Q Clear Time (g_c+I1), s		8.3		26.0	26.0	14.3
Green Ext Time (p_c), s		1.2		0.0	0.0	1.4

Intersection Summary			
HCM 6th Ctrl Delay			66.8
HCM 6th LOS			E

HCM 6th Signalized Intersection Summary
41: Camino de la Reina & Mission Center Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	560	300	300	310	290	250	720	250	460	920	290
Future Volume (veh/h)	260	560	300	300	310	290	250	720	250	460	920	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	589	256	316	326	126	263	758	209	484	968	147
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	329	669	291	369	736	278	318	1402	382	530	2121	648
Arrive On Green	0.10	0.28	0.27	0.11	0.29	0.29	0.09	0.35	0.35	0.15	0.42	0.42
Sat Flow, veh/h	3456	2392	1038	3456	2502	946	3456	3961	1079	3456	5106	1561
Grp Volume(v), veh/h	274	437	408	316	229	223	263	650	317	484	968	147
Grp Sat Flow(s),veh/h/ln	1728	1777	1654	1728	1777	1671	1728	1702	1636	1728	1702	1561
Q Serve(g_s), s	11.7	35.3	35.4	13.5	15.7	16.3	11.2	22.9	23.4	20.7	20.5	9.1
Cycle Q Clear(g_c), s	11.7	35.3	35.4	13.5	15.7	16.3	11.2	22.9	23.4	20.7	20.5	9.1
Prop In Lane	1.00		0.63	1.00		0.57	1.00		0.66	1.00		1.00
Lane Grp Cap(c), veh/h	329	497	463	369	523	492	318	1205	579	530	2121	648
V/C Ratio(X)	0.83	0.88	0.88	0.86	0.44	0.45	0.83	0.54	0.55	0.91	0.46	0.23
Avail Cap(c_a), veh/h	410	557	518	415	564	530	392	1205	579	530	2121	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.7	51.6	51.9	65.8	42.9	43.4	66.9	38.7	39.2	62.5	31.6	28.3
Incr Delay (d2), s/veh	0.9	1.5	1.7	13.4	1.1	1.3	6.5	1.1	2.5	19.9	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	15.9	14.9	6.7	7.1	7.0	5.3	9.9	9.9	10.6	8.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	53.1	53.6	79.3	44.0	44.7	73.5	39.8	41.7	82.5	32.3	29.1
LnGrp LOS	E	D	D	E	D	D	E	D	D	F	C	C
Approach Vol, veh/h		1119			768			1230			1599	
Approach Delay, s/veh		56.9			58.7			47.5			47.2	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	57.0	20.0	46.0	17.8	66.2	18.3	47.7
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	* 5.2	4.4	4.9
Max Green Setting (Gmax), s	22.6	44.8	17.6	46.1	16.6	* 51	17.4	46.3
Max Q Clear Time (g_c+I1), s	22.7	25.4	15.5	37.4	13.2	22.5	13.7	18.3
Green Ext Time (p_c), s	0.0	9.9	0.2	3.7	0.2	14.4	0.2	5.3

Intersection Summary	
HCM 6th Ctrl Delay	51.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mission Center Rd. & Camino Del Rio N.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	210	260	280	280	490	240	590	670	410	980	130
Future Volume (veh/h)	140	210	260	280	280	490	240	590	670	410	980	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	216	0	289	289	505	247	608	0	423	1010	76
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	1144		376	636	529	291	924		473	1111	482
Arrive On Green	0.09	0.32	0.00	0.11	0.34	0.34	0.08	0.26	0.00	0.14	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3456	1870	1555	3456	3554	1585	3456	3554	1541
Grp Volume(v), veh/h	144	216	0	289	289	505	247	608	0	423	1010	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1870	1555	1728	1777	1585	1728	1777	1541
Q Serve(g_s), s	7.6	4.2	0.0	7.7	11.5	30.1	6.7	14.5	0.0	11.4	25.9	3.4
Cycle Q Clear(g_c), s	7.6	4.2	0.0	7.7	11.5	30.1	6.7	14.5	0.0	11.4	25.9	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	1144		376	636	529	291	924		473	1111	482
V/C Ratio(X)	0.85	0.19		0.77	0.45	0.95	0.85	0.66		0.89	0.91	0.16
Avail Cap(c_a), veh/h	169	1144		498	636	529	291	924		473	1111	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	0.53	0.53	0.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	42.3	23.3	0.0	41.2	24.5	30.6	42.9	31.4	0.0	40.3	31.4	23.6
Incr Delay (d2), s/veh	30.9	0.1	0.0	3.5	0.2	27.9	11.4	2.0	0.0	16.1	10.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.7	0.0	3.4	5.0	15.0	3.3	6.3	0.0	5.8	12.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.2	23.3	0.0	44.7	24.7	58.5	54.3	33.3	0.0	56.4	41.7	24.2
LnGrp LOS	E	C		D	C	E	D	C		E	D	C
Approach Vol, veh/h		360	A		1083			855	A		1509	
Approach Delay, s/veh		43.3			45.8			39.4			44.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	28.7	14.3	35.0	12.0	33.7	13.0	36.3
Change Period (Y+Rc), s	4.4	4.9	4.4	* 5.3	4.4	4.9	4.4	5.3
Max Green Setting (Gmax), s	12.6	23.8	13.3	* 27	7.6	28.8	8.6	31.0
Max Q Clear Time (g_c+I1), s	13.4	16.5	9.7	6.2	8.7	27.9	9.6	32.1
Green Ext Time (p_c), s	0.0	1.7	0.2	1.3	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
43: I-8 EB Ramp & Mission Center Rd.

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	840	0	370	0	0	0	0	530	270	990	530	0
Future Volume (vph)	840	0	370	0	0	0	0	530	270	990	530	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					5.1	5.1	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (prot)	3433		1583					3539	1583	1610	3310	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	0.98	
Satd. Flow (perm)	3433		1583					3539	1583	1610	3310	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	884	0	389	0	0	0	0	558	284	1042	558	0
RTOR Reduction (vph)	0	0	226	0	0	0	0	0	195	0	0	0
Lane Group Flow (vph)	884	0	163	0	0	0	0	558	89	521	1079	0
Confl. Peds. (#/hr)							16					16
Confl. Bikes (#/hr)												2
Turn Type	Prot		Perm					NA	Perm	Split	NA	
Protected Phases	7							2		1	1	
Permitted Phases			7						2			
Actuated Green, G (s)	38.9		38.9					45.9	45.9	46.9	46.9	
Effective Green, g (s)	40.5		40.5					46.9	46.9	48.5	48.5	
Actuated g/C Ratio	0.27		0.27					0.31	0.31	0.32	0.32	
Clearance Time (s)	6.1		6.1					6.1	6.1	6.1	6.1	
Vehicle Extension (s)	4.0		4.0					0.9	0.9	4.0	4.0	
Lane Grp Cap (vph)	926		427					1106	494	520	1070	
v/s Ratio Prot	c0.26							c0.16		0.32	c0.33	
v/s Ratio Perm			0.10						0.06			
v/c Ratio	0.95		0.38					0.50	0.18	1.00	1.01	
Uniform Delay, d1	53.8		44.6					42.1	37.5	50.8	50.8	
Progression Factor	1.00		1.00					0.61	0.09	1.00	1.00	
Incremental Delay, d2	20.4		2.6					0.1	0.0	39.9	29.6	
Delay (s)	74.3		47.2					25.7	3.6	90.7	80.3	
Level of Service	E		D					C	A	F	F	
Approach Delay (s)		66.0			0.0			18.3			83.7	
Approach LOS		E			A			B			F	

Intersection Summary				
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.4	
Intersection Capacity Utilization	80.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Camino Del Rio S./Auto Circle

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	360	20	10	190	430	30	40	30	525	30	345
Future Volume (vph)	330	360	20	10	190	430	30	40	30	525	30	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	6.1		4.6		4.5	4.5	4.5
Lane Util. Factor	0.91	0.91			0.95	1.00		1.00		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	0.99			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (prot)	1610	3321			3530	1583		1754		1681	1694	1583
Flt Permitted	0.95	0.99			1.00	1.00		0.99		0.95	0.96	1.00
Satd. Flow (perm)	1610	3321			3530	1583		1754		1681	1694	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	400	22	11	211	478	33	44	33	583	33	383
RTOR Reduction (vph)	0	2	0	0	0	139	0	11	0	0	0	203
Lane Group Flow (vph)	183	604	0	0	222	339	0	99	0	309	307	180
Confl. Peds. (#/hr)							10					
Confl. Bikes (#/hr)									1			
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8	6	5	5		6	6	
Permitted Phases						8						6
Actuated Green, G (s)	23.8	23.8			16.0	84.9		16.9		68.9	68.9	68.9
Effective Green, g (s)	25.4	25.4			17.6	84.9		18.4		70.5	70.5	70.5
Actuated g/C Ratio	0.17	0.17			0.12	0.57		0.12		0.47	0.47	0.47
Clearance Time (s)	6.1	6.1			6.1	6.1		6.1		6.1	6.1	6.1
Vehicle Extension (s)	4.0	4.0			2.0	4.0		2.0		4.0	4.0	4.0
Lane Grp Cap (vph)	272	562			414	895		215		790	796	744
v/s Ratio Prot	0.11	c0.18			c0.06	0.17		c0.06		c0.18	0.18	
v/s Ratio Perm						0.04						0.11
v/c Ratio	0.67	1.08			0.54	0.38		0.46		0.39	0.39	0.24
Uniform Delay, d1	58.4	62.3			62.4	18.0		61.2		25.8	25.7	23.8
Progression Factor	1.00	1.00			1.00	1.00		1.00		0.54	0.54	1.19
Incremental Delay, d2	12.5	59.8			4.9	1.2		7.0		0.8	0.8	0.4
Delay (s)	70.9	122.1			67.3	19.2		68.2		14.8	14.7	28.8
Level of Service	E	F			E	B		E		B	B	C
Approach Delay (s)		110.2			34.4			68.2			20.1	
Approach LOS		F			C			E			C	

Intersection Summary				
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.2	
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Yield			Stop	
Traffic Volume (vph)	0	0	0	0	200	100	0	0	0	0	0	90
Future Volume (vph)	0	0	0	0	200	100	0	0	0	0	0	90
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	217	109	0	0	0	0	0	98

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total (vph)	0	0	0	326	98
Volume Left (vph)	0	0	0	0	0
Volume Right (vph)	0	0	0	109	98
Hadj (s)	0.00	0.00	0.00	-0.20	-0.57
Departure Headway (s)	5.0	5.0	4.7	4.5	4.1
Degree Utilization, x	0.00	0.00	0.00	0.41	0.11
Capacity (veh/h)	717	717	763	780	808
Control Delay (s)	6.8	6.8	6.5	9.4	7.6
Approach Delay (s)	0.0		9.4		7.6
Approach LOS	A		A		A

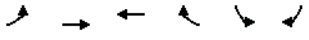
Intersection Summary				
Delay	9.0			
Level of Service	A			
Intersection Capacity Utilization	29.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	240.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	819	258	84	452	446	0	0	10	436
Future Vol, veh/h	0	0	0	819	258	84	452	446	0	0	10	436
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	881	277	90	486	480	0	0	11	469
Number of Lanes	0	0	0	1	1	0	0	2	0	0	1	1

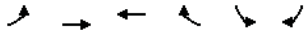
Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	354.4	174.8	78.3
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	75%	0%	100%	0%	0%	0%
Vol Thru, %	25%	100%	0%	75%	100%	0%
Vol Right, %	0%	0%	0%	25%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	601	297	819	342	10	436
LT Vol	452	0	819	0	0	0
Through Vol	149	297	0	258	10	0
RT Vol	0	0	0	84	0	436
Lane Flow Rate	646	320	881	368	11	469
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.465	0.692	2.023	0.776	0.025	1.006
Departure Headway (Hd)	9.18	8.787	8.712	8.018	10.383	9.65
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	400	416	423	456	347	380
Service Time	6.88	6.487	6.412	5.718	8.083	7.35
HCM Lane V/C Ratio	1.615	0.769	2.083	0.807	0.032	1.234
HCM Control Delay	246.9	29	488.4	33.4	13.3	79.8
HCM Lane LOS	F	D	F	D	B	F
HCM 95th-tile Q	30	5.1	58.2	6.8	0.1	12



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	550	440	0	460
Future Volume (vph)	0	0	550	440	0	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0		4.0
Lane Util. Factor			1.00	1.00		0.88
Frpb, ped/bikes			1.00	0.99		1.00
Flpb, ped/bikes			1.00	1.00		1.00
Frt			1.00	0.85		0.85
Flt Protected			1.00	1.00		1.00
Satd. Flow (prot)			1863	1563		2787
Flt Permitted			1.00	1.00		1.00
Satd. Flow (perm)			1863	1563		2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	585	468	0	489
RTOR Reduction (vph)	0	0	0	233	0	269
Lane Group Flow (vph)	0	0	585	235	0	220
Confl. Peds. (#/hr)	2			2		
Turn Type			NA	Perm		Perm
Protected Phases			6			
Permitted Phases				6		4
Actuated Green, G (s)			15.8	15.8		7.6
Effective Green, g (s)			16.7	16.7		8.5
Actuated g/C Ratio			0.50	0.50		0.26
Clearance Time (s)			4.9	4.9		4.9
Vehicle Extension (s)			3.9	3.9		2.0
Lane Grp Cap (vph)			937	786		713
v/s Ratio Prot			c0.31			
v/s Ratio Perm				0.15		c0.08
v/c Ratio			0.62	0.30		0.31
Uniform Delay, d1			6.0	4.8		10.0
Progression Factor			1.00	1.00		1.00
Incremental Delay, d2			1.5	0.3		0.1
Delay (s)			7.4	5.1		10.1
Level of Service			A	A		B
Approach Delay (s)		0.0	6.4		10.1	
Approach LOS		A	A		B	

Intersection Summary				
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	8.9	
Intersection Capacity Utilization	51.7%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	350	550	0	350
Future Volume (veh/h)	0	0	350	550	0	350
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.97	1.00	1.00
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No		No	
Adj Sat Flow, veh/h/ln			1870	1870	0	1870
Adj Flow Rate, veh/h			368	579	0	368
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			2	2	0	2
Cap, veh/h			1468	1273	0	0
Arrive On Green			0.83	0.79	0.00	0.04
Sat Flow, veh/h			1870	1541	0	
Grp Volume(v), veh/h			368	579	0.0	
Grp Sat Flow(s),veh/h/ln			1777	1541		
Q Serve(g_s), s			1.0	2.9		
Cycle Q Clear(g_c), s			1.0	2.9		
Prop In Lane				1.00		
Lane Grp Cap(c), veh/h			1468	1273		
V/C Ratio(X)			0.25	0.45		
Avail Cap(c_a), veh/h			1468	1273		
HCM Platoon Ratio			1.00	1.00		
Upstream Filter(I)			1.00	1.00		
Uniform Delay (d), s/veh			0.4	0.7		
Incr Delay (d2), s/veh			0.4	1.2		
Initial Q Delay(d3),s/veh			0.0	0.0		
%ile BackOfQ(50%),veh/ln			0.2	0.4		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.8	1.9		
LnGrp LOS			A	A		
Approach Vol, veh/h			947			
Approach Delay, s/veh			1.5			
Approach LOS			A			

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	23.0
Change Period (Y+Rc), s	4.9
Max Green Setting (Gmax), s	18.1
Max Q Clear Time (g_c+I1), s	4.9
Green Ext Time (p_c), s	3.9

Intersection Summary	
HCM 6th Ctrl Delay	1.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	300	950	0	0	0	900
Future Volume (vph)	300	950	0	0	0	900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0					4.0
Lane Util. Factor	0.95					1.00
Frpb, ped/bikes	1.00					1.00
Flpb, ped/bikes	1.00					1.00
Frt	0.89					0.86
Flt Protected	1.00					1.00
Satd. Flow (prot)	3136					1611
Flt Permitted	1.00					1.00
Satd. Flow (perm)	3136					1611
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	319	1011	0	0	0	957
RTOR Reduction (vph)	607	0	0	0	0	225
Lane Group Flow (vph)	723	0	0	0	0	732
Confl. Peds. (#/hr)					18	
Turn Type	NA					Perm
Protected Phases	2					
Permitted Phases						8
Actuated Green, G (s)	17.0					19.0
Effective Green, g (s)	18.0					19.0
Actuated g/C Ratio	0.40					0.42
Clearance Time (s)	5.0					4.0
Vehicle Extension (s)	3.7					2.4
Lane Grp Cap (vph)	1254					680
v/s Ratio Prot	c0.23					
v/s Ratio Perm						c0.45
v/c Ratio	0.58					1.08
Uniform Delay, d1	10.5					13.0
Progression Factor	1.00					1.00
Incremental Delay, d2	1.9					57.1
Delay (s)	12.5					70.1
Level of Service	B					E
Approach Delay (s)	12.5			0.0	70.1	
Approach LOS	B			A	E	

Intersection Summary				
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	101.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	80	0	1020	170	130	980	0
Future Volume (veh/h)	0	0	0	150	0	80	0	1020	170	130	980	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	163	0	87	0	1109	185	141	1065	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	1	0	180	0	161	1	1137	190	139	1564	0
Arrive On Green	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.73	0.73	0.08	0.84	0.00
Sat Flow, veh/h	0	-74814	0	1781	0	1585	1781	1563	261	1781	1870	0
Grp Volume(v), veh/h	0	0	0	163	0	87	0	0	1294	141	1065	0
Grp Sat Flow(s),veh/h/ln	0	1870	0	1781	0	1585	1781	0	1823	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	11.6	0.0	6.7	0.0	0.0	85.5	10.0	27.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.6	0.0	6.7	0.0	0.0	85.5	10.0	27.8	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	0	1	0	180	0	161	1	0	1326	139	1564	0
V/C Ratio(X)	0.00	0.00	0.00	0.90	0.00	0.54	0.00	0.00	0.98	1.02	0.68	0.00
Avail Cap(c_a), veh/h	0	233	0	180	0	408	83	0	1350	139	1564	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	57.1	0.0	54.8	0.0	0.0	16.4	59.2	4.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	40.8	0.0	2.8	0.0	0.0	18.8	80.7	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	7.3	0.0	2.8	0.0	0.0	37.4	7.6	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	97.9	0.0	57.7	0.0	0.0	35.2	139.8	5.2	0.0
LnGrp LOS	A	A	A	F	A	E	A	A	D	F	A	A
Approach Vol, veh/h		0			250			1294			1206	
Approach Delay, s/veh		0.0			83.9			35.2			20.9	
Approach LOS					F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	97.3	17.0	0.0	0.0	111.3		17.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	95.0	13.0	16.0	6.0	99.0		33.0				
Max Q Clear Time (g_c+I1), s	12.0	87.5	13.6	0.0	0.0	29.8		8.7				
Green Ext Time (p_c), s	0.0	5.8	0.0	0.0	0.0	13.7		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	33.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
54: J Street/CVC & Project Dwy. Street "B"

Year 2050 + P1 + P2 + P3 PM
03/19/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	290	180	960	150	120	1010
Future Volume (veh/h)	290	180	960	150	120	1010
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	315	196	1043	163	130	1098
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	387	345	1011	158	128	1197
Arrive On Green	0.22	0.22	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1781	1585	1579	247	464	1870
Grp Volume(v), veh/h	315	196	0	1206	130	1098
Grp Sat Flow(s),veh/h/ln	1781	1585	0	1826	464	1870
Q Serve(g_s), s	9.5	6.2	0.0	36.0	0.0	28.8
Cycle Q Clear(g_c), s	9.5	6.2	0.0	36.0	36.0	28.8
Prop In Lane	1.00	1.00		0.14	1.00	
Lane Grp Cap(c), veh/h	387	345	0	1169	128	1197
V/C Ratio(X)	0.81	0.57	0.00	1.03	1.02	0.92
Avail Cap(c_a), veh/h	507	451	0	1169	128	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	19.6	0.0	10.1	28.1	8.8
Incr Delay (d2), s/veh	7.5	1.5	0.0	34.8	83.7	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	2.2	0.0	20.2	4.6	11.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.4	21.1	0.0	44.9	111.8	19.9
LnGrp LOS	C	C	A	F	F	B
Approach Vol, veh/h	511		1206			1228
Approach Delay, s/veh	25.6		44.9			29.7
Approach LOS	C		D			C

Timer - Assigned Phs		2				6	8
Phs Duration (G+Y+Rc), s		40.0				40.0	16.2
Change Period (Y+Rc), s		4.0				4.0	4.0
Max Green Setting (Gmax), s		36.0				36.0	16.0
Max Q Clear Time (g_c+I1), s		38.0				38.0	11.5
Green Ext Time (p_c), s		0.0				0.0	0.8

Intersection Summary			
HCM 6th Ctrl Delay		35.2	
HCM 6th LOS		D	

HCM 6th Signalized Intersection Summary
55: Hotel Circle N. & J Street

Year 2050 + P1 + P2 + P3 PM
03/11/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	250	910	650	100	360	0	0	900	400
Future Volume (veh/h)	0	0	0	250	910	650	100	360	0	0	900	400
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				272	989	707	109	391	0	0	978	435
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				268	1043	575	139	1690	0	0	1185	502
Arrive On Green				0.36	0.36	0.36	0.08	0.48	0.00	0.00	0.32	0.32
Sat Flow, veh/h				737	2873	1585	1781	3647	0	0	3741	1585
Grp Volume(v), veh/h				676	585	707	109	391	0	0	978	435
Grp Sat Flow(s),veh/h/ln				1833	1777	1585	1781	1777	0	0	1870	1585
Q Serve(g_s), s				18.0	15.5	18.0	3.0	3.2	0.0	0.0	12.0	12.8
Cycle Q Clear(g_c), s				18.0	15.5	18.0	3.0	3.2	0.0	0.0	12.0	12.8
Prop In Lane				0.40		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				666	645	575	139	1690	0	0	1185	502
V/C Ratio(X)				1.02	0.91	1.23	0.78	0.23	0.00	0.00	0.83	0.87
Avail Cap(c_a), veh/h				666	645	575	144	1720	0	0	1207	512
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.8	15.0	15.8	22.4	7.7	0.0	0.0	15.7	15.9
Incr Delay (d2), s/veh				39.0	16.5	117.6	23.5	0.1	0.0	0.0	4.7	14.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				13.3	8.1	24.1	2.0	1.0	0.0	0.0	5.1	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				54.7	31.5	133.4	46.0	7.7	0.0	0.0	20.4	30.3
LnGrp LOS				F	C	F	D	A	A	A	C	C
Approach Vol, veh/h					1968			500			1413	
Approach Delay, s/veh					76.1			16.1			23.4	
Approach LOS					E			B			C	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		27.6			7.9	19.7		22.0				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		24.0			4.0	16.0		18.0				
Max Q Clear Time (g_c+I1), s		5.2			5.0	14.8		20.0				
Green Ext Time (p_c), s		2.4			0.0	0.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		49.2	
HCM 6th LOS		D	

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
56: Hotel Circle S.

Year 2050 + P1 + P2 + P3 PM
03/11/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1000	40	0	0	0	0	20	40	1090	60	0
Future Volume (veh/h)	340	1000	40	0	0	0	0	20	40	1090	60	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	370	1087	43				0	22	43	1185	65	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	629	1231	49				0	37	72	1326	963	0
Arrive On Green	0.35	0.35	0.35				0.00	0.07	0.07	0.38	0.52	0.00
Sat Flow, veh/h	1781	3485	138				0	566	1106	3456	1870	0
Grp Volume(v), veh/h	370	554	576				0	0	65	1185	65	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1846				0	0	1671	1728	1870	0
Q Serve(g_s), s	10.3	17.8	17.8				0.0	0.0	2.3	19.5	1.1	0.0
Cycle Q Clear(g_c), s	10.3	17.8	17.8				0.0	0.0	2.3	19.5	1.1	0.0
Prop In Lane	1.00		0.07				0.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	629	627	652				0	0	109	1326	963	0
V/C Ratio(X)	0.59	0.88	0.88				0.00	0.00	0.59	0.89	0.07	0.00
Avail Cap(c_a), veh/h	645	644	669				0	0	440	1423	1386	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	18.5	18.5				0.0	0.0	27.6	17.5	7.4	0.0
Incr Delay (d2), s/veh	1.3	13.5	13.1				0.0	0.0	5.1	7.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.8	9.1				0.0	0.0	1.0	8.1	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.4	32.0	31.6				0.0	0.0	32.7	24.8	7.4	0.0
LnGrp LOS	B	C	C				A	A	C	C	A	A
Approach Vol, veh/h		1500						65			1250	
Approach Delay, s/veh		28.2						32.7			23.9	
Approach LOS		C						C			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	27.3	8.0		25.4		35.3
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0
Max Green Setting (Gmax), s	25.0	16.0		22.0		45.0
Max Q Clear Time (g_c+I1), s	21.5	4.3		19.8		3.1
Green Ext Time (p_c), s	1.8	0.2		1.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
57: Office Driveway & Levi Cushman Street B

Year 2050 + P1 + P2 + P3 PM
03/25/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	242	0	42	102	12	340	113	153	0
Future Volume (veh/h)	0	0	0	242	0	42	102	12	340	113	153	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	0	263	0	46	111	13	365	123	166	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	6	13	0	394	393	351	147	487	764	157	497	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.22	0.08	0.26	0.26	0.09	0.27	0.00
Sat Flow, veh/h	1781	3647	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Grp Volume(v), veh/h	0	0	0	263	0	46	111	13	365	123	166	0
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1585	1781	1870	1585	1781	1870	0
Q Serve(g_s), s	0.0	0.0	0.0	3.8	0.0	0.6	1.7	0.1	4.3	1.9	2.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.8	0.0	0.6	1.7	0.1	4.3	1.9	2.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	6	13	0	394	393	351	147	487	764	157	497	0
V/C Ratio(X)	0.00	0.00	0.00	0.67	0.00	0.13	0.75	0.03	0.48	0.78	0.33	0.00
Avail Cap(c_a), veh/h	255	2038	0	766	1529	1364	319	1073	1260	319	1073	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.9	0.0	8.7	12.5	7.7	4.9	12.5	8.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.0	0.0	0.2	7.5	0.0	0.5	8.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.2	0.0	0.2	0.8	0.0	0.6	0.9	0.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	11.9	0.0	8.9	20.1	7.7	5.3	20.7	8.6	0.0
LnGrp LOS	A	A	A	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		0			309			489			289	
Approach Delay, s/veh		0.0			11.4			8.7			13.8	
Approach LOS					B			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	11.3	10.2	0.0	6.3	11.4	0.0	10.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	16.0	12.0	16.0	5.0	16.0	4.0	24.0
Max Q Clear Time (g_c+I1), s	3.9	6.3	5.8	0.0	3.7	4.0	0.0	2.6
Green Ext Time (p_c), s	0.0	1.0	0.4	0.0	0.0	0.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

APPENDIX DD

YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY ANALYSIS CALCULATION SHEETS

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6141	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1616
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2280
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.9
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7114	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	2550
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.11
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7965	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1677
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2095
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9228	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1963
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.7
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7078	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1882
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8199	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1726
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7654	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1629
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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4. I-8 from Hotel Circle to SR163 EB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8866	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1539
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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4. I-8 from Hotel Circle to SR163 WB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6617	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1438
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7665	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1597
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8568	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_P), pc/h/ln	1823
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.4
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road EB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9926	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_P), pc/h/ln	2047
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.1
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road WB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10478	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.89	Flow Rate (v_P), pc/h/ln	1962
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 NB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7810	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_P), pc/h/ln	1370
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 SB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10924	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2324
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.02
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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9. SR163 North of Friars Road NB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7316	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1905
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.9
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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9. SR163 North of Friars Road SB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7098	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_P), pc/h/ln	2544
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.12
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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10. SR163 from Friars Road to I-8 NB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7359	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_P), pc/h/ln	1291
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1974
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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10. SR163 from Friars Road to I-8 SB – Year 2050 + Project Phases I through III AM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7554	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.95	Flow Rate (v_p), pc/h/ln	1988
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	47.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.8
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2050 + Project Phases I through III AM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7830	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2691
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.18
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.561
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8130	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2162
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from I-5 to Morena Boulevard WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5373	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1905
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2288
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2288
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.83
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.1
Total Ramp Density Adjustment	6.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.8		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.642
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10546	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	2197
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2024
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.09
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	37.0		

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2. I-8 from Morena Boulevard to Taylor Street EB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Morena Boulevard to Taylor Street WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.33
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.4
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6970	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1452
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2284
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2284
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.9
Total Ramp Density Adjustment	6.6	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.4		

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2. I-8 from Morena Boulevard to Taylor Street WB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9371	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2390
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2269
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.05
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Taylor Street to Hotel Circle WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6193	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1290
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	10133	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2089
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2087
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/29/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from Hotel Circle to SR163 WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	6697	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1163
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2269
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2117
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.9		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8760	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_P), pc/h/ln	1806
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.0
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 from SR163 to Mission Center Road WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	5789	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_P), pc/h/ln	1206
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.58
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.3
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road EB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	11344	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2339
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2265
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.03
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road EB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-8 East of Mission Center Road WB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.17
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.5
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.920
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7497	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1562
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2265
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2084
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	8.5	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	56.5		

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6. I-8 East of Mission Center Road WB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 NB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8926	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.93	Flow Rate (v_p), pc/h/ln	1600
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 NB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	I-5 from Sea World Drive to I-8 SB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.50
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.933
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9169	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	1576
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2280
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2127
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.3
Total Ramp Density Adjustment	7.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	58.0		

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8. I-5 from Sea World Drive to I-8 SB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road NB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	5	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	8231	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.96	Flow Rate (v_p), pc/h/ln	1715
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.7
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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9. SR163 North of Friars Road NB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 North of Friars Road SB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	3.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	56.9
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.744
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	9710	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2502
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	8.1	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	42.3		

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9. SR163 North of Friars Road SB – Year 2050 + Project Phases I through III PM.xuf

HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 NB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.83
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.3
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7359	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.98	Flow Rate (v_p), pc/h/ln	2503
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2273
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.10
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.7	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 from Friars Road to I-8 SB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	6	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	0.566
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.867
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7098	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1286
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2200
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1907
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	32.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	39.4
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	32.6		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 NB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.900
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7830	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2018
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2049
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	46.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.3
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

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HCS7 Basic Freeway Report

Project Information

Analyst		Date	3/21/2019
Agency		Analysis Year	2019
Jurisdiction	SR163 South of I-8 SB – Year 2050 + Project Phases I through III PM	Time Period Analyzed	
Project Description	Riverwalk Master Plan		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	2.67
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	57.7
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Volume (V), veh/h	7554	Heavy Vehicle Adjustment Factor (f_{HV})	1.000
Peak Hour Factor (PHF)	0.97	Flow Rate (v_p), pc/h/ln	2596
Total Trucks, %	0.00	Capacity (c), pc/h/ln	2277
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2277
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.14
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	-
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	-
Total Ramp Density Adjustment	7.3	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.7		

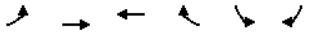
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APPENDIX EE

YEAR 2035 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT WITH IMPROVEMENTS INTERSECTION ANALYSIS CALCULATION SHEETS AND FAIRSHARE CALCULATIONS

HCM 6th Signalized Intersection Summary
9: Friars Rd./Friars Rd. & Goshen St.

Year 2035 + P1 + P2 + P3 AM
03/23/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	864	1583	50	60	50
Future Volume (veh/h)	60	864	1583	50	60	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.94	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	65	939	1721	54	65	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	84	2652	2182	68	81	67
Arrive On Green	0.05	0.75	0.62	0.62	0.10	0.10
Sat Flow, veh/h	1781	3647	3604	110	823	684
Grp Volume(v), veh/h	65	939	867	908	120	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1843	1519	0
Q Serve(g_s), s	1.9	4.7	18.6	18.9	4.0	0.0
Cycle Q Clear(g_c), s	1.9	4.7	18.6	18.9	4.0	0.0
Prop In Lane	1.00			0.06	0.54	0.45
Lane Grp Cap(c), veh/h	84	2652	1105	1146	150	0
V/C Ratio(X)	0.78	0.35	0.78	0.79	0.80	0.00
Avail Cap(c_a), veh/h	138	3171	1310	1359	472	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.3	2.3	7.2	7.3	22.7	0.0
Incr Delay (d2), s/veh	14.1	0.1	2.7	2.8	9.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	3.9	4.2	1.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.4	2.3	9.9	10.1	32.3	0.0
LnGrp LOS	D	A	A	B	C	A
Approach Vol, veh/h		1004	1775		120	
Approach Delay, s/veh		4.7	10.0		32.3	
Approach LOS		A	A		C	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				42.5		9.1	6.4	36.0
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				46.0		16.0	4.0	38.0
Max Q Clear Time (g_c+I1), s				6.7		6.0	3.9	20.9
Green Ext Time (p_c), s				7.2		0.2	0.0	11.1

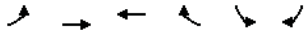
Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
9: Friars Rd./Friars Rd. & Goshen St.

Year 2035 + P1 + P2 + P3 PM
03/23/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	2351	1400	60	70	40
Future Volume (veh/h)	50	2351	1400	60	70	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.95	1.00	0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	54	2555	1522	65	76	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	69	2862	2478	105	98	55
Arrive On Green	0.04	0.81	0.72	0.72	0.09	0.09
Sat Flow, veh/h	1781	3647	3557	147	1073	607
Grp Volume(v), veh/h	54	2555	778	809	120	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1834	1695	0
Q Serve(g_s), s	2.3	38.6	17.2	17.4	5.4	0.0
Cycle Q Clear(g_c), s	2.3	38.6	17.2	17.4	5.4	0.0
Prop In Lane	1.00			0.08	0.63	0.36
Lane Grp Cap(c), veh/h	69	2862	1271	1312	155	0
V/C Ratio(X)	0.79	0.89	0.61	0.62	0.78	0.00
Avail Cap(c_a), veh/h	161	3026	1271	1312	350	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.9	5.2	5.6	5.6	34.4	0.0
Incr Delay (d2), s/veh	17.6	3.7	0.9	0.9	8.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.3	3.9	4.0	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.6	8.9	6.5	6.5	42.5	0.0
LnGrp LOS	D	A	A	A	D	A
Approach Vol, veh/h		2609	1587		120	
Approach Delay, s/veh		9.8	6.5		42.5	
Approach LOS		A	A		D	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				66.4		11.1	7.0	59.5
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				66.0		16.0	7.0	55.0
Max Q Clear Time (g_c+I1), s				40.6		7.4	4.3	19.4
Green Ext Time (p_c), s				21.9		0.2	0.0	14.2

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2035 + P1 + P2 + P3 AM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	722	51	10	2208	636	277	102	58	230	31	160
Future Volume (veh/h)	188	722	51	10	2208	636	277	102	58	230	31	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	209	802	48	11	2453	536	301	111	46	256	34	50
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.90	0.92	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	2170	130	18	2164	1093	232	138	57	316	45	67
Arrive On Green	0.04	0.64	0.64	0.01	0.61	0.61	0.13	0.11	0.11	0.09	0.07	0.07
Sat Flow, veh/h	3456	3400	203	1781	3554	1557	1781	1256	521	3456	667	981
Grp Volume(v), veh/h	209	419	431	11	2453	536	301	0	157	256	0	84
Grp Sat Flow(s),veh/h/ln	1728	1777	1826	1781	1777	1557	1781	0	1777	1728	0	1648
Q Serve(g_s), s	4.6	14.1	14.1	0.8	77.1	19.9	16.5	0.0	10.9	9.2	0.0	6.3
Cycle Q Clear(g_c), s	4.6	14.1	14.1	0.8	77.1	19.9	16.5	0.0	10.9	9.2	0.0	6.3
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.29	1.00		0.60
Lane Grp Cap(c), veh/h	126	1134	1166	18	2164	1093	232	0	196	316	0	112
V/C Ratio(X)	1.66	0.37	0.37	0.61	1.13	0.49	1.30	0.00	0.80	0.81	0.00	0.75
Avail Cap(c_a), veh/h	126	1134	1166	141	2164	1093	232	0	393	600	0	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.0	10.8	10.8	62.4	24.8	8.7	55.1	0.0	55.0	56.4	0.0	57.9
Incr Delay (d2), s/veh	331.5	0.9	0.9	28.9	66.5	1.6	161.5	0.0	7.4	1.9	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	5.3	5.4	0.5	48.2	6.7	17.8	0.0	5.3	4.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	392.5	11.8	11.7	91.3	91.2	10.2	216.5	0.0	62.4	58.4	0.0	61.7
LnGrp LOS	F	B	B	F	F	B	F	A	E	E	A	E
Approach Vol, veh/h		1059			3000			458			340	
Approach Delay, s/veh		86.9			76.7			163.7			59.2	
Approach LOS		F			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	86.7	20.9	13.7	9.0	83.0	15.6	19.0
Change Period (Y+Rc), s	4.0	* 5.9	4.4	5.1	4.4	5.9	4.0	* 5.1
Max Green Setting (Gmax), s	10.0	* 72	16.5	32.0	4.6	77.1	22.0	* 28
Max Q Clear Time (g_c+I1), s	2.8	16.1	18.5	8.3	6.6	79.1	11.2	12.9
Green Ext Time (p_c), s	0.0	4.0	0.0	0.3	0.0	0.0	0.4	0.7

Intersection Summary	
HCM 6th Ctrl Delay	85.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
11: Project Dwy. Street "F"/Via Las Cumbres & Friars Rd.

