ATTACHMENT H

Public Works & Sustainability cityofirvine.org

1 Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 949-724-7365

October 7, 2024

Kia Mortazavi
Executive Director, Planning
Orange County Transportation Authority
550 South Main Street
Orange, CA 92863-1584

RE: Master Plan of Arterial Highways (MPAH) Amendment Request – Yale Avenue between Michelson Drive and University Drive

Dear Mr. Mortazavi,

The City of Irvine is requesting an amendment of the MPAH for Yale Avenue between Michelson Drive and University Drive to change the segment from Secondary Arterial to Commuter Arterial. This designation would include one through lane in each direction and a left-turn lane at intersections.

The segment of Yale Avenue between Michelson Drive and University Drive is currently a two-lane (one lane each direction) Commuter arterial roadway. In the Orange County MPAH, this segment is identified as a four-lane (two lanes each direction) Secondary arterial roadway. Currently, the segment of Yale Avenue north of Michelson is connected to a bike and pedestrian only bridge over I-405. The segment of Yale Avenue between Michelson Drive and Yale Loop including the bridge over I-405 is classified as a two-lane (one lane each direction) Commuter arterial roadway in the MPAH network.

The current configuration of Yale Avenue between Michelson Drive and University Drive includes a 24-foot-wide travel lane and an 8-foot-wide Class II bike lane in each direction. After analysis and community engagement, the City is planning to maintain the existing number of travel lanes, but reduce the wider than necessary lane widths and reallocate a portion of the roadway width to better serve the community by adding a Class IV bikeway (refer to Attachment 1 for location map). The implementation will address concerns along the existing roadway, such as speeding, wrong way riding of bicycles, and conflicts between bicyclists and pedestrians on sidewalks. It is also intended to accommodate the increasing use of bicycles by students going to and from the middle school in the project area and the high school to the south. The project will also enhance bicycling facilities and provide additional opportunities for low stress and multimodal travel within the City.

The Class IV bikeway will be added to the two-lane configuration within the existing roadway. The proposed roadway configuration is depicted in Attachment 2 and consists of the following:

- An 11-foot travel lane in each direction
- A cycle track for dedicated bicycle travel, separated by either a landscaped buffer (7-14 feet wide) or raised concrete buffer (3-7 feet wide) where appropriate

The project will also include improved crosswalks and signal enhancements for bicyclists and pedestrians and provide support for circulation to the adjacent Middle School, providing significant benefits including improved safety for all roadway users and enhanced quality of life.

The daily traffic volumes on this segment of Yale Avenue range from 1,230 to 1,770 vehicles per day based on traffic counts collected in November 2022. The City's traffic model forecasts the buildout volumes to be between 6,300 and 6,800 for the two-lane arterial configuration with the I-405 Vehicular overcrossing. The MPAH roadway capacity values indicate that a two-lane undivided arterial can accommodate 13,000 vehicles per day while still maintaining favorable performance conditions. In addition, a traffic analysis (Attachment 3) was conducted and showed that this segment of Yale Avenue is forecast to operate at Level of Service (LOS) C or better in the buildout scenarios. Therefore, the proposed MPAH amendment can support existing and forecast traffic volumes per adopted performance criteria.

Thank you for your consideration regarding this request. If you have any questions, please feel free to contact Wendy Wang, Supervising Transportation Analyst at 949-724-7438 or wwang@cityofirvine.org.

