RIVERWALK
SAN DIEGO

MOBILITY ASSESSMENT

September 2020

URBAN SYSTEMS ASSOCIATES, INC.
PLANNING & TRAFFIC ENGINEERING

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LINSCOTT LAW & GREENSPAN
engineers

EXECUTIVE SUMMARY

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

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

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

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

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

TABLE A
PROJECT PHASING

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

Footnotes:

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

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

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

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

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

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

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

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

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

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

Project Improvements

The following is a description of the project improvements.

Project Phase I

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

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

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

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

Project Phases I and II

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

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

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

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

Project Phases I through III

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

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

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

Transportation Improvement Plan (TIP)

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

Parking Requirements

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

Other Modes, ITS and TDM

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

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

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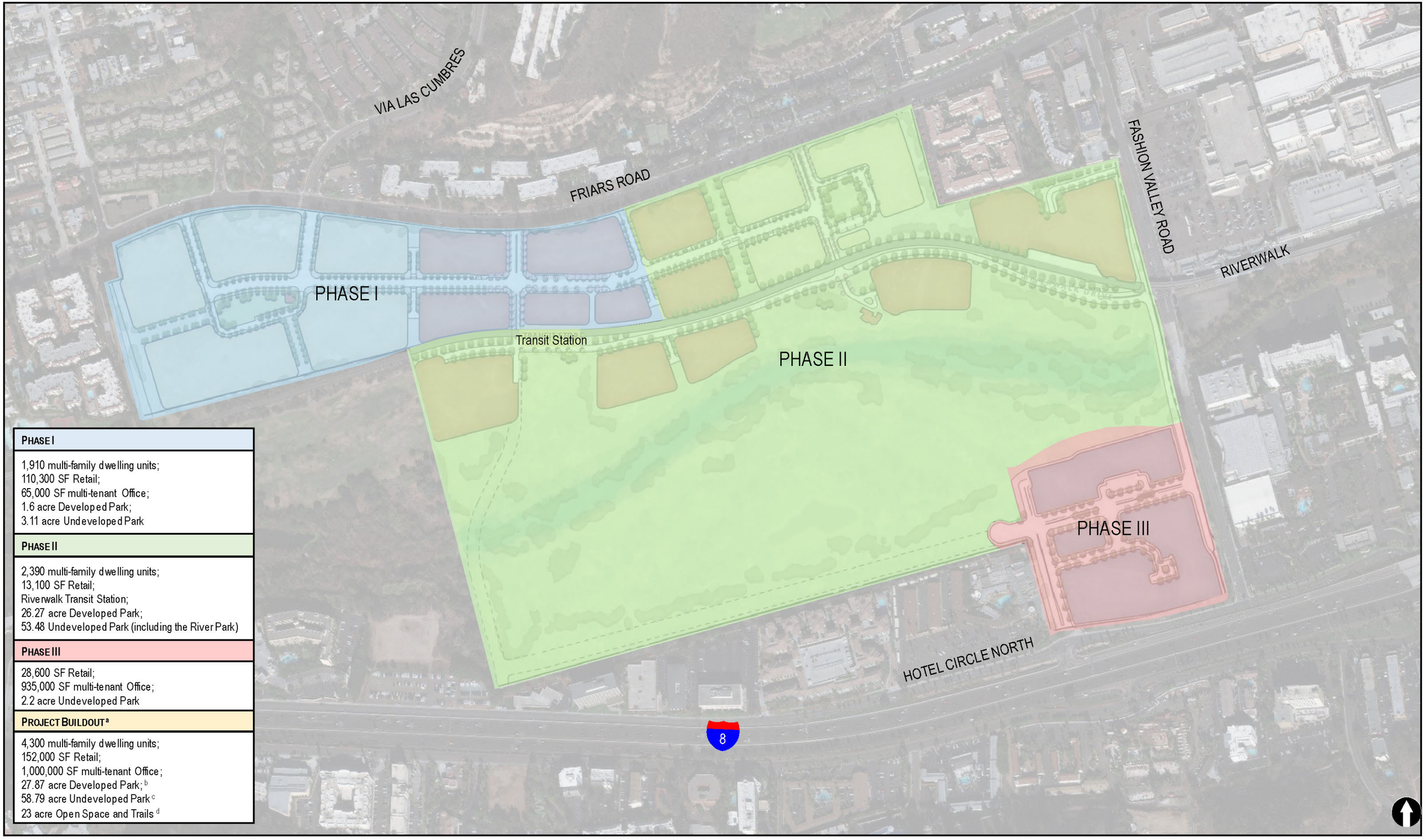
Figure A
Project Land Use Map

RIVERWALK



PHASE I

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

PHASE II

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

PHASE III

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

PROJECT BUILDOUT[a]

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

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For footnote details, see Table 2-1

Figure B
Project Phasing Plan

RIVERWALK

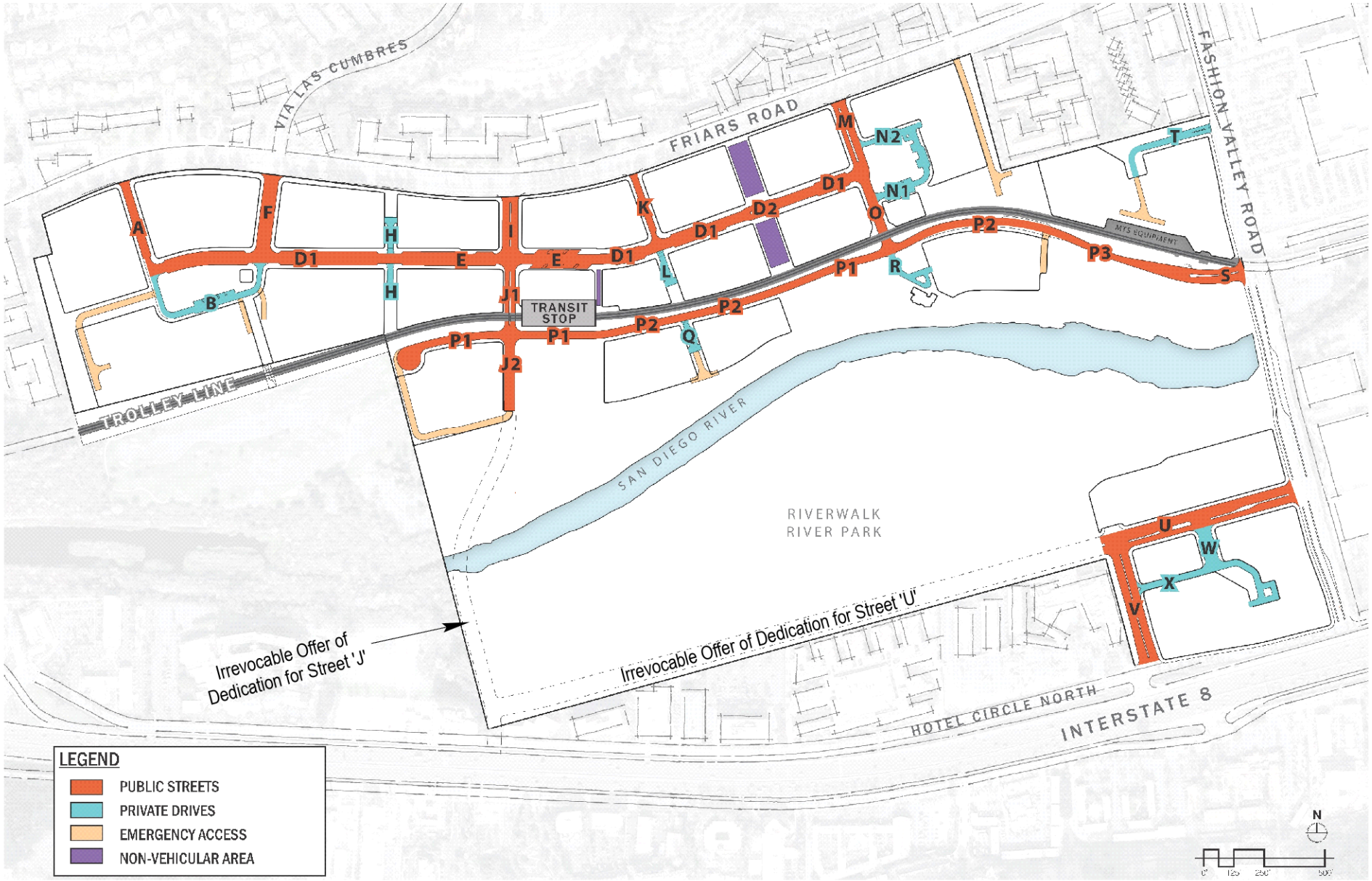

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Figure C
Project Street Layout

RIVERWALK

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MOBILITY ASSESSMENT

RIVERWALK

San Diego, California
September 2020

1.0 INTRODUCTION

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

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

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

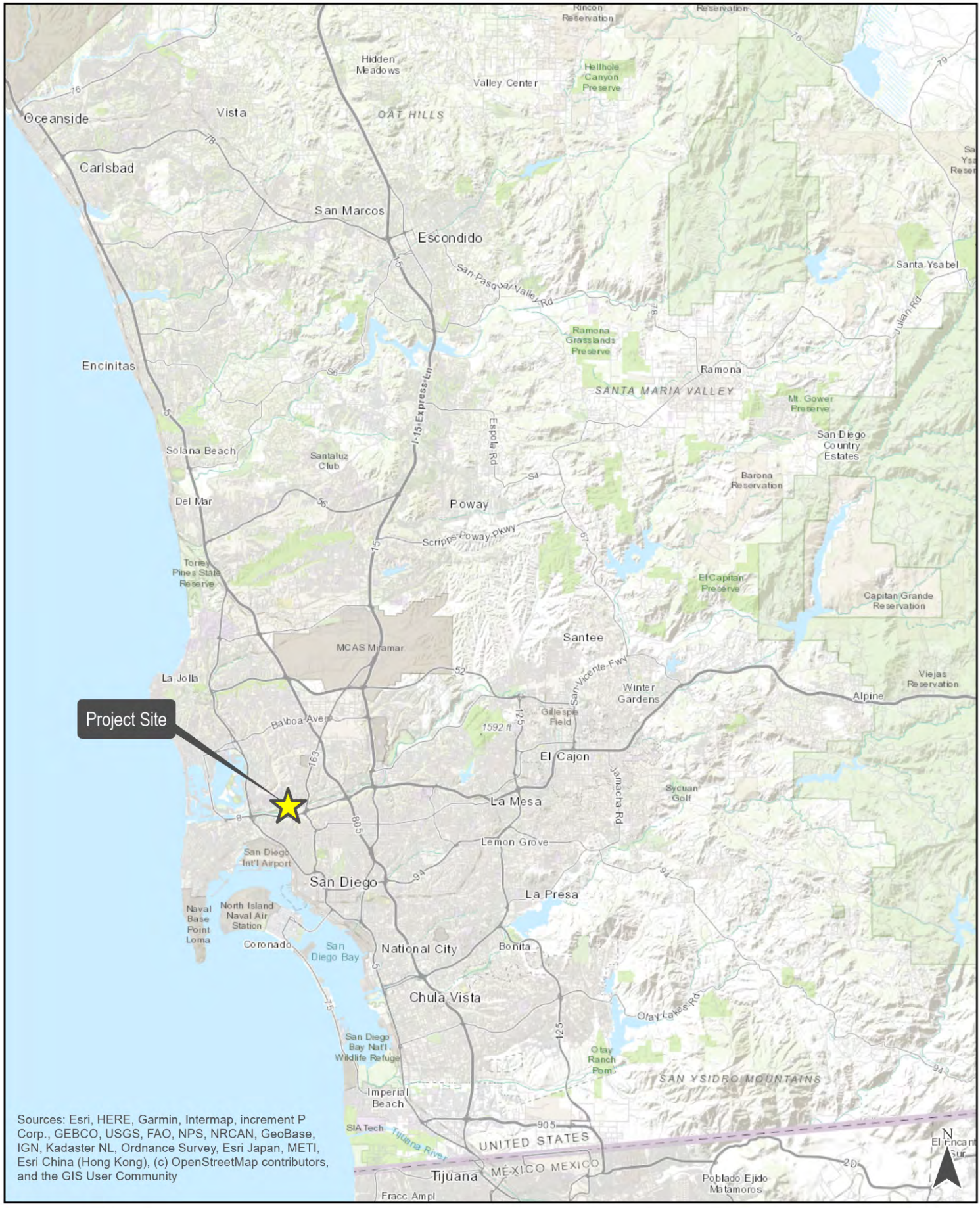

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Figure 1-1
Vicinity Map

RIVERWALK

2.0 PROJECT DESCRIPTION

2.1 Existing Setting

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

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

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

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

2.2 Proposed Project

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

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

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

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

2.3 Project Phasing

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

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

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

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

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

TABLE 2–1
PROJECT PHASING

Phase	Year	Development Activity
I	*2025*	1,910 multi-family dwelling units; 110,300 SF Retail; 65,000 SF multi-tenant office; 1.6-acre Developed Park; 3.11-acre Undeveloped Park.
II	*2030*	2,390 multi-family dwelling units; 13,100 SF Retail; construction of the Riverwalk trolley station; 26.27-acre Developed Park; 53.48-acre Undeveloped Park (including the River Park).
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Footnotes:

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

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

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

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

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Figure 2-1
Project Land Use Map

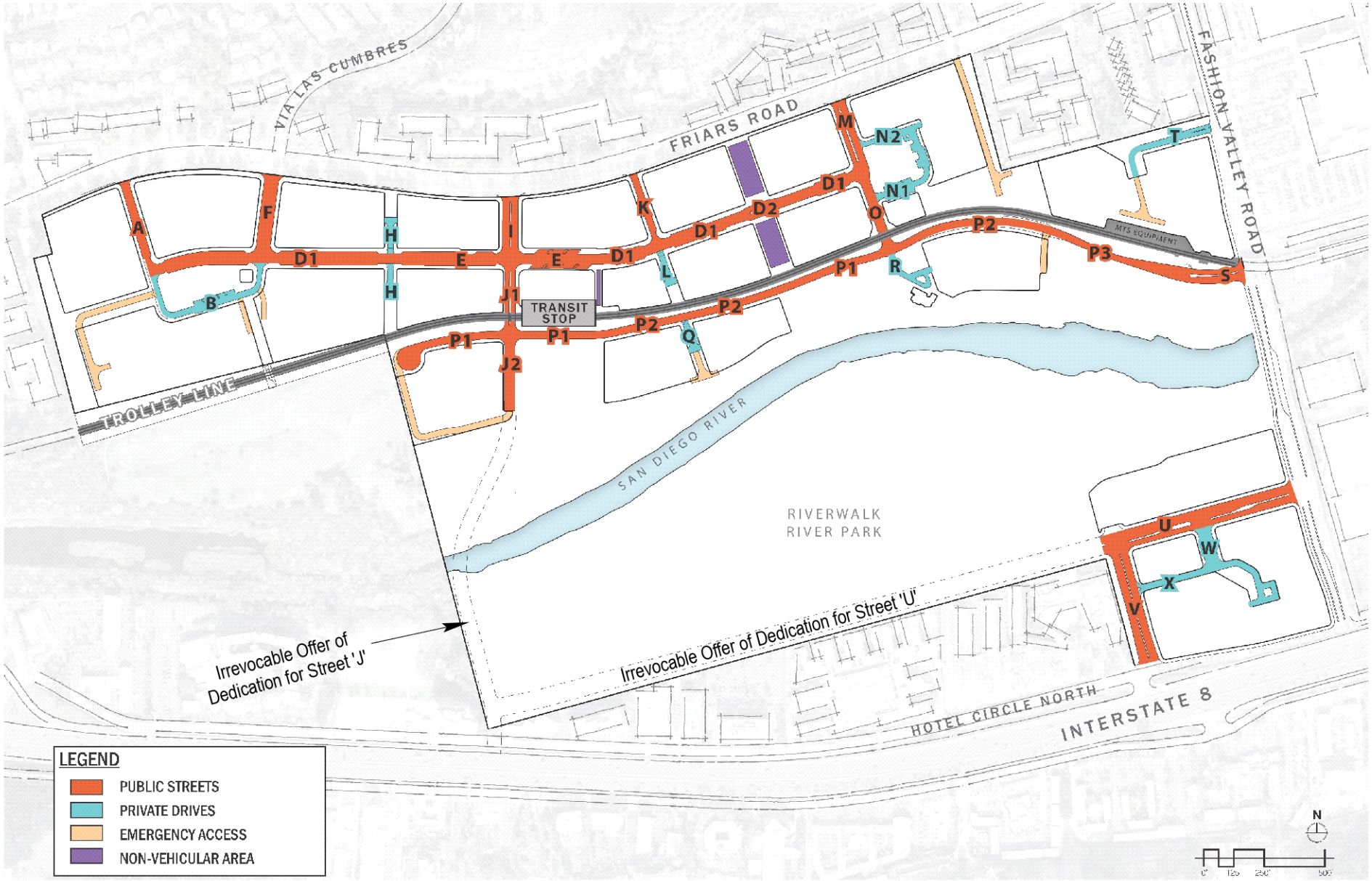

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Figure 2-2
Project Street Layout

Project Numbered Lot

Project Lettered Lot

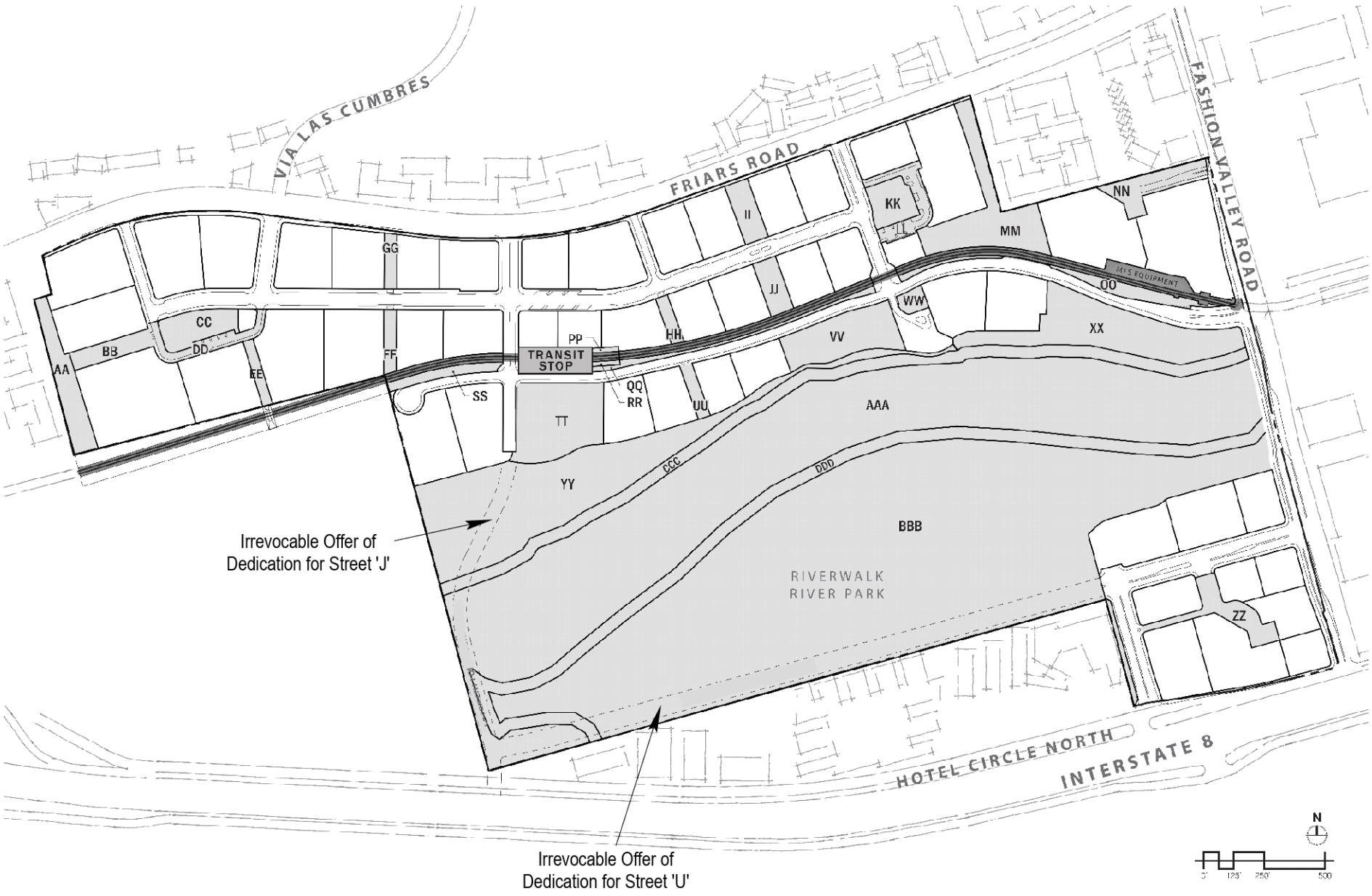

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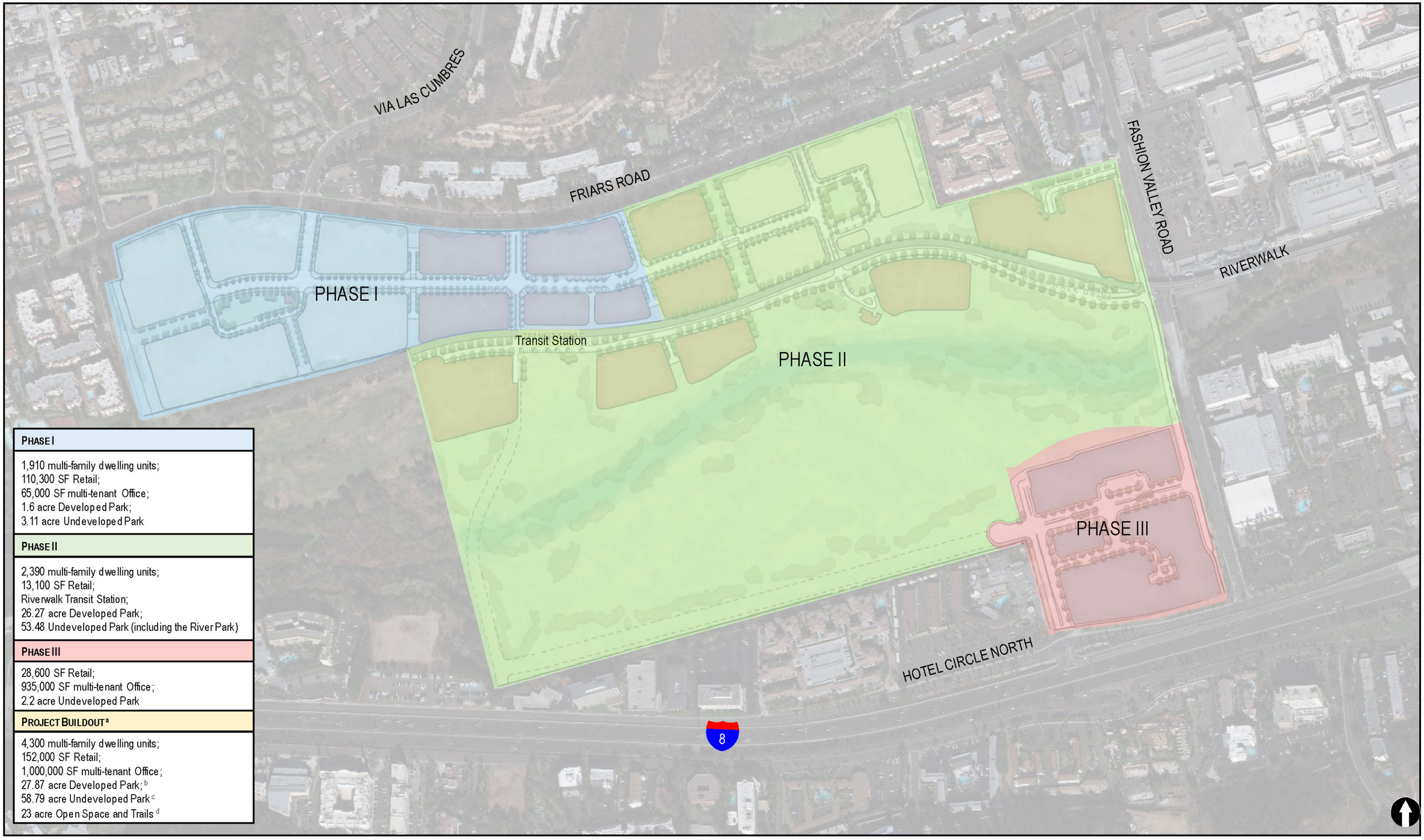
Figure 2-3
Project Lot Layout



PHASE I

1,910 multi-family dwelling units;
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3.11 acre Undeveloped Park

PHASE II

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PHASE III

28,600 SF Retail;
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PROJECT BUILDOUT[a]

4,300 multi-family dwelling units;
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27.87 acre Developed Park;[b]
58.79 acre Undeveloped Park[c]
23 acre Open Space and Trails[d]

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For footnote details, see Table 2-1

Figure 2-4
Project Phasing Plan

RIVERWALK

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Figure 2-5
Project Parks Plan

3.0 REPORT APPROACH

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

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

3.1 Planning Documents and Supporting Information

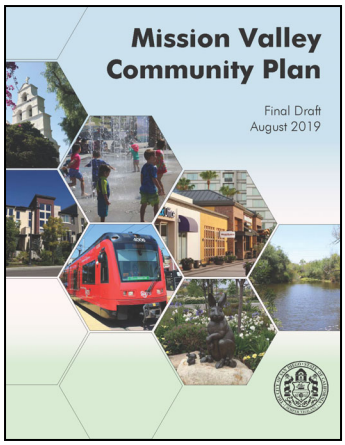
The following key adopted and ongoing planning documents were referenced in preparation of this report:

Levi Cushman Specific Plan (1987)

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

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

Mission Valley Community Plan (2019)



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

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

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

Mission Valley Public Facilities Financing Plan (FY 2013)

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

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

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

SANDAG San Diego Regional Bike Plan (2010)

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

City of San Diego Bicycle Master Plan (2013)

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

City of San Diego Pedestrian Master Plan (2015)

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

Traffic Signal Communications Master Plan (2014)

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

Approved Development Project Transportation Impact Studies

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

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

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

3.2 Report Organization

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Multi-Modal Review

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

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

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

ITS and TDM

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

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

4.0 STUDY OBJECTIVES, ANALYSIS APPROACH AND METHODOLOGY

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

4.1 Study Objectives

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

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

4.2 Analysis Approach and Methodology

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

4.3 Intersections

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

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

TABLE 4–1
INTERSECTION LOS & DELAY RANGES

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

Source: Highway Capacity Manual

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

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

4.4 Street Segments

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

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

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

General Notes:

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

4.5 Freeway Segments

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

TABLE 4–3
FREEWAY SEGMENT LOS CRITERIA

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

General Notes:

1. Source: HCM 6th Edition

2. pc/mi/ln– Passenger car per mile per lane

4.6 Metered Freeway On-Ramps

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

4.7 Pedestrian Mobility

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

4.8 Bicycle Mobility

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

4.9 Transit Mobility

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

4.10 Intelligent Transportation Systems (ITS)

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

5.0 EXISTING VEHICULAR MOBILITY

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

5.1 Project Study Area

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

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

STUDY INTERSECTIONS

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

STUDY SEGMENTS

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

Tecolote Road
5. I-5 NB Ramps to Morena Boulevard

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

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

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

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

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

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

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

Napa Street
46. Linda Vista Road to Friars Road

Colusa Street
47. Linda Vista Road to Friars Road

Via Las Cumbres
48. Linda Vista Road to Friars Road

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

Frazee Road
53. Friars Road to Hazard Center Drive

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

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

Riverwalk Drive
61. Fashion Valley Road to Avenida Del Rio

Avenida Del Rio
62. Riverwalk Drive to Camino De La Reina

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

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

Street U
68. Street V to Hotel Circle North

Street I/Street J
69. Friars Road to Riverwalk Drive
70. Riverwalk Drive to Street V

STUDY FREEWAY MAINLINE SEGMENTS

Interstate 8

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

Interstate 5

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

State Route 163

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

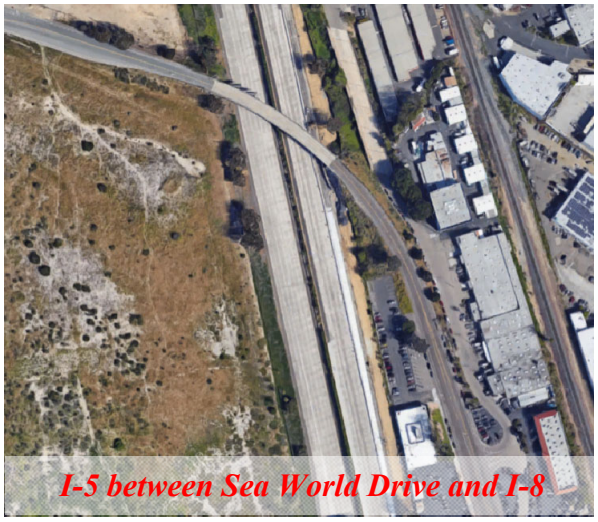
STUDY METERED FREEWAY ON RAMPS

1. Sea World Drive to NB I-5

5.2 Existing Roadway Network

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

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



I-5 between Sea World Drive and I-8

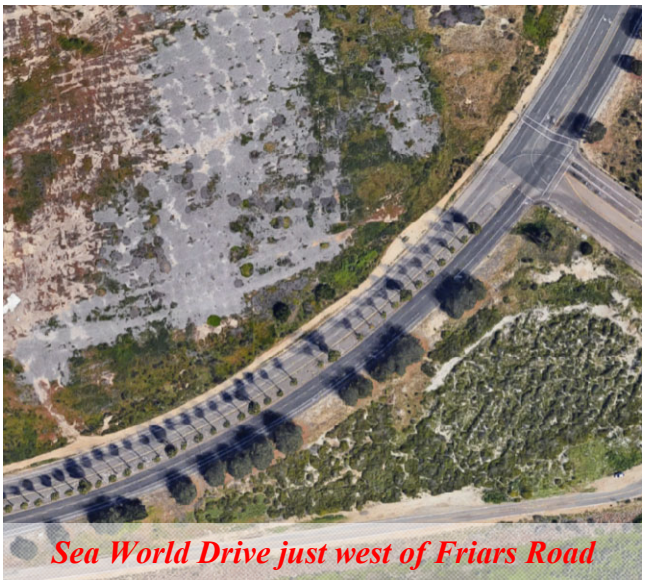
State Route 163 (SR-163) is a north-south State Route providing interregional connectivity between downtown San Diego and Interstate 15 to the north. It has a posted speed limit of 65 miles per hour. Within the study area, SR-163 generally consists of eight travel lanes in the north-south direction with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

SR163 just north of Friars Road

I-8 just west of SR163

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

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



Sea World Drive just west of Friars Road

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

Friars Road just west of Avenida de las Tiendas

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

Friars Road is currently built as follows:

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

median.

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

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

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

Riverwalk Drive between Fashion Valley Road and Avenida Del Rio

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

Camino De La Reina between Avenida Del Rio and Hotel Circle

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

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

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

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

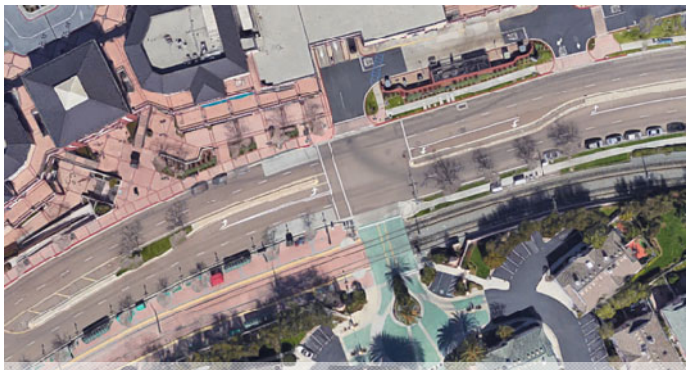
Hotel Circle South is classified as a two-lane Collector (one-way) with a Class IV two-way Cycle Track in the *Mission Valley Community Plan*. Hotel Circle South is currently constructed as a two-lane undivided roadway from Taylor Street to approximately 1,200' eastward and as a two-lane undivided roadway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

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

Taylor Street between Pacific Highway and Morena Boulevard

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

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

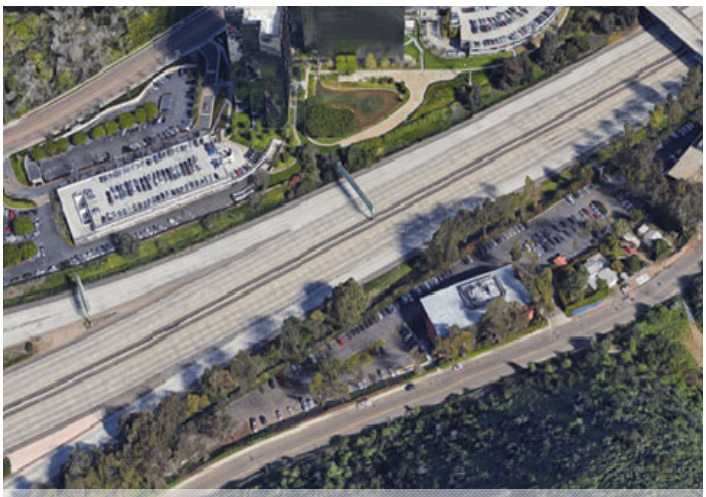


Hazard Center Drive west of Frazee Road

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

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

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



Camino Del Rio South west of Mission Center Road

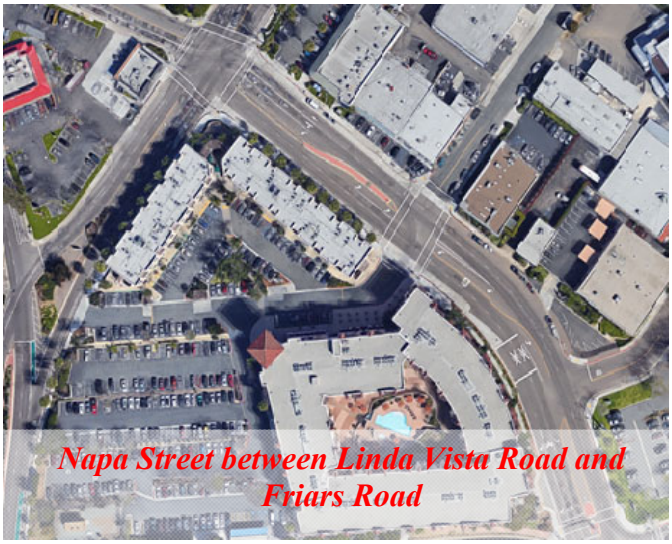
Morena Boulevard north of Napa Street

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

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

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

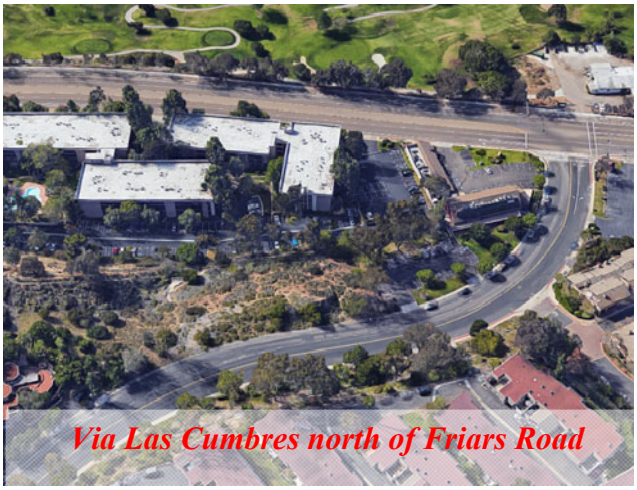
Napa Street is classified in the Adopted (1998) *Linda Vista Community Plan Circulation Element* as a Four-Lane Major roadway. Napa Street connects Friars Road and Morena Boulevard and is currently a four-lane roadway with a striped and raised median from Friars Road to Linda Vista Road and a four-lane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



Napa Street between Linda Vista Road and Friars Road

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

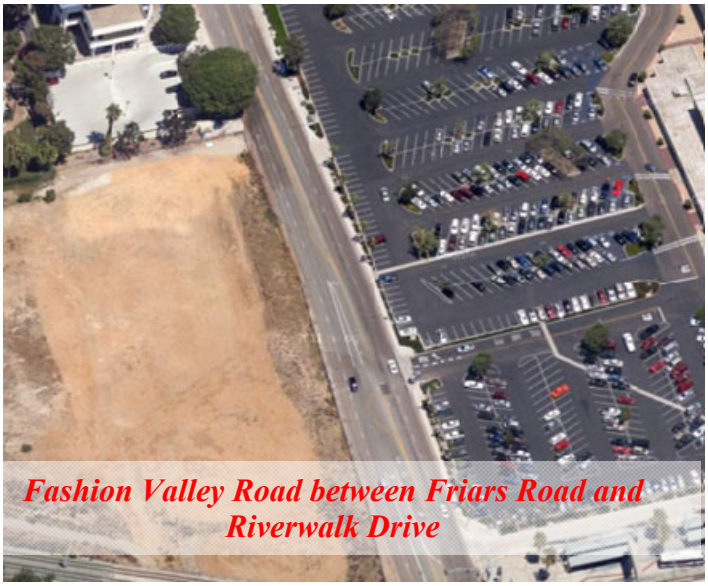
Colusa Street between Lauretta Street and Riley Street



Via Las Cumbres north of Friars Road

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

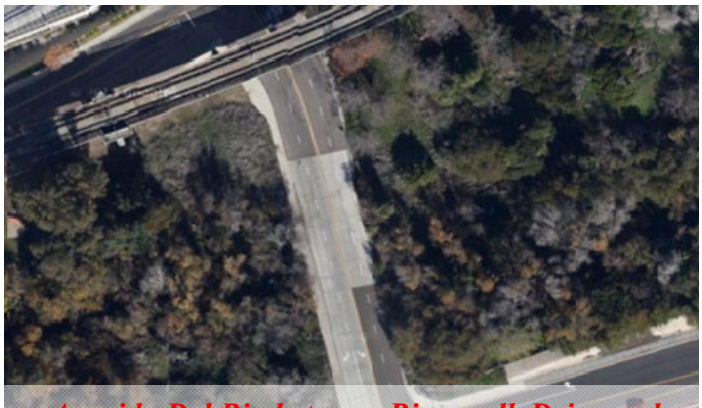
Fashion Valley Road forms the western boundary of the Town and Country and Fashion Valley Mall sites and the eastern boundary of the Riverwalk project site. Fashion Valley Road is classified as a four-lane Major Arterial in the current *Mission Valley Community Plan*. Currently, Fashion Valley Road is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



Fashion Valley Road between Friars Road and Riverwalk Drive

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

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



Avenida Del Rio between Riverwalk Drive and Camino De La Reina

Mission Center Road north of Friars Road

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

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

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

Qualcomm Way north of Camino De La Reina

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

Frazee Road between Friars Road and Hazard Center Drive

5.3 Existing Traffic Volumes

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

5.3.1 *Intersections and Street Segments*

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

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

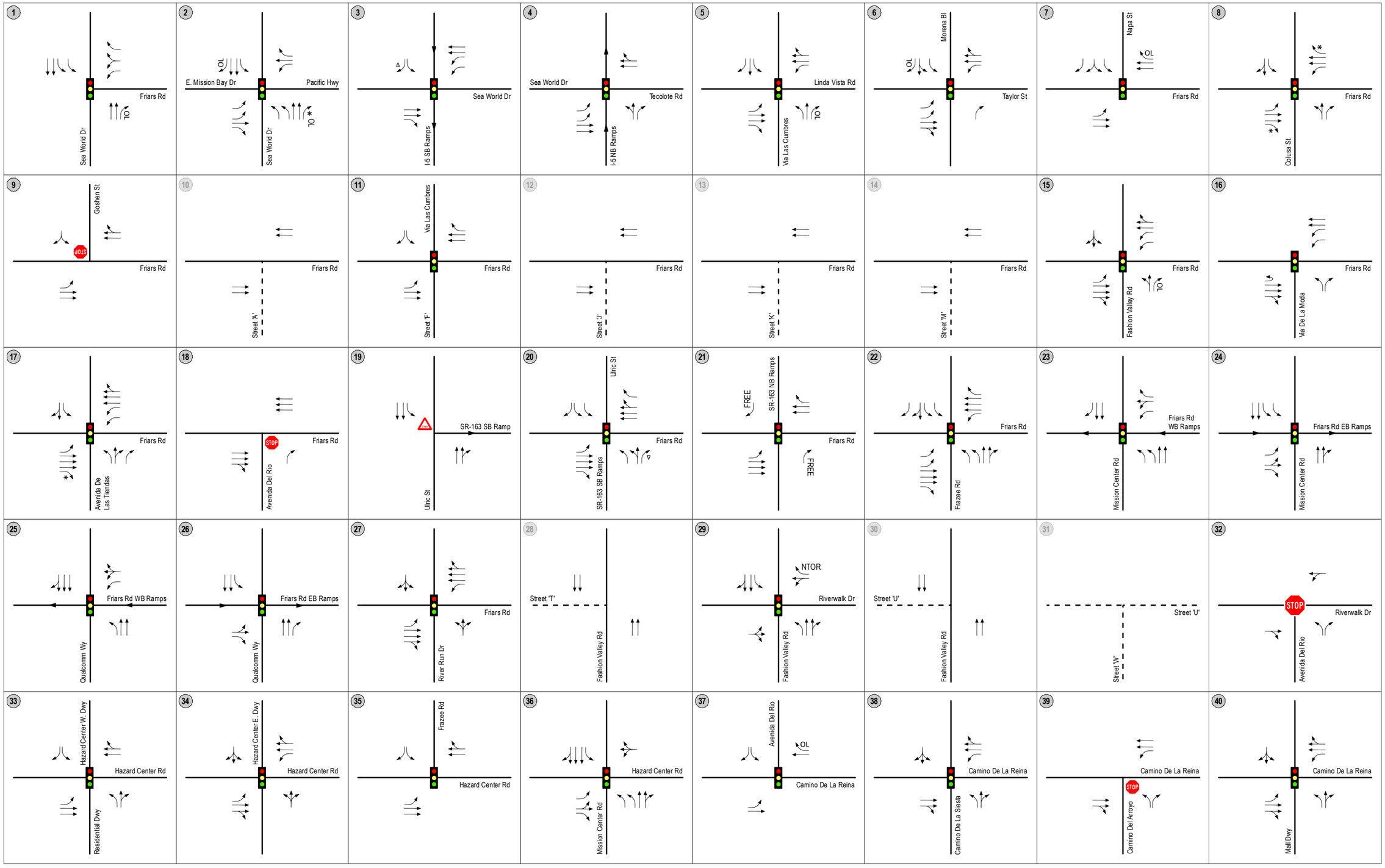
A traffic count validation was conducted to determine if the September 2015 traffic counts still reflect existing traffic counts today. Year 2017 traffic counts were conducted at several spot locations at intersections and segments and compared to the 2015 counts. As shown in *Appendix C*, the 2017 average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

5.3.2 *Existing Freeway Volumes*

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

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

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



LINSCOTT LAW & GREENSPAN engineers

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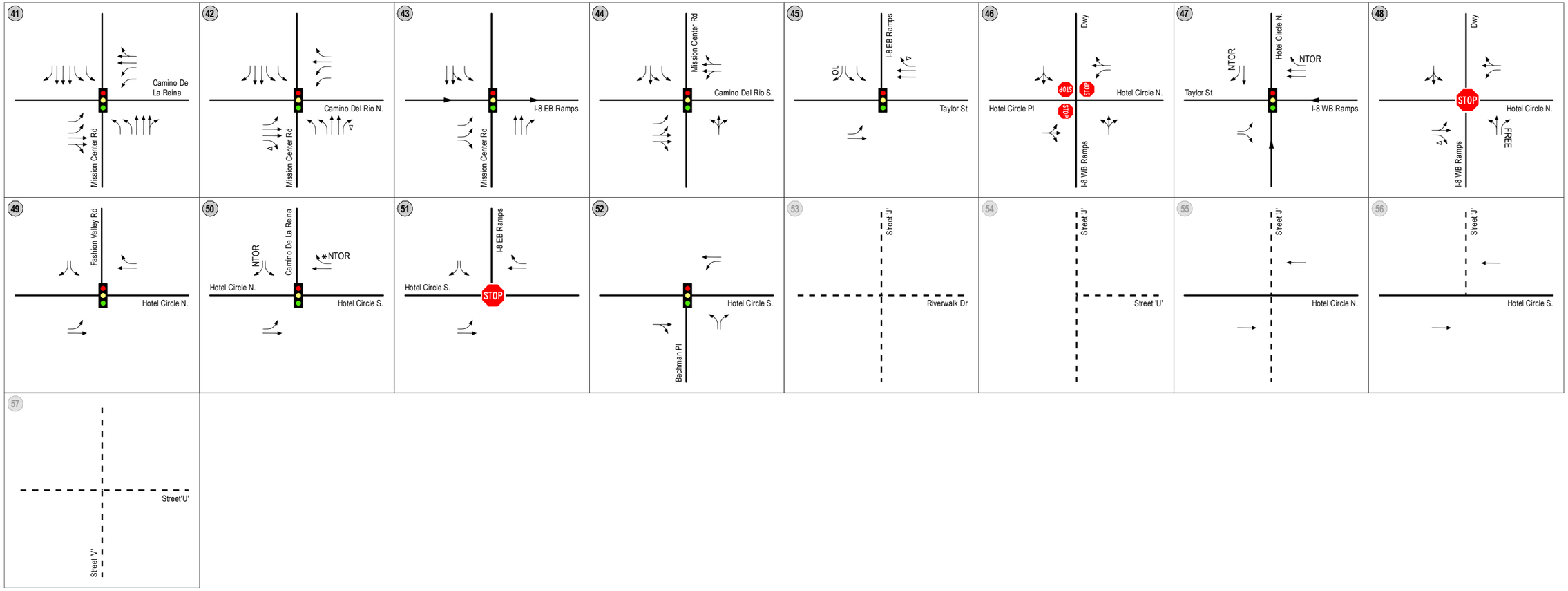
Date: 4/1/2020
Time: 4:44 PM

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

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



LINSCOTT LAW & GREENSPAN engineers

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Time: 4:44 PM

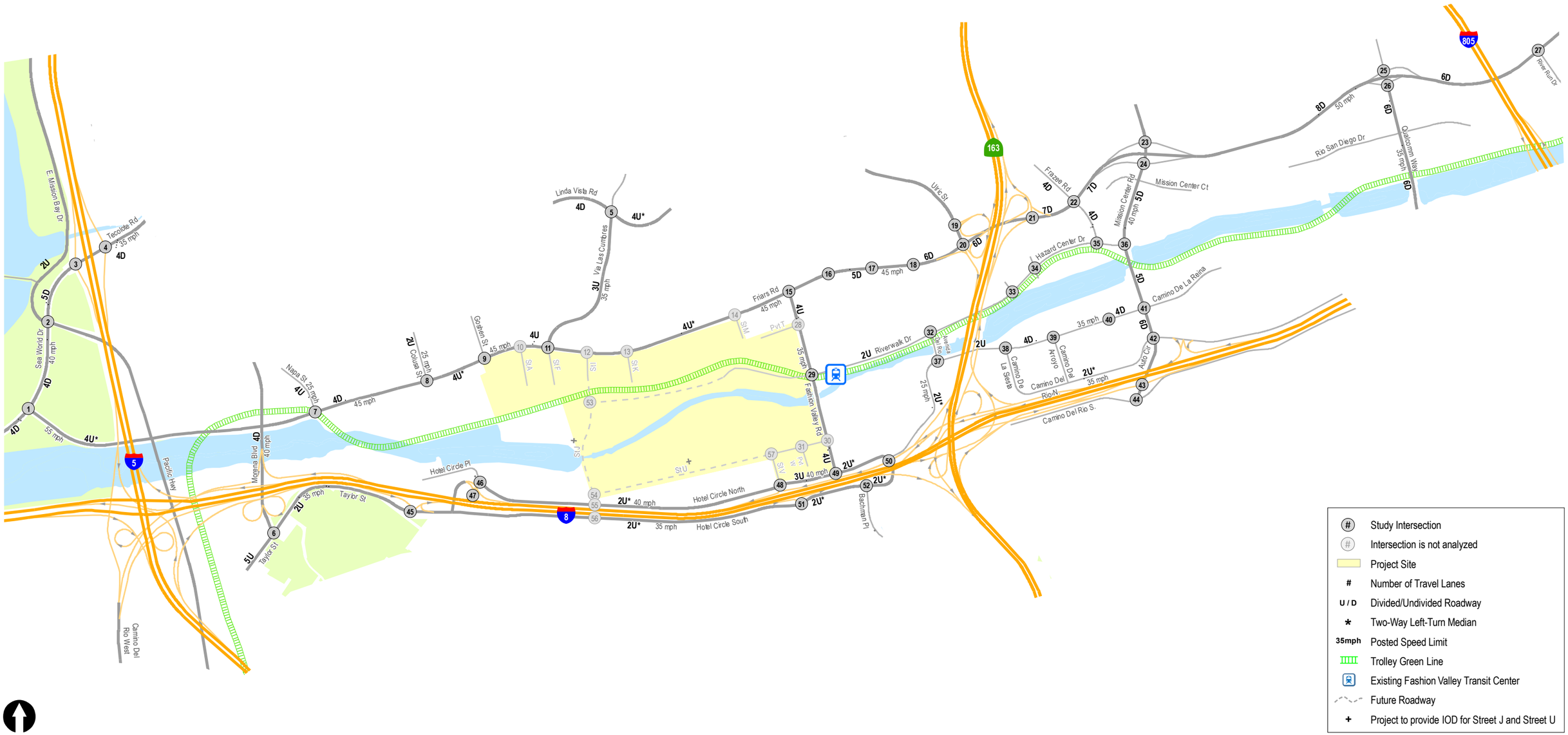
	Traffic Signal	NTOR	No Turn On Red	FREE	Free Movement
STOP	Stop Sign	*	Sneaker Lane	#	Study Intersection
	Turning Movements		Right-Turn Overlap	#	Intersection does not exist

Figure 5-1

Existing Conditions Diagram

(Page 2 of 2)

Riverwalk



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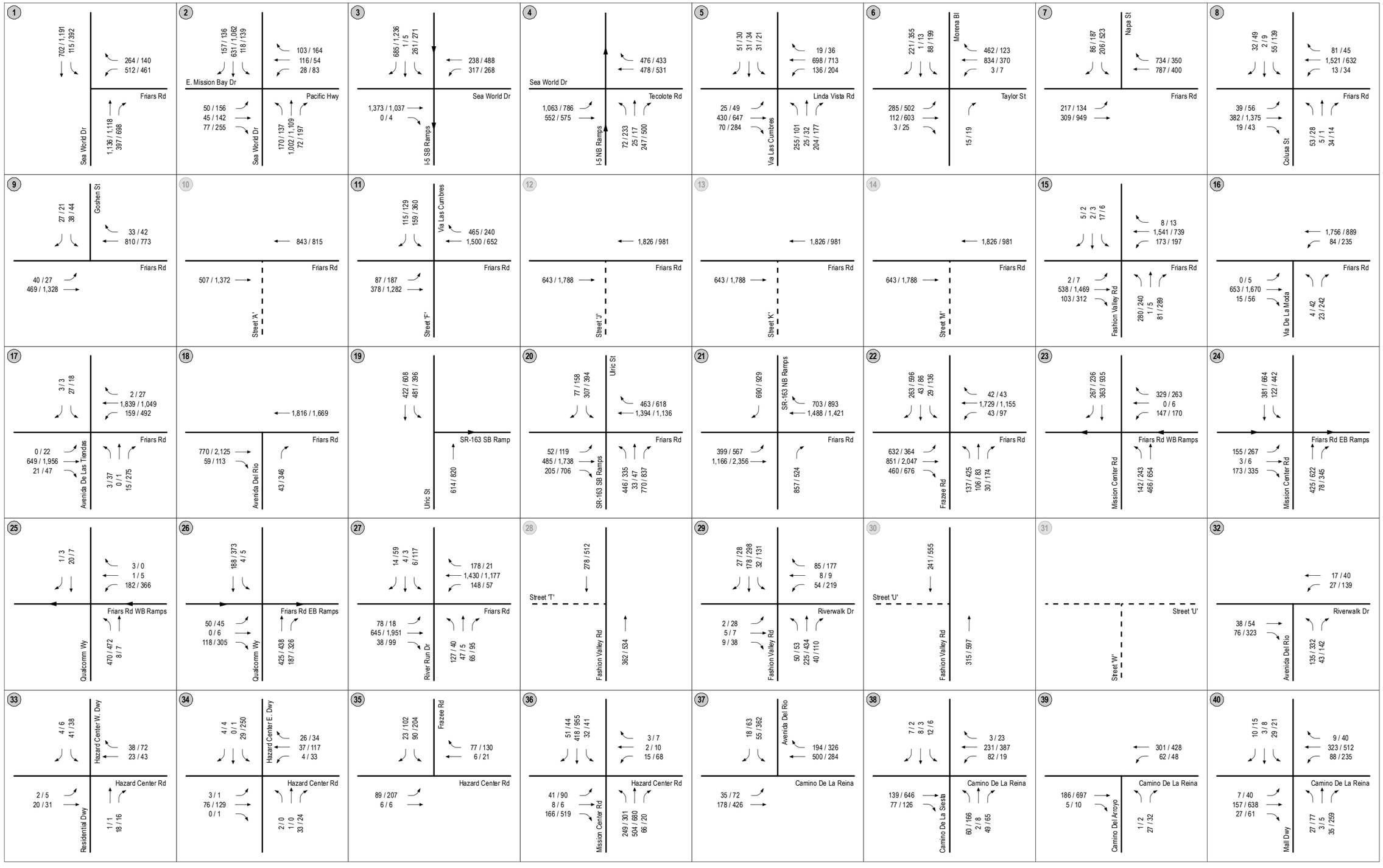
Time: 10:09 AM

Figure 5-2

Existing Conditions Diagram

Riverwalk



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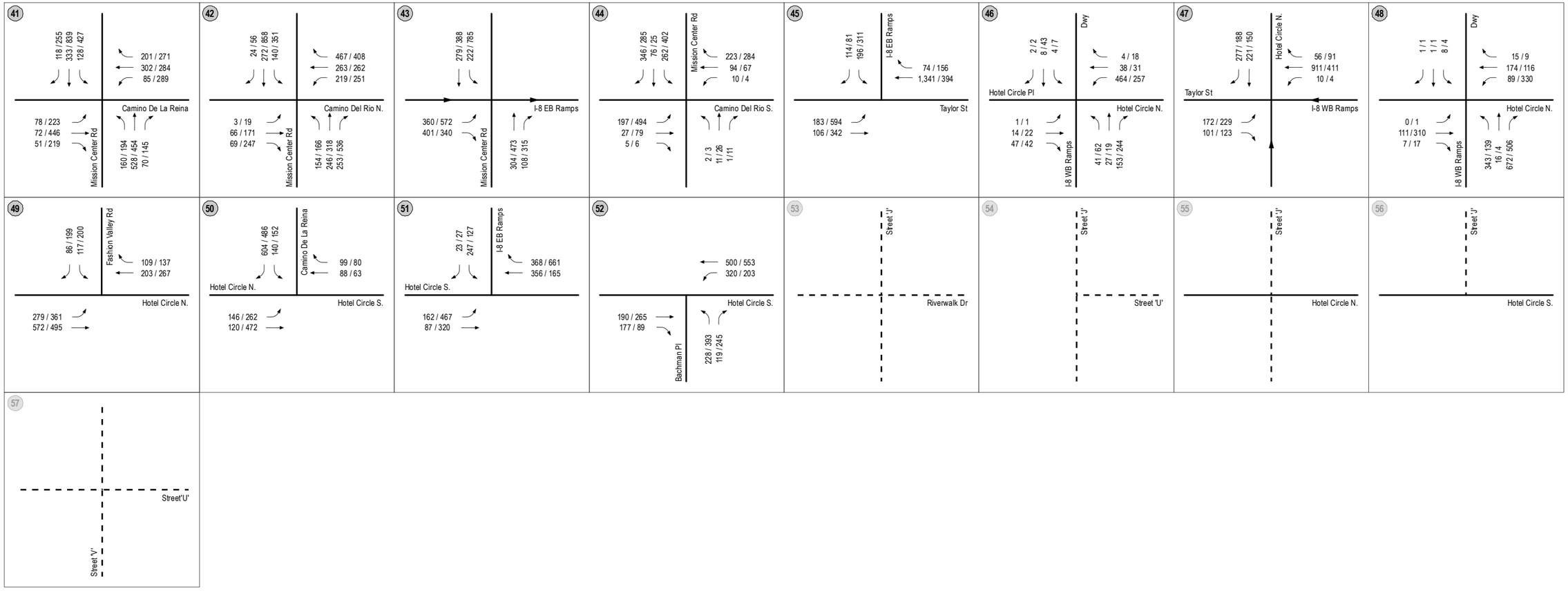
Date: 3/17/2020
Time: 10:23 AM

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

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



LINSCOTT LAW & GREENSPAN engineers

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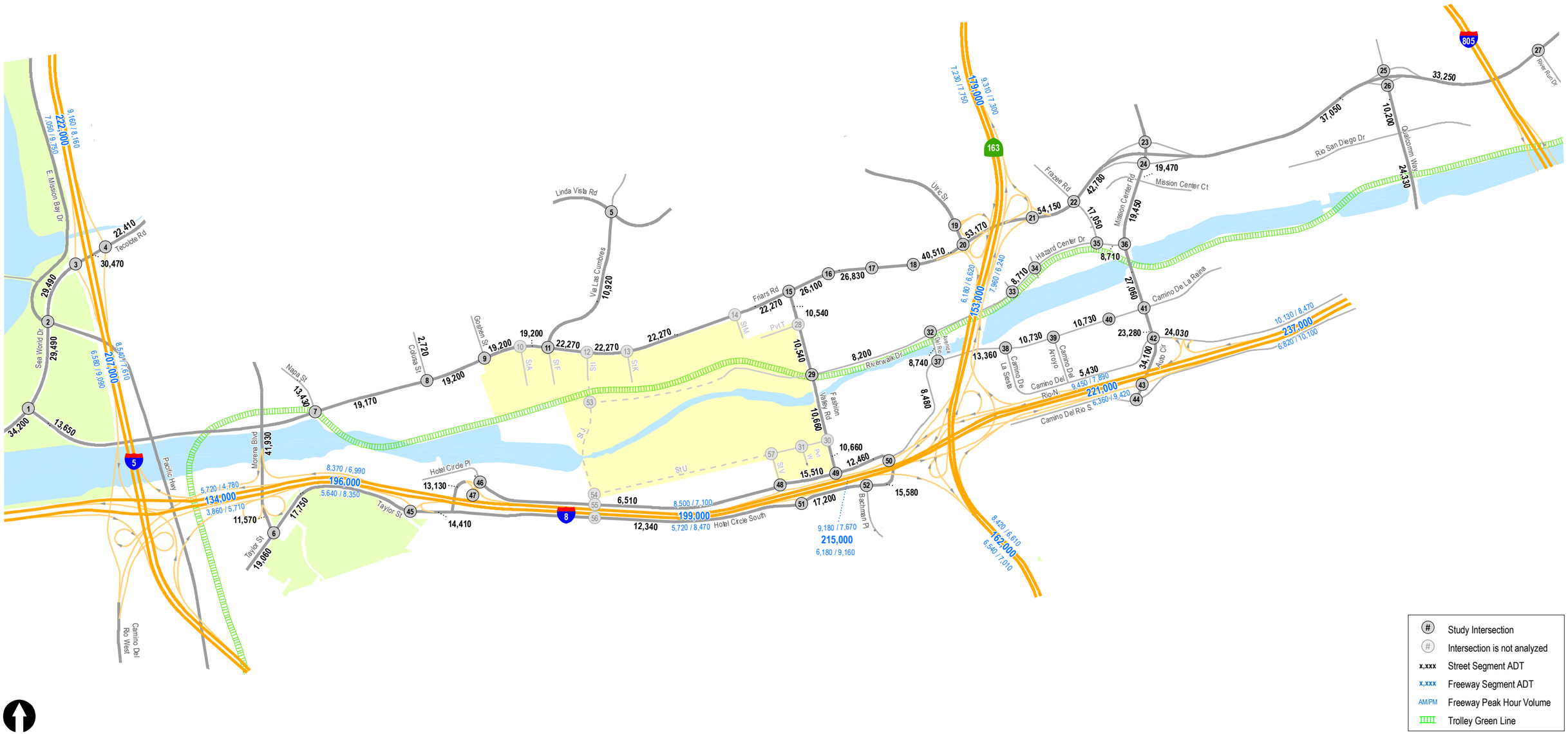
Date: 3/17/2020
Time: 10:23 AM

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

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



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Time: 10:34 AM

Figure 5-4

Existing Traffic Volumes

Riverwalk

6.0 EXISTING ANALYSIS

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

6.1 Peak Hour Intersection Operations

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

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

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

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

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

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

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

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

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

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

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

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

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

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

6.2 Daily Street Segment Operations

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

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

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

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

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

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

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

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

Footnotes:

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

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity.

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

f. Currently under construction

General Notes:

1. *DNE* – Does not exist.