Year 2035 + P1 + P2 + P3 PM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	2128	165	33	1081	339	173	64	36	516	99	180
Future Volume (veh/h)	276	2128	165	33	1081	339	173	64	36	516	99	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	2240	174	35	1138	219	182	67	38	543	104	112
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	2061	157	45	1927	1095	159	96	55	540	117	126
Arrive On Green	0.10	0.62	0.61	0.03	0.54	0.54	0.09	0.09	0.09	0.16	0.14	0.15
Sat Flow, veh/h	3456	3335	255	1781	3554	1547	1781	1120	635	3456	824	887
Grp Volume(v), veh/h	291	1176	1238	35	1138	219	182	0	105	543	0	216
Grp Sat Flow(s),veh/h/ln	1728	1777	1813	1781	1777	1547	1781	0	1756	1728	0	1711
Q Serve(g_s), s	11.7	87.4	87.4	2.8	30.5	6.9	12.6	0.0	8.2	22.1	0.0	17.5
Cycle Q Clear(g_c), s	11.7	87.4	87.4	2.8	30.5	6.9	12.6	0.0	8.2	22.1	0.0	17.5
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.36	1.00		0.52
Lane Grp Cap(c), veh/h	354	1098	1120	45	1927	1095	159	0	151	540	0	244
V/C Ratio(X)	0.82	1.07	1.10	0.78	0.59	0.20	1.15	0.00	0.70	1.01	0.00	0.89
Avail Cap(c_a), veh/h	635	1098	1120	50	1927	1095	159	0	312	540	0	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.2	27.0	27.1	68.5	21.8	7.2	64.4	0.0	62.8	59.7	0.0	59.2
Incr Delay (d2), s/veh	1.8	48.3	60.4	49.6	1.3	0.4	116.3	0.0	5.7	40.1	0.0	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	47.7	52.5	1.9	12.4	2.3	10.9	0.0	3.9	12.7	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	75.3	87.6	118.2	23.1	7.6	180.7	0.0	68.5	99.7	0.0	68.3
LnGrp LOS	E	F	F	F	C	A	F	A	E	F	A	E
Approach Vol, veh/h		2705			1392			287			759	
Approach Delay, s/veh		79.7			23.1			139.7			90.8	
Approach LOS		E			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	91.6	17.0	25.3	18.5	80.7	25.0	17.3
Change Period (Y+Rc), s	4.0	* 5.9	4.4	5.1	4.4	5.9	4.0	* 5.1
Max Green Setting (Gmax), s	4.0	* 86	12.6	32.0	25.6	63.5	21.0	* 25
Max Q Clear Time (g_c+I1), s	4.8	89.4	14.6	19.5	13.7	32.5	24.1	10.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.4	7.5	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	69.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
19: Ulric St. & SR-163 SB On Ramp

Year 2035 + P1 + P2 + P3 AM
03/19/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	868	233	680	595
Future Volume (veh/h)	0	0	868	233	680	595
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.98	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			943	253	739	647
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1326	548	832	3237
Arrive On Green			0.35	0.35	0.47	0.91
Sat Flow, veh/h			3741	1547	1781	3647
Grp Volume(v), veh/h			943	253	739	647
Grp Sat Flow(s),veh/h/ln			1870	1547	1781	1777
Q Serve(g_s), s			9.8	5.7	16.9	0.9
Cycle Q Clear(g_c), s			9.8	5.7	16.9	0.9
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1326	548	832	3237
V/C Ratio(X)			0.71	0.46	0.89	0.20
Avail Cap(c_a), veh/h			1585	655	1112	4042
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			12.5	11.2	10.9	0.2
Incr Delay (d2), s/veh			1.2	0.6	7.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			3.5	1.7	6.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			13.7	11.8	18.0	0.2
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			1196			1386
Approach Delay, s/veh			13.3			9.7
Approach LOS			B			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	24.9	19.9				44.8
Change Period (Y+Rc), s	4.0	4.0				4.0
Max Green Setting (Gmax), s	28.0	19.0				51.0
Max Q Clear Time (g_c+I1), s	18.9	11.8				2.9
Green Ext Time (p_c), s	2.0	4.1				5.2

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [SBT] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
19: Ulric St. & SR-163 SB On Ramp

Year 2035 + P1 + P2 + P3 PM
03/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1159	418	560	873
Future Volume (veh/h)	0	0	1159	418	560	873
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				0.98	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			1260	400	609	949
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1768	731	669	3284
Arrive On Green			0.47	0.47	0.38	0.92
Sat Flow, veh/h			3741	1546	1781	3647
Grp Volume(v), veh/h			1260	400	609	949
Grp Sat Flow(s),veh/h/ln			1870	1546	1781	1777
Q Serve(g_s), s			14.1	9.7	17.1	1.5
Cycle Q Clear(g_c), s			14.1	9.7	17.1	1.5
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1768	731	669	3284
V/C Ratio(X)			0.71	0.55	0.91	0.29
Avail Cap(c_a), veh/h			2129	880	743	3775
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			11.1	9.9	15.6	0.2
Incr Delay (d2), s/veh			0.9	0.6	14.4	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			4.8	2.8	8.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			12.0	10.5	30.0	0.3
LnGrp LOS			B	B	C	A
Approach Vol, veh/h			1660			1558
Approach Delay, s/veh			11.6			11.9
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	23.8	28.9				52.7
Change Period (Y+Rc), s	4.0	4.0				4.0
Max Green Setting (Gmax), s	22.0	30.0				56.0
Max Q Clear Time (g_c+I1), s	19.1	16.1				3.5
Green Ext Time (p_c), s	0.7	8.8				8.7

Intersection Summary	
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [SBT] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 AM
03/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	156	402	231	66	120	179	238	201	231	422	50
Future Volume (veh/h)	20	156	402	231	66	120	179	238	201	231	422	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	159	410	152	185	122	183	243	205	236	431	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	546	584	276	546	702	269	610	484	277	1314	154
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.08	0.34	0.34	0.16	0.41	0.41
Sat Flow, veh/h	1071	1870	1580	842	1870	1560	3456	1818	1444	1781	3180	374
Grp Volume(v), veh/h	20	159	410	152	185	122	183	237	211	236	239	243
Grp Sat Flow(s),veh/h/ln	1071	1870	1580	842	1870	1560	1728	1777	1485	1781	1777	1776
Q Serve(g_s), s	1.3	5.5	18.5	14.3	6.5	3.9	4.3	8.6	9.2	10.8	7.7	7.8
Cycle Q Clear(g_c), s	7.8	5.5	18.5	19.8	6.5	3.9	4.3	8.6	9.2	10.8	7.7	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.97	1.00		0.21
Lane Grp Cap(c), veh/h	315	546	584	276	546	702	269	596	498	277	734	734
V/C Ratio(X)	0.06	0.29	0.70	0.55	0.34	0.17	0.68	0.40	0.42	0.85	0.33	0.33
Avail Cap(c_a), veh/h	387	672	691	333	672	807	1015	596	498	608	734	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	23.0	22.5	30.6	23.3	13.9	37.6	21.4	21.6	34.4	16.7	16.7
Incr Delay (d2), s/veh	0.0	0.1	1.8	3.6	0.8	0.2	1.1	2.0	2.6	2.9	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.4	6.8	3.1	2.9	1.4	1.8	3.8	3.4	4.8	3.2	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	23.1	24.3	34.3	24.1	14.1	38.8	23.3	24.2	37.3	17.9	17.9
LnGrp LOS	C	C	C	C	C	B	D	C	C	D	B	B
Approach Vol, veh/h		589			459			631			718	
Approach Delay, s/veh		24.0			24.8			28.1			24.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.4	35.0		31.3	10.9	41.5		31.3				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	28.6	28.1		30.1	24.6	* 34		30.1				
Max Q Clear Time (g_c+I1), s	12.8	11.2		20.5	6.3	9.8		21.8				
Green Ext Time (p_c), s	0.3	2.0		1.1	0.3	2.6		2.6				

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
29: Fashion Valley Rd. & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 PM
03/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	111	261	210	169	263	509	687	467	296	438	73
Future Volume (veh/h)	40	111	261	210	169	263	509	687	467	296	438	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.89	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	119	140	204	213	283	547	739	333	318	471	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	247	449	349	367	625	644	756	340	313	934	120
Arrive On Green	0.10	0.13	0.10	0.20	0.20	0.20	0.19	0.33	0.30	0.18	0.30	0.29
Sat Flow, veh/h	1781	1870	1571	1781	1870	1555	3456	2287	1029	1781	3120	401
Grp Volume(v), veh/h	43	119	140	204	213	283	547	574	498	318	267	265
Grp Sat Flow(s),veh/h/ln	1781	1870	1571	1781	1870	1555	1728	1777	1540	1781	1777	1745
Q Serve(g_s), s	2.1	5.7	6.8	10.1	10.0	13.0	14.8	30.9	31.0	17.0	12.0	12.2
Cycle Q Clear(g_c), s	2.1	5.7	6.8	10.1	10.0	13.0	14.8	30.9	31.0	17.0	12.0	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.23
Lane Grp Cap(c), veh/h	182	247	449	349	367	625	644	588	509	313	532	522
V/C Ratio(X)	0.24	0.48	0.31	0.58	0.58	0.45	0.85	0.98	0.98	1.02	0.50	0.51
Avail Cap(c_a), veh/h	407	483	648	368	387	641	929	588	509	313	532	522
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	38.9	27.2	35.3	35.3	21.5	38.0	32.0	33.0	39.9	27.9	28.1
Incr Delay (d2), s/veh	0.2	0.5	0.1	3.7	3.4	1.1	3.6	31.8	34.9	55.0	3.4	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.6	2.5	4.7	4.8	4.8	6.5	18.0	16.2	12.1	5.5	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	39.5	27.3	39.0	38.7	22.6	41.7	63.8	67.9	94.9	31.3	31.6
LnGrp LOS	D	D	C	D	D	C	D	E	E	F	C	C
Approach Vol, veh/h		302			700			1619			850	
Approach Delay, s/veh		34.0			32.3			57.6			55.2	
Approach LOS		C			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.0	36.0		16.8	22.0	35.0		23.0				
Change Period (Y+Rc), s	4.4	6.9		6.9	4.4	* 6.9		6.9				
Max Green Setting (Gmax), s	16.6	29.1		22.1	25.6	* 22		17.1				
Max Q Clear Time (g_c+I1), s	19.0	33.0		8.8	16.8	14.2		15.0				
Green Ext Time (p_c), s	0.0	0.0		0.6	0.8	1.8		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Avenida Del Rio & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 AM
03/19/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	181	289	87	155	315	222
Future Volume (veh/h)	181	289	87	155	315	222
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	321	97	172	350	247
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	265	423	248	346	525	468
Arrive On Green	0.42	0.42	0.42	0.42	0.29	0.29
Sat Flow, veh/h	638	1019	169	834	1781	1585
Grp Volume(v), veh/h	0	522	269	0	350	247
Grp Sat Flow(s),veh/h/ln	0	1657	1002	0	1781	1585
Q Serve(g_s), s	0.0	7.4	1.1	0.0	4.8	3.6
Cycle Q Clear(g_c), s	0.0	7.4	8.5	0.0	4.8	3.6
Prop In Lane		0.61	0.36		1.00	1.00
Lane Grp Cap(c), veh/h	0	688	594	0	525	468
V/C Ratio(X)	0.00	0.76	0.45	0.00	0.67	0.53
Avail Cap(c_a), veh/h	0	961	813	0	1033	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	6.9	5.9	0.0	8.5	8.1
Incr Delay (d2), s/veh	0.0	2.3	0.5	0.0	1.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	0.6	0.0	1.3	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.2	6.4	0.0	10.0	9.1
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	522			269	597	
Approach Delay, s/veh	9.2			6.4	9.6	
Approach LOS	A			A	A	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	12.1	15.5	15.5
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	16.0	16.0	16.0
Max Q Clear Time (g_c+I1), s	6.8	9.4	10.5
Green Ext Time (p_c), s	1.5	1.9	0.8

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
32: Avenida Del Rio & Riverwalk Dr.

Year 2035 + P1 + P2 + P3 PM
03/23/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	330	587	206	147	543	455
Future Volume (veh/h)	330	587	206	147	543	455
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.97	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	599	210	150	554	428
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	356	632	99	55	554	493
Arrive On Green	0.60	0.60	0.60	0.60	0.31	0.31
Sat Flow, veh/h	593	1054	60	92	1781	1585
Grp Volume(v), veh/h	0	936	360	0	554	428
Grp Sat Flow(s),veh/h/ln	0	1647	152	0	1781	1585
Q Serve(g_s), s	0.0	47.4	6.6	0.0	28.0	22.9
Cycle Q Clear(g_c), s	0.0	47.4	54.0	0.0	28.0	22.9
Prop In Lane		0.64	0.58		1.00	1.00
Lane Grp Cap(c), veh/h	0	988	154	0	554	493
V/C Ratio(X)	0.00	0.95	2.33	0.00	1.00	0.87
Avail Cap(c_a), veh/h	0	988	154	0	554	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.7	33.4	0.0	31.0	29.3
Incr Delay (d2), s/veh	0.0	17.3	619.5	0.0	38.1	15.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.2	30.0	0.0	17.4	10.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	34.0	653.0	0.0	69.1	44.4
LnGrp LOS	A	C	F	A	E	D
Approach Vol, veh/h	936			360	982	
Approach Delay, s/veh	34.0			653.0	58.4	
Approach LOS	C			F	E	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	32.0	58.0	58.0
Change Period (Y+Rc), s	4.0	4.0	4.0
Max Green Setting (Gmax), s	28.0	54.0	54.0
Max Q Clear Time (g_c+I1), s	30.0	49.4	56.0
Green Ext Time (p_c), s	0.0	2.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	142.3
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
46: Hotel Circle Place/Hotel Circle N.

Year 2035 + P1 + P2 + P3 AM
03/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	70	1319	60	10	0	0	0	0	20	20
Future Volume (veh/h)	20	0	70	1319	60	10	0	0	0	0	20	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	22	0	76	1434	65	11				0	22	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2				0	2	2
Cap, veh/h	34	0	0	1436	1251	212				0	28	28
Arrive On Green	0.02	0.00	0.00	0.81	0.81	0.81				0.00	0.03	0.03
Sat Flow, veh/h	1781	22		1781	1551	263				0	858	858
Grp Volume(v), veh/h	22	59.8		1434	0	76				0	0	44
Grp Sat Flow(s),veh/h/ln	1781	E		1781	0	1814				0	0	1716
Q Serve(g_s), s	1.0			67.5	0.0	0.7				0.0	0.0	2.1
Cycle Q Clear(g_c), s	1.0			67.5	0.0	0.7				0.0	0.0	2.1
Prop In Lane	1.00			1.00		0.14				0.00		0.50
Lane Grp Cap(c), veh/h	34			1436	0	1462				0	0	56
V/C Ratio(X)	0.65			1.00	0.00	0.05				0.00	0.00	0.79
Avail Cap(c_a), veh/h	84			1436	0	1462				0	0	326
HCM Platoon Ratio	1.00			1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00				0.00	0.00	1.00
Uniform Delay (d), s/veh	41.1			8.1	0.0	1.7				0.0	0.0	40.5
Incr Delay (d2), s/veh	18.7			23.4	0.0	0.0				0.0	0.0	21.6
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6			21.6	0.0	0.1				0.0	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8			31.5	0.0	1.7				0.0	0.0	62.2
LnGrp LOS	E			C	A	A				A	A	E
Approach Vol, veh/h					1510						44	
Approach Delay, s/veh					30.0						62.2	
Approach LOS					C						E	

Timer - Assigned Phs		2					7	8				
Phs Duration (G+Y+Rc), s		72.0					5.6	6.7				
Change Period (Y+Rc), s		4.0					4.0	4.0				
Max Green Setting (Gmax), s		68.0					4.0	16.0				
Max Q Clear Time (g_c+I1), s		69.5					3.0	4.1				
Green Ext Time (p_c), s		0.0					0.0	0.1				

Intersection Summary			
HCM 6th Ctrl Delay		31.3	
HCM 6th LOS		C	

HCM 6th Signalized Intersection Summary
46: Hotel Circle Place/Hotel Circle N.

Year 2035 + P1 + P2 + P3 PM
03/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	60	1542	50	30	0	0	0	0	60	20
Future Volume (veh/h)	20	0	60	1542	50	30	0	0	0	0	60	20
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	22	0	65	1676	54	33				0	65	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2				0	2	2
Cap, veh/h	31	0	0	1466	883	540				0	84	28
Arrive On Green	0.02	0.00	0.00	0.82	0.82	0.82				0.00	0.06	0.06
Sat Flow, veh/h	1781	22		1781	1073	656				0	1337	452
Grp Volume(v), veh/h	22	87.6		1676	0	87				0	0	87
Grp Sat Flow(s),veh/h/ln	1781	F		1781	0	1728				0	0	1789
Q Serve(g_s), s	1.5			102.0	0.0	1.2				0.0	0.0	5.9
Cycle Q Clear(g_c), s	1.5			102.0	0.0	1.2				0.0	0.0	5.9
Prop In Lane	1.00			1.00		0.38				0.00		0.25
Lane Grp Cap(c), veh/h	31			1466	0	1422				0	0	113
V/C Ratio(X)	0.72			1.14	0.00	0.06				0.00	0.00	0.77
Avail Cap(c_a), veh/h	216			1466	0	1422				0	0	303
HCM Platoon Ratio	1.00			1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00				0.00	0.00	1.00
Uniform Delay (d), s/veh	60.6			11.0	0.0	2.0				0.0	0.0	57.2
Incr Delay (d2), s/veh	27.0			73.1	0.0	0.0				0.0	0.0	10.6
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9			56.4	0.0	0.3				0.0	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.6			84.0	0.0	2.1				0.0	0.0	67.8
LnGrp LOS	F			F	A	A				A	A	E
Approach Vol, veh/h					1763						87	
Approach Delay, s/veh					80.0						67.8	
Approach LOS					E						E	

Timer - Assigned Phs		2					7	8				
Phs Duration (G+Y+Rc), s		106.0					6.1	11.8				
Change Period (Y+Rc), s		4.0					4.0	4.0				
Max Green Setting (Gmax), s		102.0					15.0	21.0				
Max Q Clear Time (g_c+I1), s		104.0					3.5	7.9				
Green Ext Time (p_c), s		0.0					0.0	0.3				

Intersection Summary			
HCM 6th Ctrl Delay		79.5	
HCM 6th LOS		E	

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Year 2035 + P1 + P2 + P3 AM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	1059
Future Volume (veh/h)	0	0	0	0	1340	0	0	0	0	0	290	1059
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	1489	0				0	322	1177
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	1435	0				0	844	1259
Arrive On Green				0.00	0.40	0.00				0.00	0.45	0.45
Sat Flow, veh/h				0	3741	0				0	1870	2790
Grp Volume(v), veh/h				0	1489	0				0	322	1177
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1395
Q Serve(g_s), s				0.0	32.0	0.0				0.0	9.0	31.7
Cycle Q Clear(g_c), s				0.0	32.0	0.0				0.0	9.0	31.7
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	1435	0				0	844	1259
V/C Ratio(X)				0.00	1.04	0.00				0.00	0.38	0.94
Avail Cap(c_a), veh/h				0	1435	0				0	1805	2692
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	23.6	0.0				0.0	14.4	20.6
Incr Delay (d2), s/veh				0.0	34.2	0.0				0.0	0.1	1.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	19.1	0.0				0.0	3.6	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	57.8	0.0				0.0	14.5	22.2
LnGrp LOS				A	F	A				A	B	C
Approach Vol, veh/h					1489						1499	
Approach Delay, s/veh					57.8						20.6	
Approach LOS					E						C	
Timer - Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				40.3		39.0						
Change Period (Y+Rc), s				4.5		7.0						
Max Green Setting (Gmax), s				76.5		32.0						
Max Q Clear Time (g_c+I1), s				33.7		34.0						
Green Ext Time (p_c), s				2.0		0.0						

Intersection Summary		
HCM 6th Ctrl Delay		39.1
HCM 6th LOS		D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
47: I-8 WB Ramp

Year 2035 + P1 + P2 + P3 PM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	1452
Future Volume (veh/h)	0	0	0	0	600	0	0	0	0	0	200	1452
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach					No						No	
Adj Sat Flow, veh/h/ln				0	1870	0				0	1870	1870
Adj Flow Rate, veh/h				0	667	0				0	222	1613
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				0	2	0				0	2	2
Cap, veh/h				0	1055	0				0	1166	1740
Arrive On Green				0.00	0.30	0.00				0.00	0.62	0.62
Sat Flow, veh/h				0	3741	0				0	1870	2790
Grp Volume(v), veh/h				0	667	0				0	222	1613
Grp Sat Flow(s),veh/h/ln				0	1777	0				0	1870	1395
Q Serve(g_s), s				0.0	11.2	0.0				0.0	3.5	35.7
Cycle Q Clear(g_c), s				0.0	11.2	0.0				0.0	3.5	35.7
Prop In Lane				0.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				0	1055	0				0	1166	1740
V/C Ratio(X)				0.00	0.63	0.00				0.00	0.19	0.93
Avail Cap(c_a), veh/h				0	1386	0				0	1554	2318
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	21.1	0.0				0.0	5.6	11.6
Incr Delay (d2), s/veh				0.0	0.9	0.0				0.0	0.0	5.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	4.5	0.0				0.0	1.1	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	22.0	0.0				0.0	5.6	16.7
LnGrp LOS				A	C	A				A	A	B
Approach Vol, veh/h					667						1835	
Approach Delay, s/veh					22.0						15.3	
Approach LOS					C						B	
Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						44.7		24.5				
Change Period (Y+Rc), s						4.5		7.0				
Max Green Setting (Gmax), s						54.5		24.0				
Max Q Clear Time (g_c+I1), s						37.7		13.2				
Green Ext Time (p_c), s						2.5		4.3				

Intersection Summary		
HCM 6th Ctrl Delay		17.1
HCM 6th LOS		B

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
48: I-8 WB Ramps & Hotel Circle N.

Year 2035 + P1 + P2 + P3 AM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	342	312	222	758	582	0	0	19	225
Future Volume (veh/h)	0	0	0	342	312	222	758	582	0	0	19	225
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	1.00		1.00	1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				364	332	190	806	619	0	0	20	80
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				575	354	203	793	791		0	129	108
Arrive On Green				0.32	0.32	0.32	0.45	0.45	0.00	0.00	0.07	0.07
Sat Flow, veh/h				1781	1098	628	1781	1870	0	0	1870	1571
Grp Volume(v), veh/h				364	0	522	806	619	0	0	20	80
Grp Sat Flow(s),veh/h/ln				1781	0	1726	1781	1777	0	0	1870	1571
Q Serve(g_s), s				13.9	0.0	23.4	35.5	23.6	0.0	0.0	0.8	4.0
Cycle Q Clear(g_c), s				13.9	0.0	23.4	35.5	23.6	0.0	0.0	0.8	4.0
Prop In Lane				1.00		0.36	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				575	0	557	793	791		0	129	108
V/C Ratio(X)				0.63	0.00	0.94	1.02	0.78		0.00	0.16	0.74
Avail Cap(c_a), veh/h				581	0	563	793	791		0	364	306
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.0	0.0	26.2	22.1	18.8	0.0	0.0	34.9	36.4
Incr Delay (d2), s/veh				2.2	0.0	23.4	36.0	5.1	0.0	0.0	0.6	9.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.9	0.0	12.7	21.4	10.1	0.0	0.0	0.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.2	0.0	49.6	58.1	23.9	0.0	0.0	35.5	45.9
LnGrp LOS				C	A	D	F	C		A	D	D
Approach Vol, veh/h					886			1425	A		100	
Approach Delay, s/veh					39.6			43.3			43.8	
Approach LOS					D			D			D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		40.0				10.0		29.7				
Change Period (Y+Rc), s		4.5				4.5		4.0				
Max Green Setting (Gmax), s		35.5				15.5		26.0				
Max Q Clear Time (g_c+I1), s		37.5				6.0		25.4				
Green Ext Time (p_c), s		0.0				0.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		41.9	
HCM 6th LOS		D	

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
48: I-8 WB Ramps & Hotel Circle N.

Year 2035 + P1 + P2 + P3 PM
03/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	748	258	84	452	446	0	0	82	436
Future Volume (veh/h)	0	0	0	748	258	84	452	446	0	0	82	436
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				804	277	90	486	480	0	0	88	116
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				817	617	201	527	570		0	181	153
Arrive On Green				0.46	0.46	0.46	0.31	0.31	0.00	0.00	0.10	0.10
Sat Flow, veh/h				1781	1345	437	1711	1944	0	0	1870	1585
Grp Volume(v), veh/h				804	0	367	507	459	0	0	88	116
Grp Sat Flow(s),veh/h/ln				1781	0	1783	1785	1777	0	0	1870	1585
Q Serve(g_s), s				44.1	0.0	13.9	27.2	23.9	0.0	0.0	4.4	7.1
Cycle Q Clear(g_c), s				44.1	0.0	13.9	27.2	23.9	0.0	0.0	4.4	7.1
Prop In Lane				1.00		0.25	0.96		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				817	0	818	550	548		0	181	153
V/C Ratio(X)				0.98	0.00	0.45	0.92	0.84		0.00	0.49	0.76
Avail Cap(c_a), veh/h				817	0	818	567	565		0	368	312
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.5	0.0	18.3	33.1	32.0	0.0	0.0	42.4	43.6
Incr Delay (d2), s/veh				27.3	0.0	0.4	20.3	10.6	0.0	0.0	2.0	7.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.8	0.0	5.6	14.5	11.6	0.0	0.0	2.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				53.8	0.0	18.7	53.5	42.6	0.0	0.0	44.5	51.0
LnGrp LOS				D	A	B	D	D		A	D	D
Approach Vol, veh/h					1171			966	A		204	
Approach Delay, s/veh					42.8			48.3			48.2	
Approach LOS					D			D			D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		35.1				14.1		50.0				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		31.5				19.5		45.5				
Max Q Clear Time (g_c+I1), s		29.2				9.1		46.1				
Green Ext Time (p_c), s		1.3				0.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		45.5	
HCM 6th LOS		D	

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Location	Project Phases I + II + III Traffic	Year 2035 + Project Phases I + II + III Traffic	Existing Traffic	Fair Share % [b]
Freeways [a]				
I-8: East of Mission Center Road	4,520	256,520	237,000	23.2%

Footnotes:

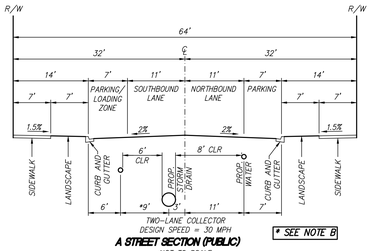
a. Freeway mainline fair share contributions are calculated using ADT volumes.

b. Fair share percentages calculated for facilities using the following equation:

$$\frac{\text{Project Phases I + II + III Traffic}}{\text{(Year 2035 + Project Phase I + II + III Traffic) – (Existing Traffic)}}$$

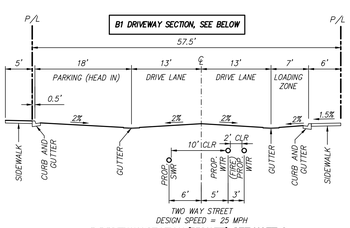
APPENDIX FF

ROADWAY CROSS-SECTIONS

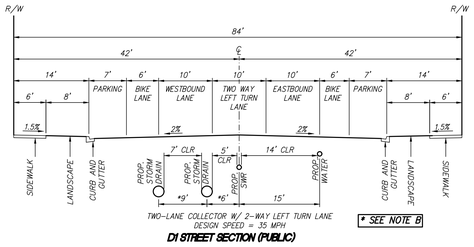


A STREET SECTION (PUBLIC)
NOT TO SCALE

* SEE NOTE B

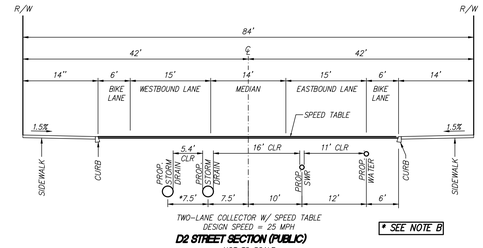


B DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE



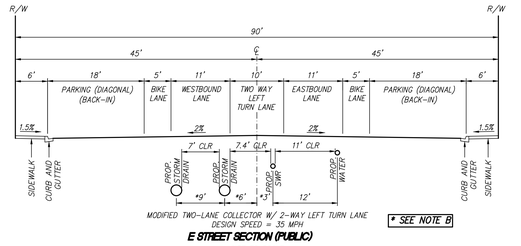
D1 STREET SECTION (PUBLIC)
NOT TO SCALE

* SEE NOTE B



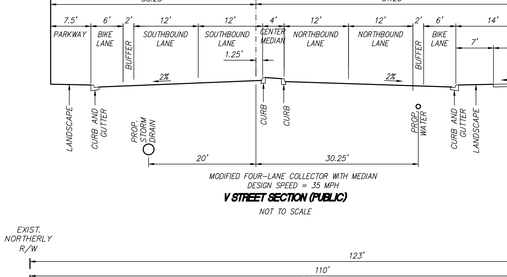
D2 STREET SECTION (PUBLIC)
NOT TO SCALE

* SEE NOTE B

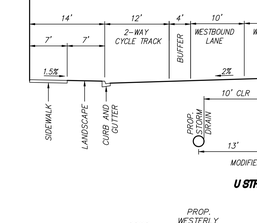


E STREET SECTION (PUBLIC)
NOT TO SCALE

* SEE NOTE B

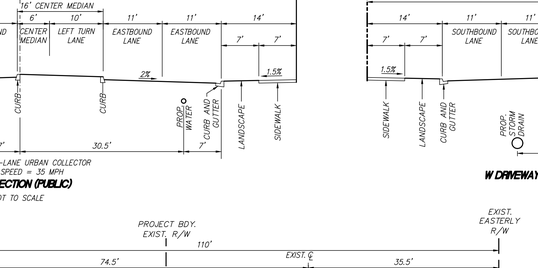


F STREET SECTION (PUBLIC)
NOT TO SCALE

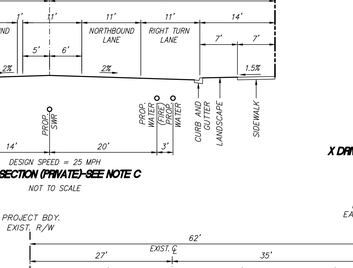


* SEE NOTE B

B1 DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

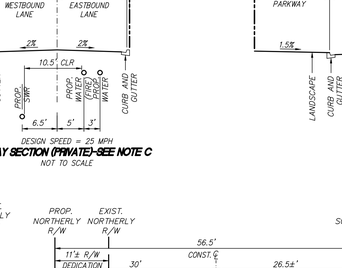


I STREET SECTION (PUBLIC)
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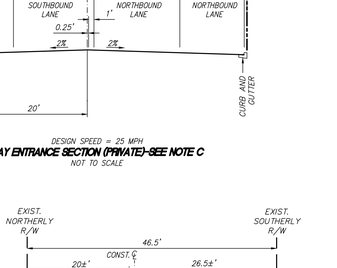
* SEE NOTE B

J1 STREET SECTION (PUBLIC)
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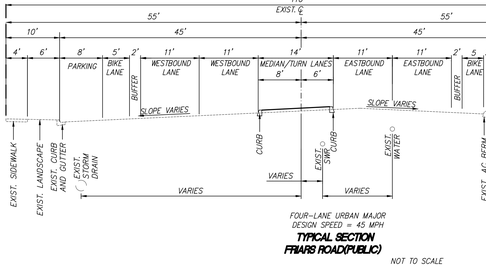


* SEE NOTE B

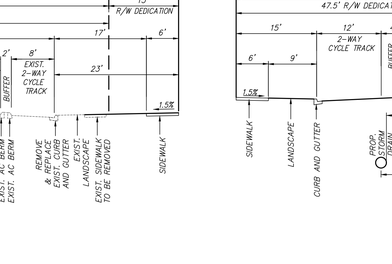
J2 STREET SECTION (PUBLIC)
NOT TO SCALE



K STREET SECTION (PUBLIC)
NOT TO SCALE



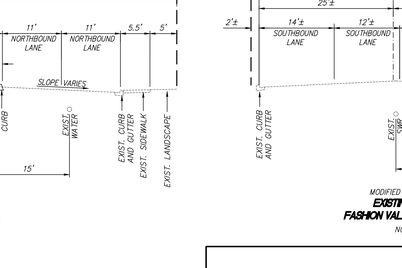
M STREET SECTION (PUBLIC)
NOT TO SCALE



* SEE NOTE B

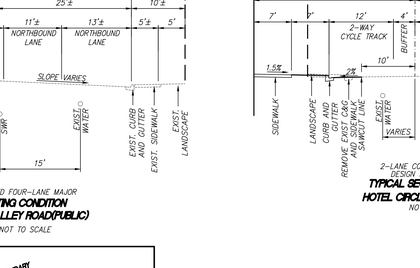
N1 DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

N2 DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE



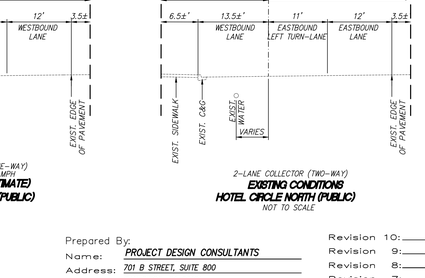
* SEE NOTE B

O STREET SECTION (PUBLIC)
NOT TO SCALE

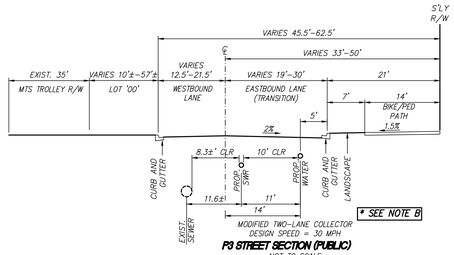


* SEE NOTE B

P1 STREET SECTION (PUBLIC)
NOT TO SCALE

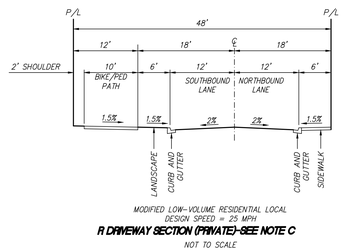


P2 STREET SECTION (PUBLIC)
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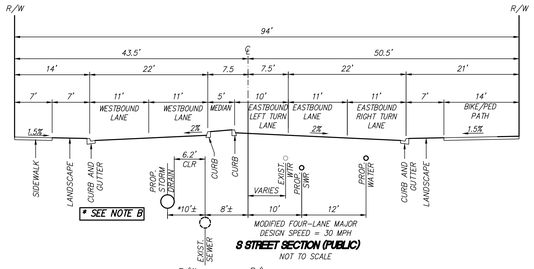


* SEE NOTE B

P3 STREET SECTION (PUBLIC)
NOT TO SCALE

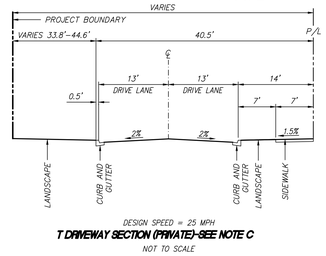


R DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

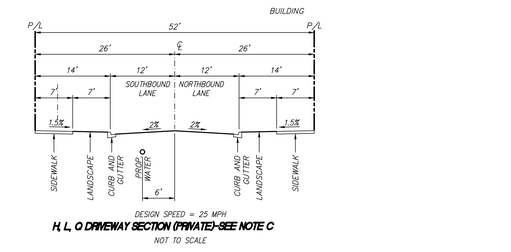


* SEE NOTE B

S STREET SECTION (PUBLIC)
NOT TO SCALE

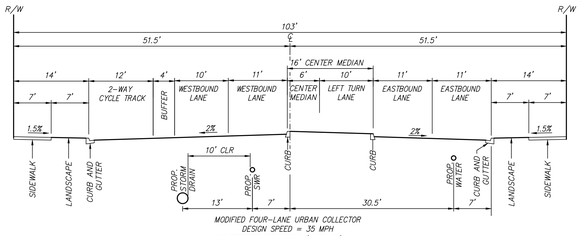


T DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

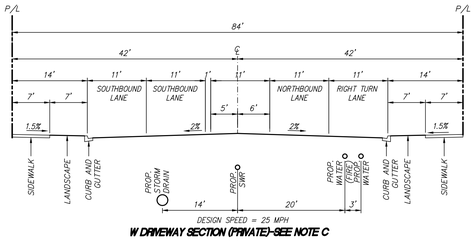


H, I, O DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

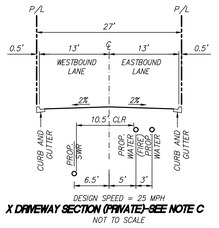
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NOT TO SCALE



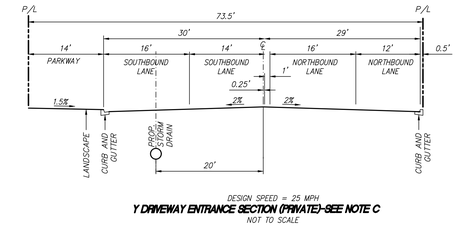
U STREET SECTION (PUBLIC)
NOT TO SCALE



W DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

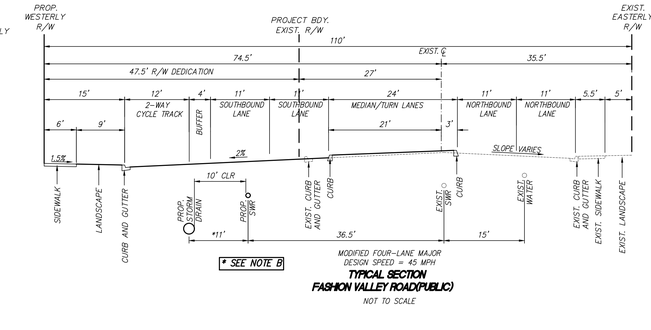


X DRIVEWAY SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE



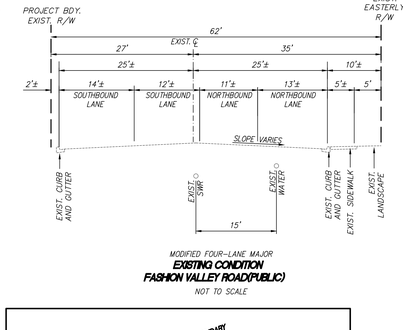
Y DRIVEWAY ENTRANCE SECTION (PRIVATE)-SEE NOTE C
NOT TO SCALE

TYPICAL SECTION FRIARS ROAD(PUBLIC)
NOT TO SCALE

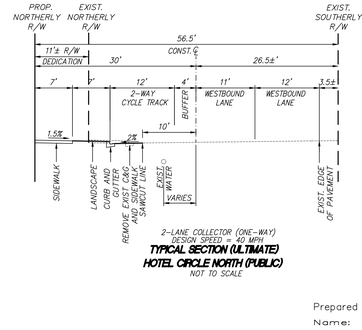


* SEE NOTE B

TYPICAL SECTION FASHION VALLEY ROAD(PUBLIC)
NOT TO SCALE



EXISTING CONDITION FASHION VALLEY ROAD(PUBLIC)
NOT TO SCALE



TYPICAL SECTION (ULTIMATE) HOTEL CIRCLE NORTH (PUBLIC)
NOT TO SCALE

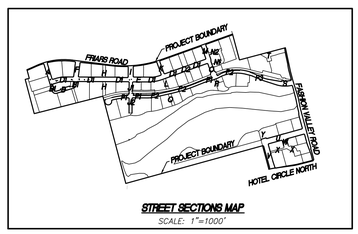
EXISTING CONDITIONS HOTEL CIRCLE NORTH (PUBLIC)
NOT TO SCALE

NOTES:

A. EMRA WILL BE PROVIDED FOR ALL PRIVATE STORM DRAINS WITHIN PUBLIC RIGHT-OF-WAY, AND PRIVATE STORM DRAINS CONNECTING TO PUBLIC STORM DRAIN.
B. EDGE TO EDGE SEPARATION OF LESS THAN 10' BETWEEN SEWER AND STORM DRAIN PER PROJECT WIDE DESIGN DEVIATION.
C. PRIVATE DRIVEWAY ENTRANCES FROM PUBLIC STREET ARE TO BE DESIGNED WITH ENHANCED PAVEMENT AND/OR CROSSWALK INCLUDING SIGNAGE TO THE SATISFACTION OF CITY ENGINEER.