Sincerely,

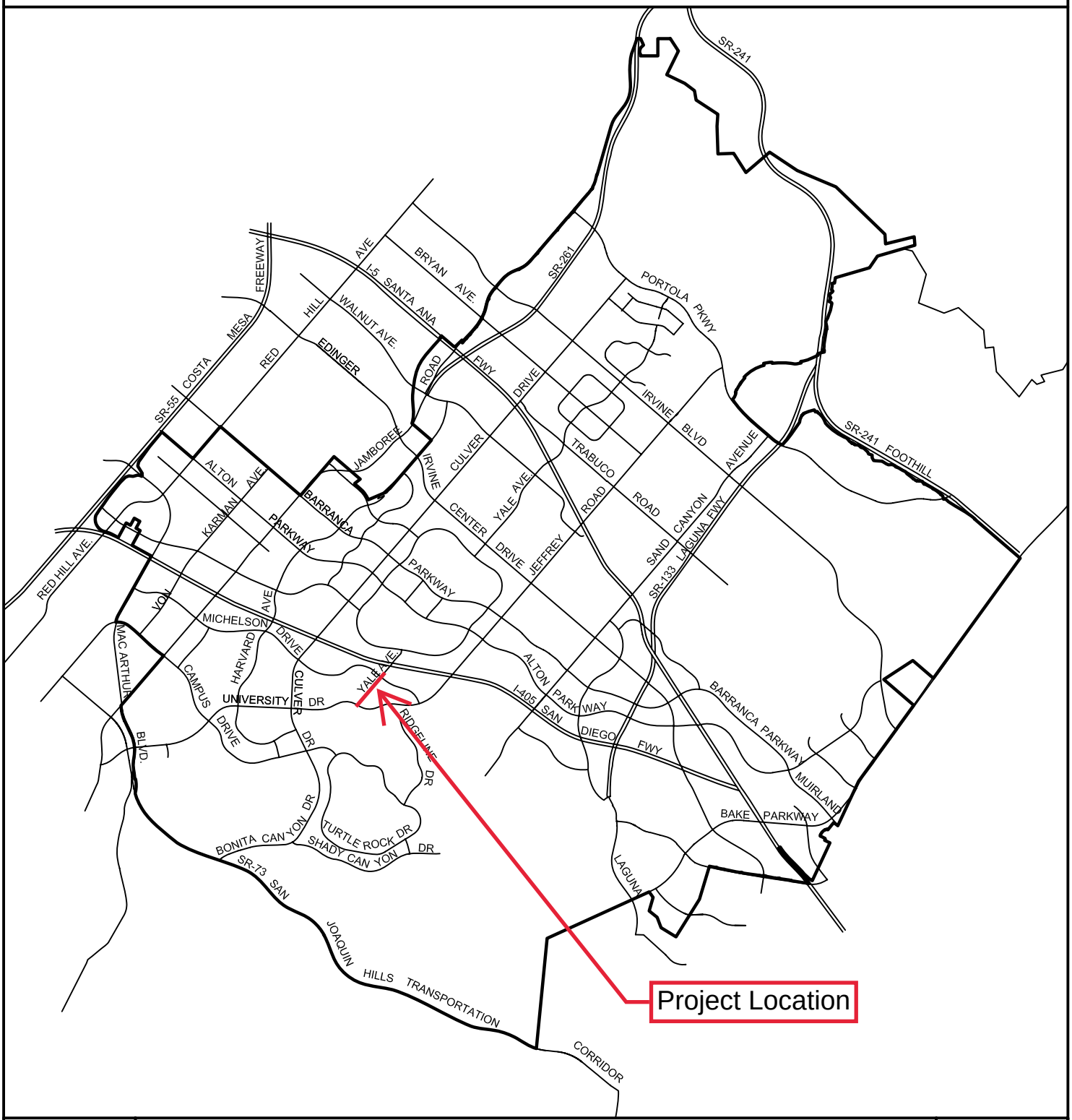
Sean Crumby

Sean Crumby
Director
Public Works & Sustainability Department

Attachments:

1. Location Map
2. Yale Avenue Class IV Concept Plans
3. South Yale Corridor Improvement Project Report

IRVINE CITYWIDE CATCH BASIN CONNECTOR PIPE SCREEN (CPS) INSTALLATION PHASE 4 PROJECT



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PROJECT LOCATION

CITY OF IRVINE 1971

ATTACHMENT 1

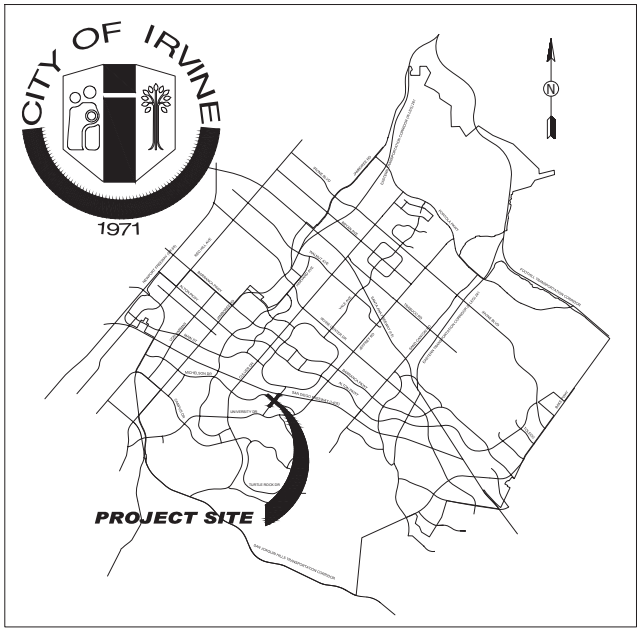
CONSTRUCTION PLANS FOR THE IMPROVEMENT OF

SOUTH YALE CORRIDOR IMPROVEMENTS

CIP# 312204

INDEX OF DRAWINGS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3-4	LAYOUT



VICINITY MAP

NOT TO SCALE

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Underground Service Alert of Southern California

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CITY APPROVAL:

30% CONCEPT PLANS

NO.	DATE	REVISIONS	ENGR.	APPROV.	DATE
7					
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1					

PLAN PREPARED BY:
MARK THOMAS
MARK THOMAS & COMPANY
2121 ALTON PARKWAY, SUITE 210
IRVINE, CA 92606

DESIGN ENGINEER — R.C.E. No. — DATE

DRAWN BY:	T. MIYATA	DATE 2/20/2024
DESIGNED BY:	T. MIYATA	DATE 2/20/2024
CHECKED BY:	A. SILVA	DATE 2/20/2024
RECOMMENDED BY:		DATE

APPROVED BY:
CITY ENGINEER

STEVEN CARRILLO — R.C.E. NO. 73170 — DATE

IRVINE RANCH WATER DISTRICT
APPROVED OF DOMESTIC WATER, SANITARY SEWER & RECYCLED WATER FACILITIES IRWD CODE 7969.
PROJECT NUMBER 311611