6.3 Freeway Segment Operations

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

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

TABLE 6–3
EXISTING FREEWAY SEGMENT OPERATIONS

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

Footnotes:

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

General Notes:

1. See *Appendix E* for calculation sheets.

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

6.4 Ramp Meter Operations

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

TABLE 6–4
EXISTING RAMP METER OPERATIONS

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

Footnotes:

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

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

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

7.1 Trip Generation

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

TABLE 7–1
PROJECT PHASING

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

Footnotes:

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

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

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

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

7.2 MXD Model Trip Generation

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

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

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

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

7.2.2 *Development of MXD*

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

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

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

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

7.2.3 *MXD Method Validation*

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

TABLE 7–2
MXD MODEL STUDY SITES

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

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

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

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

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

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

Footnotes:

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

7.3 Project Trip Generation Summary

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

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

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

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

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

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

Footnotes:

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

General Notes:

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

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

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

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

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

Footnotes:

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

General Notes:

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

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

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

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

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

General Notes:

() indicates a reduction with the proposed project.

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

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

7.4 Trip Distribution/Assignment

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

8.0 EXISTING + PROJECT ANALYSIS

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

8.1 Existing + Project Phase I

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

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

8.1.1 *Peak Hour Intersection Operations*

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

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

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

8.1.2 *Daily Street Segment Operations*

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

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

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

8.1.3 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR-163

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

8.1.4 *Ramp Meter Operations*

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

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

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

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

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

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

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

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

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

TABLE 8–1
EXISTING + PROJECT PHASE I INTERSECTION OPERATIONS

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

TABLE 8–2
EXISTING + PROJECT PHASE I SEGMENT OPERATIONS

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

Footnotes:

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

General Notes:

1. See *Appendix E* and *Appendix H* for calculation sheets.

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

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

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

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

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

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

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

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

Footnotes:

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

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

8.2 Existing + Project Phases I and II

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

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

8.2.1 *Peak Hour Intersection Operations*

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

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

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

8.2.2 *Daily Street Segment Operations*

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

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

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

8.2.3 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR-163

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

8.2.4 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

8.3 Existing + Project Phases I through III

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

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

8.3.1 *Peak Hour Intersection Operations*

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

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

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

8.3.2 *Daily Street Segment Operations*

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

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

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

8.3.3 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR-163

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

8.3.4 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

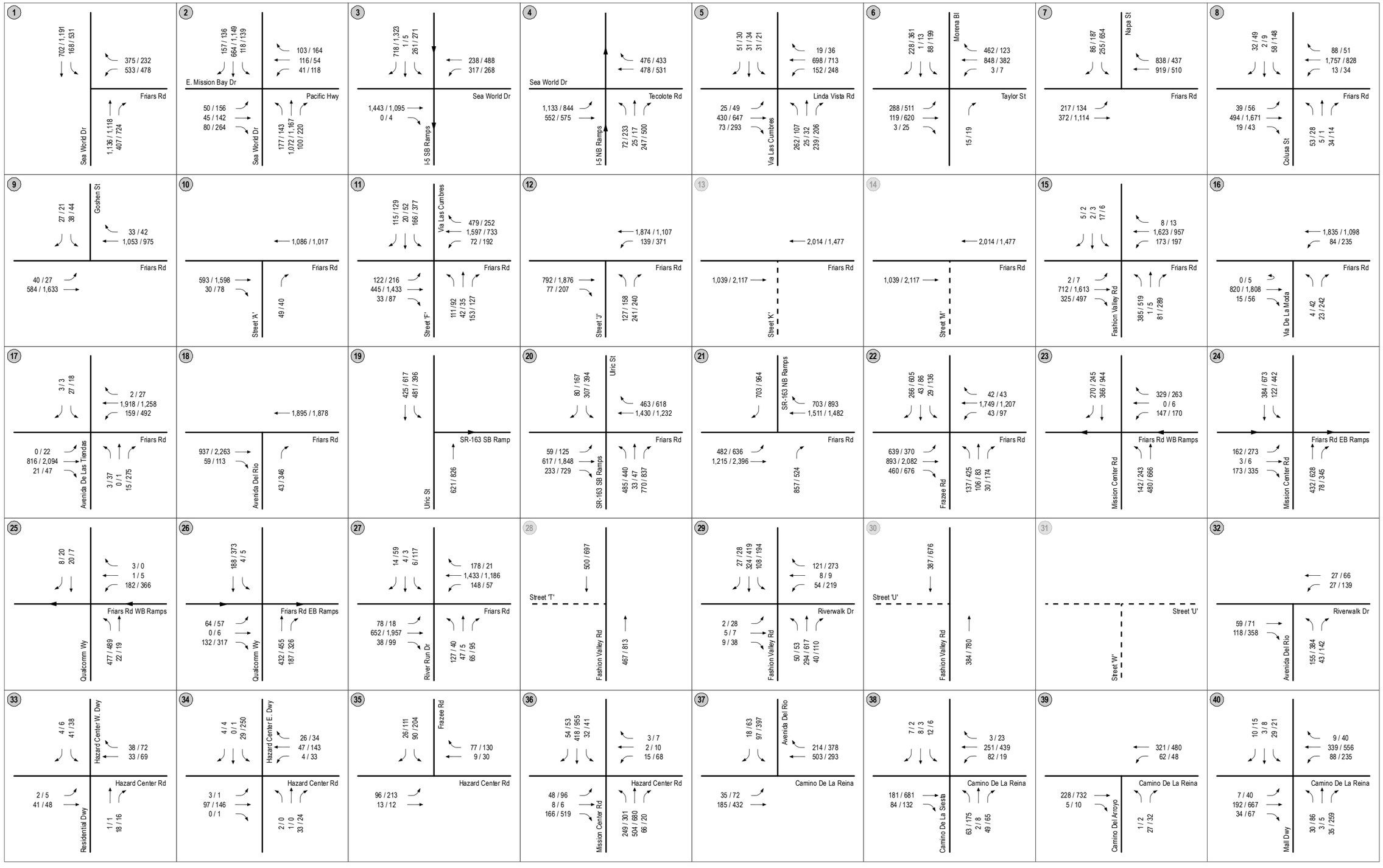
Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand (veh/hr/lane)	Ramp Meter Rate (Flow)[a] (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Existing	AM	1,564	782	774	8	1	200
	PM	1,236	618	612	6	1	150
Existing + Project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

Footnotes:

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

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.



LINSCOTT LAW & GREENSPAN engineers

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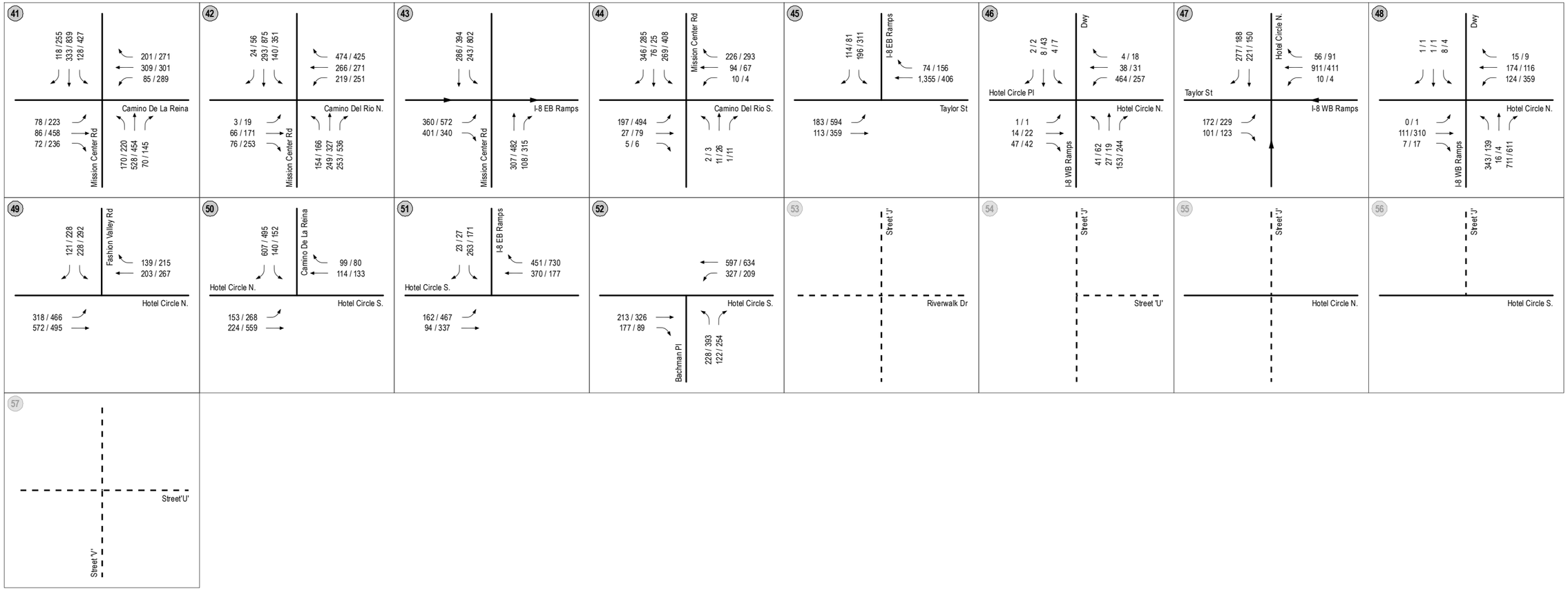
Time: 12:27 PM

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

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



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

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

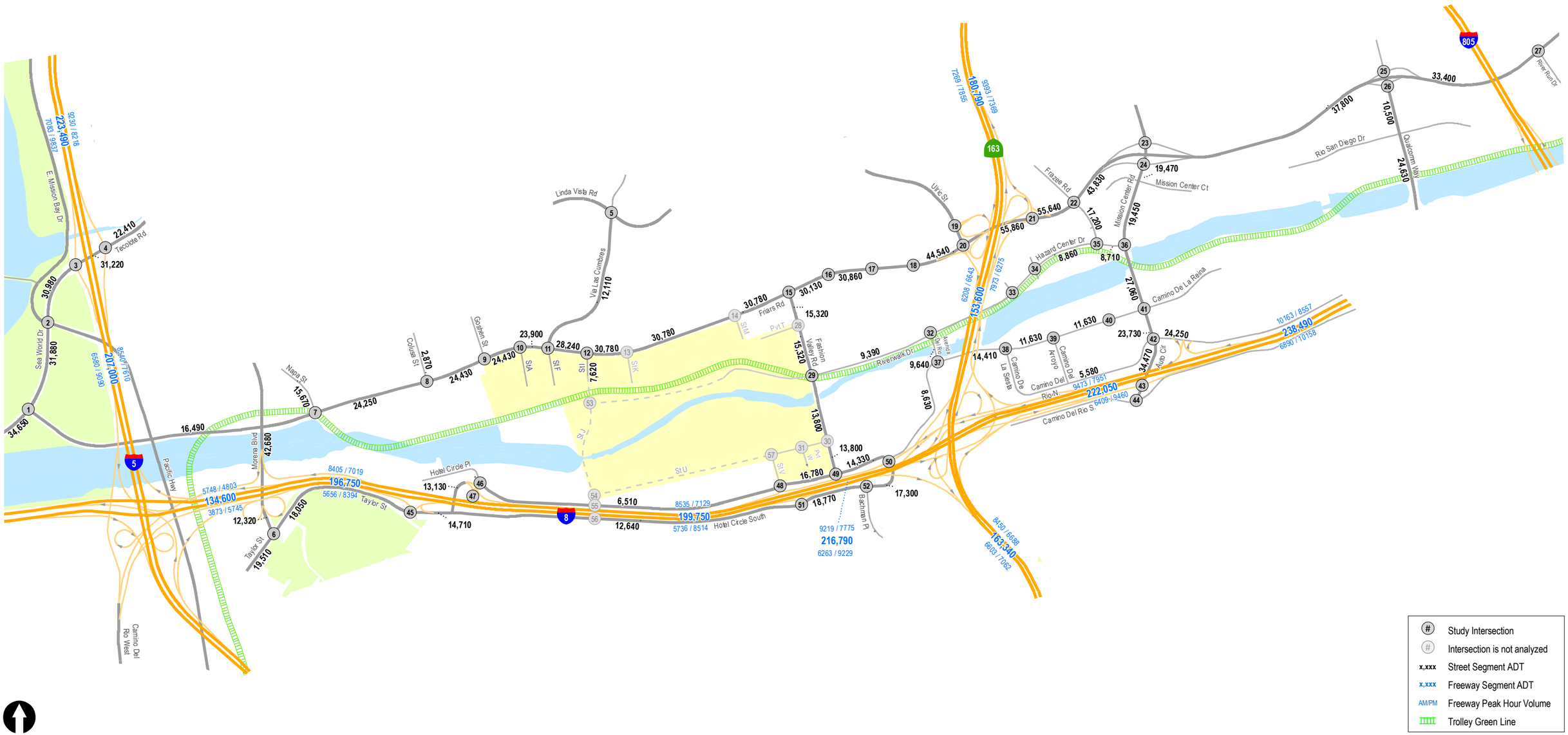

Figure 8-2
Existing + Phase I Traffic Volumes

Riverwalk

LINSCOTT LAW & GREENSPAN engineers

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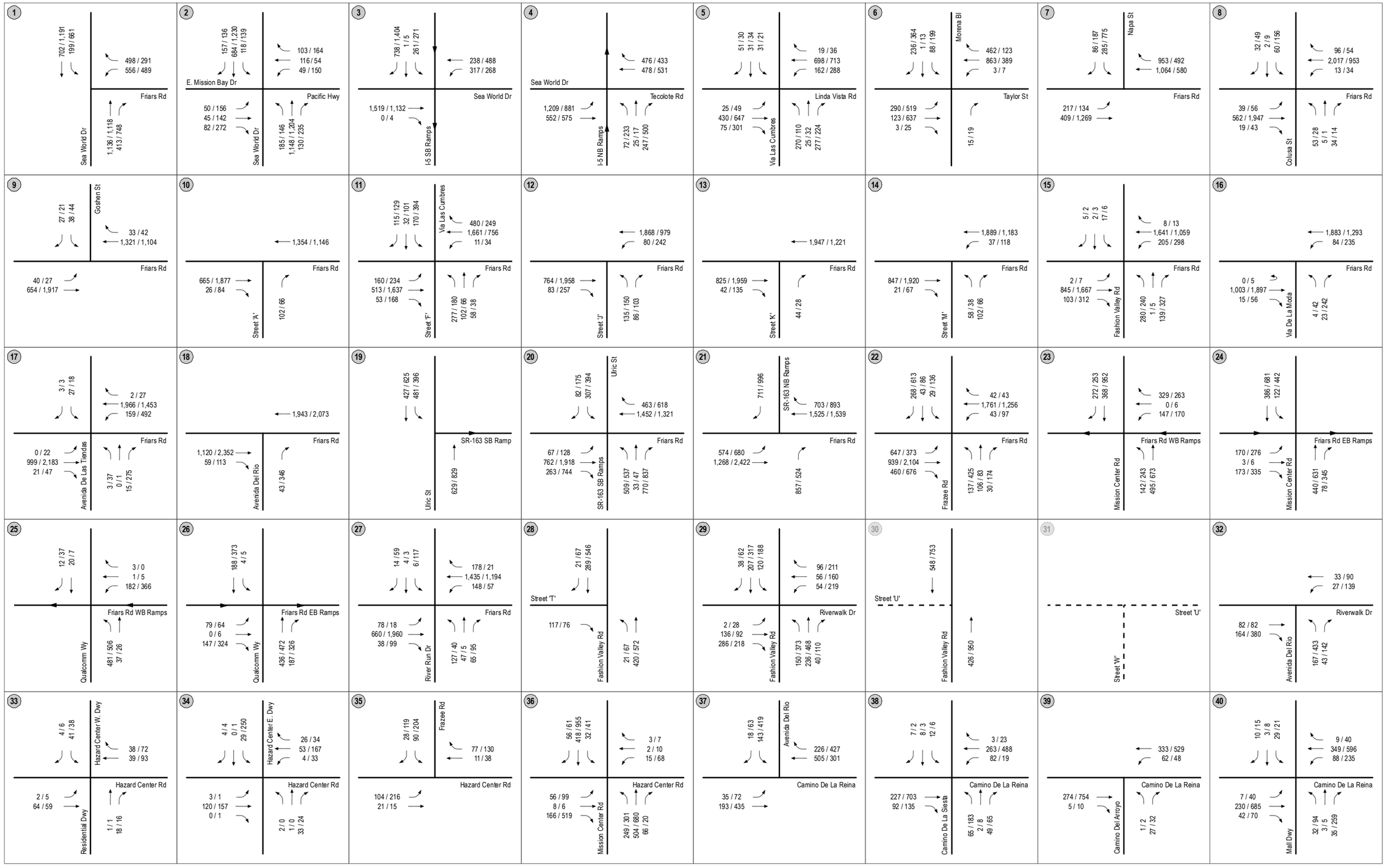

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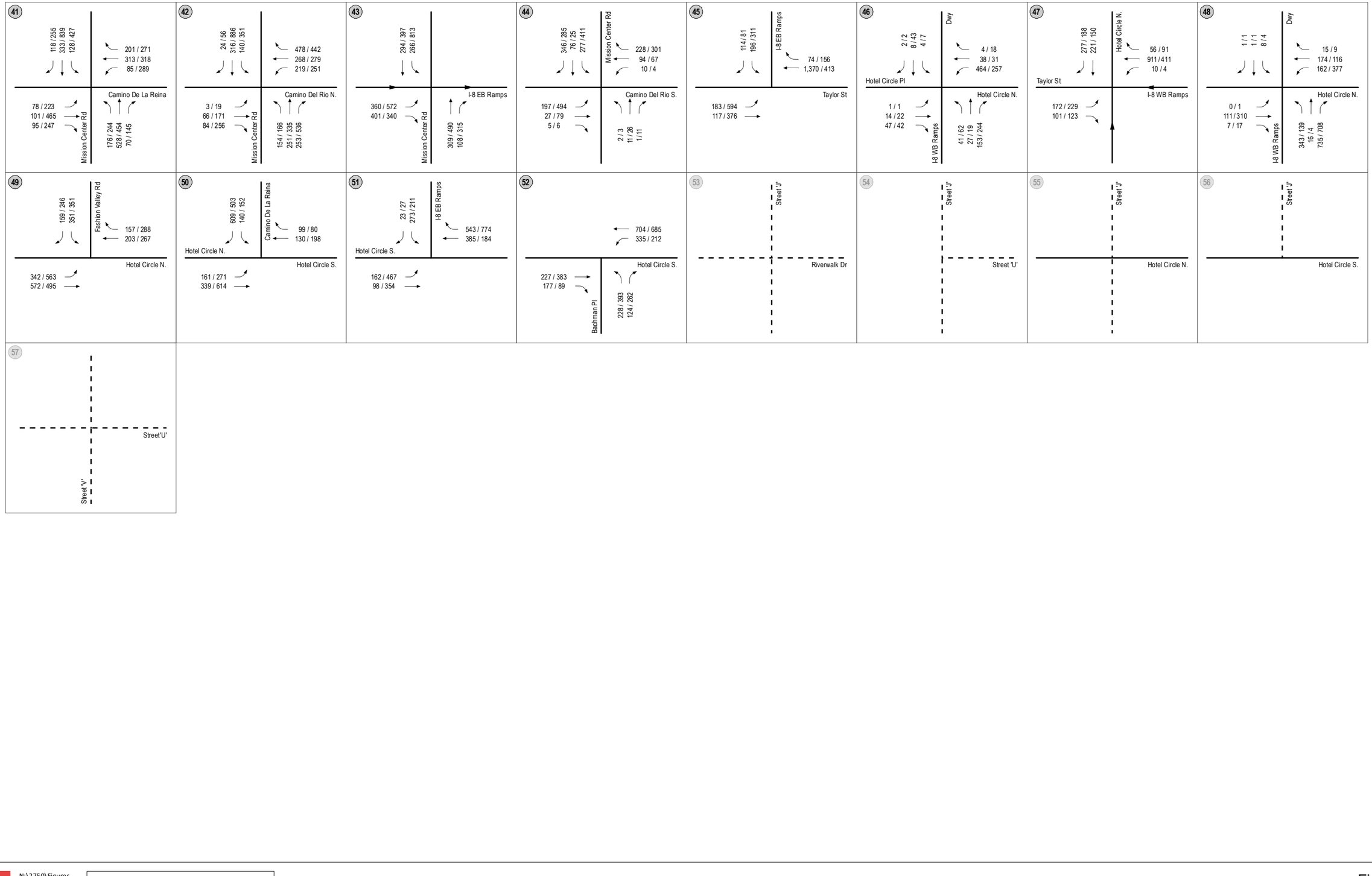
Intersection AM/PM Peak Hour volumes

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



LINSCOTT LAW & GREENSPAN engineers

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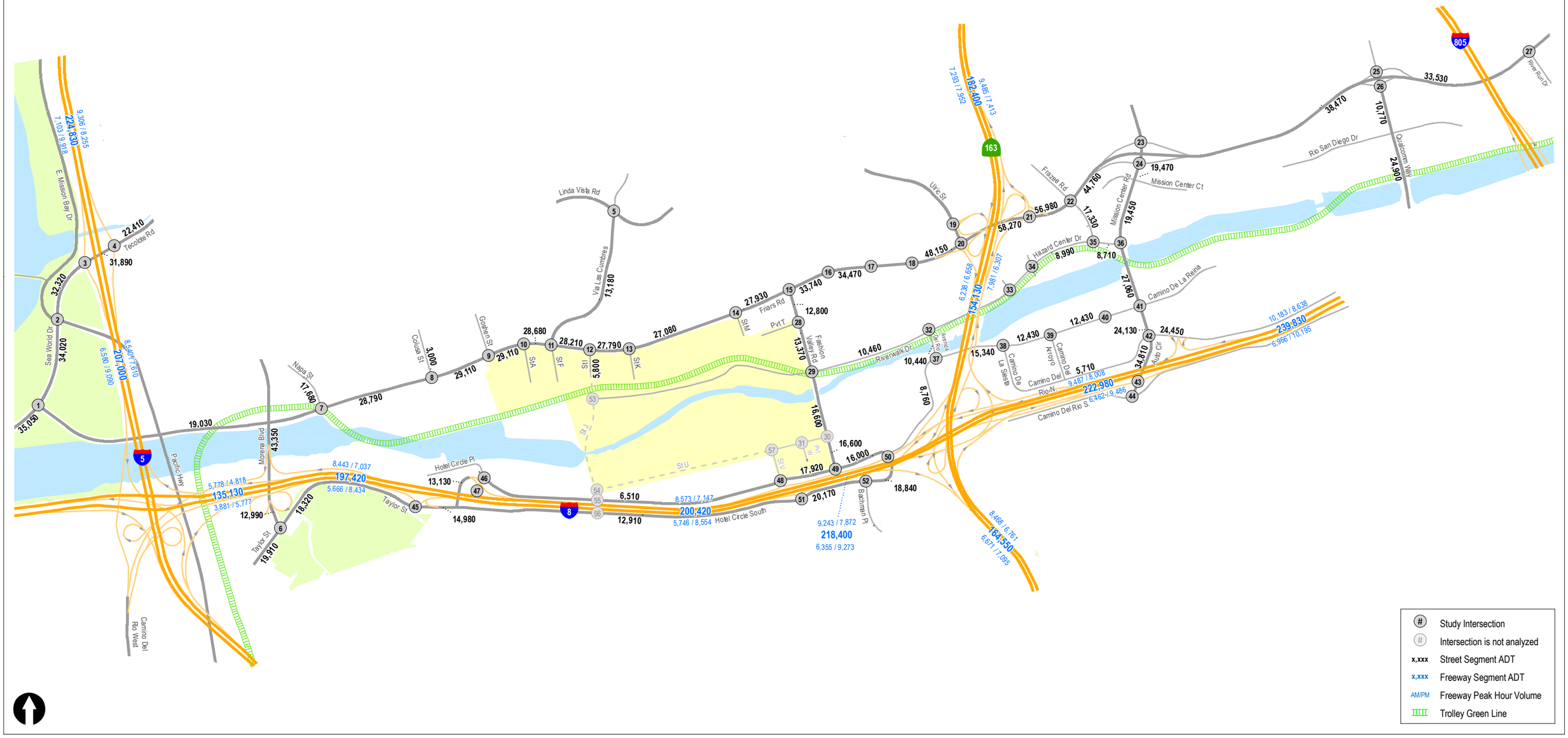
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

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



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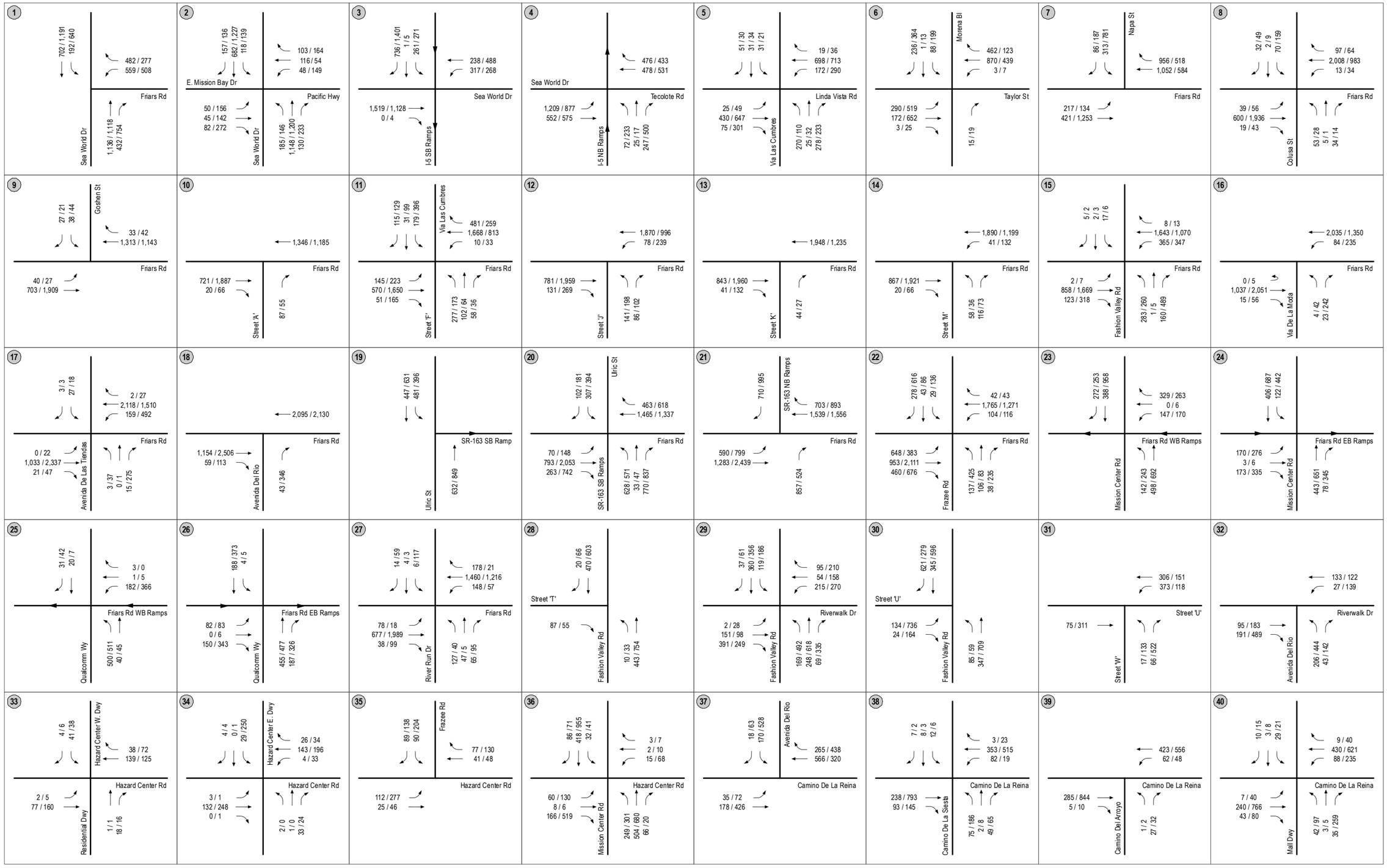
Time: 10:55 AM

Figure 8-4

Existing + Phase I and II Traffic Volumes

Riverwalk



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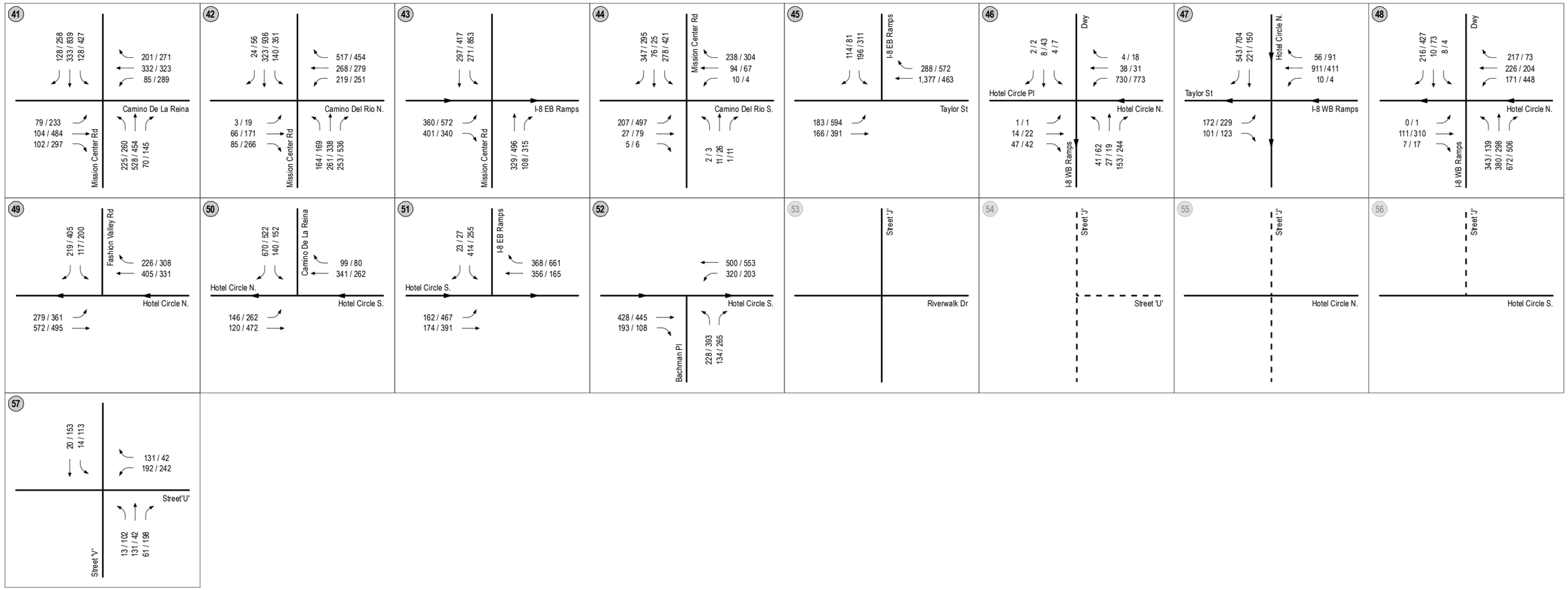
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 8-5

Existing + Project Phases I through III Traffic Volumes

(Page 1 of 2)

Riverwalk



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Time: 2:33 PM

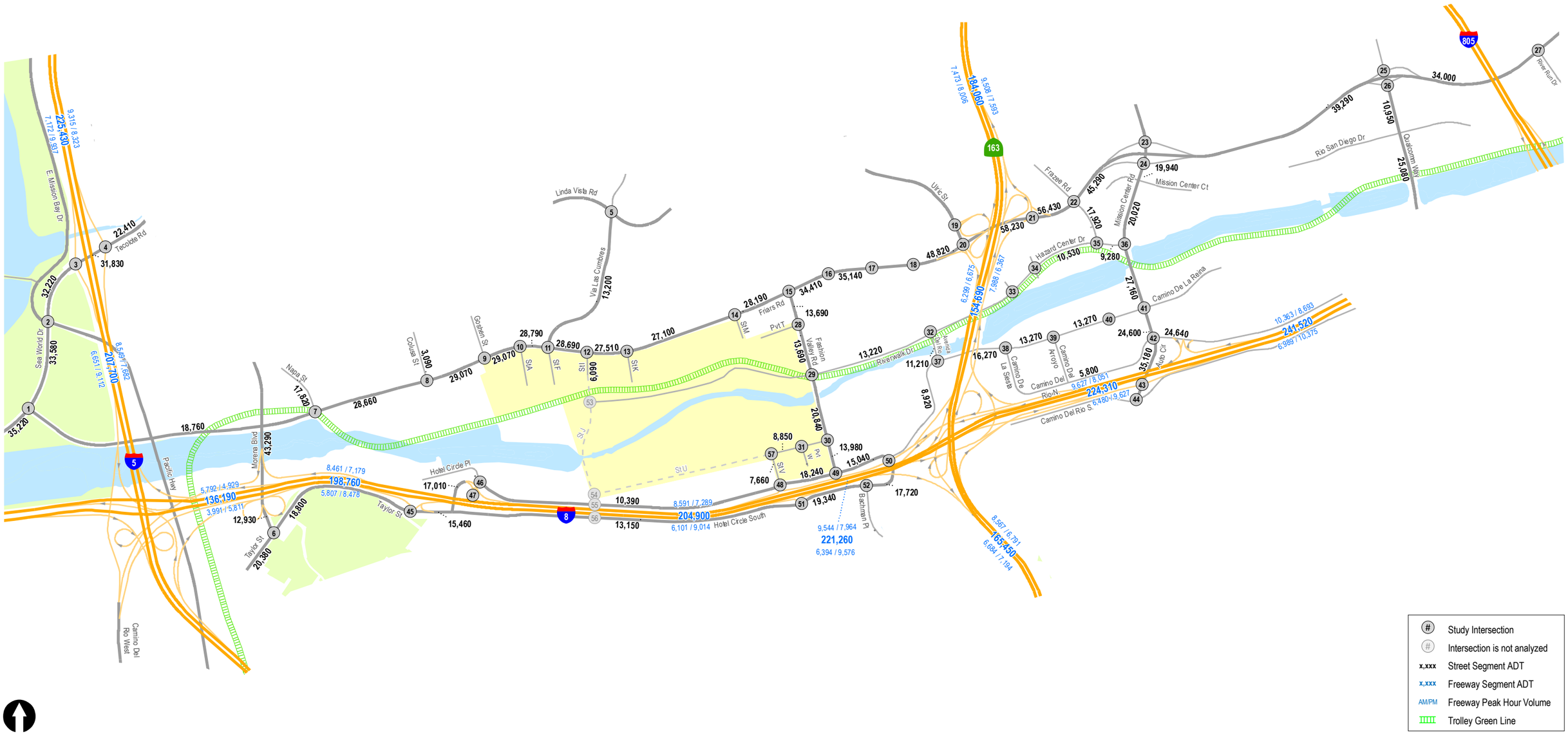
Study Intersection
Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 8-5

Existing + Project Phases I through III Traffic Volumes

(Page 2 of 2)

Riverwalk



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Time: 11:00 AM

Figure 8-6

Existing + Phase I, II, and III Traffic Volumes

Riverwalk

9.0 CUMULATIVE PROJECTS

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

9.1 Cumulative Project Research

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

TABLE 9–1
CUMULATIVE PROJECTS

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

TABLE 9–1
CUMULATIVE PROJECTS

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

Footnotes:

a. Per the approved Town and Country Master Plan, the project proposes to construct 840 dwelling units by demolishing 254 rooms and 35,632 SF of convention space. Given the reduction in hotel rooms and conventions rooms, per the approved project EIR, there was no change in daily traffic. Based on coordination with the Town & Country applicant in January 2020, the Town & Country project is anticipated to build its first two phases (i.e. 435 units) in Year 2020.

b. The Union Tribune office use was completed and occupied in October 2018. The timing of the residential use is unknown at this time.

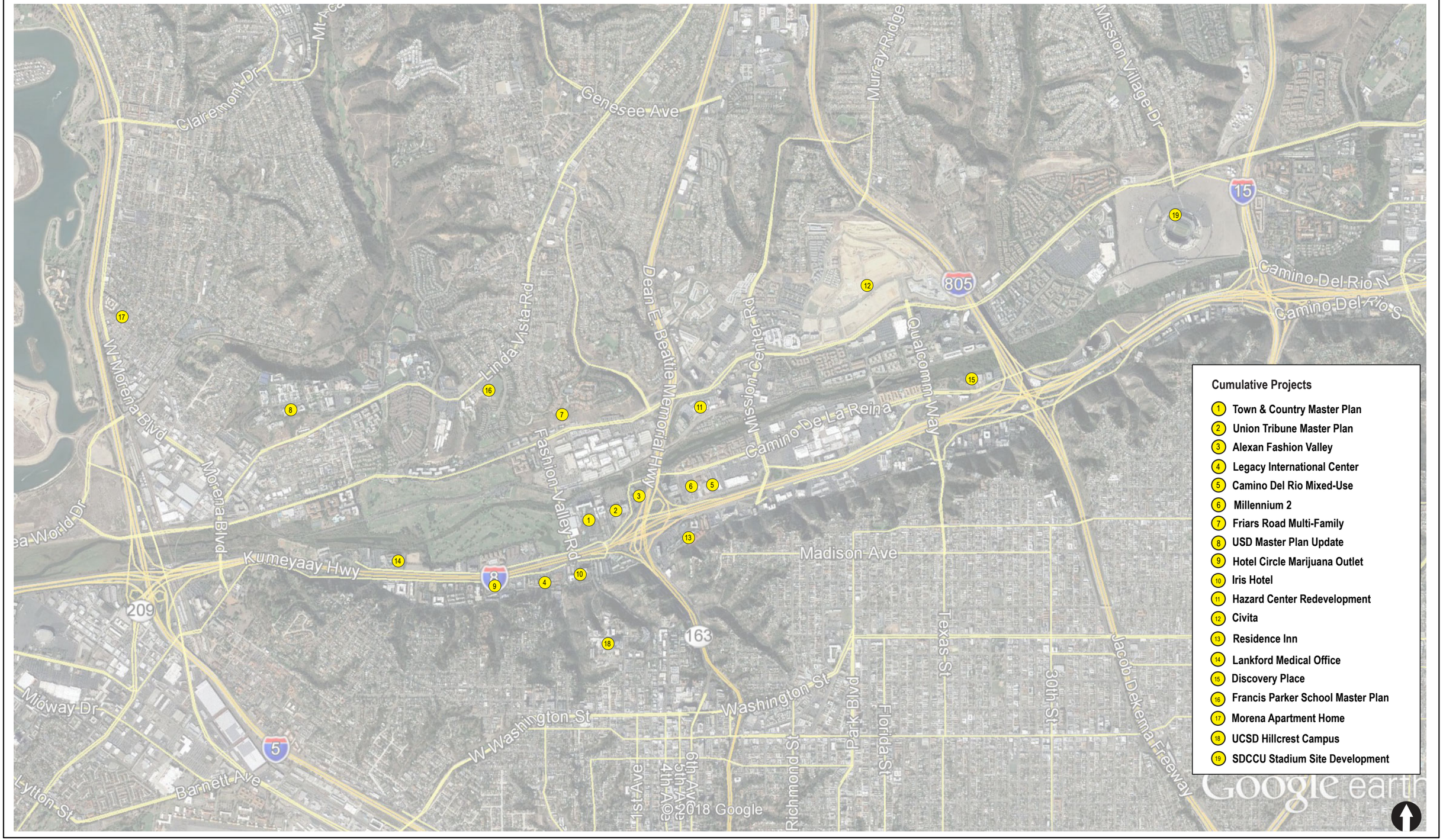
c. The project proposes to add a total of 3,000 FTE by Year 2035. In Fall 2018, 500 FTE's were added to the existing FTE count of 7,000 FTE totaling 7,500 FTE. To be conservative, full buildout of the project was assumed.

d. Based on coordination with the applicant, most of Phase 1 was occupied in year 2015. To be conservative, full buildout of the project was assumed.

e. The MVCPU included the Soccer City development in its forecast projections as it was conservative from a traffic generation perspective.

General Notes:

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



Cumulative Projects

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

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Date: 03/27/20

Figure 9-1

Cumulative Project Location Map

RIVERWALK

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

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

10.1 Near-Term (Opening Day 2025) Analysis Approach

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

10.2 Near-Term (Opening Day 2025) Auto Conditions

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

10.2.1 *Planned Local Improvements*

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

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

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

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

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

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

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

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

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

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

10.2.2 *Planned Regional Improvements*

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

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

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

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

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

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

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

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

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

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

10.2.4 *Peak Hour Intersection Operations*

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

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

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

10.2.5 *Daily Street Segment Operations*

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

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

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

10.2.6 *Freeway Segment Operations*

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

I-8

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

I-5

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

SR 163

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

10.2.7 *Ramp Meter Operations*

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

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

10.3.1 *Project Improvements*

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

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

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

10.3.2 *Peak Hour Intersection Operations*

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

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

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

10.3.3 *Daily Street Segment Operations*

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

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

10.3.4 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR 163

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

10.3.5 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

b. Delay expressed in minutes per lane.

c. Queue expressed in feet per lane.

General Notes:

1. NA = Not Applicable.

LINSCOTT LAW & GREENSPAN engineers

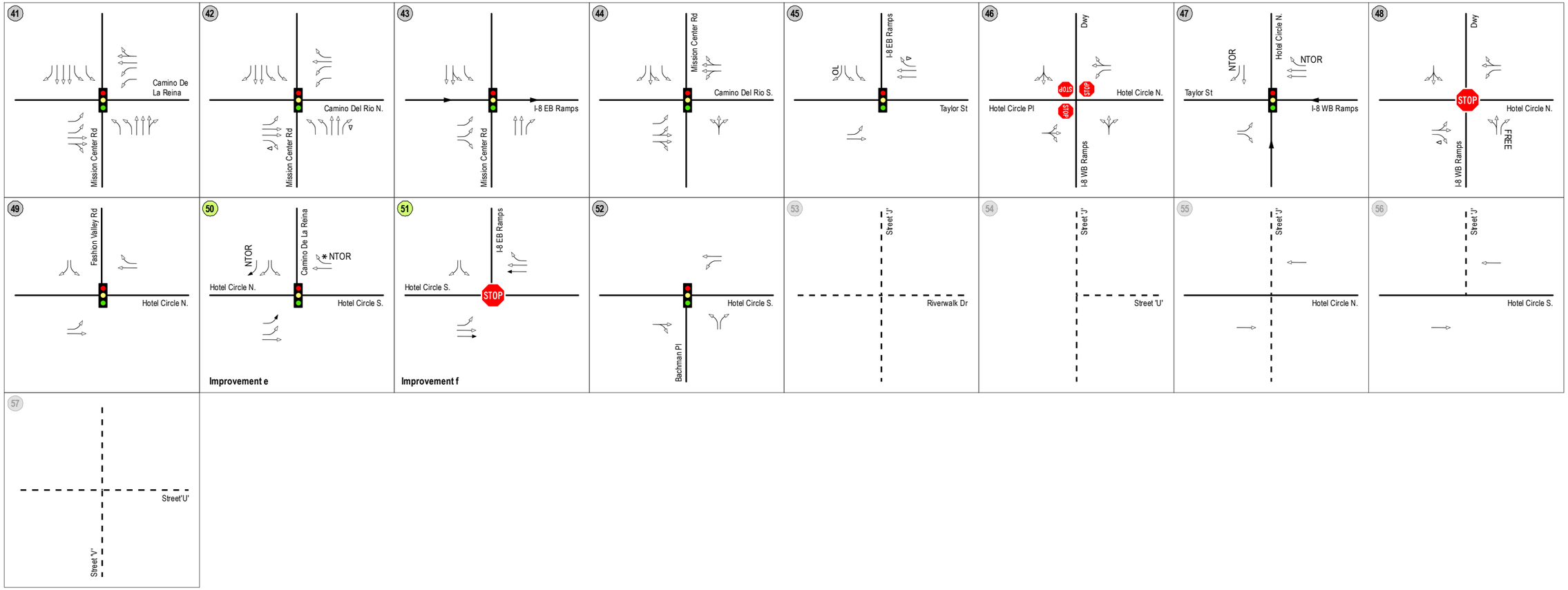
N:\2750\Figures
Date: 4/1/2020
Time: 4:45 PM

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

List of Improvements:

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

Figure 10-1
Near-Term (Opening Day 2025) Conditions Diagram
(Page 1 of 2)
Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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

List of Improvements:

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

Figure 10-1

Near-Term (Opening Day 2025) Conditions Diagram

(Page 2 of 2)

Riverwalk

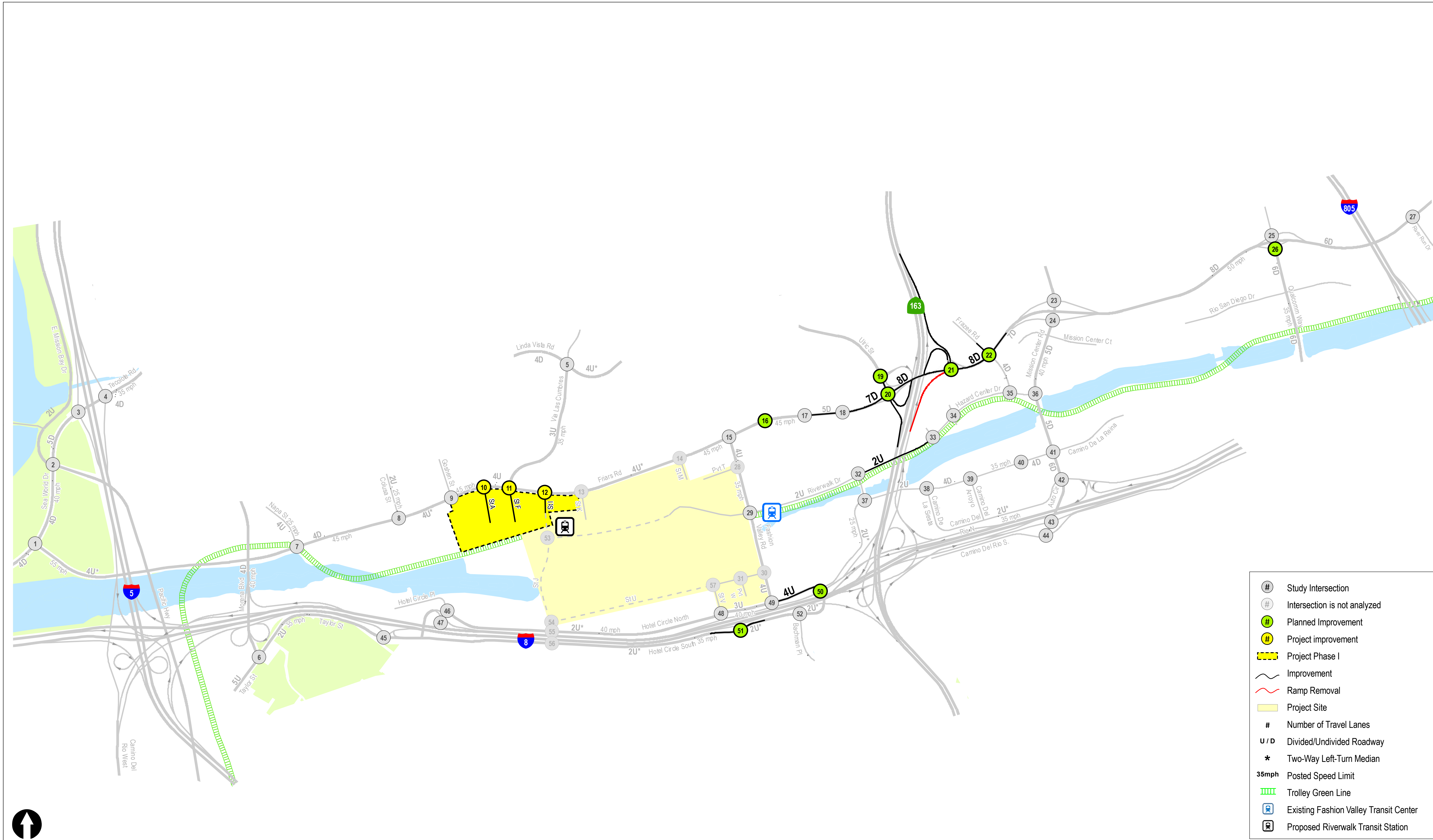

Figure 10-2

Near-Term (Opening Day 2025) Conditions Diagram

Riverwalk

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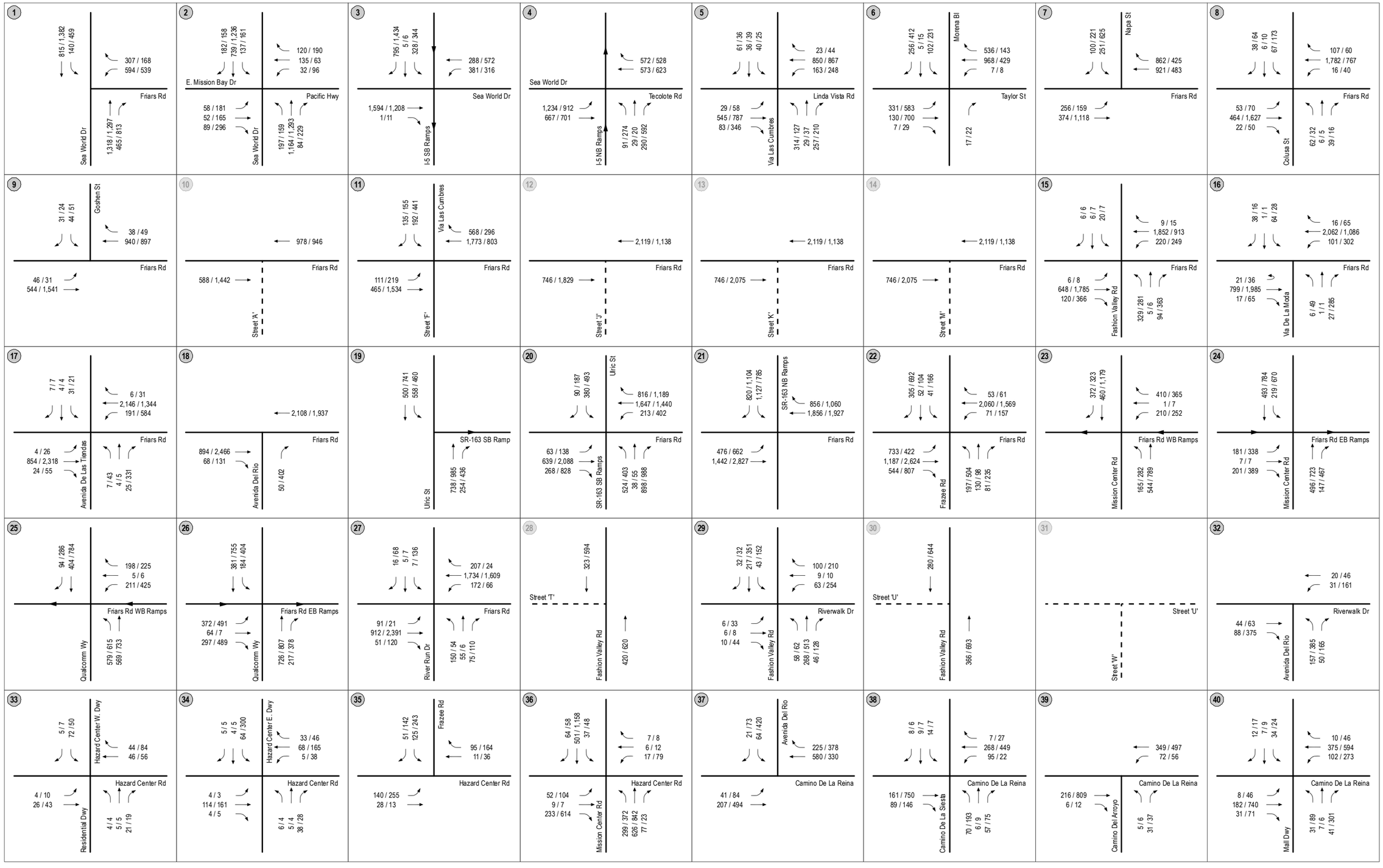

LINSCOTT LAW & GREENSPAN engineers

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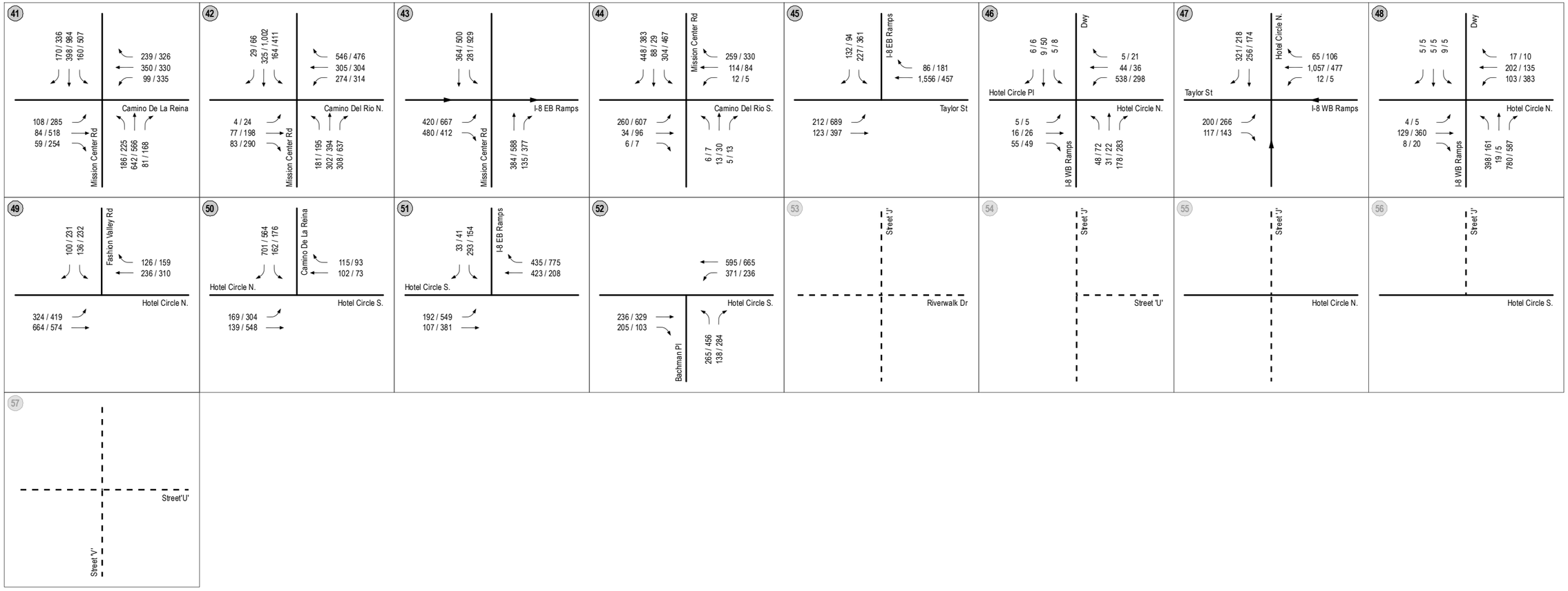
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

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



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

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

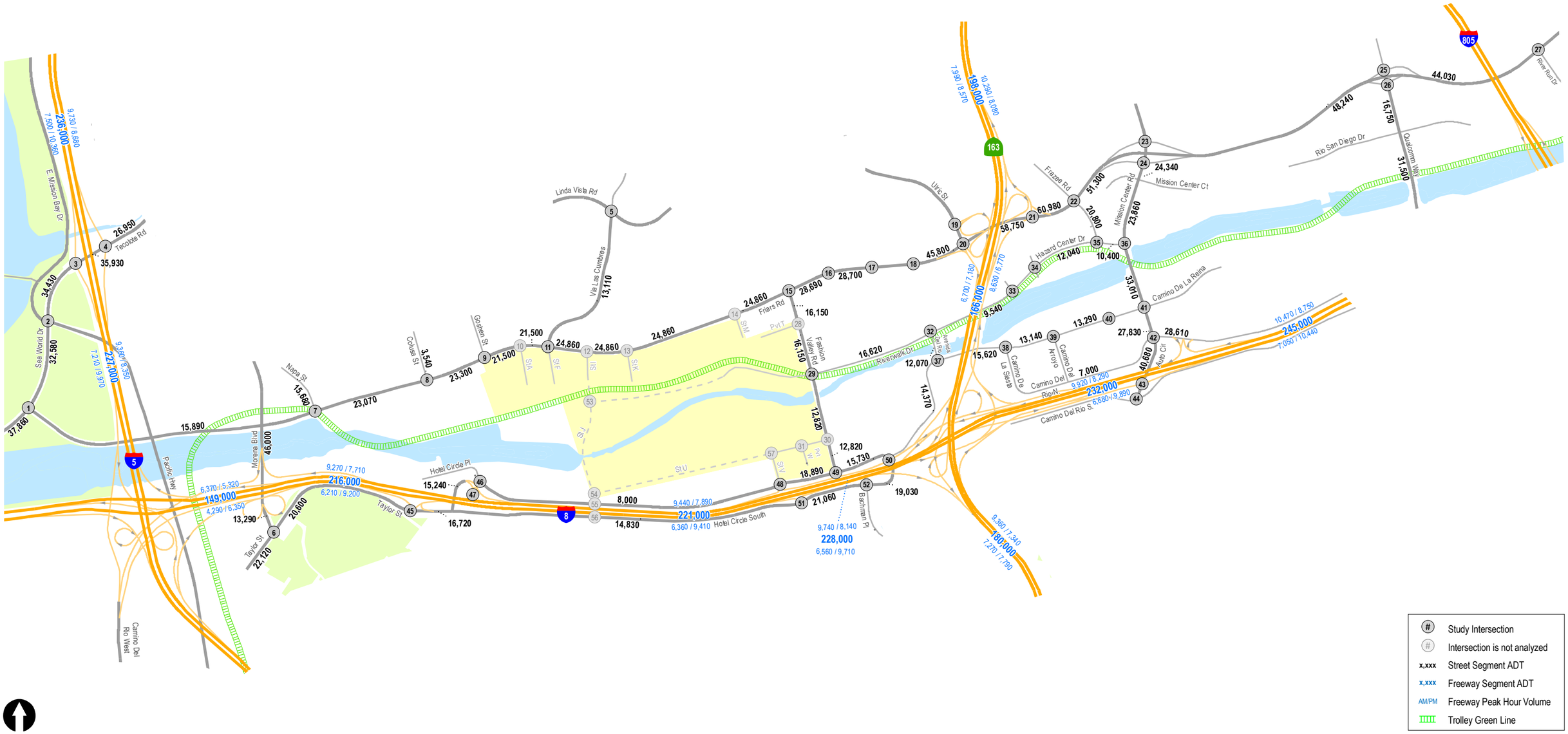

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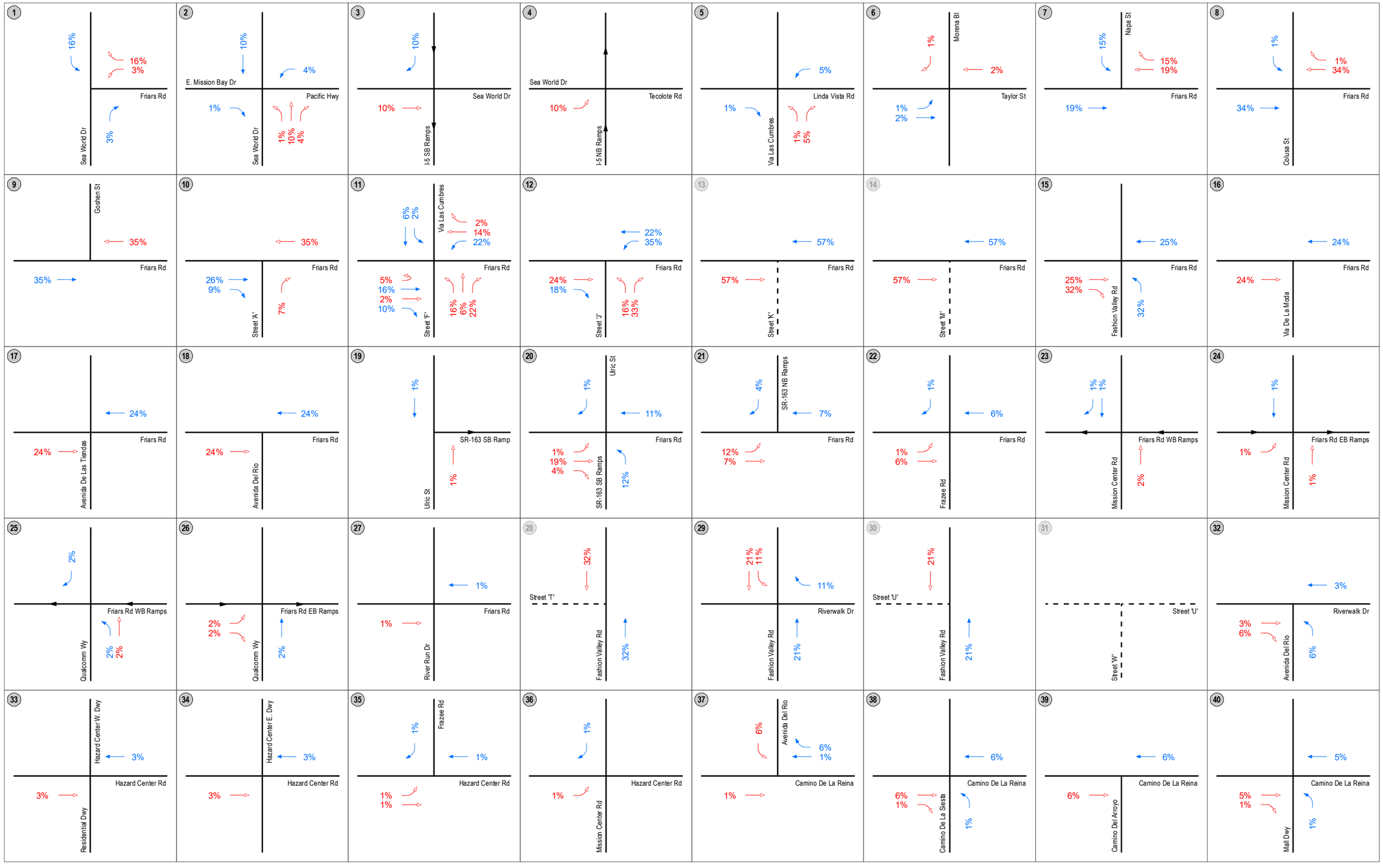
Figure 10-4