NOTE:

SUBDIVIDER SHALL CONSTRUCT BIKE FACILITIES PER MISSION VALLEY COMMUNITY PLAN PROPOSED BICYCLE NETWORK CLASSIFICATIONS ON FRIARS ROAD, FASHION VALLEY ROAD & HOTEL CIRCLE NORTH.



STREET SECTIONS MAP.
SCALE: 1"=1000'

VESTING TENTATIVE MAP FOR RIVERWALK

PROJECT DESIGN CONSULTANTS
Planning I Landscape Architecture I Engineering I Survey
701 B Street, Suite 800
San Diego, CA 92101
619.235.6471 Tel
619.234.0349 Fax

PROJECT ENGINEER: GREGORY M. SHIELDS RCE: 42951
DESIGN BY: SC/JD DRAWN BY: KO/RF CHECKED BY: DR

Prepared By:
Name: PROJECT DESIGN CONSULTANTS
Address: 701 B STREET, SUITE 800
SAN DIEGO, CA 92101
Phone #: (619) 235-6471 Fax #: (619) 234-0349
Project Address:
1150 FASHION VALLEY ROAD
SAN DIEGO, CA 92108

Project Name: *RIVERWALK*

Revision 10:	
Revision 9:	
Revision 8:	
Revision 7:	
Revision 6:	04-09-20
Revision 5:	12-11-19
Revision 4:	10-04-19
Revision 3:	07-17-19
Revision 2:	04-22-19
Revision 1:	11-06-18
Original Date:	02-28-18

Sheet 2 of 21

PTS # 581984

Sheet Title: *TYPICAL STREET CROSS-SECTIONS*

1856-6271 CCS83 COORDINATES
216-1711 LAMBERT COORDINATES

APPENDIX GG

PEDESTRIAN AND BICYCLE ACTIVITY COUNTS, EXCERPTS FROM MISSION VALLEY CPU MOBILITY EXISTING CONDITIONS REPORT, JUNE 2017

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Colusa Street	LOCATION #:	9
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Colusa Street			SOUTHBOUND Colusa Street			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 0.5	NT 0.5	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
WEEKDAY AM	7:00 AM	18	2	2	11	0	5	6	61	3	0	152	10	270
	7:15 AM	6	2	8	14	1	16	7	93	2	2	185	9	345
	7:30 AM	14	0	6	18	0	18	7	135	6	6	227	18	455
	7:45 AM	12	0	11	18	0	10	8	109	0	2	241	20	431
	8:00 AM	17	1	4	11	0	12	6	91	6	2	319	19	488
	8:15 AM	12	1	7	12	1	3	5	82	3	1	410	28	565
	8:30 AM	14	2	8	16	0	12	9	77	6	2	453	18	617
	8:45 AM	10	1	15	16	1	5	19	132	4	8	339	16	566
	VOLUMES	103	9	61	116	3	81	67	780	30	23	2,326	138	3,737
	APPROACH %	60%	5%	35%	58%	2%	41%	8%	89%	3%	1%	94%	6%	
	APP/DEPART	173	/	214	200	/	56	877	/	957	2,487	/	2,510	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	53	5	34	55	2	32	39	382	19	13	1,521	81	2,236
	APPROACH %	58%	5%	37%	62%	2%	36%	9%	87%	4%	1%	94%	5%	
	PEAK HR FACTOR		0.885			0.795			0.710			0.854		0.906
	APP/DEPART	92	/	125	89	/	34	440	/	471	1,615	/	1,606	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM	3	0	7	21	6	8	12	273	11	3	126	5	475
	4:15 PM	5	0	0	23	1	13	7	300	9	7	156	14	535
	4:30 PM	2	0	2	15	2	12	15	385	13	13	125	7	591
	4:45 PM	4	0	2	26	0	7	14	372	14	12	149	15	615
	5:00 PM	10	1	4	30	1	11	14	350	10	4	155	12	602
	5:15 PM	5	0	3	42	4	11	10	321	8	7	156	13	580
	5:30 PM	9	0	5	41	4	20	18	332	11	11	172	5	628
	5:45 PM	3	0	2	16	2	11	9	235	9	6	142	11	446
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	41	1	25	214	20	93	99	2,568	85	63	1,181	82	4,472
	APPROACH %	61%	1%	37%	65%	6%	28%	4%	93%	3%	5%	89%	6%	
	APP/DEPART	67	/	182	327	/	168	2,752	/	2,807	1,326	/	1,315	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	28	1	14	139	9	49	56	1,375	43	34	632	45	2,425
	APPROACH %	65%	2%	33%	71%	5%	25%	4%	93%	3%	5%	89%	6%	
	PEAK HR FACTOR		0.717			0.758			0.921			0.945		0.965
	APP/DEPART	43	/	102	197	/	86	1,474	/	1,528	711	/	709	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
		1		1
1				1
		1		1
				0
		1		1
				0
1	0	3	0	4
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
		2		2
		0		0
		2		2
		3		3
		3		3
		2		2
		5		5
		1		1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	18	0	18

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
9	7	0	5	21
4	3	0	1	8
6	2	0	1	9
12	2	0	3	17
2	6	0	4	12
6	3	0	1	10
0	1	0	0	1
2	3	0	3	8
				0
	pm			0
0	2	0	1	3
1	2	0	0	3
1	1	0	0	2
3	2	0	0	5
2	5	0	3	10
3	4	0	2	9
1	3	0	2	6
3	8	0	3	14
				0
				0
				0
				0
				0
				0
55	54	0	29	138

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0			0			2		2
	0	0		0			5			4		4
	0	0		0			1			0		0
	0	0		0			2		1	1		2
	0	0		0			1			0		0
	0	0		0			1			0		0
	0	2		0			2			0		0
	0	0		0			0			0		0
												0
	pm						pm					0
	0	0		1			1			1		1
	0	0		0			2			0		0
	0	1		0			0			2		2
	0	0		0			1			0		0
	0	1		0			0			2		2
	0	1		0			2			0		0
	0	0		0			2			1		1
	0	0		0			4			1		1
												0
												0
												0
												0
												0
												9
0	0	5	1	1	0	0	24	0	1	14	0	24

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Via Las Cumbres	LOCATION #:	10
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Via Las Cumbres			SOUTHBOUND Via Las Cumbres			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 2	WR 1	TOTAL
WEEKDAY AM	7:00 AM				33		27	23	60			134	69	346
	7:15 AM				46		34	70	77			178	129	534
	7:30 AM				60		41	62	108			209	133	613
	7:45 AM				54		40	33	125			255	112	619
	8:00 AM				43		23	30	80			358	105	639
	8:15 AM				34		35	19	78			407	122	695
	8:30 AM				34		24	13	115			445	120	751
	8:45 AM				48		33	25	105			290	118	619
	VOLUMES	0	0	0	352	0	257	275	748	0	0	2,276	908	4,816
	APPROACH %	0%	0%	0%	58%	0%	42%	27%	73%	0%	0%	71%	29%	
	APP/DEPART	0	/	1,183	609	/	0	1,023	/	1,100	3,184	/	2,533	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	0	0	159	0	115	87	378	0	0	1,500	465	2,704
	APPROACH %	0%	0%	0%	58%	0%	42%	19%	81%	0%	0%	76%	24%	
	PEAK HR FACTOR		0.000			0.729			0.736			0.869		0.900
	APP/DEPART	0	/	552	274	/	0	465	/	537	1,965	/	1,615	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM				118		24	31	238			134	45	590
	4:15 PM				97		34	29	242			155	56	613
	4:30 PM				88		34	38	340			154	35	689
	4:45 PM				63		22	43	318			161	58	665
	5:00 PM				115		32	38	335			151	65	736
	5:15 PM				90		39	51	289			176	58	703
	5:30 PM				92		36	55	340			164	59	746
	5:45 PM				75		18	37	194			149	57	530
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	738	0	239	322	2,296	0	0	1,244	433	5,272
	APPROACH %	0%	0%	0%	76%	0%	24%	12%	88%	0%	0%	74%	26%	
	APP/DEPART	0	/	755	977	/	0	2,618	/	3,034	1,677	/	1,483	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	360	0	129	187	1,282	0	0	652	240	2,850
	APPROACH %	0%	0%	0%	74%	0%	26%	13%	87%	0%	0%	73%	27%	
	PEAK HR FACTOR		0.000			0.832			0.930			0.953		0.955
	APP/DEPART	0	/	427	489	/	0	1,469	/	1,642	892	/	781	0

U-TURNS

NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
	2			2
	1			1
				0
0	3	0	0	3
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
			1	1
				0
			1	1
				0
				0
				0
				0
	1			1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	1	0	2	3

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
2	0	0	1	3
6	0	0	0	6
4	0	0	0	4
2	0	0	0	2
5	0	0	0	5
0	0	0	0	0
				0
	PM			0
7	0	0	0	7
0	0	0	0	0
1	0	0	0	1
1	0	0	0	1
6	0	0	0	6
6	0	0	0	6
7	0	0	0	7
1	0	0	0	1
				0
				0
				0
				0
				0
				0
48	0	0	1	49

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			4			0		0
	0			0			2			0		0
	0			0			2			0		0
	0			0			3			7		7
	0			0			0			1		1
	0			0			2			0		0
	0			0			1			0		0
	0			0			0			0		0
												0
	PM						PM					0
	0			0			4			1		1
	0			0			2			0		0
	0			0			3			0		0
	0			0			0			2		2
	0			0			0			0		0
	0			0			0			1		1
	0			0			2			0		0
	0			0			0			0		0
												0
												0
												0
												0
												0
												12
0	0	0	0	0	0	0	25	0	0	12	0	24

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Fashion Valley Road	LOCATION #:	11
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Fashion Valley Road			SOUTHBOUND Fashion Valley Road			EASTBOUND Friars Road			WESTBOUND Friars Road				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	0.5	0.5	1	0	1	0	1	3	0	2	2	0		X	X	X	X	
WEEKDAY AM	7:00 AM	29	0	20	7	0	0	1	93	21	23	151	0	345			1		1
	7:15 AM	25	0	15	1	0	3	1	132	16	29	228	0	450			1		1
	7:30 AM	51	0	14	6	1	2	2	153	20	23	279	2	553			1		1
	7:45 AM	38	0	21	3	1	1	1	209	38	42	305	0	659					0
	8:00 AM	59	0	15	3	1	1	0	127	26	43	331	0	606					0
	8:15 AM	109	0	21	3	0	2	1	123	20	41	379	1	700					0
	8:30 AM	70	1	19	5	0	1	0	133	31	47	458	3	768					0
	8:45 AM	42	0	26	6	1	1	1	155	26	42	373	4	677					0
	VOLUMES	423	1	151	34	4	11	7	1,125	198	290	2,504	10	4,758	0	0	3	0	3
	APPROACH %	74%	0%	26%	69%	8%	22%	1%	85%	15%	10%	89%	0%						
	APP/DEPART	575	/	18	49	/	492	1,330	/	1,310	2,804	/	2,938	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	280	1	81	17	2	5	2	538	103	173	1,541	8	2,751					
	APPROACH %	77%	0%	22%	71%	8%	21%	0%	84%	16%	10%	89%	0%						
	PEAK HR FACTOR		0.696			0.750			0.883			0.847		0.896					
	APP/DEPART	362	/	11	24	/	278	643	/	636	1,722	/	1,826	0					
WEEKDAY AM	11:00 AM	31	0	48	1	2	1	4	123	31	45	122	1	409			1		1
	11:15 AM	34	0	48	1	0	0	2	154	28	31	119	2	419					0
	11:30 AM	34	2	42	2	0	1	1	137	37	37	95	0	388					0
	11:45 AM	42	1	50	1	0	1	2	156	33	36	137	1	460			1		1
	12:00 PM	47	2	66	1	0	0	0	155	41	42	124	2	480				1	1
	12:15 PM	49	1	60	2	1	2	1	158	47	31	119	4	475			1		1
	12:30 PM	38	0	53	1	1	0	1	162	35	43	153	1	488					0
	12:45 PM	40	0	57	1	0	0	2	162	42	55	132	2	493			3		3
	VOLUMES	315	6	424	10	4	5	13	1,207	294	320	1,001	13	3,612	0	0	6	1	7
	APPROACH %	42%	1%	57%	53%	21%	26%	1%	80%	19%	24%	75%	1%						
	APP/DEPART	745	/	32	19	/	618	1,514	/	1,641	1,334	/	1,321	0					
	BEGIN PEAK HR		12:00 PM																
	VOLUMES	174	3	236	5	2	2	4	637	165	171	528	9	1,936					
	APPROACH %	42%	1%	57%	56%	22%	22%	0%	79%	20%	24%	75%	1%						
	PEAK HR FACTOR		0.898			0.450			0.978			0.898		0.982					
	APP/DEPART	413	/	16	9	/	338	806	/	878	708	/	704	0					
WEEKDAY PM	4:00 PM	37	0	66	1	0	3	1	351	55	34	156	2	706					0
	4:15 PM	49	3	81	2	1	1	1	374	64	44	181	0	801					0
	4:30 PM	56	4	90	2	1	0	0	368	45	25	155	2	748					0
	4:45 PM	49	0	64	1	0	1	1	375	69	45	189	5	799				1	1
	5:00 PM	68	1	77	1	1	1	3	346	72	55	187	2	814			1		1
	5:15 PM	64	2	65	1	2	0	1	404	92	45	178	2	856			1		1
	5:30 PM	59	2	83	3	0	0	2	344	79	52	185	4	813			1		1
	5:45 PM	51	0	69	0	1	0	5	295	51	41	178	5	696					0
	6:00 PM													0					0
	6:15 PM													0					0
	6:30 PM													0					0
	6:45 PM													0					0
	7:00 PM													0					0
	7:15 PM													0					0
	7:30 PM													0					0
	7:45 PM													0					0
	8:00 PM													0					0
	8:15 PM													0					0
	8:30 PM													0					0
	8:45 PM													0					0
	VOLUMES	433	12	595	11	6	6	14	2,857	527	341	1,409	22	6,233	0	0	3	1	4
	APPROACH %	42%	1%	57%	48%	26%	26%	0%	84%	16%	19%	80%	1%						
	APP/DEPART	1,040	/	48	23	/	874	3,398	/	3,463	1,772	/	1,848	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	240	5	289	6	3	2	7	1,469	312	197	739	13	3,282					
	APPROACH %	45%	1%	54%	55%	27%	18%	0%	82%	17%	21%	78%	1%						
	PEAK HR FACTOR		0.914			0.917			0.899			0.972		0.959					
	APP/DEPART	534	/	25	11	/	512	1,788	/	1,764	949	/	981	0					

PEDESTRIAN CROSSINGS						BIKE MOVEMENTS												
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4		4	2	10	7:00 AM							2						0
5		3	1	9	7:15 AM													0
2	1	1		4	7:30 AM													0
6	3	3	1	13	7:45 AM													0
1	2	1		4	8:00 AM													0
2	1	3	1	7	8:15 AM							1	1			1		1
1		1	1	3	8:30 AM							1						0
4	2	2	1	9	8:45 AM							1	1					0
	2	2	1	5	11:00 AM													0
2			1	3	11:15 AM													0
3	1	1		5	11:30 AM			1				1						0
				0	11:45 AM							1						0
		1		1	12:00 PM							1				1	1	2
		4		4	12:15 PM													0
1	1		2	4	12:30 PM								2					0
1	1			2	12:45 PM							1	1				1	1
1	1	1	4	7	4:00 PM											1		1
1	3	1	4	9	4:15 PM			1										0
1			1	2	4:30 PM											1		1
2	1	1	2	6	4:45 PM								1					0
3	1	1	7	12	5:00 PM											2		2
4	2	2	2	10	5:15 PM								1			1		1
	2		2	4	5:30 PM													0
				0	5:45 PM									1				9
44	24	32	33	133		0	0	2	0	0	0	9	7	1	0	7	2	18

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Via De La Moda	LOCATION #:	12
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Via De La Moda			SOUTHBOUND Via De La Moda			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 1	NT 0	NR 1	SL X	ST X	SR X	EL 1	ET 3	ER 0	WL 2	WT 2	WR X	TOTAL
WEEKDAY AM	7:00 AM	0	0	4					114	0	5	177		300
	7:15 AM	0	0	2					154	3	13	287		459
	7:30 AM	0	2	7					199	3	14	309		534
	7:45 AM	3	0	1					198	3	16	324		545
	8:00 AM	0	0	7					161	5	16	432		621
	8:15 AM	0	0	7					146	2	16	428		599
	8:30 AM	1	0	6					172	2	21	490		692
	8:45 AM	3	0	3					174	6	31	406		623
	VOLUMES	7	2	37	0	0	0	0	1,318	24	132	2,853	0	4,373
	APPROACH %	15%	4%	80%	0%	0%	0%	0%	98%	2%	4%	96%	0%	
	APP/DEPART	46	/	2	0	/	156	1,342	/	1,355	2,985	/	2,860	0
	BEGIN PEAK HR	8:00 AM												
	VOLUMES	4	0	23	0	0	0	0	653	15	84	1,756	0	2,535
	APPROACH %	15%	0%	85%	0%	0%	0%	0%	98%	2%	5%	95%	0%	
	PEAK HR FACTOR	0.964			0.000				0.928			0.900		0.916
	APP/DEPART	27	/	0	0	/	99	668	/	676	1,840	/	1,760	0
WEEKDAY AM	11:00 AM	9	0	52					168	12	83	161		485
	11:15 AM	7	0	47					180	15	74	130		453
	11:30 AM	7	0	56					158	11	80	119		431
	11:45 AM	13	0	66					200	13	75	141		508
	12:00 PM	14	0	54					220	21	84	161		554
	12:15 PM	9	0	65					190	13	91	133		501
	12:30 PM	11	0	65					223	11	79	158		547
	12:45 PM	21	0	55					224	11	97	185		593
	VOLUMES	91	0	460	0	0	0	0	1,563	107	663	1,188	0	4,072
	APPROACH %	17%	0%	83%	0%	0%	0%	0%	94%	6%	36%	64%	0%	
	APP/DEPART	551	/	0	0	/	770	1,670	/	2,023	1,851	/	1,279	0
	BEGIN PEAK HR	12:00 PM												
	VOLUMES	55	0	239	0	0	0	0	857	56	351	637	0	2,195
	APPROACH %	19%	0%	81%	0%	0%	0%	0%	94%	6%	36%	64%	0%	
	PEAK HR FACTOR	0.967			0.000				0.947			0.876		0.925
	APP/DEPART	294	/	0	0	/	407	913	/	1,096	988	/	692	0
WEEKDAY PM	4:00 PM	12	0	64					403	16	47	185		727
	4:15 PM	15	0	68					404	19	57	199		762
	4:30 PM	14	0	60					417	10	54	175		730
	4:45 PM	10	0	53					420	15	55	224		777
	5:00 PM	12	0	68					399	12	73	226		790
	5:15 PM	11	0	57					433	14	49	234		798
	5:30 PM	9	0	64					418	15	58	205		769
	5:45 PM	11	0	77					329	19	46	195		677
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	94	0	511	0	0	0	0	3,223	120	439	1,643	0	6,030
	APPROACH %	16%	0%	84%	0%	0%	0%	0%	96%	4%	21%	79%	0%	
	APP/DEPART	605	/	0	0	/	559	3,343	/	3,734	2,082	/	1,737	0
	BEGIN PEAK HR	4:45 PM												
	VOLUMES	42	0	242	0	0	0	0	1,670	56	235	889	0	3,134
	APPROACH %	15%	0%	85%	0%	0%	0%	0%	97%	3%	21%	79%	0%	
	PEAK HR FACTOR	0.807			0.000				0.965			0.940		0.982
	APP/DEPART	284	/	0	0	/	291	1,726	/	1,912	1,124	/	931	0

U-TURNS				
NB X	SB X	EB X	WB X	TTL
		1	1	2
		2	1	3
		4	7	11
		2	9	11
			7	7
		2	7	9
		1	5	6
		1	8	9
0	0	13	45	58
		1	19	20
		5	14	19
			20	20
		3	17	20
			30	30
		3	22	25
		2	27	29
		1	28	29
0	0	15	177	192
1			11	12
			13	13
			15	15
			11	11
1		1	20	22
		2	14	16
		2	13	15
		3	14	17
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
2	0	8	111	121

PEDESTRIAN CROSSINGS						BIKE MOVEMENTS												
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
			5	5	7:00 AM													0
			1	1	7:15 AM	1												0
	3		7	10	7:30 AM								2			1		1
			6	6	7:45 AM								3		1	1		2
	1		1	2	8:00 AM								6					0
	5			5	8:15 AM	1							1			2		2
	1		3	4	8:30 AM	1									1	3		4
	1		5	6	8:45 AM													0
			2	2	11:00 AM								1		1	3		4
			3	3	11:15 AM													0
			1	1	11:30 AM	1									2			2
			2	2	11:45 AM								1		3			3
	1		1	2	12:00 PM													0
			2	2	12:15 PM								2			2		2
			2	2	12:30 PM								1			2		2
	1		2	3	12:45 PM								1					0
				0	4:00 PM								2		1	4		5
	1			1	4:15 PM	1			1						1			1
				0	4:30 PM	1												0
	1			1	4:45 PM								3		2	2		4
				0	5:00 PM								3		1	2		3
				0	5:15 PM	1							4					0
				0	5:30 PM	2							2			4		4
	1			1	5:45 PM								2					38
0	16	0	43	59		9	0	0	1	0	0	0	34	0	13	26	0	77

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Avenida De Las Tiendas	LOCATION #:	13
THURSDAY	EAST & WEST:	Friars Road	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Avenida De Las Tiendas			SOUTHBOUND Avenida De Las Tiendas			EASTBOUND Friars Road			WESTBOUND Friars Road			
	LANES:	NL 1	NT 0.5	NR 1.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 0	WL 2	WT 3	WR 0	TOTAL
WEEKDAY AM	7:00 AM	1	0	3	4	0	0	0	113	1	22	188	1	333
	7:15 AM	1	0	1	8	0	1	0	154	0	20	308	0	493
	7:30 AM	0	0	6	10	0	1	0	188	1	19	314	0	539
	7:45 AM	0	0	3	11	0	2	0	212	3	44	341	2	618
	8:00 AM	1	0	4	8	0	0	0	159	5	27	428	0	632
	8:15 AM	1	0	6	8	0	2	0	153	5	32	461	2	670
	8:30 AM	1	0	4	6	0	1	0	164	4	38	508	0	726
	8:45 AM	0	0	1	5	0	0	0	173	7	62	442	0	690
	VOLUMES	5	0	28	60	0	7	0	1,316	26	264	2,990	5	4,701
	APPROACH %	15%	0%	85%	90%	0%	10%	0%	98%	2%	8%	92%	0%	
	APP/DEPART	33	/	5	67	/	290	1,342	/	1,404	3,259	/	3,002	0
	BEGIN PEAK HR	8:00 AM												
	VOLUMES	3	0	15	27	0	3	0	649	21	159	1,839	2	2,718
	APPROACH %	17%	0%	83%	90%	0%	10%	0%	97%	3%	8%	92%	0%	
	PEAK HR FACTOR	0.643			0.750				0.931			0.916		0.936
	APP/DEPART	18	/	2	30	/	180	670	/	691	2,000	/	1,845	0
WEEKDAY AM	11:00 AM	6	0	38	5	0	1	3	199	33	155	234	0	674
	11:15 AM	5	0	39	1	0	1	1	193	16	159	211	4	630
	11:30 AM	5	0	41	7	0	1	2	220	7	162	219	1	665
	11:45 AM	9	0	50	3	0	0	2	241	14	153	222	5	699
	12:00 PM	8	0	45	3	0	0	1	223	13	165	278	2	738
	12:15 PM	5	0	37	2	0	0	0	265	12	172	239	4	736
	12:30 PM	9	0	55	3	0	0	5	277	15	180	279	0	823
	12:45 PM	10	0	58	4	0	1	4	281	14	188	245	3	808
	VOLUMES	57	0	363	28	0	4	18	1,899	124	1,334	1,927	19	5,773
	APPROACH %	14%	0%	86%	88%	0%	13%	1%	93%	6%	41%	59%	1%	
	APP/DEPART	420	/	37	32	/	1,458	2,041	/	2,290	3,280	/	1,988	0
	BEGIN PEAK HR	12:00 PM												
	VOLUMES	32	0	195	12	0	1	10	1,046	54	705	1,041	9	3,105
	APPROACH %	14%	0%	86%	92%	0%	8%	1%	94%	5%	40%	59%	1%	
	PEAK HR FACTOR	0.835			0.650				0.928			0.956		0.943
	APP/DEPART	227	/	19	13	/	759	1,110	/	1,253	1,755	/	1,074	0
WEEKDAY PM	4:00 PM	8	0	59	7	0	0	4	425	12	118	242	1	876
	4:15 PM	11	1	63	4	0	0	3	482	15	123	250	2	954
	4:30 PM	9	0	69	2	0	2	6	526	18	121	226	7	986
	4:45 PM	10	1	61	6	0	0	4	443	11	128	279	3	946
	5:00 PM	6	0	68	4	0	0	5	471	8	121	271	7	961
	5:15 PM	12	0	77	6	0	1	7	516	10	122	273	10	1,034
	5:30 PM	6	0	54	12	0	2	5	427	14	142	258	9	929
	5:45 PM	6	0	59	2	0	1	3	394	21	127	239	11	863
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	68	2	510	43	0	6	37	3,684	109	1,002	2,038	50	7,549
	APPROACH %	12%	0%	88%	88%	0%	12%	1%	96%	3%	32%	66%	2%	
	APP/DEPART	580	/	89	49	/	1,111	3,830	/	4,237	3,090	/	2,112	0
	BEGIN PEAK HR	4:30 PM												
	VOLUMES	37	1	275	18	0	3	22	1,956	47	492	1,049	27	3,927
	APPROACH %	12%	0%	88%	86%	0%	14%	1%	97%	2%	31%	67%	2%	
	PEAK HR FACTOR	0.879			0.375				0.920			0.956		0.949
	APP/DEPART	313	/	50	21	/	539	2,025	/	2,249	1,568	/	1,089	0

U-TURNS

	NB X	SB X	EB X	WB X	TTL
7:00 AM			1	5	6
7:15 AM				9	9
7:30 AM				7	7
7:45 AM				16	16
8:00 AM				8	8
8:15 AM				11	11
8:30 AM				11	11
8:45 AM				18	18
	0	0	1	85	86
11:00 AM				25	25
11:15 AM			1	30	31
11:30 AM				35	35
11:45 AM			2	32	34
12:00 PM				33	33
12:15 PM				32	32
12:30 PM			4	37	41
12:45 PM				32	32
	0	0	7	256	263
4:00 PM			2	17	19
4:15 PM			3	19	22
4:30 PM			5	22	27
4:45 PM			4	24	28
5:00 PM			4	30	34
5:15 PM			8	17	25
5:30 PM			1	20	21
5:45 PM			3	18	21
	0	0	30	167	197

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM					0
7:15 AM				1	1
7:30 AM					0
7:45 AM				1	1
8:00 AM				1	1
8:15 AM					0
8:30 AM		1		2	3
8:45 AM					0
11:00 AM				1	1
11:15 AM		1		2	3
11:30 AM	1			2	3
11:45 AM		1		2	3
12:00 PM					0
12:15 PM					0
12:30 PM				2	2
12:45 PM					0
4:00 PM		1		4	5
4:15 PM				7	7
4:30 PM				1	1
4:45 PM				3	3
5:00 PM				1	1
5:15 PM		1		3	4
5:30 PM		1			1
5:45 PM				2	2
	1	6	0	35	42

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM													0
7:15 AM													0
7:30 AM								2			1		1
7:45 AM	1							3		1			1
8:00 AM								5	1		1		2
8:15 AM								2		1			1
8:30 AM											2		2
8:45 AM								1	1		3		4
11:00 AM													0
11:15 AM										1	2		3
11:30 AM	1							1					0
11:45 AM													0
12:00 PM								1		2	2		4
12:15 PM	1							1			1		1
12:30 PM								2		1	2		3
12:45 PM											1		1
4:00 PM	2							1		1	3		4
4:15 PM													0
4:30 PM										1			1
4:45 PM	1	1						3			1		1
5:00 PM								2	1		1		2
5:15 PM								4					0
5:30 PM								2	1		3		4
5:45 PM								4					34
	6	1	0	0	0	0	0	34	4	8	23	0	69

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Avenida Del Rio	LOCATION #:	39
THURSDAY	EAST & WEST:	Camino De La Riena	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N / ◀ W / E ▶ / S ▼

	NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Camino De La Riena			WESTBOUND Camino De La Riena			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM													
7:00 AM				5		1	1	27			33	14	81
7:15 AM				6		2	1	19			48	26	102
7:30 AM				14		1	5	35			58	24	137
7:45 AM				18		6	4	35			62	27	152
8:00 AM				11		3	10	46			104	47	221
8:15 AM				10		5	5	43			155	49	267
8:30 AM				18		7	8	46			151	46	276
8:45 AM				16		3	12	43			90	52	216
VOLUMES	0	0	0	98	0	28	46	294	0	0	701	285	1,452
APPROACH %	0%	0%	0%	78%	0%	22%	14%	86%	0%	0%	71%	29%	
APP/DEPART	0	/	331	126	/	0	340	/	392	986	/	729	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	0	0	0	55	0	18	35	178	0	0	500	194	980
APPROACH %	0%	0%	0%	75%	0%	25%	16%	84%	0%	0%	72%	28%	
PEAK HR FACTOR		0.000			0.730			0.951			0.850		0.888
APP/DEPART	0	/	229	73	/	0	213	/	233	694	/	518	0
WEEKDAY AM													
11:00 AM				40		9	21	55			40	67	232
11:15 AM				35		8	23	62			43	92	263
11:30 AM				40		16	22	49			42	76	245
11:45 AM				41		8	20	62			56	89	276
12:00 PM				46		17	24	78			51	79	295
12:15 PM				54		10	26	66			58	96	310
12:30 PM				58		22	23	64			69	97	333
12:45 PM				68		16	16	64			51	84	299
VOLUMES	0	0	0	382	0	106	175	500	0	0	410	680	2,253
APPROACH %	0%	0%	0%	78%	0%	22%	26%	74%	0%	0%	38%	62%	
APP/DEPART	0	/	855	488	/	0	675	/	882	1,090	/	516	0
BEGIN PEAK HR		12:00 PM											
VOLUMES	0	0	0	226	0	65	89	272	0	0	229	356	1,237
APPROACH %	0%	0%	0%	78%	0%	22%	25%	75%	0%	0%	39%	61%	
PEAK HR FACTOR		0.000			0.866			0.885			0.881		0.929
APP/DEPART	0	/	445	291	/	0	361	/	498	585	/	294	0
WEEKDAY PM													
4:00 PM				84		30	10	82			64	59	329
4:15 PM				70		17	17	81			61	79	325
4:30 PM				78		19	14	93			74	78	356
4:45 PM				87		8	15	111			68	73	362
5:00 PM				88		24	15	122			76	96	421
5:15 PM				94		17	16	102			80	77	386
5:30 PM				93		14	26	91			60	80	364
5:45 PM				71		20	25	93			42	79	330
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	0	665	0	149	138	775	0	0	525	621	2,873
APPROACH %	0%	0%	0%	82%	0%	18%	15%	85%	0%	0%	46%	54%	
APP/DEPART	0	/	759	814	/	0	913	/	1,440	1,146	/	674	0
BEGIN PEAK HR		4:45 PM											
VOLUMES	0	0	0	362	0	63	72	426	0	0	284	326	1,533
APPROACH %	0%	0%	0%	85%	0%	15%	14%	86%	0%	0%	47%	53%	
PEAK HR FACTOR		0.000			0.949			0.909			0.887		0.910
APP/DEPART	0	/	398	425	/	0	498	/	788	610	/	347	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
	0	0	0	0	0
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
	0	0	0	0	0

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	
7	2			2	4	7:00 AM
15	1			5	6	7:15 AM
30	1			8	9	7:30 AM
45				8	8	7:45 AM
8				2	2	8:00 AM
15	1			3	4	8:15 AM
30				4	4	8:30 AM
45				4	4	8:45 AM
11				2	2	11:00 AM
15				4	4	11:15 AM
30				5	5	11:30 AM
45				5	5	11:45 AM
12	1			24	25	12:00 PM
15	3			1	4	12:15 PM
30				5	5	12:30 PM
45	3				3	12:45 PM
4				2	2	4:00 PM
15	1				1	4:15 PM
30	1			1	2	4:30 PM
45				1	1	4:45 PM
5				3	3	5:00 PM
15				2	2	5:15 PM
30	2			1	3	5:30 PM
45	1			3	4	5:45 PM
	17	0	0	95	112	

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM				2		1					2	2	4
7:15 AM				1									0
7:30 AM							2						0
7:45 AM				2		1					1	2	3
8:00 AM				1		1		1					0
8:15 AM								1				3	3
8:30 AM								2			1		1
8:45 AM											1		1
11:00 AM													0
11:15 AM													0
11:30 AM						1							0
11:45 AM											1		1
12:00 PM											2		2
12:15 PM													0
12:30 PM													0
12:45 PM											2		2
4:00 PM				2		2		1			1		1
4:15 PM													0
4:30 PM							1				1		1
4:45 PM				1		1					2		2
5:00 PM				1							1	2	3
5:15 PM				1				1			3		3
5:30 PM				1				1			1	1	2
5:45 PM				1									25
	0	0	0	13	0	7	3	7	0	0	19	10	54

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	I-8 WB Ramps	LOCATION #:	47
THURSDAY	EAST & WEST:	Hotel Circle North	CONTROL:	STOP

NOTES:

AM
PM
MD
OTHER
OTHER

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	NORTHBOUND I-8 WB Ramps			SOUTHBOUND I-8 WB Ramps			EASTBOUND Hotel Circle North			WESTBOUND Hotel Circle North			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	1	0	0	1	1	1	1	0	
WEEKDAY AM													
7:00 AM	66	2	121	0	0	1	1	15	1	26	18	4	255
7:15 AM	70	3	142	2	0	0	1	28	2	25	29	5	307
7:30 AM	89	3	138	1	1	0	0	26	3	28	33	6	328
7:45 AM	91	3	175	1	0	0	0	35	2	19	39	5	370
8:00 AM	88	4	162	2	0	1	0	28	2	20	40	4	351
8:15 AM	94	4	184	3	1	0	0	20	1	28	44	2	381
8:30 AM	70	5	151	2	0	0	0	28	2	22	51	4	335
8:45 AM	88	1	160	1	0	0	0	38	1	24	42	3	358
VOLUMES	656	25	1,233	12	2	2	2	218	14	192	296	33	2,685
APPROACH %	34%	1%	64%	75%	13%	13%	1%	93%	6%	37%	57%	6%	
APP/DEPART	1,914	/	60	16	/	208	234	/	1,463	521	/	954	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	343	16	672	8	1	1	0	111	7	89	174	15	1,437
APPROACH %	33%	2%	65%	80%	10%	10%	0%	94%	6%	32%	63%	5%	
PEAK HR FACTOR		0.914			0.625			0.797			0.903		0.943
APP/DEPART	1,031	/	31	10	/	97	118	/	791	278	/	518	0
WEEKDAY AM													
11:00 AM													0
11:15 AM													0
11:30 AM													0
11:45 AM													0
12:00 PM													0
12:15 PM													0
12:30 PM													0
12:45 PM													0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		12:45 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM													
4:00 PM	40	1	105	2	0	0	0	61	3	70	18	2	302
4:15 PM	29	1	135	2	0	1	1	66	3	61	26	2	327
4:30 PM	35	2	135	0	0	0	1	91	2	80	29	2	377
4:45 PM	31	1	142	1	1	1	0	80	4	88	33	4	386
5:00 PM	33	0	121	2	0	0	0	74	5	78	28	2	343
5:15 PM	40	1	108	1	0	0	0	65	6	84	26	1	332
5:30 PM	36	2	116	2	0	0	0	55	5	74	44	2	336
5:45 PM	31	1	126	1	1	0	0	62	5	77	35	1	340
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	275	9	988	11	2	2	2	554	33	612	239	16	2,743
APPROACH %	22%	1%	78%	73%	13%	13%	0%	94%	6%	71%	28%	2%	
APP/DEPART	1,272	/	27	15	/	647	589	/	1,553	867	/	516	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	139	4	506	4	1	1	1	310	17	330	116	9	1,438
APPROACH %	21%	1%	78%	67%	17%	17%	0%	95%	5%	73%	25%	2%	
PEAK HR FACTOR		0.932			0.500			0.872			0.910		0.931
APP/DEPART	649	/	14	6	/	348	328	/	820	455	/	256	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

NB	SB	EB	WB	TTL
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0

NB	SB	EB	WB	TTL
				0
				0
				0
			1	1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	1	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
2	4	0	2	8
0	2	0	2	4
2	3	0	0	5
4	5	0	2	11
3	2	0	0	5
0	1	0	0	1
1	1	0	0	2
0	4	0	0	4
				0
	PM			0
3	1	0	1	5
1	0	0	0	1
0	1	0	0	1
3	1	0	0	4
1	1	0	0	2
3	0	0	0	3
5	0	0	1	6
6	5	0	4	15
				0
				0
				0
				0
				0
				0
34	31	0	12	77

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			0			1		1
	0			0			3			3		3
	0			0			2			3		3
	0			0			0			3		3
	0			0			0			2		2
	0			0			1			1		1
	0			0			0			0		0
	0			0			4			0		0
												0
	PM						PM					0
	0			0			0			0		0
	0			0			0			4		4
	0			0			1			0		0
	0			0			0			1		1
	0			0			0			1		1
0	0			0		1	2			0		0
0	0			0		1	0			5		5
	0			0			0			5		5
												0
												0
												0
												0
												0
												22
0	0	0	0	0	0	2	13	0	0	29	0	51

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:				
9-10-15	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
THURSDAY	NORTH & SOUTH:	I-8 EB Ramps	LOCATION #:	56
	EAST & WEST:	Hotel Circle South	CONTROL:	STOP

NOTES:

AM
PM
MD
OTHER
OTHER

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		NORTHBOUND I-8 EB Ramps			SOUTHBOUND I-8 EB Ramps			EASTBOUND Hotel Circle South			WESTBOUND Hotel Circle South			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM	7:00 AM				34		5	34	13			35	79	200
	7:15 AM				35		2	45	22			51	86	241
	7:30 AM				54		6	41	14			46	124	285
	7:45 AM				89		6	34	19			59	114	321
	8:00 AM				61		6	37	24			79	78	285
	8:15 AM				53		6	40	23			97	88	307
	8:30 AM				44		5	51	21			121	88	330
	8:45 AM				73		8	39	30			71	66	287
	VOLUMES	0	0	0	443	0	44	321	166	0	0	559	723	2,256
	APPROACH %	0%	0%	0%	91%	0%	9%	66%	34%	0%	0%	44%	56%	
	APP/DEPART	0	/	1,044	487	/	0	487	/	609	1,282	/	603	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	0	0	247	0	23	162	87	0	0	356	368	1,243
	APPROACH %	0%	0%	0%	91%	0%	9%	65%	35%	0%	0%	49%	51%	
	PEAK HR FACTOR		0.000			0.711			0.865			0.866		0.942
	APP/DEPART	0	/	530	270	/	0	249	/	334	724	/	379	0
WEEKDAY AM	11:00 AM													0
	11:15 AM													0
	11:30 AM													0
	11:45 AM													0
	12:00 PM													0
	12:15 PM													0
	12:30 PM													0
	12:45 PM													0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		12:45 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
WEEKDAY PM	4:00 PM				22		1	82	67			44	151	367
	4:15 PM				24		8	89	58			44	173	396
	4:30 PM				32		1	103	40			41	161	378
	4:45 PM				21		6	89	63			54	165	398
	5:00 PM				45		10	191	134			34	163	577
	5:15 PM				35		4	107	58			34	156	394
	5:30 PM				26		7	80	65			43	177	398
	5:45 PM				33		6	73	82			48	154	396
	6:00 PM													0
	6:15 PM													0
	6:30 PM													0
	6:45 PM													0
	7:00 PM													0
	7:15 PM													0
	7:30 PM													0
	7:45 PM													0
	8:00 PM													0
	8:15 PM													0
	8:30 PM													0
	8:45 PM													0
	VOLUMES	0	0	0	238	0	43	814	567	0	0	342	1,300	3,304
	APPROACH %	0%	0%	0%	85%	0%	15%	59%	41%	0%	0%	21%	79%	
	APP/DEPART	0	/	2,114	281	/	0	1,381	/	805	1,642	/	385	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	127	0	27	467	320	0	0	165	661	1,767
	APPROACH %	0%	0%	0%	82%	0%	18%	59%	41%	0%	0%	20%	80%	
	PEAK HR FACTOR		0.000			0.700			0.605			0.939		0.766
	APP/DEPART	0	/	1,128	154	/	0	787	/	447	826	/	192	0

U-TURNS

NB	SB	EB	WB	TTL
X	X	X	X	
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
			1	1
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	1	1

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
				0
PM				0
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	1	0	2
0	0	0	0	0
0	0	0	0	0
				0
				0
				0
				0
				0
				0
0	5	1	0	6

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0			0			1			0		0
	0			0			2			0		0
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			1		1
	0			0			0			1		1
	0			0			0			1		1
												0
PM						PM						0
	0			0			0			1		1
	0			0			0			1		1
	0			0			0			0		0
	0			0			0			0		0
	0			0			0			2		2
	0			0			3			0		0
	0			0			0			0		0
	0			0			0			1		1
												0
												0
												0
												0
												0
												8
0	0	0	0	0	0	0	6	0	0	8	0	16

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Fashion Valley Road	LOCATION #:	48
THURSDAY	EAST & WEST:	Hotel Circle North	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

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	NORTHBOUND Fashion Valley Road			SOUTHBOUND Fashion Valley Road			EASTBOUND Hotel Circle North			WESTBOUND Hotel Circle North			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	X	X	X	1	X	1	1	1	X	X	1	1	
WEEKDAY AM													
7:00 AM				25		9	31	94			24	17	200
7:15 AM				13		12	42	115			41	21	244
7:30 AM				24		9	38	131			46	21	269
7:45 AM				26		20	72	168			39	32	357
8:00 AM				24		21	61	132			28	20	286
8:15 AM				32		25	82	137			77	37	390
8:30 AM				35		20	64	135			59	20	333
8:45 AM				24		22	55	145			45	23	314
VOLUMES	0	0	0	203	0	138	445	1,057	0	0	359	191	2,393
APPROACH %	0%	0%	0%	60%	0%	40%	30%	70%	0%	0%	65%	35%	
APP/DEPART	0	/	636	341	/	0	1,502	/	1,260	550	/	497	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	0	0	117	0	86	279	572	0	0	203	109	1,366
APPROACH %	0%	0%	0%	58%	0%	42%	33%	67%	0%	0%	65%	35%	
PEAK HR FACTOR		0.000			0.890			0.886			0.684		0.876
APP/DEPART	0	/	388	203	/	0	851	/	689	312	/	289	0
WEEKDAY AM													
11:00 AM				28		20	69	76			37	32	262
11:15 AM				25		40	73	69			47	26	280
11:30 AM				18		35	73	76			41	39	282
11:45 AM				23		28	91	85			52	36	315
12:00 PM				39		30	73	84			41	43	310
12:15 PM				28		34	74	91			48	33	308
12:30 PM				30		33	72	85			51	35	306
12:45 PM				35		46	103	75			53	35	347
VOLUMES	0	0	0	226	0	266	628	641	0	0	370	279	2,410
APPROACH %	0%	0%	0%	46%	0%	54%	49%	51%	0%	0%	57%	43%	
APP/DEPART	0	/	907	492	/	0	1,269	/	867	649	/	636	0
BEGIN PEAK HR		12:00 PM											
VOLUMES	0	0	0	132	0	143	322	335	0	0	193	146	1,271
APPROACH %	0%	0%	0%	48%	0%	52%	49%	51%	0%	0%	57%	43%	
PEAK HR FACTOR		0.000			0.849			0.923			0.963		0.916
APP/DEPART	0	/	468	275	/	0	657	/	467	339	/	336	0
WEEKDAY PM													
4:00 PM				45		41	74	104			52	35	351
4:15 PM				40		53	85	119			56	26	379
4:30 PM				53		36	112	139			61	41	442
4:45 PM				45		41	96	113			76	39	410
5:00 PM				62		69	68	124			74	31	428
5:15 PM				49		50	76	80			76	36	367
5:30 PM				65		37	82	108			70	37	399
5:45 PM				64		43	75	103			65	36	386
6:00 PM													0
6:15 PM													0
6:30 PM													0
6:45 PM													0
7:00 PM													0
7:15 PM													0
7:30 PM													0
7:45 PM													0
8:00 PM													0
8:15 PM													0
8:30 PM													0
8:45 PM													0
VOLUMES	0	0	0	423	0	370	668	890	0	0	530	281	3,162
APPROACH %	0%	0%	0%	53%	0%	47%	43%	57%	0%	0%	65%	35%	
APP/DEPART	0	/	949	793	/	0	1,558	/	1,313	811	/	900	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	0	0	0	200	0	199	361	495	0	0	267	137	1,659
APPROACH %	0%	0%	0%	50%	0%	50%	42%	58%	0%	0%	66%	34%	
PEAK HR FACTOR		0.000			0.761			0.853			0.878		0.938
APP/DEPART	0	/	498	399	/	0	856	/	695	404	/	466	0

U-TURNS

	NB	SB	EB	WB	TTL
	X	X	X	X	
7:00 AM				2	2
7:15 AM					0
7:30 AM					0
7:45 AM				2	2
8:00 AM	2				2
8:15 AM					0
8:30 AM					0
8:45 AM					0
Total	2	0	0	4	6
11:00 AM					0
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM					0
12:15 PM					0
12:30 PM					0
12:45 PM					0
Total	0	0	0	0	0
4:00 PM					0
4:15 PM					0
4:30 PM					0
4:45 PM					0
5:00 PM					0
5:15 PM					0
5:30 PM					0
5:45 PM					0
6:00 PM					0
6:15 PM					0
6:30 PM					0
6:45 PM					0
7:00 PM					0
7:15 PM					0
7:30 PM					0
7:45 PM					0
8:00 PM					0
8:15 PM					0
8:30 PM					0
8:45 PM					0
Total	0	0	0	0	0

PEDESTRIAN CROSSINGS

	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
7:00 AM					0
7:15 AM	2				2
7:30 AM					0
7:45 AM				2	2
8:00 AM	2				2
8:15 AM					0
8:30 AM	3				3
8:45 AM					0
11:00 AM	1				1
11:15 AM					0
11:30 AM					0
11:45 AM					0
12:00 PM	1				1
12:15 PM					0
12:30 PM					0
12:45 PM	11				11
4:00 PM	3				3
4:15 PM					0
4:30 PM					0
4:45 PM	1				1
5:00 PM	1				1
5:15 PM	1				1
5:30 PM	7				7
5:45 PM	2				2
	35	0	0	2	37

BIKE MOVEMENTS

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM								1			1		1
7:15 AM						1							0
7:30 AM						1						2	2
7:45 AM						1	6	1			1	1	2
8:00 AM													0
8:15 AM						1					1		1
8:30 AM											1	2	3
8:45 AM												2	2
11:00 AM				1									0
11:15 AM				1			1					1	1
11:30 AM						1					1		1
11:45 AM											1	1	2
12:00 PM											1		1
12:15 PM													0
12:30 PM								1					0
12:45 PM													0
4:00 PM				1				1			3	2	5
4:15 PM				1			6						0
4:30 PM						1		2				1	1
4:45 PM								2				2	2
5:00 PM													0
5:15 PM											2		2
5:30 PM						1	1				1		1
5:45 PM				1									24
	0	0	0	5	0	7	14	8	0	0	13	14	51

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY	PROJECT #:	PDT15-0911-01
9-10-15	NORTH & SOUTH:	Bachman Place	LOCATION #:	57
THURSDAY	EAST & WEST:	Hotel Circle South	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W E ►
S ▼

		NORTHBOUND Bachman Place			SOUTHBOUND Bachman Place			EASTBOUND Hotel Circle South			WESTBOUND Hotel Circle South				U-TURNS				
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB	TTL
	LANES:	1	X	1	X	X	X	X	1	0	1	1	X		X	X	X	X	
WEEKDAY AM	7:00 AM	30		18					24	35	61	68		236					0
	7:15 AM	50		18					26	31	75	76		276					0
	7:30 AM	100		37					36	42	72	77		364					0
	7:45 AM	50		23					51	66	99	99		388					0
	8:00 AM	40		23					40	45	66	108		322					0
	8:15 AM	88		50					61	34	68	139		440					0
	8:30 AM	50		23					38	32	87	154		384					0
	8:45 AM	35		26					59	53	68	100		341					0
	VOLUMES	443	0	218	0	0	0	0	335	338	596	821	0	2,751	0	0	0	0	0
	APPROACH %	67%	0%	33%	0%	0%	0%	0%	50%	50%	42%	58%	0%						
	APP/DEPART	661	/	0	0	/	934	673	/	553	1,417	/	1,264	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	228	0	119	0	0	0	0	190	177	320	500	0	1,534					
	APPROACH %	66%	0%	34%	0%	0%	0%	0%	52%	48%	39%	61%	0%						
	PEAK HR FACTOR		0.629			0.000			0.784			0.851		0.872					
	APP/DEPART	347	/	0	0	/	497	367	/	309	820	/	728	0					
WEEKDAY AM	11:00 AM													0					0
	11:15 AM													0					0
	11:30 AM													0					0
	11:45 AM													0					0
	12:00 PM													0					0
	12:15 PM													0					0
	12:30 PM													0					0
	12:45 PM													0					0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%						
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0					
	BEGIN PEAK HR		12:45 PM																
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0					
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%						
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000					
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0					
WEEKDAY PM	4:00 PM	100		53					67	19	31	135		405					0
	4:15 PM	100		46					54	26	49	123		398					0
	4:30 PM	110		61					54	18	41	180		464					0
	4:45 PM	93		66					75	19	61	138		452					0
	5:00 PM	96		53					67	29	45	110		400					0
	5:15 PM	94		65					69	23	56	125		432					0
	5:30 PM	72		67					71	24	51	136		421					0
	5:45 PM	66		51					84	29	60	143		433					0
	6:00 PM													0					0
	6:15 PM													0					0
	6:30 PM													0					0
	6:45 PM													0					0
	7:00 PM													0					0
	7:15 PM													0					0
	7:30 PM													0					0
	7:45 PM													0					0
	8:00 PM													0					0
	8:15 PM													0					0
	8:30 PM													0					0
	8:45 PM													0					0
	VOLUMES	731	0	462	0	0	0	0	541	187	394	1,090	0	3,405	0	0	0	0	0
	APPROACH %	61%	0%	39%	0%	0%	0%	0%	74%	26%	27%	73%	0%						
	APP/DEPART	1,193	/	0	0	/	581	728	/	1,003	1,484	/	1,821	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	393	0	245	0	0	0	0	265	89	203	553	0	1,748					
	APPROACH %	62%	0%	38%	0%	0%	0%	0%	75%	25%	27%	73%	0%						
	PEAK HR FACTOR		0.933			0.000			0.783			0.855		0.942					
	APP/DEPART	638	/	0	0	/	292	354	/	510	756	/	946	0					

PEDESTRIAN CROSSINGS

N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
6	0	0	2	8
4	1	0	0	5
13	0	0	9	22
10	0	0	2	12
5	0	0	1	6
3	0	0	0	3
4	1	0	3	8
7	0	0	0	7
	PM			0
7	0	0	3	10
6	0	0	2	8
12	0	0	7	19
8	0	0	4	12
14	0	0	7	21
7	0	0	0	7
19	0	0	5	24
7	0	0	0	7
				0
				0
				0
				0
				0
				0
				0
132	2	0	45	179

BIKE MOVEMENTS

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1		0			0			0		0
	0	1		0			0			0		0
	0	2		0			0			0		0
1	0	4		0			0	1	1	0		2
	0	1		0			0			0		0
	0	1		0			0	1		0		1
	0	1		0			0		1	0		1
	0			0			0	1		0		1
	PM											0
1	0											0
2	0	2		0			0			0		0
1	0			0			0			0		0
	0			0			0			0		0
1	0	2		0			0			0		0
2	0			0			0	1	1	1		3
	0			0			0		1	0		1
1	0			0			0	1		0		1
												0
												0
												0
												0
												0
												0
												10
9	0	15	0	0	0	0	0	5	4	1	0	20

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

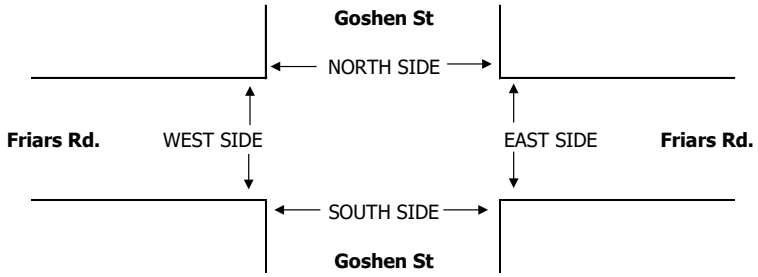
DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/12/17	NORTH & SOUTH:	Goshen St	LOCATION #:	17
TUESDAY	EAST & WEST:	Friars Rd.	CONTROL:	1-WAY STOP (SB)

NOTES:

INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Goshen St			SOUTHBOUND Goshen St			EASTBOUND Friars Rd.			WESTBOUND Friars Rd.				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0.5	ST X	SR 0.5	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM				7		4	7	105			161	2	286					0
	7:15 AM				9		5	9	99			184	2	308					0
	7:30 AM				12		5	12	116			189	4	338					0
	7:45 AM				11		6	11	108			205	6	347					0
	8:00 AM				8		7	8	105			184	6	318					0
	8:15 AM				9		9	9	121			202	9	359					0
	8:30 AM				10		5	12	135			219	12	393					0
	8:45 AM				11		5	12	122			188	8	346					0
	VOLUMES	0	0	0	77	0	46	80	911	0	0	1,532	49	2,695	0	0	0	0	0
	APPROACH %	0%	0%	0%	63%	0%	37%	8%	92%	0%	0%	97%	3%						
	APP/DEPART	0	/	129	123	/	0	991	/	988	1,581	/	1,578	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	0	0	38	0	27	40	469	0	0	810	33	1,417					
	APPROACH %	0%	0%	0%	58%	0%	42%	8%	92%	0%	0%	96%	4%						
	PEAK HR FACTOR		0.000			0.903			0.866			0.912		0.901					
	APP/DEPART	0	/	73	65	/	0	509	/	507	843	/	837	0					
PM	4:00 PM				12		10	11	284			168	11	496					0
	4:15 PM				11		8	8	292			151	8	478					0
	4:30 PM				16		6	9	333			188	9	561					0
	4:45 PM				11		5	9	318			184	10	537					0
	5:00 PM				8		5	5	335			195	12	560					0
	5:15 PM				9		5	4	342			206	11	577					0
	5:30 PM				5		6	6	336			184	9	546					0
	5:45 PM				4		4	7	284			166	9	474					0
	VOLUMES	0	0	0	76	0	49	59	2,524	0	0	1,442	79	4,229	0	0	0	0	0
	APPROACH %	0%	0%	0%	61%	0%	39%	2%	98%	0%	0%	95%	5%						
	APP/DEPART	0	/	138	125	/	0	2,583	/	2,600	1,521	/	1,491	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	44	0	21	27	1,328	0	0	773	42	2,235					
	APPROACH %	0%	0%	0%	68%	0%	32%	2%	98%	0%	0%	95%	5%						
	PEAK HR FACTOR		0.000			0.739			0.979			0.939		0.968					
	APP/DEPART	0	/	69	65	/	0	1,355	/	1,372	815	/	794	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	2				2					0					0
	7:15 AM	2				2					0					0
	7:30 AM	6				6					0	1				1
	7:45 AM	7				7					0	1				1
	8:00 AM	5				5					0	2				2
	8:15 AM	4				4					0	3				3
	8:30 AM	5				5					0	3				3
	8:45 AM	6				6					0	2				2
	TOTAL	37	0	0	0	37	0	0	0	0	0	12	0	0	0	12
PM	4:00 PM	1				1					0					0
	4:15 PM	1				1					0	1				1
	4:30 PM	6				6					0	1				1
	4:45 PM	8				8					0	1			1	2
	5:00 PM	4				4					0	2				2
	5:15 PM	5				5					0	3				3
	5:30 PM	5				5					0	3				3
	5:45 PM	6				6					0	2				2
	TOTAL	36	0	0	0	36	0	0	0	0	0	13	0	0	1	14

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

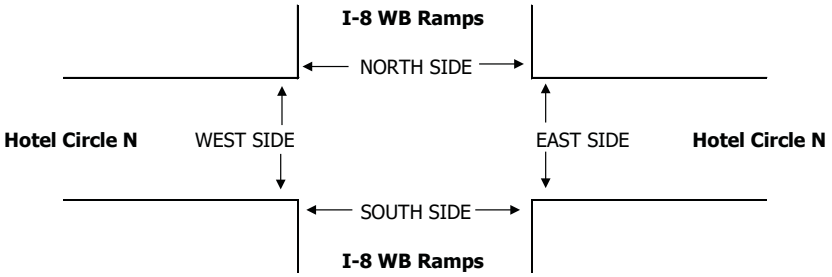
DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/12/17	NORTH & SOUTH:	I-8 WB Ramps	LOCATION #:	19
TUESDAY	EAST & WEST:	Hotel Circle N	CONTROL:	SIGNAL

NOTES:

INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND I-8 WB Ramps			SOUTHBOUND I-8 WB Ramps			EASTBOUND Hotel Circle N			WESTBOUND Hotel Circle N				U-TURNS				
	LANES:	NL 0	NT 2	NR 1	SL 1	ST X	SR 1	EL X	ET X	ER X	WL X	WT 1	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	2	158	12	22		21					51	33	299					0
	7:15 AM	2	188	12	28		28					50	33	341					0
	7:30 AM	4	235	11	44		22					55	48	419					0
	7:45 AM	2	242	16	48		25					65	88	486					0
	8:00 AM	2	226	18	37		21					51	95	450					0
	8:15 AM	2	208	11	43		33					50	46	393					0
	8:30 AM	4	195	17	33		48					45	51	393					0
	8:45 AM	4	161	12	39		44					37	44	341					0
	VOLUMES	22	1,613	109	294	0	242	0	0	0	0	404	438	3,122	0	0	0	0	0
	APPROACH %	1%	92%	6%	55%	0%	45%	0%	0%	0%	0%	48%	52%						
	APP/DEPART	1,744	/	2,051	536	/	0	0	/	403	842	/	668	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	10	911	56	172	0	101	0	0	0	0	221	277	1,748					
	APPROACH %	1%	93%	6%	63%	0%	37%	0%	0%	0%	0%	44%	56%						
	PEAK HR FACTOR		0.939			0.898			0.000			0.814		0.899					
	APP/DEPART	977	/	1,188	273	/	0	0	/	228	498	/	332	0					
PM	4:00 PM	2	88	21	40		30					33	44	258					0
	4:15 PM	1	77	30	41		30					31	40	250					0
	4:30 PM	1	68	33	55		33					30	46	266					0
	4:45 PM	1	88	28	60		28					28	48	281					0
	5:00 PM	1	95	21	55		29					44	51	296					0
	5:15 PM	1	110	22	68		33					41	50	325					0
	5:30 PM	2	108	26	51		31					32	43	293					0
	5:45 PM	0	98	22	55		30					33	44	282					0
	VOLUMES	9	732	203	425	0	244	0	0	0	0	272	366	2,251	0	0	0	0	0
	APPROACH %	1%	78%	22%	64%	0%	36%	0%	0%	0%	0%	43%	57%						
	APP/DEPART	944	/	1,098	669	/	0	0	/	628	638	/	525	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	4	411	91	229	0	123	0	0	0	0	150	188	1,196					
	APPROACH %	1%	81%	18%	65%	0%	35%	0%	0%	0%	0%	44%	56%						
	PEAK HR FACTOR		0.930			0.871			0.000			0.889		0.920					
	APP/DEPART	506	/	599	352	/	0	0	/	320	338	/	277	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/6/17	NORTH & SOUTH:	Via Las Cumbres	LOCATION #:	21
WEDNESDAY	EAST & WEST:	Linda Vista Rd	CONTROL:	SIGNAL

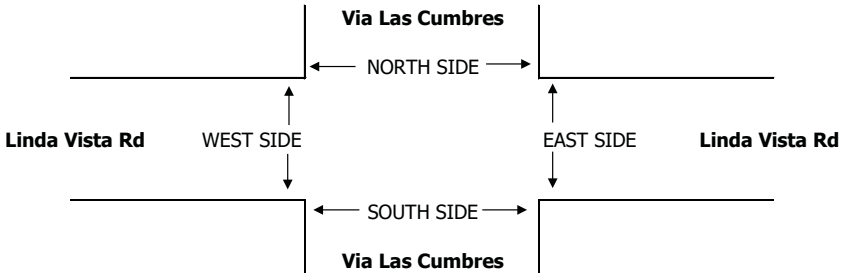
NOTES:

INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Via Las Cumbres			SOUTHBOUND Via Las Cumbres			EASTBOUND Linda Vista Rd			WESTBOUND Linda Vista Rd				U-TURNS				
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	25	3	28	5	16	15	7	54	9	18	104	0	284					0
	7:15 AM	46	10	35	9	7	13	3	66	8	31	137	5	370					0
	7:30 AM	69	7	46	13	12	19	4	103	17	22	123	3	438					0
	7:45 AM	61	7	33	6	13	15	9	86	24	24	176	5	459					0
	8:00 AM	49	3	49	4	4	8	1	103	16	30	147	1	415					0
	8:15 AM	71	8	63	8	7	14	7	132	15	41	170	9	545					0
	8:30 AM	74	7	59	13	7	14	8	109	15	41	205	4	556					0
	8:45 AM	52	7	28	3	9	5	7	71	14	26	161	9	392					0
	VOLUMES	447	52	341	61	75	103	46	724	118	233	1,223	36	3,459	0	0	0	0	0
	APPROACH %	53%	6%	41%	26%	31%	43%	5%	82%	13%	16%	82%	2%						
	APP/DEPART	840	/	134	239	/	426	888	/	1,126	1,492	/	1,773	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	255	25	204	31	31	51	25	430	70	136	698	19	1,975					
	APPROACH %	53%	5%	42%	27%	27%	45%	5%	82%	13%	16%	82%	2%						
	PEAK HR FACTOR		0.852			0.831			0.852			0.853		0.888					
	APP/DEPART	484	/	69	113	/	237	525	/	665	853	/	1,004	0					
PM	4:00 PM	33	9	43	4	12	7	11	170	60	40	147	7	543					0
	4:15 PM	22	7	38	7	7	5	13	153	44	47	170	7	520					0
	4:30 PM	25	9	42	3	7	6	9	116	59	43	175	9	503					0
	4:45 PM	42	8	40	6	9	13	11	138	55	36	164	11	533					0
	5:00 PM	25	10	34	4	6	5	10	148	68	44	167	10	531					0
	5:15 PM	31	6	45	5	14	8	9	186	90	42	203	7	646					0
	5:30 PM	24	8	50	1	8	8	13	175	81	61	165	10	604					0
	5:45 PM	21	8	48	11	6	9	17	138	45	57	178	9	547					0
	VOLUMES	223	65	340	41	69	61	93	1,224	502	370	1,369	70	4,427	0	0	0	0	0
	APPROACH %	36%	10%	54%	24%	40%	36%	5%	67%	28%	20%	76%	4%						
	APP/DEPART	628	/	228	171	/	941	1,819	/	1,605	1,809	/	1,653	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	101	32	177	21	34	30	49	647	284	204	713	36	2,328					
	APPROACH %	33%	10%	57%	25%	40%	35%	5%	66%	29%	21%	75%	4%						
	PEAK HR FACTOR		0.945			0.787			0.860			0.945		0.901					
	APP/DEPART	310	/	117	85	/	522	980	/	845	953	/	844	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	3	2	1		6					0	3				3
	7:15 AM	1	2	5	1	9					0	1				1
	7:30 AM	1	2	5	3	11					0	2	1			3
	7:45 AM	5	2	2		9					0					0
	8:00 AM	4	2	2		8					0	1	1			2
	8:15 AM	3	1	1	2	7					0	3				3
	8:30 AM	1		3	4	8					0	1	1			2
	8:45 AM		5		2	7					0	6	2			8
	TOTAL	18	16	19	12	65	0	0	0	0	0	17	5	0	0	22
PM	4:00 PM	1	1		1	3					0	2				2
	4:15 PM		5		1	6					0		2			2
	4:30 PM	1	1	22	2	26					0	1	2			3
	4:45 PM	1	3	2	1	7					0		3			3
	5:00 PM	3	2	2	1	8					0	1				1
	5:15 PM	7	4	5		16					0	2	4			6
	5:30 PM	2	2	1	3	8					0	1	6			7
	5:45 PM	1	2	1		4					0	1	2			3
	TOTAL	16	20	33	9	78	0	0	0	0	0	8	19	0	0	27

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

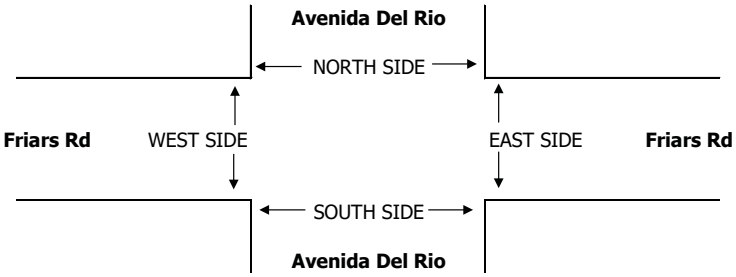
DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/12/17	NORTH & SOUTH:	Avenida Del Rio	LOCATION #:	28
TUESDAY	EAST & WEST:	Friars Rd	CONTROL:	SIGNAL

NOTES:

INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Friars Rd			WESTBOUND Friars Rd				U-TURNS				
	LANES:	NL X	NT X	NR 1	SL X	ST X	SR X	EL X	ET 3	ER 0	WL X	WT 5	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM			12					145	12		280		449					0
	7:15 AM			9					178	9		333		529					0
	7:30 AM			12					217	12		345		586					0
	7:45 AM			11					205	11		368		595					0
	8:00 AM			15					189	15		416		635					0
	8:15 AM			9					206	9		442		666					0
	8:30 AM			10					184	19		474		687					0
	8:45 AM			9					191	16		484		700					0
	VOLUMES	0	0	87	0	0	0	0	1,515	103	0	3,142	0	4,847	0	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	94%	6%	0%	100%	0%						
	APP/DEPART	87	/	0	0	/	103	1,618	/	1,602	3,142	/	3,142	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	43	0	0	0	0	770	59	0	1,816	0	2,688					
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	93%	7%	0%	100%	0%						
	PEAK HR FACTOR		0.717			0.000			0.964			0.938		0.960					
	APP/DEPART	43	/	0	0	/	59	829	/	813	1,816	/	1,816	0					
PM	4:00 PM			68					489	28		370		955					0
	4:15 PM			77					551	21		388		1,037					0
	4:30 PM			98					535	22		384		1,039					0
	4:45 PM			80					509	30		444		1,063					0
	5:00 PM			80					526	33		435		1,074					0
	5:15 PM			88					555	28		406		1,077					0
	5:30 PM			74					509	28		419		1,030					0
	5:45 PM			74					498	20		421		1,013					0
	VOLUMES	0	0	639	0	0	0	0	4,172	210	0	3,267	0	8,288	0	0	0	0	0
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	95%	5%	0%	100%	0%						
	APP/DEPART	639	/	0	0	/	210	4,382	/	4,811	3,267	/	3,267	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	346	0	0	0	0	2,125	113	0	1,669	0	4,253					
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	95%	5%	0%	100%	0%						
	PEAK HR FACTOR		0.883			0.000			0.960			0.940		0.987					
	APP/DEPART	346	/	0	0	/	113	2,238	/	2,471	1,669	/	1,669	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0		1			1
	7:30 AM		2			2					0					0
	7:45 AM					0					0					0
	8:00 AM		2			2					0					0
	8:15 AM		2			2					0		1			1
	8:30 AM		3			3					0		2			2
	8:45 AM		1			1					0					0
	TOTAL	0	10	0	0	10	0	0	0	0	0	0	4	0	0	4
PM	4:00 PM					0					0					0
	4:15 PM		5			5					0					0
	4:30 PM		2			2					0					0
	4:45 PM					0					0					0
	5:00 PM		3			3					0		1			1
	5:15 PM		3			3					0		1			1
	5:30 PM		4			4					0		2			2
	5:45 PM					0					0					0
	TOTAL	0	17	0	0	17	0	0	0	0	0	0	4	0	0	4

INTERSECTION TURNING MOVEMENT COUNTS

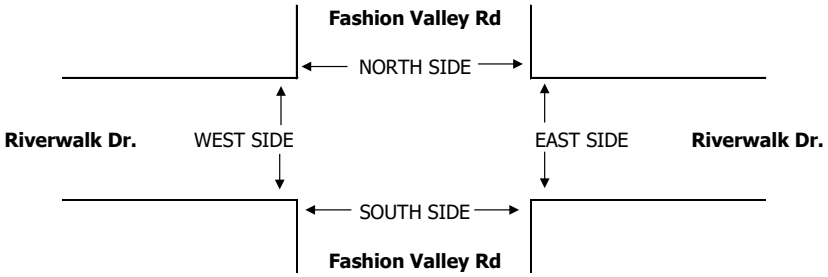
PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/12/17	NORTH & SOUTH:	Fashion Valley Rd	LOCATION #:	31
TUESDAY	EAST & WEST:	Riverwalk Dr.	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Fashion Valley Rd			SOUTHBOUND Fashion Valley Rd			EASTBOUND Riverwalk Dr.			WESTBOUND Riverwalk Dr.				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	12	40	7	9	28	3	0	0	0	4	0	15	118					0
	7:15 AM	9	55	9	12	30	4	0	2	2	9	0	18	150					0
	7:30 AM	6	68	12	11	24	4	0	0	1	9	2	20	157					0
	7:45 AM	15	62	11	5	44	6	0	2	3	12	2	16	178					0
	8:00 AM	11	50	15	6	49	9	1	1	1	15	0	19	177					0
	8:15 AM	16	55	9	9	46	6	1	1	3	11	3	22	182					0
	8:30 AM	8	58	5	12	39	6	0	1	2	16	3	28	178					0
	8:45 AM	9	51	18	13	37	5	2	0	2	9	1	21	168					0
	VOLUMES	86	439	86	77	297	43	4	7	14	85	11	159	1,308	0	0	0	0	0
	APPROACH %	14%	72%	14%	18%	71%	10%	16%	28%	56%	33%	4%	62%						
	APP/DEPART	611	/	602	417	/	396	25	/	170	255	/	140	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	50	225	40	32	178	27	2	5	9	54	8	85	715					
	APPROACH %	16%	71%	13%	14%	75%	11%	13%	31%	56%	37%	5%	58%						
	PEAK HR FACTOR		0.895			0.926			0.800			0.782		0.982					
	APP/DEPART	315	/	312	237	/	241	16	/	77	147	/	85	0					
PM	4:00 PM	4	60	38	18	50	8	7	0	2	33	1	33	254					0
	4:15 PM	6	68	33	22	58	12	9	0	4	37	3	31	283					0
	4:30 PM	9	77	36	26	66	11	12	1	5	40	2	40	325					0
	4:45 PM	12	105	28	31	70	8	5	1	6	68	1	51	386					0
	5:00 PM	11	135	33	33	81	4	8	2	9	45	2	51	414					0
	5:15 PM	15	104	28	37	77	7	6	1	12	51	4	40	382					0
	5:30 PM	15	90	21	30	70	9	9	3	11	55	2	35	350					0
	5:45 PM	18	99	26	24	65	5	12	4	15	34	0	37	339					0
	VOLUMES	90	738	243	221	537	64	68	12	64	363	15	318	2,733	0	0	0	0	0
	APPROACH %	8%	69%	23%	27%	65%	8%	47%	8%	44%	52%	2%	46%						
	APP/DEPART	1,071	/	1,124	822	/	964	144	/	476	696	/	169	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	53	434	110	131	298	28	28	7	38	219	9	177	1,532					
	APPROACH %	9%	73%	18%	29%	65%	6%	38%	10%	52%	54%	2%	44%						
	PEAK HR FACTOR		0.834			0.944			0.793			0.844		0.925					
	APP/DEPART	597	/	639	457	/	555	73	/	248	405	/	90	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	1				1					0					0
	7:15 AM			2		2					0	1		1		2
	7:30 AM		1	6	3	10					0				2	2
	7:45 AM			7	2	9					0				1	1
	8:00 AM	2		8	1	11					0			3		3
	8:15 AM		1	5		6					0	1		1	1	3
	8:30 AM	1		9	1	11					0			2	1	3
	8:45 AM			3		3					0					0
	TOTAL	4	2	40	7	53	0	0	0	0	0	2	0	7	5	14
PM	4:00 PM			8		8					0					0
	4:15 PM			9	1	10					0			1		1
	4:30 PM	1		12	3	16					0		1	1	2	4
	4:45 PM			11		11					0	1		2	1	4
	5:00 PM	1		15	2	18					0					0
	5:15 PM	2		12	1	15					0	1		3	1	5
	5:30 PM			9		9					0			4		4
	5:45 PM	1		5	1	7					0			2		2
	TOTAL	5	0	81	8	94	0	0	0	0	0	2	1	13	4	20