APPROVED BY: DATE
SUPERVISED BY: DATE
REVIEWED BY: DATE

SOUTH YALE
CORRIDOR IMPROVMENTS

TITLE SHEET

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

PLAN CHECK NO.	X
CIP NO.	312204
PROJECT NO.	X
SHEET	1 of 4

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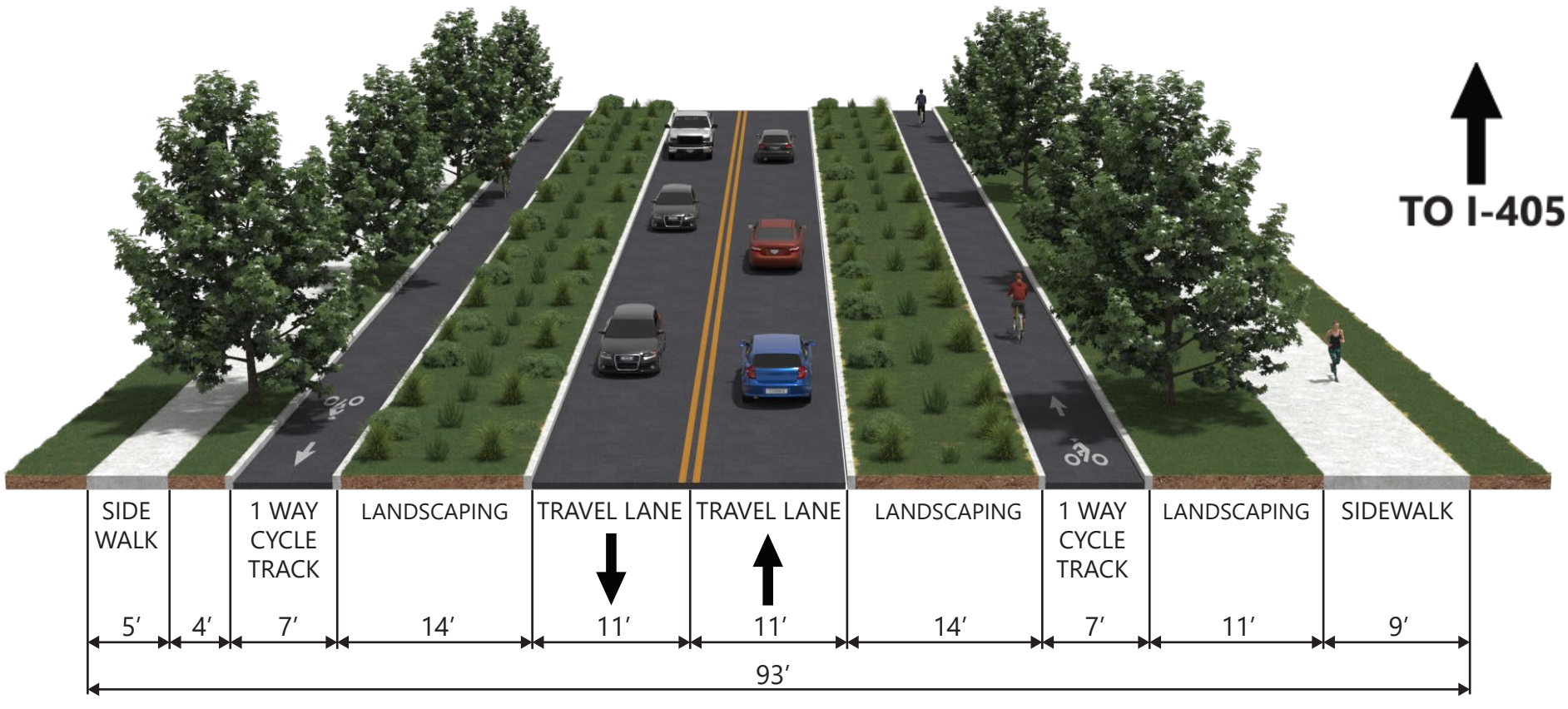
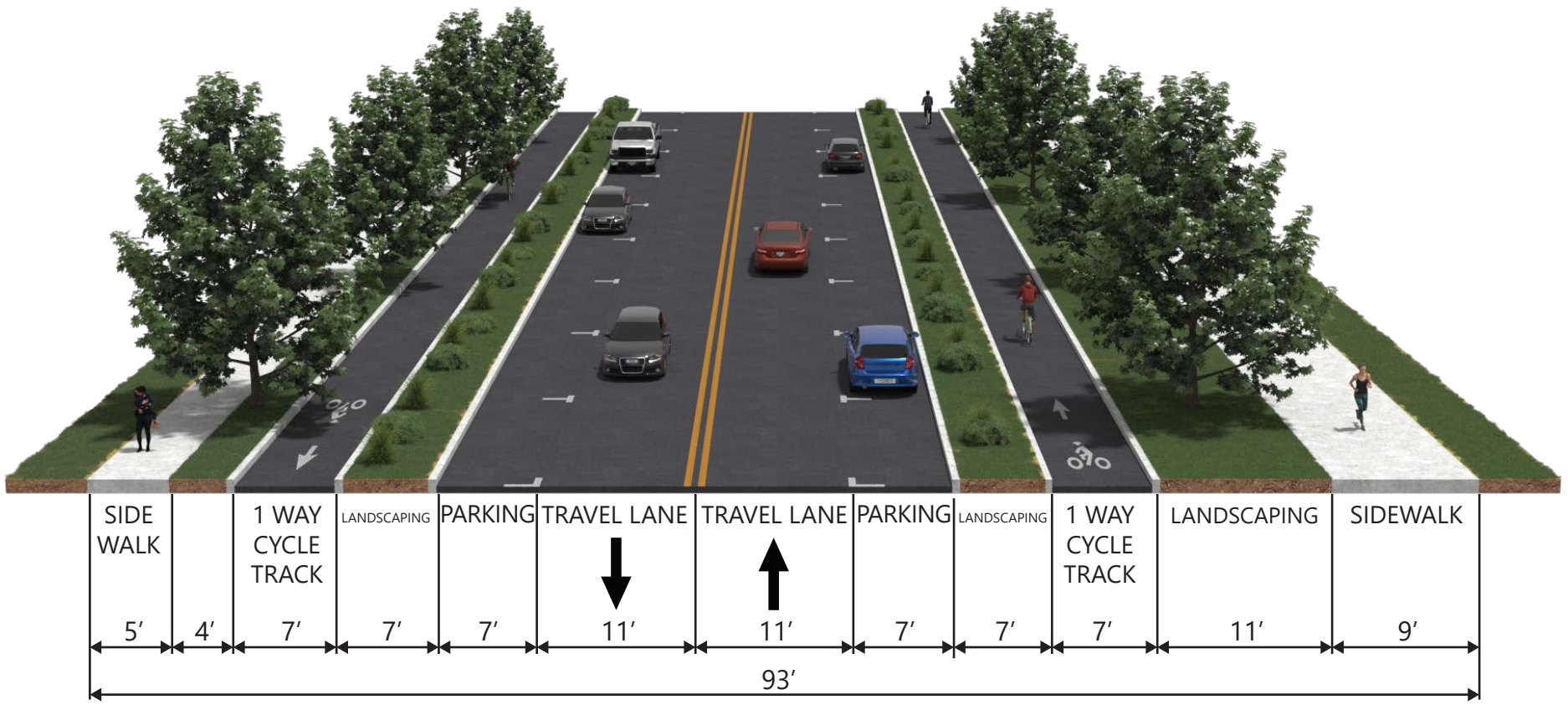
SHEET REVISED: 8/15/07