Near-Term (Opening Day 2025) Traffic Volumes

Riverwalk



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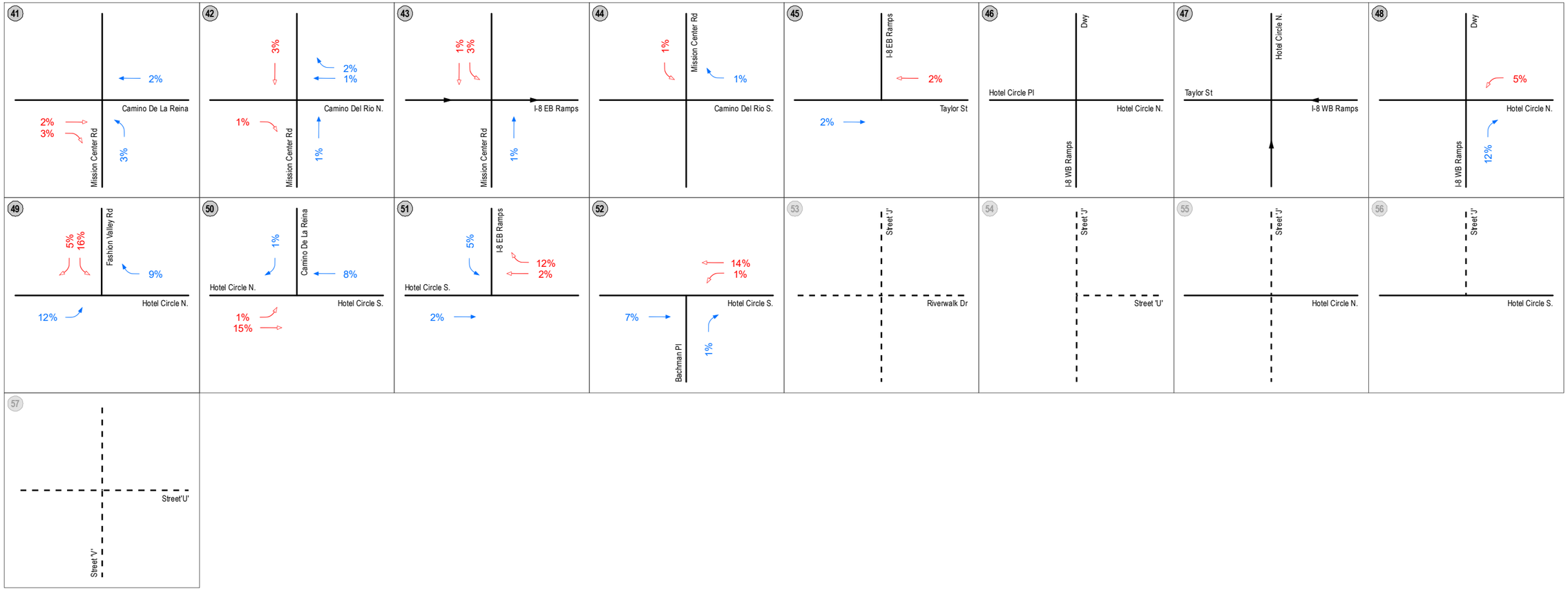
(#) Study Intersections
(#) Intersection is not analyzed
Inbound Trip Distribution
Outbound Trip Distribution

Figure 10-5

Project Phase I Traffic Distribution

(Page 1 of 2)

Riverwalk



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

Figure 10-5

Project Phase I Traffic Distribution

(Page 2 of 2)

Riverwalk

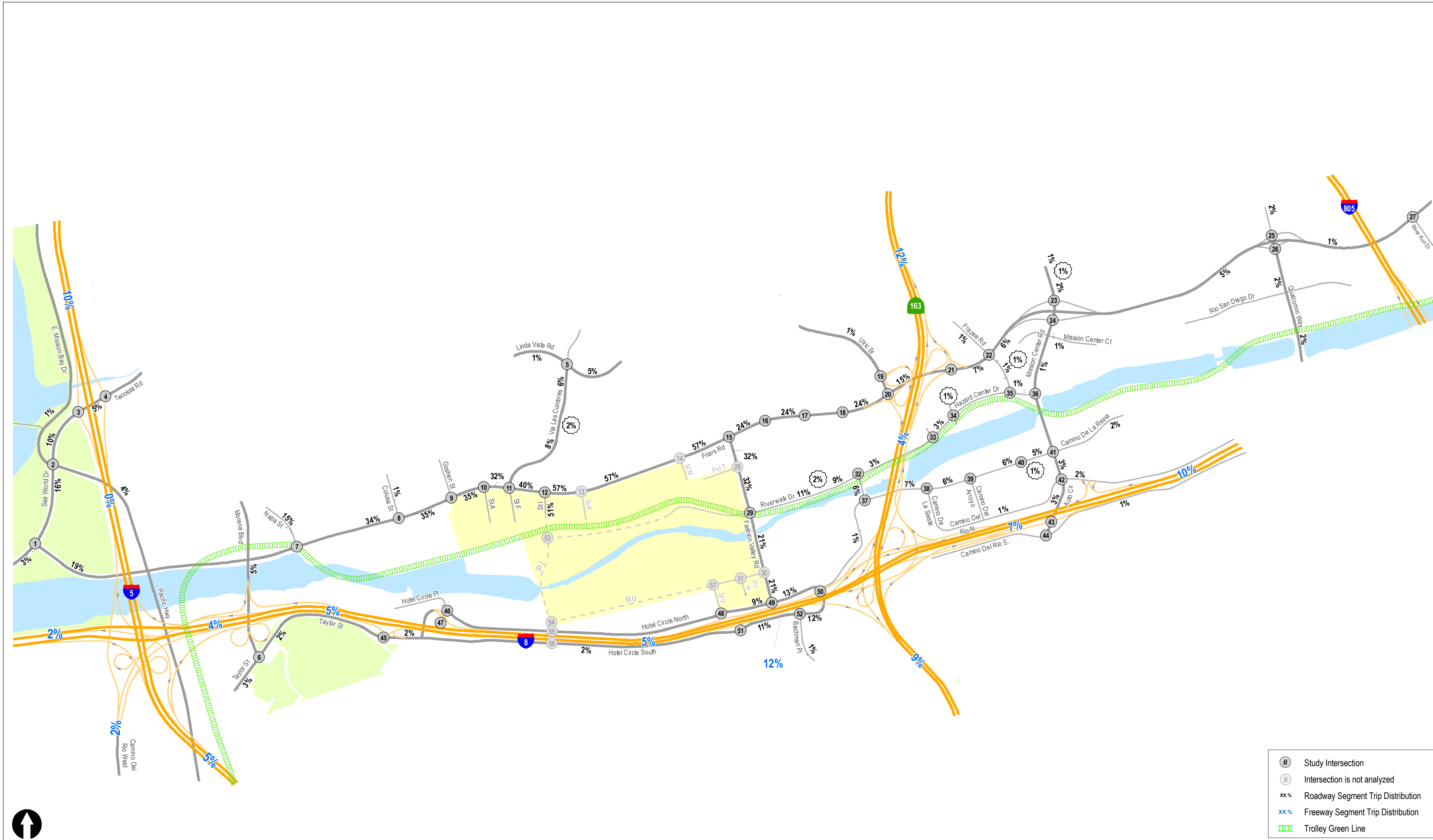

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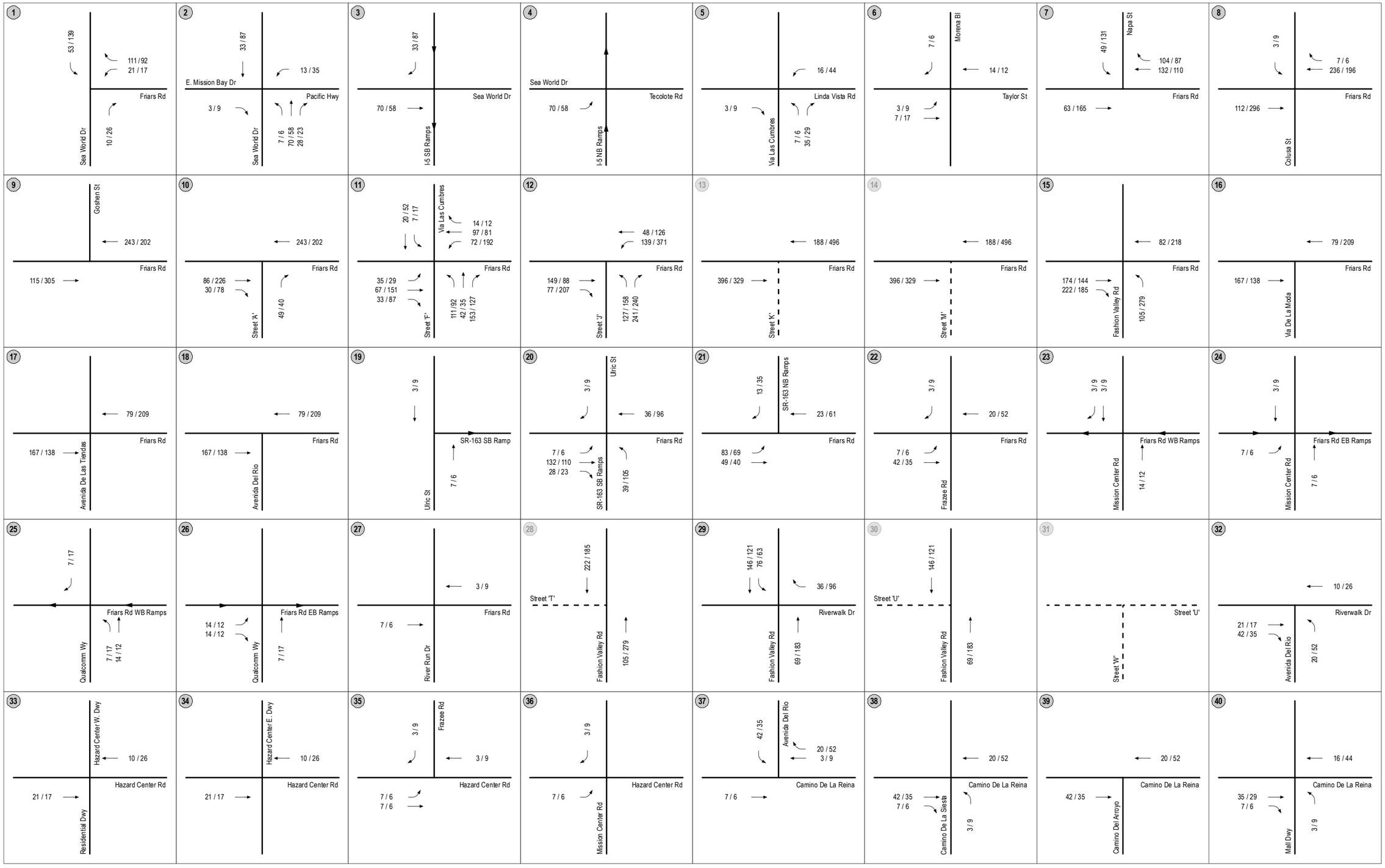
Figure 10-6

Project Phase I Traffic Distribution

Riverwalk



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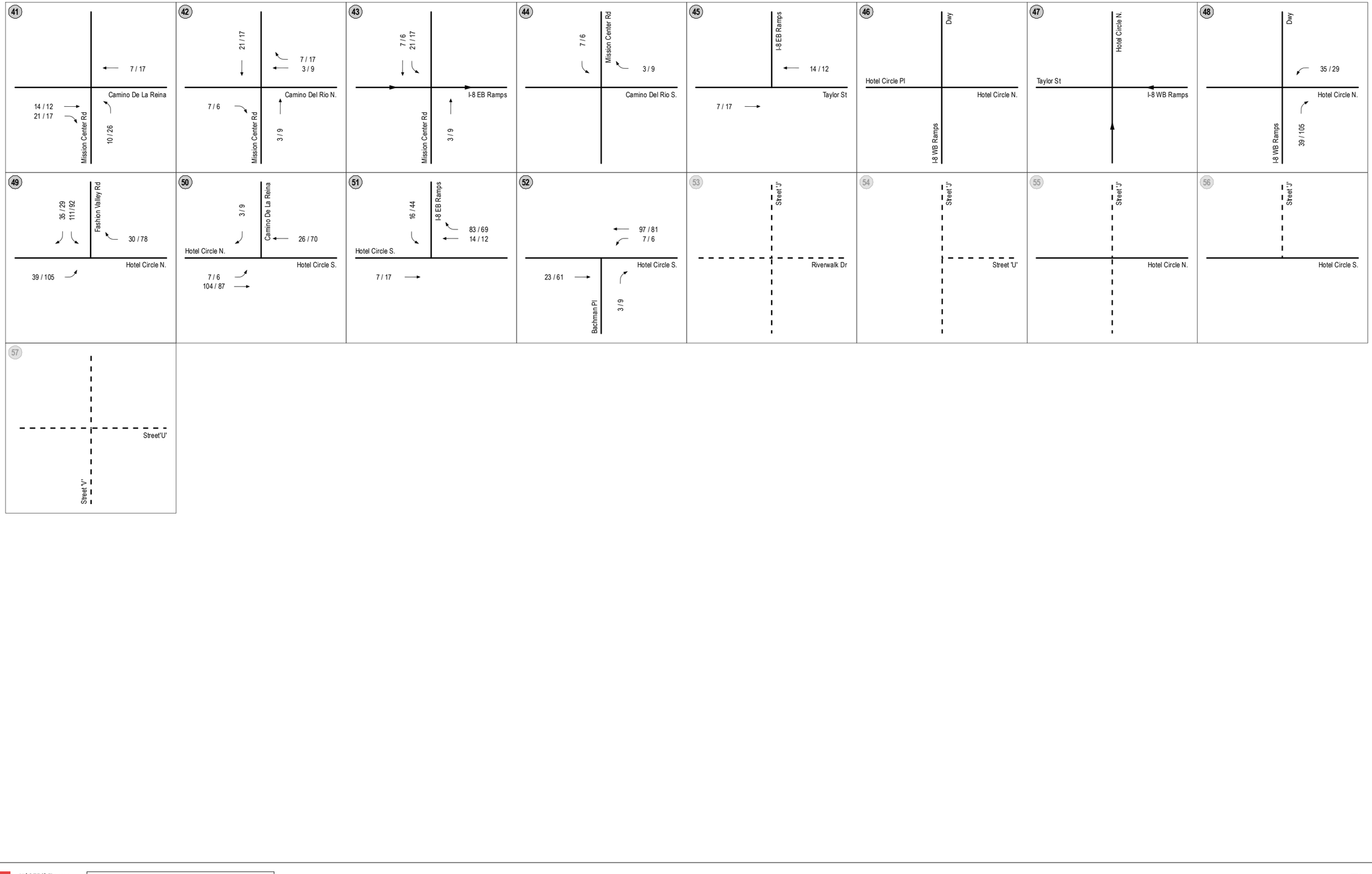
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-7
Project Phase I Traffic Volumes
(Page 1 of 2)
Riverwalk



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

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

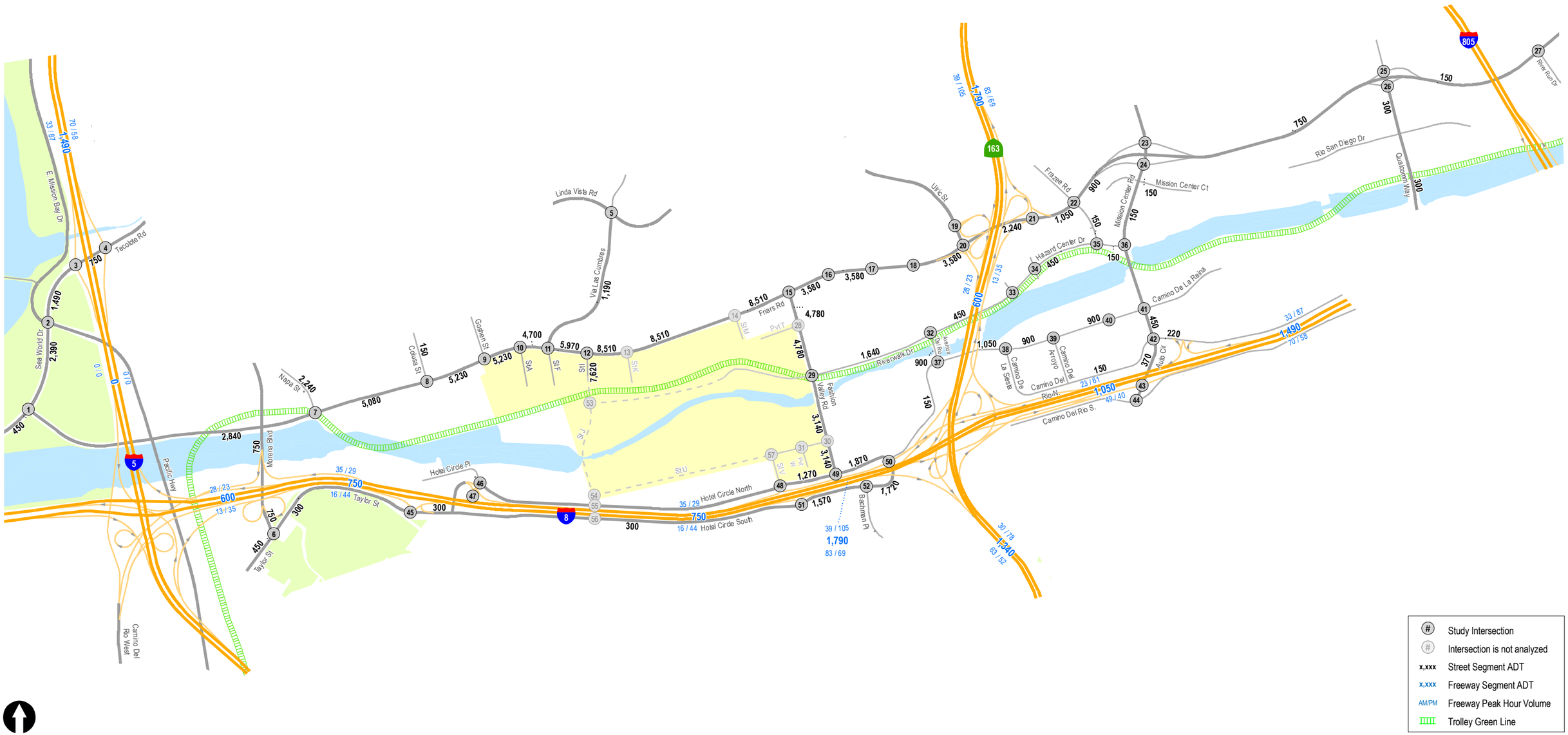

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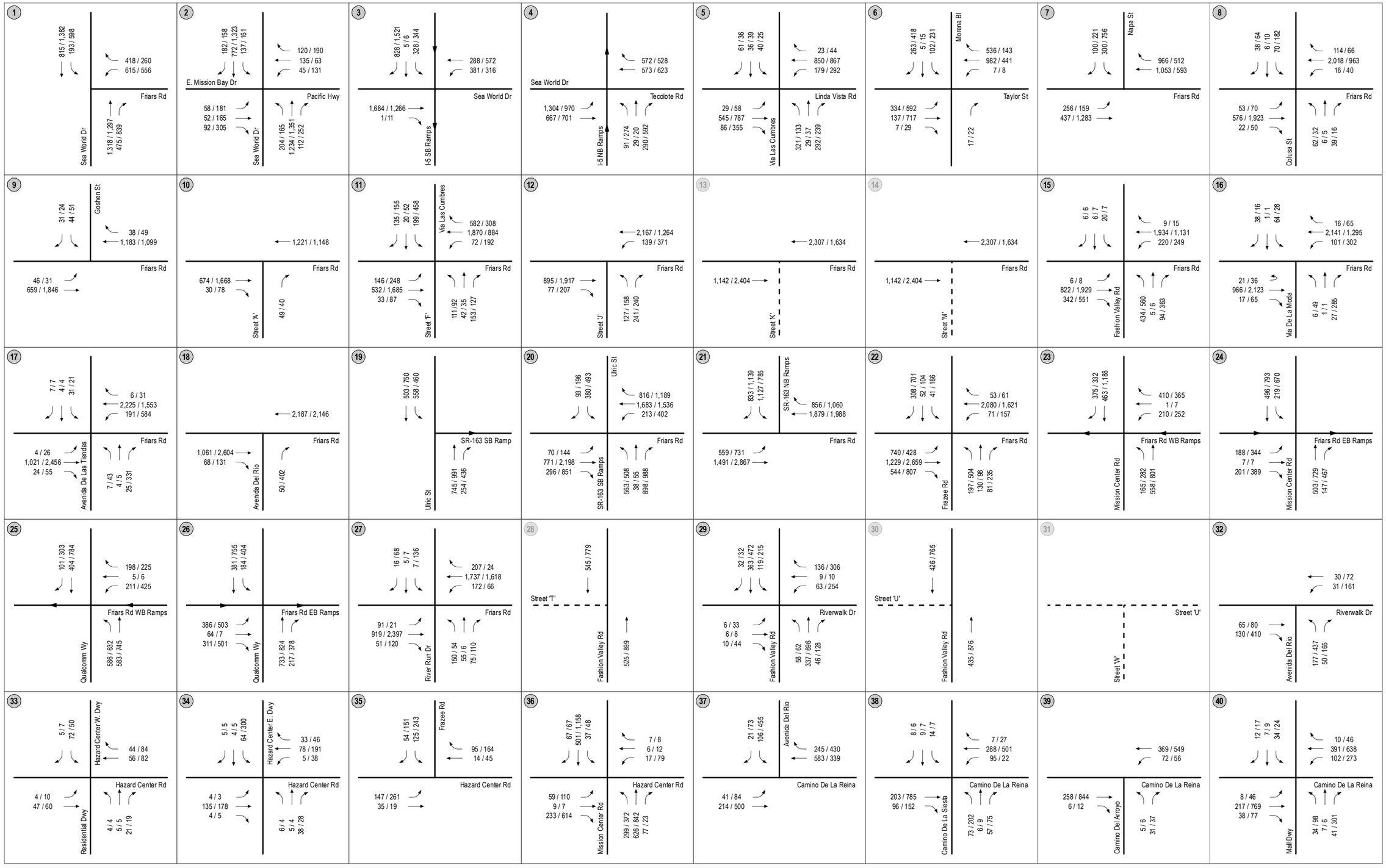
Figure 10-8

Project Phase I Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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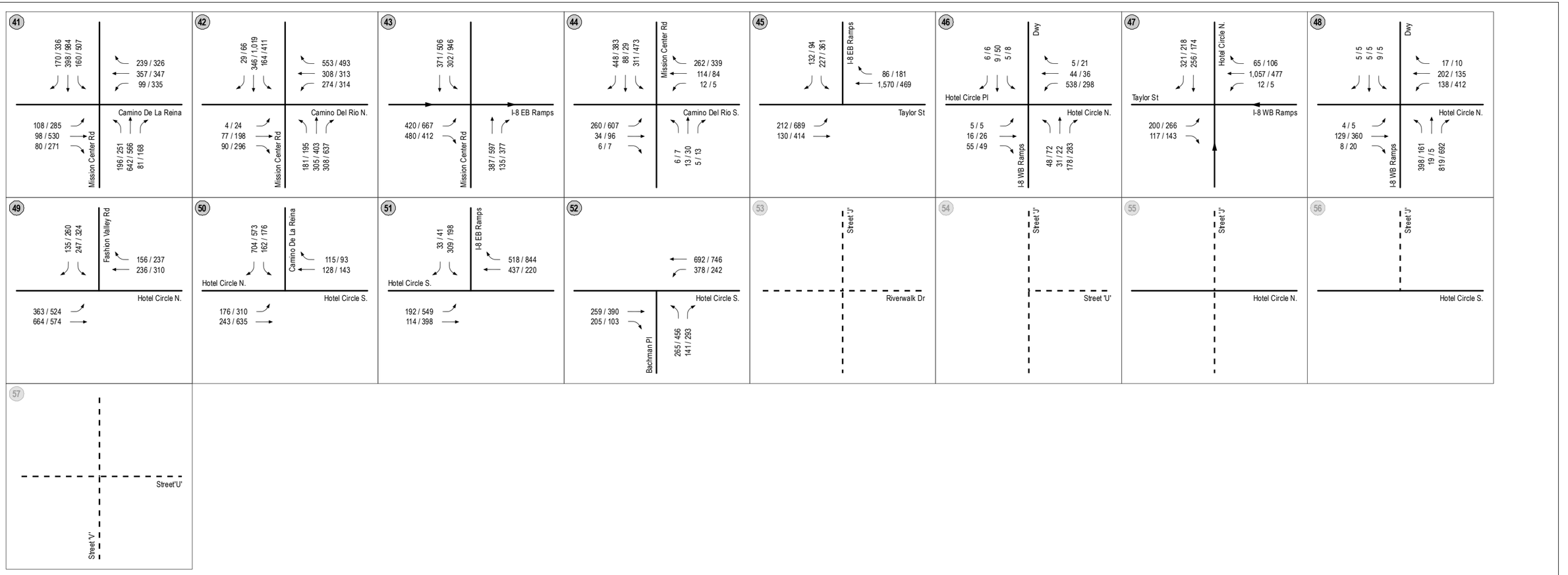
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 10-9

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

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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

Figure 10-9

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

(Page 2 of 2)

Riverwalk

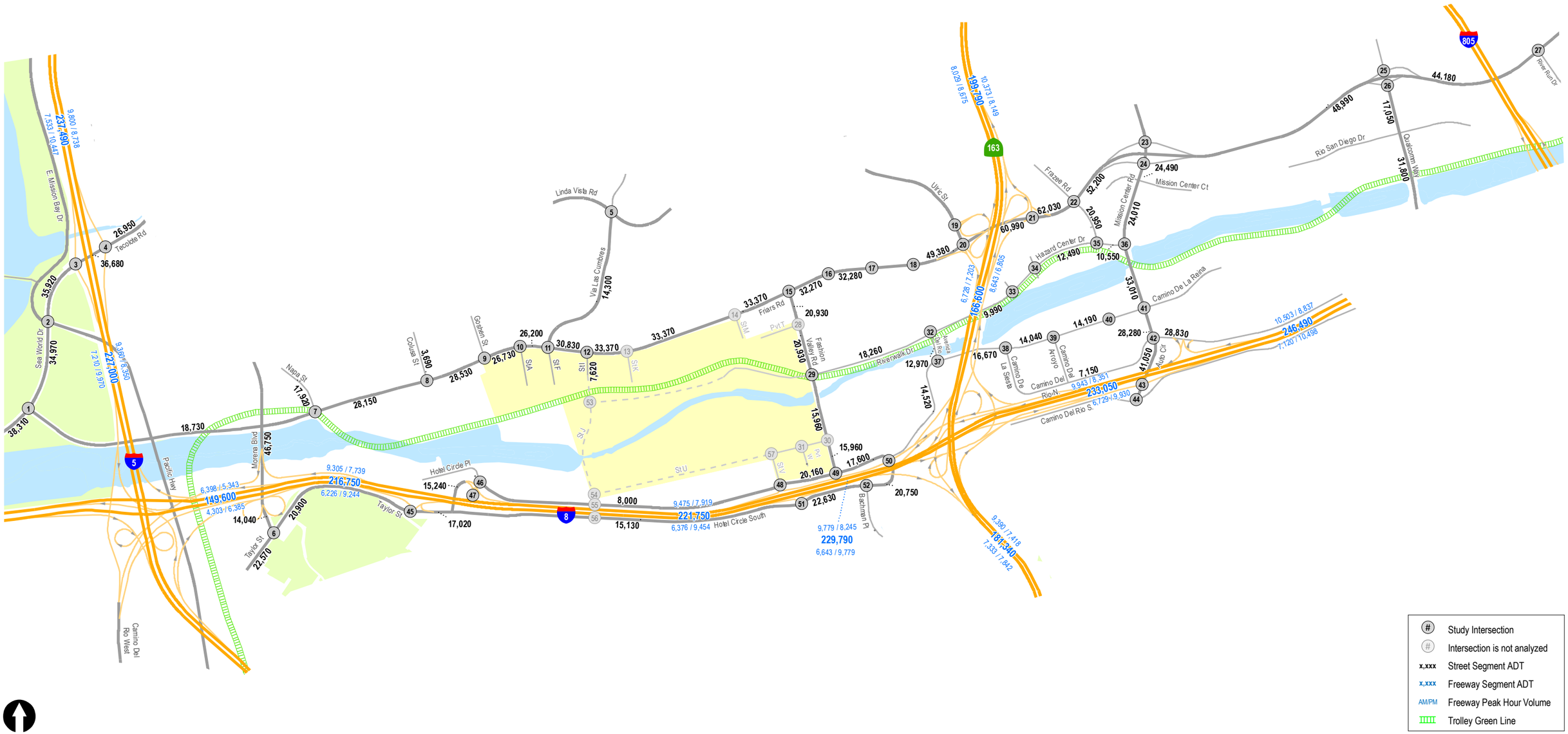

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Figure 10-10

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

Riverwalk

11.0 YEAR 2030 (PHASES I AND II) ANALYSIS

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

11.1 Year 2030 Analysis Approach

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

11.2 Year 2030 Auto Conditions

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

11.2.1 *Planned Local Improvements*

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

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

TABLE 11–1
YEAR 2030 PLANNED LOCAL IMPROVEMENTS– ASSUMED

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

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

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

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

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

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

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

11.2.2 *Planned Regional Improvements*

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

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

TABLE 11–3
YEAR 2030 PLANNED REGIONAL IMPROVEMENTS – ASSUMED

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

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

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

11.2.3 *Year 2030 Traffic Volumes*

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

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

11.2.4 *Peak Hour Intersection Operations*

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

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

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

11.2.5 *Daily Street Segment Operations*

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

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

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

11.2.6 *Freeway Segment Operations*

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

I-8

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

I-5

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

SR 163

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

11.2.7 *Ramp Meter Operations*

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

11.3 Year 2030 + Project Phases I and II

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

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

11.3.1 *Project Improvements*

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

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

11.3.2 *Peak Hour Intersection Operations*

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

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

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

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

11.3.3 *Daily Street Segment Operations*

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

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

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

11.3.4 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR 163

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

11.3.5 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

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

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

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

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

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

General Notes:
1. NA = Not Applicable.

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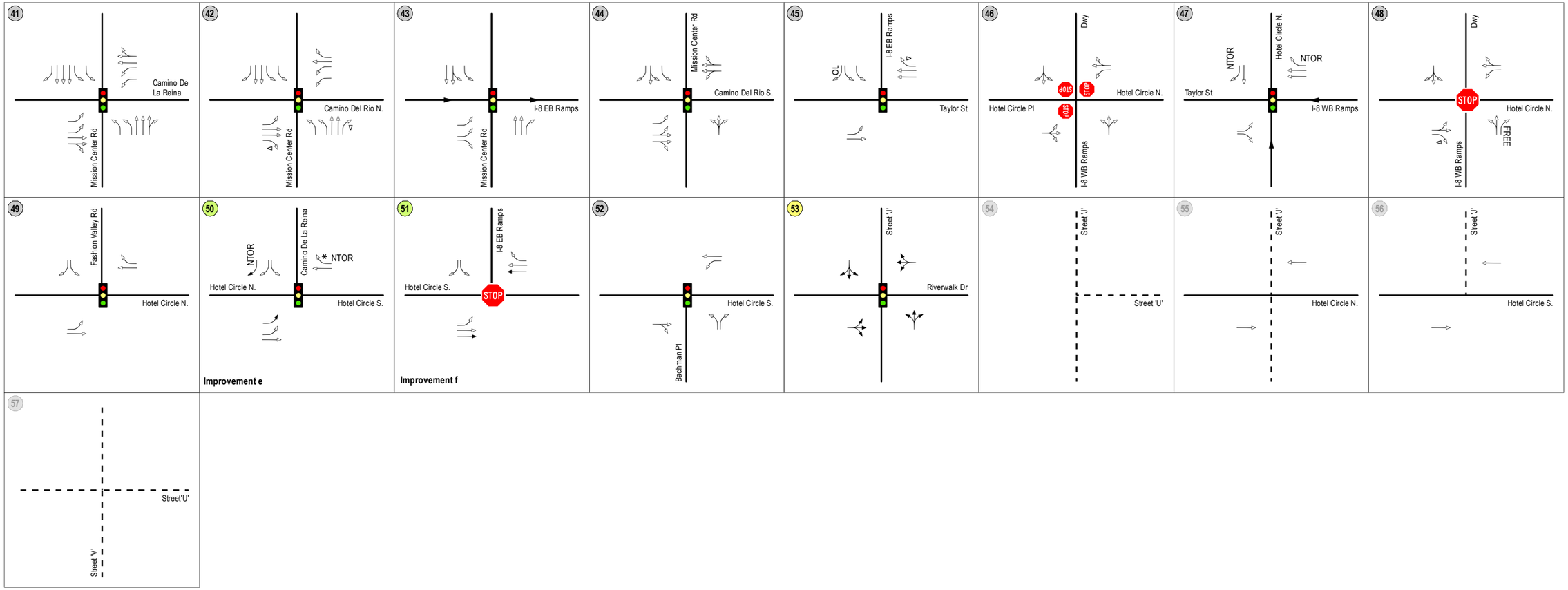
Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection does not exist
(#) Planned Improvements
(#) Project Improvements

List of Improvements:

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

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



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

List of Improvements:

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

Figure 11-1

Year 2030 Conditions Diagram

(Page 2 of 2)

Riverwalk

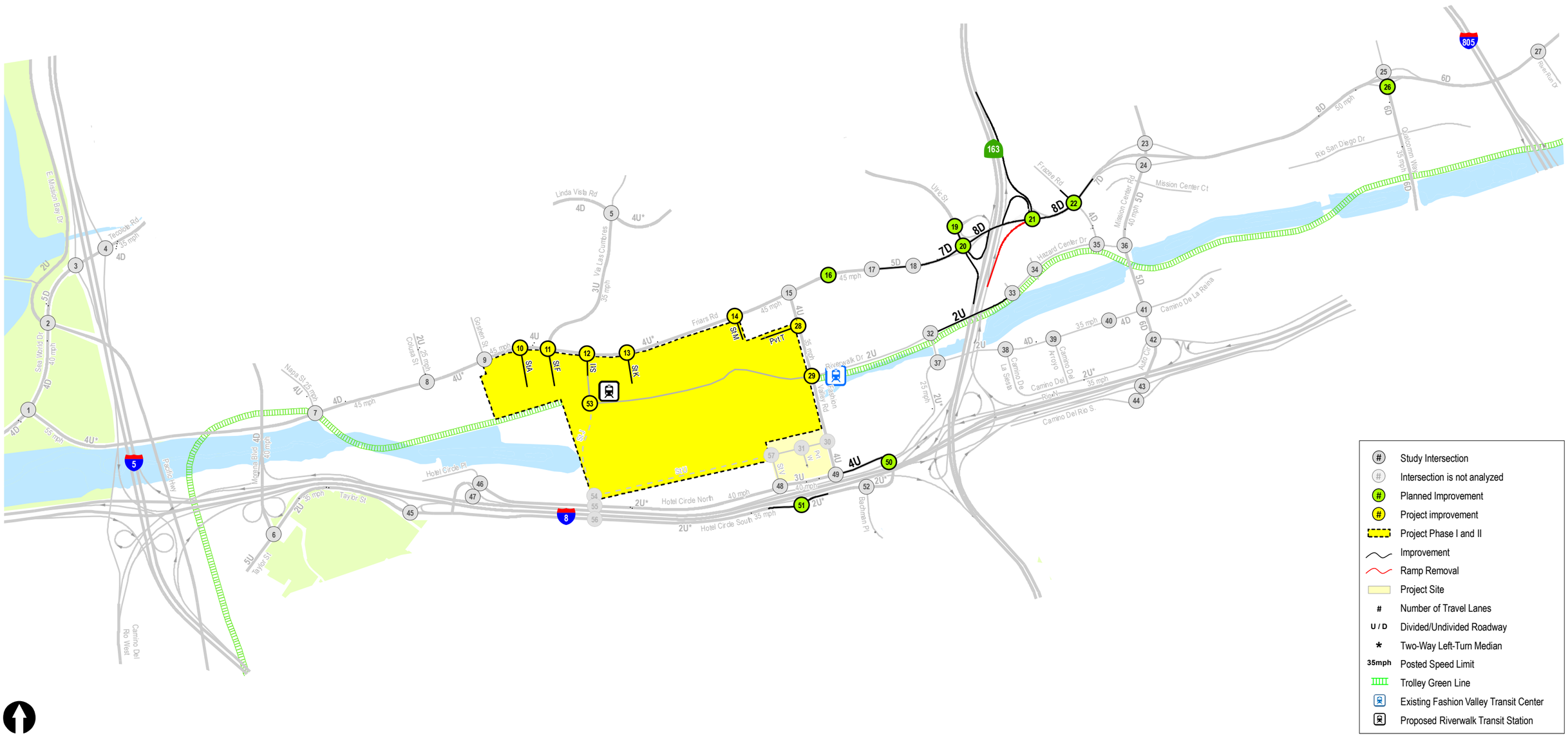

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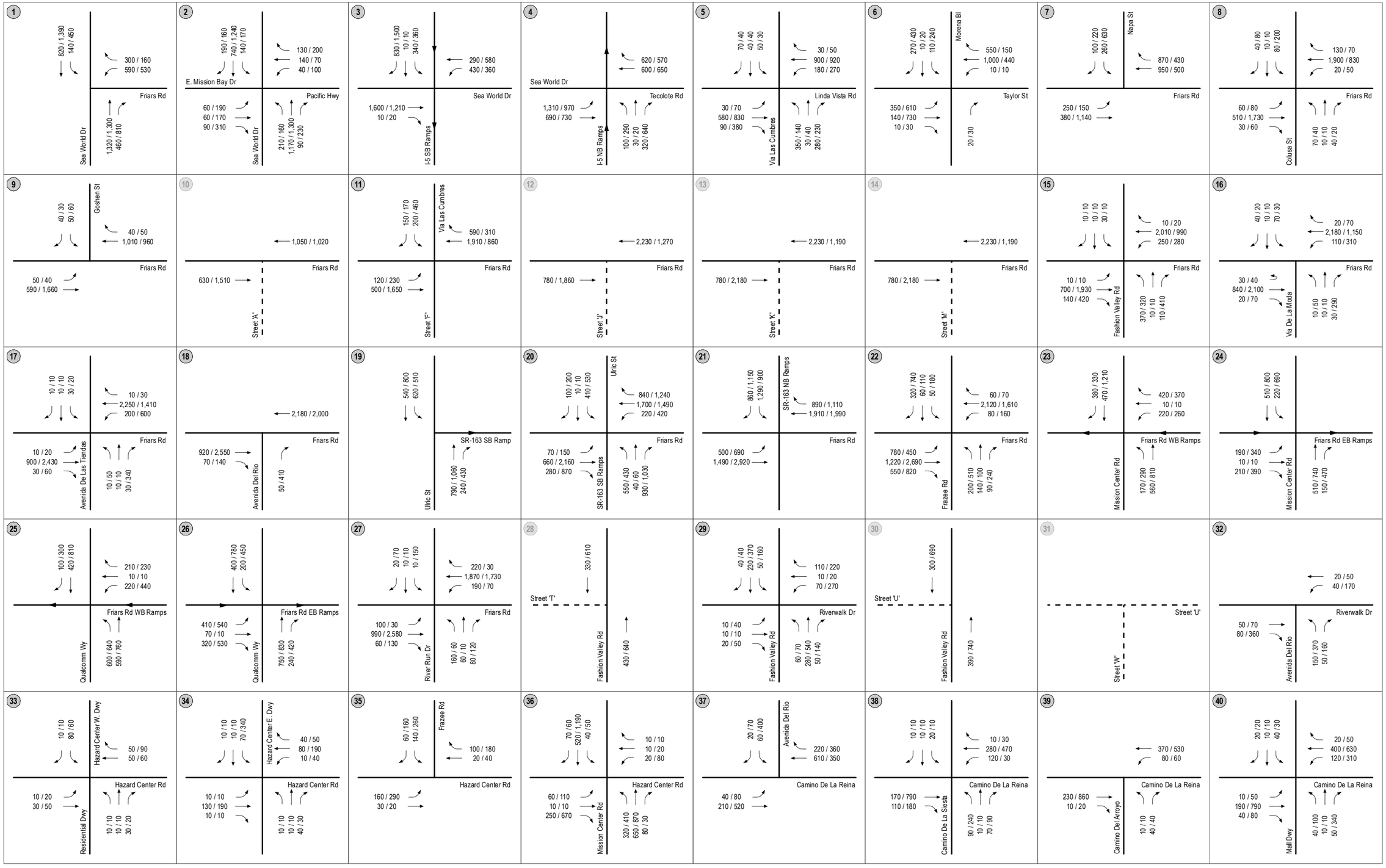
Figure 11-2

Year 2030 Conditions Diagram

Riverwalk



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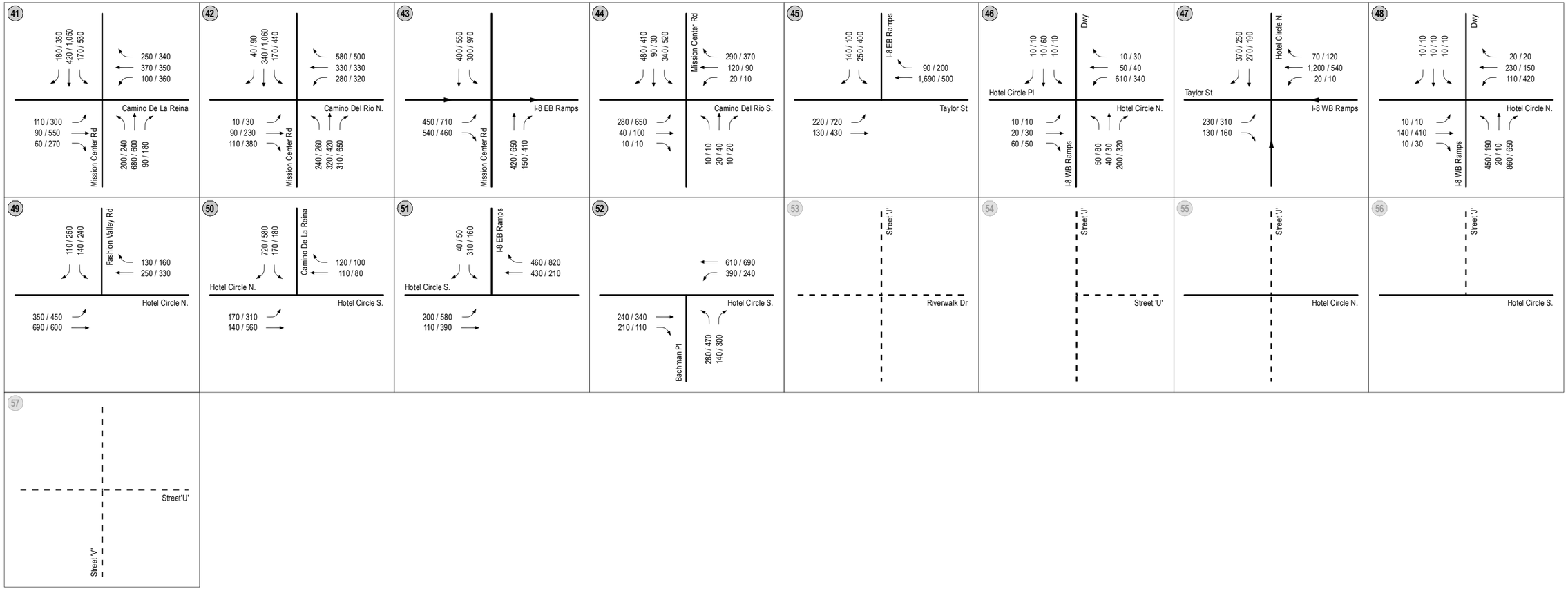
Intersection AM/PM Peak Hour volumes

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



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

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

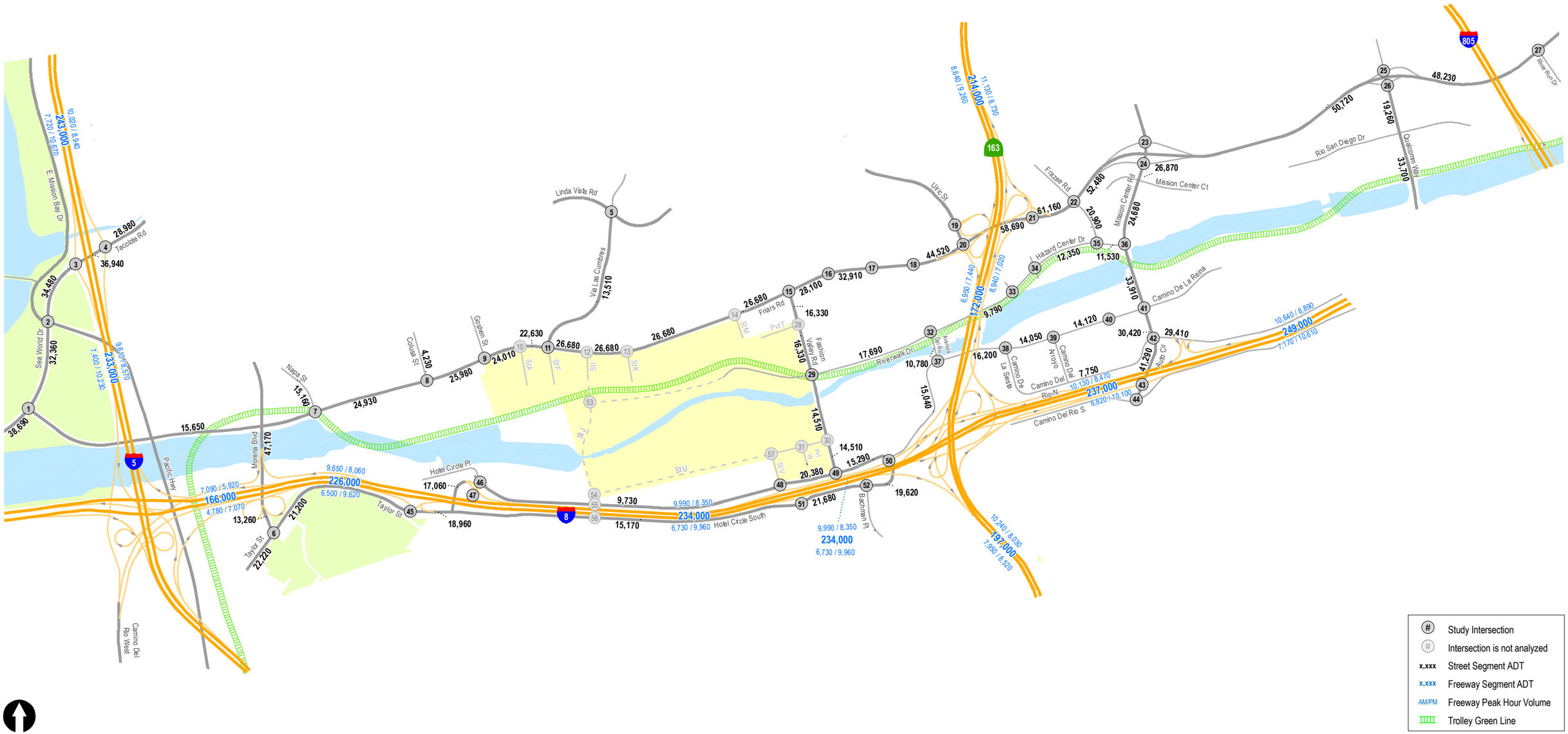

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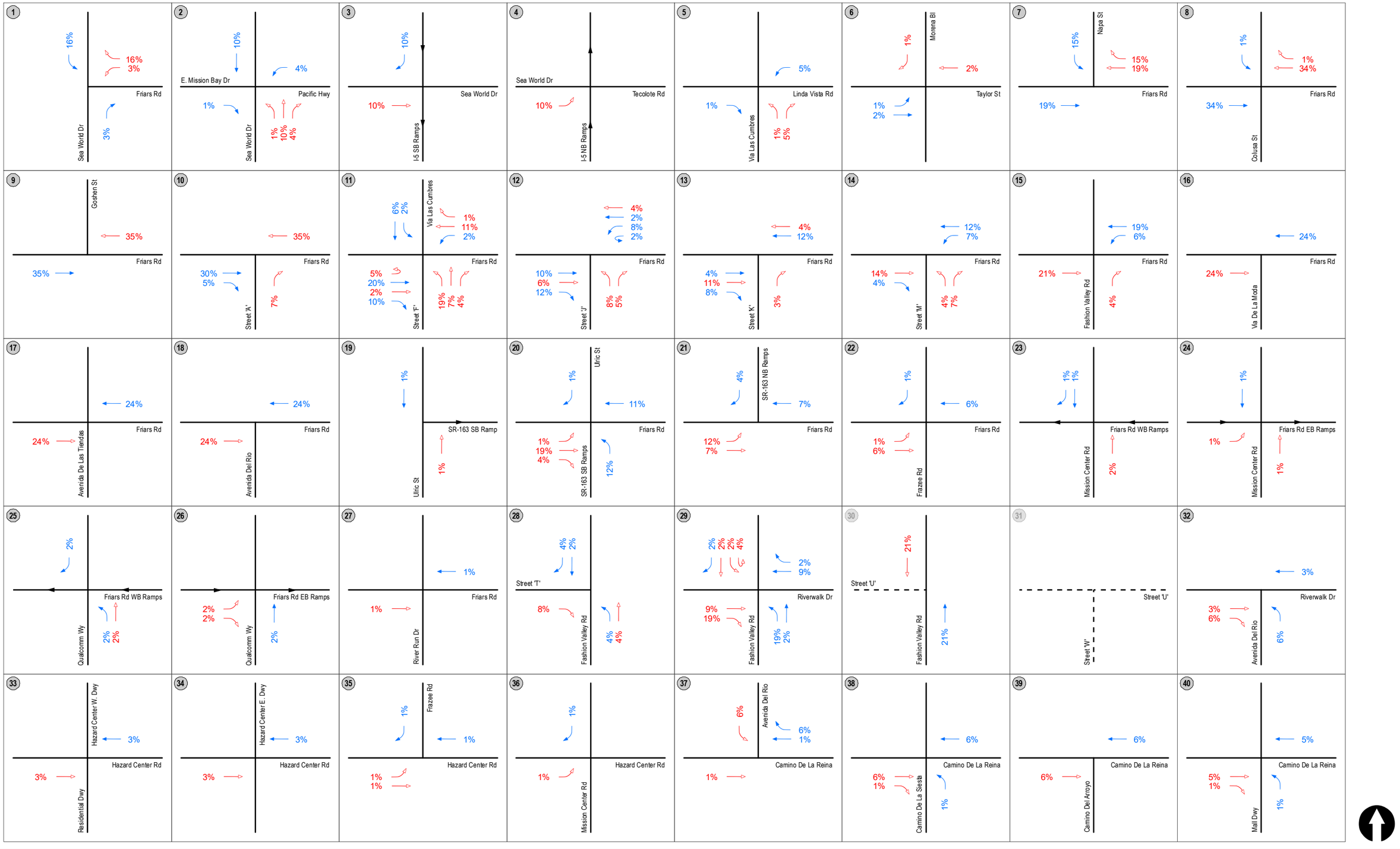
Figure 11-4

Year 2030 Traffic Volumes

Riverwalk



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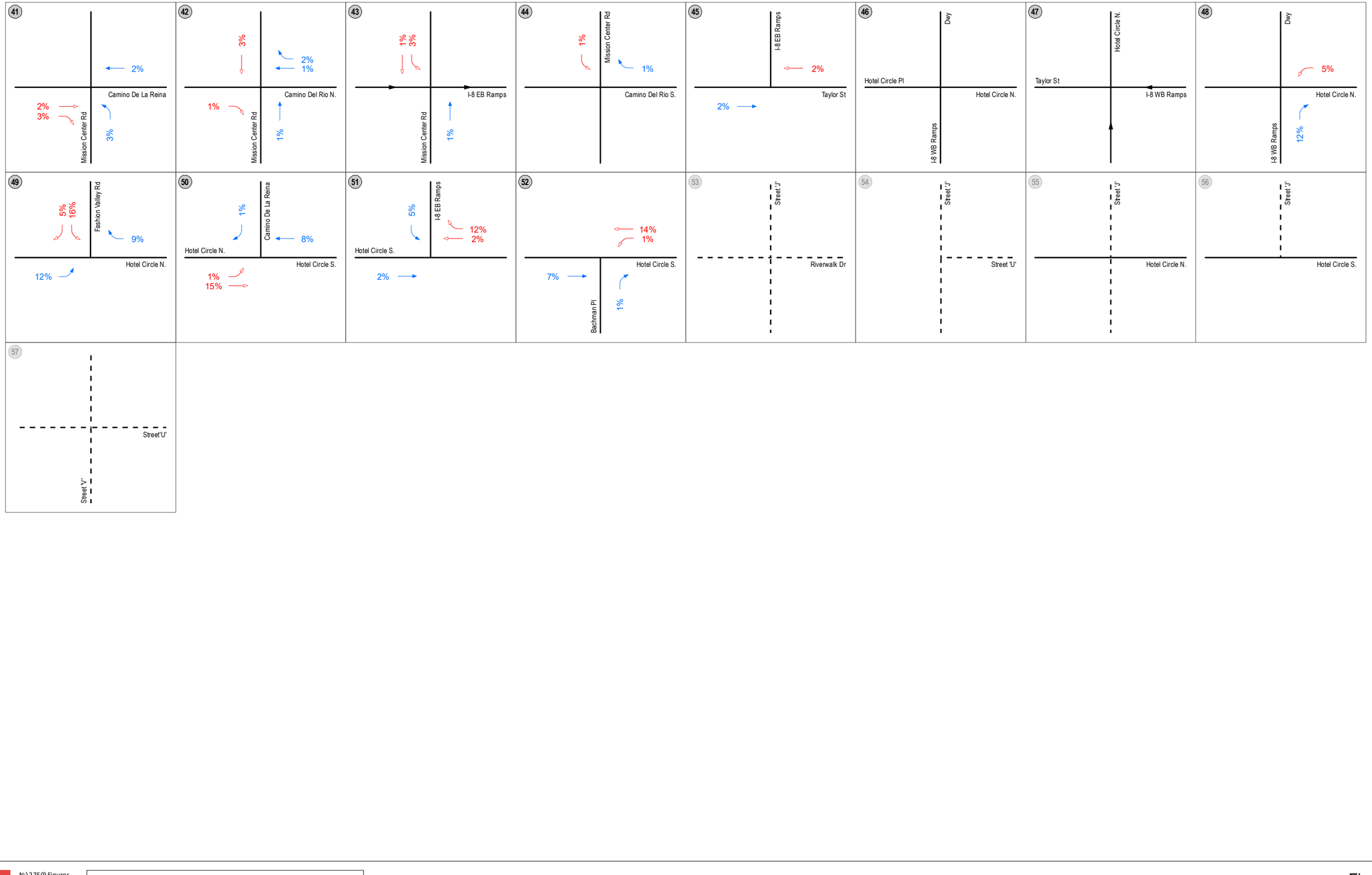
Inbound Trip Distribution
Outbound Trip Distribution

Figure 11-5

Project Phases I and II Traffic Distribution

(Page 1 of 2)

Riverwalk



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Inbound Trip Distribution
Outbound Trip Distribution

Figure 11-5

Project Phases I and II Traffic Distribution

(Page 2 of 2)

Riverwalk

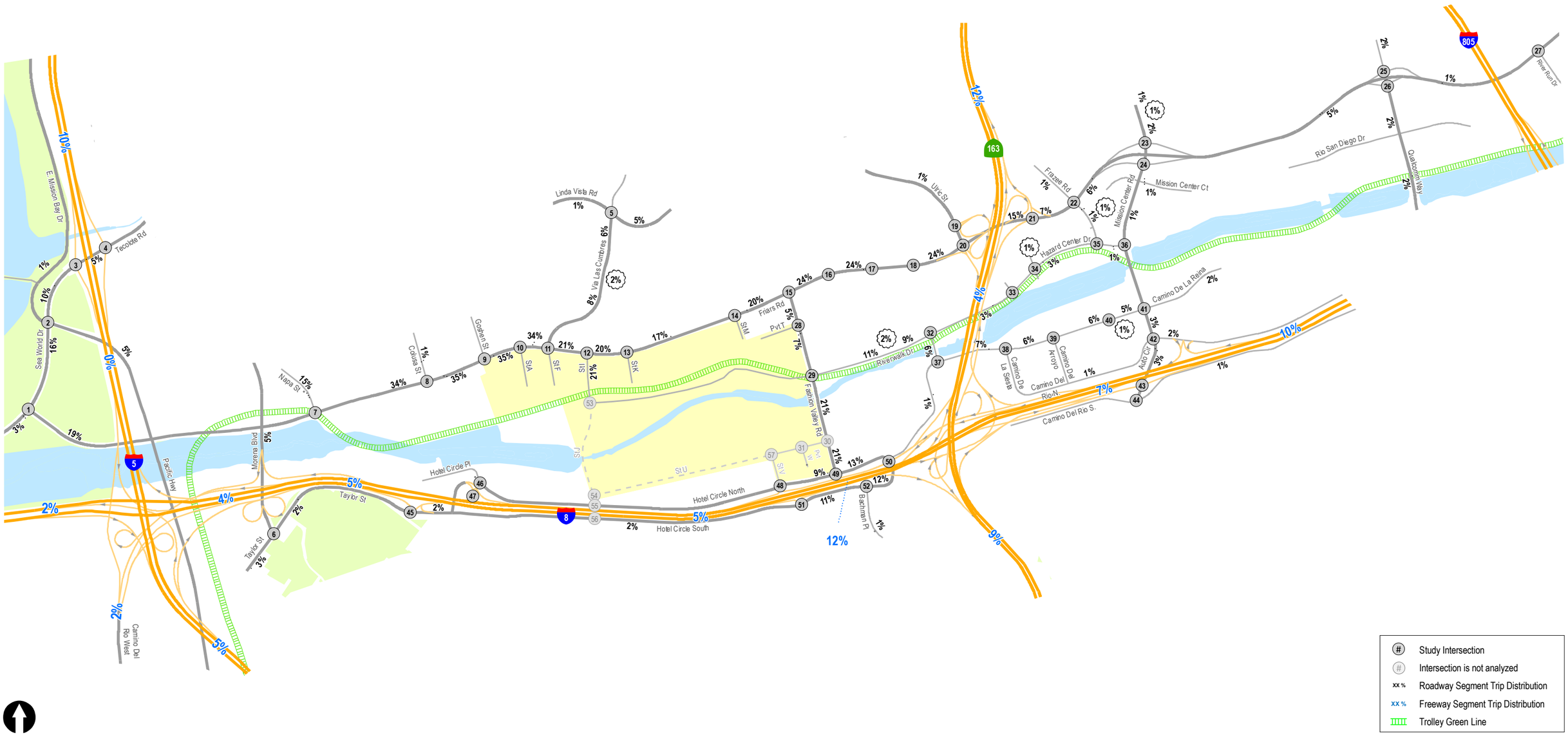

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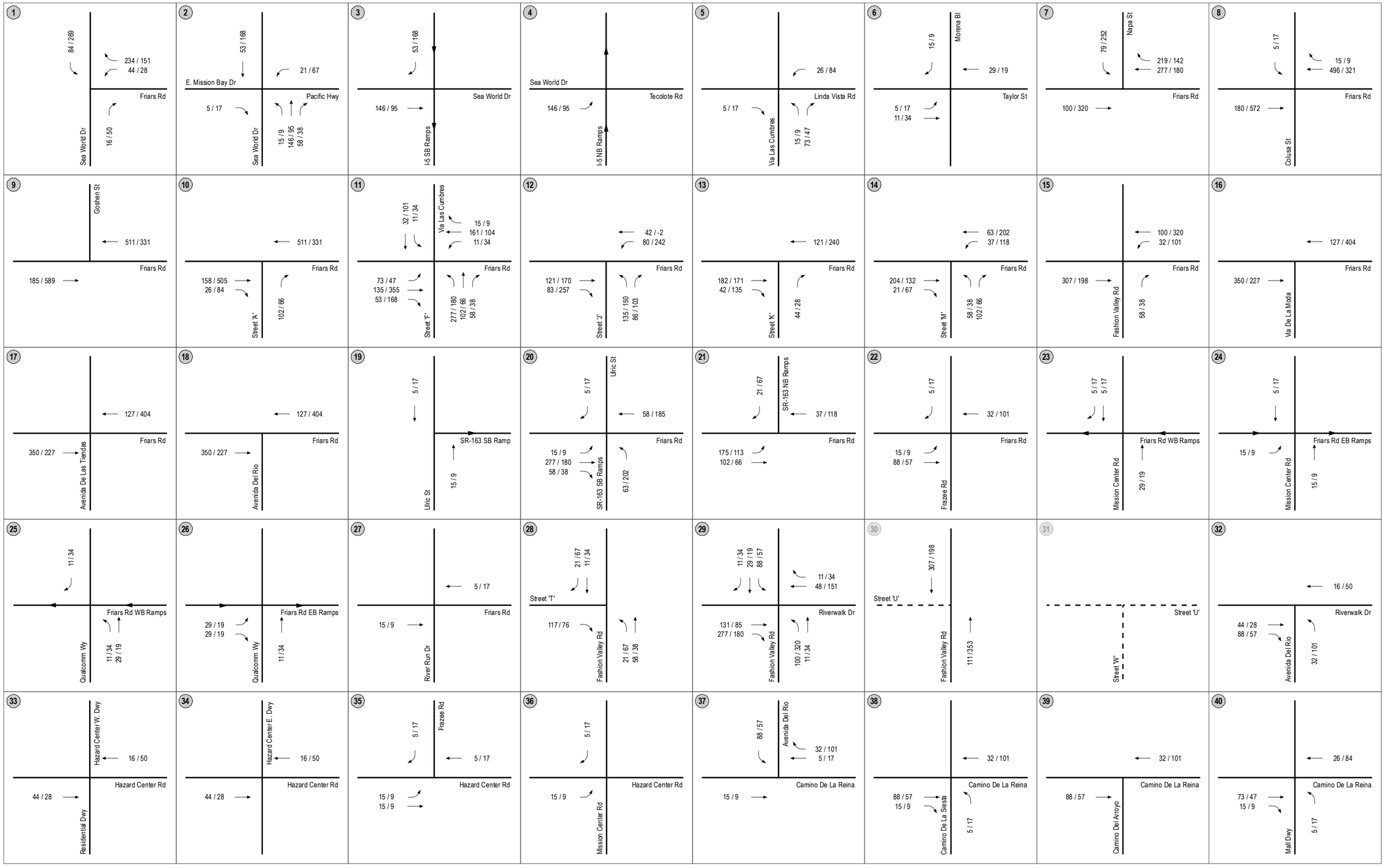
Figure 11-6