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

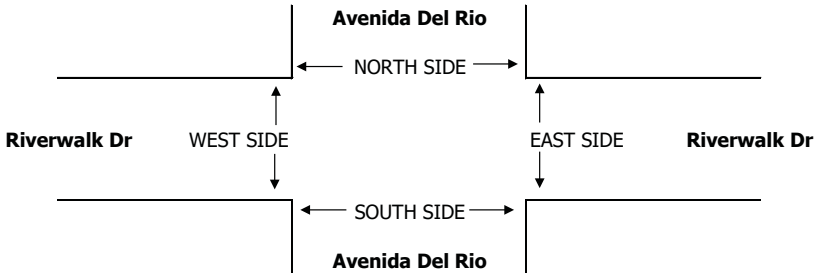
DATE:	LOCATION:	MISSION VALLEY - SAN DIEGO	PROJECT #:	PTD17-0908-02
9/12/17	NORTH & SOUTH:	Avenida Del Rio	LOCATION #:	32
TUESDAY	EAST & WEST:	Riverwalk Dr	CONTROL:	SIGNAL

NOTES:

INCLUDE BIKE / PED

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Avenida Del Rio			SOUTHBOUND Avenida Del Rio			EASTBOUND Riverwalk Dr			WESTBOUND Riverwalk Dr				U-TURNS				
	LANES:	NL 1	NT X	NR 1	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	20		12					4	12	4	4		56					0
	7:15 AM	22		11					6	11	7	2		59					0
	7:30 AM	28		9					6	10	5	2		60					0
	7:45 AM	21		10					6	15	5	2		59					0
	8:00 AM	30		8					9	19	4	4		74					0
	8:15 AM	31		9					12	20	6	6		84					0
	8:30 AM	33		11					8	15	8	5		80					0
	8:45 AM	41		15					9	22	9	2		98					0
	VOLUMES	226	0	85	0	0	0	0	60	124	48	27	0	570	0	0	0	0	0
	APPROACH %	73%	0%	27%	0%	0%	0%	0%	33%	67%	64%	36%	0%						
	APP/DEPART	311	/	0	0	/	172	184	/	145	75	/	253	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	135	0	43	0	0	0	0	38	76	27	17	0	336					
	APPROACH %	76%	0%	24%	0%	0%	0%	0%	33%	67%	61%	39%	0%						
	PEAK HR FACTOR		0.795			0.000			0.891			0.846		0.857					
	APP/DEPART	178	/	0	0	/	103	114	/	81	44	/	152	0					
PM	4:00 PM	60		28					12	68	33	9		210					0
	4:15 PM	88		33					15	70	38	12		256					0
	4:30 PM	84		35					19	84	30	11		263					0
	4:45 PM	90		33					11	81	33	8		256					0
	5:00 PM	70		41					9	88	38	9		255					0
	5:15 PM	65		40					9	70	31	10		225					0
	5:30 PM	66		41					12	65	37	12		233					0
	5:45 PM	61		37					11	66	28	11		214					0
	VOLUMES	584	0	288	0	0	0	0	98	592	268	82	0	1,912	0	0	0	0	0
	APPROACH %	67%	0%	33%	0%	0%	0%	0%	14%	86%	77%	23%	0%						
	APP/DEPART	872	/	0	0	/	860	690	/	386	350	/	666	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	332	0	142	0	0	0	0	54	323	139	40	0	1,030					
	APPROACH %	70%	0%	30%	0%	0%	0%	0%	14%	86%	78%	22%	0%						
	PEAK HR FACTOR		0.963			0.000			0.915			0.895		0.979					
	APP/DEPART	474	/	0	0	/	462	377	/	196	179	/	372	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM		1			1					0					0
	8:00 AM				1	1					0		1			1
	8:15 AM		1			1					0				1	1
	8:30 AM				1	1					0					0
	8:45 AM		2			2					0					0
	TOTAL	0	4	0	2	6	0	0	0	0	0	0	1	0	1	2
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM		3		3	6					0				1	1
	4:45 PM		3			3					0					0
	5:00 PM		1		4	5					0		1		1	2
	5:15 PM		4			4					0					0
	5:30 PM		5		2	7					0		2			2
	5:45 PM		2		2	4					0					0
	TOTAL	0	18	0	11	29	0	0	0	0	0	0	3	0	2	5

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Hotel Circle S @ Hotel Circle N

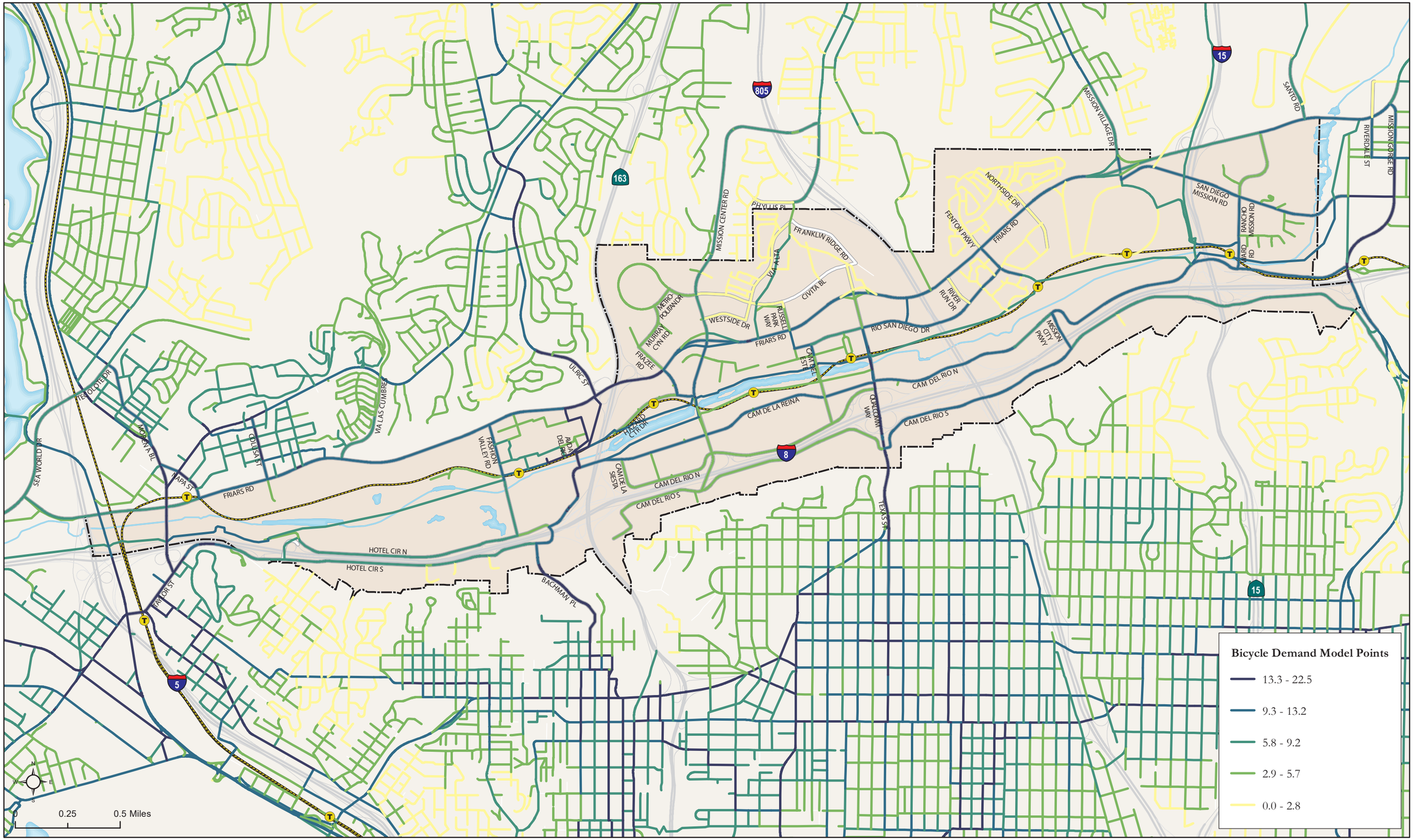
Date of Count: *Thursday, November 19, 2015*

Analysts: *LV/CD*

Weather: *Sunny*

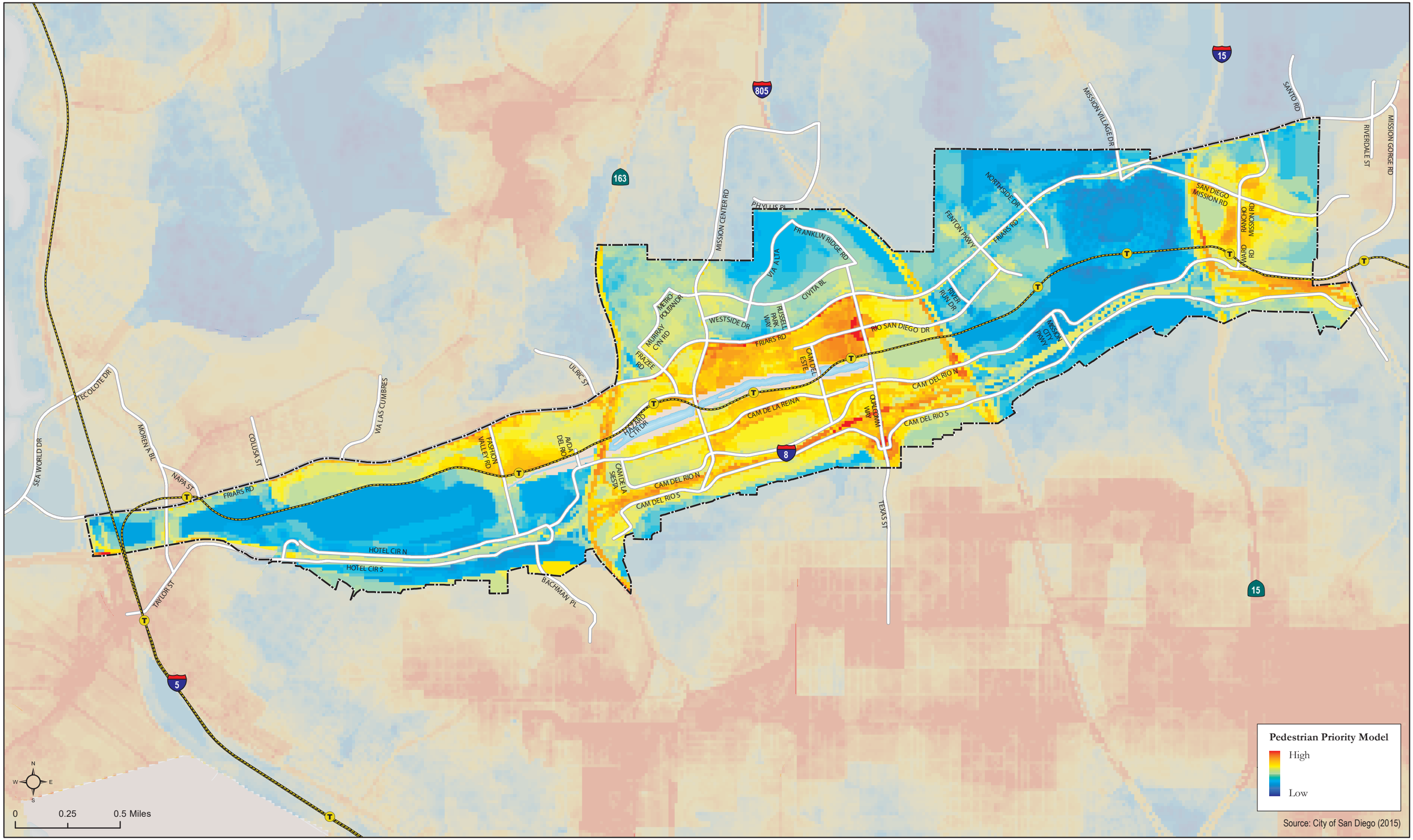
AVC Proj No: *15-0452*





Mission Valley Community Plan Update
Mobility Element - Existing Conditions Report
CHEN RYAN

Figure 4-11
Bicycle Demand Model Results



Mission Valley Community Plan Update
Mobility Element - Existing Conditions Report
CHEN RYAN

Figure 4-3
Pedestrian Priority Model

APPENDIX HH

BUS ROUTE SCHEDULES

ONE-WAY FARES / *Tarifas Sencillas*

Exact fare, please / *Favor de pagar la cantidad exacta*

Adult / *Adulto*	**$2.50**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$1.25**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$2.50**

DAY PASS (Regional) / *Pase diario (Regional)*

Adult / *Adulto*	**$6.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$3.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$3.00**

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	**$72.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$23.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
**Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.*

COMPASS CARDS / *Tarjeta Compass*
There is a $2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

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Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.

Visit sdmts.com/fares for more info. ***Visite sdmts.com/fares para más información.***

DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.
*Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a **sdmts.com**.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective SEPTEMBER 1, 2019

6

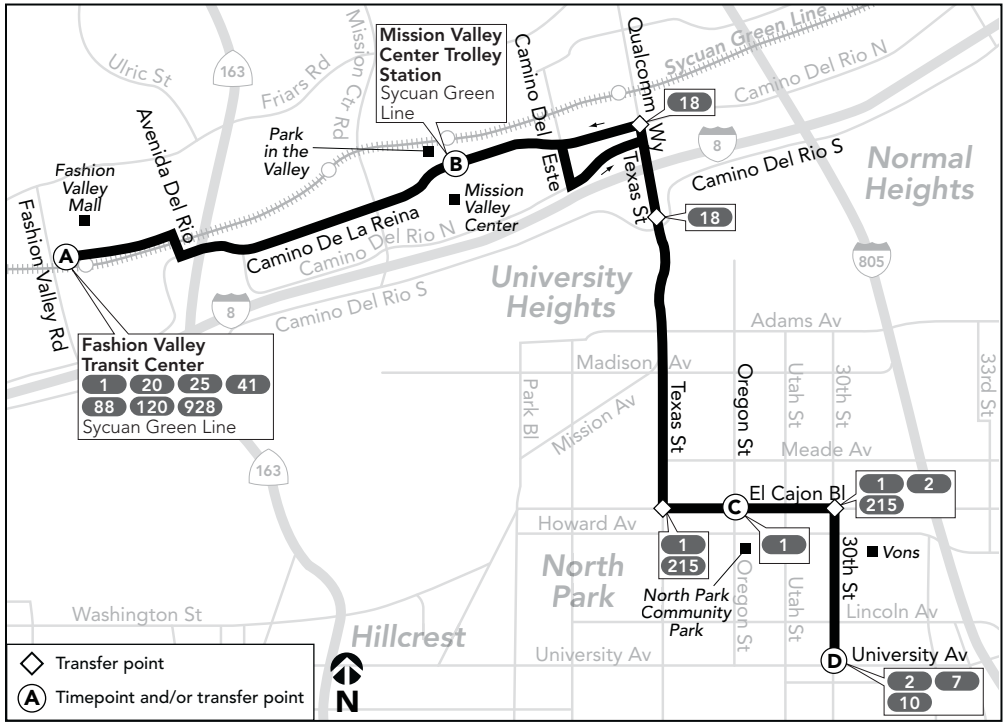
Fashion Valley – North Park
via Mission Valley

DESTINATIONS
- Fashion Valley Mall
- Mission Valley Center
- North Park Community Park
- Park in the Valley

TROLLEY CONNECTIONS
- Fashion Valley
- Mission Valley Center

09/19

sdmts.com
Route Alerts, Updated Schedules, Connections & More



Route 6 – Sunday / *domingo*

Mission Valley ➡ North Park

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Mission Valley Center	Ⓒ El Cajon Bl. & Oregon St.	Ⓓ 30th St. & University Av. **ARRIVE**
9:37a	9:44a	9:53a	10:00a
10:07	10:14	10:23	10:30
10:37	10:45	10:54	11:02
11:06	11:14	11:23	11:31
11:37	11:45	11:55	**12:03p**
12:07p	**12:15p**	**12:26p**	**12:34**
12:37	**12:45**	**12:56**	**1:04**
1:07	**1:15**	**1:26**	**1:34**
1:37	**1:45**	**1:56**	**2:04**
2:07	**2:15**	**2:26**	**2:34**
2:37	**2:45**	**2:56**	**3:04**
3:07	**3:15**	**3:26**	**3:34**
3:37	**3:45**	**3:56**	**4:04**
4:07	**4:15**	**4:26**	**4:34**
4:37	**4:45**	**4:56**	**5:04**
5:07	**5:15**	**5:26**	**5:34**
5:37	**5:45**	**5:56**	**6:04**
6:07	**6:15**	**6:25**	**6:33**
7:09	**7:17**	**7:26**	**7:33**
8:07	**8:15**	**8:24**	**8:31**

North Park ➡ Mission Valley

Ⓓ 30th St. & University Av. **DEPART**	Ⓒ El Cajon Bl. & Oregon St.	Ⓑ Park in the Valley	Ⓐ Fashion Valley Transit Center **ARRIVE**
7:34a	7:39a	7:48a	7:55a
8:14	8:19	8:28	8:35
9:00	9:05	9:15	9:22
9:30	9:35	9:45	9:52
10:02	10:07	10:17	10:25
10:35	10:40	10:50	10:58
11:05	11:10	11:20	11:28
11:35	11:40	11:51	11:59
12:05p	**12:10p**	**12:21p**	**12:29p**
12:36	**12:41**	**12:52**	**1:00**
1:06	**1:11**	**1:22**	**1:30**
1:36	**1:41**	**1:52**	**2:00**
2:06	**2:11**	**2:22**	**2:30**
2:36	**2:41**	**2:52**	**3:00**
3:06	**3:11**	**3:22**	**3:30**
3:36	**3:41**	**3:52**	**4:00**
4:06	**4:11**	**4:22**	**4:30**
4:36	**4:41**	**4:52**	**5:00**
5:06	**5:11**	**5:22**	**5:30**
5:36	**5:41**	**5:52**	**6:00**
6:37	**6:42**	**6:52**	**7:00**
7:35	**7:40**	**7:49**	**7:57**

Alternative formats available upon request. Please call: (619) 557-4555 ***Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555***

Route 6 – Monday through Friday / *lunes a viernes*

Mission Valley ➡ North Park

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Mission Valley Center	Ⓒ El Cajon Bl. & Oregon St.	Ⓓ 30th St. & University Av. **ARRIVE**
6:01a	6:07a	6:15a	6:20a
6:32	6:38	6:46	6:51
6:47	6:53	7:01	7:06
7:00	7:07	7:16	7:22
7:15	7:22	7:31	7:37
7:30	7:37	7:46	7:52
7:45	7:52	8:01	8:07
8:00	8:07	8:16	8:22
8:15	8:22	8:31	8:37
8:31	8:38	8:47	8:53
8:46	8:53	9:02	9:08
9:00	9:07	9:16	9:23
9:13	9:20	9:29	9:36
9:27	9:34	9:43	9:50
9:40	9:47	9:56	10:03
9:54	10:01	10:10	10:17
10:08	10:16	10:25	10:32
10:23	10:31	10:40	10:47
10:37	10:45	10:54	11:02
10:52	11:00	11:09	11:17
11:07	11:15	11:24	11:32
11:22	11:30	11:40	11:48
11:37	11:45	11:55	**12:03p**
11:52	**12:00p**	**12:10p**	**12:18**
12:07p	**12:15**	**12:26**	**12:34**
12:22	**12:30**	**12:41**	**12:49**
12:37	**12:45**	**12:56**	**1:04**
12:52	**1:00**	**1:11**	**1:19**
1:07	**1:15**	**1:26**	**1:34**
1:22	**1:30**	**1:41**	**1:49**
1:37	**1:45**	**1:56**	**2:04**
1:52	**2:00**	**2:11**	**2:19**
2:07	**2:15**	**2:26**	**2:34**
2:22	**2:30**	**2:41**	**2:49**
2:37	**2:45**	**2:56**	**3:04**
2:52	**3:00**	**3:11**	**3:19**
3:07	**3:15**	**3:26**	**3:34**
3:22	**3:30**	**3:41**	**3:49**
3:37	**3:45**	**3:56**	**4:04**
3:52	**4:00**	**4:11**	**4:19**
4:07	**4:15**	**4:27**	**4:35**
4:22	**4:30**	**4:42**	**4:50**
4:37	**4:45**	**4:57**	**5:05**
4:52	**5:00**	**5:12**	**5:20**
5:07	**5:15**	**5:27**	**5:35**
5:22	**5:30**	**5:42**	**5:50**
5:37	**5:45**	**5:57**	**6:05**
5:52	**6:00**	**6:12**	**6:20**
6:07	**6:15**	**6:25**	**6:33**
6:37	**6:45**	**6:55**	**7:03**
7:09	**7:17**	**7:27**	**7:34**
7:36	**7:44**	**7:54**	**8:01**
8:06	**8:14**	**8:24**	**8:31**
8:36	**8:44**	**8:53**	**9:00**
9:05	**9:13**	**9:22**	**9:29**
9:35	**9:42**	**9:50**	**9:56**
10:05	**10:11**	**10:19**	**10:25**
10:35	**10:41**	**10:49**	**10:55**
11:05	**11:11**	**11:19**	**11:25**

North Park ➡ Mission Valley

Ⓓ 30th St. & University Av. **DEPART**	Ⓒ El Cajon Bl. & Oregon St.	Ⓑ Park in the Valley	Ⓐ Fashion Valley Transit Center **ARRIVE**
5:24a	5:28a	5:36a	5:43a
5:54	5:58	6:06	6:13
6:07	6:11	6:19	6:26
6:22	6:26	6:34	6:41
6:39	6:43	6:51	6:58
6:53	6:57	7:06	7:13
7:08	7:12	7:22	7:30
7:24	7:29	7:40	7:48
7:39	7:44	7:55	8:03
7:54	7:59	8:10	8:18
8:09	8:14	8:25	8:33
8:24	8:29	8:40	8:48
8:39	8:44	8:55	9:03
8:55	9:00	9:10	9:18
9:10	9:15	9:25	9:33
9:25	9:30	9:40	9:48
9:38	9:43	9:53	10:01
9:52	9:57	10:07	10:15
10:05	10:10	10:20	10:28
10:19	10:24	10:34	10:42
10:34	10:39	10:49	10:57
10:49	10:54	11:04	11:12
11:04	11:09	11:19	11:27
11:19	11:24	11:34	11:42
11:34	11:39	11:50	11:58
11:50	11:55	**12:06p**	**12:14p**
12:05p	**12:10p**	**12:21**	**12:29**
12:20	**12:25**	**12:36**	**12:44**
12:36	**12:41**	**12:52**	**1:00**
12:51	**12:56**	**1:07**	**1:15**
1:06	**1:11**	**1:22**	**1:30**
1:21	**1:26**	**1:37**	**1:45**
1:36	**1:41**	**1:52**	**2:00**
1:51	**1:56**	**2:07**	**2:15**
2:06	**2:11**	**2:22**	**2:30**
2:21	**2:26**	**2:37**	**2:45**
2:36	**2:41**	**2:52**	**3:00**
2:51	**2:56**	**3:07**	**3:15**
3:06	**3:11**	**3:22**	**3:30**
3:21	**3:26**	**3:37**	**3:45**
3:36	**3:41**	**3:52**	**4:00**
3:51	**3:56**	**4:07**	**4:15**
4:06	**4:11**	**4:22**	**4:30**
4:21	**4:26**	**4:37**	**4:45**
4:37	**4:42**	**4:53**	**5:01**
4:52	**4:57**	**5:08**	**5:16**
5:07	**5:12**	**5:23**	**5:31**
5:22	**5:27**	**5:38**	**5:46**
5:37	**5:42**	**5:53**	**6:01**
6:07	**6:12**	**6:22**	**6:30**
6:37	**6:42**	**6:52**	**7:00**
7:07	**7:12**	**7:21**	**7:29**
7:36	**7:41**	**7:50**	**7:58**
8:06	**8:10**	**8:18**	**8:25**
8:36	**8:40**	**8:48**	**8:55**
9:02	**9:06**	**9:14**	**9:21**
9:31	**9:35**	**9:43**	**9:50**
10:00	**10:04**	**10:12**	**10:19**
10:30	**10:34**	**10:42**	**10:49**

Route 6 – Saturday / *sábado*

Mission Valley ➡ North Park

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Mission Valley Center	Ⓒ El Cajon Bl. & Oregon St.	Ⓓ 30th St. & University Av. **ARRIVE**
6:34a	6:40a	6:48a	6:53a
7:03	7:09	7:17	7:23
7:31	7:37	7:45	7:51
8:02	8:08	8:16	8:22
8:32	8:38	8:47	8:53
9:02	9:09	9:18	9:25
9:37	9:44	9:53	10:00
10:07	10:14	10:23	10:30
10:23	10:30	10:39	10:46
10:37	10:45	10:54	11:02
10:51	10:59	11:08	11:16
11:06	11:14	11:23	11:31
11:21	11:29	11:39	11:47
11:37	11:45	11:55	**12:03p**
11:52	**12:00p**	**12:10p**	**12:18**
12:07p	**12:15**	**12:26**	**12:34**
12:22	**12:30**	**12:41**	**12:49**
12:37	**12:45**	**12:56**	**1:04**
12:52	**1:00**	**1:11**	**1:19**
1:07	**1:15**	**1:26**	**1:34**
1:22	**1:30**	**1:41**	**1:49**
1:37	**1:45**	**1:56**	**2:04**
1:52	**2:00**	**2:11**	**2:19**
2:07	**2:15**	**2:26**	**2:34**
2:22	**2:30**	**2:41**	**2:49**
2:37	**2:45**	**2:56**	**3:04**
2:52	**3:00**	**3:11**	**3:19**
3:07	**3:15**	**3:26**	**3:34**
3:22	**3:30**	**3:41**	**3:49**
3:37	**3:45**	**3:56**	**4:04**
3:52	**4:00**	**4:11**	**4:19**
4:07	**4:15**	**4:26**	**4:34**
4:22	**4:30**	**4:41**	**4:49**
4:37	**4:45**	**4:56**	**5:04**
4:52	**5:00**	**5:11**	**5:19**
5:07	**5:15**	**5:26**	**5:34**
5:22	**5:30**	**5:41**	**5:49**
5:37	**5:45**	**5:56**	**6:04**
5:52	**6:00**	**6:11**	**6:19**
6:07	**6:15**	**6:25**	**6:33**
6:37	**6:45**	**6:55**	**7:03**
7:09	**7:17**	**7:26**	**7:33**
7:37	**7:45**	**7:54**	**8:01**
8:07	**8:15**	**8:24**	**8:31**
8:37	**8:45**	**8:54**	**9:01**
9:03	**9:11**	**9:20**	**9:27**
9:35	**9:42**	**9:50**	**9:56**
10:05	**10:11**	**10:19**	**10:25**

North Park ➡ Mission Valley

Ⓓ 30th St. & University Av. **DEPART**	Ⓒ El Cajon Bl. & Oregon St.	Ⓑ Park in the Valley	Ⓐ Fashion Valley Transit Center **ARRIVE**
6:25a	6:29a	6:37a	6:44a
6:55	6:59	7:07	7:14
7:25	7:29	7:37	7:44
7:53	7:58	8:07	8:14
8:24	8:29	8:38	8:45
8:55	9:00	9:09	9:16
9:27	9:32	9:42	9:49
9:45	9:50	10:00	10:07
10:07	10:12	10:22	10:30
10:32	10:37	10:47	10:55
10:50	10:55	11:05	11:13
11:05	11:10	11:20	11:28
11:20	11:25	11:35	11:43
11:35	11:40	11:51	11:59
11:50	11:55	**12:06p**	**12:14p**
12:05p	**12:10p**	**12:21**	**12:29**
12:20	**12:25**	**12:36**	**12:44**
12:36	**12:41**	**12:52**	**1:00**
12:51	**12:56**	**1:07**	**1:15**
1:06	**1:11**	**1:22**	**1:30**
1:21	**1:26**	**1:37**	**1:45**
1:36	**1:41**	**1:52**	**2:00**
1:51	**1:56**	**2:07**	**2:15**
2:06	**2:11**	**2:22**	**2:30**
2:21	**2:26**	**2:37**	**2:45**
2:36	**2:41**	**2:52**	**3:00**
2:51	**2:56**	**3:07**	**3:15**
3:06	**3:11**	**3:22**	**3:30**
3:21	**3:26**	**3:37**	**3:45**
3:36	**3:41**	**3:52**	**4:00**
3:51	**3:56**	**4:07**	**4:15**
4:06	**4:11**	**4:22**	**4:30**
4:21	**4:26**	**4:37**	**4:45**
4:36	**4:41**	**4:52**	**5:00**
4:51	**4:56**	**5:07**	**5:15**
5:06	**5:11**	**5:22**	**5:30**
5:21	**5:26**	**5:37**	**5:45**
5:36	**5:41**	**5:52**	**6:00**
6:07	**6:12**	**6:22**	**6:30**
6:37	**6:42**	**6:52**	**7:00**
7:07	**7:12**	**7:21**	**7:29**
7:35	**7:40**	**7:49**	**7:57**
8:05	**8:09**	**8:17**	**8:24**
8:34	**8:38**	**8:46**	**8:53**
9:04	**9:08**	**9:16**	**9:23**
9:36	**9:40**	**9:48**	**9:55**

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.

Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

ONE-WAY FARES / *Tarifas Sencillas*

Exact fare, please / *Favor de pagar la cantidad exacta*	
Adult / *Adulto*	**$2.50**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$1.25**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$2.50**

DAY PASS (Regional) / *Pase diario (Regional)*

Adult / *Adulto*	**$6.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$3.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$3.00**

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	**$72.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$23.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
**Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.*

COMPASS CARDS / *Tarjeta Compass*
There is a $2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

COMPASS CLOUD
Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.

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DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
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For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.
Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a **sdmts.com**.

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective SEPTEMBER 1, 2019

20
Downtown – Rancho Bernardo Station via Fashion Valley

110
Downtown – Mira Mesa Express via I-15 / Hwy 163

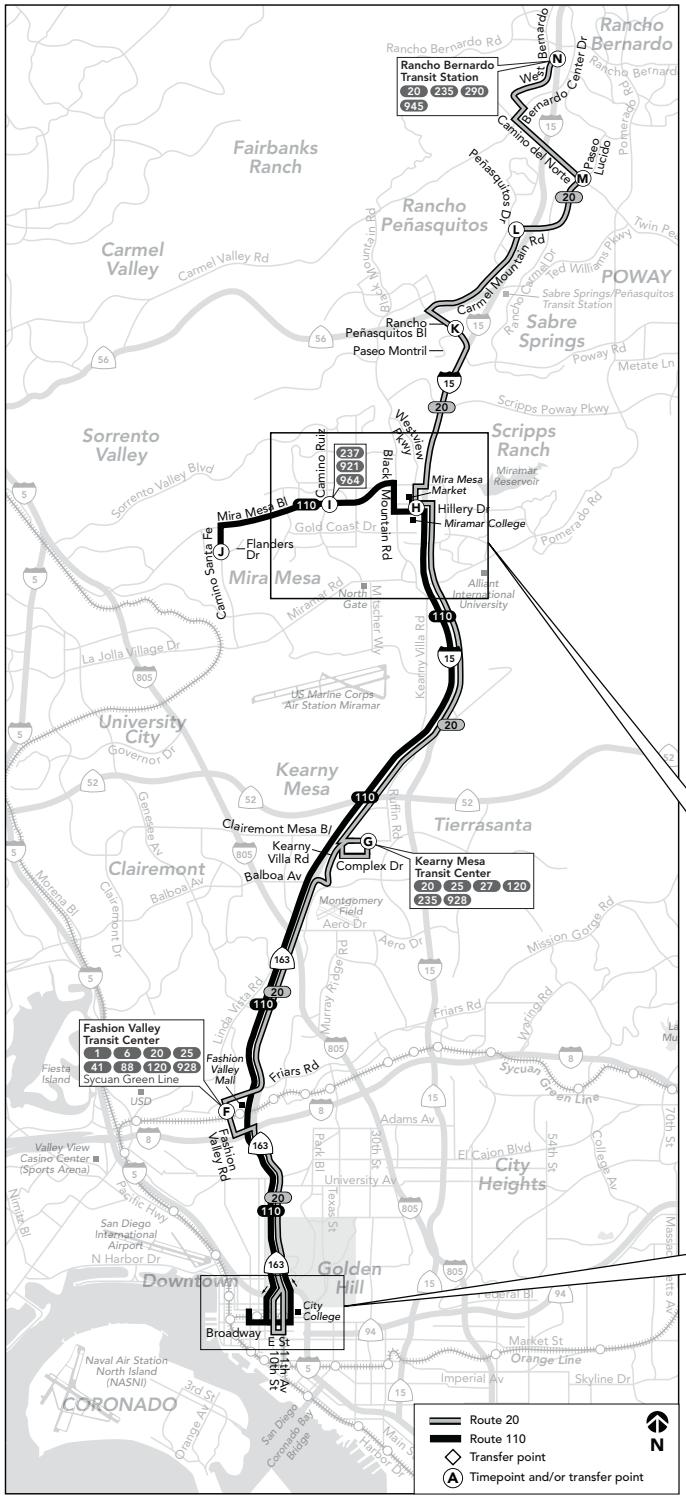
DESTINATIONS
- City College
- Downtown Courthouses (110)
- Fashion Valley Mall (20)
- Miramar College
- Mira Mesa Market

TROLLEY CONNECTIONS
- City College
- Fashion Valley (20)

09/19

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Route 110 – Monday through Friday / *lunes a viernes*

Morning only

Mira Mesa ➡ Downtown

Ⓙ Camino Santa Fe & Flanders Dr. **DEPART**	Ⓘ Mira Mesa Bl. & Camino Ruiz	Ⓗ Miramar College Transit Station	Ⓓ 10th Av. & B St.	Ⓒ Broadway & 5th Av.	Ⓑ Broadway & Union St. **ARRIVE**
6:02a	6:07a	6:15a	6:33a	6:37a	6:41a
6:22	6:27	6:35	6:53	6:57	7:01
6:41	6:46	6:55	7:14	7:18	7:23
7:04	7:10	7:20	7:41	7:45	7:51

Route 110 – Monday through Friday / *lunes a viernes*

Afternoon only

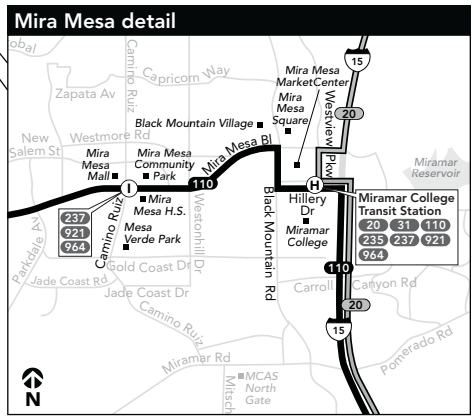
Downtown ➡ Mira Mesa

Ⓐ Front St. & B St. **DEPART**	Ⓒ Broadway & 3rd Av.	Ⓔ City College Transit Center (11th & B)	Ⓗ Miramar College Transit Station	Ⓘ Mira Mesa Bl. & Camino Ruiz	Ⓙ Camino Santa Fe & Flanders Dr. **ARRIVE**
4:02p	**4:05p**	**4:12p**	**4:32p**	**4:40p**	**4:50p**
4:27	**4:30**	**4:37**	**4:58**	**5:07**	**5:17**
4:52	**4:55**	**5:02**	**5:23**	**5:32**	**5:42**
5:22	**5:25**	**5:32**	**5:53**	**6:02**	**6:12**

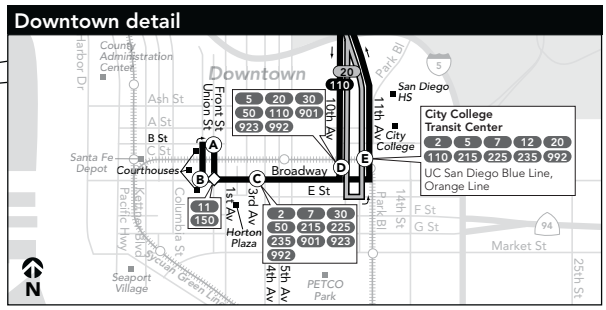
The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 110 does not operate on weekends or on the following holidays and observed holidays
La ruta 110 no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados
>>>
New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Mira Mesa detail