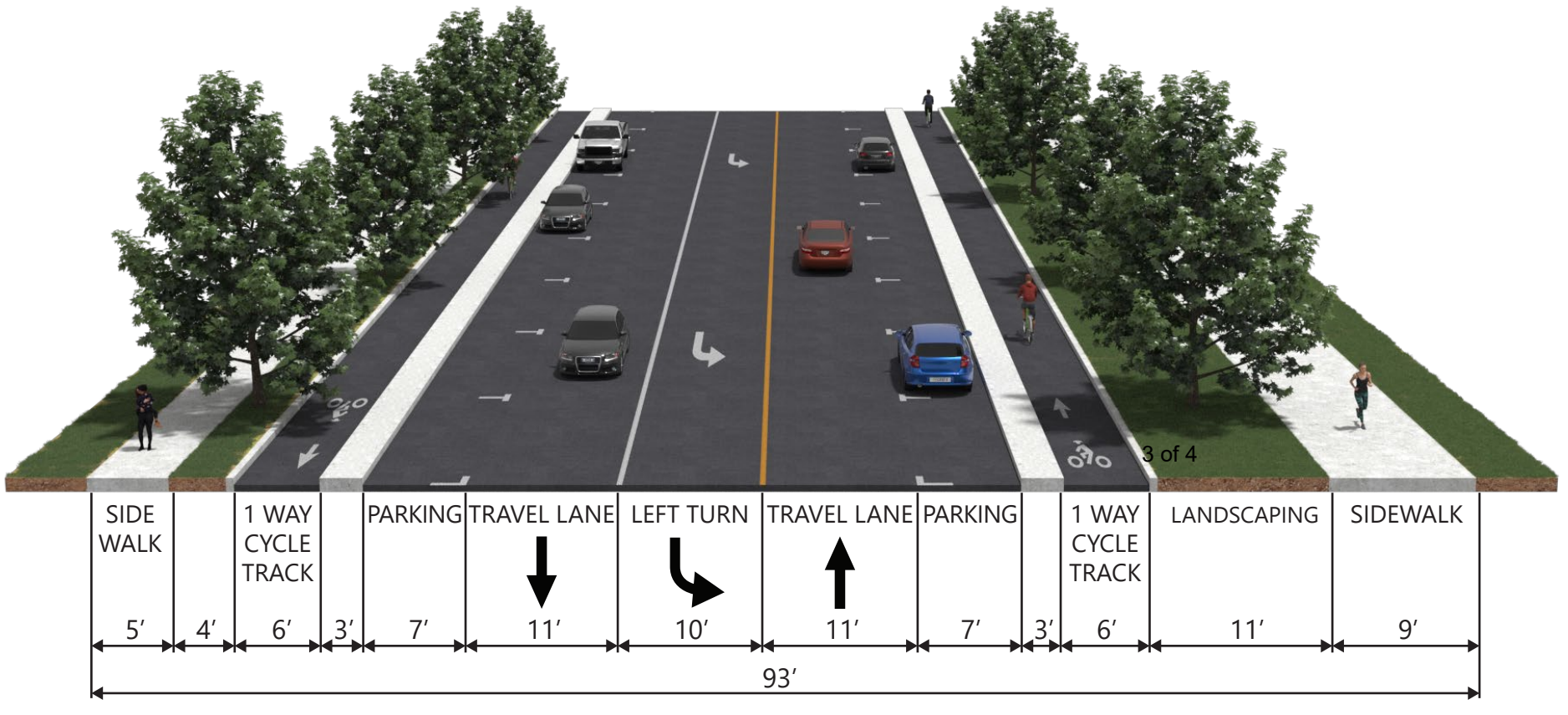
ATTACHMENT 2



CROSS-SECTION NORTH OF UNIVERSITY DRIVE



CROSS-SECTION SOUTH OF MICHELSON DRIVE

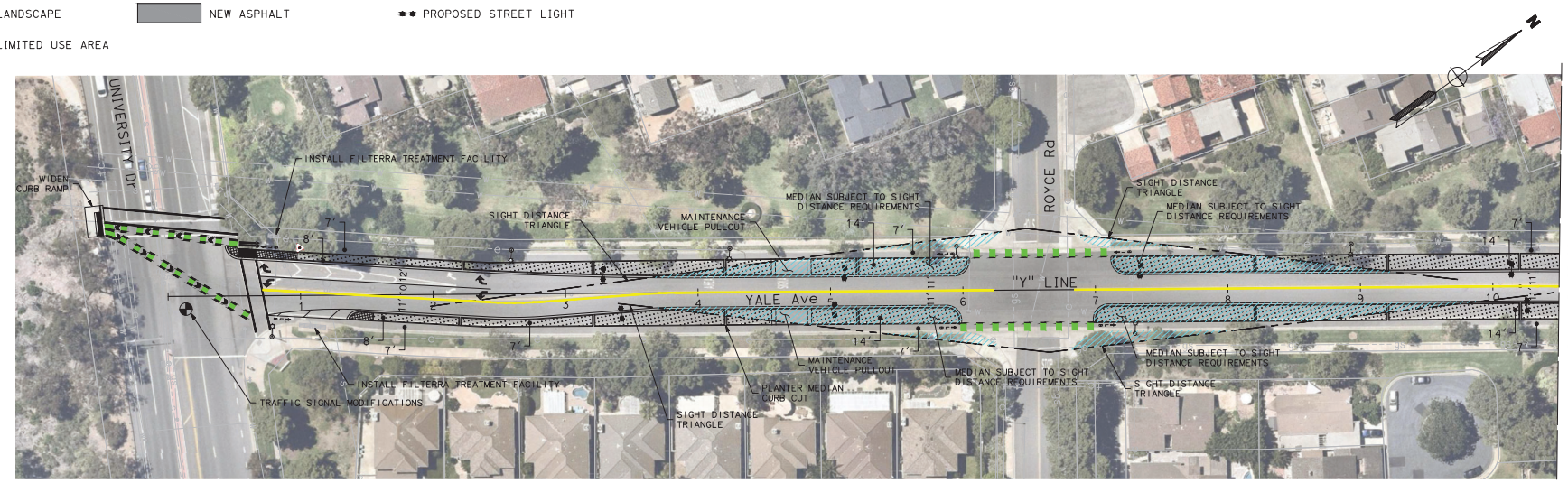


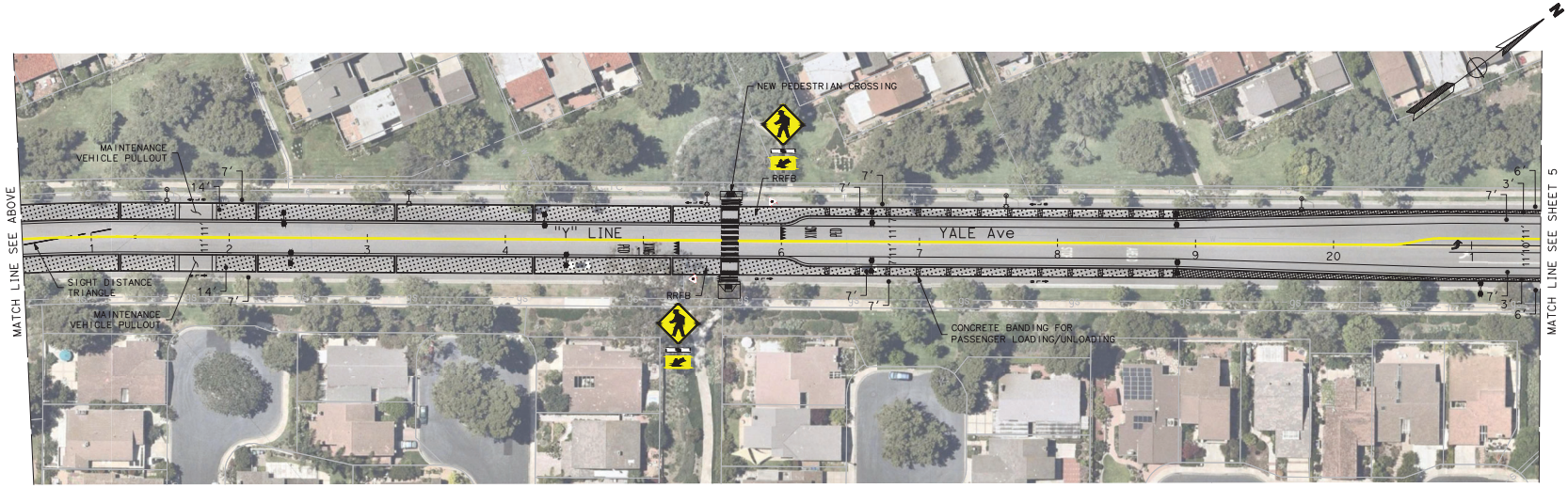
CROSS-SECTION NORTH OF MICHELSON DRIVE

3 of 4

LEGEND:

EXPOSED AGGREGATE CONCRETE
LANDSCAPE
LIMITED USE AREA
NEW SIDEWALK
NEW ASPHALT
EXISTING STREET LIGHT
PROPOSED STREET LIGHT





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DRAWN BY: T. MIYATA DATE 2/20/2024
DESIGNED BY: T. MIYATA DATE 2/20/2024
CHECKED BY: A. SILVA DATE 2/20/2024

PLAN PREPARED BY:
MARK THOMAS
MARK THOMAS & COMPANY
2121 ALTON PARKWAY, SUITE 210