Project Phase I and II Traffic Distribution

Riverwalk



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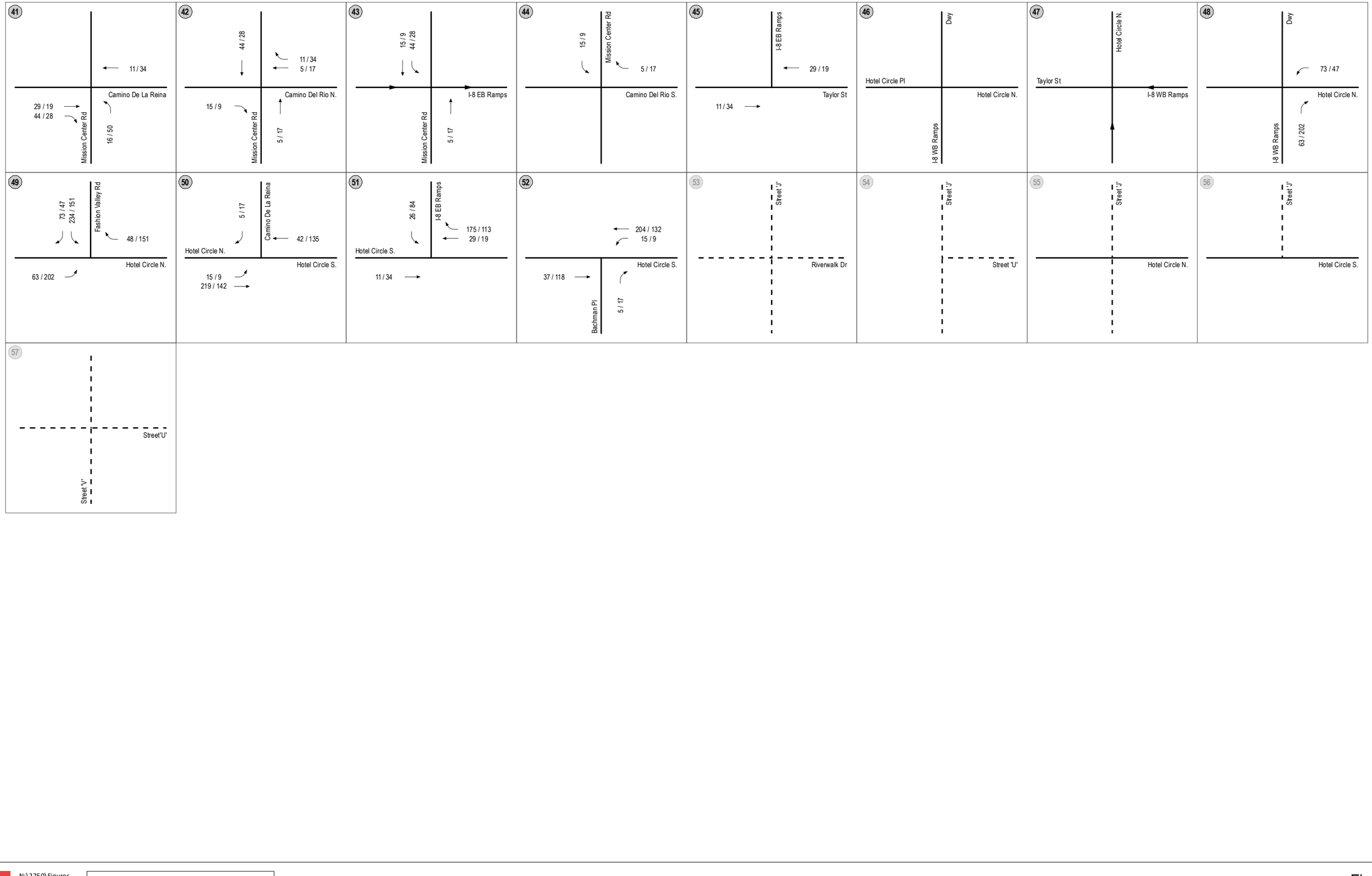
Intersection AM/PM Peak Hour volumes

Figure 11-7

Project Phases I and II Traffic Volumes

(Page 1 of 2)

Riverwalk



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Intersection AM/PM Peak Hour volumes

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

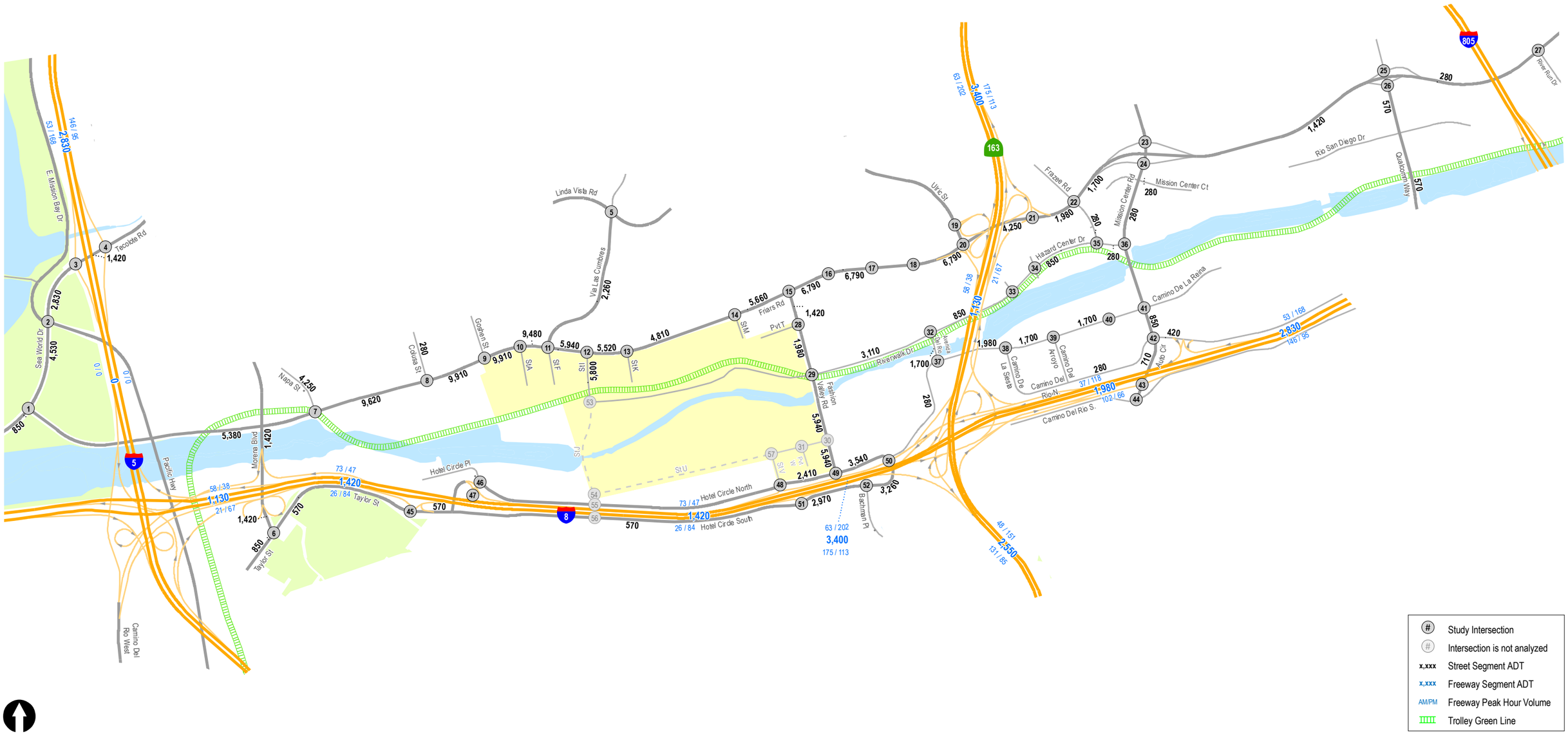

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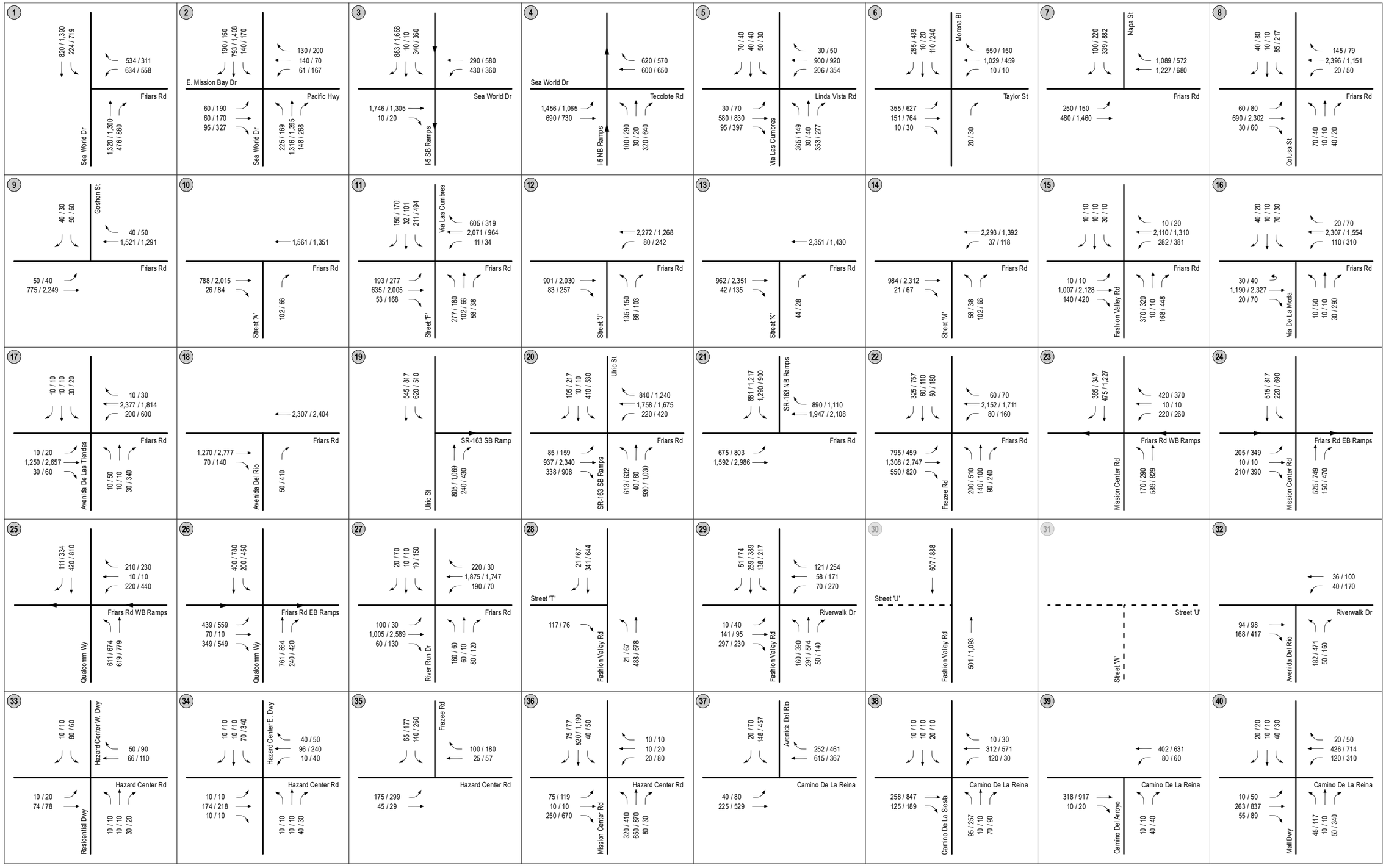
Figure 11-8

Project Phase I and II Traffic Volumes

Riverwalk



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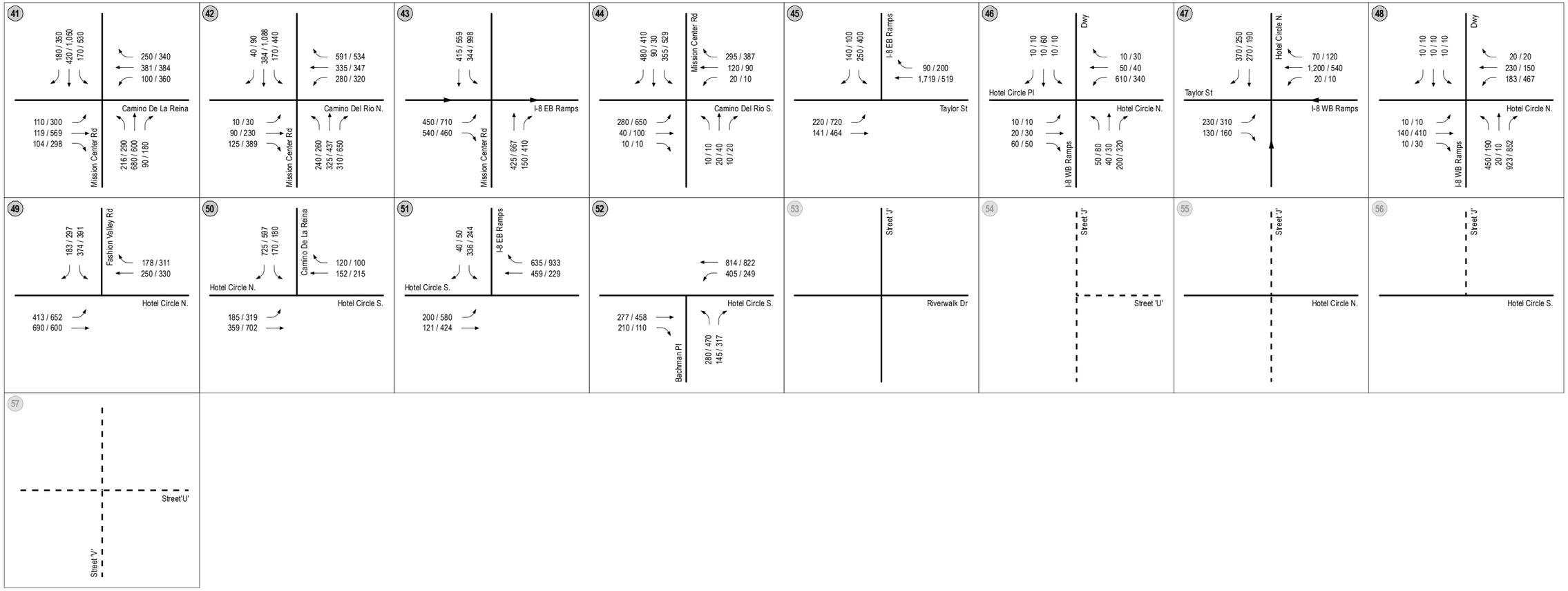
Intersection AM/PM Peak Hour volumes

Figure 11-9

Year 2030 + Project Phases I and II Traffic Volumes

(Page 1 of 2)

Riverwalk



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

Figure 11-9

Year 2030 + Project Phases I and II Traffic Volumes

(Page 2 of 2)

Riverwalk

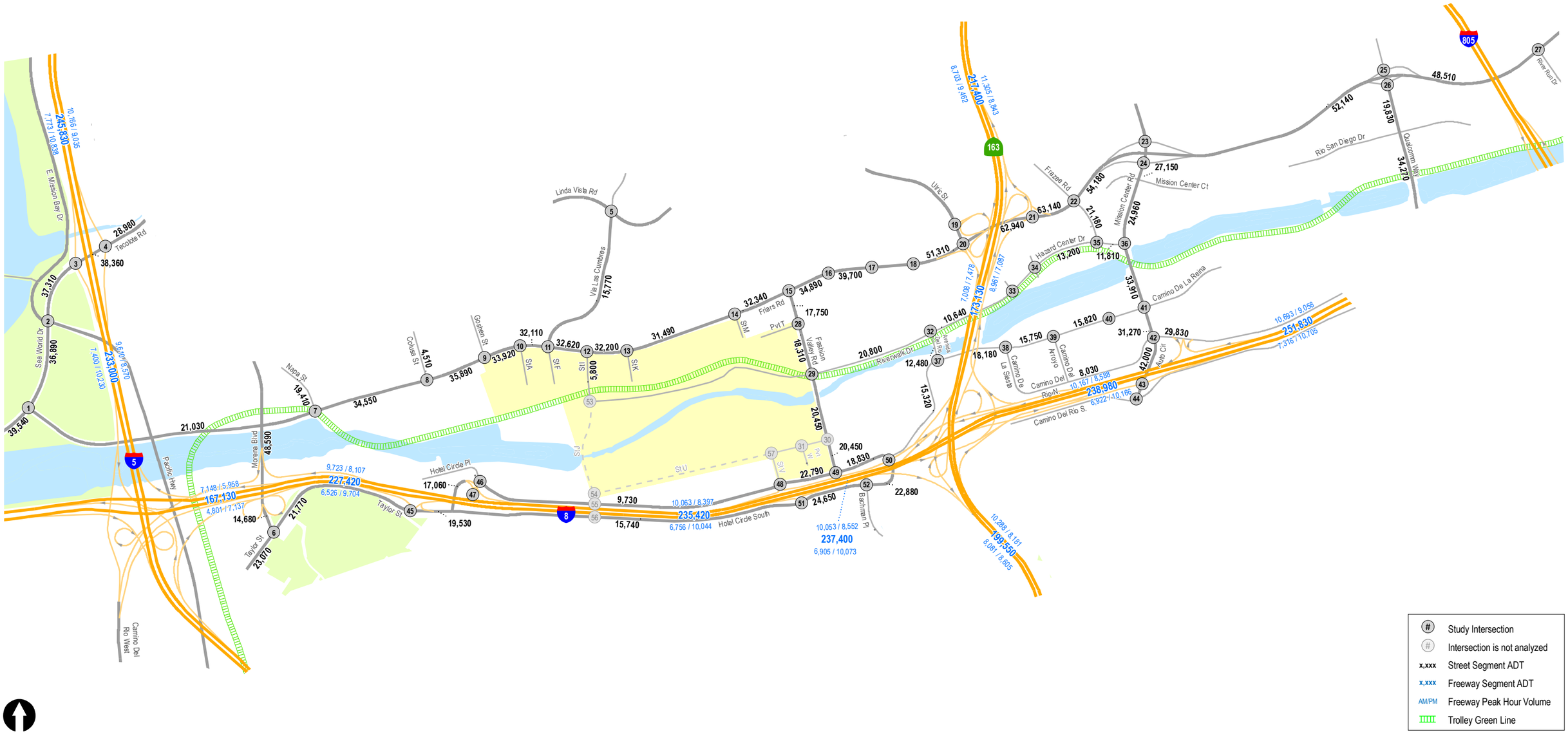

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Figure 11-10

Year 2030 + Project Phase I and II Traffic Volumes

Riverwalk

12.0 YEAR 2035 (PHASES I THROUGH III) ANALYSIS

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

12.1 Year 2035 Analysis Approach

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

12.2 Year 2035 Auto Conditions

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

12.2.1 *Planned Local Improvements*

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

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

TABLE 12–1
YEAR 2035 PLANNED LOCAL IMPROVEMENTS– ASSUMED

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

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

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

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

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

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

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

12.2.2 *Planned Regional Improvements*

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

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

TABLE 12–3
YEAR 2035 PLANNED REGIONAL IMPROVEMENTS – ASSUMED

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

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

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

12.2.3 *Year 2035 Traffic Volumes*

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

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

12.2.4 *Peak Hour Intersection Operations*

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

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

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

12.2.5 *Daily Street Segment Operations*

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

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

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

12.2.6 *Freeway Segment Operations*

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

I-8

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

I-5

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

SR 163

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

12.2.7 *Ramp Meter Operations*

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

12.3 Year 2035 + Project Phases I through III

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

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

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

12.3.1 *Project Improvements*

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

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

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

12.3.2 *Peak Hour Intersection Operations*

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

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

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

12.3.3 *Daily Street Segment Operations*

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

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

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

12.3.4 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR 163

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

12.3.5 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

1. *DNE* = does not exist

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

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

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

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

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

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

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

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

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

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

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

Footnotes:

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

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

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

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

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

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

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

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

Footnotes:

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

General Notes:

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

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

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

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

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

General Notes:
1. NA = Not Applicable.

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Date: 4/1/2020
Time: 4:47 PM

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

List of Improvements:

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

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

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N:\2750\Figures
Date: 4/1/2020
Time: 4:47 PM

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

List of Improvements:

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

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

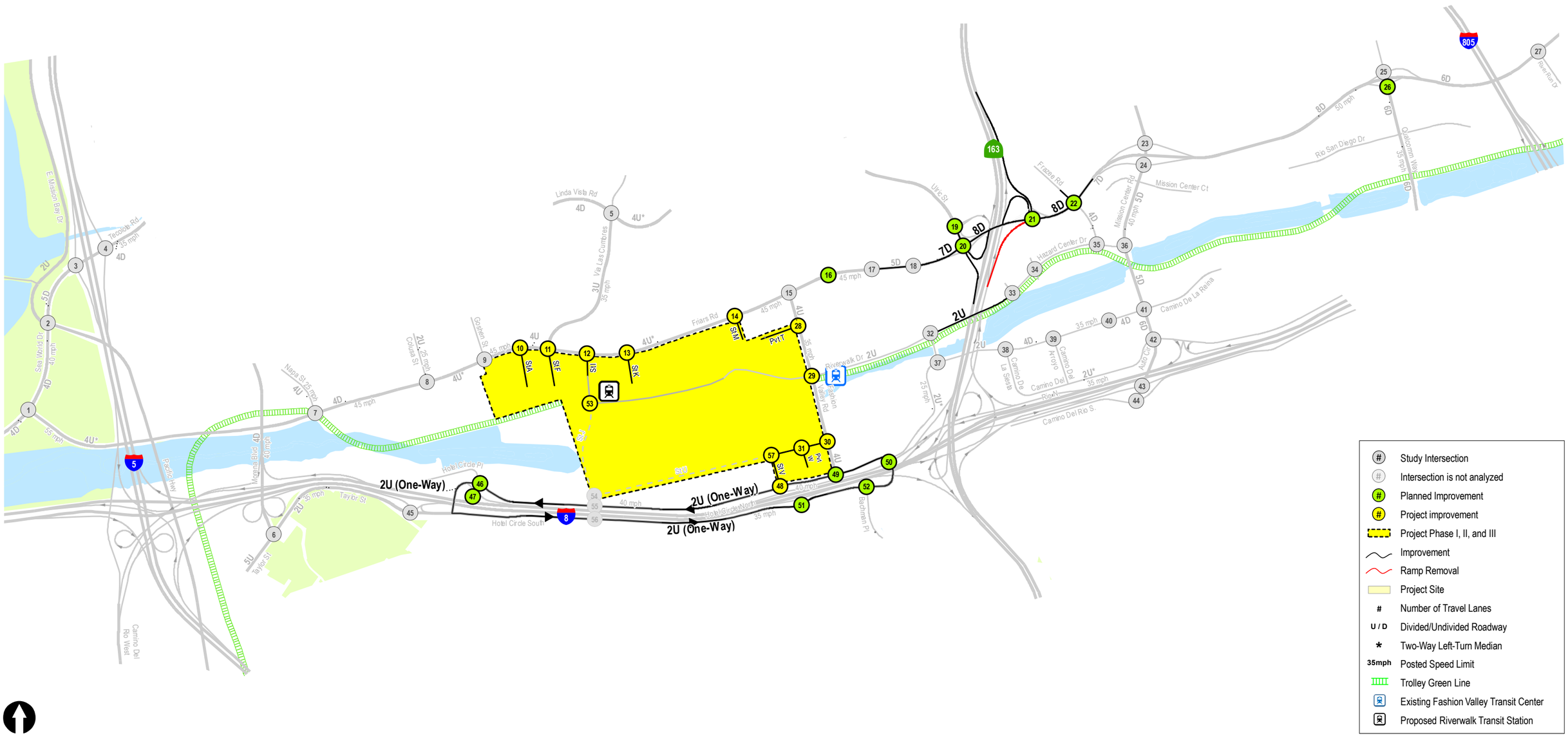

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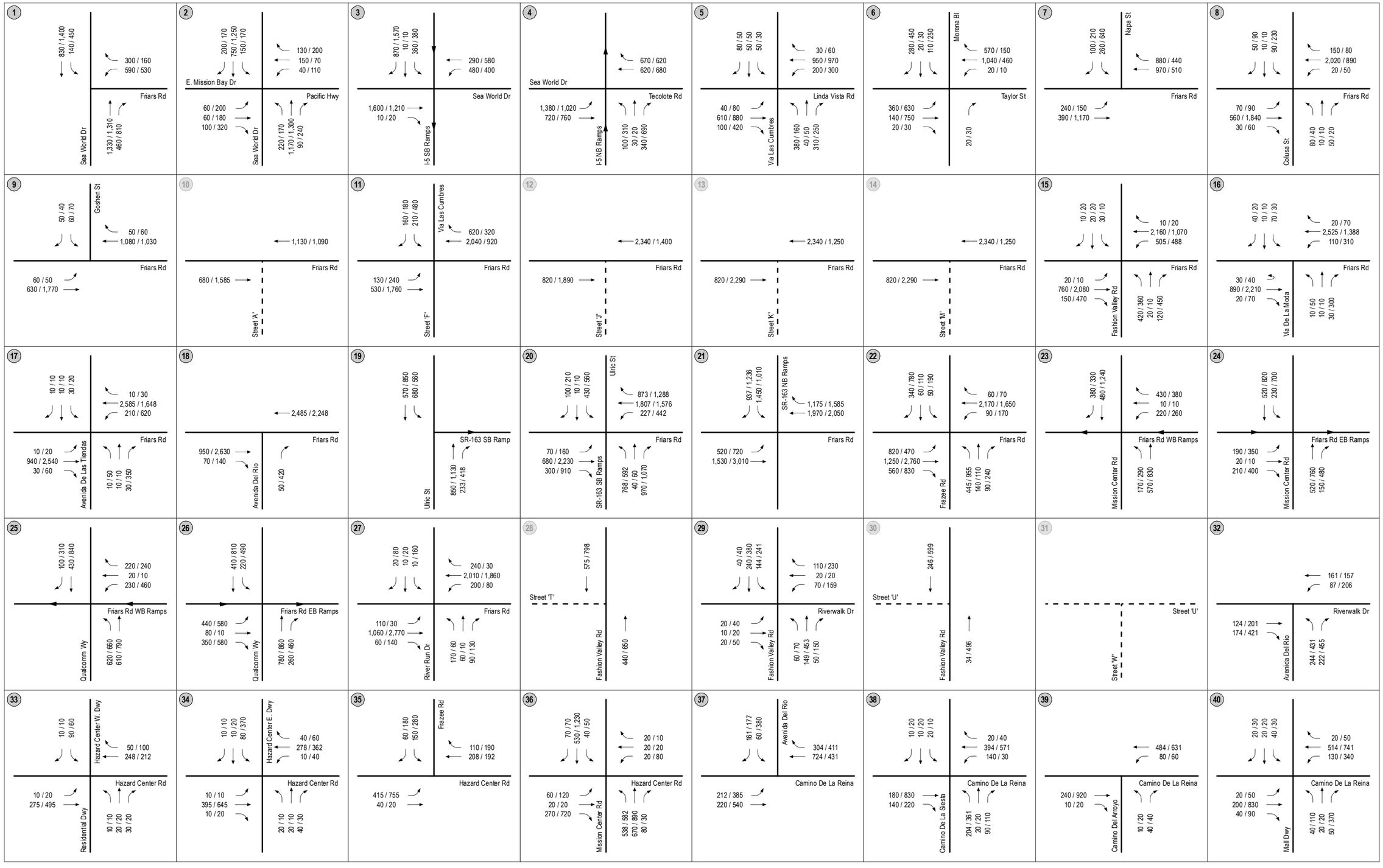
Figure 12-2

Year 2035 Conditions Diagram

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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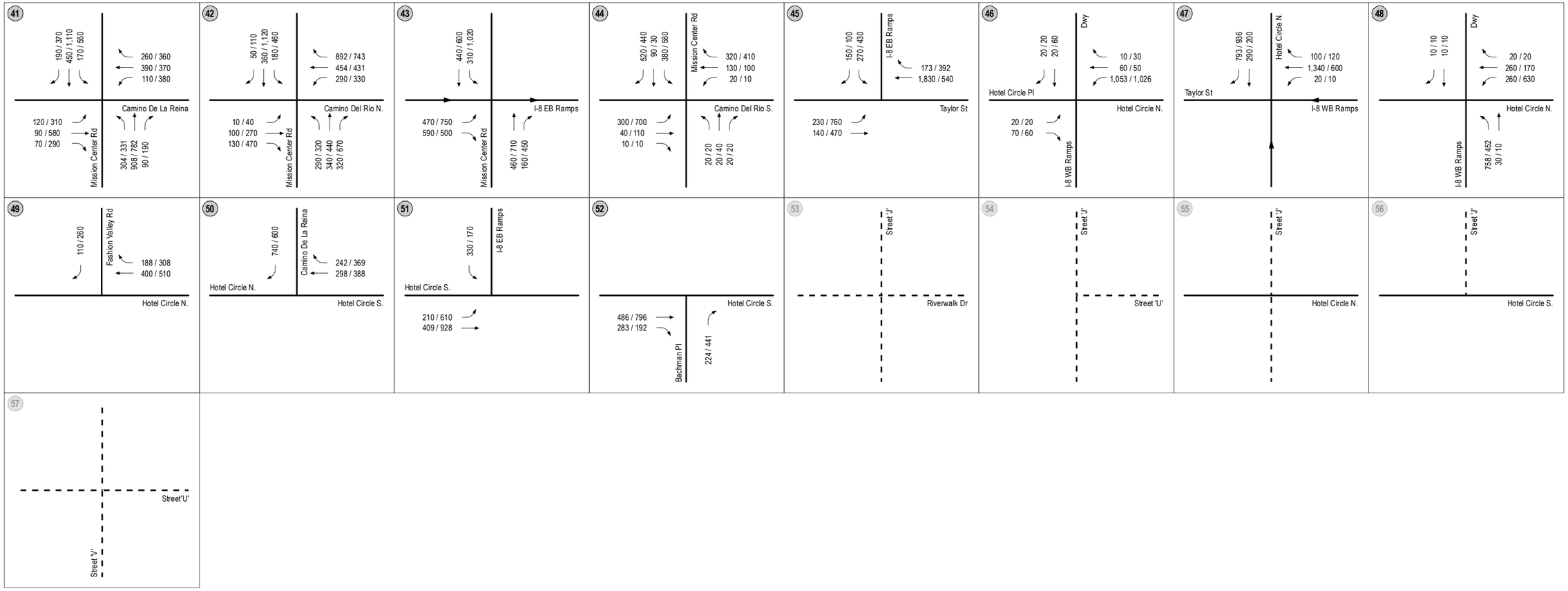
Time: 9:48 PM

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

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



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LINSCOTT LAW & GREENSPAN engineers

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

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

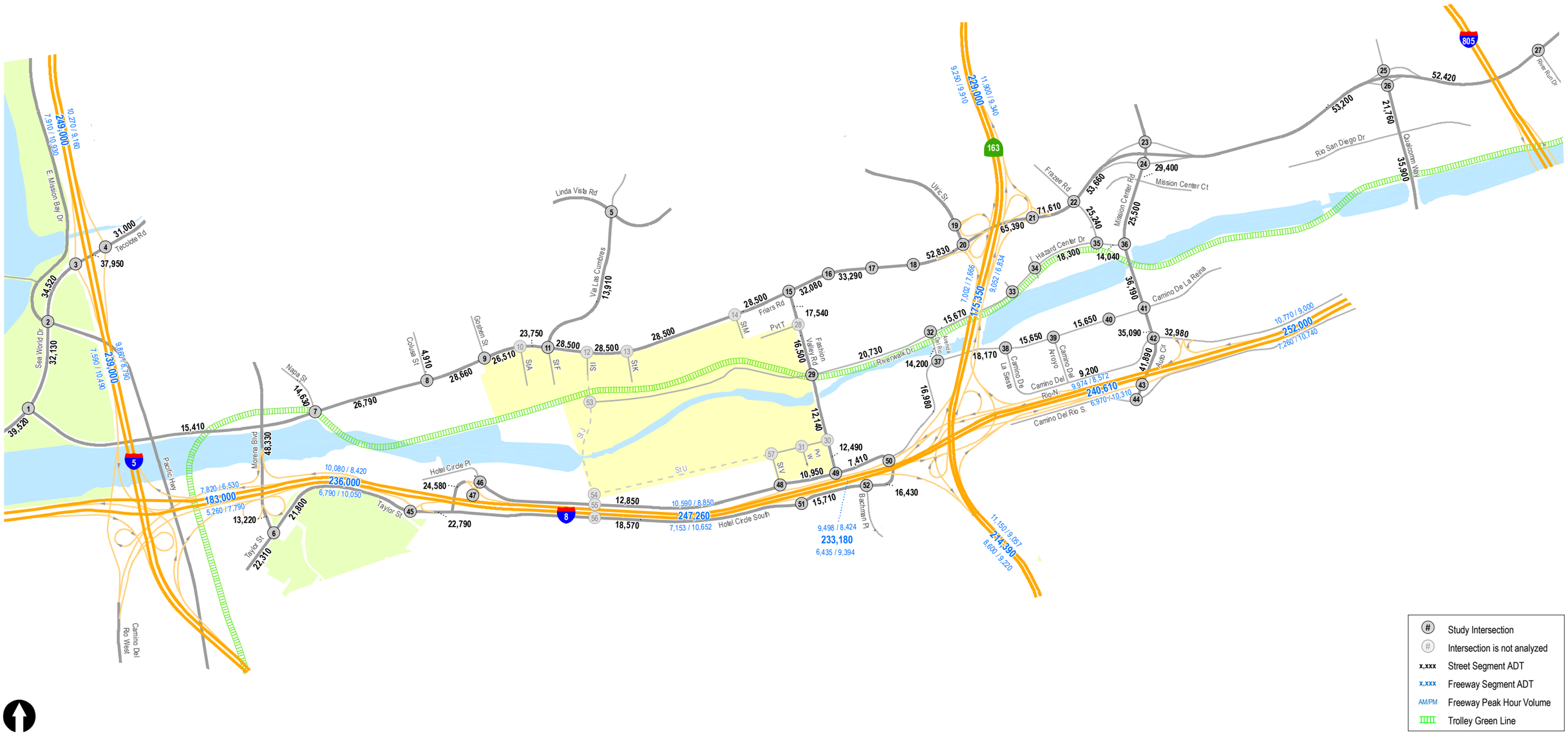

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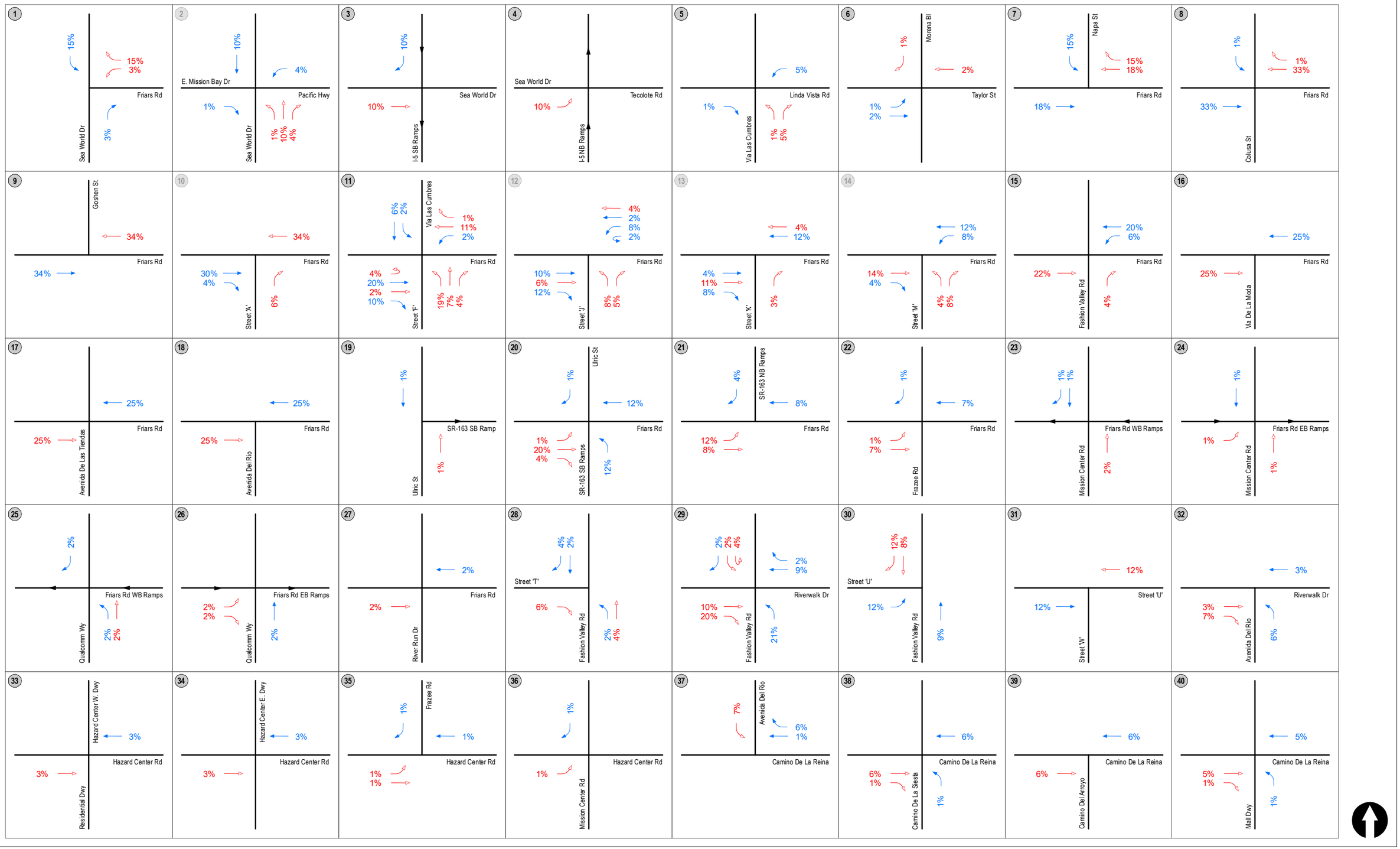
Figure 12-4

Year 2035 Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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(#) Study Intersections
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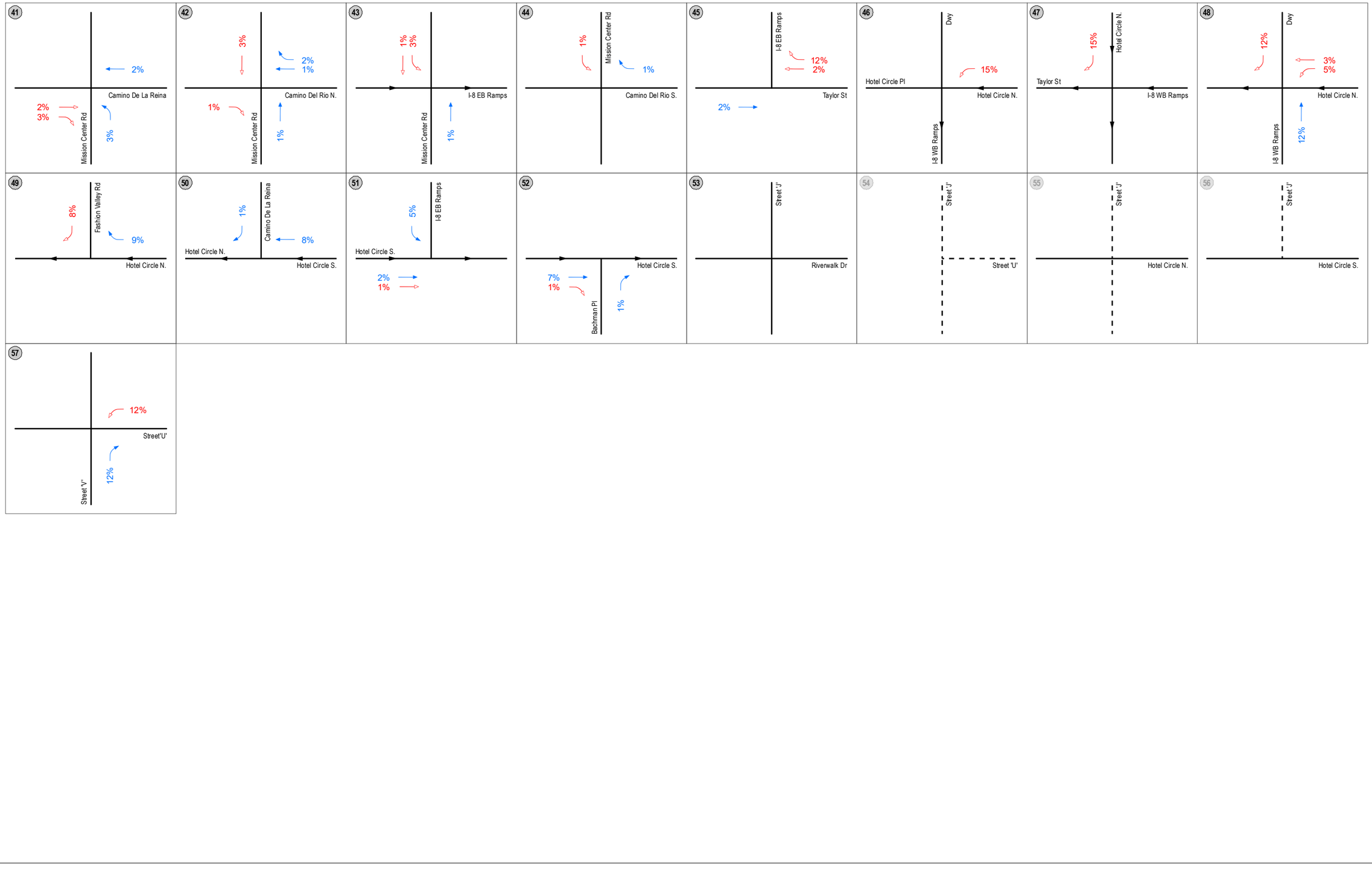
Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-5

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

(Page 1 of 2)

Riverwalk



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Time: 9:59 PM

(#) Study Intersections
(#) Intersection is not analyzed
Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-5

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

(Page 2 of 2)

Riverwalk

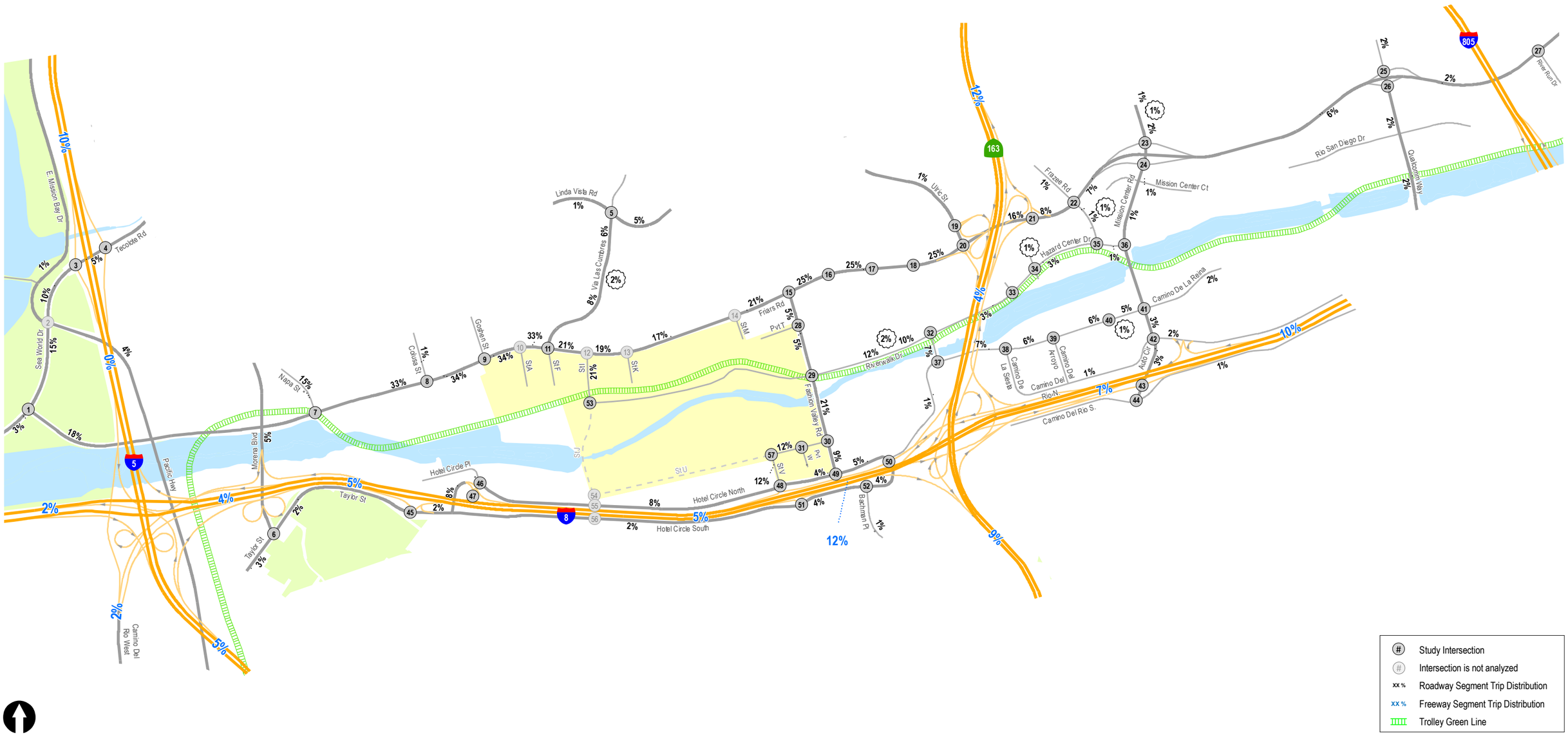

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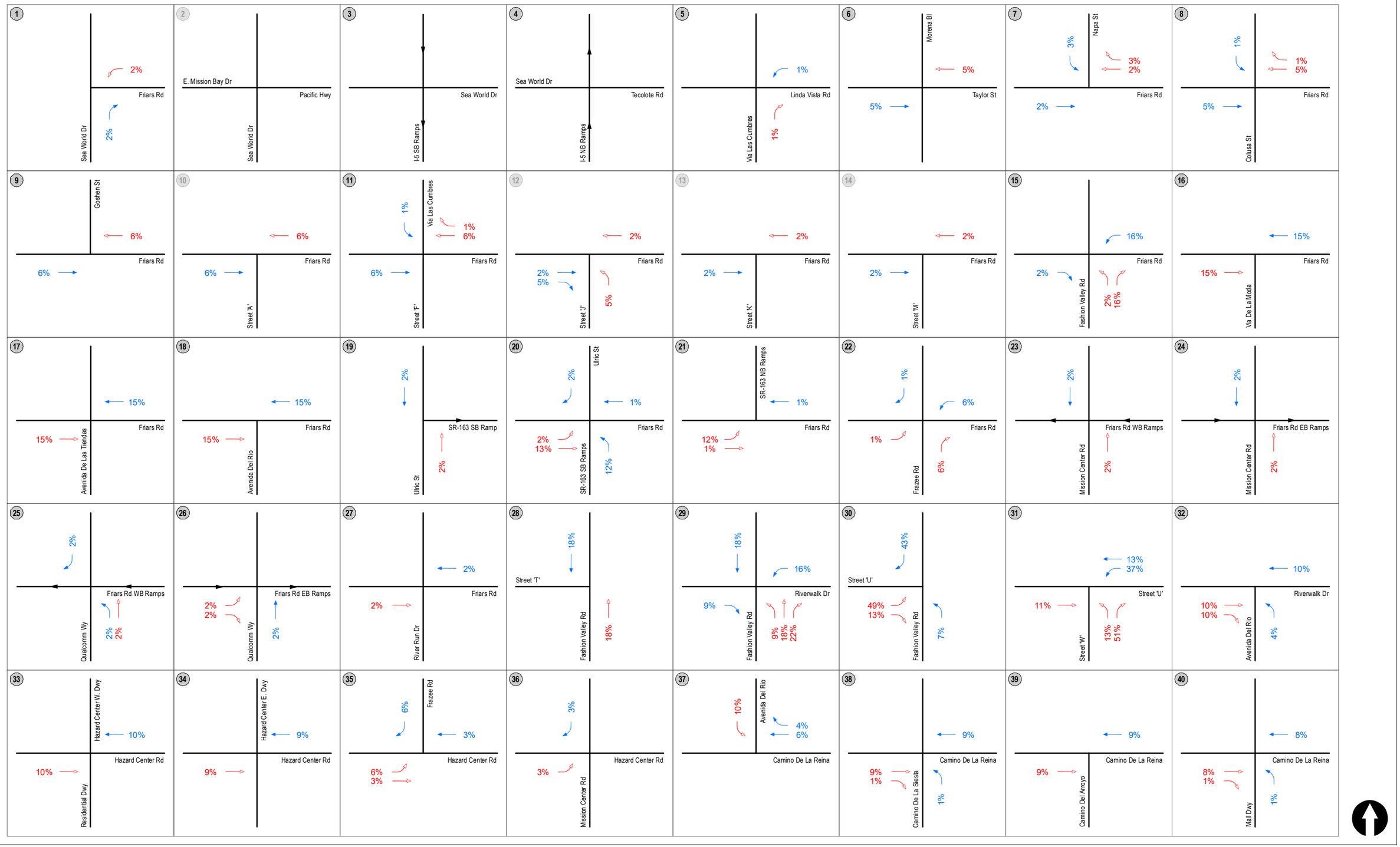
Figure 12-6

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

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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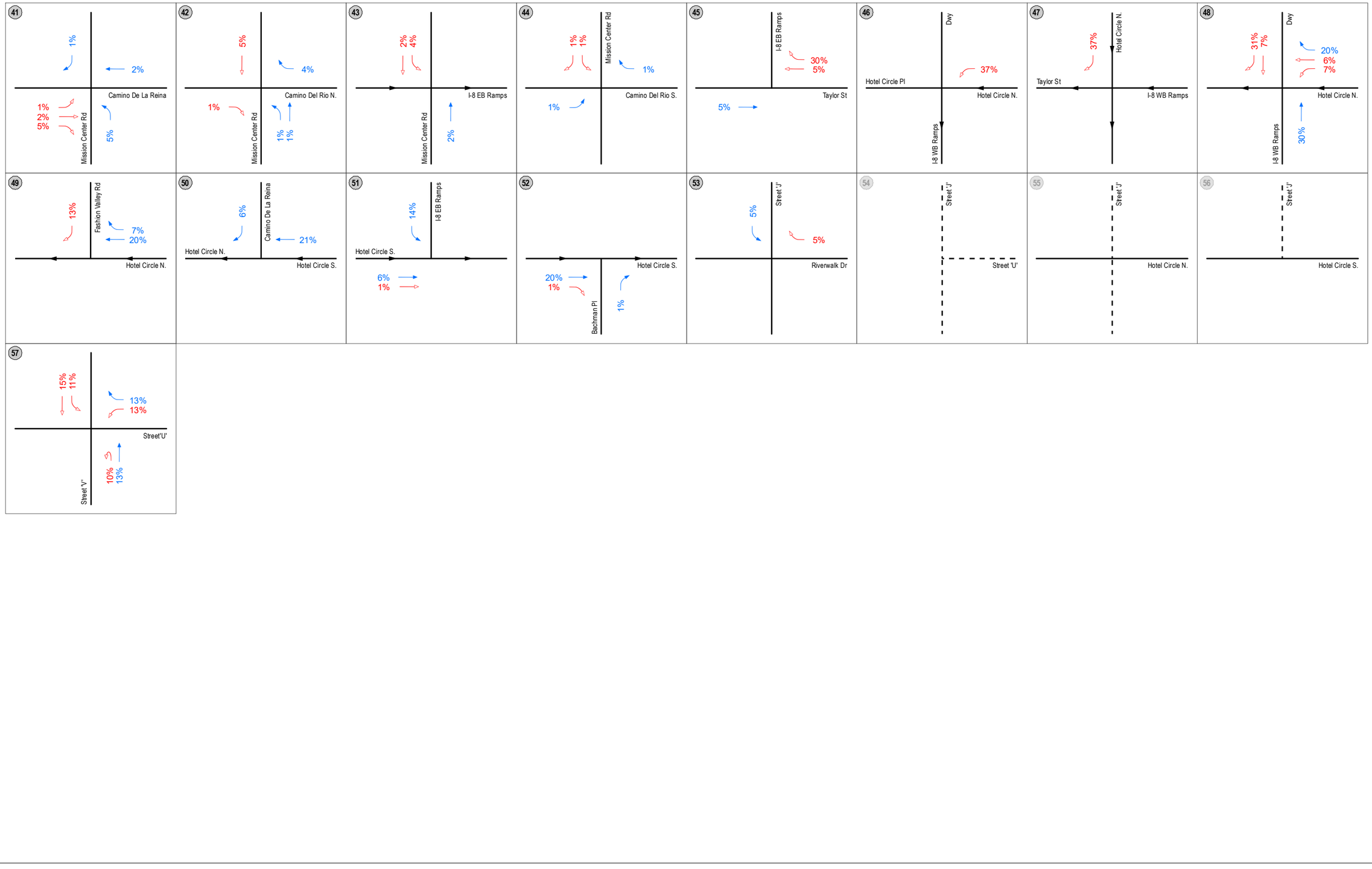
(#) Study Intersections
(#) Intersection is not analyzed
Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-7

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

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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(#) Study Intersections
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Inbound Trip Distribution
Outbound Trip Distribution

Figure 12-7

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

(Page 2 of 2)

Riverwalk

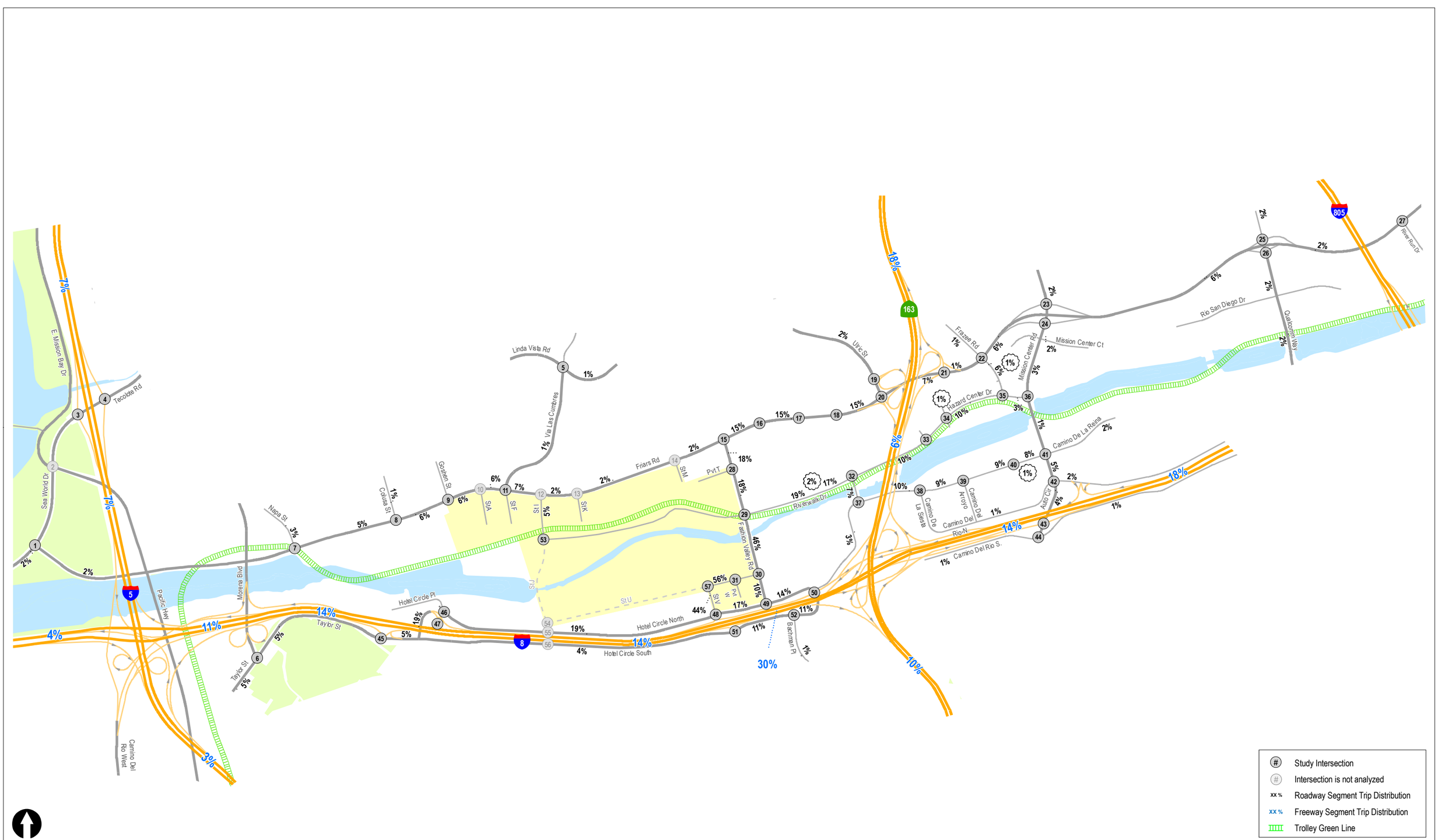

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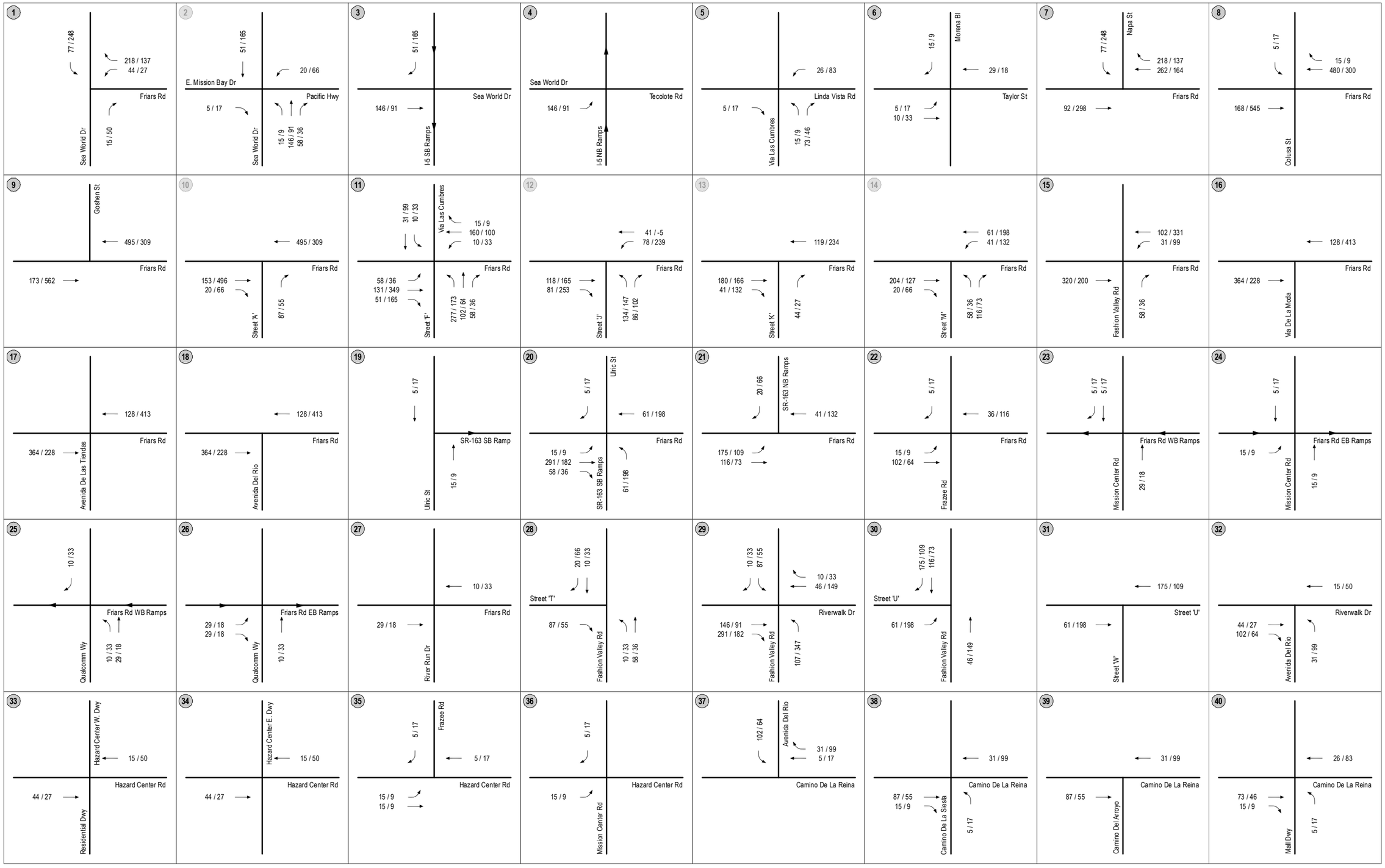
Figure 12-8