Downtown detail



Route 20 – Monday through Friday / *lunes a viernes*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

Ⓓ 10th Av. & Broadway **DEPART**	Ⓔ City College Transit Center (11th & C)	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓖ Kearny Mesa Transit Center	Ⓗ Miramar College Transit Station	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓜ Camino Del Norte & Paseo Lucido	Ⓝ Rancho Bernardo Transit Station **ARRIVE**
—	4:56a	5:06a	5:08a	5:21a	5:32a	5:39a	5:47a	5:53a	6:01a
—	5:26	5:36	5:38	5:52	6:03	6:10	6:18	6:25	6:34
—	5:41	5:51	5:53	6:08	—	—	—	—	—
5:53a	5:56	6:06	6:08	6:23	6:34	6:42	6:50	6:57	7:07
6:08	6:11	6:21	6:23	6:38	—	—	—	—	—
6:23	6:26	6:36	6:38	6:54	7:06	7:14	7:23	7:30	7:40
6:38	6:41	6:51	6:53	7:09	—	—	—	—	—
6:53	6:56	7:06	7:08	7:24	7:36	7:44	7:53	8:00	8:10
7:08	7:11	7:21	7:23	7:39	—	—	—	—	—
7:23	7:26	7:36	7:38	7:54	8:06	8:14	8:23	8:30	8:41
7:38	7:41	7:51	7:53	8:09	—	—	—	—	—
7:53	7:56	8:06	8:08	8:24	8:36	8:44	8:53	9:00	9:11
8:08	8:11	8:21	8:23	8:39	—	—	—	—	—
8:23	8:26	8:36	8:38	8:54	9:06	9:14	9:23	9:30	9:41
8:38	8:41	8:51	8:53	9:08	—	—	—	—	—
8:53	8:56	9:06	9:08	9:23	9:34	9:42	9:51	9:58	10:08
9:23	9:26	9:36	9:38	9:53	10:04	10:12	10:21	10:28	10:38
9:53	9:56	10:06	10:08	10:23	10:34	10:42	10:51	10:58	11:08
10:23	10:26	10:36	10:38	10:53	11:04	11:12	11:21	11:28	11:38
10:53	10:56	11:06	11:08	11:23	11:34	11:42	11:51	11:58	**12:08p**
11:23	11:26	11:36	11:38	11:53	**12:04p**	**12:12p**	**12:21p**	**12:28p**	**12:38**
11:53	11:56	**12:07p**	**12:09p**	**12:24p**	**12:35**	**12:44**	**12:53**	**1:00**	**1:10**
12:23p	**12:26p**	**12:37**	**12:39**	**12:54**	**1:05**	**1:14**	**1:23**	**1:30**	**1:40**
12:53	**12:56**	**1:07**	**1:09**	**1:24**	**1:35**	**1:44**	**1:53**	**2:00**	**2:10**
1:23	**1:26**	**1:37**	**1:39**	**1:55**	**2:06**	**2:15**	**2:25**	**2:32**	**2:42**
1:53	**1:56**	**2:07**	**2:09**	**2:26**	**2:37**	**2:46**	**2:56**	**3:03**	**3:13**
2:23	**2:26**	**2:37**	**2:39**	**2:56**	**3:08**	**3:18**	**3:29**	**3:36**	**3:47**
2:52	**2:55**	**3:06**	**3:08**	**3:25**	**3:37**	**3:47**	**3:58**	**4:05**	**4:16**
3:07	**3:10**	**3:21**	**3:23**	**3:40**	—	—	—	—	—
3:22	**3:25**	**3:36**	**3:38**	**3:55**	**4:08**	**4:18**	**4:29**	**4:36**	**4:47**
3:37	**3:40**	**3:51**	**3:53**	**4:10**	—	—	—	—	—
3:52	**3:55**	**4:06**	**4:08**	**4:25**	**4:38**	**4:48**	**4:59**	**5:06**	**5:17**
4:07	**4:10**	**4:21**	**4:23**	**4:40**	—	—	—	—	—
4:22	**4:25**	**4:36**	**4:38**	**4:55**	**5:08**	**5:18**	**5:29**	**5:36**	**5:47**
4:37	**4:40**	**4:51**	**4:53**	**5:10**	—	—	—	—	—
4:52	**4:55**	**5:06**	**5:08**	**5:25**	**5:38**	**5:48**	**5:59**	**6:06**	**6:17**
5:07	**5:10**	**5:21**	**5:23**	**5:40**	—	—	—	—	—
5:23	**5:26**	**5:37**	**5:39**	**5:55**	**6:08**	**6:18**	**6:28**	**6:35**	**6:45**
5:53	**5:56**	**6:07**	**6:09**	**6:24**	**6:36**	**6:45**	**6:54**	**7:01**	**7:10**
6:23	**6:26**	**6:37**	**6:39**	**6:54**	**7:06**	**7:15**	**7:24**	**7:31**	**7:40**
6:54	**6:57**	**7:07**	**7:09**	**7:23**	**7:35**	**7:44**	**7:53**	**8:00**	**8:08**
7:24	**7:27**	**7:37**	**7:39**	**7:53**	**8:04**	**8:12**	**8:20**	**8:26**	**8:34**
7:54	**7:57**	**8:07**	**8:09**	**8:23**	**8:34**	**8:42**	**8:50**	**8:56**	**9:04**
8:54	**8:57**	**9:07**	**9:09**	**9:23**	—	—	—	—	—

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

Ⓝ Rancho Bernardo Transit Station **DEPART**	Ⓜ Carmel Mtn. Rd. & Camino Del Norte	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓗ Miramar College Transit Station	Ⓖ Kearny Mesa Transit Center	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓓ 10th Av. & Broadway **ARRIVE**
5:13a	5:21a	5:27a	5:36a	5:45a	5:55a	6:08a	6:10a	6:21a
5:42	5:50	5:57	6:06	6:15	6:25	6:38	6:40	6:51
—	—	—	—	—	6:54	7:08	7:10	7:21
6:19	6:28	6:35	6:46	6:58	7:09	7:23	7:25	7:36
—	—	—	—	—	7:24	7:38	7:40	7:52
6:47	6:57	7:04	7:16	7:28	7:39	7:53	7:55	8:07
—	—	—	—	—	7:54	8:08	8:10	8:22
7:17	7:27	7:34	7:46	7:58	8:09	8:23	8:25	8:37
—	—	—	—	—	8:25	8:39	8:41	8:53
7:49	7:59	8:06	8:17	8:29	8:40	8:54	8:56	9:08
8:19	8:29	8:36	8:47	8:59	9:10	9:24	9:26	9:37
8:50	9:00	9:07	9:17	9:28	9:39	9:53	9:55	10:06
9:24	9:33	9:40	9:49	9:58	10:09	10:23	10:25	10:36
9:54	10:03	10:10	10:19	10:28	10:39	10:53	10:55	11:06
10:24	10:33	10:40	10:49	10:58	11:09	11:23	11:25	11:36
10:50	10:59	11:07	11:16	11:26	11:38	11:53	11:55	**12:06p**
11:20	11:29	11:37	11:46	11:56	**12:08p**	**12:23p**	**12:25p**	**12:36**
11:50	11:59	**12:07p**	**12:16p**	**12:26p**	**12:38**	**12:53**	**12:55**	**1:06**
12:20p	**12:29p**	**12:37**	**12:46**	**12:56**	**1:08**	**1:23**	**1:25**	**1:36**
12:50	**12:59**	**1:07**	**1:16**	**1:26**	**1:38**	**1:53**	**1:55**	**2:06**
1:20	**1:29**	**1:37**	**1:46**	**1:56**	**2:08**	**2:23**	**2:25**	**2:36**
—	—	—	—	—	**2:23**	**2:38**	**2:40**	**2:51**
1:50	**1:59**	**2:07**	**2:16**	**2:26**	**2:38**	**2:53**	**2:55**	**3:06**
—	—	—	—	—	**2:52**	**3:07**	**3:09**	**3:20**
2:15	**2:25**	**2:33**	**2:43**	**2:53**	**3:05**	**3:21**	**3:23**	**3:36**
—	—	—	—	—	**3:20**	**3:36**	**3:38**	**3:51**
2:42	**2:52**	**3:00**	**3:10**	**3:21**	**3:34**	**3:51**	**3:53**	**4:07**
—	—	—	—	—	**3:49**	**4:06**	**4:08**	**4:22**
3:09	**3:20**	**3:28**	**3:38**	**3:49**	**4:02**	**4:21**	**4:23**	**4:37**
—	—	—	—	—	**4:17**	**4:36**	**4:38**	**4:52**
3:39	**3:50**	**3:58**	**4:08**	**4:19**	**4:32**	**4:51**	**4:53**	**5:07**
—	—	—	—	—	**4:47**	**5:06**	**5:08**	**5:22**
4:09	**4:20**	**4:28**	**4:38**	**4:49**	**5:02**	**5:21**	**5:23**	**5:37**
—	—	—	—	—	**5:17**	**5:36**	**5:38**	**5:52**
4:39	**4:50**	**4:58**	**5:08**	**5:19**	**5:32**	**5:51**	**5:53**	**6:07**
—	—	—	—	—	**5:47**	**6:06**	**6:08**	**6:22**
5:12	**5:23**	**5:31**	**5:41**	**5:51**	**6:03**	**6:20**	**6:22**	**6:36**
5:44	**5:55**	**6:03**	**6:13**	**6:23**	**6:35**	**6:50**	**6:52**	**7:05**
6:18	**6:28**	**6:36**	**6:45**	**6:55**	**7:06**	**7:20**	**7:22**	**7:34**
6:51	**7:00**	**7:07**	**7:16**	**7:25**	**7:36**	**7:50**	**7:52**	**8:04**
7:22	**7:31**	**7:38**	**7:47**	**7:56**	**8:06**	**8:20**	**8:22**	**8:33**
8:11	**8:19**	**8:25**	**8:33**	**8:42**	**8:52**	**9:05**	**9:07**	**9:18**
9:12	**9:20**	**9:26**	**9:34**	**9:43**	**9:53**	**10:05**	**10:07**	**10:17**

Route 20 – Saturday / *sábado*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

Ⓓ 10th Av. & Broadway **DEPART**	Ⓔ City College Transit Center (11th & C)	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓖ Kearny Mesa Transit Center	Ⓗ Miramar College Transit Station	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓜ Camino Del Norte & Paseo Lucido	Ⓝ Rancho Bernardo Transit Station **ARRIVE**
—	5:41a	5:51a	5:53a	6:06a	6:17a	6:24a	6:32a	6:38a	6:46a
—	6:11	6:21	6:23	6:36	6:47	—	—	—	—
—	6:41	6:51	6:53	7:07	7:18	7:26	7:34	7:40	7:48
7:09a	7:12	7:22	7:24	7:38	7:49	—	—	—	—
7:39	7:42	7:52	7:54	8:08	8:19	8:27	8:35	8:41	8:49
8:09	8:12	8:22	8:24	8:38	8:49	—	—	—	—
8:39	8:42	8:52	8:54	9:08	9:19	9:27	9:36	9:43	9:51
9:09	9:12	9:22	9:24	9:38	9:49	—	—	—	—
9:39	9:42	9:52	9:54	10:08	10:19	10:27	10:36	10:43	10:51
10:08	10:11	10:22	10:24	10:38	10:49	—	—	—	—
10:38	10:41	10:52	10:54	11:08	11:19	11:28	11:37	11:44	11:53
11:08	11:11	11:22	11:24	11:38	11:49	—	—	—	—
11:38	11:41	11:52	11:54	**12:08p**	**12:19p**	**12:28p**	**12:37p**	**12:44p**	**12:53p**
12:08p	**12:11p**	**12:22p**	**12:24p**	**12:39**	**12:50**	—	—	—	—
12:38	**12:41**	**12:52**	**12:54**	**1:09**	**1:20**	**1:29**	**1:38**	**1:45**	**1:55**
1:08	**1:11**	**1:22**	**1:24**	**1:39**	**1:50**	—	—	—	—
1:38	**1:41**	**1:52**	**1:54**	**2:09**	**2:20**	**2:29**	**2:38**	**2:45**	**2:55**
2:08	**2:11**	**2:22**	**2:24**	**2:39**	**2:50**	—	—	—	—
2:38	**2:41**	**2:52**	**2:54**	**3:09**	**3:20**	**3:29**	**3:38**	**3:45**	**3:55**
3:08	**3:11**	**3:22**	**3:24**	**3:39**	**3:50**	—	—	—	—
3:38	**3:41**	**3:52**	**3:54**	**4:09**	**4:20**	**4:29**	**4:38**	**4:45**	**4:55**
4:08	**4:11**	**4:22**	**4:24**	**4:39**	**4:50**	—	—	—	—
4:38	**4:41**	**4:52**	**4:54**	**5:09**	**5:20**	**5:29**	**5:38**	**5:45**	**5:55**
5:08	**5:11**	**5:22**	**5:24**	**5:39**	**5:50**	—	—	—	—
5:39	**5:42**	**5:53**	**5:55**	**6:09**	**6:20**	**6:29**	**6:38**	**6:45**	**6:54**
6:09	**6:12**	**6:23**	**6:25**	**6:39**	**6:50**	—	—	—	—
6:39	**6:42**	**6:53**	**6:55**	**7:09**	**7:20**	**7:29**	**7:38**	**7:45**	**7:54**
7:39	**7:42**	**7:52**	**7:54**	**8:07**	**8:18**	**8:26**	**8:34**	**8:41**	**8:49**

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

Ⓝ Rancho Bernardo Transit Station **DEPART**	Ⓜ Carmel Mtn. Rd. & Camino Del Norte	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓗ Miramar College Transit Station	Ⓖ Kearny Mesa Transit Center	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓓ 10th Av. & Broadway **ARRIVE**
—	—	—	—	6:12a	6:23a	6:35a	6:37a	6:47a
6:12a	6:20a	6:26a	6:34a	6:42	6:53	7:05	7:07	7:17
—	—	—	—	7:12	7:23	7:35	7:37	7:47
7:10	7:18	7:25	7:34	7:42	7:53	8:05	8:07	8:17
—	—	—	—	8:12	8:23	8:35	8:37	8:48
8:08	8:16	8:23	8:33	8:42	8:53	9:05	9:07	9:18
—	—	—	—	9:12	9:23	9:35	9:37	9:48
9:08	9:16	9:23	9:33	9:42	9:53	10:05	10:07	10:18
—	—	—	—	10:12	10:23	10:35	10:37	10:48
10:06	10:15	10:23	10:33	10:42	10:53	11:05	11:07	11:18
—	—	—	—	11:12	11:23	11:36	11:38	11:50
11:05	11:15	11:23	11:33	11:42	11:53	**12:06p**	**12:08p**	**12:20p**
—	—	—	—	**12:12p**	**12:23p**	**12:36**	**12:38**	**12:50**
12:05p	**12:15p**	**12:23p**	**12:33p**	**12:42**	**12:53**	**1:06**	**1:08**	**1:20**
—	—	—	—	**1:12**	**1:23**	**1:36**	**1:38**	**1:50**
1:05	**1:15**	**1:23**	**1:33**	**1:42**	**1:53**	**2:06**	**2:08**	**2:20**
—	—	—	—	**2:12**	**2:23**	**2:36**	**2:38**	**2:50**
2:05	**2:15**	**2:23**	**2:33**	**2:42**	**2:53**	**3:06**	**3:08**	**3:20**
—	—	—	—	**3:12**	**3:23**	**3:36**	**3:38**	**3:50**
3:05	**3:15**	**3:23**	**3:33**	**3:42**	**3:53**	**4:06**	**4:08**	**4:20**
—	—	—	—	**4:12**	**4:23**	**4:36**	**4:38**	**4:50**
4:05	**4:15**	**4:23**	**4:33**	**4:42**	**4:53**	**5:06**	**5:08**	**5:20**
—	—	—	—	**5:12**	**5:23**	**5:36**	**5:38**	**5:50**
5:05	**5:15**	**5:23**	**5:33**	**5:42**	**5:53**	**6:06**	**6:08**	**6:20**
—	—	—	—	**6:11**	**6:22**	**6:35**	**6:37**	**6:48**
6:06	**6:15**	**6:23**	**6:32**	**6:41**	**6:52**	**7:05**	**7:07**	**7:18**
—	—	—	—	**7:11**	**7:22**	**7:35**	**7:37**	**7:48**
7:06	**7:15**	**7:23**	**7:32**	**7:41**	**7:52**	**8:05**	**8:07**	**8:18**
8:13	**8:21**	**8:27**	**8:35**	**8:43**	**8:53**	**9:05**	**9:07**	**9:17**

Route 20 – Sunday / *domingo*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

Ⓓ 10th Av. & Broadway **DEPART**	Ⓔ City College Transit Center (11th & C)	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓖ Kearny Mesa Transit Center	Ⓗ Miramar College Transit Station	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓜ Camino Del Norte & Paseo Lucido	Ⓝ Rancho Bernardo Transit Station **ARRIVE**
—	5:41a	5:51a	5:53a	6:06a	6:17a	6:24a	6:32a	6:38a	6:46a
—	6:41	6:51	6:53	7:07	7:18	7:26	7:34	7:40	7:48
7:39a	7:42	7:52	7:54	8:08	8:19	8:27	8:35	8:41	8:49
8:39	8:42	8:52	8:54	9:08	9:19	9:27	9:36	9:43	9:51
9:39	9:42	9:52	9:54	10:08	10:19	10:27	10:36	10:43	10:51
10:38	10:41	10:52	10:54	11:08	11:19	11:28	11:37	11:44	11:53
11:38	11:41	11:52	11:54	**12:08p**	**12:19p**	**12:28p**	**12:37p**	**12:44p**	**12:53p**
12:38p	**12:41p**	**12:52p**	**12:54p**	**1:09**	**1:20**	**1:29**	**1:38**	**1:45**	**1:55**
1:38	**1:41**	**1:52**	**1:54**	**2:09**	**2:20**	**2:29**	**2:38**	**2:45**	**2:55**
2:38	**2:41**	**2:52**	**2:54**	**3:09**	**3:20**	**3:29**	**3:38**	**3:45**	**3:55**
3:38	**3:41**	**3:52**	**3:54**	**4:09**	**4:20**	**4:29**	**4:38**	**4:45**	**4:55**
4:38	**4:41**	**4:52**	**4:54**	**5:09**	**5:20**	**5:29**	**5:38**	**5:45**	**5:55**
5:39	**5:42**	**5:53**	**5:55**	**6:09**	**6:20**	**6:29**	**6:38**	**6:45**	**6:54**
6:39	**6:42**	**6:53**	**6:55**	**7:09**	**7:20**	**7:29**	**7:38**	**7:45**	**7:54**
7:39	**7:42**	**7:52**	**7:54**	**8:07**	**8:18**	**8:26**	**8:34**	**8:41**	**8:49**

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

Ⓝ Rancho Bernardo Transit Station **DEPART**	Ⓜ Carmel Mtn. Rd. & Camino Del Norte	Ⓛ Carmel Mtn. Rd. & Peñasquitos Dr.	Ⓚ Rancho Peñasquitos Bl. & Paseo Montril	Ⓗ Miramar College Transit Station	Ⓖ Kearny Mesa Transit Center	Ⓕ Fashion Valley Transit Center **ARRIVE**	Ⓕ Fashion Valley Transit Center **DEPART**	Ⓓ 10th Av. & Broadway **ARRIVE**
6:12a	6:20a	6:26a	6:34a	6:42a	6:53a	7:05a	7:07a	7:17a
7:10	7:18	7:25	7:34	7:42	7:53	8:05	8:07	8:17
8:08	8:16	8:23	8:33	8:42	8:53	9:05	9:07	9:18
9:08	9:16	9:23	9:33	9:42	9:53	10:05	10:07	10:18
10:06	10:15	10:23	10:33	10:42	10:53	11:05	11:07	11:18
11:05	11:15	11:23	11:33	11:42	11:53	**12:06p**	**12:08p**	**12:20p**
12:05p	**12:15p**	**12:23p**	**12:33p**	**12:42p**	**12:53p**	**1:06**	**1:08**	**1:20**
1:05	**1:15**	**1:23**	**1:33**	**1:42**	**1:53**	**2:06**	**2:08**	**2:20**
2:05	**2:15**	**2:23**	**2:33**	**2:42**	**2:53**	**3:06**	**3:08**	**3:20**
3:05	**3:15**	**3:23**	**3:33**	**3:42**	**3:53**	**4:06**	**4:08**	**4:20**
4:05	**4:15**	**4:23**	**4:33**	**4:42**	**4:53**	**5:06**	**5:08**	**5:20**
5:05	**5:15**	**5:23**	**5:33**	**5:42**	**5:53**	**6:06**	**6:08**	**6:20**
6:06	**6:15**	**6:23**	**6:32**	**6:41**	**6:52**	**7:05**	**7:07**	**7:18**
7:06	**7:15**	**7:23**	**7:32**	**7:41**	**7:52**	**8:05**	**8:07**	**8:18**

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays
Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta	
Adult / Adulto	**$2.50**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$1.25**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$2.50**

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	**$6.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$3.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$3.00**

MONTHLY PASSES / Pases mensual

Adult / Adulto	**$72.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$23.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
*Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

COMPASS CARDS / Tarjeta Compass
There is a $2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

COMPASS CLOUD
Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.

Visit sdmts.com/fares for more info. Visite sdmts.com/fares para más información.

DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.
*Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a **sdmts.com**.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective JANUARY 26, 2020

25
Fashion Valley – Kearny Mesa
via Tierrasanta / Stonecrest

928
Fashion Valley – Kearny Mesa
via Serra Mesa / Stonecrest

DESTINATIONS
- Fashion Valley Mall
- Hazard Center (928)
- Kaiser Hospital (Kearny Mesa)
- Kearny Mesa Courthouse
- Serra High School (25)
- Stonecrest Plaza

TROLLEY CONNECTIONS
- Fashion Valley

01/20

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Alternative formats available upon request. Please call: (619) 557-4555 / *Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555*

Route 25 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ Tierrasanta ➡ Kearny Mesa

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Aero Dr. & Aero Ct.	Ⓓ Stonecrest Plaza	Ⓔ Tierrasanta Bl. & Santo Rd.	Ⓕ Clairemont Mesa Bl. & Santo Rd.	Ⓗ Kearny Mesa Transit Center **ARRIVE**
—	—	6:30a	6:37a	6:43a	6:50a
7:10a	7:21a	7:29	7:36	7:42	7:50
8:10	8:21	8:29	8:36	8:42	8:50
9:10	9:21	9:29	9:36	9:42	9:50
10:10	10:21	10:29	10:36	10:42	10:50
11:10	11:22	11:31	11:39	11:45	11:53
12:10p	**12:22p**	**12:31p**	**12:39p**	**12:45p**	**12:53p**
1:10	**1:22**	**1:31**	**1:39**	**1:45**	**1:53**
2:10	**2:23**	**2:33**	**2:41**	**2:47**	**2:55**
3:10	**3:23**	**3:33**	**3:41**	**3:47**	**3:55**
4:09	**4:24**	**4:35**	**4:44**	**4:50**	**4:58**
5:09	**5:24**	**5:35**	**5:44**	**5:50**	**5:58**
6:10	**6:21**	**6:29**	**6:36**	**6:42**	**6:50**

Kearny Mesa ➡ Tierrasanta ➡ Fashion Valley

Ⓗ Kearny Mesa Transit Center• **DEPART**	Ⓕ Clairemont Mesa Bl. & Santo Rd.	Ⓔ Santo Rd. & Tierrasanta Bl.	Ⓓ Stonecrest Plaza	Ⓑ Kearny Villa Rd. & Aero Dr.	Ⓐ Fashion Valley Transit Center **ARRIVE**
—	—	—	6:31a	6:40a	6:51a
7:08a	7:15a	7:21a	7:29	7:39	7:51
8:08	8:15	8:21	8:29	8:39	8:51
9:08	9:15	9:21	9:29	9:39	9:51
10:08	10:15	10:21	10:29	10:39	10:51
11:08	11:15	11:21	11:29	11:39	11:51
12:07p	**12:15p**	**12:21p**	**12:30p**	**12:40p**	**12:53p**
1:07	**1:15**	**1:21**	**1:30**	**1:40**	**1:53**
2:05	**2:13**	**2:19**	**2:29**	**2:39**	**2:53**
3:05	**3:13**	**3:19**	**3:29**	**3:39**	**3:53**
4:06	**4:16**	**4:22**	**4:32**	**4:42**	**4:57**
5:06	**5:16**	**5:22**	**5:32**	**5:42**	**5:57**
6:07	**6:15**	**6:21**	**6:30**	**6:39**	**6:51**

• = Board bus on Clairemont Mesa Bl. in front of Panera Restaurant / *Encuentra el autobús en Clairemont Mesa Bl. en frente del restaurante Panera*

Route 25 does not operate on weekends or on the following holidays and observed holidays:
La ruta 25 no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados: >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 928 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ Kearny Mesa

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
5:25a	5:38a	5:48a	5:54a	6:01a
5:55	6:08	6:18	6:24	6:31
6:25	6:38	6:48	6:54	7:01
6:55	7:08	7:18	7:24	7:31
7:25	7:38	7:48	7:54	8:01
7:55	8:08	8:18	8:24	8:31
8:25	8:38	8:48	8:54	9:01
8:55	9:08	9:18	9:24	9:31
9:25	9:38	9:48	9:54	10:01
9:55	10:08	10:18	10:24	10:31
10:25	10:38	10:48	10:54	11:01
10:55	11:08	11:18	11:24	11:31
11:25	11:39	11:50	11:56	**12:04p**
11:55	**12:09p**	**12:20p**	**12:27p**	**12:35**
12:25p	**12:39**	**12:50**	**12:57**	**1:05**
12:55	**1:09**	**1:20**	**1:27**	**1:35**
1:25	**1:39**	**1:50**	**1:57**	**2:05**
1:55	**2:09**	**2:20**	**2:27**	**2:35**
2:25	**2:39**	**2:50**	**2:57**	**3:05**
2:55	**3:09**	**3:20**	**3:27**	**3:35**
3:19	**3:34**	**3:45**	**3:54**	**4:02**
3:49	**4:04**	**4:15**	**4:24**	**4:32**
4:19	**4:34**	**4:45**	**4:54**	**5:02**
4:49	**5:04**	**5:15**	**5:24**	**5:32**
5:19	**5:34**	**5:45**	**5:54**	**6:02**
5:49	**6:04**	**6:15**	**6:22**	**6:30**
6:19	**6:34**	**6:45**	**6:52**	**7:00**
6:55	**7:09**	**7:19**	—	—
7:37	**7:51**	**8:01**	**8:07**	**8:14**
8:35	**8:48**	**8:58**	—	—
9:37	**9:50**	**10:00**	—	—

Kearny Mesa ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	4:47a	4:55a	5:10a
—	—	5:33	5:41	5:56
5:54a	5:58a	6:03	6:11	6:26
6:28	6:33	6:39	6:48	7:04
6:58	7:03	7:09	7:18	7:34
7:28	7:33	7:39	7:48	8:04
7:58	8:03	8:09	8:18	8:34
8:28	8:33	8:39	8:48	9:04
8:58	9:03	9:09	9:18	9:34
9:17	9:22	9:29	9:39	9:55
9:47	9:52	9:59	10:09	10:25
10:17	10:22	10:29	10:39	10:55
10:47	10:52	10:59	11:09	11:25
11:25	11:30	11:37	11:49	**12:05p**
11:55	**12:00p**	**12:07p**	**12:19p**	**12:35**
12:25p	**12:30**	**12:37**	**12:49**	**1:05**
12:55	**1:00**	**1:07**	**1:19**	**1:35**
1:25	**1:30**	**1:37**	**1:49**	**2:05**
1:55	**2:00**	**2:07**	**2:19**	**2:35**
2:25	**2:30**	**2:37**	**2:49**	**3:05**
2:55	**3:00**	**3:07**	**3:19**	**3:35**
3:25	**3:30**	**3:37**	**3:49**	**4:05**
3:55	**4:00**	**4:07**	**4:19**	**4:35**
4:25	**4:30**	**4:37**	**4:49**	**5:05**
4:55	**5:00**	**5:07**	**5:19**	**5:35**
5:25	**5:30**	**5:37**	**5:49**	**6:05**
5:54	**5:59**	**6:06**	**6:18**	**6:34**
6:25	**6:30**	**6:37**	**6:47**	**7:03**
7:45	**7:50**	**7:56**	**8:05**	**8:20**
—	—	**9:01**	**9:09**	**9:24**

Route 928 – Saturday / *sábado*

Fashion Valley ➡ Stonecrest

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
7:05a	7:17a	7:27a	—	—
8:05	8:17	8:27	—	—
9:05	9:17	9:27	—	—
10:05	10:17	10:27	—	—
11:05	11:17	11:27	—	—
12:04p	**12:18p**	**12:28p**	—	—
1:04	**1:18**	**1:28**	—	—
2:04	**2:18**	**2:28**	—	—
3:04	**3:18**	**3:28**	—	—
4:04	**4:18**	**4:28**	—	—
5:04	**5:18**	**5:28**	—	—
6:05	**6:19**	**6:29**	—	—
7:05	**7:18**	**7:28**	—	—
8:05	**8:18**	**8:28**	—	—
9:05	**9:17**	**9:27**	—	—

Stonecrest ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	6:30a	6:39a	6:54a
—	—	7:30	7:39	7:54
—	—	8:30	8:39	8:54
—	—	9:30	9:39	9:54
—	—	10:29	10:39	10:55
—	—	11:29	11:39	11:55
—	—	**12:30p**	**12:40p**	**12:56p**
—	—	**1:30**	**1:40**	**1:56**
—	—	**2:30**	**2:40**	**2:56**
—	—	**3:30**	**3:40**	**3:56**
—	—	**4:30**	**4:40**	**4:56**
—	—	**5:30**	**5:40**	**5:56**
—	—	**6:31**	**6:40**	**6:55**
—	—	**7:31**	**7:40**	**7:55**
—	—	**8:32**	**8:40**	**8:55**

Route 928 – Sunday / *domingo*

Fashion Valley ➡ Stonecrest

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
9:05a	9:17a	9:27a	—	—
10:05	10:17	10:27	—	—
11:05	11:17	11:27	—	—
12:04p	**12:18p**	**12:28p**	—	—
1:04	**1:18**	**1:28**	—	—
2:04	**2:18**	**2:28**	—	—
3:04	**3:18**	**3:28**	—	—
4:04	**4:18**	**4:28**	—	—
5:04	**5:18**	**5:28**	—	—
6:05	**6:19**	**6:29**	—	—

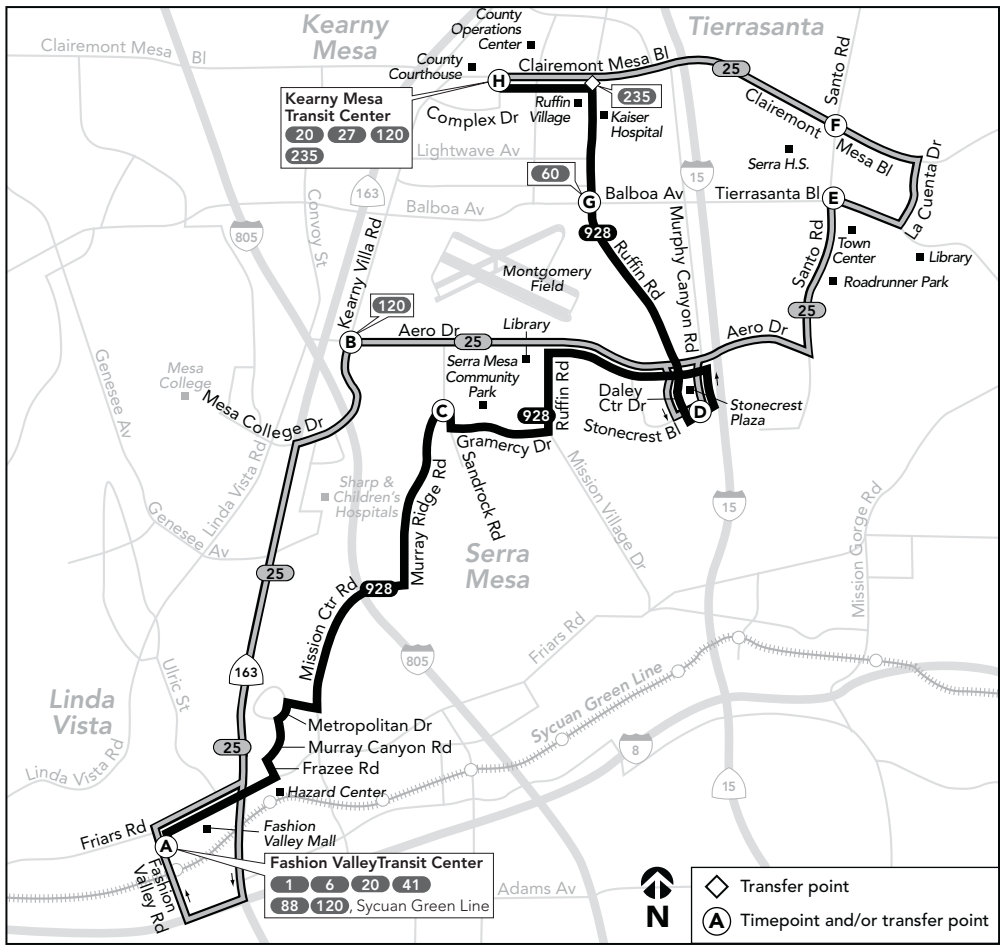
Stonecrest ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	8:30a	8:39a	8:54a
—	—	9:30	9:39	9:54
—	—	10:29	10:39	10:55
—	—	11:29	11:39	11:55
—	—	**12:30p**	**12:40p**	**12:56p**
—	—	**1:30**	**1:40**	**1:56**
—	—	**2:30**	**2:40**	**2:56**
—	—	**3:30**	**3:40**	**3:56**
—	—	**4:30**	**4:40**	**4:56**
—	—	**5:30**	**5:40**	**5:56**

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas



ONE-WAY FARES / *Tarifas Sencillas*

Exact fare, please / *Favor de pagar la cantidad exacta*	
Adult / *Adulto*	**$2.50**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$1.25**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$2.50**

DAY PASS (Regional) / *Pase diario (Regional)*

Adult / *Adulto*	**$6.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$3.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$3.00**

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	**$72.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$23.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
**Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.*

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DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.
Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a sdmts.com.

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective SEPTEMBER 1, 2019

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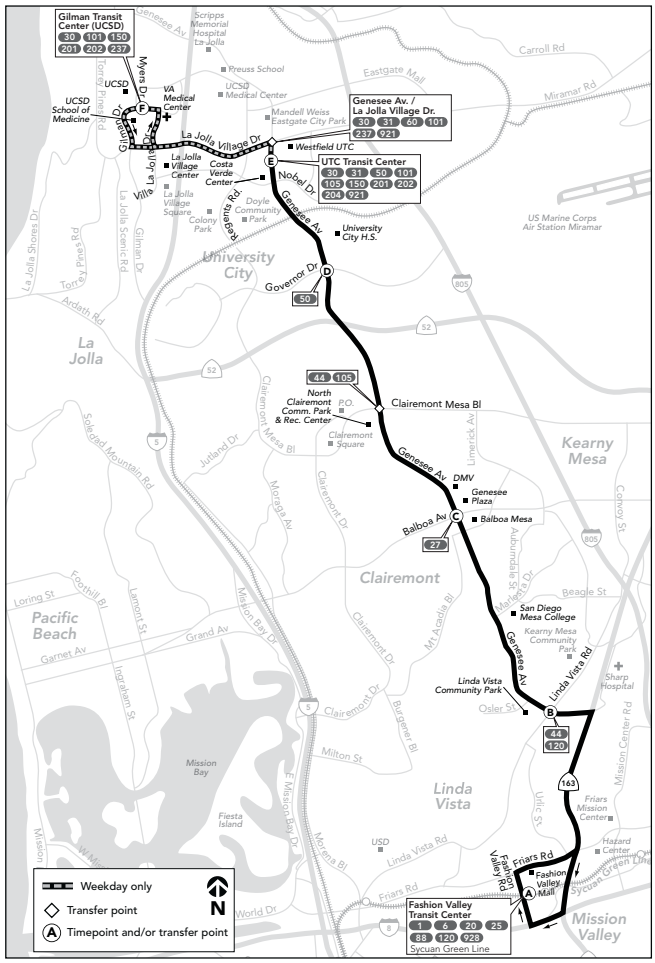
Fashion Valley – UCSD
via Genesee Av.