IRVINE, CA 92606
DESIGN ENGINEER R.C.E. No. DATE

SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204
SHEET 3 of 4

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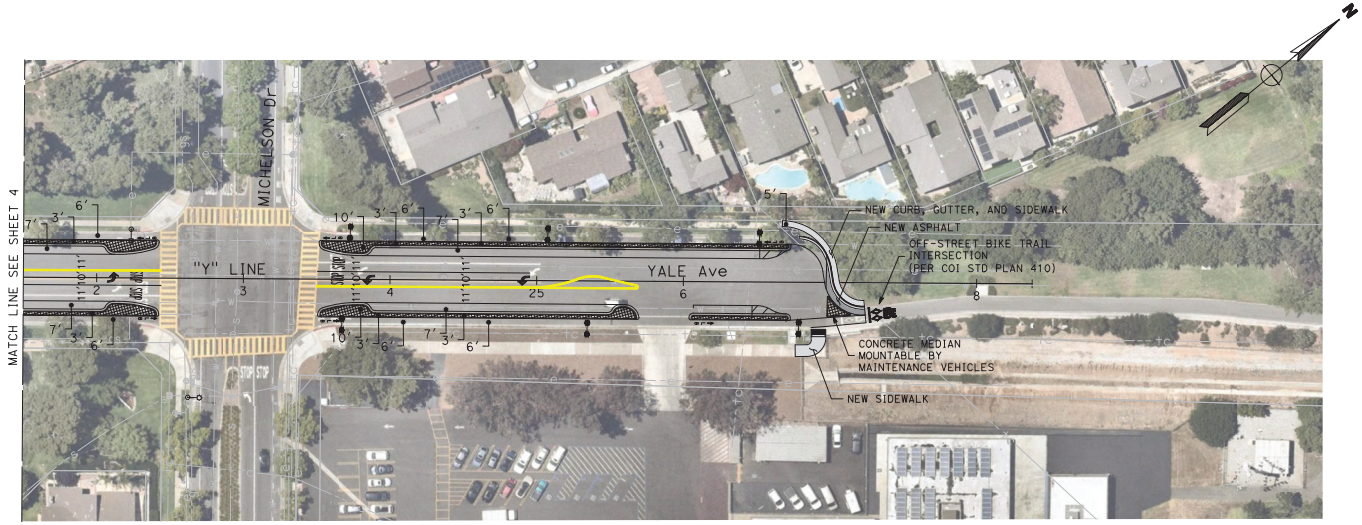

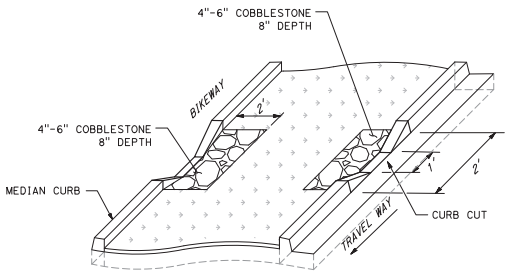

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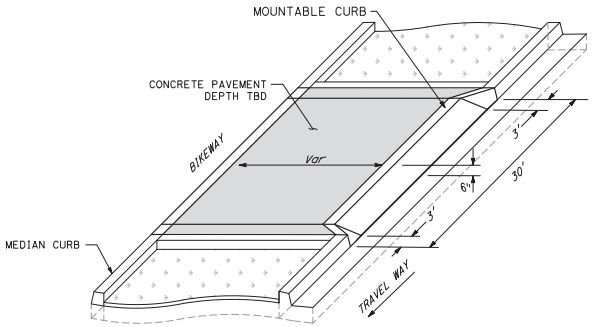

MAINTENANCE VEHICLE PULLOUT
NO SCALE

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CHECKED BY: A. SILVA — DATE 2/20/2024

REGISTERED PROFESSIONAL ENGINEER — No. ____ Exp. ____ CIVIL — STATE OF CALIFORNIA

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DESIGN ENGINEER — R.C.E. No. — DATE

SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204
SHEET 4 of 4

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SHEET REVISED: 8/15/07

SOUTH YALE IMPROVEMENTS

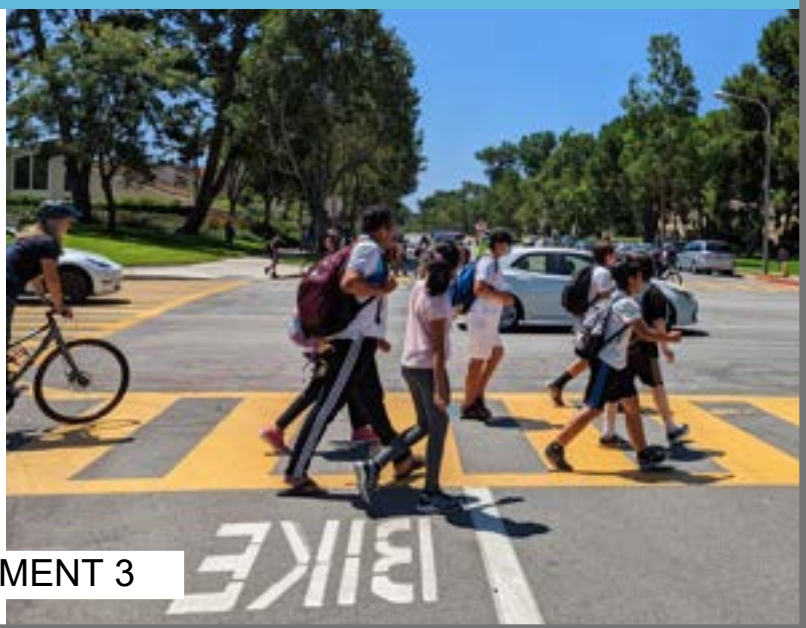
SOUTH YALE CORRIDOR IMPROVEMENTS PROJECT

Project Report

April 2024

CIP No. 312204

prepared for: CITY OF IRVINE 1971



ATTACHMENT 3

MARK THOMAS

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I. Introduction

The South Yale Corridor Improvements Project (Project) is located in the City of Irvine (City) along Yale Avenue between Interstate 405 (I-405) and University Drive. Originally identified in the City's 2020 Strategic Active Transportation Plan, the Project recommends improvements to multi-modal mobility and access along Yale Avenue to address City goals of reducing greenhouse gas emissions, diversifying mobility options, and improving safety. The Project study corridor is within the University Park community, adjacent to Rancho San Joaquin Middle School (RSJMS), and connects to the University Trail off-street multi-use path within the OC Parks managed William R. Mason Regional Park.

The Project boundaries are approximately 350-feet north of Michelson Drive to the north and University Drive to the south, which covers a distance of 2,700-feet. The segment of Yale Avenue that's located in the study area currently includes landscaped parkways, sidewalks, on-street bike lanes (Class II bikeways), and two travel lanes. Marked crosswalks exist at the Yale Avenue and University Drive intersection and the Yale Avenue and Michelson Drive intersection. The 64-feet wide roadway is considered for redesign to improve current mobility and traffic operation. Potential Project benefits include but are not limited to:

- Improved safety for all roadway users;
- Diversified travel options; enhanced connections to the City's off-street trail network;
- Reduced air, noise, and stormwater pollution; and
- Community-building and increased quality of life with recreational opportunities.

Through agency review and significant community engagement activities, a roadway cross-section concept was approved and advanced to conceptual engineering design and environmental review. The Project improvements include modifications at three (3) intersections and a designated pedestrian crossing located approximately 715-feet south of Michelson Drive.

The proposed roadway cross-section recommends the following:

- One-way cycletracks (Class IV bikeway) in each direction,
- raised buffer,
- some on-street motor vehicle parking, and
- one motor vehicle travel lane in each direction.

Time restricted parking will be allowed north and south of Michelson for approximately 700 feet, then a wider raised landscaped buffer will be provided. The Project modifications are planned to occur within the existing curb-to-curb width. The Project recommends signage,

pavement markings, and intersection modifications at the Yale Avenue/Michelson Drive intersection and signage, pavement markings, and traffic signal modifications at the Yale Avenue/University Drive intersection. Additional recommendations include pedestrian crossing enhancements such as improved signing and striping, and reduced crossing distance as a result of the cycletracks' raised buffers.

Construction is anticipated to have a duration of approximately one (1) year.

II. Background

A. Project History

The South Yale Avenue corridor was originally identified in the City's 2020 Strategic Active Transportation Plan (SATP) as an opportunity to implement enhanced bicycle facilities, with the SATP recommending buffered Class II bicycle lanes or a Class IV separated cycletrack. In the recently adopted 2024 Sustainable Mobility Plan (SMP), Class IV separated bikeway (cycletrack) is also proposed along Yale Avenue south of I-405. Yale Avenue currently is striped for two (2) travel lanes while the roadway width can accommodate four (4) travel lanes. In the adopted General Plan Circulation Element, Yale Avenue is classified as a secondary highway between University Drive and Michelson Drive. North of Michelson Drive, Yale Avenue is classified as a commuter highway with a planned vehicular overcrossing over I-405.

B. Previous Community Interaction

The Project was a recommendation of the City's SATP and SMP, both of which incorporated robust community engagement in their development. Engagement methods included social media posts (i.e. Facebook, Twitter, Nextdoor), email communication, online mapping, surveys, and other in person events. The online mapper and online survey allowed community members to provide anecdotal feedback on a geo-coded map that highlighted the community's areas of interest.

III. Existing Facility

As shown in Figure 1, the Project is located along Yale Avenue and entirely within the City-owned ROW. The curb-to-curb width for the entire Project limit is 64-feet. The Project distance measures at approximately 2,700 feet in length, with the north extent starting 300 feet north of Michelson Drive and extending south to University Drive. The posted speed limit along Yale Avenue is 40 miles per hour between University Drive and Royce Road and is 45 miles per hour between Royce Road and Michelson Drive.