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

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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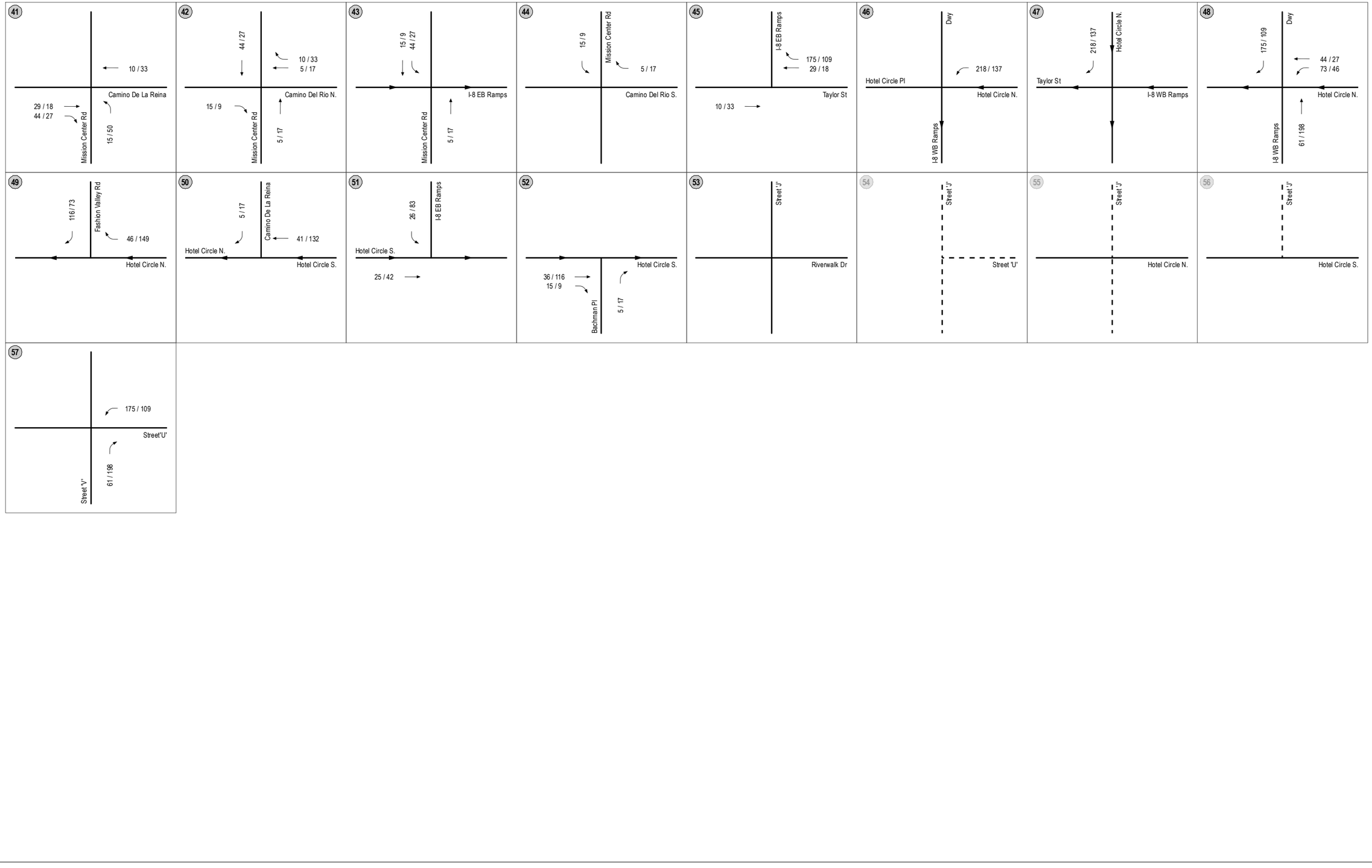
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-9

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

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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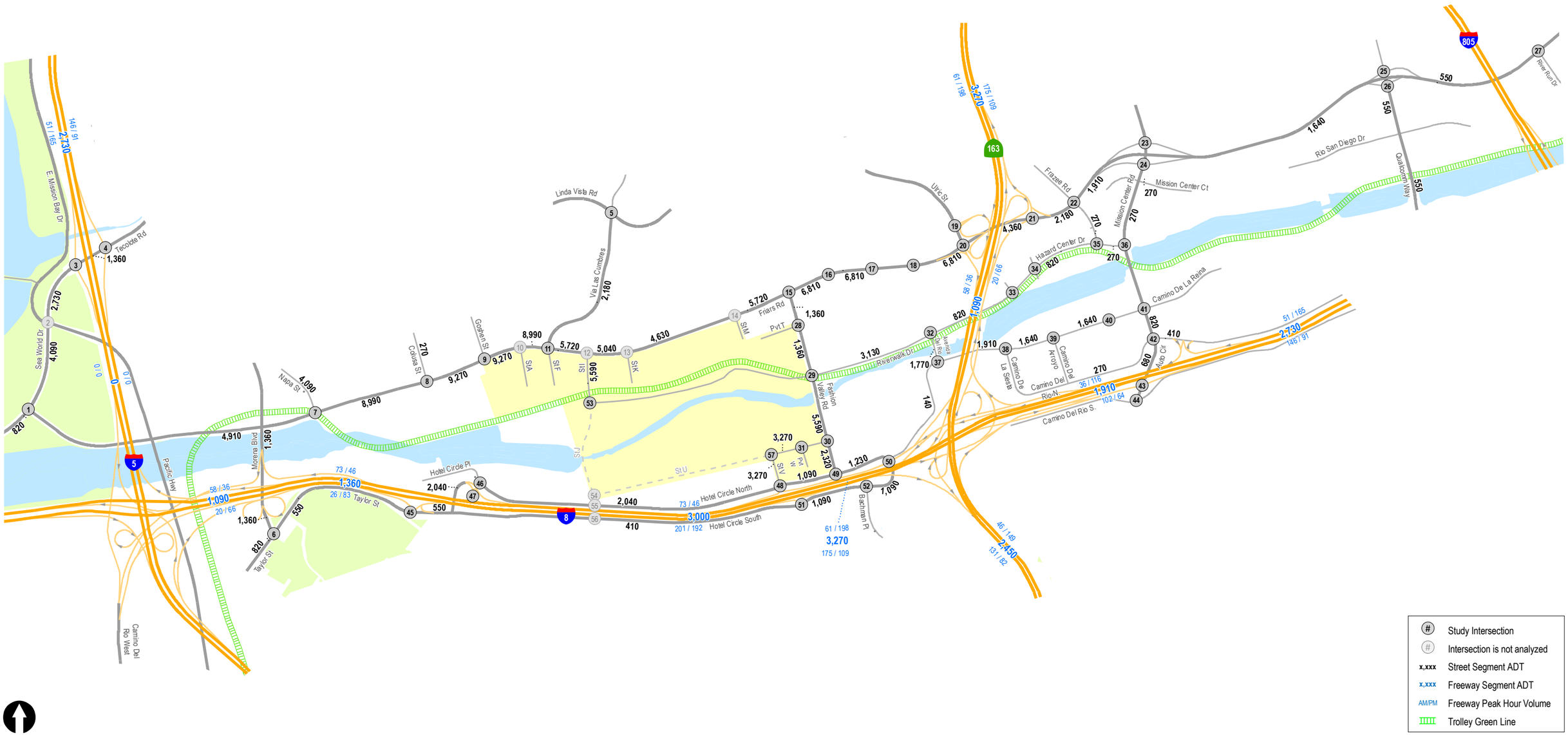
Intersection AM/PM Peak Hour volumes

Figure 12-9

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

(Page 2 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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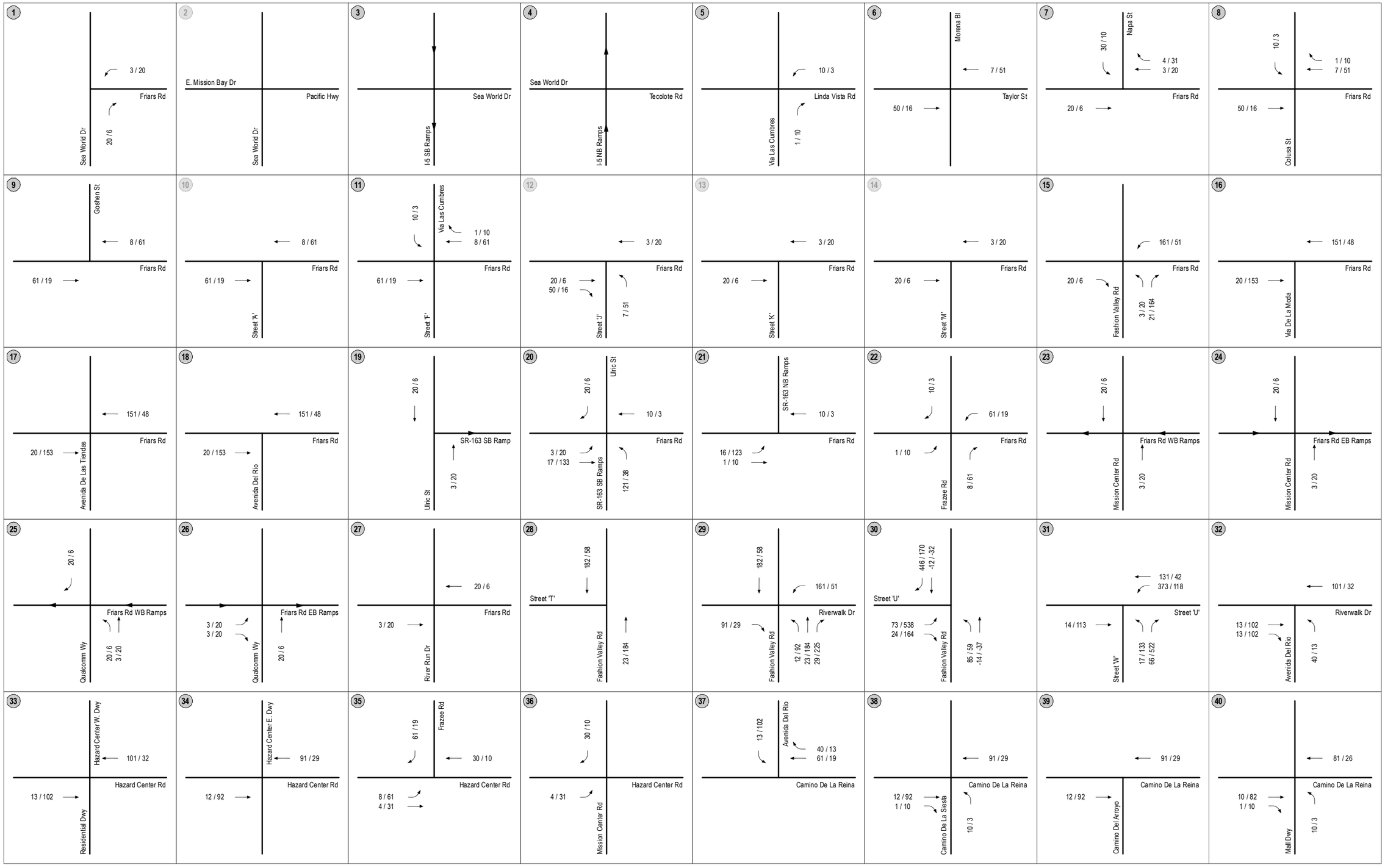
Figure 12-10

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

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 3/17/2020
Time: 10:24 PM

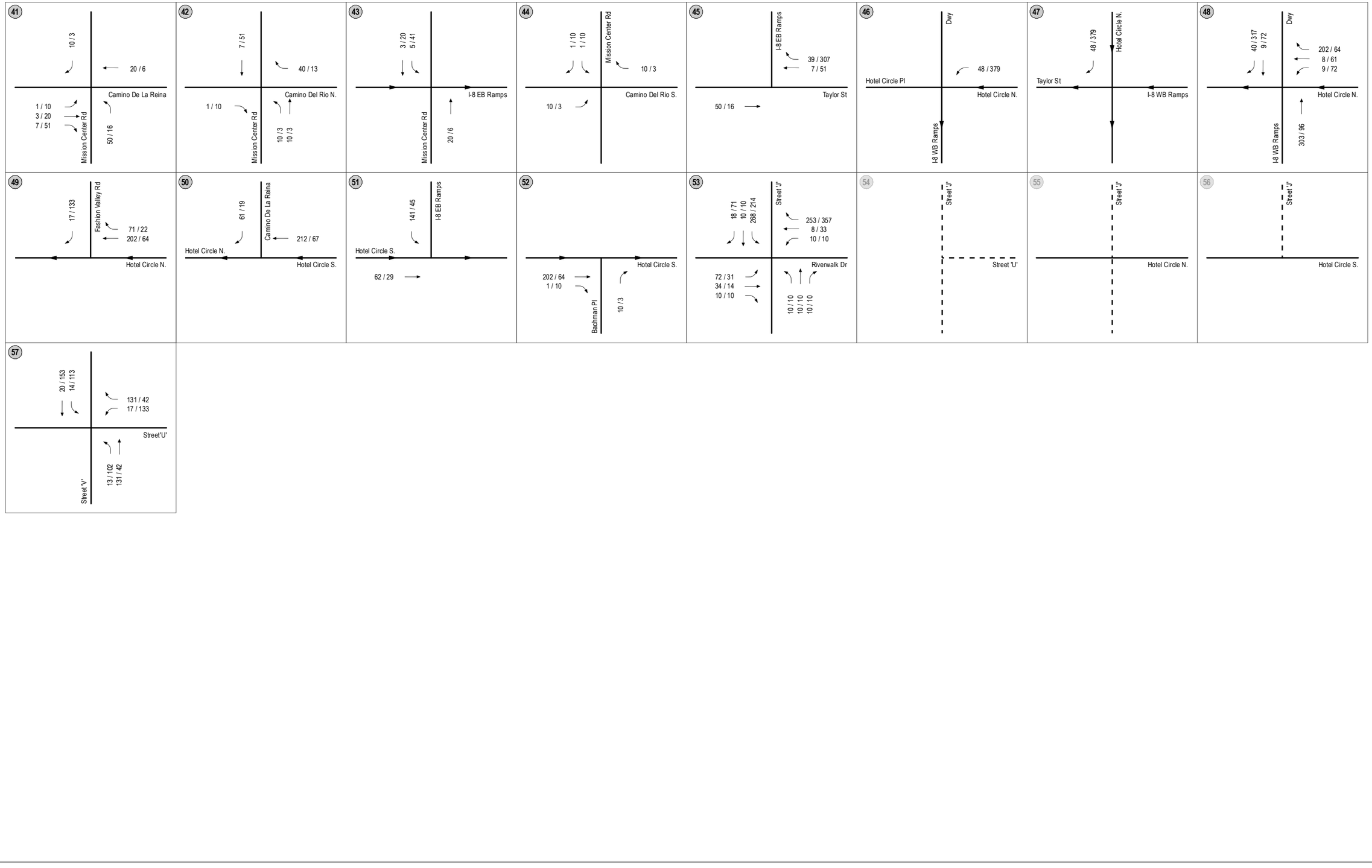
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-11

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

(Page 1 of 2)

Riverwalk



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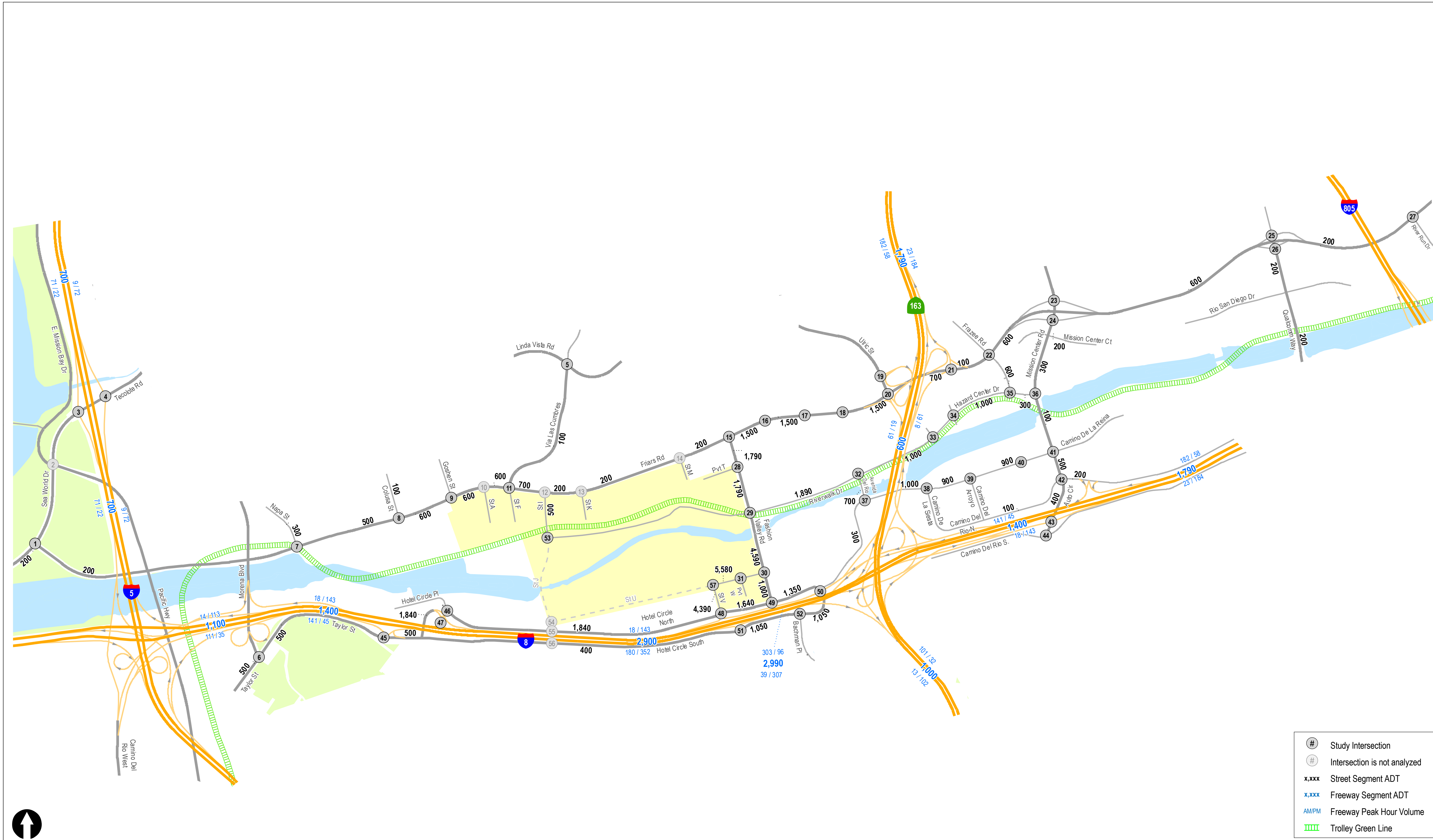
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-11

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

(Page 2 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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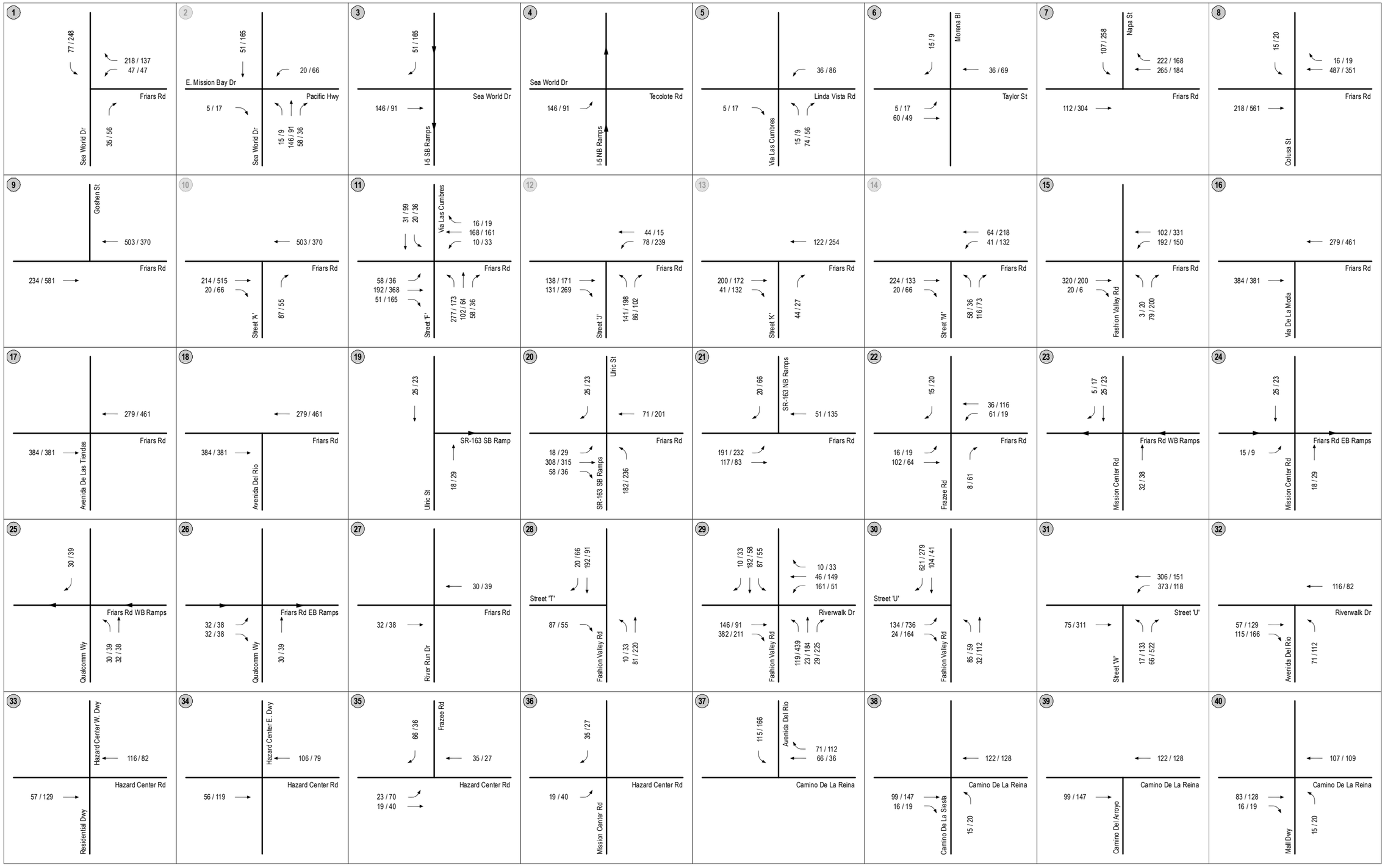
Figure 12-12

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

Riverwalk



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Time: 10:35 PM

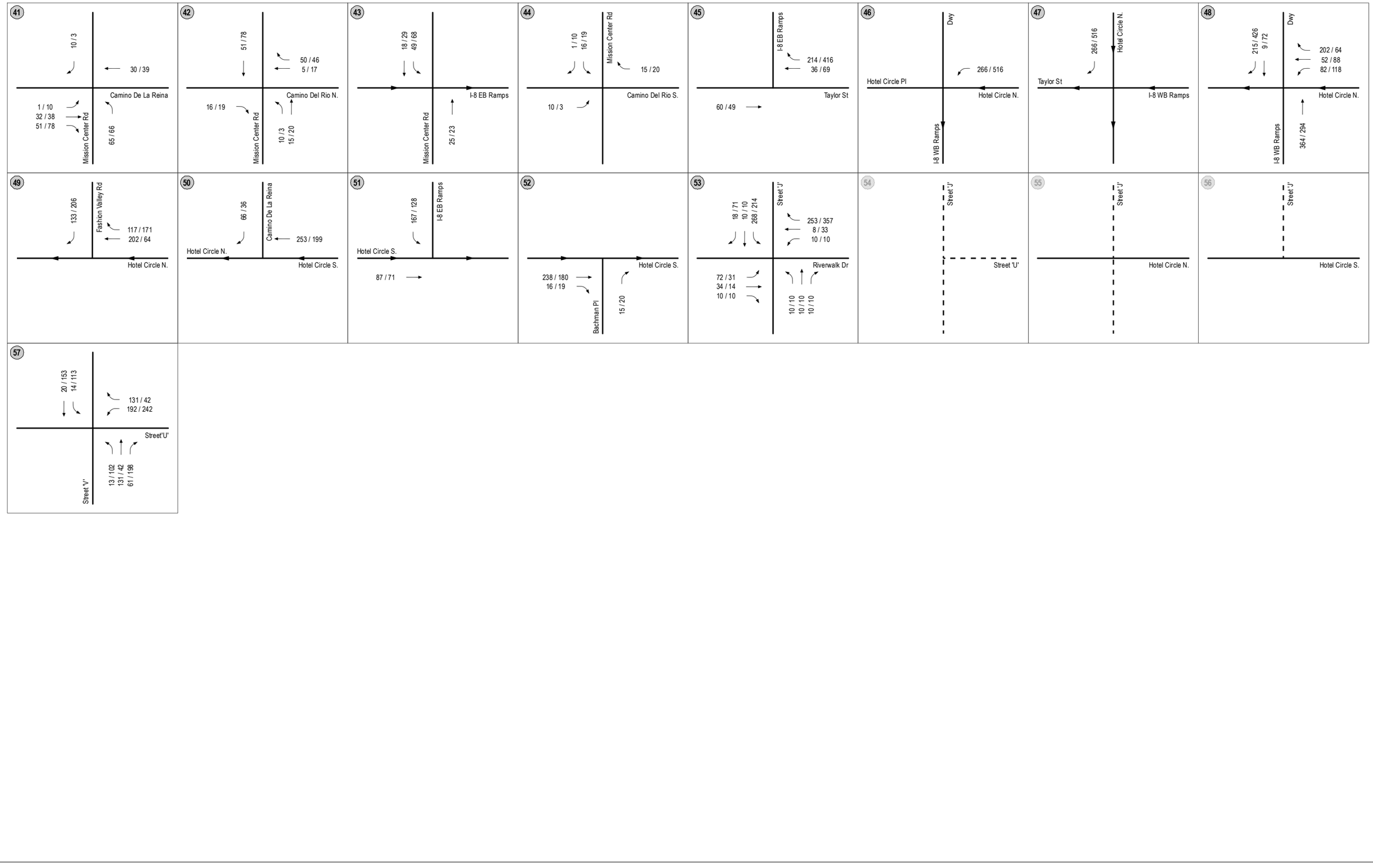
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-13

Year 2035 - Total Project Traffic Volumes

(Page 1 of 2)

Riverwalk



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

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

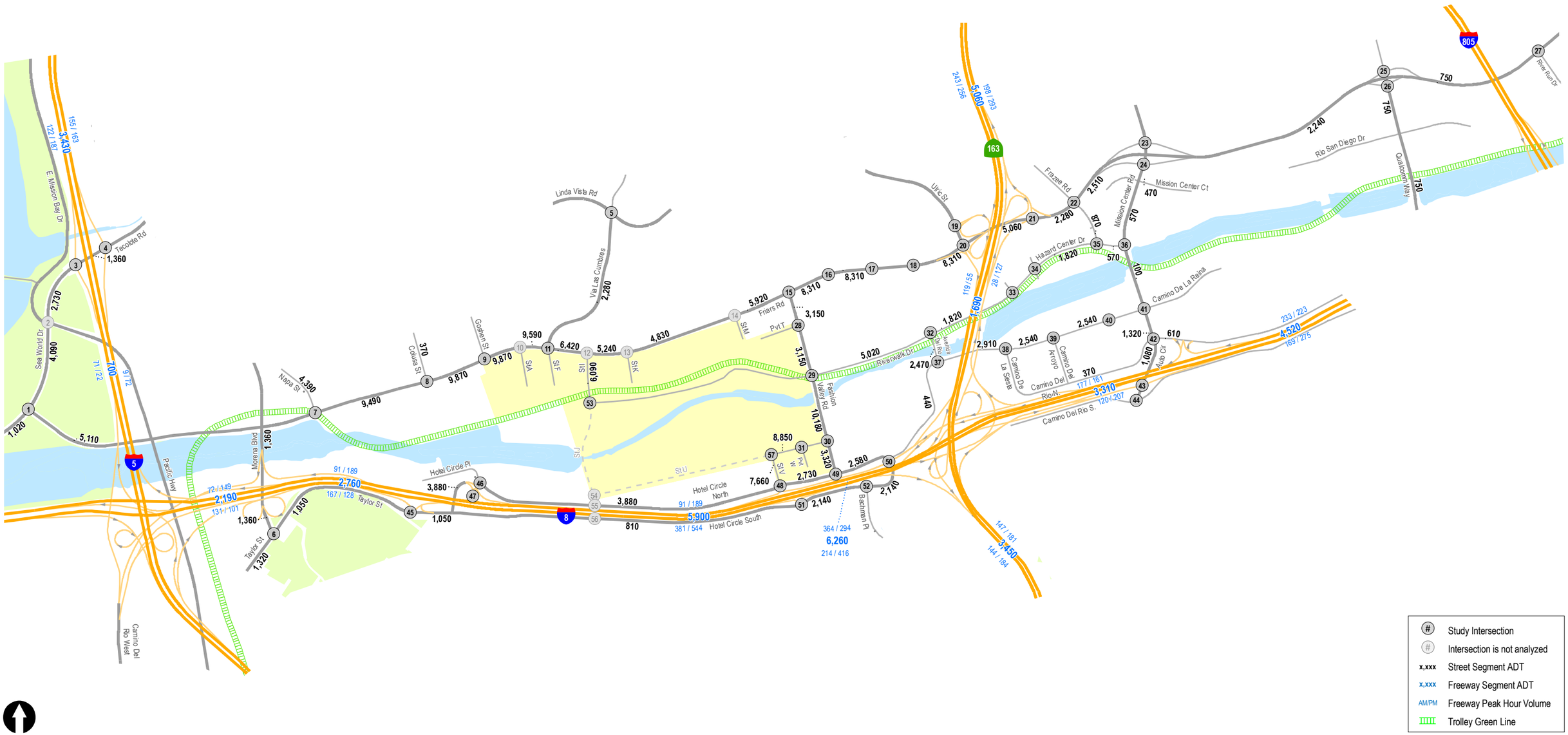

Figure 12-14
Total Project Traffic Volumes

Riverwalk

LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
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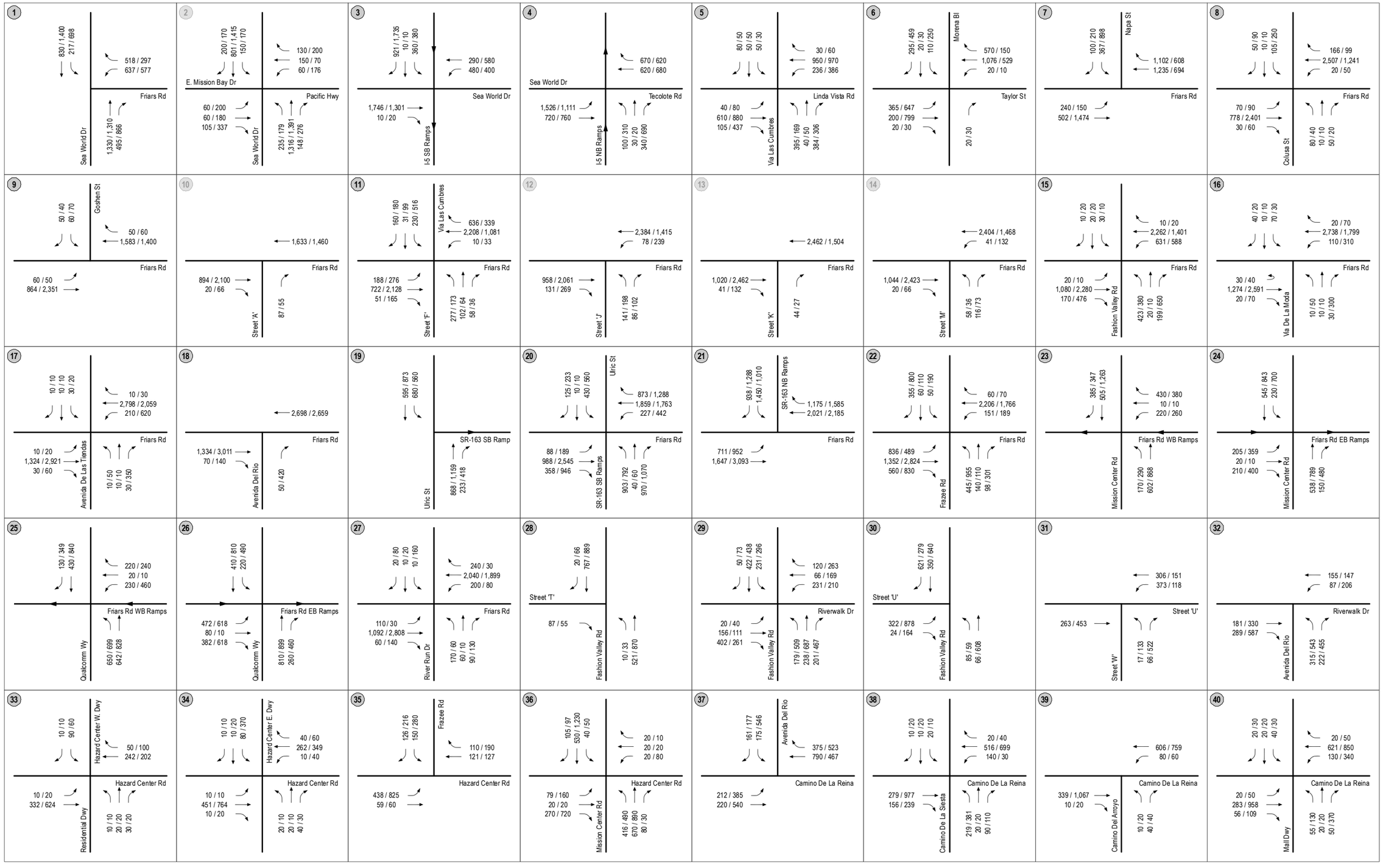


LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 4/29/2020
Time: 10:24 AM

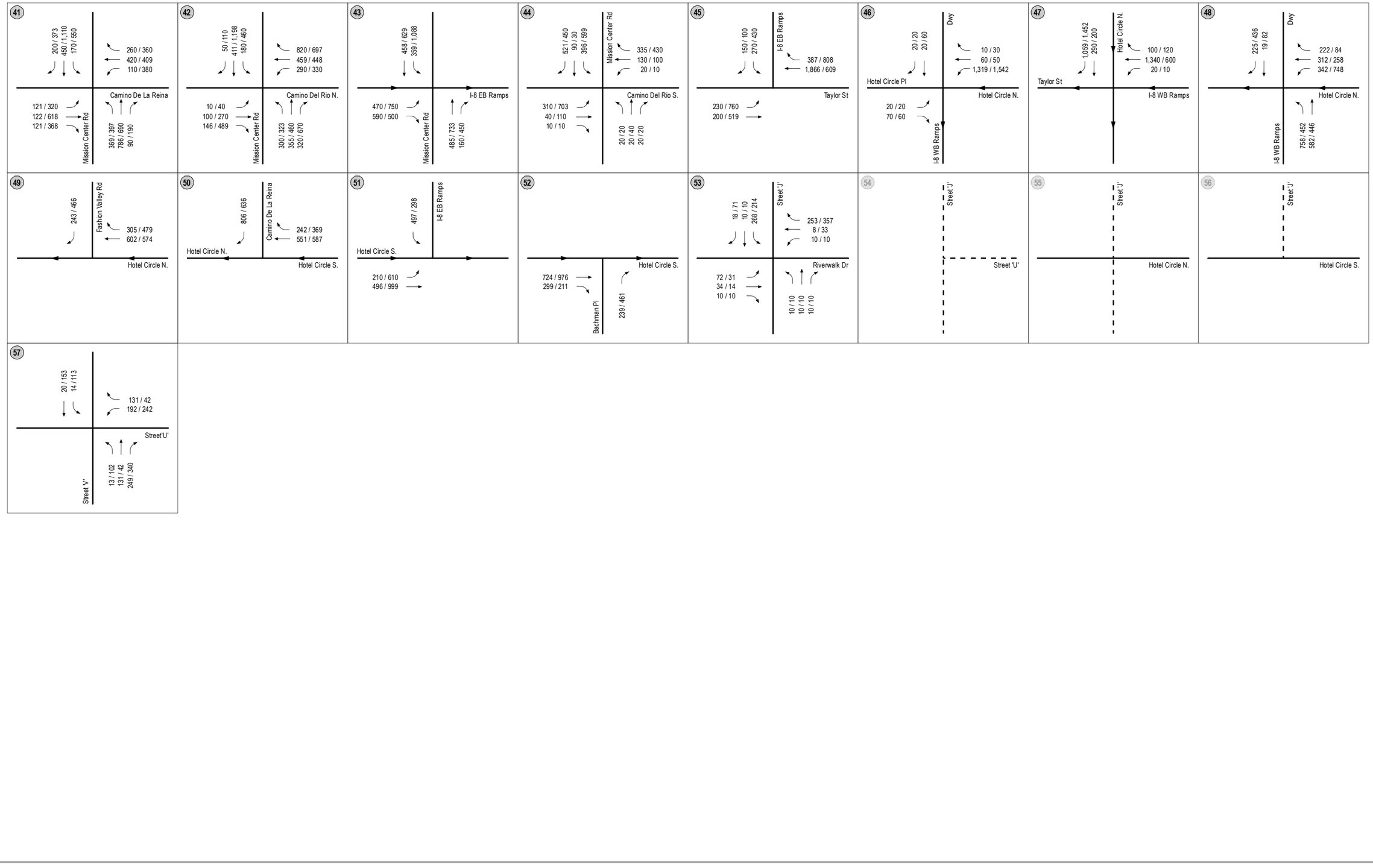
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-15

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

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Time: 10:24 AM

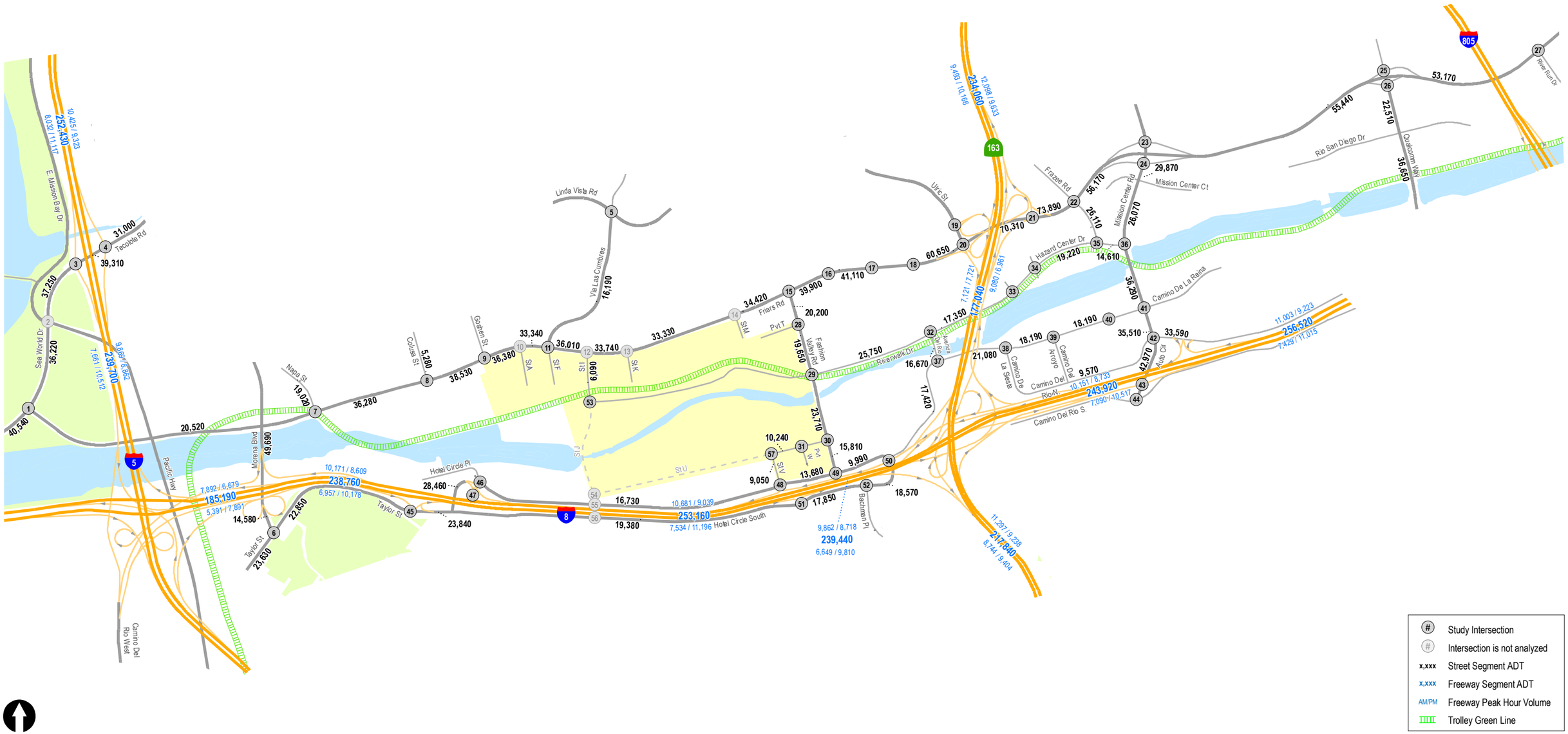
(#) Study Intersection
(#) Intersection is not analyzed
Intersection AM/PM Peak Hour volumes

Figure 12-15

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

(Page 2 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Figure 12-16

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

Riverwalk

13.0 YEAR 2050 COMMUNITY PLAN ANALYSIS

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

13.1 Year 2050 Analysis Approach

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

13.1.1 *Year 2050 Traffic Volumes*

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

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

13.1.2 *Peak Hour Intersection Operations*

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

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

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

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

13.1.3 *Daily Street Segment Operations*

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

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

13.1.4 *Freeway Segment Operations*

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

I-8

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

I-5

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

SR 163

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

13.1.5 *Ramp Meter Operations*

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

13.2 Year 2050 + Project Buildout

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

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

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

13.2.1 *Peak Hour Intersection Operations*

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

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

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

13.2.2 *Daily Street Segment Operations*

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

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

13.2.3 *Freeway Segment Operations*

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

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

I-8

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

I-5

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

SR 163

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

13.2.4 *Ramp Meter Operations*

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

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

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

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

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

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

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

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

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

Footnotes:

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

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

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

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

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

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

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

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Camino De La Reina									
Hotel Circle North to Avenida Del Rio	2-Lane Collector (continuous left-turn lane)	15,000	9,680	C	0.645	9,900	C	0.660	0.015
Avenida Del Rio to Camino De La Siesta	2-Lane Collector	10,000	15,240	F	1.524	17,100	F	1.710	0.186
Camino De La Siesta to Camino Del Arroyo	4-Lane Major Arterial	40,000	9,190	A	0.230	10,800	A	0.270	0.040
Camino Del Arroyo to Mission Center Road	4-Lane Major Arterial	40,000	9,190	A	0.230	10,800	A	0.270	0.040
Taylor Street									
Sunset Street to Morena Boulevard	5-Lane Major Arterial	45,000	17,980	B	0.400	18,800	B	0.418	0.018
Morena Boulevard to I-8 EB Hook Ramps	2-Lane Collector (continuous left-turn lane)	15,000	3,390	A	0.226	4,000	A	0.267	0.041
I-8 EB Hook Ramps to Hotel Circle South	2-Lane Collector	10,000	3,600	A	0.360	5,000	B	0.500	0.140
Hotel Circle South to I-8 WB Hook Ramps	2-Lane Collector (one-way)	17,500	2,980	A	0.170	3,300	A	0.189	0.019
Hotel Circle South									
Taylor Street to I-8 EB Hook Ramps	2-Lane Collector (one-way)	17,500	27,130	F	1.550	30,200	F	1.726	0.176
I-8 EB Hook Ramps to Bachman Place	2-Lane Collector (one-way)	17,500	13,970	D	0.798	14,100	D	0.806	0.008
Bachman Place to Camino De La Reina	2-Lane Collector (one-way)	17,500	14,570	D	0.833	14,700	D	0.840	0.007

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

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Morena Boulevard									
Linda Vista Road to I-8 WB Off-Ramp	4-Lane Major Arterial	40,000	27,840	C	0.696	28,900	C	0.723	0.027
I-8 WB Off-Ramp to Taylor Street	3-Lane Collector (continuous left-turn lane)	22,500	14,540	C	0.646	15,600	D	0.693	0.047
Napa Street									
Linda Vista Road to Friars Road	4-Lane Major Arterial	40,000	12,400	A	0.310	15,700	B	0.393	0.083
Colusa Street									
Linda Vista Road to Friars Road	2-Lane Collector	8,000	2,450	A	0.306	2,700	B	0.338	0.032
Via Las Cumbres									
Linda Vista Road to Friars Road	3-Lane Collector	11,000	10,460	E	0.951	12,200	F	1.109	0.158
Fashion Valley Road									
Friars Road to Private Drive T	4-Lane Major Arterial	40,000	6,480	A	0.162	8,200	A	0.205	0.043
Private Drive T to Riverwalk Drive	4-Lane Major Arterial	40,000	6,050	A	0.151	8,200	A	0.205	0.054
Riverwalk Drive to Street U	4-Lane Major Arterial	40,000	14,400	A	0.360	17,400	B	0.435	0.075
Street U to Hotel Circle North	4-Lane Major Arterial	40,000	16,970	B	0.424	17,400	B	0.435	0.011
Frazee Road									
Friars Road to Hazard Center Drive	4-Lane Major Arterial	40,000	18,770	B	0.469	19,200	B	0.480	0.011

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

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Mission Center Road									
Friars Road to Mission Center Court	4-Lane Major Arterial	40,000	25,320	C	0.633	25,600	C	0.640	0.007
Mission Center Court to Hazard Center Drive	5-Lane Major Arterial	45,000	22,080	B	0.491	22,400	B	0.498	0.007
Hazard Center Drive to Camino De La Reina	5-Lane Major Arterial	45,000	32,060	C	0.712	32,100	C	0.713	0.001
Camino De La Reina to Camino Del Rio North	5-Lane Major Arterial	45,000	30,880	C	0.686	31,700	C	0.704	0.018
Camino Del Rio North to I-8 EB Ramps	4-Lane Major Arterial	40,000	40,420	F	1.011	41,100	F	1.028	0.017
Qualcomm Way									
Friars Road to Rio San Diego Drive	5-Lane Major Arterial	45,000	25,800	C	0.573	26,300	C	0.584	0.011
Rio San Diego Drive to Camino Del Rio North	6-Lane Major Arterial	50,000	42,200	D	0.844	42,700	D	0.854	0.010
Riverwalk Drive									
Fashion Valley Road to Avenida Del Rio	2-Lane Collector (commercial fronting)	8,000	12,050	F	1.506	15,200	F	1.900	0.394
Avenida Del Rio									
Riverwalk Drive to Camino De La Reina	4-Lane Collector	15,000	17,460	F	1.164	19,100	F	1.273	0.109
Hazard Center Drive									
Avenida Del Rio to Hazard Center West Driveway	2-Lane Collector (continuous left-turn lane)	15,000	11,490	D	0.766	12,500	D	0.833	0.067
Hazard Center West Driveway to Frazee Road	4-Lane Major Arterial	40,000	11,490	A	0.287	12,500	A	0.313	0.026
Frazee Road to Mission Center Road	4-Lane Major Arterial	40,000	15,580	B	0.390	15,900	B	0.398	0.008

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

Street Segment	Functional Classification	Capacity (LOS E) [a]	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ^f
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]	
Street U									
Street J to Street V	4-Lane Collector (continuous left-turn lane)	30,000	8,650	A	0.288	11,300	B	0.377	0.089
Street V to Fashion Valley Road	4-Lane Collector (continuous left-turn lane)	30,000	7,180	A	0.239	11,300	B	0.377	0.138
Street I/Street J									
Friars Road to Riverwalk Drive	2-Lane Major Arterial	20,000	6,750	A	0.338	11,300	C	0.565	0.227
Riverwalk Drive to Street U	2-Lane Major Arterial	20,000	14,150	C	0.708	17,200	D	0.860	0.152

Footnotes:

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

TABLE 13–3
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—AM PEAK HOUR

Freeway and Segment	Year 2050 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	178,000	EB Mainlines	4M	0.702	27.60	D	0.709	27.90	D	0.007
		WB Mainlines	3M	1.107	>45.00	F	1.115	>45.00	F	0.008
Morena Boulevard to Taylor Street	231,000	EB Mainlines	4M+1A	0.793	29.50	D	0.800	29.80	D	0.007
		WB Mainlines	5M	0.854	34.30	D	0.859	34.70	D	0.005
Taylor Street to Hotel Circle	205,000	EB Mainlines	4M	0.829	33.40	D	0.829	33.40	D	0.000
		WB Mainlines	5M	0.758	29.90	D	0.758	29.90	D	0.000
Hotel Circle to SR163	222,000	EB Mainlines	4M+1A	0.765	28.30	D	0.781	29.00	D	0.016
		WB Mainlines	5M	0.714	26.60	D	0.727	27.00	D	0.013
SR163 to Mission Center Road	192,000	EB Mainlines	5M	0.627	25.10	C	0.635	25.50	C	0.008
		WB Mainlines	4M+1A	0.758	28.10	D	0.766	28.50	D	0.008
East of Mission Center Road	249,000	EB Mainlines	5M	0.793	31.90	D	0.805	32.40	D	0.012
		WB Mainlines	4M+1A	0.972	42.00	E	0.982	43.10	E	0.010
I-5										
North of Sea World Drive	Not Analyzed	NB Mainlines	–	–	–	–	–	–	–	–
		SB Mainlines	–	–	–	–	–	–	–	–
Sea World Drive to I-8	243,000	NB Mainlines	5M+1A	0.922	37.80	E	0.922	37.80	E	0.000
		SB Mainlines	5M+1A	0.642	23.60	C	0.644	23.60	C	0.002
SR 163										
North of Friars Road	213,000	NB Mainlines	5M	1.007	>45.00	F	1.021	>45.00	F	0.014
		SB Mainlines	4M	0.826	33.20	D	0.840	33.90	D	0.014
Friars Road to I-8	180,000	NB Mainlines	3M	1.116	>45.00	F	1.119	>45.00	F	0.003
		SB Mainlines	4M+2A	0.648	22.20	C	0.654	22.40	C	0.006
South of I-8	192,000	NB Mainlines	3M+1A	0.961	40.90	E	0.970	41.80	E	0.009
		SB Mainlines	3M	1.166	>45.00	F	1.182	>45.00	F	0.016

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

General Notes:
1. See *Appendix BB* and *Appendix DD* for calculation sheets.

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

TABLE 13–4
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT FREEWAY SEGMENT OPERATIONS—PM PEAK HOUR

Freeway and Segment	Year 2050 + Project Phases I, II, and III – Project Buildout ADT	Direction	Number of Lanes	Year 2050			Year 2050 + Project Phases I, II, and III – Project Buildout			Δ (V/C)
				V/C[a]	Density	LOS[b]	V/C	Density	LOS	
I-8										
I-5 to Morena Boulevard	178,000	EB Mainlines	4M	0.975	>45.00	F	0.983	>45.00	F	0.008
		WB Mainlines	3M	0.822	32.60	D	0.833	33.10	D	0.011
Morena Boulevard to Taylor Street	231,000	EB Mainlines	4M+1A	1.077	>45.00	F	1.085	>45.00	F	0.008
		WB Mainlines	5M	0.628	24.60	C	0.636	24.90	C	0.008
Taylor Street to Hotel Circle	205,000	EB Mainlines	4M	1.053	>45.00	F	1.053	>45.00	F	0.000
		WB Mainlines	5M	0.567	22.40	C	0.567	22.40	C	0.000
Hotel Circle to SR163	222,000	EB Mainlines	4M+1A	0.981	42.90	E	1.001	>45.00	F	0.020
		WB Mainlines	5M	0.534	19.90	C	0.549	20.40	C	0.015
SR163 to Mission Center Road	192,000	EB Mainlines	5M	0.788	31.60	D	0.797	32.00	D	0.009
		WB Mainlines	4M+1A	0.568	21.00	C	0.579	21.30	C	0.011
East of Mission Center Road	249,000	EB Mainlines	5M	1.020	>45.00	F	1.033	>45.00	F	0.013
		WB Mainlines	4M+1A	0.735	27.10	D	0.750	27.70	D	0.015
I-5										
North of Sea World Drive	Not Analyzed	NB Mainlines	–	–	–	–	–	–	–	–
		SB Mainlines	–	–	–	–	–	–	–	–
Sea World Drive to I-8	243,000	NB Mainlines	5M+1A	0.750	27.70	D	0.752	27.80	D	0.002
		SB Mainlines	5M+1A	0.740	27.30	D	0.741	27.30	D	0.001
SR 163										
North of Friars Road	213,000	NB Mainlines	5M	0.739	29.20	D	0.753	29.70	D	0.014
		SB Mainlines	4M	1.117	>45.00	F	1.137	>45.00	F	0.020
Friars Road to I-8	180,000	NB Mainlines	3M	1.090	>45.00	F	1.101	>45.00	F	0.011
		SB Mainlines	4M+2A	0.671	39.30	E	0.674	39.40	E	0.003
South of I-8	192,000	NB Mainlines	3M+1A	0.969	41.60	E	0.985	43.30	E	0.016
		SB Mainlines	3M	1.125	>45.00	F	1.140	>45.00	F	0.015

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

General Notes:
1. See *Appendix BB* and *Appendix DD* for calculation sheets.

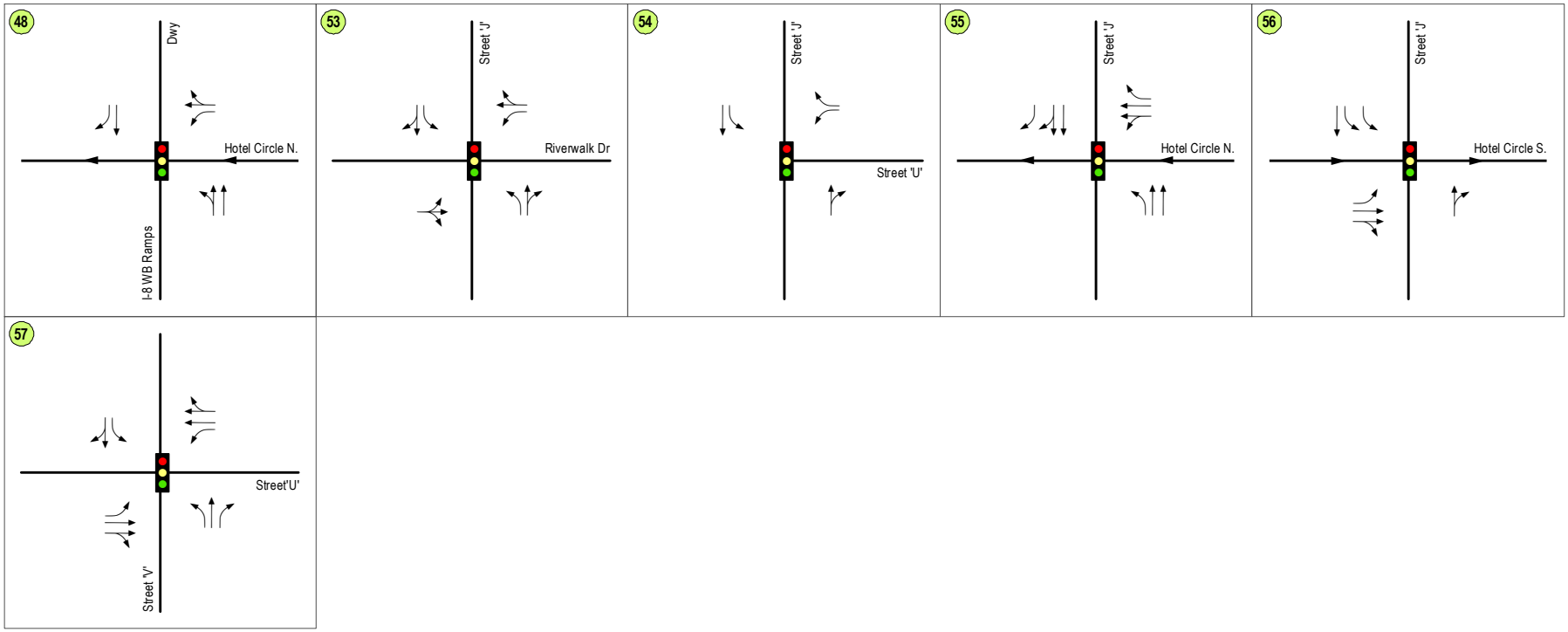
LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

TABLE 13–5
YEAR 2050 + PROJECT PHASES I, II, AND III – PROJECT BUILDOUT RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Demand	SOV Demand	Ramp Meter Rate (Flow)[a]	Excess Demand	Delay per Lane [b]	Queue per Lane [c]
NB on-ramp at I-5/Sea World Drive (2 SOV)							
Year 2050	AM	1,616	808	965	0	0	0
	PM	1,289	645	972	0	0	0
Year 2050 + Project Phases I, II, and III – Project Buildout	AM	1,730	865	965	0	0	0
	PM	1,360	680	972	0	0	0
Project Increase	AM	114	57	NA	0	0	0
	PM	71	35	NA	0	0	0

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

General Notes:
1. NA = Not Applicable.