DESTINATIONS
- Costa Verde Center
- Fashion Valley Mall
- Genesee Plaza
- Linda Vista Community Park
- Mesa College
- University City High School
- Westfield UTC

TROLLEY CONNECTIONS
- Fashion Valley

09/19

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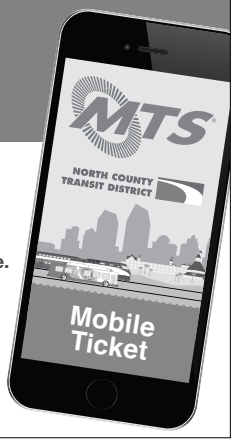
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Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 41 – Sunday / *domingo*

Fashion Valley ➡ Clairemont ➡ UTC

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓒ Genesee Av. & Balboa Av.	Ⓓ Genesee Av. & Governor Dr.	Ⓔ UTC Transit Center **ARRIVE**	Ⓕ
6:37a	6:45a	6:51a	7:00a	7:04a	Alternate service available on Routes 30, 201, and 202 *Servicio alterno por las rutas 30, 201, y 202*
7:07	7:15	7:22	7:31	7:35	
7:37	7:45	7:52	8:01	8:05	
8:07	8:15	8:22	8:31	8:35	
8:37	8:46	8:54	9:04	9:08	
9:07	9:16	9:24	9:34	9:38	
9:37	9:46	9:54	10:04	10:08	
10:07	10:16	10:24	10:34	10:38	
10:37	10:46	10:54	11:04	11:08	
11:07	11:16	11:24	11:34	11:38	
11:37	11:47	11:55	**12:05p**	**12:10p**	
12:07p	**12:17p**	**12:25p**	**12:35**	**12:40**	
12:37	**12:47**	**12:55**	**1:05**	**1:10**	
1:07	**1:17**	**1:25**	**1:35**	**1:40**	
1:37	**1:47**	**1:55**	**2:05**	**2:10**	
2:07	**2:17**	**2:25**	**2:35**	**2:40**	
2:37	**2:47**	**2:55**	**3:05**	**3:10**	
3:07	**3:17**	**3:25**	**3:35**	**3:40**	
3:37	**3:47**	**3:55**	**4:05**	**4:10**	
4:07	**4:17**	**4:25**	**4:35**	**4:40**	
4:37	**4:47**	**4:55**	**5:05**	**5:10**	
5:07	**5:17**	**5:25**	**5:35**	**5:40**	
5:39	**5:49**	**5:56**	**6:06**	**6:10**	
6:09	**6:19**	**6:26**	**6:36**	**6:40**	
6:39	**6:49**	**6:56**	**7:06**	**7:10**	
7:09	**7:18**	**7:25**	**7:34**	**7:38**	
7:39	**7:48**	**7:55**	**8:04**	**8:08**	
8:09	**8:18**	**8:25**	**8:34**	**8:38**	
9:09	**9:17**	**9:24**	**9:32**	**9:36**	

UTC ➡ Clairemont ➡ Fashion Valley

Ⓕ	Ⓔ UTC Transit Center **DEPART**	Ⓓ Genesee Av. & Governor Dr.	Ⓒ Genesee Av. & Balboa Av.	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓐ Fashion Valley Transit Center **ARRIVE**
Alternate service available on Routes 30, 201, and 202 *Servicio alterno por las rutas 30, 201, y 202*	6:27a	6:32a	6:40a	6:47a	6:53a
	6:57	7:02	7:10	7:17	7:23
	7:27	7:32	7:40	7:47	7:53
	7:56	8:01	8:10	8:17	8:23
	8:24	8:29	8:39	8:46	8:53
	8:52	8:58	9:09	9:16	9:23
	9:22	9:28	9:39	9:46	9:53
	9:52	9:58	10:09	10:16	10:23
	10:23	10:29	10:40	10:47	10:54
	10:53	10:59	11:10	11:17	11:24
	11:22	11:28	11:40	11:47	11:55
	11:52	11:58	**12:10p**	**12:17p**	**12:25p**
	12:22p	**12:28p**	**12:40**	**12:47**	**12:55**
	12:52	**12:58**	**1:10**	**1:17**	**1:25**
	1:22	**1:28**	**1:40**	**1:47**	**1:55**
	1:52	**1:58**	**2:10**	**2:17**	**2:25**
	2:22	**2:28**	**2:40**	**2:47**	**2:55**
	2:52	**2:58**	**3:10**	**3:17**	**3:25**
	3:22	**3:28**	**3:40**	**3:47**	**3:55**
	3:52	**3:58**	**4:10**	**4:17**	**4:25**
	4:22	**4:28**	**4:40**	**4:47**	**4:55**
	4:52	**4:58**	**5:10**	**5:17**	**5:25**
	5:23	**5:29**	**5:40**	**5:47**	**5:55**
	5:53	**5:59**	**6:10**	**6:17**	**6:25**
	6:21	**6:27**	**6:38**	**6:45**	**6:53**
	6:51	**6:57**	**7:08**	**7:15**	**7:23**
	7:23	**7:28**	**7:39**	**7:45**	**7:53**
	7:55	**8:00**	**8:10**	**8:16**	**8:23**
	8:27	**8:32**	**8:41**	**8:47**	**8:53**
	9:27	**9:32**	**9:41**	**9:47**	**9:53**

Route 41 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ Clairemont ➡ UCSD

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓒ Genesee Av. & Balboa Av.	Ⓓ Genesee Av. & Governor Dr.	Ⓔ UTC Transit Center	Ⓕ Gilman Transit Center (UCSD) **ARRIVE**
5:21a	5:29a	5:36a	5:44a	5:48a	5:58a
5:36	5:44	5:51	5:59	6:03	6:13
5:51	5:59	6:06	6:14	6:18	6:28
6:06	6:14	6:21	6:32	6:37	6:47
6:21	6:29	6:37	6:49	6:54	7:05
—	—	**T** 6:47	7:00	7:06	7:17
6:36	6:45	6:53	7:06	7:12	7:23
—	—	**T** 7:02	7:15	7:21	7:32
6:51	7:00	7:08	7:21	7:27	7:38
—	—	**T** 7:17	7:30	7:36	7:47
7:06	7:15	7:23	7:36	7:42	7:53
—	—	**T** 7:34	7:47	7:53	8:05
7:21	7:31	7:40	7:53	7:59	8:11
—	—	**T** 7:49	8:02	8:08	8:20
7:36	7:46	7:55	8:08	8:14	8:26
—	—	**T** 8:04	8:17	8:23	8:35
7:51	8:01	8:10	8:23	8:29	8:41
—	—	**T** 8:19	8:32	8:38	8:50
8:06	8:16	8:25	8:38	8:44	8:56
—	—	**T** 8:34	8:47	8:53	9:05
8:21	8:31	8:40	8:53	8:59	9:11
—	—	**T** 8:48	9:00	9:06	9:18
8:36	8:45	8:54	9:06	9:12	9:24
—	—	**T** 9:03	9:15	9:21	9:33
8:51	9:00	9:09	9:21	9:27	9:39
—	—	**T** 9:17	9:28	9:33	9:44
9:06	9:15	9:23	9:34	9:39	9:50
—	—	**T** 9:32	9:43	9:48	9:59
9:21	9:30	9:38	9:49	9:54	10:05
9:36	9:45	9:53	10:04	10:09	10:20
9:51	10:00	10:08	10:19	10:24	10:35
10:06	10:15	10:23	10:34	10:39	10:50
10:21	10:30	10:38	10:49	10:54	11:05
10:36	10:45	10:53	11:04	11:09	11:20
10:51	11:00	11:08	11:19	11:24	11:35
11:06	11:15	11:23	11:34	11:39	11:50
11:21	11:30	11:38	11:49	11:54	**12:05p**
11:36	11:45	11:53	**12:04p**	**12:09p**	**12:20**
11:51	**12:00p**	**12:08p**	**12:19**	**12:24**	**12:35**
12:06p	**12:15**	**12:23**	**12:34**	**12:39**	**12:50**
12:21	**12:30**	**12:38**	**12:49**	**12:54**	**1:05**
12:36	**12:46**	**12:55**	**1:06**	**1:11**	**1:22**
12:51	**1:01**	**1:10**	**1:21**	**1:26**	**1:37**
1:06	**1:16**	**1:25**	**1:36**	**1:41**	**1:52**
1:21	**1:31**	**1:40**	**1:51**	**1:56**	**2:07**
1:36	**1:46**	**1:55**	**2:06**	**2:11**	**2:22**
1:51	**2:01**	**2:10**	**2:21**	**2:26**	**2:37**
2:08	**2:18**	**2:27**	**2:38**	**2:43**	**2:54**
2:23	**2:33**	**2:42**	**2:53**	**2:58**	**3:09**
2:38	**2:48**	**2:57**	**3:08**	**3:13**	**3:24**
2:53	**3:03**	**3:12**	**3:23**	**3:28**	**3:39**
3:06	**3:16**	**3:25**	**3:36**	**3:41**	**3:52**
3:21	**3:31**	**3:40**	**3:51**	**3:56**	**4:07**
3:36	**3:47**	**3:56**	**4:08**	**4:13**	**4:24**
3:51	**4:02**	**4:11**	**4:23**	**4:28**	**4:39**
4:06	**4:17**	**4:26**	**4:38**	**4:43**	**4:54**
4:21	**4:32**	**4:41**	**4:53**	**4:58**	**5:09**
4:36	**4:47**	**4:56**	**5:08**	**5:13**	**5:24**
4:51	**5:02**	**5:11**	**5:23**	**5:28**	**5:39**
5:06	**5:17**	**5:26**	**5:38**	**5:43**	**5:54**
5:21	**5:32**	**5:41**	**5:53**	**5:58**	**6:09**
5:36	**5:47**	**5:56**	**6:08**	**6:13**	**6:24**
5:51	**6:01**	**6:09**	**6:20**	**6:25**	**6:35**
6:06	**6:16**	**6:24**	**6:35**	**6:40**	**6:50**
6:21	**6:31**	**6:39**	**6:50**	**6:55**	**7:05**
6:41	**6:50**	**6:58**	**7:08**	**7:13**	**7:23**
7:06	**7:15**	**7:23**	**7:33**	**7:38**	**7:48**
7:36	**7:45**	**7:52**	**8:01**	**8:06**	**8:16**
8:06	**8:15**	**8:22**	**8:31**	**8:36**	**8:46**
8:36	**8:45**	**8:52**	**9:01**	**9:06**	**9:16**
9:06	**9:14**	**9:20**	**9:28**	**9:32**	**9:42**
9:36	**9:44**	**9:50**	**9:58**	**10:02**	**10:12**
10:06	**10:14**	**10:20**	**10:28**	**10:32**	**10:42**
10:37	**10:45**	**10:51**	**10:58**	**11:01**	**11:11**
11:07	**11:15**	**11:21**	**11:28**	**11:31**	**11:41**

UCSD ➡ Clairemont ➡ Fashion Valley

Ⓕ Gilman Transit Center (UCSD) **DEPART**	Ⓔ UTC Transit Center	Ⓓ Genesee Av. & Governor Dr.	Ⓒ Genesee Av. & Balboa Av.	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓐ Fashion Valley Transit Center **ARRIVE**
5:47a	5:56a	6:01a	6:10a	6:17a	6:23a
6:02	6:11	6:16	6:25	6:32	6:38
6:17	6:26	6:31	6:40	6:47	6:53
6:30	6:39	6:44	6:54	7:02	7:08
6:44	6:54	6:59	7:09	7:17	7:23
6:59	7:09	7:14	7:24	7:32	7:38
7:14	7:24	7:29	7:39	7:47	7:53
7:29	7:39	7:44	7:54	8:02	8:08
7:44	7:54	7:59	8:09	8:17	8:23
7:59	8:09	8:14	8:24	8:32	8:38
8:14	8:24	8:29	8:39	8:47	8:53
8:29	8:39	8:44	8:54	9:02	9:08
8:44	8:54	8:59	9:09	9:17	9:23
8:59	9:09	9:14	9:24	9:32	9:38
9:14	9:24	9:29	9:39	9:47	9:53
9:29	9:39	9:44	9:54	10:02	10:08
9:44	9:54	9:59	10:09	10:17	10:23
9:59	10:09	10:14	10:24	10:32	10:38
10:14	10:24	10:29	10:39	10:47	10:53
10:31	10:41	10:46	10:56	11:04	11:11
10:46	10:57	11:02	11:12	11:20	11:27
11:01	11:12	11:17	11:27	11:35	11:42
11:16	11:27	11:32	11:42	11:50	11:57
11:31	11:42	11:47	11:57	**12:05p**	**12:12p**
11:46	11:57	**12:02p**	**12:12p**	**12:20**	**12:27**
12:01p	**12:12p**	**12:17**	**12:27**	**12:35**	**12:42**
12:16	**12:27**	**12:32**	**12:42**	**12:50**	**12:57**
12:31	**12:42**	**12:47**	**12:57**	**1:05**	**1:12**
12:46	**12:57**	**1:02**	**1:12**	**1:20**	**1:27**
12:59	**1:10**	**1:16**	**1:27**	**1:35**	**1:42**
1:14	**1:25**	**1:31**	**1:42**	**1:50**	**1:57**
1:29	**1:40**	**1:46**	**1:57**	**2:05**	**2:12**
1:44	**1:55**	**2:02**	**2:13**	**2:21**	**2:29**
1:56	**2:08**	**2:15**	**2:27**	**2:36**	**2:44**
2:09	**2:21**	**2:28**	**2:40**	**2:49**	**2:57**
2:22	**2:34**	**2:41**	**2:53**	**3:02**	**3:10**
2:37	**2:49**	**2:56**	**3:08**	**3:17**	**3:25**
2:52	**3:04**	**3:11**	**3:23**	**3:32**	**3:40**
T 2:59	**3:11**	**3:19**	**3:31**	—	—
3:05	**3:17**	**3:26**	**3:38**	**3:47**	**3:56**
T 3:14	**3:26**	**3:35**	**3:47**	—	—
3:20	**3:32**	**3:41**	**3:53**	**4:02**	**4:11**
T 3:26	**3:38**	**3:47**	**4:00**	—	—
3:32	**3:44**	**3:53**	**4:06**	**4:16**	**4:26**
T 3:41	**3:53**	**4:02**	**4:15**	—	—
3:47	**3:59**	**4:08**	**4:21**	**4:31**	**4:41**
T 3:56	**4:08**	**4:17**	**4:30**	—	—
4:02	**4:14**	**4:23**	**4:36**	**4:46**	**4:56**
T 4:11	**4:23**	**4:32**	**4:45**	—	—
4:17	**4:29**	**4:38**	**4:51**	**5:01**	**5:11**
T 4:26	**4:38**	**4:47**	**5:00**	—	—
4:32	**4:44**	**4:53**	**5:06**	**5:16**	**5:26**
T 4:41	**4:53**	**5:02**	**5:15**	—	—
4:47	**4:59**	**5:08**	**5:21**	**5:31**	**5:41**
T 4:56	**5:08**	**5:17**	**5:30**	—	—
5:02	**5:14**	**5:23**	**5:36**	**5:46**	**5:56**
T 5:11	**5:23**	**5:32**	**5:45**	—	—
5:17	**5:29**	**5:38**	**5:51**	**6:01**	**6:11**
T 5:29	**5:41**	**5:50**	**6:02**	—	—
5:35	**5:47**	**5:56**	**6:08**	**6:17**	**6:26**
5:50	**6:02**	**6:11**	**6:23**	**6:32**	**6:41**
6:05	**6:16**	**6:24**	**6:36**	**6:44**	**6:53**
6:20	**6:31**	**6:38**	**6:50**	**6:58**	**7:06**
6:36	**6:46**	**6:53**	**7:04**	**7:11**	**7:18**
6:51	**7:01**	**7:08**	**7:19**	**7:26**	**7:33**
7:11	**7:21**	**7:28**	**7:39**	**7:46**	**7:53**
7:41	**7:51**	**7:58**	**8:09**	**8:16**	**8:23**
8:15	**8:25**	**8:31**	**8:41**	**8:47**	**8:53**
8:45	**8:55**	**9:01**	**9:11**	**9:17**	**9:23**
9:15	**9:25**	**9:31**	**9:41**	**9:47**	**9:53**
9:48	**9:57**	**10:02**	**10:11**	**10:17**	**10:23**
10:18	**10:27**	**10:32**	**10:41**	**10:47**	**10:53**
10:48	**10:57**	**11:02**	**11:11**	**11:17**	**11:23**

T =Trip operates September through June when UCSD is in session. Trip does not operate during summer session. / *El viaje solo opera de septiembre a junio durante los días escolares de UCSD. El viaje no opera durante la sesion de verano.*

Route 41 – Saturday / *sábado*

Fashion Valley ➡ Clairemont ➡ UTC

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓒ Genesee Av. & Balboa Av.	Ⓓ Genesee Av. & Governor Dr.	Ⓔ UTC Transit Center **ARRIVE**	Ⓕ
6:07a	6:15a	6:21a	6:30a	6:34a	Alternate service available on Routes 30, 150, 201, and 202 / *Servicio alterno por las rutas 30, 150, 201, y 202*
6:37	6:45	6:51	7:00	7:04	
7:07	7:15	7:22	7:31	7:35	
7:37	7:45	7:52	8:01	8:05	
8:07	8:15	8:22	8:31	8:35	
8:37	8:46	8:54	9:04	9:08	
9:07	9:16	9:24	9:34	9:38	
9:37	9:46	9:54	10:04	10:08	
10:07	10:16	10:24	10:34	10:38	
10:37	10:46	10:54	11:04	11:08	
11:07	11:16	11:24	11:34	11:38	
11:37	11:47	11:55	**12:05p**	**12:10p**	
12:07p	**12:17p**	**12:25p**	**12:35**	**12:40**	
12:37	**12:47**	**12:55**	**1:05**	**1:10**	
1:07	**1:17**	**1:25**	**1:35**	**1:40**	
1:37	**1:47**	**1:55**	**2:05**	**2:10**	
2:07	**2:17**	**2:25**	**2:35**	**2:40**	
2:37	**2:47**	**2:55**	**3:05**	**3:10**	
3:07	**3:17**	**3:25**	**3:35**	**3:40**	
3:37	**3:47**	**3:55**	**4:05**	**4:10**	
4:07	**4:17**	**4:25**	**4:35**	**4:40**	
4:37	**4:47**	**4:55**	**5:05**	**5:10**	
5:07	**5:17**	**5:25**	**5:35**	**5:40**	
5:39	**5:49**	**5:56**	**6:06**	**6:10**	
6:09	**6:19**	**6:26**	**6:36**	**6:40**	
6:39	**6:49**	**6:56**	**7:06**	**7:10**	
7:09	**7:18**	**7:25**	**7:34**	**7:38**	
7:39	**7:48**	**7:55**	**8:04**	**8:08**	
8:09	**8:18**	**8:25**	**8:34**	**8:38**	
8:39	**8:47**	**8:54**	**9:02**	**9:06**	
9:09	**9:17**	**9:24**	**9:32**	**9:36**	
10:09	**10:17**	**10:24**	**10:32**	**10:36**	

UTC ➡ Clairemont ➡ Fashion Valley

Ⓕ	Ⓔ UTC Transit Center **DEPART**	Ⓓ Genesee Av. & Governor Dr.	Ⓒ Genesee Av. & Balboa Av.	Ⓑ Genesee Av. & Linda Vista Rd.	Ⓐ Fashion Valley Transit Center **ARRIVE**
Alternate service available on Routes 30, 150, 201, and 202 / *Servicio alterno por las rutas 30, 150, 201, y 202*	6:27a	6:32a	6:40a	6:47a	6:53a
	6:57	7:02	7:10	7:17	7:23
	7:27	7:32	7:40	7:47	7:53
	7:56	8:01	8:10	8:17	8:23
	8:24	8:29	8:39	8:46	8:53
	8:52	8:58	9:09	9:16	9:23
	9:22	9:28	9:39	9:46	9:53
	9:52	9:58	10:09	10:16	10:23
	10:23	10:29	10:40	10:47	10:54
	10:53	10:59	11:10	11:17	11:24
	11:22	11:28	11:40	11:47	11:55
	11:52	11:58	**12:10p**	**12:17p**	**12:25p**
	12:22p	**12:28p**	**12:40**	**12:47**	**12:55**
	12:52	**12:58**	**1:10**	**1:17**	**1:25**
	1:22	**1:28**	**1:40**	**1:47**	**1:55**
	1:52	**1:58**	**2:10**	**2:17**	**2:25**
	2:22	**2:28**	**2:40**	**2:47**	**2:55**
	2:52	**2:58**	**3:10**	**3:17**	**3:25**
	3:22	**3:28**	**3:40**	**3:47**	**3:55**
	3:52	**3:58**	**4:10**	**4:17**	**4:25**
	4:22	**4:28**	**4:40**	**4:47**	**4:55**
	4:52	**4:58**	**5:10**	**5:17**	**5:25**
	5:23	**5:29**	**5:40**	**5:47**	**5:55**
	5:53	**5:59**	**6:10**	**6:17**	**6:25**
	6:21	**6:27**	**6:38**	**6:45**	**6:53**
	6:51	**6:57**	**7:08**	**7:15**	**7:23**
	7:23	**7:28**	**7:39**	**7:45**	**7:53**
	7:55	**8:00**	**8:10**	**8:16**	**8:23**
	8:27	**8:32**	**8:41**	**8:47**	**8:53**
	8:57	**9:02**	**9:11**	**9:17**	**9:23**
	9:27	**9:32**	**9:41**	**9:47**	**9:53**
	9:57	**10:02**	**10:11**	**10:17**	**10:23**

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

ONE-WAY FARES / *Tarifas Sencillas*

Exact fare, please / *Favor de pagar la cantidad exacta*

Adult / *Adulto*	**$2.50**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$1.25**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$2.50**

DAY PASS (Regional) / *Pase diario (Regional)*

Adult / *Adulto*	**$6.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$3.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$3.00**

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	**$72.00**
Senior/Disabled/Medicare* *Personas Mayores/con Discapacidades/Medicare**	**$23.00**
Youth (ages 6-18)* *Jóvenes (edades 6-18)**	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
**Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.*

COMPASS CARDS / *Tarjeta Compass*
There is a $2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

COMPASS CLOUD
Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.

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DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com.**
Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a ***sdmts.com.***

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective SEPTEMBER 1, 2019

88

Old Town – Fashion Valley
via Hotel Circle

DESTINATIONS
- Fashion Valley Mall
- Old Town State Historical Park
- Presidio Park

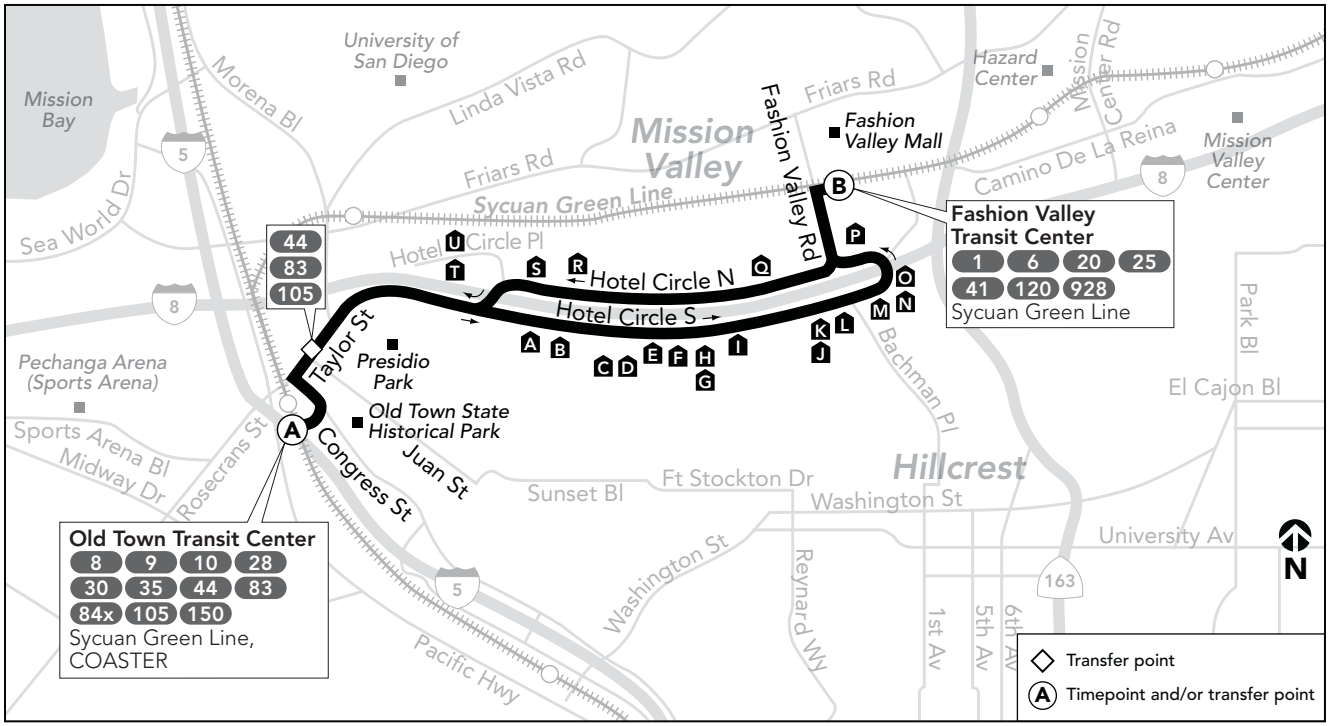
TROLLEY CONNECTIONS
- Old Town
- Fashion Valley

09/19

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Route Alerts, Updated Schedules, Connections & More

Hotels at Hotel Circle

- A Homewood Suites
- B Hampton Inn
- C Extended Stay America
- D Residence Inn San Diego Mission Valley
- E Howard Johnson Express Inn San Diego
- F Doubletree Hotel San Diego – Hotel Circle
- G Candlewood Suites
- H Kings Inn San Diego
- I The Atwood Hotel
- J Holiday Inn Express
- K Hotel Iris
- L Courtyard by Marriott Mission Valley/Hotel Circle
- M Days Inn Hotel Circle
- N Super 8
- O Best Western Seven Seas
- P Town and Country Resort & Convention Center
- Q Handlery Hotel and Resort
- R Crowne Plaza San Diego
- S Motel 6 San Diego – Hotel Circle
- T Comfort Inn & Suites
- U Riverleaf Inn



Alternative formats available upon request. Please call: (619) 557-4555 / *Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555*

Route 88 – Monday through Friday / *lunes a viernes*

Old Town ➡ Fashion Valley | Fashion Valley ➡ Old Town

via Hotel Circle South		via Hotel Circle North	
(A) Old Town Transit Center **DEPART**	(B) Fashion Valley Transit Center **ARRIVE**	(B) Fashion Valley Transit Center **DEPART**	(A) Old Town Transit Center **ARRIVE**
—	—	5:55a	6:04a
6:11a	6:21a	6:25	6:34
6:41	6:52	6:55	7:05
7:11	7:22	7:25	7:35
7:41	7:52	7:55	8:05
8:11	8:22	8:25	8:35
8:41	8:52	8:55	9:05
9:11	9:22	9:25	9:35
9:41	9:52	9:55	10:05
10:11	10:22	10:25	10:35
10:41	10:52	10:55	11:05
11:11	11:22	11:25	11:35
11:41	11:52	11:55	**12:05p**
12:11p	**12:22p**	**12:25p**	**12:35**
12:41	**12:52**	**12:55**	**1:05**
1:11	**1:22**	**1:25**	**1:35**
1:41	**1:52**	**1:55**	**2:06**
2:11	**2:23**	**2:25**	**2:36**
2:41	**2:53**	**2:55**	**3:06**
3:11	**3:23**	**3:25**	**3:36**
3:41	**3:53**	**3:55**	**4:06**
4:11	**4:23**	**4:25**	**4:36**
4:41	**4:53**	**4:55**	**5:06**
5:11	**5:23**	**5:25**	**5:35**
5:41	**5:53**	**5:55**	**6:05**
6:11	**6:23**	**6:25**	**6:35**
6:41	**6:53**	**6:55**	**7:04**
7:11	**7:23**	**7:25**	**7:34**
7:41	**7:52**	**7:55**	**8:04**
8:11	**8:21**	**8:25**	**8:34**
8:41	**8:51**	**8:55**	**9:04**
9:11	**9:21**		

Route 88 – Saturday / *sábado*

Old Town ➡ Fashion Valley | Fashion Valley ➡ Old Town

via Hotel Circle South		via Hotel Circle North	
(A) Old Town Transit Center **DEPART**	(B) Fashion Valley Transit Center **ARRIVE**	(B) Fashion Valley Transit Center **DEPART**	(A) Old Town Transit Center **ARRIVE**
—	—	5:40a	5:48a
5:57a	6:07a	6:10	6:18
6:27	6:37	6:40	6:48
6:57	7:07	7:10	7:18
7:27	7:37	7:40	7:48
7:57	8:07	8:10	8:18
8:27	8:37	8:40	8:48
8:57	9:07	9:10	9:19
9:27	9:38	9:40	9:49
9:57	10:08	10:10	10:19
10:27	10:38	10:40	10:49
10:57	11:08	11:10	11:19
11:27	11:38	11:40	11:49
11:57	**12:08p**	**12:10p**	**12:19p**
12:27p	**12:38**	**12:40**	**12:49**
12:57	**1:08**	**1:10**	**1:19**
1:27	**1:38**	**1:40**	**1:49**
1:57	**2:08**	**2:10**	**2:19**
2:27	**2:38**	**2:40**	**2:49**
2:57	**3:08**	**3:10**	**3:19**
3:27	**3:38**	**3:40**	**3:49**
3:57	**4:08**	**4:10**	**4:19**
4:27	**4:38**	**4:40**	**4:49**
4:57	**5:08**	**5:10**	**5:19**
5:27	**5:38**	**5:40**	**5:49**
5:57	**6:08**	**6:10**	**6:19**
6:27	**6:38**	**6:40**	**6:49**
6:57	**7:08**	**7:10**	**7:18**
7:27	**7:37**	**7:40**	**7:48**
7:57	**8:07**	**8:10**	**8:18**
8:27	**8:37**		

Fun places to go from Route 88...

Embarcadero, Seaport Village, Gaslamp Quarter
Transfer from Route 88 at Old Town to the Green Line towards Downtown.

La Jolla
Transfer from Route 88 at Old Town to Route 30 towards UCSD/UTC.

SeaWorld
Transfer from Route 88 to Route 9 at Old Town.

Balboa Park
Transfer from Route 88 at Fashion Valley to Route 120 towards Downtown.
(take Route 120 to 4th Ave./ Laurel St. – Balboa Park is just two blocks east)

San Diego Zoo
Transfer from Route 88 at Fashion Valley to Route 20 towards Downtown. Then transfer to Route 7 or 215 on 11th Avenue at City College Transit Center.

Beaches
Transfer from Route 88 at Old Town to Route 8 (Mission Beach), Route 30 (Pacific Beach), or Route 35 (Ocean Beach).

Old Town State Historical Park
Route 88 takes you right there! Across Congress Street from the Old Town Transit Center.

Route 88 does not operate on Sundays or on holidays that run a Sunday schedule. To determine which holidays run on a Sunday schedule, visit www.sdmts.com or call 511.
La ruta 88 no ofrece servicio en los domingos ó los días festivos que operan con servicio de domingo. Para detalles sobre los días festivos que operan con servicio de domingo, visite www.sdmts.com o llame 511.

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta	
Adult / Adulto	**$2.50**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$1.25**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$2.50**

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	**$6.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$3.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$3.00**

MONTHLY PASSES / Pases mensual

Adult / Adulto	**$72.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$23.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959. *Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

COMPASS CARDS / Tarjeta Compass
There is a $2 charge for Compass Cards, which can be reloaded for future use. Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

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DIRECTORY / *Directorio*

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TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

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*Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a **sdmts.com**.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective JANUARY 26, 2020

120

Downtown – Kearny Mesa Transit Center

via Hillcrest / Fashion Valley / Linda Vista

DESTINATIONS
- Fashion Valley Mall
- Horton Plaza
- Juvenile Hall
- Kearny Mesa Courthouse
- Mercy Hospital
- Sharp & Children's Hospitals

TROLLEY CONNECTIONS
- 5th Avenue
- Fashion Valley

01/20

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Route Alerts, Updated Schedules, Connections & More

Alternative formats available upon request. Please call: (619) 557-4555 / ***Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555***

Route 120 – Sunday / *domingo*

Downtown ➡ Hillcrest ➡ Fashion Valley ➡ Sharp Hospital

Ⓐ 4th Av. & B St. **DEPART**	Ⓑ 5th Av. & Broadway	Ⓒ 5th Av. & University Av.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓔ Comstock St. & Linda Vista Rd.	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓖ Kearny Mesa Transit Center **ARRIVE**
6:13a	6:15a	6:25a	6:33a	6:35a	6:42a	6:56a	—
7:13	7:15	7:25	7:33	7:35	7:43	7:57	—
8:13	8:15	8:25	8:33	8:35	8:43	8:57	—
9:12	9:14	9:25	9:33	9:35	9:43	9:57	—
9:40	9:42	9:54	10:03	10:05	10:13	10:27	—
10:10	10:12	10:24	10:33	10:35	10:43	10:57	—
10:40	10:42	10:54	11:03	11:05	11:14	11:28	—
11:10	11:12	11:24	11:33	11:35	11:44	11:58	—
11:40	11:42	11:54	**12:03p**	**12:05p**	**12:14p**	**12:28p**	—
12:10p	**12:12p**	**12:24p**	**12:33**	**12:35**	**12:44**	**12:58**	—
12:40	**12:42**	**12:54**	**1:03**	**1:05**	**1:14**	**1:28**	—
1:10	**1:12**	**1:24**	**1:33**	**1:35**	**1:44**	**1:58**	—
1:40	**1:42**	**1:54**	**2:03**	**2:05**	**2:15**	**2:29**	—
2:10	**2:12**	**2:24**	**2:33**	**2:35**	**2:45**	**2:59**	—
2:40	**2:42**	**2:54**	**3:03**	**3:05**	**3:15**	**3:29**	—
3:10	**3:12**	**3:24**	**3:33**	**3:35**	**3:45**	**3:59**	—
3:40	**3:42**	**3:54**	**4:03**	**4:05**	**4:15**	**4:29**	—
4:10	**4:12**	**4:24**	**4:33**	**4:35**	**4:45**	**4:59**	—
4:40	**4:42**	**4:54**	**5:03**	**5:05**	**5:15**	**5:29**	—
5:10	**5:12**	**5:24**	**5:33**	**5:35**	**5:45**	**5:59**	—
5:41	**5:43**	**5:54**	**6:03**	**6:05**	**6:14**	**6:28**	—
6:11	**6:13**	**6:24**	**6:33**	**6:35**	**6:44**	**6:58**	—
7:13	**7:15**	**7:25**	**7:34**	**7:36**	**7:45**	**7:58**	—
8:13	**8:15**	**8:25**	**8:34**	**8:36**	**8:44**	**8:57**	—
9:14	**9:16**	**9:25**	**9:34**	**9:36**	**9:44**	**9:57**	—

LIMITED STOP ZONE / ***ZONA DE PARADAS LIMITADAS***

Route 120 – Sunday / *domingo*

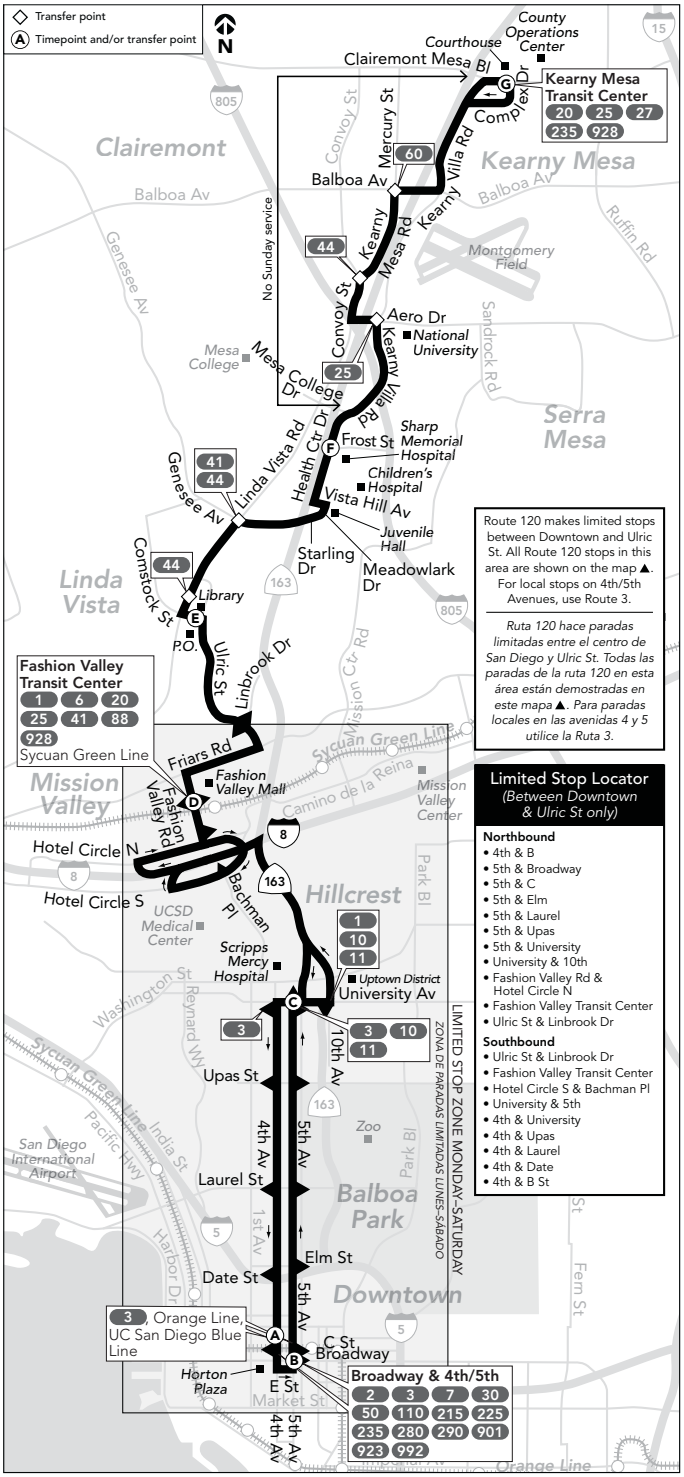
Sharp Hospital ➡ Fashion Valley ➡ Hillcrest ➡ Downtown

Ⓖ Kearny Mesa Transit Center **DEPART**	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓔ Comstock St. & Linda Vista Rd.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓒ University Av. & 5th Av.	Ⓐ 4th Av. & B St. **ARRIVE**
—	6:23a	6:32a	6:38a	6:40a	6:46a	6:57a
—	7:23	7:32	7:38	7:40	7:47	7:58
—	8:23	8:33	8:39	8:41	8:48	8:59
—	9:23	9:33	9:39	9:41	9:48	9:59
—	9:49	10:00	10:06	10:08	10:15	10:26
—	10:19	10:30	10:36	10:38	10:45	10:56
—	10:49	11:00	11:06	11:08	11:15	11:26
—	11:19	11:30	11:36	11:38	11:46	11:58
—	11:49	**12:00p**	**12:06p**	**12:08p**	**12:16p**	**12:28p**
—	**12:19p**	**12:30**	**12:36**	**12:38**	**12:46**	**12:58**
—	**12:49**	**1:00**	**1:06**	**1:08**	**1:16**	**1:28**
—	**1:19**	**1:30**	**1:36**	**1:38**	**1:46**	**1:58**
—	**1:49**	**2:00**	**2:06**	**2:08**	**2:16**	**2:28**
—	**2:19**	**2:30**	**2:36**	**2:38**	**2:46**	**2:58**
—	**2:48**	**2:59**	**3:06**	**3:08**	**3:16**	**3:28**
—	**3:18**	**3:29**	**3:36**	**3:38**	**3:46**	**3:58**
—	**3:48**	**3:59**	**4:06**	**4:08**	**4:16**	**4:28**
—	**4:18**	**4:29**	**4:36**	**4:38**	**4:46**	**4:58**
—	**4:50**	**5:00**	**5:06**	**5:08**	**5:16**	**5:27**
—	**5:20**	**5:30**	**5:36**	**5:38**	**5:46**	**5:57**
—	**5:50**	**6:00**	**6:06**	**6:08**	**6:16**	**6:27**
—	**6:21**	**6:30**	**6:36**	**6:38**	**6:45**	**6:56**
—	**7:26**	**7:35**	**7:41**	**7:43**	**7:50**	**8:01**
—	**8:25**	**8:34**	**8:40**	**8:42**	**8:49**	**9:00**
—	**9:24**	**9:33**	**9:39**	**9:41**	**9:48**	**9:59**

LIMITED STOP ZONE / ***ZONA DE PARADAS LIMITADAS***

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.