The Project connects to existing bicycle and pedestrian facilities on both ends. To the north, the Project connects to a Class I path that provides connectivity to the pedestrian and bicycle

bridge over I-405. To the south, the Project provides access to the University Trail off-street multi-use path via the Yale Avenue and University Drive intersection crosswalk's western leg. Sidewalks exist on both sides of Yale Avenue. The east side of the roadway provides a wider 9-foot width whereas the west sidewalk is 5-feet wide. Marked crosswalks exist at the Yale Avenue intersections with University Drive and Michelson Drive. The intersection at University Drive provides crosswalks on the west and north intersection legs only. A community paseo connects to the sidewalks on both the east and west sides of Yale Avenue approximately 700-feet south of Michelson Drive. The mid-block paseo south of Michelson Drive does not include a marked crosswalk, pedestrian curb ramp, or other pedestrian crossing features.

Existing Adjoining Land Uses and Facilities

1. Land Uses

The Project is adjacent to several land use types that impact its functionality, including low and medium density residential, the RSJMS educational facility, and the William M. Mason Park recreational area. On the west side of Yale Avenue between Royce Road and University Drive and Michelson Drive and the I-405, there is zoning for low-density residential (0-5 units per acre). On the east side of the Project area and west side between Royce Road and Michelson Drive, the land is zoned for medium-density residential (0-10 units per acre). The only non-residential land use within the Project area is at RSJMS. Nearby land uses include parks and medium high density residential (0-25 units per acre). Figure 2 identifies land uses and key destinations within the study area.

The Project is primarily surrounded by residential land uses to the east and west, with no residential units fronting Yale Avenue. Permanent on-street parking within the project limit is currently prohibited. Temporary parking occurs on special occasions through special permits during RSJMS school events. As seen in Section IV. Traffic Data, the majority of average daily traffic along the corridor occurs in the morning peak period reflecting an overlap in morning commutes and school drop-off times.

RSJMS is located adjacent to the northern study limits and directly influences Yale Avenue traffic, especially during the school year from August to June. Traffic and parking are particularly affected during morning drop-off, afternoon pick-up, and school special events. Although the school driveway along Michelson Drive is the designated drop-off location, a considerable number of students are dropped off along Yale Avenue. Additionally, many students walk and bicycle to school along the existing sidewalks along Yale Avenue.

William R. Mason Park is located at the southern end of the study area and provides bicycle and pedestrian connectivity to land uses adjacent to the Project location. Adjacent to the

intersection of Yale Avenue and University Drive in William R. Mason Park is environmentally sensitive OC Parks land that limits development.

Yale Avenue is located within 2-miles of various pedestrian generators including parks, multi-use paths, trails, schools, hospitals and health care facilities, senior centers, recreation centers, libraries, transit stations, retail, places of worship, office facilities, and bus stops. The closest destinations and trip generators near the Project area include University Community Park and the Adventure Playground, University Elementary School, OC Library- University Park, Parkview Shopping Center, and University Park Shopping Center, which can be accessed via Michelson Drive and University Drive. Other nearby destinations include the University of California Irvine, Concordia University Irvine, South Lake Middle School, Rancho Senior Center, Woodbridge Community Park, Hoag Hospital, and Kaiser Permanente Medical Center.

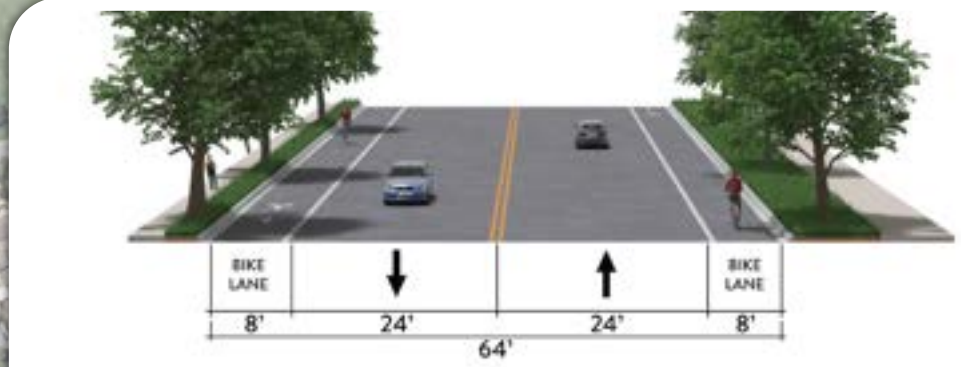
2. Facilities

The Project intersects or connects to several facilities including I-405 pedestrian and bicycle bridge, Michelson Drive, Royce Road, University Drive and University Trail. The I-405 pedestrian and bicycle bridge is located north of the study area and provides a connection between the Project area and the Class II bike lanes on Yale Avenue and Yale Loop north of the freeway.

Michelson Drive is an east-west commuter roadway that intersects Yale Avenue south of the Project's northern terminus and the I-405 pedestrian and bicycle bridge. The two-lane Michelson Drive features Class II bike lanes on both sides and includes a landscaped center median. The posted speed limit along Michelson Drive is 35 MPH. The stop-controlled intersection with Yale Avenue provides high-visibility crosswalks, curb ramps, and tactile bumps at each leg of the intersection.

Royce Road is an east-west residential street that intersects with Yale Avenue south of the Michelson Drive intersection. The Yale Avenue and Royce Road intersection does not feature marked crossings but does provide curb ramps with tactile bumps at each leg of the intersection.

Located at the southern Project limits, University Drive is a four-lane Primary roadway with Class II bike lanes on both sides. The posted speed limit on University Drive is 50 MPH east of Yale Avenue and 55 MPH west of Yale Avenue. The signalized intersection at University Drive and Yale Avenue features crosswalks on the west and north legs along with curb ramps and tactile bumps. Pedestrian crossing is prohibited on the east leg. The University Trail multi-use path is located south of the Project limits and can be accessed via the western leg crosswalk of the Yale Avenue and University Drive intersection. University Trail connects to several trails that provide access to destinations including William R. Mason Park, University High School and Concordia University.