Traffic Signal
Stop Sign
Improvements
NTOR No Turn On Red
* Sneaker Lane
Right-Turn Overlap
FREE Free Movement
(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Planned Improvements
(#) Project Improvements

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Date: 3/27/2020
Time: 10:46 AM

Figure 13-1
Year 2050 Conditions Diagram

Riverwalk

- # Study Intersection
- # Intersection is not analyzed in the MVCP
- # Planned Improvement
- # Project improvement
- Project Phase I, II, and III
- Improvement
- Ramp Removal
- Project Site
- # Number of Travel Lanes
- U / D Divided/Undivided Roadway
- * Two-Way Left-Turn Median
- 35mph Posted Speed Limit
- Trolley Green Line
- Existing Fashion Valley Transit Center
- Proposed Riverwalk Transit Station

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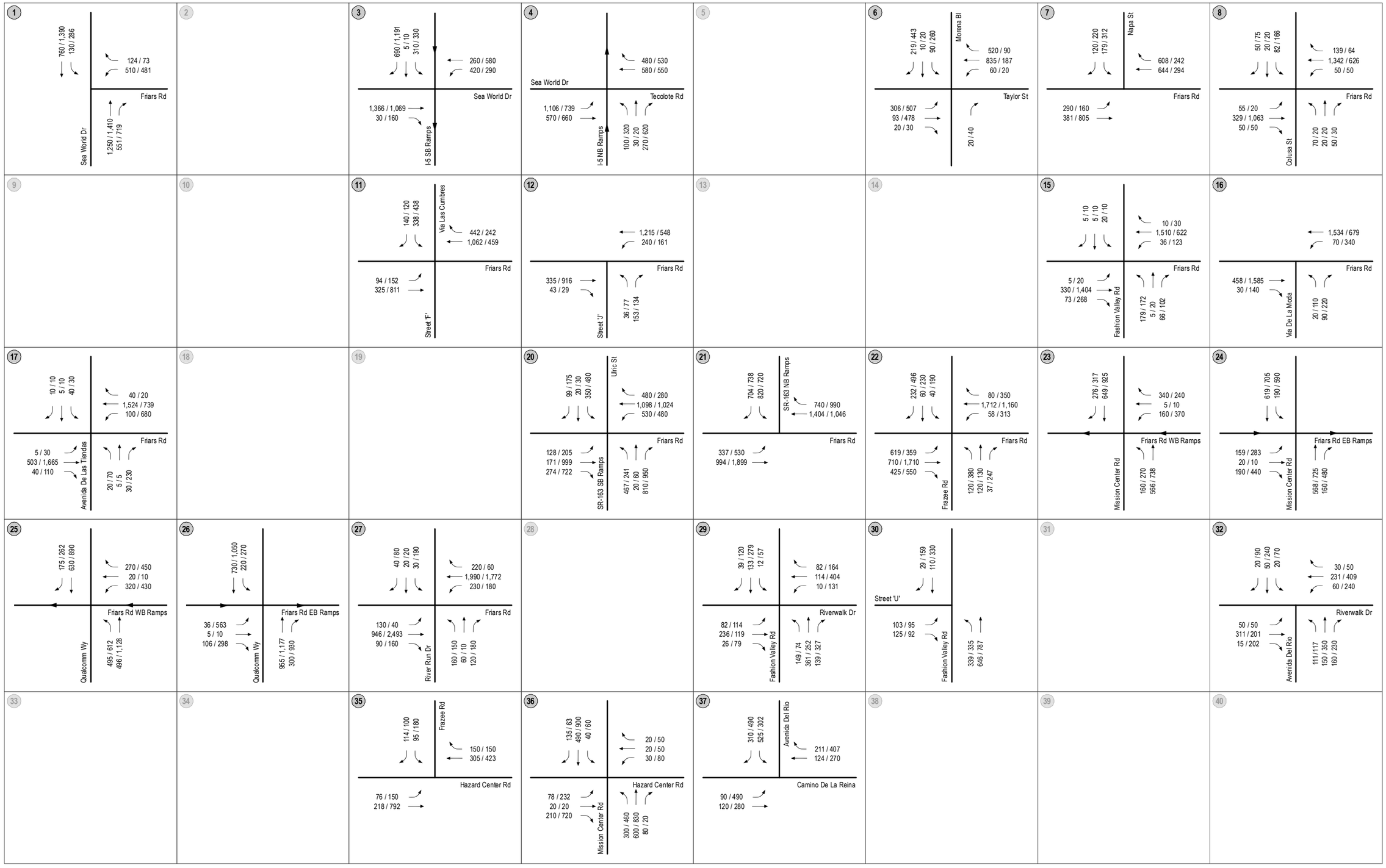
Date: 3/27/2020
Time: 10:47 AM

Figure 13-2

Year 2050 Conditions Diagram

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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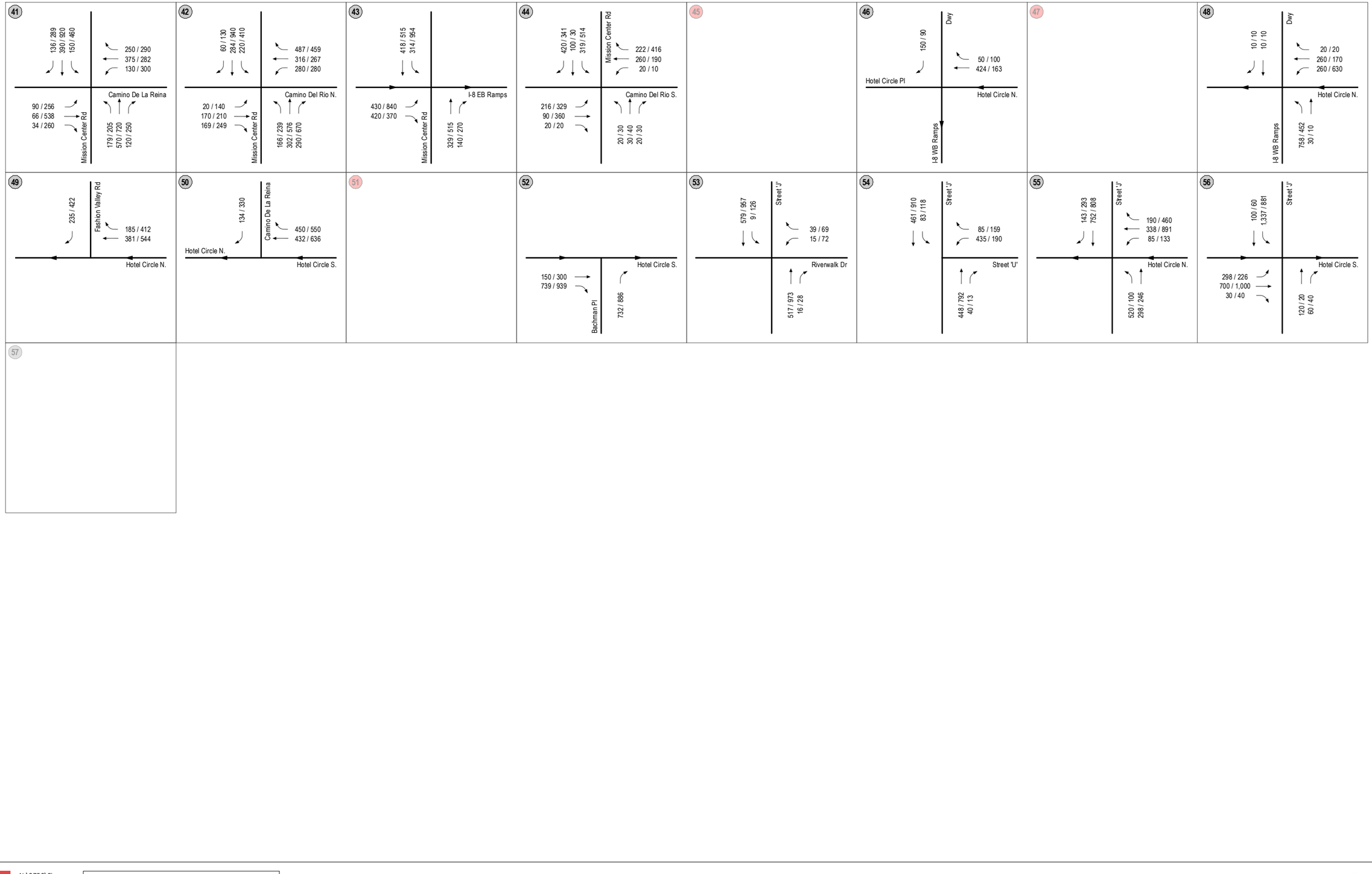
Date: 3/27/2020
Time: 10:48 AM

(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-3
Year 2050 Traffic Volumes
(Page 1 of 2)
Riverwalk



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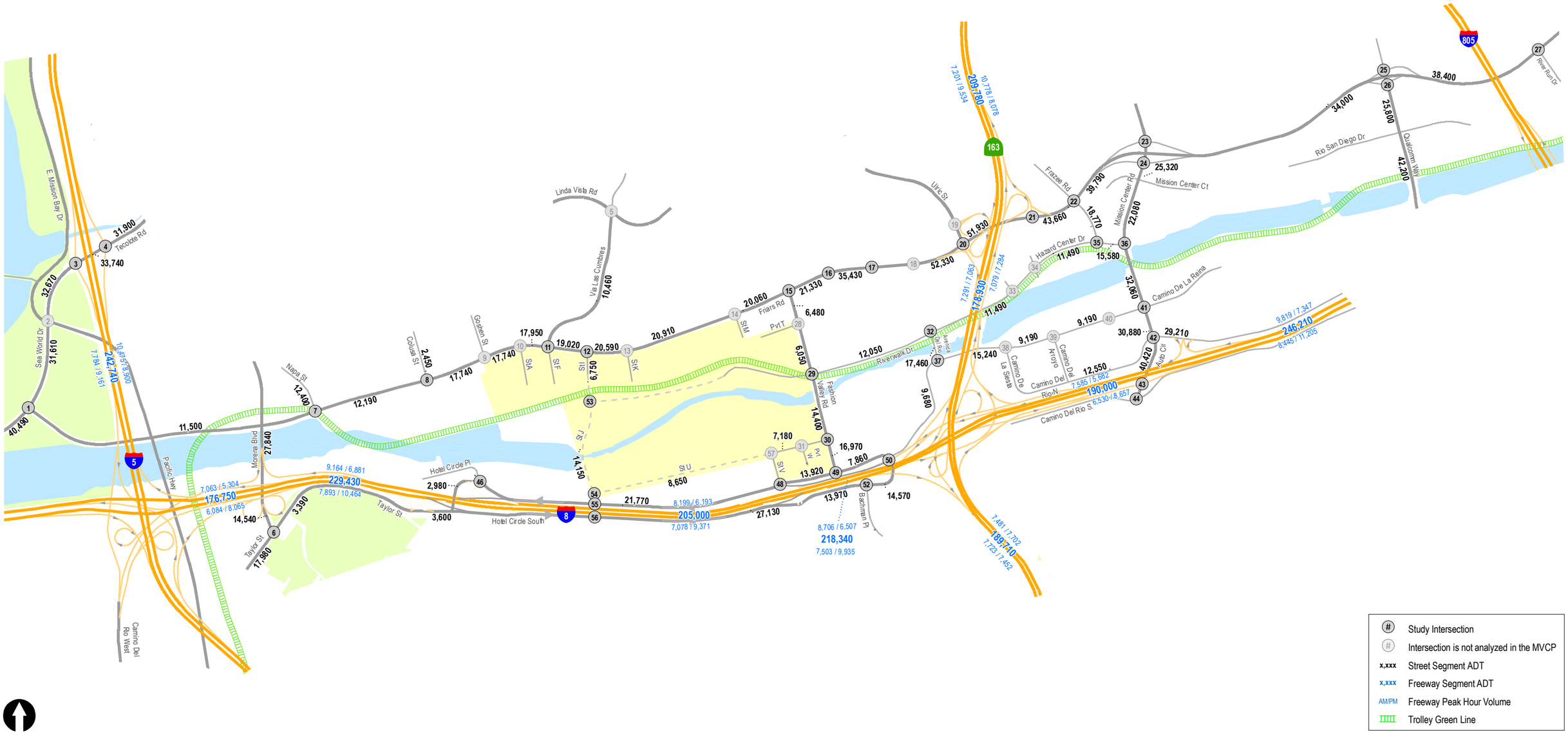
N:\2750\Figures
Date: 3/27/2020
Time: 10:49 AM

(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-3
Year 2050 Traffic Volumes
(Page 2 of 2)
Riverwalk



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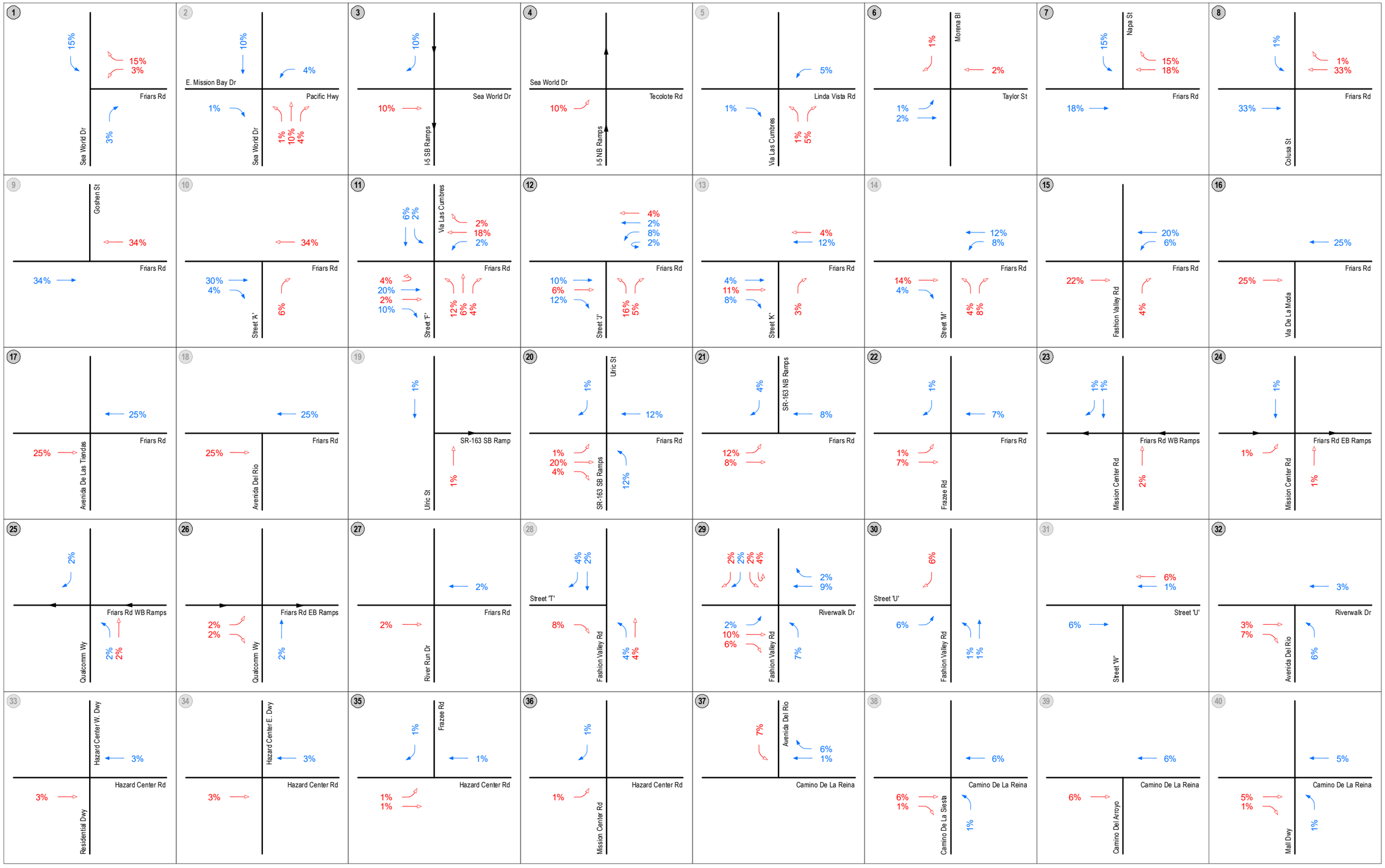
Date: 3/27/2020
Time: 10:51 AM

Figure 13-4

Year 2050 Traffic Volumes

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 3/27/2020
Time: 10:53 AM

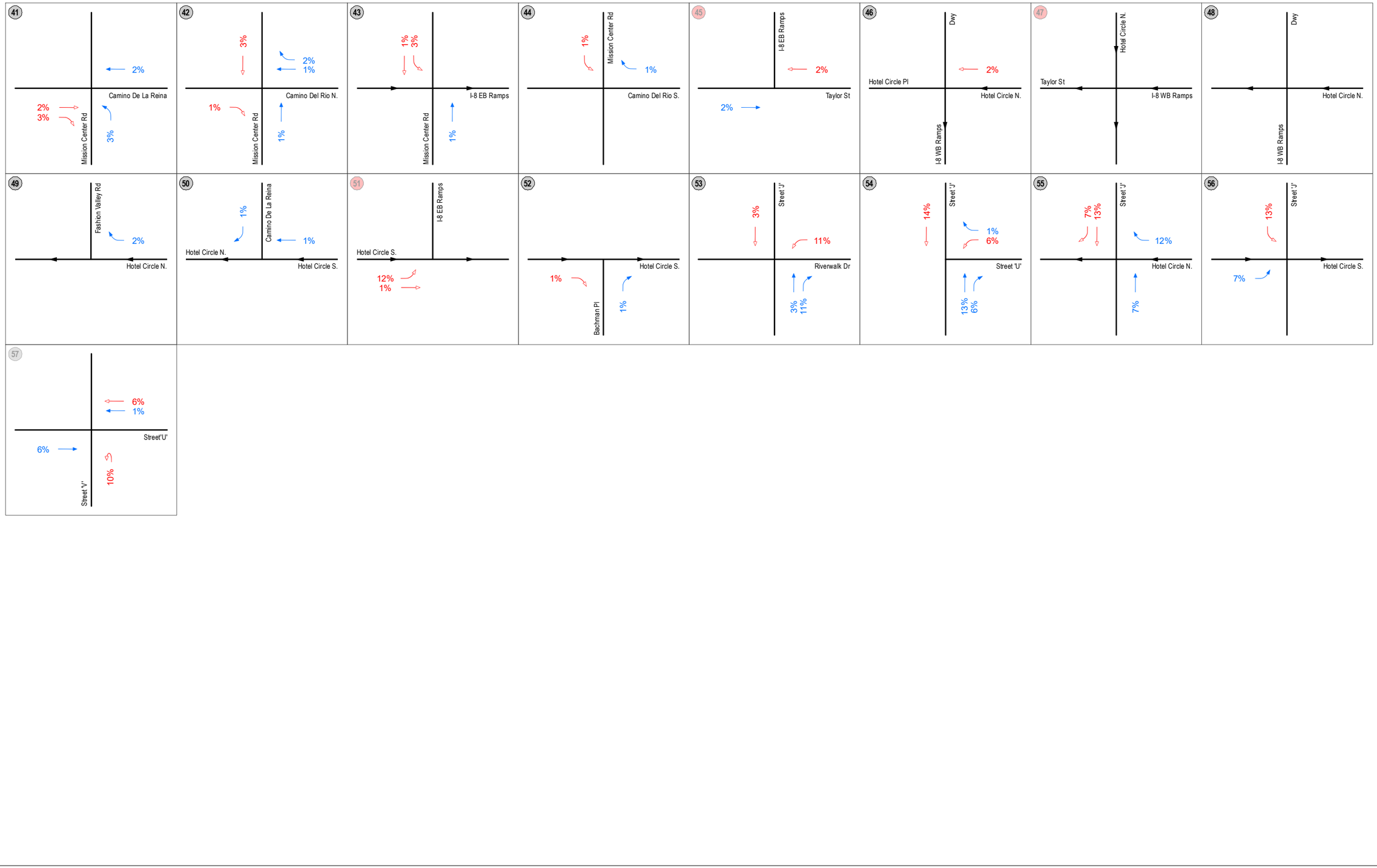
- # Study Intersections
- Inbound Trip Distribution
- # Intersection does not exist
- # Intersection is not analyzed in the MVCP
- Outbound Trip Distribution

Figure 13-5

Project Phases I through III Traffic Distribution- North of River - Year 2050

(Page 1 of 2)

Riverwalk



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Date: 3/27/2020
Time: 10:53 AM

Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-5

Project Phases I through III Traffic Distribution- North of River - Year 2050

(Page 2 of 2)

Riverwalk

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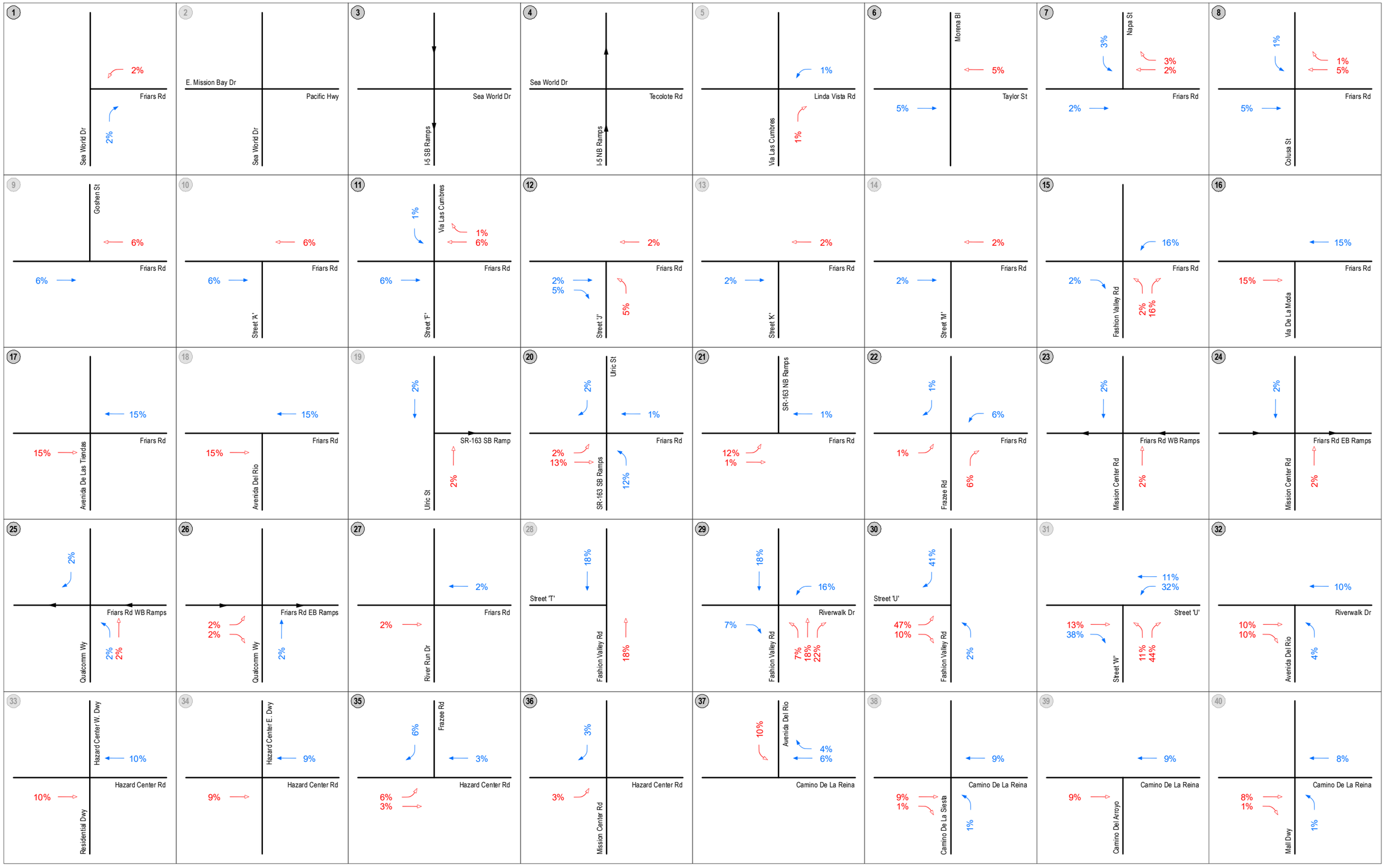
Date: 3/27/2020
Time: 10:55 AM

Figure 13-6

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

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 3/27/2020
Time: 10:56 AM

Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-7

Project Phases I through III Traffic Distribution - South of River

(Page 1 of 2)

Riverwalk

LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 3/27/2020
Time: 10:56 AM

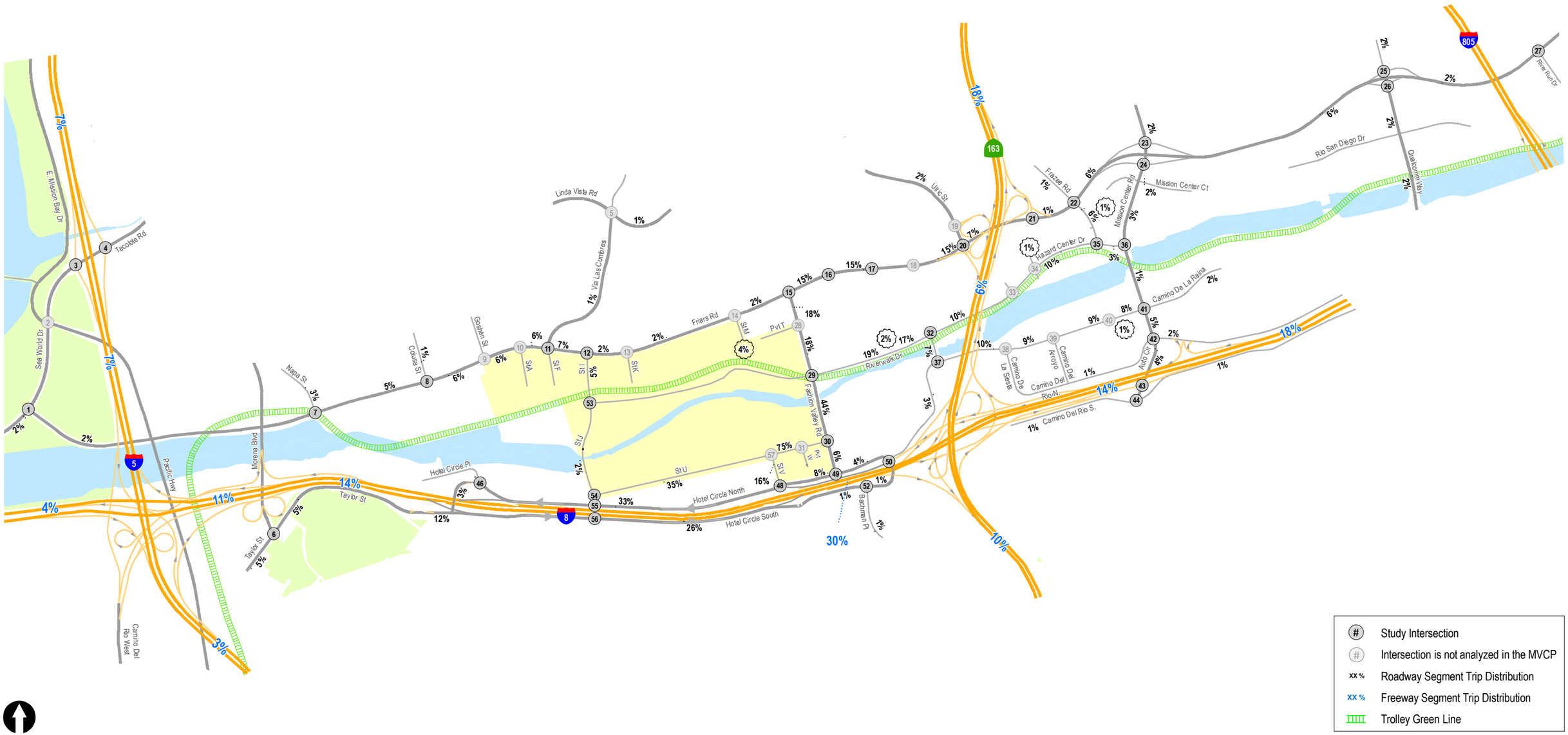
Study Intersections
Inbound Trip Distribution
Intersection does not exist
Intersection is not analyzed in the MVCP
Outbound Trip Distribution

Figure 13-7

Project Phases I through III Traffic Distribution - South of River

(Page 2 of 2)

Riverwalk



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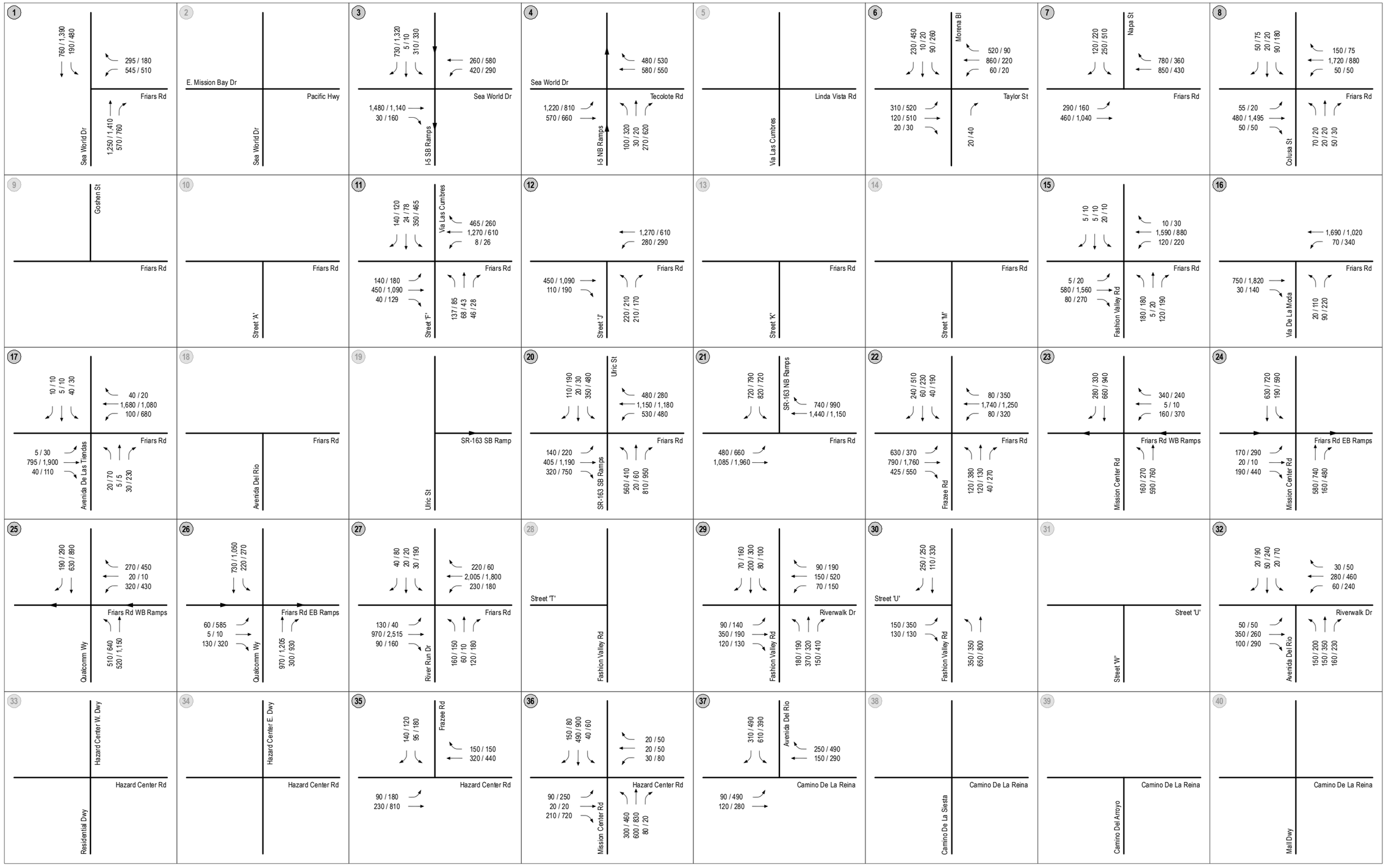
Date: 3/27/2020
Time: 10:57 AM

Figure 13-8

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

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 4/29/2020
Time: 10:30 AM

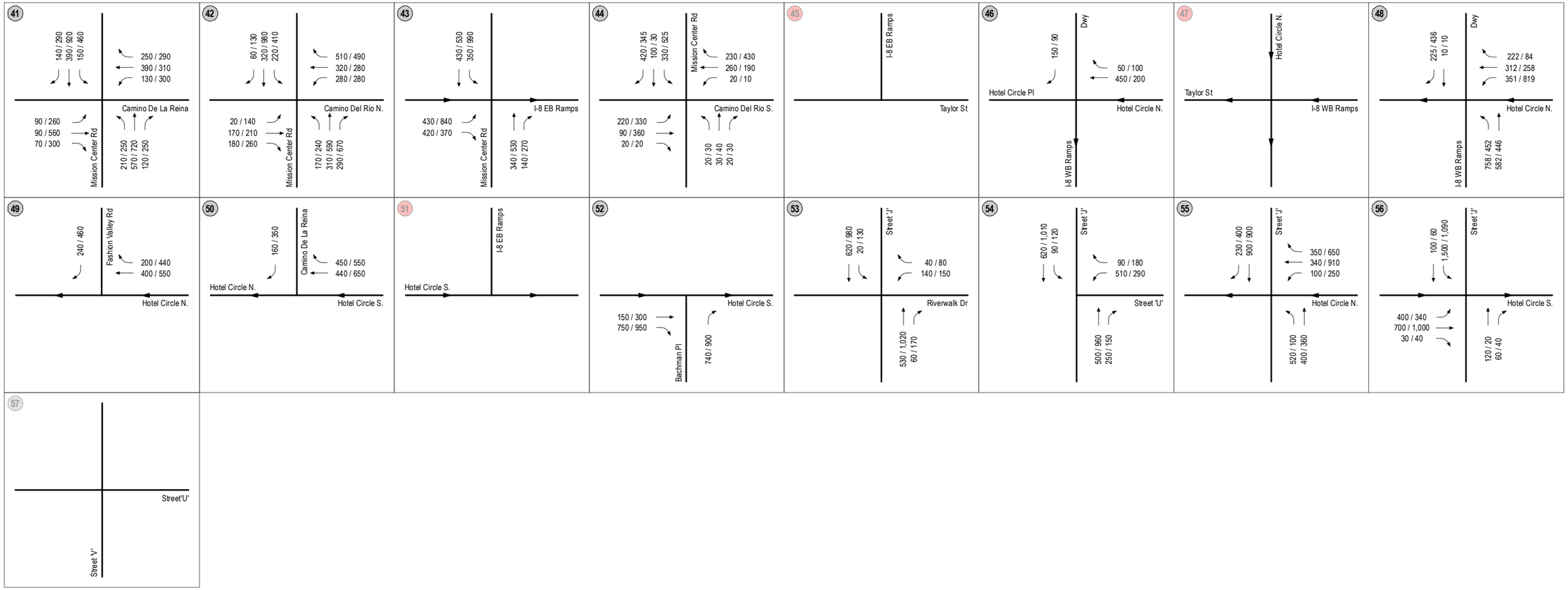
- (#) Study Intersection
- (#) Intersection is not analyzed in the MVCP
- (#) Intersection does not exist
- Intersection AM/PM Peak Hour volumes

Figure 13-9

Year 2050 + Project Phases I, II, and III - Project Buildout

(Page 1 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

N:\2750\Figures
Date: 4/29/2020
Time: 10:30 AM

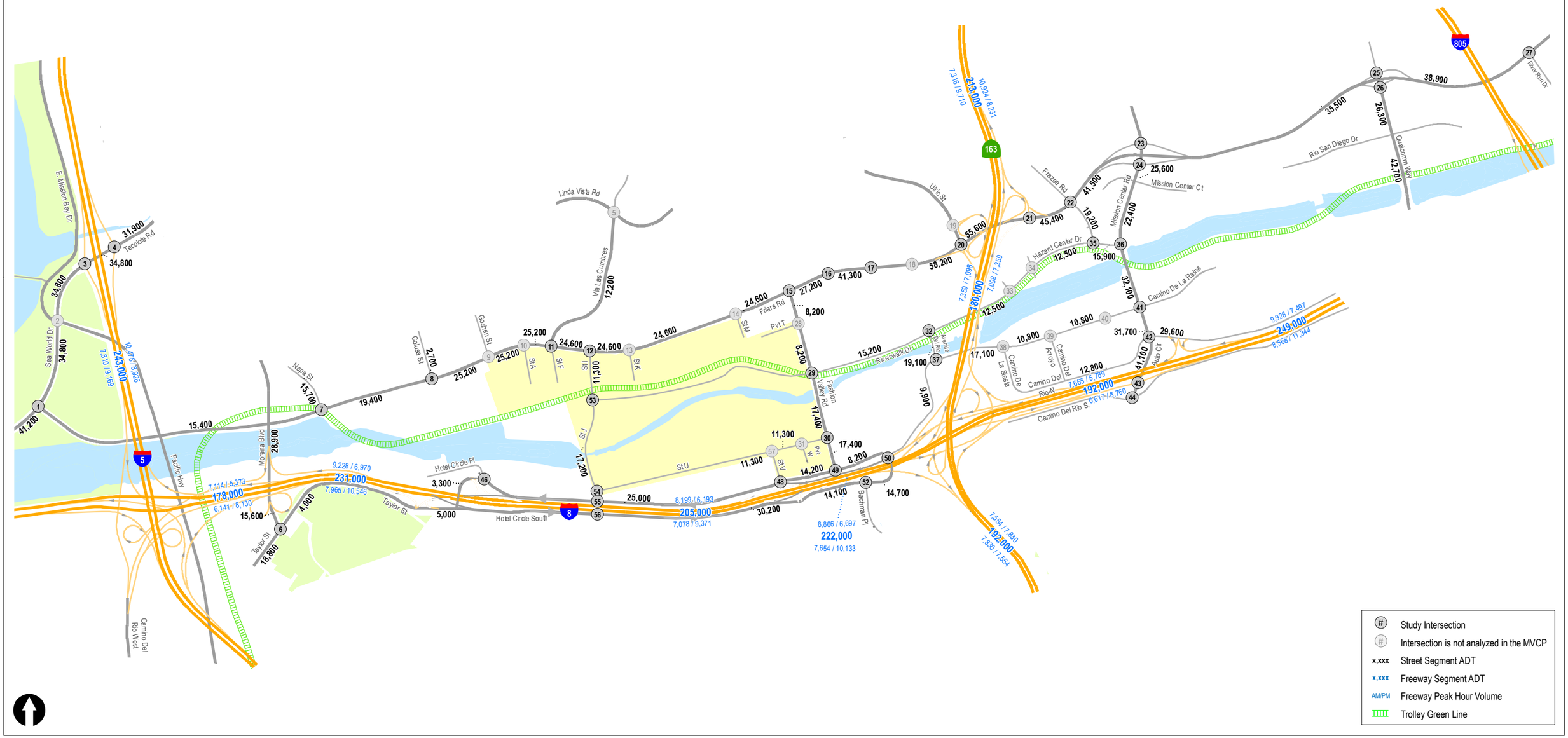
(#) Study Intersection
(#) Intersection is not analyzed in the MVCP
(#) Intersection does not exist
Intersection AM/PM Peak Hour volumes

Figure 13-9

Year 2050 + Project Phases I, II, and III - Project Buildout

(Page 2 of 2)

Riverwalk



LINSCOTT LAW & GREENSPAN engineers

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Date: 4/29/2020
Time: 10:30 AM

Figure 13-10

Year 2050 + Project Phases I, II, and III - Project Buildout

Riverwalk

14.0 TRANSPORTATION IMPROVEMENT PLAN (TIP)

The preceding LOS analysis was conducted to identify the project traffic's effect in the study area, identify improvements by the project, and ensure that the improvements to be constructed by the Riverwalk project are consistent with transportation improvements identified in the TIP and the Mission Valley Community Plan. These improvements promote active transportation for pedestrian, bicycle, and transit mobility as well as vehicular traffic. The list of transportation improvements are summarized in a Transportation Improvement Plan (TIP), which identifies the improvement location (i.e. intersection, street segment, freeway interchange), the improvement description, and an identified Equivalent Dwelling Unit (EDU) threshold for transportation improvements to be completed in conjunction with project build-out.

14.1 EDU Analysis Methodology

The project land uses include multi-family residential, office, commercial retail, and park use. Each of these uses has a different trip generation rate and metric. Therefore, EDU's are calculated to normalize all land use categories to the trip generation equivalent to one multi-family residential dwelling unit. For example, each multi-family residential dwelling unit generates 6 trips per day, so 1 EDU would equal 6 trips. To determine the EDU's for a specific land use, the daily trips for that land use would be multiplied by 0.166 (1 divided by 6) EDU. ***Table 14–1*** details the EDU calculations for the different land uses and ***Table 14–2*** details the EDU's calculations per project phase. ***Table 14–3*** details the project's TIP.

TABLE 14–1
EDU PER TRIP RATE

Land Use	Daily Trip Rate		
	Trip Rate		EDU (Trip Rate / 6)
Residential	6	per DU	1 per DU
Commercial Office [a]			
Phase I	19.81	per ksf	3.30 per ksf
Phase III	13.48	per ksf	2.25 per ksf
Commercial Retail			
Neighborhood	120	per ksf	20.00 per ksf
Community	70	per ksf	11.67 per ksf
Park - Developed	50	per acre	8.33 per acre
Park - Undeveloped	5	per acre	0.83 per acre

Footnotes:

a. Due to the Commercial Office trip generation being determined by a logarithmic formula, the Commercial Office EDU varies between Phase I and Phase III.

TABLE 14–2
PROJECT EDU'S PER PHASE

Land Use	Amount		EDU Rate	Daily EDU
Phase I				
Residential	1,910	DU	1 per DU	1,910
Community Retail	110.3	ksf	11.67 per ksf	1,288
Commercial Office	52	ksf	3.30 per ksf	172
Park – Developed	1.6	acre	8.33 per acre	13
Park - Undeveloped	3.11	acre	0.83 per acre	3
Phase I EDU's				*3,386*
Phase II				
Residential	2,390	DU	1 per DU	2,390
Community Retail	13.1	ksf	11.67 per ksf	153
Park – Developed	26.27	acre	8.33 per acre	219
Park - Undeveloped	53.48	acre	0.83 per acre	45
Phase II EDU's				*2,807*
Phases I + II EDU's				*6,193*
Phase III				
Neighborhood Retail	28.6	ksf	20 per ksf	572
Commercial Office	748.0	ksf	2.25 per ksf	1,683
Park – Undeveloped	2.20	acre	0.83 per acre	2
Phase III EDU's				*2,257*
Phases I + II + III EDU's				*8,450*

TABLE 14–3
TRANSPORTATION IMPROVEMENT PLAN (TIP)

	Facility	Project Improvement	Implementation ADT EDU Threshold [1]
1	Friars Road frontage improvements: Street A to Fashion Valley Road	Install a raised median, curb, gutter, sidewalk, parkway and cycle track on the Friars Road project frontage. The project will install a raised median between the easterly property line and Fashion Valley Road.	Frontage[a]
2	Friars Road / Goshen Street intersection	Install a traffic signal and implement ITS improvements	Frontage
3	Friars Road: Goshen Street to ~~Private Driveway~~ Street A	Construct a raised median	Frontage
4	Friars Road / Via Las Cumbres intersection	Widen eastbound approach to provide an additional left-turn lane. Restripe the southbound approach to provide dual left-turn lanes and shared through right lane. Signal modification is also proposed.	Frontage[a]
5	Fashion Valley Road: Private Drive T to Hotel Circle North	Widen to 4-lane Major standards with a raised median with a two-way cycle track on the west side	Frontage[b]
6	Riverwalk Drive / Fashion Valley Road intersection	Widen the westbound approach to include an exclusive westbound left-turn lane. Install overlap phases on westbound and eastbound right-turn movements. Signal modification is also proposed.	Frontage[b]
7	Hotel Circle North: I-8 WB Hook Ramps to Fashion Valley Road	~~Implement the one-way couplet pending the findings of Circulation Study for one-way couplet and I-8 corridor between SR-163 and Taylor Street (See #10)~~ Prior to the implementation of the one-way couplet, the project will widen to 4-lane Major standards with a raised median and Class II bike lanes on Hotel Circle North between I-8 WB Ramps and Fashion Valley Road.	Frontage
~~9~~8	Hotel Circle North / I-8 WB Hook Ramps intersection	Install a traffic signal pending Caltrans approval and Circulation Study findings. Should Caltrans not approve a traffic signal at this intersection, the applicant will contribute up to $500,000 towards an alternative improvement.	Frontage ~~750~~
~~8~~9	Friars Road: Sea World Drive to Avenida De Las Tiendas	Install ITS improvements at the following intersections: • Sea World Drive / Friars Road • Napa Street / Friars Road • Colusa Street / Friars Road • Via Las Cumbres / Friars Road • Fashion Valley Road / Friars Road	1
10	Hotel Circle North and South Couplet I-8: Taylor Street to SR 163	Fully Fund Circulation Study for Hotel Circle one-way couplet and I-8 corridor between SR 163 and Taylor Street (Not to exceed $1.5M)	750
11	Fashion Valley Road: Friars Road to Hotel Circle North	Install ITS Improvements with Transit Signal Priority at the following intersections: • Friars Road / Fashion Valley Road • Riverwalk Drive / Fashion Valley Road • Hotel Circle North / Fashion Valley Road	1,500
12	Riverwalk Transit Station	Construct Transit Station	3,386
13	I-8: SR 163 to East of Mission Center Road and Mission Center Road: Camino Del Rio North to I-8 EB Ramps	Pay a fair-share contribution (23.2%) towards a Project Study Report (total estimated cost not to exceed: $500,000; 23.2% * $500K = $116K) at the I-8/Mission Center Road interchange	3,386
14	Riverwalk Drive / Avenida Del Rio intersection	Install a traffic signal ~~subject to available ROW~~	4,800
15	Friars Road: Colusa Street to Goshen Street	Construct a raised median	4,800
16	Hotel Circle Place / Hotel Circle North intersection	Install a traffic signal subject to the findings of the Hotel Circle & I-8 Corridor circulation study	5,500
17	Hotel Circle N. / I-8 WB Ramps / Taylor Street intersection	Restripe the southbound approach to include dual right-turn lanes subject to the findings of the Hotel Circle circulation study	5,500
18	Friars Rd. & Ulric St. / SR 163 SB Ramps. Friars Road / SR 163 NB Ramps and Friars Road/ Frazee Road intersection	Install ITS Improvements with Transit Signal Priority	6,200
19	Ulric Street / SR 163 SB On-ramp intersection	Install a traffic signal and ITS Improvements	6,200
20	SR 163: North of Friars Road to I-8	Contribution towards future interchange phases	Phase II and III interchange improvements included in the DIF ~~towards Pay a fair-share contribution towards Phase II and III interchange improvements~~[c]
21	Street J	The project will construct Street J between Friars Road and the San Diego River Trail, south of the MTS trolley tracks. The project will offer an Irrevocable Offer of Dedication (IOD) between this southerly terminus and the southerly property line immediately adjacent to Hotel Circle North.	Prior to the 1st occupancy permit in the Central District (lots 32 through 40)
22	Street U	The project will construct Street U between Fashion Valley Road and Street V. The project will offer an Irrevocable Offer of Dedication (IOD) between this westerly terminus and future Street J subject to the park General Development Plan. ITS improvements on Street U are also proposed.	Prior to the 1st occupancy permit in the South District (lots 43 through 52)
23	Street V	The project will construct public Street V between Hotel Circle North and Street U prior to the 1st occupancy permit in the in the South District (lots 43 through 52), subject to Caltrans approval and findings of the Circulation study. ITS improvements on Street V are also proposed.	Prior to the 1st occupancy permit in the South District (lots 43 through 52)

Footnotes:

a. Improvements along project frontage on Friars Road would be permitted and bonded prior to the issuance of the building permit of the adjacent lot and constructed prior to the first occupancy permit as shown below.
   - *Stage A*: First occupancy permit for any Lot 1 or 3 through 10 would include improvements between the project's westerly property line and Street I
   - *Stage B*: First occupancy permit for any Lot 10 through 16 would include improvements between Street I and Fashion Valley Road.

b. Improvement along project frontage on Fashion Valley Road, which includes Riverwalk Drive / Fashion Valley Road intersection and Fashion Valley Road widening between Private Drive T and Hotel Circle North to 4-lane Major would be permitted and bonded prior to the issuance of the building permit of the adjacent lot and constructed prior to first occupancy permit as shown below:
   - *Stage C*: First occupancy permit for either Lot 41 or 42 would include Fashion Valley Road widening between Private Drive T and Riverwalk Drive and westbound approach of Riverwalk Drive / Fashion Valley Road intersection.
   - *Stage D*: First occupancy permit for any Lot 43 through 52 would include Fashion Valley Road widening to 4-lane Major between Riverwalk Drive and Hotel Circle North.

   Improvements to the Fashion Valley Road San Diego River crossing is included in this stage. The widening of the northbound approach of Riverwalk Drive / Fashion Valley Road intersection will be included in this stage.

~~c. The project will pay a fair-share contribution towards SR-163 / Friars Road interchange improvements.~~

General Notes:

1. Improvements that are off-site would be permitted and bonded prior to the issuance of the building permit per the identified implementation EDU threshold and constructed prior to issuance of occupancy permit unless noted in the TIP.

15.0 YEAR 2035 ANALYSIS WITH PROJECT IMPROVEMENTS

As discussed previously, the TIP outlined in *Section 14.0* identifies the project improvements in the study area to address the project's traffic effect, as well as thresholds to ensure that the project constructs the improvements that will be implemented consistent with the TIP. While the analysis in Chapter 12 accounted for on-site improvements, this section provides the LOS analysis for the project's proposed frontage and off-site improvements in the project buildout Year 2035.

15.1 Intersections

The project will provide the following intersection improvements in the study area as listed below and in the TIP.

- #9: Friars Road / Goshen Street:
  - Install a traffic signal and implement ITS improvements.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 1 and constructed prior to the issuance of the first occupancy permit for Lot 1.
- #11: Friars Road / Via Las Cumbres:
  - Widen eastbound approach to provide an additional left-turn lane.
  - Restripe the southbound approach to provide dual left-turn lanes and shared through right lane.
  - Implement signal modification.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 4 or Lot 5 and constructed prior to the issuance of the first occupancy permit for any Lot 1 or 3 through 10.
- #19: Ulric Street / SR 163 SB On-ramp:
  - Install a traffic signal and ITS Improvements.
  - These improvements would be permitted and bonded prior to the issuance of the building permit for the 6,200th EDU and constructed prior to the issuance of the occupancy permit for the 6,200th EDU.
- #29: Riverwalk Drive / Fashion Valley Road:
  - Widen the westbound approach to include an exclusive westbound left-turn lane.
  - Install overlap phases on westbound and eastbound right-turn movements
  - Implement signal modification.
  - These improvements would be permitted and bonded prior to the issuance of the first building permit for Lot 41 or Lot 42 and constructed prior to the issuance of the first occupancy permit for Lot 41 or Lot 42.
- #32: Riverwalk Drive / Avenida Del Rio:
  - Install a traffic signal ~~subject to available ROW~~
  - These improvements would be permitted and bonded prior to the issuance of the building permit for the 4,800th EDU and constructed prior to the issuance of the occupancy permit for the 4,800th EDU.

- #46: Hotel Circle Place / Hotel Circle North:
    - Install a traffic signal subject to the findings of the I-8 Corridor Circulation Study
    - These improvements would be permitted and bonded prior to the issuance of the building permit for the 5,500th EDU and constructed prior to the issuance of the occupancy permit for the 5,500th EDU.
- #47: Hotel Circle North / I-8 WB Ramps / Taylor Street:
    - Restripe the southbound approach to include dual right-turn lanes subject to the findings of the I-8 Corridor Circulation Study
    - These improvements would be permitted and bonded prior to the issuance of the building permit for the 5,500th EDU and constructed prior to the issuance of the occupancy permit for the 5,500th EDU.
- #48: Hotel Circle North / I-8 WB Hook Ramps:
    - Install a traffic signal pending Caltrans approval and I-8 Corridor Circulation Study findings.
    - These improvements would be permitted and bonded as a part of the project frontage improvements. ~~prior to the issuance of the building permit for the 750th EDU and constructed prior to the issuance of the occupancy permit for the 750th EDU.~~

Table 15–1 shows the LOS analysis for the above intersections including the project improvements. While the physical improvements were included in the LOS analysis, the ITS improvements that are shown below were excluded due to current planning analysis software being limited in its ability to model ITS and to quantitatively report its benefits to the roadway network.

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

TABLE 15–1
YEAR 2035 INTERSECTION IMPROVEMENT ANALYSIS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II and III – Project Buildout		Year 2035 + Project Phases I, II and III – Project Buildout with Improvement		Project Improvement
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	
9. Friars Rd. / Goshen St.	OWSC[c]	AM	40.9	E	181.4	F	9.1	A	Install a traffic signal
		PM	77.9	F	283.6	F	9.5	A	
11. Friars Rd. / Via Las Cumbres / Street F	Signal	AM	33.1	C	153.9	F	85.9	F	Widen the eastbound approach on Friars Road to add an additional eastbound left-turn lane and restripe the southbound approach to include dual left turn lanes with a shared through right lane.
		PM	31.5	C	145.4	F	69.4	E	
19. Ulric Street / SR 163 SB On-Ramp	Unsignalized	AM	43.8	E	45.6	E	11.4	B	Install a traffic signal
		PM	59.8	F	62.7	F	11.7	B	
29. Riverwalk Drive / Fashion Valley Road	Signal	AM	24.6	C	45.7	D	25.3	C	Widen the northbound approach to include dual left-turn lanes, widen the eastbound approach to include the addition of a left turn lane, a shared through left right lane, and a right turn lane, and widen the westbound approach to include an exclusive left-turn lane, and right-turn overlap phasing for eastbound and westbound movements.
		PM	46.9	D	121.2	F	49.8	D	
32. Riverwalk Drive / Avenida Del Rio	AWSC[d]	AM	13.8	B	23.2	C	8.8	A	Install a traffic signal
		PM	61.8	F	166.2	F	142.3	F	

TABLE 15–1
YEAR 2035 INTERSECTION IMPROVEMENT ANALYSIS

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project Phases I, II and III – Project Buildout		Year 2035 + Project Phases I, II and III – Project Buildout with Improvement		Project Improvement
			Delay[a]	LOS[b]	Delay	LOS	Delay	LOS	
46. Hotel Circle Place / Hotel Circle N.	AWSC	AM	270.6	F	441.6	F	31.3	C	Install a traffic signal
		PM	262.1	F	602.9	F	79.5	E	
47. Taylor Street / I-8 WB Ramp	Signal	AM	40.3	D	63.6	E	39.1	D	Restripe the southbound approach to include dual right-turn lanes
		PM	8.3	A	10.8	B	17.1	B	
48. Hotel Circle N. / I-8 Hook WB Ramps	AWSC	AM	165.3	F	259.3	F	41.9	D	Install a traffic signal pending Caltrans approval and Circulation Study findings
		PM	108.9	F	213.1	F	45.5	D	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service
c. OWSC - One-Way Stop Control
d. AWSC - All-Way Stop Control

SIGNAL		UNSIGNAL	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

In addition to the physical improvements to the above intersections, the project proposes to install Intelligent Transportation Systems (ITS) improvements, which include Adaptive Traffic Signals and Transit Priority Signals and communication upgrades at the following intersections to the satisfaction of the City Engineer:

- Sea World Drive / Friars Road
- Napa Street / Friars Road
- Colusa Street / Friars Road
- Goshen Street / Friars Road
- Via Las Cumbres / Friars Road
- Fashion Valley Road / Friars Road
- Friars Road / Ulric Street / SR 163 SB Ramps
- Ulric Street / SR 163 SB on-ramp
- Friars Road / SR 163 NB Ramps
- Friars Road / Frazee Road
- Riverwalk Drive / Fashion Valley Road
- Street U / Fashion Valley Road
- Hotel Circle North / Fashion Valley Road
- I-8 WB Ramps / Hotel Circle North / Street V
- Street U / Street V

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 1st EDU at the following intersections:

- Sea World Drive / Friars Road
- Napa Street / Friars Road
- Colusa Street / Friars Road
- Goshen Street / Friars Road
- Via Las Cumbres / Friars Road
- Fashion Valley Road / Friars Road

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 1,500th EDU at the following intersections:

- Fashion Valley Road / Friars Road
- Riverwalk Drive / Fashion Valley Road
- Hotel Circle North / Fashion Valley Road

The installation of the ITS improvements would occur prior to the issuance of the occupancy permit for the 6,200th EDU at the following intersections:

- Friars Road / Ulric Street / SR 163 SB Ramps
- Ulric Street / SR 163 SB On-ramp
- Friars Road / SR 163 NB Ramps
- Friars Road / Frazee Road

15.2 Street Segments

The project will construct several physical street segment improvements on Friars Road and Fashion Valley as shown below and outlined in the TIP.

- Friars Road – Colusa Street to Goshen Street:
  - Construct a raised median.
  - This improvement would be permitted and bonded prior to the issuance of the building permit for the 4,800th EDU and constructed prior to the issuance of the occupancy permit for the 4,800th EDU.
- Friars Road – Goshen Street to Street A:
  - Construct a raised median.
  - This improvement would be permitted and bonded prior to the issuance of the first building permit for Lot 1 and constructed prior to the issuance of the first occupancy permit for Lot 1.
- Friars Road – Street A to Fashion Valley Road:
  - Install a raised median, curb, gutter, sidewalk, parkway and cycle track on the Friars Road project frontage. The project will install a raised median between the easterly property line and Fashion Valley Road.
  - From Street A to Street I, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot 1 or 3 through 10 and constructed prior to the issuance of the first occupancy permit for any Lot 1 or 3 through 10.
  - From Street I to Fashion Valley Road, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot 10 through 16 and constructed prior to the issuance of the first occupancy permit for any Lot 10 through 16.
- Fashion Valley Road – Private Drive T to Hotel Circle North:
  - Widen to 4-lane Major standards with a raised median and two-way Class IV cycle track on the west side
  - From Private Drive T to Riverwalk Drive, these improvements would be permitted and bonded prior to the issuance of the first building permit for either Lot 41 or 42 and constructed prior to the issuance of the first occupancy permit for either Lot 41 or 42.
  - From Riverwalk Drive to Hotel Circle North, these improvements would be permitted and bonded prior to the issuance of the first building permit for any Lot

43 through 52 and constructed prior to the issuance of the first occupancy permit for any Lot 43 through 52.

Table 15–2 shows the LOS analysis of widening Fashion Valley Road to a 4-lane Major roadway. In addition to the above physical improvements, the project will fund a Circulation Study (for a Hotel Circle one-way couplet and I-8 corridor between SR 163 and Taylor Street), and provide fair-share contribution on a Project Study Report (PSR) at the I-8/Mission Center Road interchange.

TABLE 15–2
YEAR 2035 STREET SEGMENT IMPROVEMENT ANALYSIS

Street Segment	Functional Classification	Capacity (LOS E)[a]	Year 2035			Year 2035 + Project Phases I, II, and III – Project Buildout			Improvement Classification	Mitigation Capacity	Year 2035 + Project Phases I, II, and III – Project Buildout with Improvement			Improvement
			ADT[b]	LOS[c]	V/C[d]	ADT[b]	LOS[c]	V/C[d]			ADT	LOS	V/C	
Fashion Valley Road														
Private Drive T to Riverwalk Drive	4-Lane Collector (with turn pockets)	22,500	16,500	D	0.733	19,650	E	0.873	4-Lane Major Arterial	40,000	19,650	B	0.491	Widen to 4-lane Major standards with a raised median and two-way Class IV cycle track on the west side
Riverwalk Drive to Street U	4-Lane Collector	15,000	12,140	D	0.809	23,710	F	1.581	4-Lane Major Arterial	40,000	23,710	C	0.593	
Street U to Hotel Circle North	4-Lane Collector	15,000	12,490	D	0.833	15,810	F	1.054	4-Lane Major Arterial	40,000	15,810	B	0.395	

Footnotes:

a. Capacities based on City of San Diego Roadway Classification & LOS table.
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio

15.3 Freeway Segments

To address the project's traffic effect on freeway facilities, the project proposes the following:

15.3.1 *SR 163*

Phase I of the SR 163/Friars Road Interchange project was recently completed (December 2019), which included widening of the Friars Road overcrossing and improving local street intersections on Friars Road. The SR 163/Friars Road Interchange project also includes Phase II and III improvements. Phase II improvements include two additional exit lanes to Friars Road, widen SB off-ramp at Friars Road, a new collector bridge on SB SR 163 between Friars Road and I-8 and a new flyover bridge from Ulric Street. The project proposes a fair-share contribution towards implementation of Phase II and III improvements of the SR 163/Friars Road Interchange project.

15.3.2 *I-8*

An Interstate 8 Corridor Study (preliminary draft dated August 2016) was jointly prepared by SANDAG and Caltrans that analyzed transportation alternatives on I-8 between Nimitz Boulevard and Lake Murray Boulevard to meet future regional and local demand. The Corridor Study recommended several improvements on I-8 in the Mission Valley community that included reconfiguration of on-ramps and off-ramps at Hotel Circle North and South, Taylor Street interchange among others.

The Mission Valley Community Preferred Roadway Network also includes several new roadways such as Street J, Street U and a new freeway overpass of I-8. However, while both the Corridor Study and the Mission Valley Community Plan reviewed several conceptual alternatives, neither study included detailed engineering feasibility drawings, cost estimates or other analyses to identify a preferred alternative or improvement.

Therefore, in coordination with City of San Diego and Caltrans, the Riverwalk project will fully fund a Hotel Circle and I-8 Circulation Study (up to $1.5 million) to evaluate local and regional alternatives along I-8 from Taylor Street to SR 163. The Circulation Study will evaluate feasibility and operational analysis of several alternatives (at-grade vs. elevated) that will include a combination of Street J, Street U, the Hotel Circle one-way couplet and new I-8 freeway overpass. The study will include design drawings, cost estimates and design feasibility for each alternative. Vehicle Miles Traveled (VMT), pedestrian, bicycle and transit mobility for each alternative will be reviewed as well.

In addition to the circulation study, the project will pay a fair-share contribution (23.2% as shown in *Appendix EE*) towards a Project Study Report (total estimated cost not to exceed $500,000; 23.2% *$500K = $116K) at the I-8/Mission Center Road interchange. The fair-share contribution will be provided prior to the issuance of the building permit for the 3,386th EDU.

16.0 SITE ACCESS, CIRCULATION, AND INTERNAL STREET REVIEW

16.1 Site Access

Riverwalk is afforded vehicular accessibility from a well-established system of roadways and a variety of transportation options. Regional Access to the site is provided by I-5, I-8 and SR163. I-5, a major north-south freeway that connects San Diego to Orange County and Los Angeles, is located approximately 2.5 miles west of Riverwalk. I-8, a major east-west freeway, is located immediately south of Riverwalk, connecting the Pacific Ocean to the local mountains and deserts to the east. SR-163, located approximately one-half mile east of Riverwalk, provide regional north-south access, from downtown San Diego to Interstate 15 to points north of San Diego County

Local access to the site is provided via Friars Road to the north, Hotel Circle North to the south, both of which provide east-west travel. Fashion Valley Road forms Riverwalk's eastern border and connects Friars Road to Hotel Circle North. Friars Road connects Riverwalk and the Mission Valley community to Linda Vista to the north, Morena and Mission Bay to the west, and Grantville to the east.