Los horarios e información que se indican en este inerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.



A Saturday or Sunday schedule will be operated on the following holidays and observed holidays >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

Route 120 – Monday through Friday / *lunes a viernes*

Downtown ➡ Hillcrest ➡ Fashion Valley ➡ Kearny Mesa

Ⓐ 4th Av. & B St. **DEPART**	Ⓑ 5th Av. & Broadway	Ⓒ 5th Av. & University Av.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓔ Comstock St. & Linda Vista Rd.	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓖ Kearny Mesa Transit Center **ARRIVE**
4:59a	5:01a	5:10a	5:18a	5:20a	5:27a	5:36a	5:48a
5:29	5:31	5:40	5:48	5:50	5:57	6:06	6:18
5:59	6:01	6:10	6:18	6:20	6:27	6:36	6:48
6:13	6:15	6:25	6:33	—	—	—	—
6:28	6:30	6:40	6:48	6:50	6:57	7:07	7:20
6:43	6:45	6:55	7:03	—	—	—	—
6:57	6:59	7:10	7:18	7:20	7:28	7:39	7:53
7:12	7:14	7:25	7:33	—	—	—	—
7:26	7:28	7:39	7:48	7:50	7:59	8:12	8:28
7:41	7:43	7:54	8:03	—	—	—	—
7:56	7:58	8:09	8:18	8:20	8:29	8:42	8:58
8:11	8:13	8:24	8:33	—	—	—	—
8:26	8:28	8:39	8:48	8:50	8:58	9:10	9:25
8:41	8:43	8:54	9:03	—	—	—	—
8:57	8:59	9:10	9:19	9:21	9:29	9:41	9:56
9:12	9:14	9:25	9:34	—	—	—	—
9:27	9:29	9:40	9:49	9:51	9:59	10:11	10:26
9:42	9:44	9:55	10:04	—	—	—	—
9:57	9:59	10:10	10:19	10:21	10:29	10:41	10:56
10:12	10:14	10:25	10:34	—	—	—	—
10:27	10:29	10:40	10:49	10:51	10:59	11:11	11:26
10:42	10:44	10:55	11:04	—	—	—	—
10:57	10:59	11:10	11:19	11:21	11:29	11:41	11:56
11:11	11:13	11:25	11:34	—	—	—	—
11:26	11:28	11:40	11:49	11:51	**12:00p**	**12:12p**	**12:27p**
11:41	11:43	11:55	**12:04p**	—	—	—	—
11:56	11:58	**12:10p**	**12:19**	**12:21p**	**12:30**	**12:42**	**12:57**
12:11p	**12:13p**	**12:25**	**12:34**	—	—	—	—
12:26	**12:28**	**12:40**	**12:49**	**12:51**	**1:00**	**1:12**	**1:27**
12:41	**12:43**	**12:55**	**1:04**	—	—	—	—
12:56	**12:58**	**1:10**	**1:19**	**1:21**	**1:30**	**1:42**	**1:57**
1:11	**1:13**	**1:25**	**1:34**	—	—	—	—
1:26	**1:28**	**1:40**	**1:49**	**1:51**	**2:00**	**2:12**	**2:27**
1:41	**1:43**	**1:55**	**2:04**	—	—	—	—
1:56	**1:58**	**2:10**	**2:19**	**2:21**	**2:31**	**2:43**	**3:00**
2:11	**2:13**	**2:25**	**2:34**	—	—	—	—
2:26	**2:28**	**2:40**	**2:49**	**2:51**	**3:01**	**3:13**	**3:30**
2:41	**2:43**	**2:55**	**3:04**	—	—	—	—
2:56	**2:58**	**3:10**	**3:19**	**3:21**	**3:32**	**3:45**	**4:03**
3:11	**3:13**	**3:25**	**3:34**	—	—	—	—
3:26	**3:28**	**3:40**	**3:49**	**3:51**	**4:02**	**4:15**	**4:33**
3:41	**3:43**	**3:55**	**4:04**	—	—	—	—
3:56	**3:58**	**4:10**	**4:19**	**4:21**	**4:32**	**4:45**	**5:03**
4:11	**4:13**	**4:25**	**4:34**	—	—	—	—
4:26	**4:28**	**4:40**	**4:49**	**4:51**	**5:02**	**5:15**	**5:33**
4:41	**4:43**	**4:55**	**5:04**	—	—	—	—
4:56	**4:58**	**5:10**	**5:19**	**5:21**	**5:32**	**5:45**	**6:03**
5:11	**5:13**	**5:25**	**5:34**	—	—	—	—
5:26	**5:28**	**5:40**	**5:49**	**5:51**	**6:02**	**6:15**	**6:33**
5:42	**5:44**	**5:55**	**6:04**	—	—	—	—
5:57	**5:59**	**6:10**	**6:19**	**6:21**	**6:32**	**6:44**	**7:01**
6:30	**6:32**	**6:42**	**6:51**	**6:53**	**7:02**	**7:12**	**7:25**
7:00	**7:02**	**7:12**	**7:21**	**7:23**	**7:32**	**7:42**	**7:55**
7:27	**7:29**	**7:39**	**7:48**	**7:50**	**7:58**	**8:07**	**8:20**
7:57	**7:59**	**8:09**	**8:18**	**8:20**	**8:28**	**8:37**	**8:49**
8:28	**8:30**	**8:40**	**8:49**	**8:51**	**8:59**	**9:08**	**9:20**
9:01	**9:03**	**9:12**	**9:21**	**9:23**	**9:31**	**9:39**	**9:51**
9:31	**9:33**	**9:42**	**9:51**	**9:53**	**10:01**	**10:09**	**10:21**
10:02	**10:04**	**10:13**	**10:21**	**10:23**	**10:30**	**10:38**	**10:49**
10:32	**10:34**	**10:43**	**10:51**	—	—	—	—
11:02	**11:04**	**11:13**	**11:21**	—	—	—	—

LIMITED STOP ZONE / *ZONA DE PARADAS LIMITADAS*

Kearny Mesa ➡ Fashion Valley ➡ Hillcrest ➡ Downtown

Ⓖ Kearny Mesa Transit Center **DEPART**	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓔ Comstock St. & Linda Vista Rd.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓒ University Av. & 5th Av.	Ⓐ 4th Av. & B St. **ARRIVE**
5:28a	5:38a	5:49a	5:55a	6:04a	6:11a	6:22a
5:57	6:07	6:18	6:24	6:26	6:33	6:44
—	—	—	—	6:41	6:48	6:59
6:25	6:36	6:48	6:54	6:56	7:03	7:14
—	—	—	—	7:10	7:17	7:28
6:51	7:04	7:17	7:23	7:25	7:32	7:43
—	—	—	—	7:40	7:47	7:59
7:18	7:33	7:47	7:53	7:55	8:02	8:14
—	—	—	—	8:10	8:17	8:29
7:48	8:03	8:17	8:23	8:25	8:32	8:44
—	—	—	—	8:40	8:47	8:59
8:19	8:34	8:47	8:53	8:55	9:02	9:14
—	—	—	—	9:10	9:17	9:29
8:49	9:04	9:17	9:23	9:25	9:32	9:44
—	—	—	—	9:40	9:47	9:59
9:19	9:34	9:47	9:53	9:55	10:02	10:14
—	—	—	—	10:10	10:17	10:29
9:49	10:04	10:17	10:23	10:25	10:32	10:44
—	—	—	—	10:40	10:47	10:59
10:19	10:34	10:47	10:53	10:55	11:02	11:14
—	—	—	—	11:10	11:17	11:31
10:49	11:04	11:17	11:23	11:25	11:32	11:44
—	—	—	—	11:40	11:48	**12:01p**
11:19	11:34	11:47	11:53	11:55	**12:03p**	**12:16**
—	—	—	—	**12:10p**	**12:18**	**12:31**
11:49	**12:04p**	**12:17p**	**12:23p**	**12:25**	**12:33**	**12:46**
—	—	—	—	**12:40**	**12:48**	**1:01**
12:19p	**12:34**	**12:47**	**12:53**	**12:55**	**1:03**	**1:16**
—	—	—	—	**1:10**	**1:18**	**1:31**
12:49	**1:04**	**1:17**	**1:23**	**1:25**	**1:33**	**1:46**
—	—	—	—	**1:40**	**1:48**	**2:01**
1:19	**1:34**	**1:47**	**1:53**	**1:55**	**2:03**	**2:16**
—	—	—	—	**2:10**	**2:18**	**2:31**
1:49	**2:04**	**2:17**	**2:23**	**2:25**	**2:33**	**2:46**
—	—	—	—	**2:40**	**2:48**	**3:01**
2:17	**2:33**	**2:47**	**2:53**	**2:55**	**3:03**	**3:16**
—	—	—	—	**3:10**	**3:18**	**3:31**
2:44	**3:01**	**3:16**	**3:23**	**3:25**	**3:33**	**3:46**
—	—	—	—	**3:40**	**3:48**	**4:01**
3:14	**3:31**	**3:46**	**3:53**	**3:55**	**4:03**	**4:16**
—	—	—	—	**4:10**	**4:18**	**4:32**
3:44	**4:01**	**4:16**	**4:23**	**4:25**	**4:34**	**4:46**
—	—	—	—	**4:40**	**4:49**	**5:03**
4:13	**4:31**	**4:46**	**4:53**	**4:55**	**5:04**	**5:17**
—	—	—	—	**5:10**	**5:19**	**5:33**
4:42	**5:01**	**5:17**	**5:24**	**5:26**	**5:35**	**5:49**
—	—	—	—	**5:41**	**5:50**	**6:03**
5:16	**5:32**	**5:46**	**5:53**	**5:55**	**6:04**	**6:17**
—	—	—	—	**6:10**	**6:18**	**6:30**
5:46	**6:02**	**6:16**	**6:23**	**6:25**	**6:33**	**6:47**
6:20	**6:35**	**6:47**	**6:53**	**6:55**	**7:03**	**7:15**
6:53	**7:06**	**7:17**	**7:23**	**7:25**	**7:33**	**7:44**
7:25	**7:38**	**7:49**	**7:55**	**8:03**	**8:11**	**8:22**
7:55	**8:08**	**8:19**	**8:25**	**8:34**	**8:42**	**8:53**
8:27	**8:39**	**8:49**	**8:55**	**9:04**	**9:12**	**9:23**
8:57	**9:09**	**9:19**	**9:25**	**9:34**	**9:42**	**9:53**
9:27	**9:39**	**9:49**	**9:55**	**10:04**	**10:12**	**10:23**
9:59	**10:10**	**10:19**	**10:25**	**10:34**	**10:41**	**10:52**
10:29	**10:40**	**10:49**	**10:55**	**11:04**	**11:11**	**11:22**
—	—	—	—	**11:36**	**11:43**	**11:54**

LIMITED STOP ZONE / *ZONA DE PARADAS LIMITADAS*

Route 120 – Saturday / *sábado*

Downtown ➡ Hillcrest ➡ Fashion Valley ➡ Kearny Mesa

Ⓐ 4th Av. & B St. **DEPART**	Ⓑ 5th Av. & Broadway	Ⓒ 5th Av. & University Av.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓔ Comstock St. & Linda Vista Rd.	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓖ Kearny Mesa Transit Center **ARRIVE**
5:43a	5:45a	5:55a	6:03a	6:05a	6:12a	6:21a	6:31a
6:13	6:15	6:25	6:33	6:35	6:42	6:51	7:01
6:43	6:45	6:55	7:03	7:05	7:12	7:21	7:31
7:13	7:15	7:25	7:33	7:35	7:43	7:52	8:03
7:43	7:45	7:55	8:03	8:05	8:13	8:22	8:33
8:13	8:15	8:25	8:33	8:35	8:43	8:52	9:03
8:42	8:44	8:55	9:03	9:05	9:13	9:22	9:34
9:12	9:14	9:25	9:33	9:35	9:43	9:52	10:04
9:40	9:42	9:54	10:03	10:05	10:13	10:22	10:34
10:10	10:12	10:24	10:33	10:35	10:43	10:52	11:04
10:40	10:42	10:54	11:03	11:05	11:14	11:23	11:36
11:10	11:12	11:24	11:33	11:35	11:44	11:53	**12:06p**
11:40	11:42	11:54	**12:03p**	**12:05p**	**12:14p**	**12:23p**	**12:36**
12:10p	**12:12p**	**12:24p**	**12:33**	**12:35**	**12:44**	**12:53**	**1:06**
12:40	**12:42**	**12:54**	**1:03**	**1:05**	**1:14**	**1:23**	**1:36**
1:10	**1:12**	**1:24**	**1:33**	**1:35**	**1:44**	**1:53**	**2:06**
1:40	**1:42**	**1:54**	**2:03**	**2:05**	**2:15**	**2:24**	**2:37**
2:10	**2:12**	**2:24**	**2:33**	**2:35**	**2:45**	**2:54**	**3:07**
2:40	**2:42**	**2:54**	**3:03**	**3:05**	**3:15**	**3:24**	**3:37**
3:10	**3:12**	**3:24**	**3:33**	**3:35**	**3:45**	**3:54**	**4:07**
3:40	**3:42**	**3:54**	**4:03**	**4:05**	**4:15**	**4:24**	**4:37**
4:10	**4:12**	**4:24**	**4:33**	**4:35**	**4:45**	**4:54**	**5:07**
4:40	**4:42**	**4:54**	**5:03**	**5:05**	**5:15**	**5:24**	**5:37**
5:10	**5:12**	**5:24**	**5:33**	**5:35**	**5:45**	**5:54**	**6:07**
5:41	**5:43**	**5:54**	**6:03**	**6:05**	**6:14**	**6:23**	**6:35**
6:11	**6:13**	**6:24**	**6:33**	**6:35**	**6:44**	**6:53**	**7:05**
6:43	**6:45**	**6:55**	**7:04**	**7:06**	**7:15**	**7:23**	**7:34**
7:13	**7:15**	**7:25**	**7:34**	**7:36**	**7:45**	**7:53**	**8:04**
7:43	**7:45**	**7:55**	**8:04**	**8:06**	**8:15**	**8:23**	**8:34**
8:13	**8:15**	**8:25**	**8:34**	**8:36**	**8:44**	**8:52**	**9:03**
8:44	**8:46**	**8:55**	**9:04**	**9:06**	**9:14**	**9:22**	**9:33**
9:44	**9:46**	**9:55**	**10:04**	**10:06**	**10:14**	**10:22**	**10:33**

LIMITED STOP ZONE / *ZONA DE PARADAS LIMITADAS*

Kearny Mesa ➡ Fashion Valley ➡ Hillcrest ➡ Downtown

Ⓖ Kearny Mesa Transit Center **DEPART**	Ⓕ Sharp Hospital (Health Center & Frost)	Ⓔ Comstock St. & Linda Vista Rd.	Ⓓ Fashion Valley Transit Center **ARRIVE**	Ⓓ Fashion Valley Transit Center **DEPART**	Ⓒ University Av. & 5th Av.	Ⓐ 4th Av. & B St. **ARRIVE**
—	5:53a	6:02a	6:08a	6:10a	6:16a	6:27a
6:13a	6:23	6:32	6:38	6:40	6:46	6:57
6:42	6:53	7:02	7:08	7:10	7:17	7:28
7:12	7:23	7:32	7:38	7:40	7:47	7:58
7:42	7:53	8:02	8:08	8:10	8:17	8:28
8:12	8:23	8:33	8:39	8:41	8:48	8:59
8:42	8:53	9:03	9:09	9:11	9:18	9:29
9:12	9:23	9:33	9:39	9:41	9:48	9:59
9:37	9:49	10:00	10:06	10:08	10:15	10:26
10:07	10:19	10:30	10:36	10:38	10:45	10:56
10:37	10:49	11:00	11:06	11:08	11:15	11:26
11:06	11:19	11:30	11:36	11:38	11:46	11:58
11:36	11:49	**12:00p**	**12:06p**	**12:08p**	**12:16p**	**12:28p**
12:06p	**12:19p**	**12:30**	**12:36**	**12:38**	**12:46**	**12:58**
12:36	**12:49**	**1:00**	**1:06**	**1:08**	**1:16**	**1:28**
1:06	**1:19**	**1:30**	**1:36**	**1:38**	**1:46**	**1:58**
1:36	**1:49**	**2:00**	**2:06**	**2:08**	**2:16**	**2:28**
2:06	**2:19**	**2:30**	**2:36**	**2:38**	**2:46**	**2:58**
2:35	**2:48**	**2:59**	**3:06**	**3:08**	**3:16**	**3:28**
3:05	**3:18**	**3:29**	**3:36**	**3:38**	**3:46**	**3:58**
3:35	**3:48**	**3:59**	**4:06**	**4:08**	**4:16**	**4:28**
4:05	**4:18**	**4:29**	**4:36**	**4:38**	**4:46**	**4:58**
4:37	**4:50**	**5:00**	**5:06**	**5:08**	**5:16**	**5:27**
5:07	**5:20**	**5:30**	**5:36**	**5:38**	**5:46**	**5:57**
5:37	**5:50**	**6:00**	**6:06**	**6:08**	**6:16**	**6:27**
6:09	**6:21**	**6:30**	**6:36**	**6:38**	**6:45**	**6:56**
6:44	**6:56**	**7:05**	**7:11**	**7:13**	**7:20**	**7:31**
7:14	**7:26**	**7:35**	**7:41**	**7:43**	**7:50**	**8:01**
7:44	**7:55**	**8:04**	**8:10**	**8:12**	**8:19**	**8:30**
8:14	**8:25**	**8:34**	**8:40**	**8:42**	**8:49**	**9:00**
8:44	**8:55**	**9:04**	**9:10**	**9:12**	**9:19**	**9:30**
9:13	**9:24**	**9:33**	**9:39**	**9:41**	**9:48**	**9:59**
9:43	**9:54**	**10:03**	**10:09**	**10:11**	**10:18**	**10:29**

LIMITED STOP ZONE / *ZONA DE PARADAS LIMITADAS*

ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta	
Adult / Adulto	**$2.50**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$1.25**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$2.50**

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	**$6.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$3.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$3.00**

MONTHLY PASSES / Pases mensual

Adult / Adulto	**$72.00**
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	**$23.00**
Youth (ages 6-18)* Jóvenes (edades 6-18)*	**$23.00**

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
*Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

COMPASS CARDS / Tarjeta Compass
There is a $2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de $2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

COMPASS CLOUD
Download the free Compass Cloud app on your Apple or Android phone.
Descargue la aplicación gratis Compass Cloud en su teléfono Apple o Android.

Visit sdmts.com/fares for more info. Visite sdmts.com/fares para más información.

DIRECTORY / *Directorio*

MTS Information & Trip Planning *MTS Información y planeo de viaje*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 557-4555**
MTS Security *MTS Seguridad*	**(619) 595-4960**
Lost & Found *Objetos extraviados*	**(619) 557-4555**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.
*Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a **sdmts.com**.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective JANUARY 26, 2020

25
Fashion Valley – Kearny Mesa
via Tierrasanta / Stonecrest

928
Fashion Valley – Kearny Mesa
via Serra Mesa / Stonecrest

DESTINATIONS
- Fashion Valley Mall
- Hazard Center (928)
- Kaiser Hospital (Kearny Mesa)
- Kearny Mesa Courthouse
- Serra High School (25)
- Stonecrest Plaza

TROLLEY CONNECTIONS
- Fashion Valley

01/20

sdmts.com
Route Alerts, Updated Schedules, Connections & More

Alternative formats available upon request. Please call: (619) 557-4555 / *Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555*

Route 25 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ Tierrasanta ➡ Kearny Mesa

Ⓐ Fashion Valley Transit Center **DEPART**	Ⓑ Aero Dr. & Aero Ct.	Ⓓ Stonecrest Plaza	Ⓔ Tierrasanta Bl. & Santo Rd.	Ⓕ Clairemont Mesa Bl. & Santo Rd.	Ⓗ Kearny Mesa Transit Center **ARRIVE**
—	—	6:30a	6:37a	6:43a	6:50a
7:10a	7:21a	7:29	7:36	7:42	7:50
8:10	8:21	8:29	8:36	8:42	8:50
9:10	9:21	9:29	9:36	9:42	9:50
10:10	10:21	10:29	10:36	10:42	10:50
11:10	11:22	11:31	11:39	11:45	11:53
12:10p	**12:22p**	**12:31p**	**12:39p**	**12:45p**	**12:53p**
1:10	**1:22**	**1:31**	**1:39**	**1:45**	**1:53**
2:10	**2:23**	**2:33**	**2:41**	**2:47**	**2:55**
3:10	**3:23**	**3:33**	**3:41**	**3:47**	**3:55**
4:09	**4:24**	**4:35**	**4:44**	**4:50**	**4:58**
5:09	**5:24**	**5:35**	**5:44**	**5:50**	**5:58**
6:10	**6:21**	**6:29**	**6:36**	**6:42**	**6:50**

Kearny Mesa ➡ Tierrasanta ➡ Fashion Valley

Ⓗ Kearny Mesa Transit Center• **DEPART**	Ⓕ Clairemont Mesa Bl. & Santo Rd.	Ⓔ Santo Rd. & Tierrasanta Bl.	Ⓓ Stonecrest Plaza	Ⓑ Kearny Villa Rd. & Aero Dr.	Ⓐ Fashion Valley Transit Center **ARRIVE**
—	—	—	6:31a	6:40a	6:51a
7:08a	7:15a	7:21a	7:29	7:39	7:51
8:08	8:15	8:21	8:29	8:39	8:51
9:08	9:15	9:21	9:29	9:39	9:51
10:08	10:15	10:21	10:29	10:39	10:51
11:08	11:15	11:21	11:29	11:39	11:51
12:07p	**12:15p**	**12:21p**	**12:30p**	**12:40p**	**12:53p**
1:07	**1:15**	**1:21**	**1:30**	**1:40**	**1:53**
2:05	**2:13**	**2:19**	**2:29**	**2:39**	**2:53**
3:05	**3:13**	**3:19**	**3:29**	**3:39**	**3:53**
4:06	**4:16**	**4:22**	**4:32**	**4:42**	**4:57**
5:06	**5:16**	**5:22**	**5:32**	**5:42**	**5:57**
6:07	**6:15**	**6:21**	**6:30**	**6:39**	**6:51**

• = Board bus on Clairemont Mesa Bl. in front of Panera Restaurant / *Encuentra el autobús en Clairemont Mesa Bl. en frente del restaurante Panera*

Route 25 does not operate on weekends or on the following holidays and observed holidays:
La ruta 25 no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados: >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 928 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ Kearny Mesa

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
5:25a	5:38a	5:48a	5:54a	6:01a
5:55	6:08	6:18	6:24	6:31
6:25	6:38	6:48	6:54	7:01
6:55	7:08	7:18	7:24	7:31
7:25	7:38	7:48	7:54	8:01
7:55	8:08	8:18	8:24	8:31
8:25	8:38	8:48	8:54	9:01
8:55	9:08	9:18	9:24	9:31
9:25	9:38	9:48	9:54	10:01
9:55	10:08	10:18	10:24	10:31
10:25	10:38	10:48	10:54	11:01
10:55	11:08	11:18	11:24	11:31
11:25	11:39	11:50	11:56	**12:04p**
11:55	**12:09p**	**12:20p**	**12:27p**	**12:35**
12:25p	**12:39**	**12:50**	**12:57**	**1:05**
12:55	**1:09**	**1:20**	**1:27**	**1:35**
1:25	**1:39**	**1:50**	**1:57**	**2:05**
1:55	**2:09**	**2:20**	**2:27**	**2:35**
2:25	**2:39**	**2:50**	**2:57**	**3:05**
2:55	**3:09**	**3:20**	**3:27**	**3:35**
3:19	**3:34**	**3:45**	**3:54**	**4:02**
3:49	**4:04**	**4:15**	**4:24**	**4:32**
4:19	**4:34**	**4:45**	**4:54**	**5:02**
4:49	**5:04**	**5:15**	**5:24**	**5:32**
5:19	**5:34**	**5:45**	**5:54**	**6:02**
5:49	**6:04**	**6:15**	**6:22**	**6:30**
6:19	**6:34**	**6:45**	**6:52**	**7:00**
6:55	**7:09**	**7:19**	—	—
7:37	**7:51**	**8:01**	**8:07**	**8:14**
8:35	**8:48**	**8:58**	—	—
9:37	**9:50**	**10:00**	—	—

Kearny Mesa ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	4:47a	4:55a	5:10a
—	—	5:33	5:41	5:56
5:54a	5:58a	6:03	6:11	6:26
6:28	6:33	6:39	6:48	7:04
6:58	7:03	7:09	7:18	7:34
7:28	7:33	7:39	7:48	8:04
7:58	8:03	8:09	8:18	8:34
8:28	8:33	8:39	8:48	9:04
8:58	9:03	9:09	9:18	9:34
9:17	9:22	9:29	9:39	9:55
9:47	9:52	9:59	10:09	10:25
10:17	10:22	10:29	10:39	10:55
10:47	10:52	10:59	11:09	11:25
11:25	11:30	11:37	11:49	**12:05p**
11:55	**12:00p**	**12:07p**	**12:19p**	**12:35**
12:25p	**12:30**	**12:37**	**12:49**	**1:05**
12:55	**1:00**	**1:07**	**1:19**	**1:35**
1:25	**1:30**	**1:37**	**1:49**	**2:05**
1:55	**2:00**	**2:07**	**2:19**	**2:35**
2:25	**2:30**	**2:37**	**2:49**	**3:05**
2:55	**3:00**	**3:07**	**3:19**	**3:35**
3:25	**3:30**	**3:37**	**3:49**	**4:05**
3:55	**4:00**	**4:07**	**4:19**	**4:35**
4:25	**4:30**	**4:37**	**4:49**	**5:05**
4:55	**5:00**	**5:07**	**5:19**	**5:35**
5:25	**5:30**	**5:37**	**5:49**	**6:05**
5:54	**5:59**	**6:06**	**6:18**	**6:34**
6:25	**6:30**	**6:37**	**6:47**	**7:03**
7:45	**7:50**	**7:56**	**8:05**	**8:20**
—	—	**9:01**	**9:09**	**9:24**

Route 928 – Saturday / *sábado*

Fashion Valley ➡ Stonecrest

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
7:05a	7:17a	7:27a	—	—
8:05	8:17	8:27	—	—
9:05	9:17	9:27	—	—
10:05	10:17	10:27	—	—
11:05	11:17	11:27	—	—
12:04p	**12:18p**	**12:28p**	—	—
1:04	**1:18**	**1:28**	—	—
2:04	**2:18**	**2:28**	—	—
3:04	**3:18**	**3:28**	—	—
4:04	**4:18**	**4:28**	—	—
5:04	**5:18**	**5:28**	—	—
6:05	**6:19**	**6:29**	—	—
7:05	**7:18**	**7:28**	—	—
8:05	**8:18**	**8:28**	—	—
9:05	**9:17**	**9:27**	—	—

Stonecrest ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	6:30a	6:39a	6:54a
—	—	7:30	7:39	7:54
—	—	8:30	8:39	8:54
—	—	9:30	9:39	9:54
—	—	10:29	10:39	10:55
—	—	11:29	11:39	11:55
—	—	**12:30p**	**12:40p**	**12:56p**
—	—	**1:30**	**1:40**	**1:56**
—	—	**2:30**	**2:40**	**2:56**
—	—	**3:30**	**3:40**	**3:56**
—	—	**4:30**	**4:40**	**4:56**
—	—	**5:30**	**5:40**	**5:56**
—	—	**6:31**	**6:40**	**6:55**
—	—	**7:31**	**7:40**	**7:55**
—	—	**8:32**	**8:40**	**8:55**

Route 928 – Sunday / *domingo*

Fashion Valley ➡ Stonecrest

Ⓐ Fashion Valley T.C. **DEPART**	Ⓒ Sandrock & Murray Ridge	Ⓓ Stonecrest Plaza	Ⓖ Ruffin Rd. & Balboa Av.	Ⓗ Kearny Mesa T.C. **ARRIVE**
9:05a	9:17a	9:27a	—	—
10:05	10:17	10:27	—	—
11:05	11:17	11:27	—	—
12:04p	**12:18p**	**12:28p**	—	—
1:04	**1:18**	**1:28**	—	—
2:04	**2:18**	**2:28**	—	—
3:04	**3:18**	**3:28**	—	—
4:04	**4:18**	**4:28**	—	—
5:04	**5:18**	**5:28**	—	—
6:05	**6:19**	**6:29**	—	—

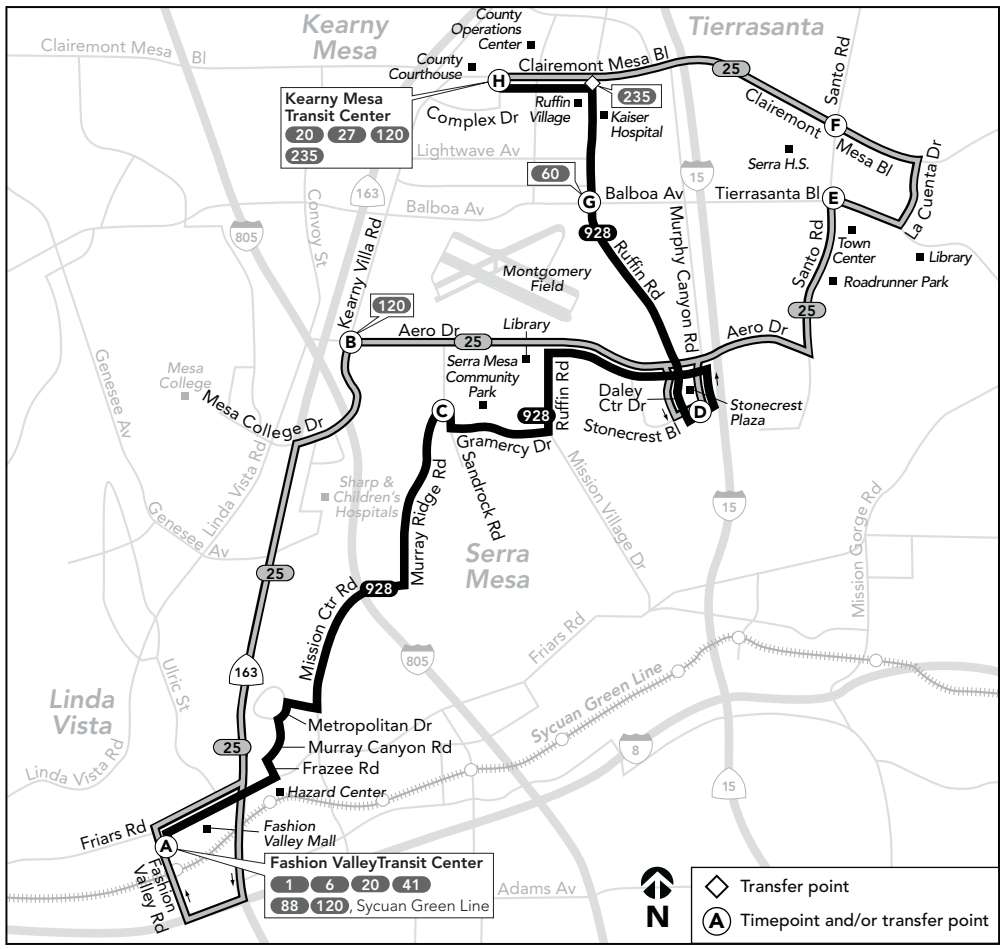
Stonecrest ➡ Fashion Valley

Ⓗ Kearny Mesa T.C. **DEPART**	Ⓖ Ruffin Rd. & Balboa Av.	Ⓓ Stonecrest Plaza	Ⓒ Sandrock & Murray Ridge	Ⓐ Fashion Valley T.C. **ARRIVE**
—	—	8:30a	8:39a	8:54a
—	—	9:30	9:39	9:54
—	—	10:29	10:39	10:55
—	—	11:29	11:39	11:55
—	—	**12:30p**	**12:40p**	**12:56p**
—	—	**1:30**	**1:40**	**1:56**
—	—	**2:30**	**2:40**	**2:56**
—	—	**3:30**	**3:40**	**3:56**
—	—	**4:30**	**4:40**	**4:56**
—	—	**5:30**	**5:40**	**5:56**

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas



APPENDIX II
ADAPTIVE SIGNALS INFORMATION

ADAPTIVE TRAFFIC SIGNAL CONTROL
CASE STUDIES IN SOUTHERN CALIFORNIA

Location	System	# of Intersections	AM/PM Delay	AM/PM Travel Time	AM/PM Speed
Citywide[1] (Temecula, CA)	McCain – QuicTrac	83 intersections	N/A[1]	-14.0%	+17.0%
San Marcos Boulevard[2] (San Marcos, CA)	McCain – QuicTrac	17 intersections	-19.1%/-46.0% (32.6%)	-2.7%/-13.2% (8.0%)	N/A
Lusk Boulevard[3, 4] (San Diego, CA)	Rhythm Engineering – InSync	4 intersections (Wateridge Circle to Pacific Center Boulevard)	-18.0%/-24.0% (21.0%)	-17.9%/ -17.2% (17.6%)	+17.6%/ +23.3% (20.5%)
Rosecrans Street[5, 6] (San Diego, CA)	Rhythm Engineering – InSync	12 intersections (Hancock Street to Nimitz Boulevard)	-25.0%	N/A	N/A
Citywide Santa Rosa CA[7]	TransCore – SCATS	46 intersections	N/A	-32.0%	+49.0%
La Jolla Parkway[3, 4] (San Diego, CA)	Rhythm Engineering – InSync	3 intersections	N/A	N/A	N/A
East H Street & Otay Lakes Road[8] (Chula Vista, CA)	Trafficware – SynchroGreen	12 intersections	-43.0% H Street -37.0% Otay Lakes	-15.0% H Street -14.0% Otay Lakes	N/A
San Diego County Average			***-31.7%***	***-13.6%***	***-20.5%***
Overall Average			***-31.7%***	***-16.8%***	***-28.8%***

References:

[1] McCain Inc., (2011), "Temecula Implements Citywide Adaptive Traffic Signal Control to Optimize Traffic Flow"

[2] McCain Inc (2011) "McCain Dramatically Reduces Congestion on the Second Busiest Arterial in the San Diego County"

[3] Mackin-Solomon, A., La Jolla Light.(2016) "Traffic Coming In and Out of La Jolla: Early Data on Adaptive Signal Timing shows traffic snarls eased"

[4] Mackin-Solomon, A., La Jolla Light.(2016) "Lights! Camera! Action! Adaptive Signal cameras installed on La Jolla Parkway to ease traffic flow"

[5] Schwab, D., "InSync reduces travel times on Rosecrans in Midway District" http://www.sdnews.com/view/full_story/27389201/article-InSync-reduces-travel-times-on-Rosecrans-in-Midway-District-?instance=most_popular1

[6] Gustafson, C., City of San Diego, (2017) "Mayor Faulconer, Councilmember Zapf Announce City's Smart Traffic Signals Are Shrinking Commute Times"

[7] TransCore LP., (2015), "SCATS Adaptive Control Systems" https://www.transcore.com/wp-content/uploads/2017/01/SCATS_4_Page_Digital_1.pdf

[8] City of Chula Vista "Evaluation Report Adaptive Traffic Control Systems Using SCATS".

Footnotes:

1. N/A – Data currently not available