Riverwalk is accessible via transit to the MTS Green Line Trolley and the regional bus service, with an existing transit center located immediately east of the Specific Plan area at Fashion Valley Mall and the proposed Green Line Trolley stop that the project will construct on-site. These two (2) trolley stations on the Green Line Trolley will connect the project site to the Old Town Transit Center on the west end to the City of Santee on the east, as well as the greater San Diego and southern California region via bus, trolley, and commuter rail.

16.1.1 *Project Access Points*

The Riverwalk project proposes access points along Friars Road, Fashion Valley Road and Hotel Circle North. ***Figure 16–1*** shows the Project Access.

The project site design includes a total of five (5) access points along Friars Road. The driveways include a combination of signalized and unsignalized intersections (right-in/right-out only driveways). The driveway locations were developed considering the intersection spacing, existing driveway/street locations on the north side, and proximity of pedestrian crossings to preserve traffic capacity, yet provide convenient and safe access.

On Fashion Valley Road, two driveways (one unsignalized and one signalized) are proposed in addition to the Riverwalk Drive / Fashion Valley Road intersection. The unsignalized driveway is proposed to serve the residential development located at the northwest corner of Fashion Valley Road / Riverwalk Drive intersection. A new traffic signal is proposed at the Fashion Valley Road / Street U intersection to serve the office development.

On Hotel Circle North, Street V is proposed as the fourth leg of the I-8 WB Hook ramps/Hotel Circle North intersection (subject to Caltrans approval and findings of the Circulation Study). This driveway would serve as an office access. With the implementation of the one-way couplet

configuration on Hotel Circle North, traffic between Hotel Circle North and Fashion Valley Road could use the Street U and thereby access Fashion Valley Road and its surrounding land uses.

16.2 Internal Circulation

Vehicular circulation within Riverwalk is achieved through connections to the primary network established by existing city streets. The internal street system is based upon a modified grid-pattern that is influenced by the landform, location of the existing trolley tracks and the proposed Riverwalk trolley station, San Diego River, shape of the Specific Plan area, provision of connectivity, and the Mission Valley Community Plan. The street system will be constructed as part of the Riverwalk Vesting Tentative Map to connect each District. Additional internal private drives will provide access to development within each District.

16.2.1 *Internal Street Review*

The Riverwalk project's on-site network of streets and intersections consists of different street design types based on expected traffic volumes. ***Appendix FF*** provides the roadway cross-sections. Roadways will vary within the parameters of the City's standard design for Major, Collector Roads, and Residential Collectors. It is not anticipated that any on-site roadway would exceed the ADT thresholds set forth above by these design standards.

Figure 16–2 shows the Riverwalk Internal Roadway System.

16.2.2 *Traffic Volumes*

On-site traffic volumes were distributed and assigned to the Project site by assigning the trip generation individually on a per lot basis. On-site trip distribution was developed by assessing the land use plan and assigning trips based on their location within the project site. ***Table 16–1*** shows the internal street sections and their associated traffic volumes and LOS. As shown, all the internal streets are calculated to operate at acceptable levels of service.

Figure 16–3 shows the internal roadway volumes.

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
North of River								
1	A	2-lane Collector (w/ fronting property)	36’	64’	8,000	2,950	0.369	B
2	D1	2-lane Collector w/ TWLTL	54’	84’	15,000	1,570	0.105	A
3	B	2-lane Collector (w/ fronting property) – *Private Drive*	51’	57.5’	8,000	1,680	0.210	A
4	F	4-lane Collector	59’	87’	15,000	4,040	0.269	A
5	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	3,960	0.264	A
6	H	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	3,790	0.474	C
7	H	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	2,550	0.319	B
8	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	4,980	0.332	A
9	I	4-lane Collector	66’	94’	15,000	6,090	0.406	A
10	J1	2-lane Major	44’	50.5’	20,000	5,610	0.281	A
11	E	2-lane Collector w/ TWLTL	78’	90’	15,000	3,730	0.249	A
12	D1	2-lane Collector w/ TWLTL	56’	84	15,000	3,730	0.249	A
13	K	2-lane Collector (w/ fronting property)	28’	56’	8,000	4,120	0.515	C
14	L	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	2,660	0.333	B
15	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	7,010	0.467	C
16	D2	2-lane Collector w/ TWLTL	56’	84’	15,000	6,610	0.441	B

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

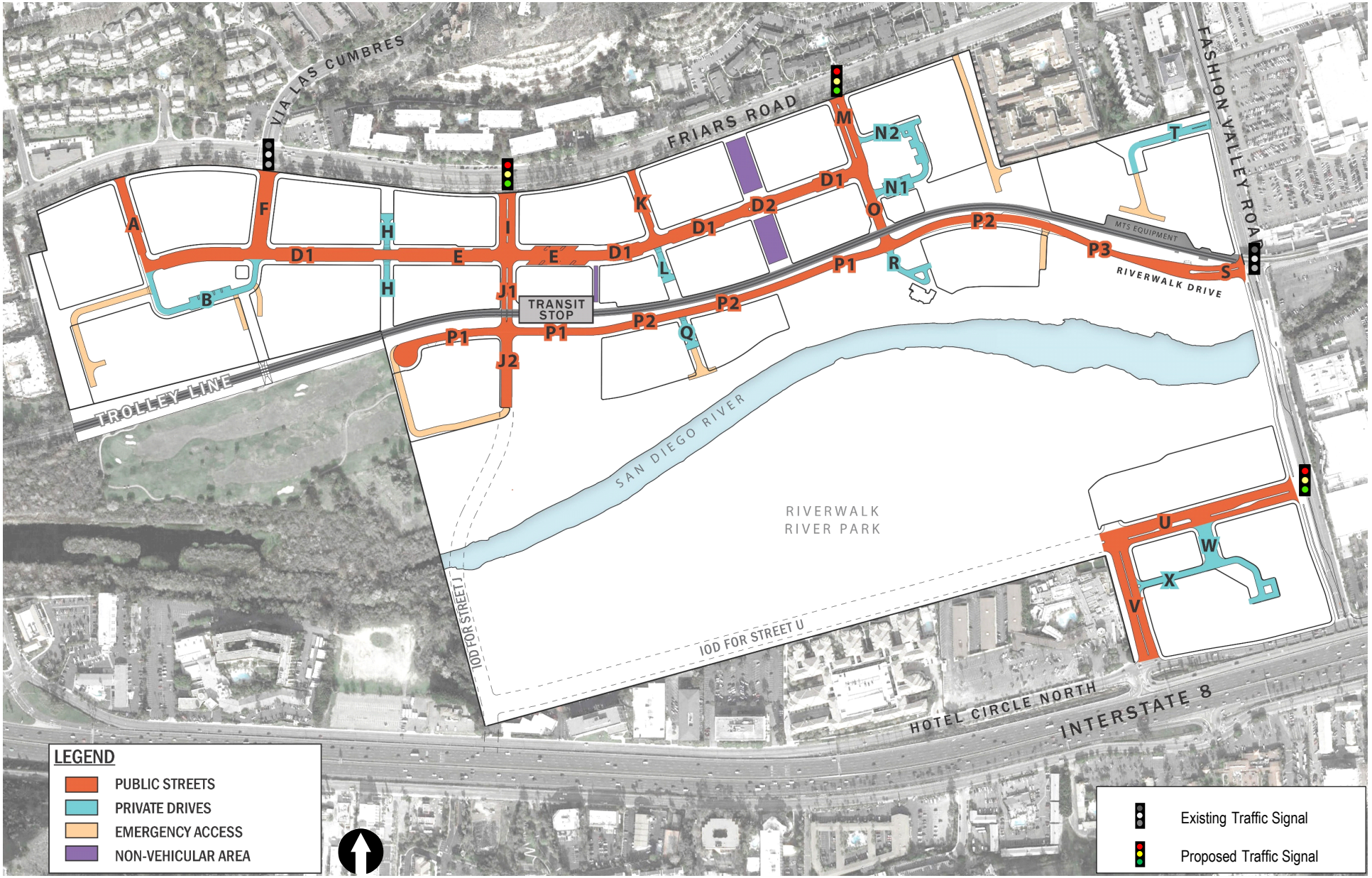
Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
17	D1	2-lane Collector w/ TWLTL	56’	84’	15,000	7,850	0.523	C
18	M	3-lane Collector	56’	84’	20,000	5,810	0.387	B
19	O	2-lane Collector (w/ fronting property)	40’	68’	8,000	4,060	0.508	C
20	N2	1-lane Collector (w/ fronting property) – *Private Drive*	20.5’	33.5’	4,000	1,450	0.363	B
21	N1	2-lane Collector (w/ fronting property) – *Private Drive*	60.5’	66.5’	8,000	1,450	0.181	A
22	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	1,380	0.138	A
23	J2	2-lane Major – *Private Drive*	44.5’	58.5’	20,000	50	0.003	A
24	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	5,110	0.511	B
25	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	5,110	0.511	B
26	Q	2-lane Collector (w/ fronting property) – *Private Drive*	24’	52’	8,000	1,980	0.248	A
27	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	4,400	0.440	B
28	P1	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	4,400	0.440	B
29	P2	2-lane Collector (No fronting Property)	31.5’	45.5’	10,000	8,070	0.807	D
30	P3	2-lane Collector (No fronting Property)	24.5’ to 41.5’	45.5’ to 62.5’	10,000	8,070	0.807	D
31	S	4-lane Major	59’	94’	40,000	8,070	0.202	A
32	R	2-lane Collector (w/ fronting property)	24’	48’	8,000	1,080	0.135	A
33	T	2-lane Collector (w/ fronting property) – *Private Drive*	26.5’	74.3’ to 85.1’	8,000	2,200	0.275	A
South of River								
34	U	4-lane Collector w/ median	75’	103’	30,000	8,850	0.295	A

TABLE 16–1
INTERNAL ROADWAY TRAFFIC

Segment ID	Section	Classification	Roadway width		Capacity LOS E[a]	ADT[b]	V/C[d]	LOS[e]
			Curb-to-Curb	Right of Way				
35	V	4-lane Collector w/ median	68’	89.5’	30,000	7,660	0.255	A
36	W	4-lane Collector *Private Drive*	56’	84’	30,000	2,430	0.081	A
37	X	2-lane Collector w/ TWLTL – *Private Drive*	27’	27’	15,000	3,490	0.233	A

Footnotes:

a. Capacity based on roadway classification operating at LOS E.
b. Average Daily Traffic.
c. Volume to Capacity.
d. Level of Service.



LINSCOTT LAW & GREENSPAN engineers

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Figure 16-1

Project Access

RIVERWALK

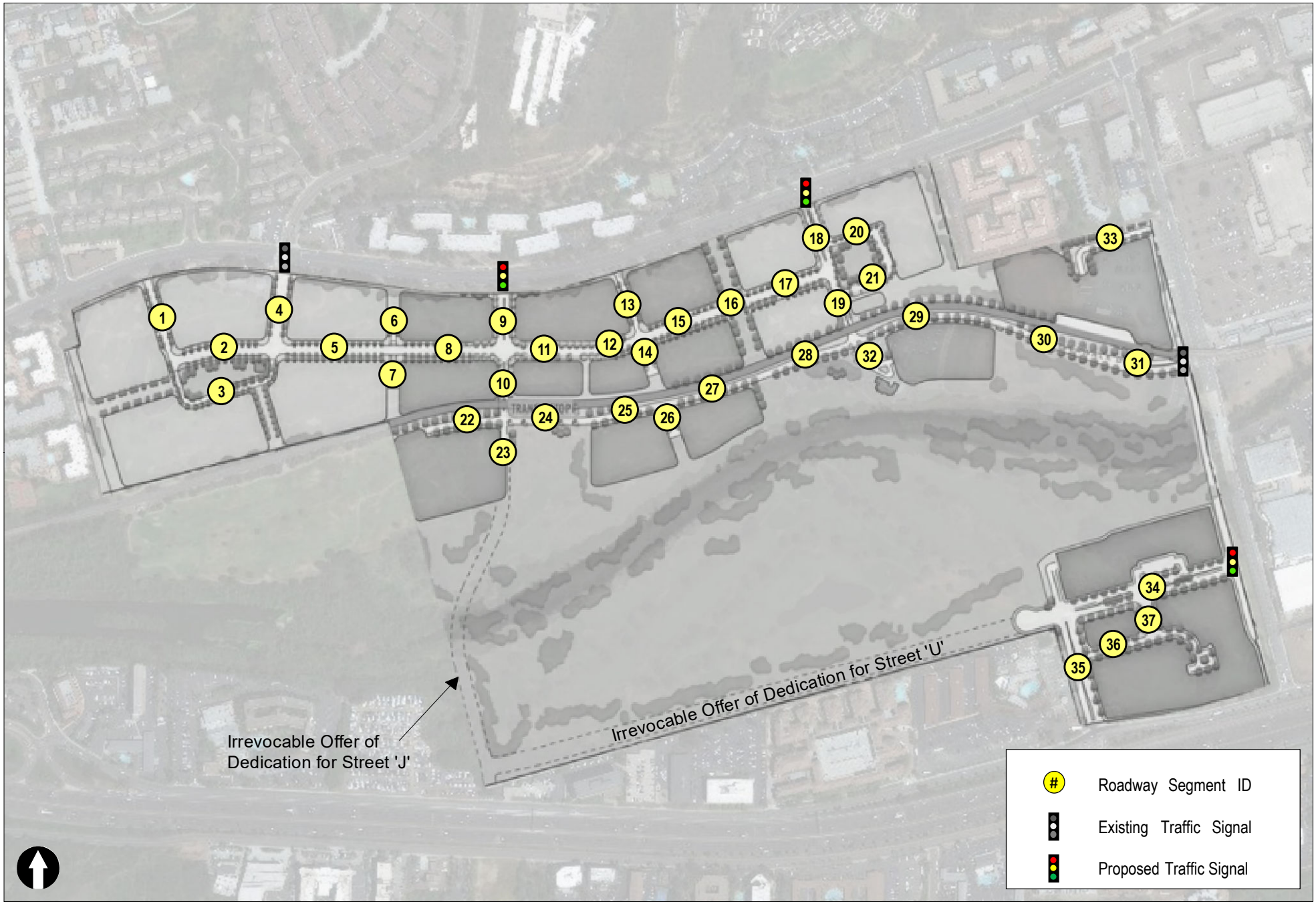

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Figure 16-2

Internal Roadway System

RIVERWALK

LINSCOTT LAW & GREENSPAN engineers

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Figure 16-3

Internal Roadway Volumes

RIVERWALK

17.0 PARKING

The number of parking spaces for automobile, bicycle, and motorcycle parking shall comply with the Land Development Code (LDC) based on the zoning and land uses of each development area. However, the sharing of parking to reflect the collocation of uses is expected to address uses that complement each other relative to required parking.

- *Automobile Parking*. Automobile parking shall comply with the LDC based on the zoning and land use applied to each development area. Parking requirements contained in LDC Chapter 14, Article 2, Division 5 shall apply to development in Riverwalk. During the course of Riverwalk's build out, parking regulations within the LDC may change, resulting in reduced parking regulations, which would not require a change to this Specific Plan. Instead, these changes would be reviewed as a Substantial Conformance Review (SCR).

- *Bicycle Parking and Micro-Mobility Equipment*. The number of short- and long-term bicycle parking and facilities will exceed the minimum required number of spaces required in LDC Section 142.0530(e). Bicycle parking will be accommodated with a combination of racks, bicycle lockers, and/or other bicycle parking innovations not currently envisioned in the LDC. Bicycle lockers/racks, personal lockers, shower, and changing facilities shall be provided in order to promote the use of bicycles and bikeways by employees. Signs shall be posted indicating the availability of bicycle parking facilities.

  Designated bicycle parking is encouraged for bike-share or other micro-mobility programs (e.g., electric scooters or future micro-mobility innovations), with related signage and bike racks located within the public realm. Designation of parking areas for micro-mobility programs will avoid shared bikes being abandoned on sidewalks and within the public right-of-way, where they may block pedestrian access or damage trees and/or parkway landscaping.

- *Motorcycle Parking*. Motorcycle parking shall be provided in accordance with LDC Section 142.0530(g).

18.0 PEDESTRIAN MOBILITY

This section presents the pedestrian conditions in the project study area and includes a walkshed analysis to ensure the project provides the appropriate pedestrian facilities. The *City of San Diego Pedestrian Master Plan (2015)* and the *General Plan Mobility Element (2008)* establish guidelines for a complete, functional, and interconnected pedestrian network, that is accessible to pedestrians of all abilities. The improvements to enhance pedestrian mobility that the project will construct are also presented.

18.1 Existing Pedestrian Mobility

A pedestrian network inventory was conducted along street segments, which included documenting missing sidewalks, pedestrian barriers and pedestrian pathways within the ½ mile driving distance of the project. ***Figure 18–1*** shows the existing pedestrian network within the immediate vicinity of the project.

18.1.1 *Existing Pedestrian Activity*

Existing pedestrian activity (from the Mission Valley Community Plan Update (MVCPU), Mobility Existing Conditions Report (ECR), June 2017) was documented at intersections within the ½ mile driving distance of the project during the commuter AM/PM peak hours as shown in ***Appendix GG***. The average AM and PM pedestrian activity was documented and every intersection was categorized into the following pedestrian activity level categories. For the purposes of this analysis, low activity was assumed as less than 30 pedestrians/hour, medium activity was assumed as 31-59 pedestrians/hour and high activity was assumed as greater than 60 pedestrians/hour. ***Figure 18–2*** shows the existing pedestrian activity in proximity of the Riverwalk project per the above categories.

As shown in *Figure 18–2*, the following intersections were observed as having a medium or high pedestrian activity for locations within ½ mile driving distance of the project area:

- Linda Vista Road/ Via Las Cumbres
- Friars Road / Colusa Street
- Friars Road / Fashion Valley Road
- Fashion Valley Road / Riverwalk Drive
- Hotel Circle South / Bachman Place

A subset of intersections from the above list that are on the Riverwalk project frontage were reviewed and pedestrian improvements that will be constructed by the project are described in Section 18.9.

The existing pedestrian activity in the MVCPU was also evaluated using the City of San Diego Pedestrian Priority Model, US Census Bureau data, and peak period pedestrian counts. *Appendix GG* includes the Figure 4-3: Pedestrian Priority Model from the MVCP Mobility Element ECR. In the vicinity of the Riverwalk project site, the Pedestrian Priority model shows medium to high

pedestrian activity surrounding the Fashion Valley Transit Center and the Fashion Valley Mall, and low activity surrounding the Riverwalk Golf Course and Hotel Circle North.

18.2 Future Pedestrian Mobility

Several planning and project documents that include pedestrian improvements via a condition of approval from a nearby project or identified as improvements in the MVCPU were reviewed. These documents include the Mission Valley Community Plan Update's – *Mobility Technical Report*, Mission Valley Impact Fee Study (March 2020), *Mission Valley Plan Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista (PFFP) – Fiscal Year 2006,* the *2050 Regional Transportation Plan* (RTP) and the *City of San Diego Pedestrian Master Plan (April 2015).* In addition, other approved developer pedestrian improvements such as Union Tribune and Town and Country in the Mission Valley Community were also reviewed and identified.

Table 18–1 shows the planned pedestrian improvements that were reviewed.

TABLE 18–1
PLANNED IMPROVEMENTS - PEDESTRIAN

Project Name	Improvements	Schedule/ Funding
Hotel Circle North between Fashion Valley Road and Camino De La Reina	This project provides a non-contiguous sidewalk on the north side of Hotel Circle North between Fashion Valley Road and Camino De La Reina	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
Camino De La Reina between Hotel Circle North and Town and Country project driveway	This project provides a non-contiguous sidewalk on the north side of Camino De La Reina between Hotel Circle North and the Town and Country project driveway	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
San Diego River Pedestrian Improvements	This project provides for the improvement of a dedicated pedestrian path along the SD River across Fashion Valley mall.	This improvement is a condition of approval of the Town & Country Master Plan and Union Tribune projects. These improvements are under construction and expected to be complete by end of Year 2020.
MV PFFP Priority Project 7 and IFS Project No P-14	This project proposes pedestrian pathways along both sides of the San Diego River.	Design and construction will be scheduled once funding is identified

18.3 Pedestrian Mobility Review

18.3.1 *Walkshed Analysis*

As stated above, a walkshed analysis was performed to evaluate the pedestrian connectivity in the vicinity of the project site and to ensure the project provides the appropriate pedestrian facilities.

The walkshed analysis was performed by identifying all access points to / from the Riverwalk project considering topography constraints. From each access point, areas outside the Riverwalk project site that could be reached by walking 0.25 miles were identified. Selected walking routes from each access point consider the existence of crosswalks, pedestrian bridges, etc. In this regard, while some areas are located within the 0.25-mile radius around the project site, they may not be reached by walking due to lack of facilities. After creating the walkshed network, the area that could be captured by walking was measured. A larger walkshed area (walkshed network) means higher connectivity between the project site and nearby areas.

As shown in ***Figure 18–3,*** the Riverwalk project in general has good connectivity to the surrounding community.

18.4 On-Site Project Pedestrian Improvements

18.4.1 *Pedestrian Improvements Along Fronting Streets*

The Riverwalk project site proposes substantial improvements to promote walkability. The section below discusses the frontage and on-site pedestrian improvements:

18.5 Pedestrian Improvements

The project proposes to construct the following improvements on the fronting streets:

- A non-contiguous sidewalk will be constructed along the entire project frontage on the south side of Friars Road. The sidewalk will be separated from the curb by a 17ft wide landscaped buffer to provide refuge for pedestrians.
- Currently, a 5ft wide contiguous sidewalk exists only on the east side of Fashion Valley Road between Friars Road and Hotel Circle North. The 5ft wide contiguous sidewalk on the west side on Fashion Valley Road is provided for approximately 620 feet between Friars Road and proposed Private Drive T. The project will widen Fashion Valley Road and construct a 6ft wide non-contiguous sidewalk on the west side of Fashion Valley Road along the entire project frontage between proposed Private Drive T and Hotel Circle North. This will enhance pedestrian mobility and interaction between the Fashion Valley mall and surrounding community.
- Currently there are no sidewalks on Riverwalk Drive, west of Fashion Valley Road. The project will construct a 7ft wide non-contiguous sidewalk along the south side of Riverwalk Drive between Fashion Valley Road to its on-site terminus. No sidewalk is proposed on the north side as it is fronting the trolley tracks.
- A 7ft wide non-contiguous sidewalk will be constructed along the 840-foot project frontage on the north side of Hotel Circle North. The sidewalk will be separated by a 7ft wide landscaped buffer to provide refuge for pedestrians.

18.6 Pedestrian Improvements Within the Site

The entirety of Riverwalk is designed to accommodate pedestrians, with linked walkways, paths, and sidewalks to permit access from one part of the project site to any other part. The following is a brief description of the pedestrian improvements that the project will construct:

- *SD River Pedestrian and Bicycle Path*: A Class I pedestrian/bicycle path will be constructed on both sides of the San Diego River and will connect with multimodal paths on property east and west of Riverwalk. Sidewalks will also connect to the community-wide pedestrian network. An existing golf cart tunnel will be utilized for pedestrian and bicycle access from the north to the south side of the trolley tracks. ***Figure 18–4*** shows the proposed pedestrian circulation within the project site and ***Figure 18–5*** shows the pedestrian network along the project frontages.
- *Pedestrian Bridges:* The two (2) existing bridges across the San Diego River will function not only as a pedestrian link from the transportation center and urban core to the southern portions of Riverwalk, but also to activate the River Park. The travel way of the pedestrian bridges is approximately 11 feet in width. Paths will connect the pedestrian bridges to the river pathways, the various elements of the park system, and pedestrian/bicycle linkages to the development areas on both sides of the San Diego River. In addition to the two (2) existing bridges over the SD River, a new pedestrian bridge is proposed on Street J, north of Street P connecting to the Riverwalk trolley station.

- *Pedestrian Tunnels:* Two existing tunnels under the trolley tracks will be repurposed for use by pedestrians and bicyclists. The travel way of the tunnels is approximately eight) feet wide and ten feet high. The tunnels provide grade-separated pedestrian crossings of the trolley tracks
- *Sidewalks:* All on-site roadways include sidewalks on both sides of the roadway (except Riverwalk Drive on the north side fronting the trolley tracks) and crosswalks on all approaches.
- *Open Space/Walkway:* A 7-foot-wide open space/walkway for pedestrians is also proposed on the north side of the trolley tracks connecting Fashion Valley Road to the west end of the project site

18.7 Pedestrian Design Elements

The following is a brief description of the pedestrian design elements that are included as a part of the site design:

Pedestrian Sidewalks/Pathways

- The widths of pedestrian sidewalks located within a public street right-of-way shall be determined by the classification of the adjacent street and shall be separated from the street by a landscaped strip. The Riverwalk Specific Plan includes a range of fourteen- to 20-foot curb-to-property line distances for sidewalk and landscaping.
- The widths of pedestrian paths which lie outside a public street right-of-way shall be no less than five feet wide and will include ADA compliant surface satisfactory to the City Engineer.
- The Class I river pathway will be approximately 14 feet wide with 10 feet paved concrete surface, with two-foot shoulders on both sides.
- The primary pedestrian paths shall have adequate security lighting and signage to provide for the safety of the users.
- All pedestrian paths will provide adequate accommodations for disabled users.
- Existing golf cart paths will be retained around the bridge areas; however, the remainder of the paths will be demolished.

Pedestrian Access

- Development oriented toward the river will be constructed to provide pedestrian access from public streets.
- Active transportation internal circulation paths will be provided to minimize conflicts between pedestrians/bicyclists and automobile traffic.

Pedestrian Linkages

- Safe and convenient pedestrian movement will be provided within, to, and from parking areas, as well as to surrounding existing commercial, residential, and office developments and the Mission Valley community-wide pedestrian and public transit systems.
- Pedestrian paths will link the river bridges to the community-wide trail system.
- The pedestrian path system will connect recreational uses to one another and link recreational areas to development areas.
- Where residential, retail, recreational, and employment developments occur adjacent to open space parcels, pedestrian linkages will be provided from the development area to the designated pedestrian pathways or open space entries.

Pedestrian Crossings and Intersections

- Crosswalks will comply with the City's design standards including directional curb ramps, pedestrian countdown timers, and continental (high-visibility) crosswalks. This will include upgrading crosswalks at all fronting intersections to the project

18.8 Pedestrian Mobility Enhancements

In addition to the above, the following pedestrian mobility enhancements will be considered where appropriate, satisfactory to the City Engineer:

- *Leading Pedestrian Intervals:* Leading Pedestrian Intervals provide a "head-start" for pedestrians by advancing the "walk" sign and letting pedestrian and bicyclists to advance in the crosswalk to reduce conflicts with right turning vehicles.

- *Curb pop-outs or extensions:* Curb extensions are a traffic calming measure to reduce vehicle speeds as the curbs are extended into the roadway to provide minimum travel lane widths. This, in turn, helps reduce pedestrian crossing distance and exposure. -Given the anticipated pedestrian activity in the Mixed-Use Core area, curb pop-outs are provided along Street D1 between Street A and Street M (see Figure 2-2).

18.9 Pedestrian Improvement Recommendations

The following pedestrian improvements will be constructed by the project, where appropriate satisfactory to the City Engineer:

P-I-1: San Diego River Pathway

- Construct bridges across the San Diego River to provide a new pedestrian connection between the north and south sides. This San Diego River pathway will be connected to the San Diego River Pathway on the northerly edge of the Town and Country Hotel.

P-I-2: Pedestrian Connections

- Construct an open space /walkway to connect the west park to the existing Courtyards development to facilitate community access to/from the project site from the west.

P-I-3: Pedestrian Curb Extensions

- Install pedestrian curb extensions at the identified internal street intersections to reduce pedestrian crossing distances and slow vehicle speeds.

P-I-4: Fashion Valley Road between Private Drive T and Hotel Circle North

- Construct a 15ft parkway (6ft non-contiguous sidewalk and 9ft landscaped buffer) for approximately 2,170ft along this segment.

P-I-5: Friars Road project frontage

- Remove the existing sidewalk and construct a 23ft parkway (6ft non-contiguous sidewalk and 17ft landscaped buffer) for approximately 3,880ft along this segment.

P-I-6: Hotel Circle North project frontage

- Remove the existing sidewalk and construct a 14ft parkway (7ft non-contiguous sidewalk and 7ft landscaped buffer) for approximately 850ft along this segment.

P-I-7: Friars Road / Goshen Street intersection

- Install high visibility crosswalks on all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers on all intersection legs with pedestrian crossings.
- Consistent with the MVCP recommendations, lead pedestrian timing interval for the pedestrian crossing Friars Road should be considered.

P-I-8: Friars Road / Via las Cumbres / Street F intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs with pedestrian crossings.
- Consistent with the MVCP recommendations, lead pedestrian timing interval for the pedestrian crossing Friars Road should be considered.

P-I-9: Friars Road / Street I intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs with pedestrian crossings.
- Consider installing leading pedestrian intervals for pedestrians crossing Friars Road.

P-I-10: Friars Road / Street M intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Consider installing pedestrian countdown timers at all the applicable intersection legs. with pedestrian crossings
- Consider installing leading pedestrian intervals for pedestrians crossing Friars Road.

P-I-11: Friars Road / Fashion Valley Road intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings, if not already provided.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian intervals should be considered on all legs.

P-I-12: Fashion Valley Road / Riverwalk Drive intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian intervals should be considered for pedestrians crossing Fashion Valley Road.

P-I-13: Fashion Valley Road / Street U intersection

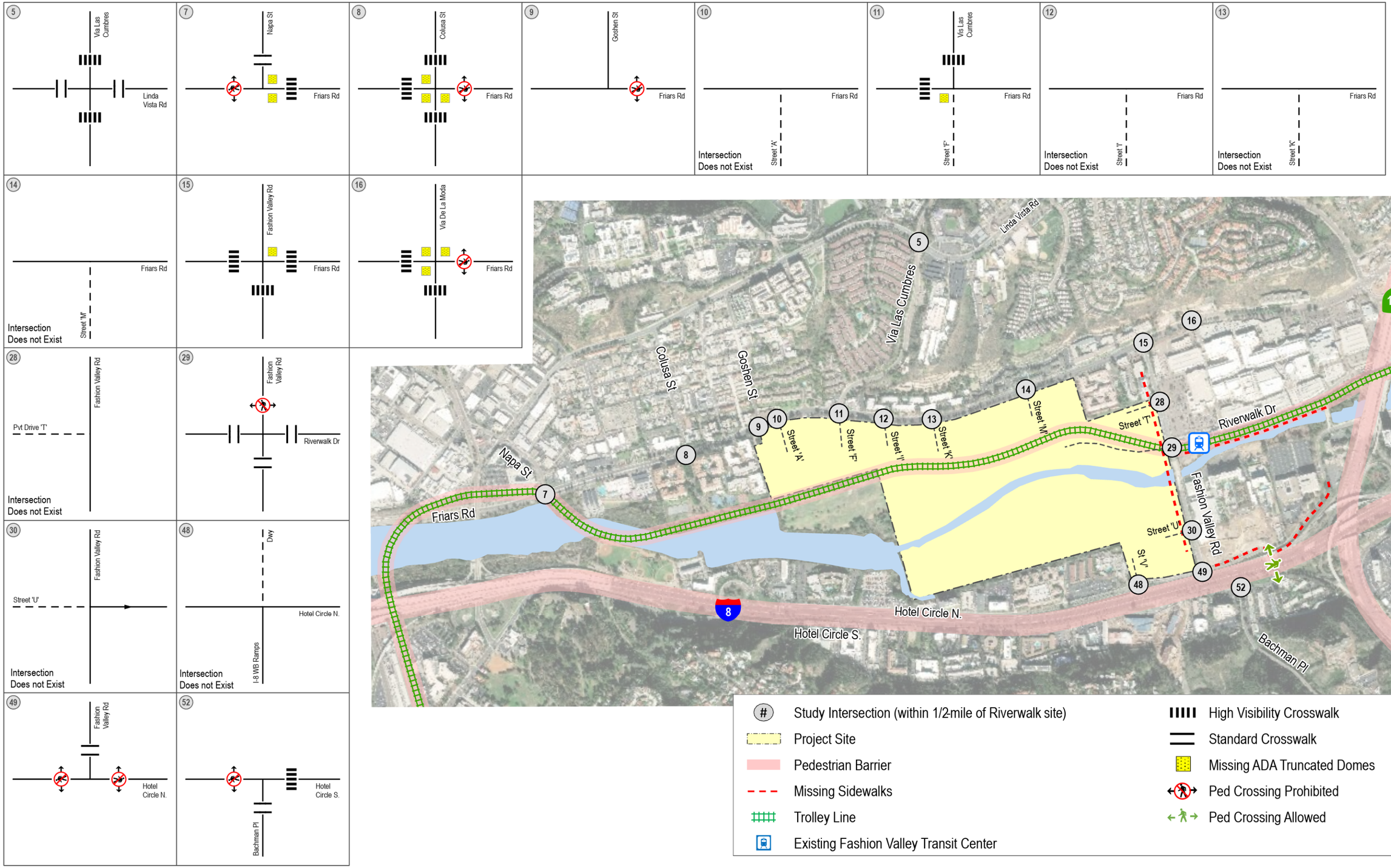
- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Fashion Valley Road.

P-I-14: Fashion Valley Road / Hotel Circle North intersection

- Install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Fashion Valley Road.

P-I-15: Hotel Circle North / I-8 WB Ramps / Street V intersection

- As a part of a traffic signal installation by the proposed project at this intersection subject to Caltrans' approval, install high visibility crosswalks at all the intersection legs with pedestrian crossings.
- Install pedestrian countdown timers at all the intersection legs.
- Consistent with the MVCP recommendations, lead pedestrian interval should be considered for pedestrians crossing Street V.



LINSCOTT LAW & GREENSPAN engineers

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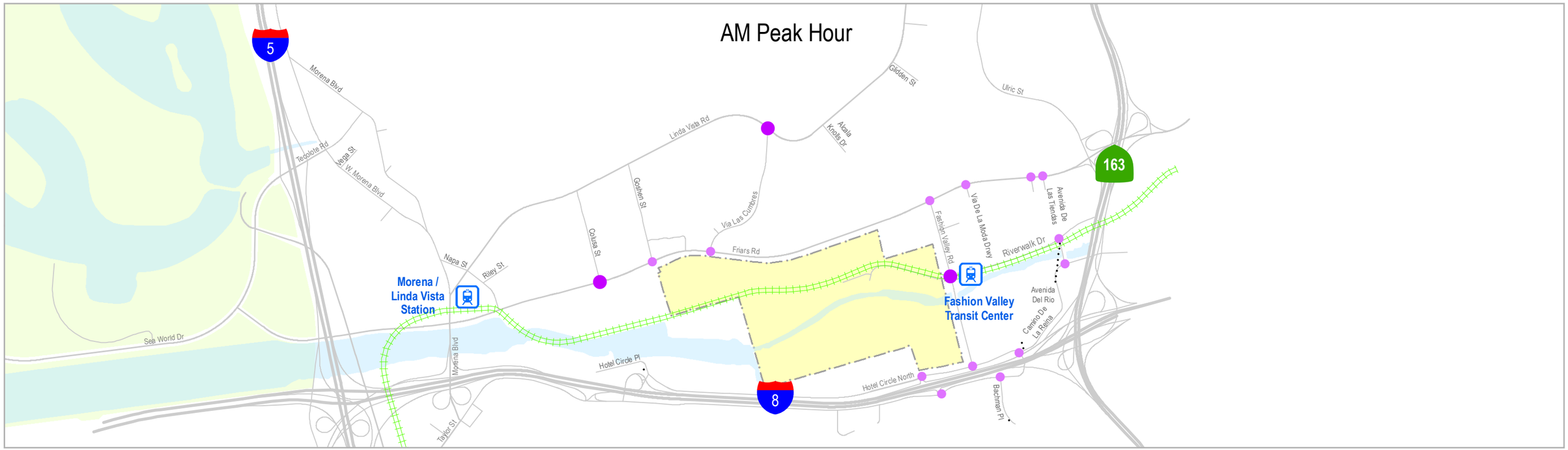
Time: 9:26 AM

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 18-1
Existing Pedestrian Network



LINSCOTT LAW & GREENSPAN engineers

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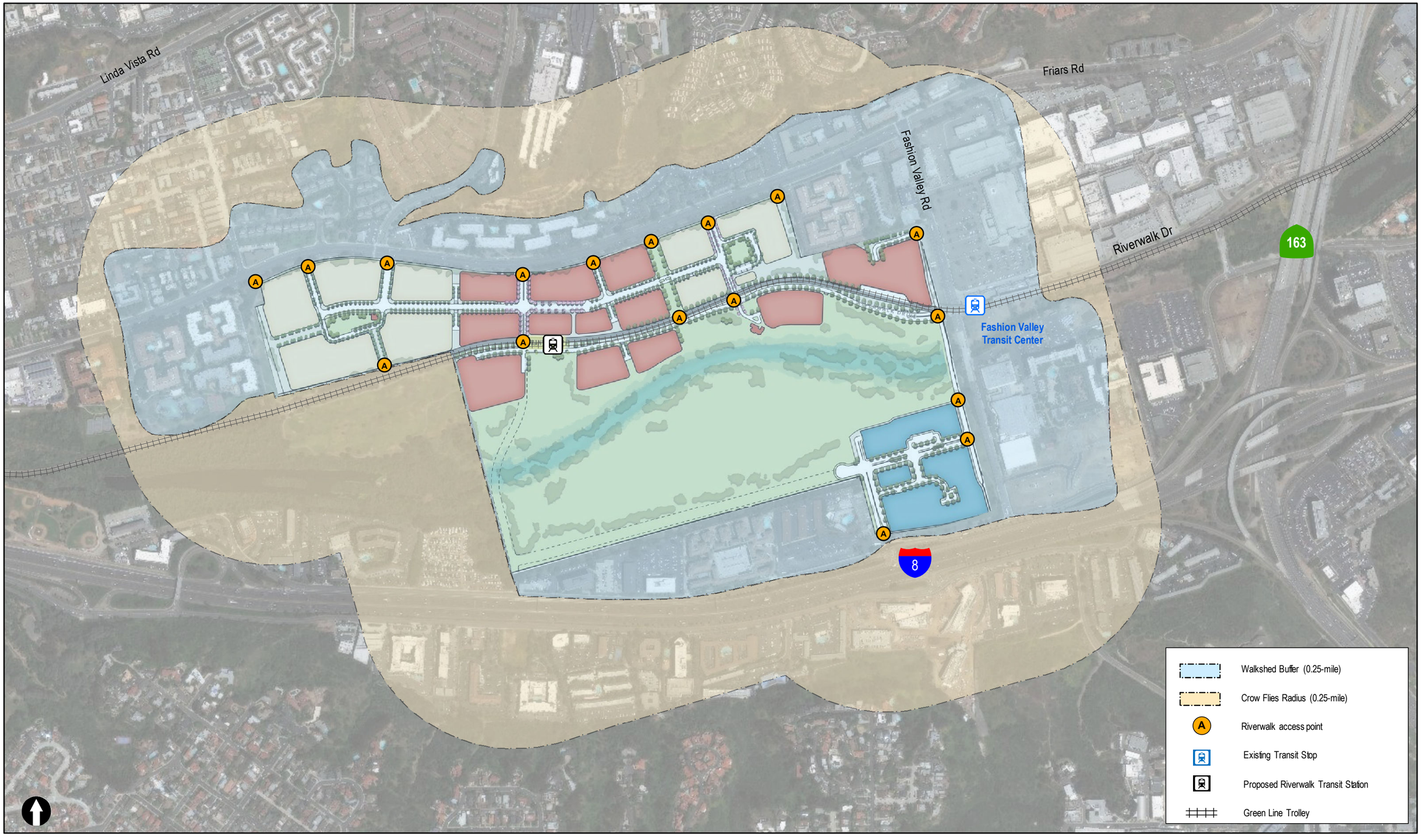
Figure 18-2
Existing Pedestrian Activity

RIVERWALK



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0 0.125 0.25 0.5 Miles

Figure 18-3
Walkshed Analysis

RIVERWALK

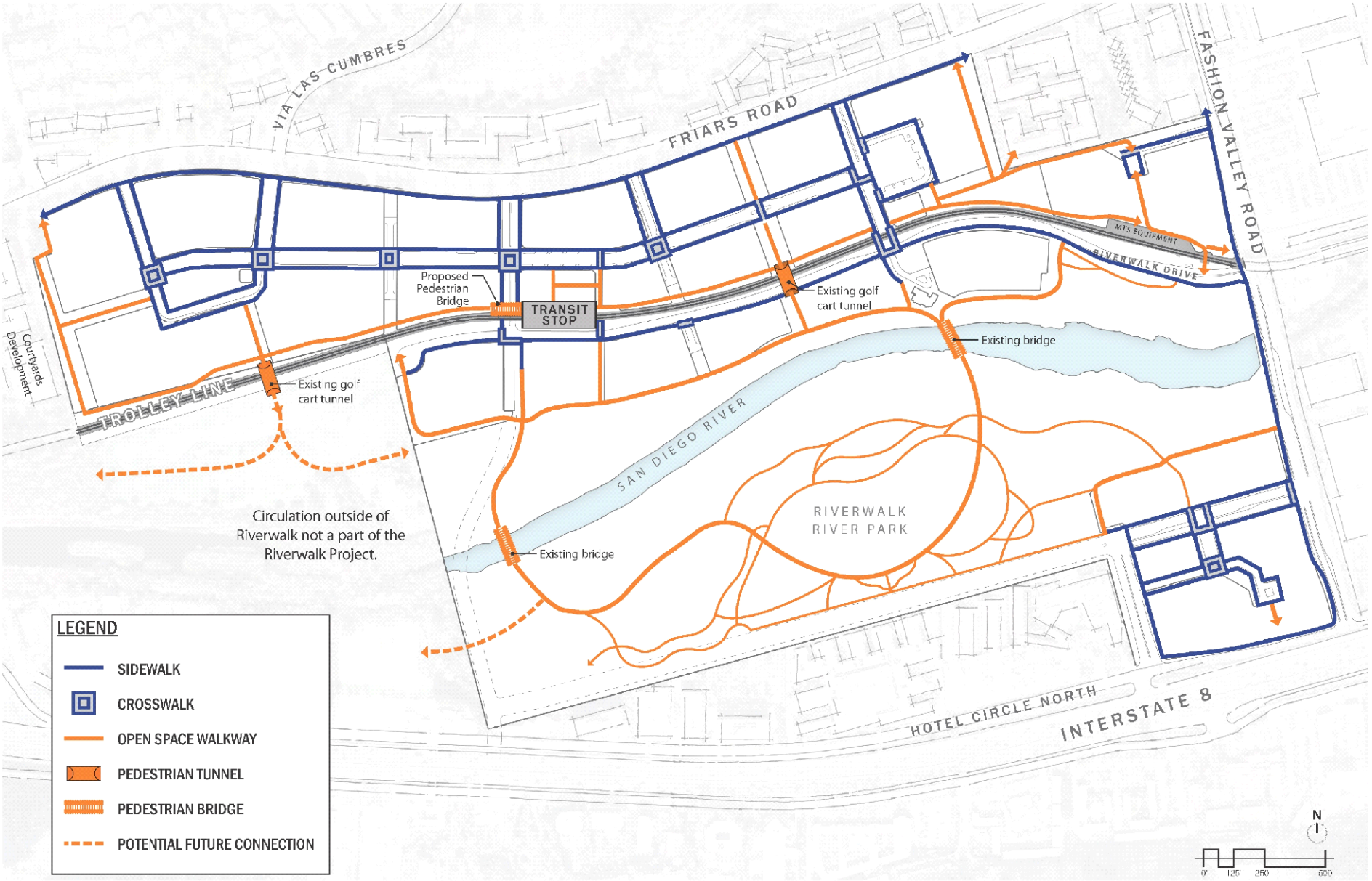

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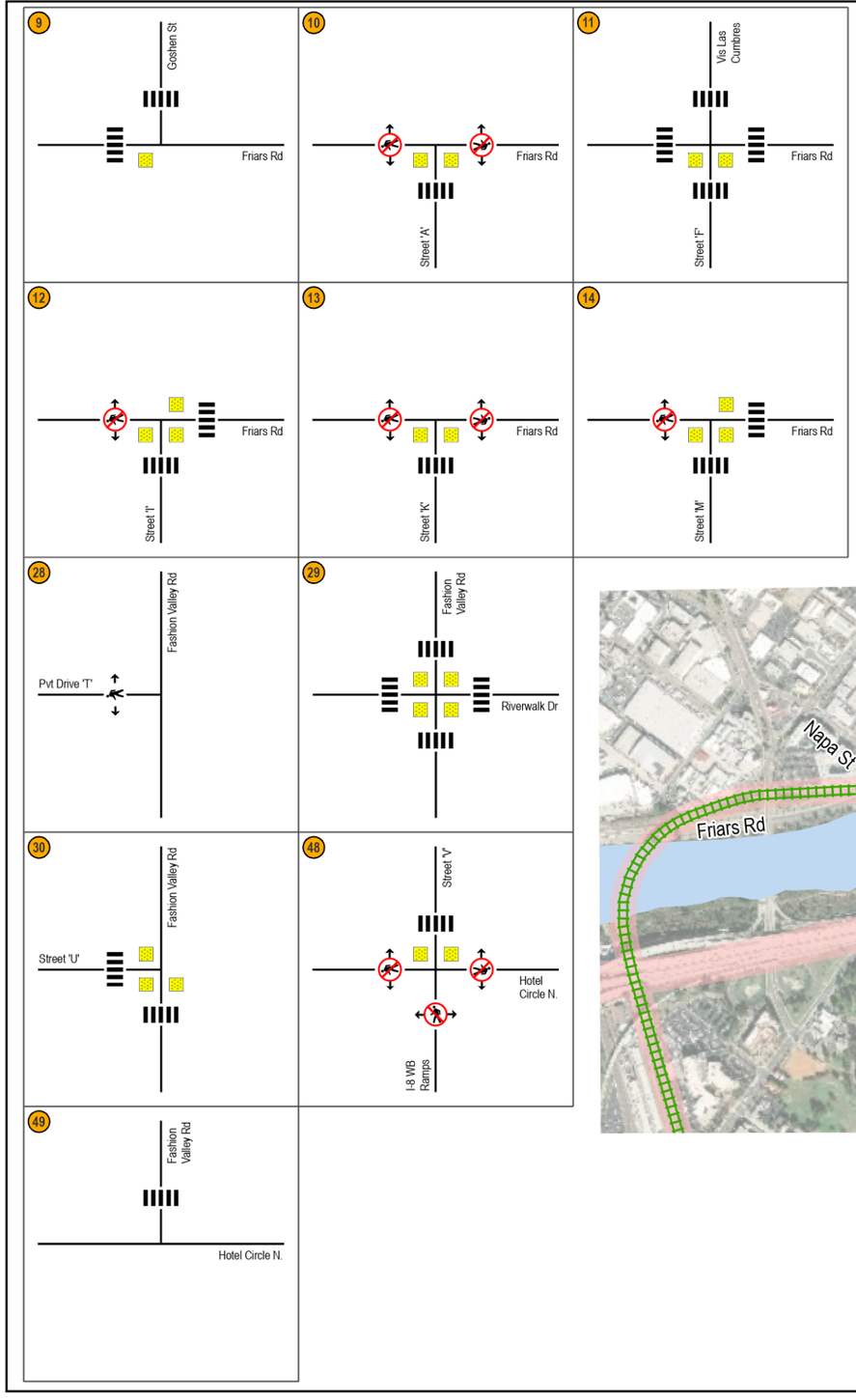
Figure 18-4
Project Pedestrian Circulation



- # Project Improvement
- Project Site
- Pedestrian Barrier
- Non-contiguous sidewalk
- Existing contiguous sidewalk to non-contiguous sidewalk conversion
- Trolley Green Line
- Ped Crossing Allowed
- High Visibility Crosswalk
- Standard Crosswalk
- Proposed ADA Truncated Domes
- Ped Crossing Prohibited
- Proposed Riverwalk Transit Station
- Existing Fashion Valley Transit Center

LINSCOTT LAW & GREENSPAN engineers

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Time: 10:53 AM

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 18-5
Pedestrian Network - Project Frontage

19.0 BICYCLE MOBILITY

This section presents the bicycle network in the project study area and includes a bikeshed analysis to ensure the project provides the appropriate bicycle facilities. In addition, the section also summarizes recommended bike infrastructure projects proposed in the area based on the Mission Valley Community Plan Update – *Mobility Technical Report (December 2018), City of San Diego Bicycle Master Plan (December 2013)*, *San Diego Regional Bicycle Master Plan (April 2010)* and *Mission Valley Community Plan (September 2019)*. Bicycle improvements that will be constructed by the project are also presented.

19.1 Bicycle Facility Classifications

There are four different existing and proposed bicycle facility classifications – Class I, Class II, Class III and Class IV as shown in ***Table 19–1.***

TABLE 19–1
BICYCLE FACILITY CLASSIFICATIONS

Class I refers to exclusive **bike paths**, also termed shared-use or multi-use paths, for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. They are physically separated from vehicular traffic and can be constructed in roadway right-of-way or exclusive right-of-way. Bike paths provide critical connections where roadways are absent or are not conducive to bicycle travel.

Class I Bike Path – along Riverwalk Drive

Class II refers to **bicycle lanes** defined by pavement striping and signage used to allocate a portion of a roadway for bicycle travel. Bike lanes are one-way facilities on either side of a roadway. A painted buffer can separate bikes from vehicles or parking lanes. Green paint can identify conflict zones.


Class II Bike Lane – along Friars Road

Class III refers to bike routes that share use with motor vehicle traffic within the same travel lane. Bike routes are identified with signage and street markings known as "sharrows" or shared lane markings to delineate that the road is a shared-use facility.

Class III Bike Route – along Camino De La Reina

Class IV refers to a **Cycle Track**, which is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers, flexible posts, on-street parking curbs, or other objects. Cycle tracks provide for one-way or two-way bicycle travel and are exclusively for bicycle use.

Class IV Cycle Track – along Friars Road

19.2 Existing Bicycle Mobility

A detailed bicycle network inventory was conducted for the surrounding study area. ***Table 19–2*** summarizes the existing and future bicycle classifications on the study street segments. ***Figure 19–1*** presents the existing bicycle network in the project study area.

TABLE 19–2
BICYCLE FACILITY

Street Segment	Existing Classification	Future Classification per MVCP
Friars Road		
Napa Street to Colusa Street	Class II and Class IV[3]	Class II and Class IV[2]
Colusa Street to Goshen Street	Class II and Class IV[3]	Class II and Class IV[2]
Goshen Street to Via las Cumbres	Class II and Class IV[3]	Class II and Class IV[2]
Via las Cumbres to Fashion Valley Road	Class II[4]	Class II and Class IV[2]
Fashion Valley Road to Via De La Moda	Class II	Class IV[1]
Via De La Moda to Avenida De Las Tiendas	Class II	Class IV[1]
Avenida De La Tiendas to Ulric Street	Class II	Class IV[1]
Ulric Street to SR-163 NB Ramps	Class II	Class II
Hotel Circle North		
Hotel Circle Place to I-8 WB Hook Ramps	Class II	Class IV[2]
I-8 WB Hook Ramps to Fashion Valley Road	None	Class IV[2]
Fashion Valley Road to Camino De La Reina	None	Class IV[2]
Camino de la Reina		
Hotel Circle North to Avenida del Rio	Class III	Class IV[2]
Avenida del Rio to Camino de la Siesta	None	Class I / Class II
Taylor Street		
I-8 EB Hook Ramps to Hotel Circle South	Class II	Class II
Hotel Circle South to I-8 WB Hook Ramps	None	Class IV[2]
Hotel Circle South		
Taylor Street to I-8 EB Hook Ramps	Class III	Class IV[2]
I-8 EB Hook Ramps to Bachman Place	Class II	Class IV[2]
Bachman Place to Camino de la Reina	Class II	Class IV[2]
Fashion Valley Road		
Friars Road to Riverwalk Drive	Class III	Class IV[2]
Riverwalk Drive to Hotel Circle North	Class III	Class IV[2]

Footnotes:

1. One-way cycle track.
2. Two-way cycle track.
3. Friars Road currently includes Class II bicycle lanes on both sides of the roadway. In addition, a Class IV two -way cycle track is provided on the south side.
4. The cycle track terminates approximately 920 ft west of Fashion Valley Road

19.2.1 *Existing Bicycle Activity*

Existing bicycle activity (from the Mission Valley Community Plan Update (MVCPU), Mobility Existing Conditions Report, June 2017) was documented at every intersection in the study area during the commuter AM/PM peak hours as shown in *Appendix GG*. The average AM and PM bicycle activity level for the study area within ½ mile driving distance of the project was documented and every intersection was categorized as low activity, medium activity or high activity. For the purposes of this analysis, low activity was assumed as less than 5 bicyclists/hour, medium activity was assumed as 6-9 bicyclists/hour and high activity was assumed as greater than 10 bicyclists/hour. ***Figure 19–2*** shows the existing bicycle activity in proximity of the Riverwalk project per these defined categories.

As shown in *Figure 19–2,* the following intersections were observed as "medium" or "high" bicycle activity locations within ½ mile driving distance of the project area:

- Linda Vista Road/ Via Las Cumbres
- Friars Road / Goshen Street
- Friars Road / Via De La Moda
- Friars Road / Avenida De las Tiendas
- Fashion Valley Road / Riverwalk Drive
- Camino De La Reina / Avenida Del Rio
- Hotel Circle North / I-8 WB Ramps
- Hotel Circle North / Fashion Valley Road
- Hotel Circle North / Camino De La Reina

A subset of intersections from the above list that are on the Riverwalk project frontage were reviewed and bicycle improvements that will be constructed by the project are shown in Section 8.8.

The existing bicycle activity in the MVCPU was also evaluated using the City of San Diego Bicycle Demand Model, US Census Bureau data, and peak period bicycle counts. *Appendix GG* includes the Figure 4-4: Bicycle Demand Model (June 2017) from MVCPU Mobility Element ECR, June 2017. Along the frontage of the Riverwalk project site, the Bicycle Demand Model shows medium to high bicycle activity on Friars Road, Fashion Valley Road and Hotel Circle North.

19.3 Bicycle Mobility Review

19.3.1 *Bikeshed Analysis*

In this study, a bikeshed analysis was conducted to evaluate bicycle connectivity in the vicinity of the project site. This analysis also identifies potential locations where providing bicycle access could improve project connectivity to surrounding area.

The bikeshed analysis was performed by identifying all access points to / from the Riverwalk project. From each access point, areas outside the Riverwalk project site that could be reached by biking 1.0 mile (or approximately 10 minutes) were identified. Selected biking routes from each

access point consider the presence of bike routes, lanes, dedicated pathways, intersection crosswalks, bicycle/pedestrian bridges, etc. In this regard, while some areas are located within the one-mile buffer around the project site, they may not be reached by bike due to lack of facilities. A larger bikeshed area (bikeshed network) means higher connectivity between the project site and nearby areas.

As shown in ***Figure 19–3*** the Riverwalk project in general has good connectivity to the surrounding community.

19.3.2 *Bicycle Facility Quality*

Bicycle level of traffic stress (LTS) is a grading system to rate a transportation network's bicycling comfort. Developed at the Mineta Transportation Institute, bicycle Level of Traffic Stress (LTS) classifies the street network into categories according to the level of stress the environment causes cyclists. The assessment considers physical separation from vehicular traffic, vehicular traffic speeds along the roadway segment, number of travel lanes, and factors related to intersection approaches with dedicated right-turn lanes and unsignalized crossings.

LTS scores range from 1 (lowest stress) to 4 (highest stress), and correspond to roadways offering varying quality environments to cyclists considering their stress tolerance. Each LTS classification is associated with a cyclist's tolerance for traffic.

In the Riverwalk project's sphere of influence, the following roads were identified as LTS 3 and 4.

- *Friars Road – Class II bike lanes (LTS 4):* The segments of Class II bikes lanes on Friars Road are areas where bicyclists have to maneuver through high-speed through and turning traffic
- *Fashion Valley Road (LTS 4)*: There are no dedicated bike lanes on Fashion Valley Road and bicyclists currently have to share the road with vehicles.
- *Hotel Circle North between I-8 WB ramps and Fashion Valley Road (LTS 4):* There are no dedicated bike lanes on this segment of Hotel Circle North and bicyclists currently have to share the road with vehicles.

Bike improvements along Friars Road, Fashion Valley Road and Hotel Circle North are proposed as a part of the project frontage improvements as shown in Section 8.8. With a Class IV cycle track on Fashion Valley Road and Class IV cycle track on Hotel Circle North as a part of the one-way couplet, the bicycle stress on these streets is expected to reduce to LTS-1 given the cycle track's physical separation from vehicular traffic.

19.4 Future Bicycle Mobility

The implementation of a number of local improvements were reviewed based on information provided in the *Mission Valley Plan Public Facilities Financing Plan (PFFP) – Fiscal Year 2013, Linda Vista (PFFP) – Fiscal Year 2006,* the Mission Valley Community Plan Update (2019), the *2050 Regional Transportation Plan* (RTP), the *City of San Diego Bicycle Master Plan (2013)* and

San Diego Regional Bicycle Master Plan (2010). In addition, other approved developer bicycle improvements in the Mission Valley and Linda Vista Communities were also reviewed and identified.

Table 19–3 shows the planned bicycle improvements that were reviewed.

TABLE 19–3
PLANNED IMPROVEMENTS - BICYCLE

Project Name	Improvements	Schedule/ Funding
San Diego River Bicycle Improvements – Regional	This improvement incudes a dedicated Class I path along the SD River from Voltaire Street in Mission Bay to SR 125 in Santee totaling 17.9 miles.	Design and construction is contingent on funding.
San Diego River Bicycle Improvements – Local	This project provides a dedicated Class I path along the SD River across Fashion Valley Mall frontage.	This improvement is a condition of approval of the Town & Country Master Plan and Union Tribune projects. This improvement is expected to be complete by Year 2020.
Hotel Circle North widening to 4-lanes between Fashion Valley Road and Camino De La Reina	This improvement proposes to widen Hotel Circle N. from Fashion Valley Road to Camino De La Reina and provide Class II bicycle lanes on both sides.	This improvement is a condition of approval of the Town & Country Master Plan and is currently under construction.
Camino De La Reina widening to 4-lanes	This improvement includes the widening of Camino De La Reina to 4-lane Major between Hotel Circle North and Avenida Del Rio and provide Class II bicycle lanes on both sides.	This improvement is a condition of approval of the Town and Country Master Plan (constructing Class II bicycle lanes), Union Tribune Master Plan and Alexan Fashion Valley projects. However, the MVCP recommends to maintain the existing classification of 2-lane Collector with center left turn lane and construct a Class IV two-way cycle track.
Hotel Circle S. / I-8 EB Ramps Intersection Improvements	This improvement includes the widening of Hotel Circle South to include Class II bicycle lanes both sides.	This improvement is a condition of approval of the Legacy International Center project, which was recently opened.

19.5 Bicycle Improvements

19.5.1 *Bicycle Improvements Along Fronting Streets*

To promote bicycle mobility, the project proposes to construct several bicycle improvements along all the major project fronting corridors of Friars Road, Fashion Valley Road, and Hotel Circle North. The following is a brief description of the project bicycle improvements:

Friars Road: The existing Class IV cycle track between Colusa Street and Street M will be reconstructed and the project will construct entrances into the Riverwalk project site at various points. The existing Class II buffered bike lanes on both sides of Friars Road between Colusa Street and Fashion Valley Road will remain.

Fashion Valley Road: Consistent with MVCP Bicycle Plan, the project will construct a two-way Class IV Cycle Track on the west side of Fashion Valley Road between Riverwalk Drive and Hotel Circle North along the project frontage and a southbound Class II bike lane between Private Drive T

and Riverwalk Drive. A Class III bike route will be designated along southbound Fashion Valley Road for portions that are not along Riverwalk project frontage (which is approximately 660 ft).

Hotel Circle North: Currently, Hotel Circle North along the project frontage includes no bike lanes. Consistent with the MVCP Bicycle Plan, the project will construct a two-way Class IV Cycle track on the north side of Hotel Circle North between Fashion Valley Road and I-8 WB Ramps. This assumes a one-way couplet is implemented on Hotel Circle North and Hotel Circle South per the MVCP.

Street U: Consistent with the MVCP, the project will construct a two-way Class IV cycle track on the north side of Street U between Fashion Valley Road and Street V.

Street V: The project will construct buffered Class II bicycle lanes on Street V between Hotel Circle North and Street U.

19.6 Bicycle Improvements within the Site

The project site design incorporates green street principles and elements that prioritize bicycle travel and encourage non-vehicular movement. The San Diego River Pathway will be constructed by the project on the north side of the SD River and will include a Class I path. A continuous pedestrian and bike path will be located on both sides of the San Diego River and will connect with pedestrian/bike paths on property east and west of the site.

Bike facilities will link employment, residential, retail, and open space areas within Riverwalk, as well as to the community-wide bikeway system. Because bicycle facilities will connect with the City-wide system, a cyclist will be able to ride through and then beyond Riverwalk.

The following is a brief description of the various internal streets and project bicycle improvements:

- *Street F*, which is one of major project driveways (located on the south leg of the Via Las Cumbres intersection) off Friars Road, will include buffered Class II bike lanes on both sides. This will ensure bike connectivity between the major arterial (i.e. Friars Road) and appropriate entry into the Riverwalk project site for the bicyclists.
- *Street I*, the primary project driveway off Friars Road that would serve the Riverwalk Transit Center, will include buffered Class II bike lanes on both sides. This will ensure a direct bike connection between the major arterial (i.e. Friars Road) and the Riverwalk transit station.
- *Streets D and E*, the *east-west on-site road*, which parallels Friars Road and Riverwalk Drive will include Class II bicycle lanes between Street A and Street M.
- *Street M*, the easterly project driveway, will include buffered Class II bike lanes on both sides. This provides a north-south connection on the Riverwalk project site to connect to the northerly Class I San Diego River Trail.

- The *north-south linear park space (Section II and JJ)* will include a Class I bike path on the west side of the linear park, labeled on *Figure 2–5* This linear park design allows only pedestrian and bicycle travel. No vehicular traffic is allowed on the north-south linear park.
- The project also proposes a *San Diego River Class I path,* which is designed on the north of the SD River in the River Park area. The northerly path is proposed between the buildings (south of the tracks) and the SD River. The northerly Class I path connects to Riverwalk Drive at the easterly end and terminates at the westerly pedestrian/bikeway bridge for future extensions as future projects develop to complete the connection to Mission Bay. The two existing bridges will provide pedestrian and bicycle connectivity between the two SD River paths.
- A Class I bicycle path is also proposed on the linear park space connecting Friars Road to the northerly Class I San Diego River path. The bicycle path will provide street access to the San Diego River with a tunnel under the trolley tracks. In addition to the San Diego River path, two additional Class I bicycle paths are proposed on the north side of the River as well. On the western edge of the project site, a north-south Class I path (west of Street A) is proposed to connect Friars Road to Street D. A second east-west Class I path is proposed at the northwest corner of Fashion Valley Road / Riverwalk Drive intersection to provide bicycle connectivity between Friars Road and Fashion Valley Road and will provide connection to the San Diego River Class I path.

Figure 19–4 shows the project on-site bicycle circulation.

19.7 Bicycle Design Elements

The following is a brief description of the bicycle design elements included as a part of the site design:

Bikeway Design

- A minimum two-foot horizontal and a minimum eight-foot vertical clearance to obstructions
- All bikeways shall have adequate lighting and signage.
- Commercial and residential buildings shall provide secure bike racks in well-lit areas to encourage bicycle use.
- Bicycle lockers/racks, personal lockers, showers, and changing facilities shall be provided throughout the site in order to promote the use of bicycles and bikeways by employees.
- All other private drives within Riverwalk will be signed "bikeways" shared with motor vehicles with no specially marked lane. Widths of routes vary based on vehicular traffic, road conditions, etc. Class I paths are proposed to connect both sides of the San Diego River to connect the River Park open space areas via the pedestrian bridges.

19.8 Bicycle Improvement Recommendations

The following bicycle improvements will be implemented by the project:

B-I-1: San Diego River Class I Path

- Install a Class I path along the north side of the San Diego River within the Riverwalk project site to construct a portion of the San Diego River Bike Path. Provide bridges to facilitate bicycle crossing across the SD River to connect northbound and southbound bicycle travel.

B-I-2: Friars Road between Colusa Street and Fashion Valley Road

- Remove the existing Class IV cycle track on Friars Road and install a new Class IV cycle track between Colusa Street and easterly property line on Friars Road. The Class IV cycle track will terminate into a Class I bike path, east of Street M providing bicycle connectivity between Friars Road and Fashion Valley Road.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in areas of conflict as applicable to increase the visibility of the facility, identify potential areas of conflict, and reinforce priority to bicyclists in conflict areas.

B-I-3: Friars Road between Colusa Street and Street M

- Install bicycle crossing markings through the intersections to safely guide bicyclists. This would increase the visibility of the facility, identifies potential areas of conflict, and reinforces priority to bicyclists in conflict areas.

B-I-4: Fashion Valley Road between Private Drive T and Hotel Circle North

- Install a southbound Class II bicycle lane between Private Drive T and Riverwalk Drive and provide a Class III sharrow marking on northbound Fashion Valley Road between Riverwalk Drive and Friars Road.
- Install a two-way Class IV Cycle track on the west side of Fashion Valley Road between Riverwalk Drive and Hotel Circle North.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, , and reinforces priority to bicyclists in conflict areas.

B-I-5: Hotel Circle North between I-8 WB Ramps and Fashion Valley Road

- Install a two-way Class IV Cycle track on the north side of Hotel Circle North between Fashion Valley Road and I-8 WB Ramps.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.

B-I-6: Street U between Fashion Valley Road and Street V

- Install a two-way Class IV two-way cycle track on Street U between Fashion Valley Road and Street V.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.

B-I-7: Street V between Hotel Circle North and Street U

- Install Class II buffered bike lanes on Street V between Hotel Circle North and Street U.
- Consistent with City of San Diego roadway striping standards, install colored green pavement in conflict areas as applicable to increase the visibility of the facility, and reinforces priority to bicyclists in conflict areas.

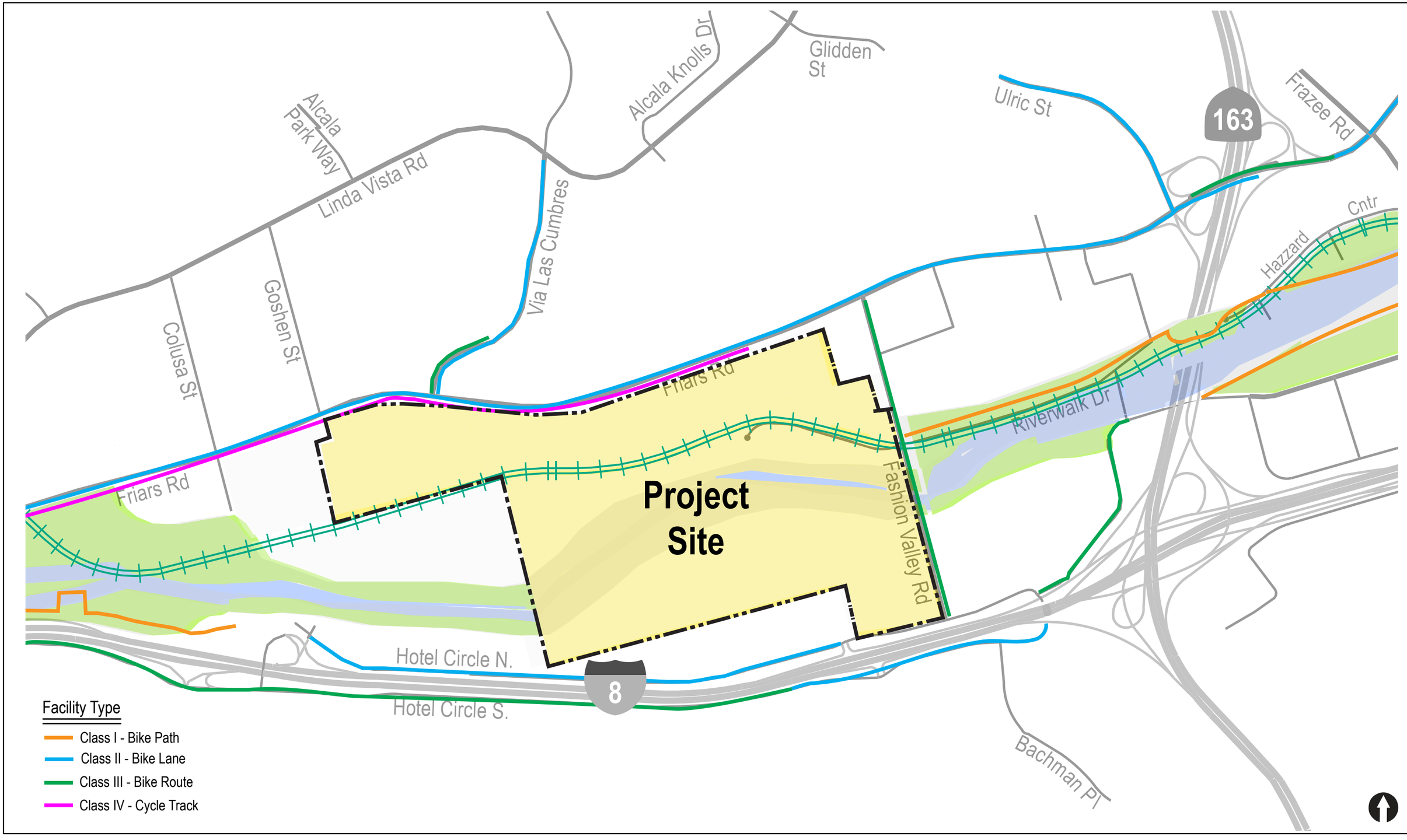

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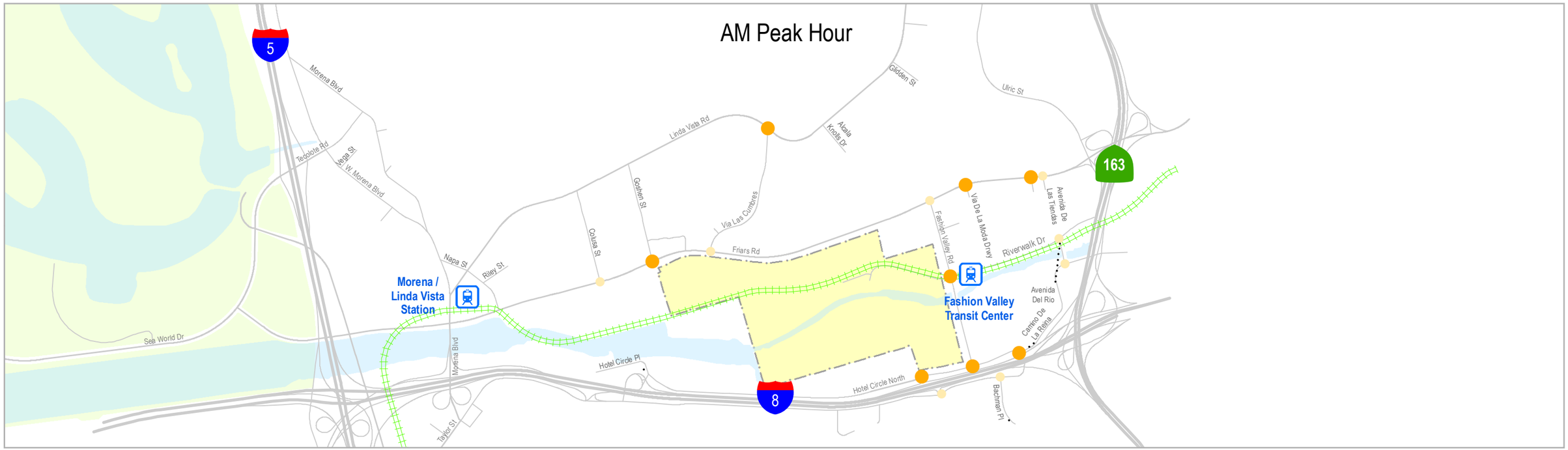
Figure 19-1

Existing Bicycle Network

RIVERWALK



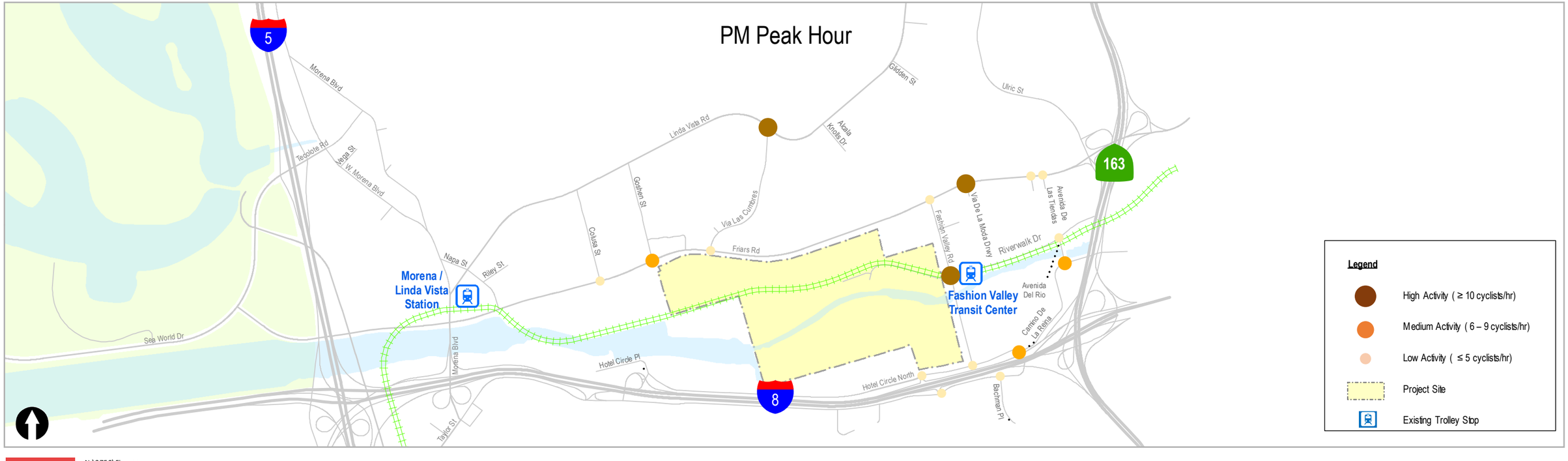


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Figure 19-2
Existing Bicycle Activity

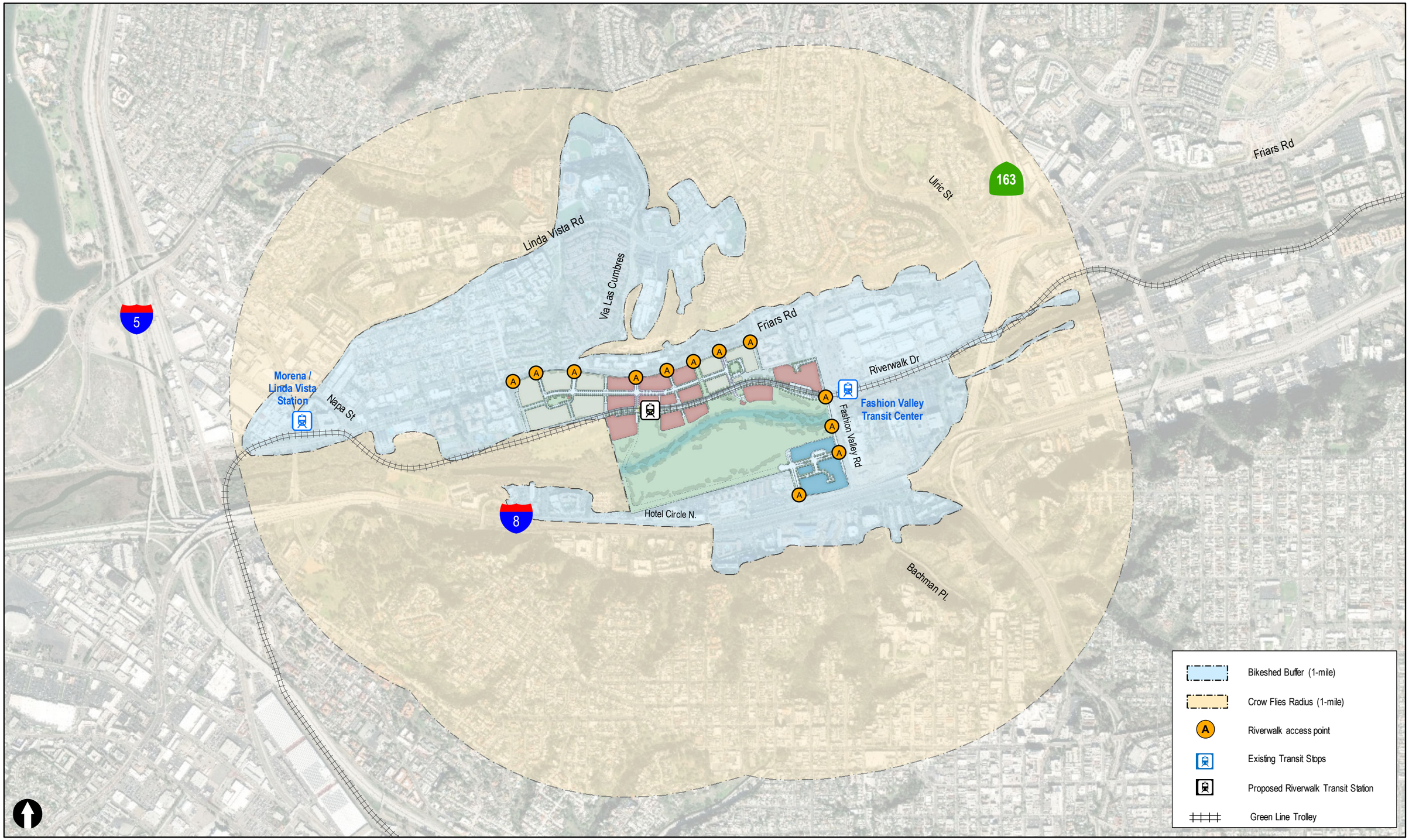

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Figure 19-3

Bikeshed Analysis

RIVERWALK

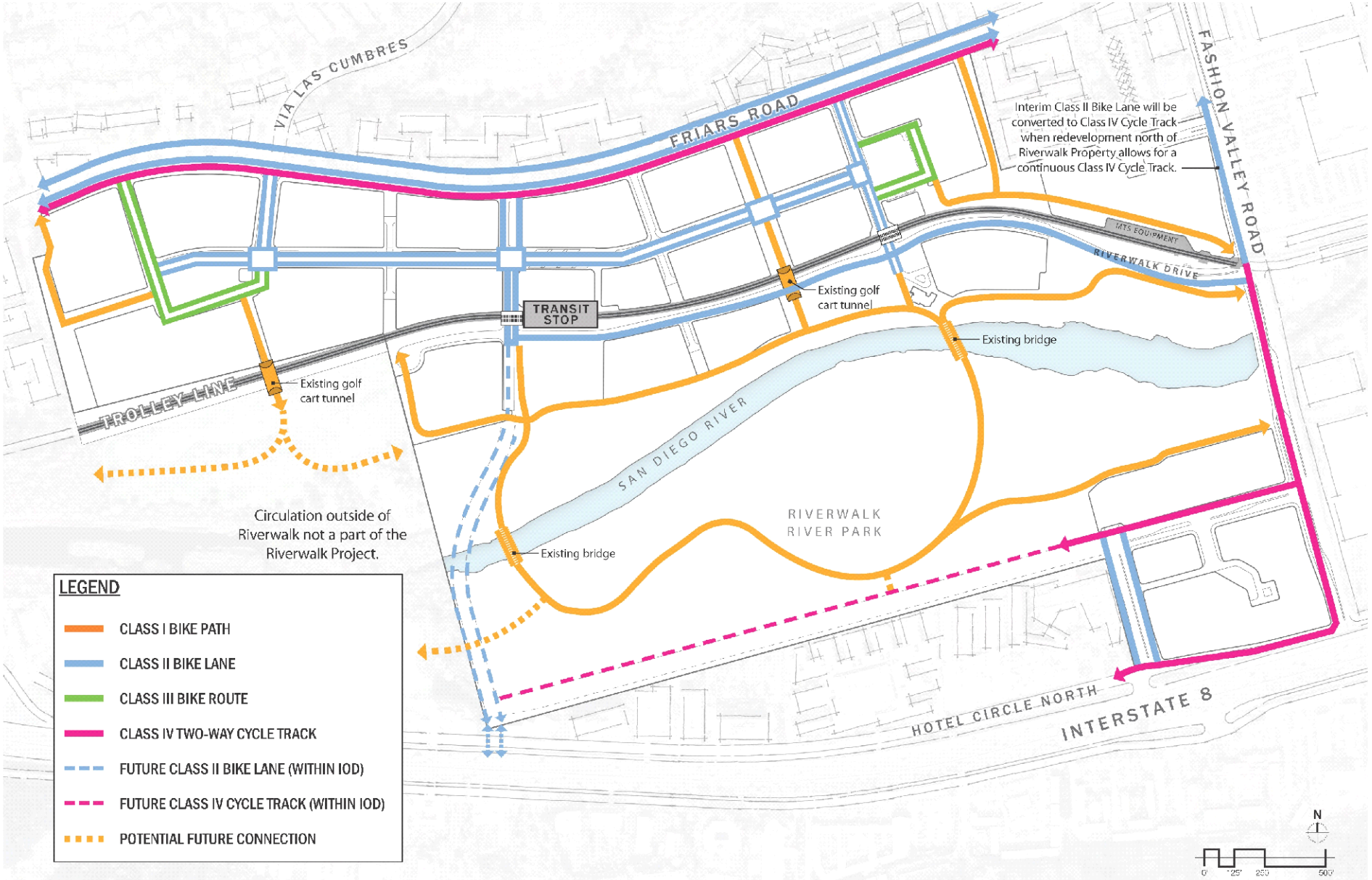

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Figure 19-4
Project Bicycle Circulation

20.0 TRANSIT MOBILITY

This section presents the existing and future transit conditions in the project study area.

20.1 Light Rail

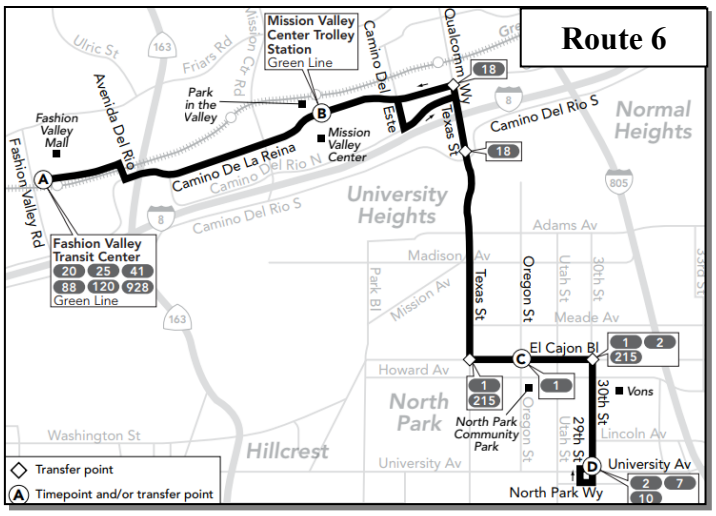
Regional light rail transit service in the project study area is provided by the MTS Trolley Green Line, which runs between Santee and Downtown San Diego. The intermediate stops include Alvarado Medical Center, San Diego State University (SDSU), Fashion Valley, Mission Valley Center, Linda Vista, Old Town and Convention Center. There are 7 stations within the Mission Valley community located at Mission San Diego, Qualcomm Stadium, Fenton Parkway, Rio Vista, Mission Valley Center, Hazard Center, and Fashion Valley. The Green Line covers 23.6 miles, with 15-minute service Mondays through Saturdays and 30-minute service during the late-evenings, weekend mornings, and Sundays. The Green Line serves a total of 27 stations.

The MTS Green Line Trolley will provide connection to the MTS Blue Line Trolley extension project (the Mid Coast Project). Currently, the Mid Coast project is under construction and will provide light-rail service between Old Town and the University Town Center (UTC) area such as the UTC mall and the University of California – San Diego. This trolley line is expected to be operational in late 2021, which is prior to the proposed project's opening day.

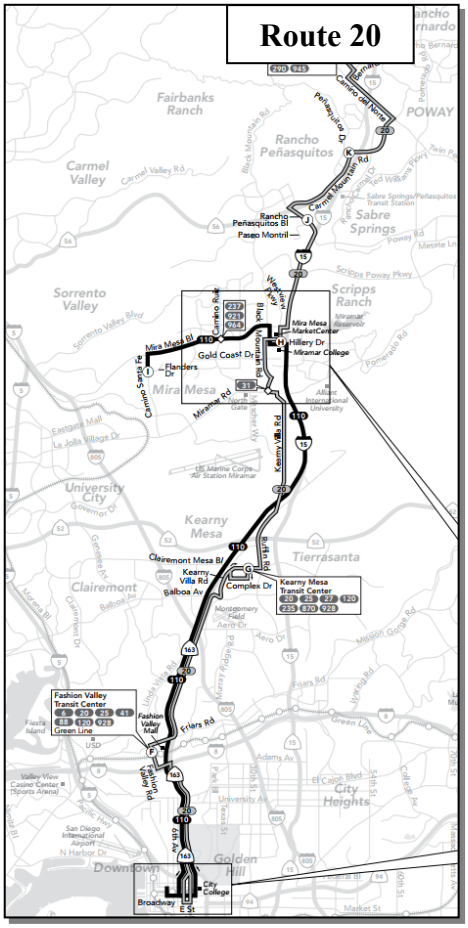
Within the Mission Valley community, the trolley Green Line tracks run parallel to Friars Road and the San Diego River. Within walking distance from a portion of Riverwalk project site, the Fashion Valley Transit Center serves as a convergence point for the Green Line Trolley and seven bus routes, including Route 6, 20, 25, 41, 88, 120, and 928. Access to the Fashion Valley Transit Center is provided via the local roadway network, dedicated transit center parking (63 spaces), the San Diego River Trail, and a pedestrian bridge crossing the San Diego River. Transfers between the Trolley and bus routes are possible at other locations as well. ***Figure 20–1*** shows the existing transit network.

20.2 Bus Service

Bus service is provided by the Metropolitan Transit System (MTS). The bus routes serving in the immediate project area include MTS Routes 6, 20, 25, 41, 88, 120 and 928. A description of each of these routes is given below. ***Appendix HH*** includes the timetable of these bus routes.

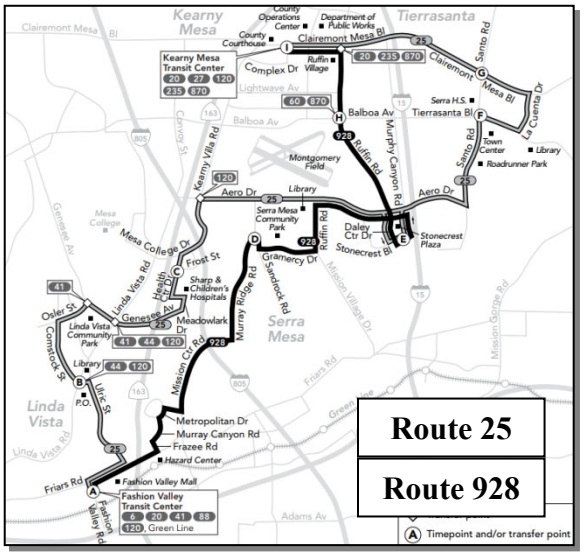


Route 6 runs between Mission Valley (Fashion Valley Transit Station) to North Park (30th St. and University Avenue). The route runs along Camino De la Reina, Qualcomm Way, Texas Street, and El Cajon Boulevard to North Park. There are a total of nineteen (19) stops along this route. Weekday service begins at 6:01 AM with 15-minute headways and ends at 11:25 PM. Saturday service beings at 6:34 AM with 30-minute headways and ends at 10:25 PM. Sunday service begins at 9:37 AM with 30-minute headways and ends at 8:31 PM.



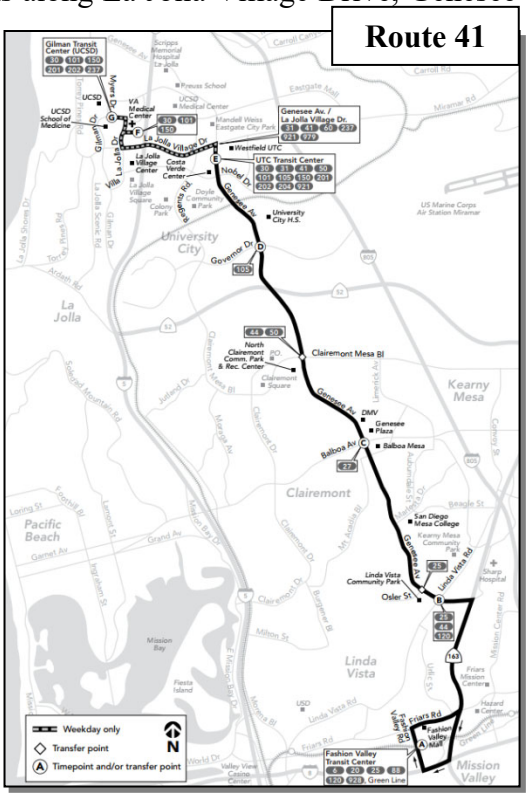
Route 20 is an Express Bus Service that runs from Rancho Bernardo Transit Station to Downtown San Diego. The route runs along Camino Del Norte, Interstate 15 (I-15), Carmel Mountain Road, Black Mountain Road, Kearny Villa Road, and State Route 163. There are thirty-eight (38) stops along this route, including the Fashion Valley Transit Center. Weekday service begins at 5:13 AM with 15-minute headways and ends at 10:17 PM. Saturday service begins at 5:41 AM with 30-minute headways and ends at 9:17 PM. Sunday service begins at 5:41 AM with 1-hour headways and ends at 8:49 PM.

Route 25 runs from Fashion Valley to Kearny Mesa. The route runs along Clairemont Mesa Boulevard, Santo Road, Aero Drive, Kearny Villa Drive, Genesee Avenue, Ulric Street, and Friars Road. There is a total of thirty (30) stops along this route including destinations to Linda Vista Park and Recreation Center, Stone Crest Plaza, and Sharp Hospital. This route runs on weekdays starting at 6:30 AM with 1-hour headways and ends at 6:51 PM. No weekend service is provided.

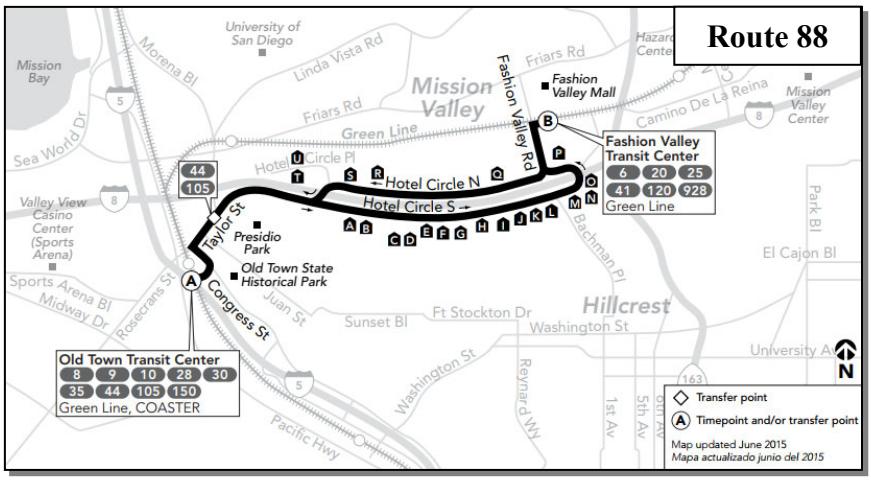


Route 928 runs from Fashion Valley to Kearny Mesa. The route runs along Clairemont Mesa Boulevard, Ruffin Road, Aero Drive, Murray Ridge Road, Mission Center Road, and Friars Road. There is a total of thirty-three (33) stops along this route including destinations to Hazard Center and Stone Crest Plaza. Weekday service begins at 4:47 AM with 30-minute headways and ends at 9:24 PM. Saturday service begins at 8:30 AM with 1-hour headways and ends at 6:29 PM. Sunday service begins at 6:30 AM with 1-hour headways and ends at 9:27 PM.

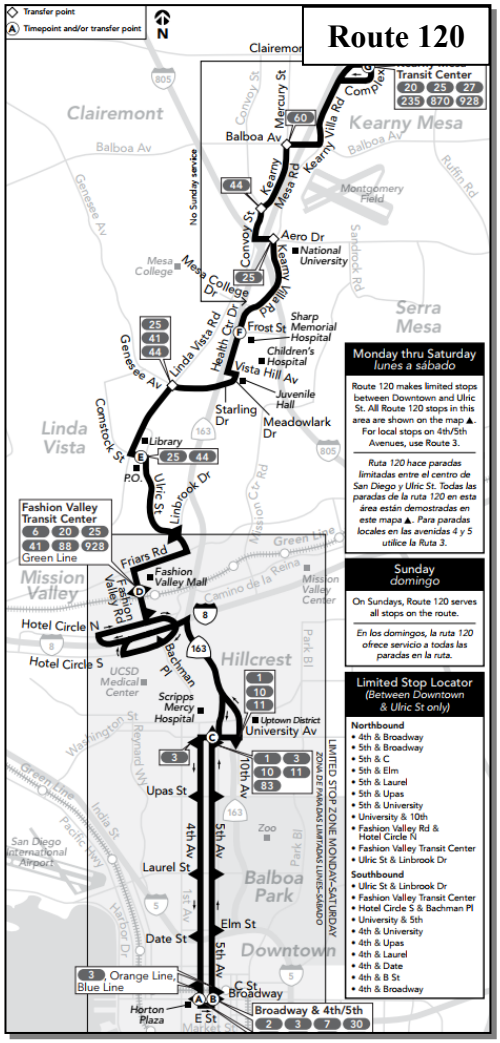
Route 41 runs from Fashion Valley to UCSD. The route runs along La Jolla Village Drive, Genesee Avenue, State Route 163, and Fashion Valley Road. There is a total of thirty-four (34) stops including destinations to Costa Verde Center, Fashion Valley Mall, Genesee Plaza, Mesa College, and Westfield UTC. Weekday service begins at 5:21 AM with 15-minute headway and ends at 11:41 PM. Weekend service is available from Fashion Valley to UTC Transit Center. Saturday service begins at 6:07 AM with 30-minute headways and ends at 10:36 PM. Sunday service begins at 6:27 AM with 30-minute headways and ends at 9:53 PM.



Route 88 runs from Old Town to Fashion Valley Transit Center via Hotel Circle. There is a total of thirteen (13) stops along this route. Weekday and Saturday service begin at 5:55 AM with 30-minute headways and ends at 9:21 PM. Saturday service begins at 5:40 AM with 30-minute headways and ends at 8:37 PM. No Sunday service is provided.



Route 120 runs from Downtown (4th Avenue and Broadway) to Kearny Mesa The route runs along Kearny Mesa Road, Linda Vista Road, Ulric Street, Friars Road, Fashion Valley Road, State Route 163, and Fourth Avenue. There is a total of thirty-two (32) stops including destinations to Fashion Valley Mall, Horton Plaza, Sharp and Children's Hospitals, Kearny Mesa Courthouse, and Juvenile Hall. Weekday service begins at 4:59 AM with 15-minute headways and ends at 11:54 PM. Weekend service begins at 5:43 AM on Saturdays with 30-minute headways and ends at 10:33 AM. Sunday service begins at 6:13 AM on Sundays with 30-minute headways and ends at 9:59 PM.



20.2.1 *Bus Stop Amenities*

Table 20–1 summarizes the existing transit stops within a ½ mile distance from the project's access points and the amenities currently provided at each stop.

TABLE 20–1
EXISTING TRANSIT STOP AMENITIES

Location	Stop ID	Amenities						
		Shelters	Benches	Trash Receptacles	Station Signs	Maps/Wayfinding	Lighting	ADA Compliancy
Friars Rd & Avenida De Las Tiendas	13389	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Friars Rd & Via De La Moda	13390	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fashion Valley Rd & Friars Rd	11995	No	No	No	Yes	No	No	Yes
Fashion Valley Rd & Friars Rd	12400	No	Yes	No	Yes	No	No	Yes
Fashion Valley Transit Center	Multiple	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fashion Valley Road & Hotel Circle North	11623	No	Yes	No	Yes	No	No	Yes
Fashion Valley Road & Hotel Circle North	11225	No	Yes	No	Yes	No	No	Yes
Hotel Circle North & 1650	13096	No	No	No	Yes	No	No	Yes
Hotel Circle North & 1550	13067	No	Yes	No	Yes	No	No	Yes
Hotel Circle North & 950	13098	No	Yes	Yes	Yes	No	No	Yes
Hotel Circle North & Camino De La Reina	99379	No	Yes	No	Yes	No	No	No
Hotel Circle South & Bachman Place	13034	No	Yes	No	Yes	No	No	Yes
Hotel Circle South & Bachman Place	13510	No	No	No	Yes	No	No	No

General Notes:

a. **Bold** indicates bus stop located on project frontage.

20.3 Riverwalk Trolley Station

The Riverwalk project will construct a new trolley station within the project site to promote transit mobility for all site users as well as residents in the neighboring communities. ***Figure 20–2*** shows the walkshed buffer from the existing Fashion Valley Transit Center. ***Figure 20–3*** shows the walkshed buffer from the existing Fashion Valley Transit Center and the proposed Riverwalk Transit Station. The new transit stop is proposed to be located at the intersection of Street J and Riverwalk Drive, which was selected based upon MTS criteria relative to the separation between existing trolley stations (approximately the mid-point between Linda Vista / Morena Station and Fashion Valley Transit Center stops).

It is also important to note that a trolley station at the project site was envisioned as a part of the Levi-Cushman Specific Plan. Furthermore, based on past discussions with SANDAG staff, it is understood that the proposed trolley station is also a part of the Regional Transportation Plan (RTP) as evidenced by its inclusion in the Regionwide Traffic Forecasting Models (SANDAG Series 12 and 13) and its subsequent inclusion in the Mission Valley Community Plan Update project.

A few notable design elements of the transit station include:

- The trolley stop will serve as a mobility center and will provide access to and from the trolley, and paths, trails, and sidewalks that serve the neighborhood and the region. The facility will include bicycle lockers/racks and rentals, automobile drop-off/pick-up and, rideshare. The transit stop will be architecturally and functionally integrated into the design of the community. The Riverwalk project site design also proposes to accommodate future bus services to access the site.
- The plaza area adjoining the trolley stop will incorporate landscaping, kiosks, ticket booths, etc.
- Shared parking for both site users and transit riders will be provided in the Mixed-Use core area.
- Providing pedestrian walkways from the trolley stop to high activity areas such as Friars Road, commercial uses, and the River Park will increase use of the facilities. Considerations include reasonable walking distances, tree-shaded walks, etc.

20.3.1 *Trolley Ridership Projections*

Trolley ridership projections at the Riverwalk station were obtained as a part of the Mission Valley Community Plan (MVCP) project. The forecast traffic model (Series 13) that was used for the MVCP includes the buildout of the Mission Valley community, which also included the subject Riverwalk project.

The ridership projections, which includes boarding's and alighting's, were provided by City Planning Department staff from the Series 13 model. ***Table 20–2*** shows the ridership projections at the Riverwalk station.

TABLE 20–2
YEAR 2050 TROLLEY RIDERSHIP PROJECTIONS

Station	Weekday Daily Boardings[a]	Weekday Daily Alightings[b]	Total Weekday Daily Ridership[c]
Fashion Valley Transit Center	2,995	2,349	5,344
Riverwalk Station	1,420	1,314	2,734
Morena / Linda Vista Station	1,739	1,777	3,516

Footnotes:

a. Weekday daily boarding's include boarding's from both eastbound and westbound travel.

b. Weekday daily alighting's include alighting's from both eastbound and westbound travel.

c. Total Ridership = Daily boarding's + Daily alighting's.

As shown in *Table 20–2*, the weekday daily ridership at the Riverwalk station is projected as 2,734 passengers. The Riverwalk station is calculated to handle approximately 78% of the trolley traffic at the Morena / Linda Vista station and 52% of the projected trolley traffic at Fashion Valley Center trolley stop.

The projected ridership at the Riverwalk station was also compared with the existing ridership at other Mission Valley stations. ***Table 20–3*** shows the existing ridership at eight (8) trolley stations in Mission Valley.

TABLE 20–3
EXISTING TROLLEY RIDERSHIP COMPARISON

Station	Weekday Daily Boardings[a]	Weekday Daily Alightings[b]	Total Weekday Daily Ridership
Mission San Diego Station	480	417	897
Qualcomm Stadium	264	247	511
Fenton Parkway Station	700	695	1,395
Rio Vista Station	686	657	1,343
Mission Valley Center Station	1,099	1,111	2,210
Hazard Center Station	916	926	1,842
Fashion Valley Transit Center	2,908	3,145	6,048
Morena / Linda Vista Station	1,016	938	1,954

Footnotes:

a. Weekday daily boarding's referenced from *FY 2014 Passenger Counting Program* obtained from Mission Valley Community Plan Update Existing Conditions Report. This includes both eastbound and westbound travel.

b. Weekday daily alighting's referenced from *FY 2014 Passenger Counting Program* obtained from Mission Valley Community Plan Update Existing Conditions Report. This includes both eastbound and westbound travel.

20.4 Transit Improvement Recommendations

The following transit access improvements will be provided by the project:

T-I-1 Transit Priority Signals

- Coordinate with SANDAG, City of San Diego and MTS to review opportunities to incorporate Transit Signal Priority system as a part of the Intelligent Transportation System improvements to reduce travel times for the MTS buses along Friars Road, Fashion Valley Road and Hotel Circle North.
- As a part of the project frontage improvements, at the existing bus stop on Fashion Valley Road and Hotel Circle North (Stop ID 11623), the project will add a shelter, trash receptacle, maps/way finding signs and lighting.
- Coordinate with SANDAG and MTS on the accommodation for future MTS buses on the project site as a part of the future Riverwalk trolley station.

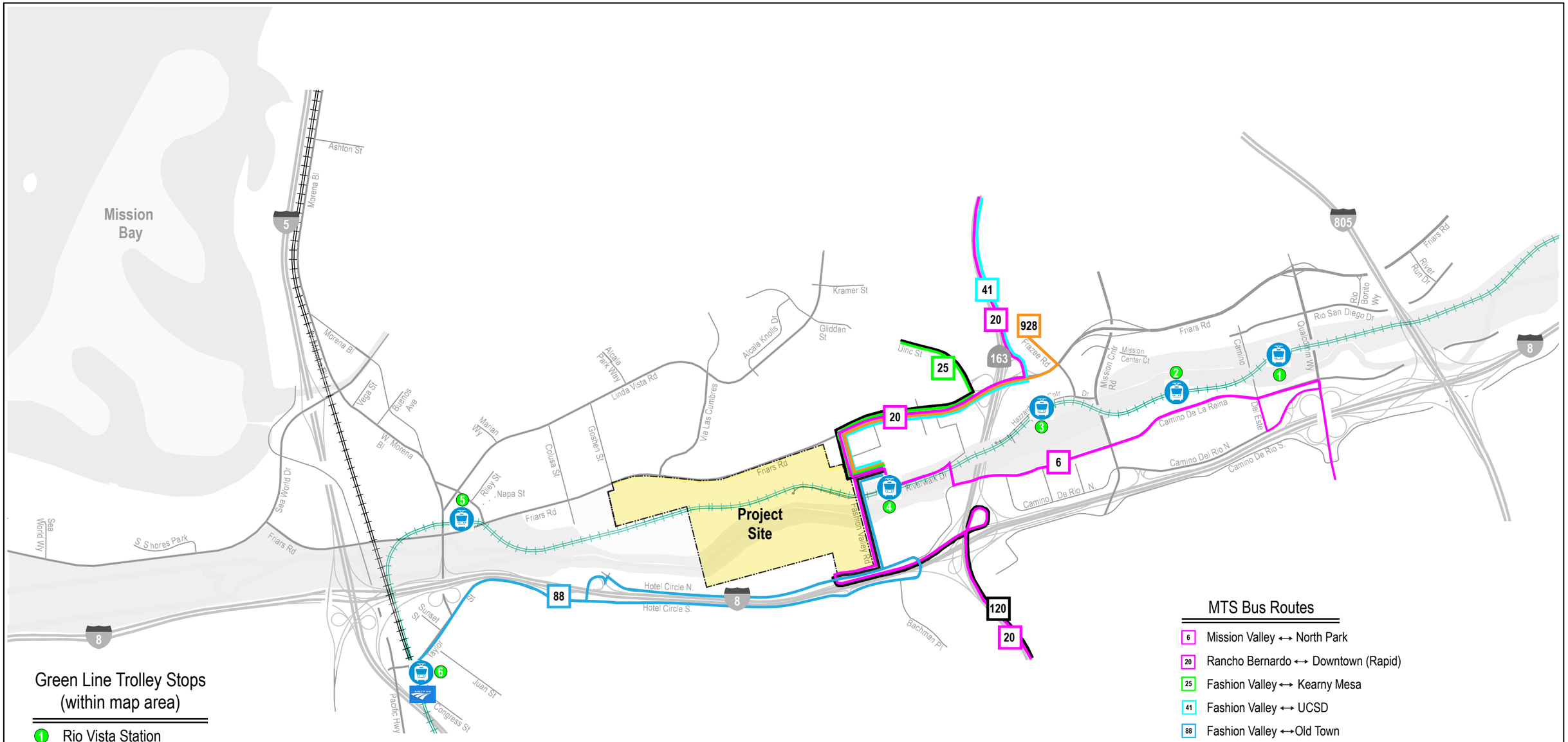


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Figure 20-1

Existing Transit Network

Riverwalk

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Figure 20-2

Existing Transit Walk Buffer from Trolley Stop

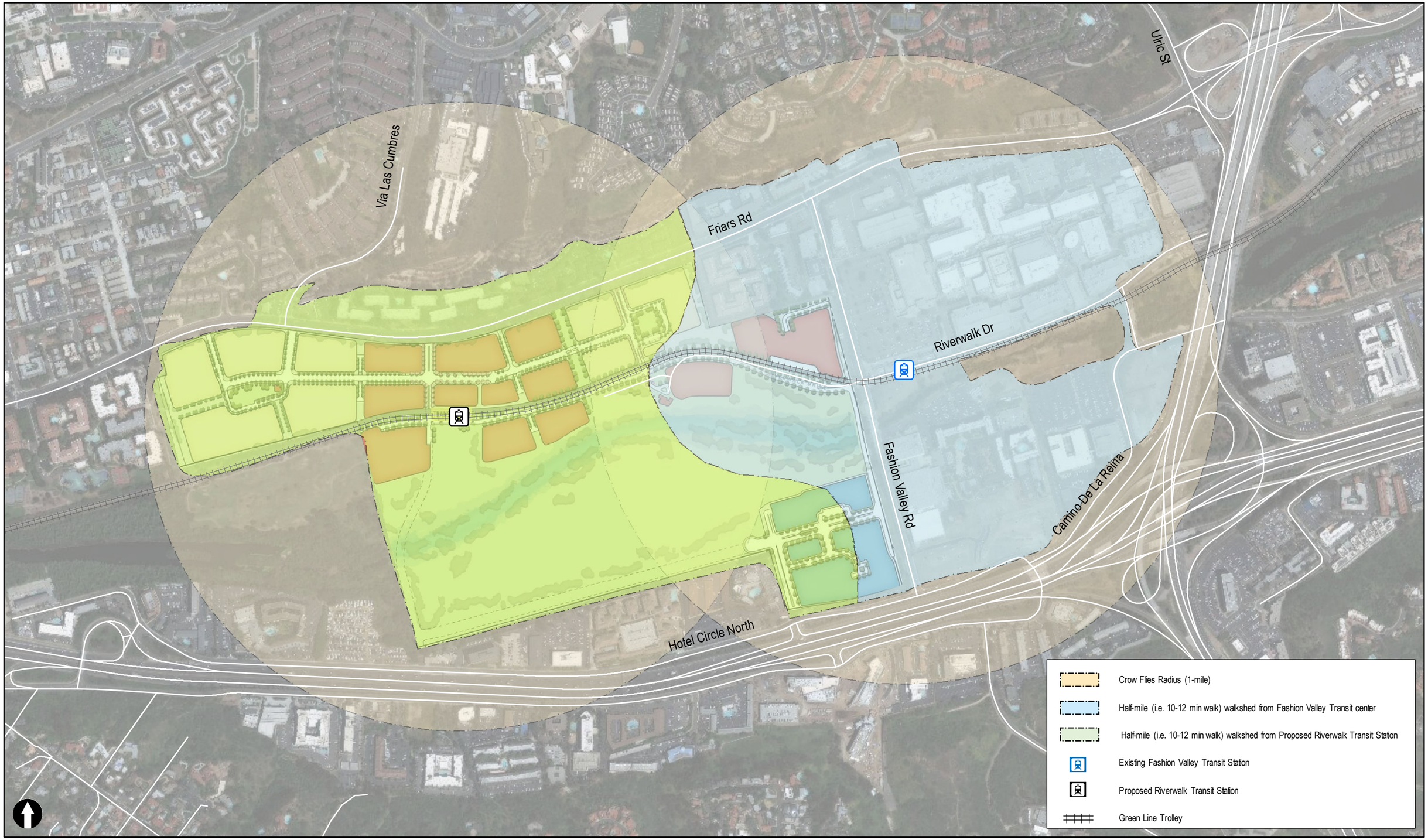

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Figure 20-3

Future Transit Walk Buffer from Trollley Stops

21.0 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Achieving optimal and sustainable mobility for different modes of transportation requires a comprehensive traffic signal system that utilizes a variety of operations and Intelligent Transportation Systems (ITS) technologies. The use of ITS can provide many benefits to a mobility network, including improved travel time, providing transit bypass methods, helping relay valuable traffic-related information to vehicular and non-vehicular / emergency users, and providing guidance to key destinations. Some ITS applications include:

- Traffic Signal Coordination
- Emergency Vehicle Preemption (EVP)
- Transit Signal Priority (TSP)
- Adaptive Signal Control
- Grade crossing preemption

Each application is discussed in detail in the following section.

21.1 ITS Applications

21.1.1 *Traffic Signal Coordination*

Coordinated traffic signals are an example of an ITS strategy that helps improve roadway operations and can be found in the Mission Valley community. Traffic signals have coordinated timing plans and information is relayed between traffic signals in real-time. The traffic signals typically communicate using underground copper or fiber optic interconnects. Having traffic signals coordinated helps to maximize the efficiency of the traffic signal system on that roadway.

The following corridors currently have traffic signal coordination:

- Friars Road
- Mission Center Road
- Qualcomm Way

21.1.2 *Emergency Vehicle Preemption (EVP)*

Emergency Vehicle Preemption technology is utilized to override signal operations and provide priority to approaching emergency responders. Standard intersection signal design includes the EVP.

21.1.3 *Transit signal priority (TSP)*

Transit Signal Priority is an ITS strategy that allows public transit vehicles, such as an MTS bus, to communicate with traffic signals to advance transition to a green phase for its approach. Objectives of TSP include improved schedule adherence and improved transit time efficiency while minimizing impacts to normal traffic operations. The TSP is implemented as a module as a part of the Adaptive Traffics Control System (ATCS).

Given the additional development by the Riverwalk project and the Community Plan, MTS buses, especially Rapid and Express Bus services (Bus Routes 20, 120,) to Downtown would benefit from the installation of TSP's along the major arterials in the Mission Valley Community such as Friars Road, Fashion Valley Road and Hotel Circle North.

21.1.4 *Adaptive Signal Control*

Inefficient traffic signal timing can contribute to traffic congestion and delay. Conventional signal control technology uses pre-programmed signal timing schedules which are optimized for "typical" conditions. When conditions differ somewhat from these "typical" conditions, inefficiency can occur and unnecessary delay results. An Adaptive Traffic Control System (ATCS) is a traffic management strategy in which traffic signal timing changes, or adapts, based on actual real-time traffic demand. This is accomplished using an adaptive traffic control system consisting of both hardware and software. Adaptive traffic signals or "Smart" traffic signals communicate with each other and dynamically adjust signal timings, memorize traffic patterns, and can improve traffic flow and reduce vehicle stops, especially in less than saturated traffic conditions.

The City of San Diego has already implemented adaptive traffic signals on several corridors including Rosecrans Street, Mira Mesa Boulevard, Lusk Boulevard, Friars Road, La Jolla Parkway and Vista Sorrento Parkway. In 2014, City officials created a $163 million, 10-year master plan to install modern traffic signal timing and communication systems and other ITS strategies that combat gridlock. Additional information on adaptive signals is contained in ***Appendix II***. Currently, in the Riverwalk project vicinity, Adaptive Signals are in operation at intersections on Friars Road at the Avenida De Las Tiendas and Via De La Moda intersections; however, given the buildout of the Community and the associated increase in traffic, several corridors such as Friars Road and Fashion Valley Road might be candidates for ATCS.

21.1.5 *Grade Crossing Preemption*

Signal operations at intersections with light-rail crossings involve complex signal timing that accommodates non-conflicting movements of traffic. The Riverwalk project propose a new trolley station and an extension of Riverwalk Drive to the west. The project proposes a grade-separated crossing at Riverwalk Drive and Street I / Street J and an at-grade crossing at Street O / Riverwalk Drive intersection. The at-grade crossing at the Street O will include grade crossing preemption infrastructure to ensure smooth and safe access for all travel modes and will be designed per California Public Utilities Commission (CPUC) and MTS requirements and standards.

21.2 ITS Communication Systems

The communication system is an integral part of ITS functionality and effectiveness. ITS communication occurs between traffic signals, transit / emergency vehicle preemptions and the City's Traffic Management Center (TMC). Per the 2014 Traffic Signal Communications Master Plan, communication deficiencies were identified on Fashion Valley Road, Hotel Circle North, Hotel Circle South and Camino De La Reina at the following locations:

- Fashion Valley Road / Riverwalk Drive
- Fashion Valley Road / Hotel Circle North
- Hotel Circle North / Camino De La Reina
- Hotel Circle South / Bachman Place
- Camino De La Reina / Avenida Del Rio
- Camino De La Reina / Camino De La Siesta

The communication systems along a subset of these intersections that are along the Friars Road, Fashion Valley Road and Hotel Circle North are proposed to be improved as discussed in Section 10.4 below.

21.3 MVCP ITS Policies

The MVCP includes ITS policies to improve mobility in Mission Valley. The two policies are ITS-1 and ITS-2:

ITS-1: New development should carefully evaluate Intelligent Transportation Systems (ITS) improvements, such as Adaptive Signals and improved coordination technologies and determine if they are feasible and suitable.

ITS-2: New development should coordinate with the City's Transportation and Storm Water Department and Development Services Department to identify opportunities to incorporate ITS technologies as a means to improve transportation efficiency.

Consistent with the MVCP policies and recommendations, the Riverwalk project proposes to implement Adaptive Signals with Transit Signal Priority to improve mobility in Mission Valley per the recommendations below.

21.4 ITS Improvement Recommendations

Several Intelligent Transportation Systems (ITS) strategies were reviewed including traffic signal coordination, EVP, detectors, Adaptive Traffic Control, and Transit Signal Priority for MTS bus service.

Based on discussions with the City of San Diego traffic operations group, the Riverwalk project would implement Adaptive Traffic Signal Control and upgrade the communication deficiencies as on these major corridors:

- Friars Road – Sea World Drive to Frazee Road
- Fashion Valley Road – Friars Road to Hotel Circle North
- Hotel Circle North – I-8 WB Hook Ramps to Fashion Valley Road

In addition, as a part of the adaptive traffic signal system, Transit Signal Priority features are included on the below corridors to improve transit performance:

- Friars Road – SR 163 to Fashion Valley Road
- Fashion Valley Road – Friars Road to Hotel Circle North
- Street U and Street V

Implementation of ITS strategies will be according to the City of San Diego and Caltrans requirements and will require communications upgrades, (which may include wireless, fiber optic, cellular modem, communication hub or other pertinent items as needed) between the traffic signals, upgrades to vehicle detection and system implementation at the controller cabinets. Remote link to the City and Caltrans' Traffic Management Center (TMC) may also be required.

22.0 TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

Transportation Demand Management (TDM) plans are comprised of measures, to encourage residents and employees to use alternative forms of transportation other than single occupancy vehicles. The goal of these plans is to reduce and/or remove single occupancy vehicle trips out of the peak hours, thereby relieving traffic congestion. A detailed description of the project's TDM measures is provided below.

22.1 Project TDM Measures

The Project TDM measures can be broadly categorized as follows:

- *Management* - measures in place to ensure the smooth running of a TDM plan such as a dedicated transportation coordinator
- *Education* - measures intended to inform stakeholders and users about the existence and importance of a TDM plan as well as how it fits with their everyday lives
- *Promotion* - measures necessary to provide reinforcement and reminders of the availability of TDM opportunities
- *Employee Incentives*- measures intended to encourage stakeholder/employee use of TDM
- *Active Measures* - measures which directly reduce travel during the peak hour
- *Parking* - measures intended to disincentivize Single Occupancy Vehicle (SOV) travel through paid parking

This project TDM measures include the following:

Transit Station:

- The project will construct a new MTS Trolley Stop in the Mixed-Use Core of the project. The new trolley stop is proposed to be located at the intersection of Street J and Riverwalk Drive to promote transit mobility for all site users as well as residents in the neighboring communities and would be constructed at 3,386 EDU's (at the beginning of Phase II)

Mobility Hub at the Transit Station

- The project will construct a Mobility Hub in conjunction with the new Riverwalk Trolley Station. The hub will provide for multi-modal connectivity with space for private vehicle drop-off, rideshare services, dockless bike and scooter sharing, and intra-project shuttle services. The community serving retail use proposed within the Mixed-Use Core will be conveniently located within walking distance to the Mobility Hub patrons. A bike repair station is also proposed as a part of Mobility Hub.

Transit Subsidies

- The project will provide transit subsidies to both residents and employees. For residents, the project will provide a 25% subsidy. The subsidy value will be limited to the equivalent value of 25% of the cost of an MTS "Regional Adult Monthly/30-Day Pass" (currently $72 for a subsidy value of $18 per month). Subsidies will be available on a per unit basis to residential tenants and will be offered from the completion of the first dwelling unit until ten years after the opening of the Riverwalk Transit Station. The subsidy will be required of office and retail tenant employees as a lease condition.

Last Mile Transportation Options (one of the following at Owner's Discretion):

- Up to one shuttle vehicle serving up to 12 passengers. The shuttle will serve to connect office uses south of the river to the mobility hub at the Riverwalk Trolley Stop. Additionally, the shuttle will connect to the Fashion Valley Transit Center. The shuttle will be implemented upon construction of Riverwalk Phase 3 (south of the river). Hours of operation will be from 6:00 AM to 6:00 PM.
- As an alternative, an Autonomous Transportation Service Option may be implemented serving the same equivalent number of passengers via one or multiple vehicles and running during the same hours of operations and same conditions as above.
- As an alternative, on-demand Rideshare services may be utilized to serve the same goal via discount codes based on agreements between the employer and rideshare company which enable office tenants to reach the same destinations outlined above during the same hours of operation.

Active Transportation

- The project will construct bicycle facilities which include a combination of Class I paths, Class II buffered bike lanes and Class IV cycle tracks.
- The project will construct the San Diego River pathway within the site.

Marketing and Information

- The project will install Transit Boards in the office and residential lobbies
- The project will participate in the SANDAG iCommute Program (to be implemented through a lease provision)
- The project will provide SANDAG/MTS Information at Leasing Centers

Onsite Ride-Sharing, Car-Sharing and Bike or Scooter-Sharing Services

- The project will coordinate with ride-sharing services such as Uber, Lyft; car-sharing service providers such as Zip Car, Car2Go etc. and other providers for bike and scooter sharing on the project site and incentivize their use. The project will incorporate pick-up/drop-off zones into the site design to accommodate these ride-sharing services.

Curb Planning for Shared Mobility Vehicles

- As a part of the project site design, the project will implement curb management to accommodate shared bicycles, shared scooters, and drop-off zones at private drives.

Parking Management Plan

- The project will implement unbundled Parking for Residential
- The project will implement paid parking for Retail Uses and Visitors to Residential

Access to Services That Reduce The Need To Drive

- The project is a mixed-use development that will include retail services.

23.0 CONCLUSIONS

The Riverwalk Master Plan project is located at 1150 Fashion Valley Road, in the area that abuts Friars Road on the north; Fashion Valley Road on the east; a portion of Hotel Circle North on south; and privately-owned residential property to the west. The San Diego River and the Green Line Trolley traverse the project site in an east-west direction. The Green Line Trolley provides transit connections through Mission Valley to the Old Town multi-modal transit facility located in Old Town (west of the project site) and to San Diego State University, SDCCU Stadium, and the cities of La Mesa, El Cajon, and Santee located east of the project site.

The 195-acre project site is currently occupied by a 27-hole Riverwalk Golf Course and clubhouse building. The golf course operates under an existing Conditional Use Permit (CUP No. 94-0563).

The Riverwalk project proposes to redevelop the existing golf course as a modern live-work-play mixed-use neighborhood with a local and natural focus that showcases a large riverfront park. The intent is to create a sense of place both within the site boundaries and the surrounding community. Emphasis would be placed on mobility including a pedestrian focus, bicycle connectivity within and external to the project site, direct access to transit, and additional community roadways. The mix and quantity of land uses would change from what is approved in the existing Levi-Cushman Specific Plan to include 4,300 multi-family residential dwelling units; 152,000 square feet of neighborhood retail space; 1,000,000 square feet of office; 97 acres of parks and open space that would serve the project and surrounding community and would implement the San Diego River Park Master Plan; adaptive reuse of the existing golf clubhouse into a community amenity; and a new Green Line Trolley stop/transit center within the development.

The Project Buildout is calculated to generate 37,222 net new cumulative ADT with 3,105 total AM peak hour trips (1,519 inbound / 1,586 outbound) and 3,906 total PM peak hour trips (1,973 inbound / 1,933 outbound). The Project Buildout is calculated to generate 41,186 driveway ADT with 3,224 total AM peak hour trips (1,591 inbound/ 1,633 outbound) and 4,302 total PM peak hour trips (2,171 inbound/ 2,131 outbound).

Finally, the Riverwalk project proposes to construct several transportation improvements that will be implemented consistent with the TIP, which are also consistent with the transportation improvements identified in the Mission Valley Community Plan. These improvements promote active transportation, including transit mobility. The list of transportation improvements are summarized in a Transportation Improvement Plan (TIP), which identifies the improvement location (i.e. intersection, street segment, freeway), the improvement description and an identified Equivalent Dwelling Unit (EDU) threshold for transportation improvements to be completed in conjunction with project build-out.