EXISTING YALE CROSS-SECTION

ROYCE RD

YALE AVE

STOP

STOP

STOP 4-WAY

MASON REGIONAL PARK

UNIVERSITY DR

MICHELSON DR

Rancho San Joaquin Middle School

INTERSTATE 405

SOUTH YALE IMPROVEMENTS

Figure 1. Project Location Map

SOUTH YALE IMPROVEMENTS

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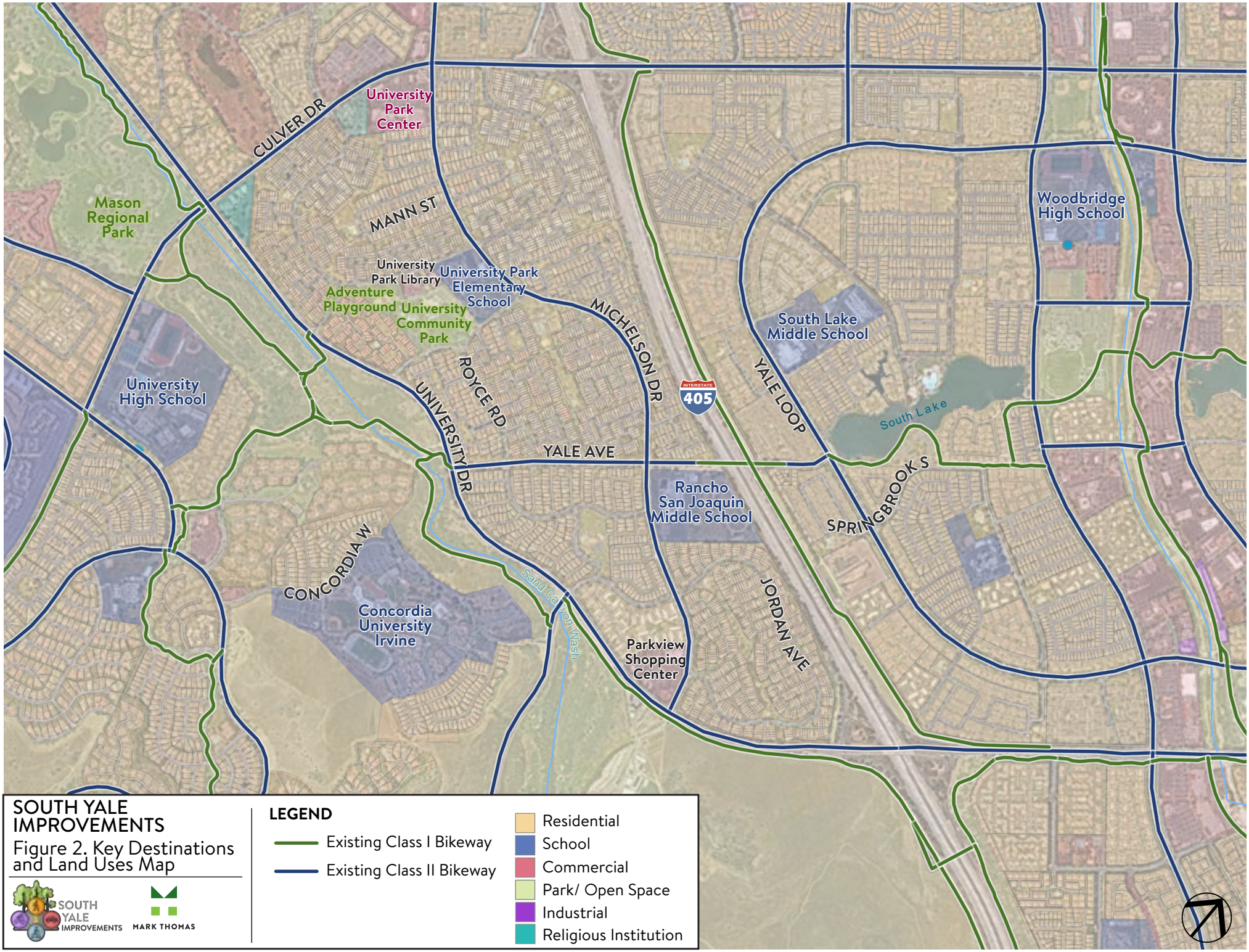
LEGEND

- Existing Signal
- Existing 4-Way Stop
- Study Corridor
- Trail


CULVER DR
University Park Center
Mason Regional Park
MANN ST
University Park Library
University Park Elementary School
Adventure Playground
University Community Park
MICHELSON DR
Woodbridge High School
South Lake Middle School
YALE LOOP
INTERSTATE 405
South Lake
University High School
ROYCE RD
UNIVERSITY DR
YALE AVE
Rancho San Joaquin Middle School
SPRINGBROOK S
CONCORDIA W
Sand Canyon Wash
Concordia University Irvine
Parkview Shopping Center
JORDAN AVE
SOUTH YALE IMPROVEMENTS
Figure 2. Key Destinations and Land Uses Map
MARK THOMAS
LEGEND
Existing Class I Bikeway
Existing Class II Bikeway
Residential
School
Commercial
Park/ Open Space
Industrial
Religious Institution

IV. Traffic Data

A. Existing Traffic Conditions

Traffic counts were performed on Tuesday 15th and Wednesday 16th of November 2022. Morning peak period (AM) and afternoon peak period (PM) traffic counts were collected between 7:00 AM to 9:00 AM and 2:30 PM to 6:00 PM, respectively, along with roadway average daily traffic (ADT) counts. Table 1 summarizes the motor vehicle traffic count data. Generally, the highest traffic volumes were observed during the morning peak period, aligning with morning commutes and the RSJMS drop-off time. Almost half of the observed daily traffic along Yale Avenue north of Michelson Drive occurred during the morning peak period. Yale Avenue south of Royce Road had higher traffic volumes than north of Royce Road.

Table 1 - Daily and Peak Period Traffic Summary

Location	ADT	AM Peak	PM School Peak	PM Evening	AM Peak %	PM School Peak%	PM Evening%
Yale Avenue north of Michelson Drive	540	250	135	8	46%	25%	1%
Yale Avenue north of Royce Road	1,230	253	188	89	21%	15%	7%
Yale Avenue south of Royce Road	1,770	295	217	133	17%	12%	8%

The Yale Avenue intersection movement counts are shown in Table 2 for the two days of collected counts. Traffic volumes at the three intersections show higher volumes at the Yale Avenue and University Drive intersection reflecting the higher volumes along University Drive.

MARK THOMAS

Table 2 - Yale Avenue Intersection Movement Counts by Period

Intersection	Date	Peak	Hour Starting	TOTAL
Yale/Michelson	Tue, Nov 15, 2022	AM	7:45 AM	710
		PM	2:30 PM	581
		PM	4:45 PM	597
	Wed, Nov 16, 2022	AM	7:45 AM	753
		PM	2:30 PM	604
		PM	4:45 PM	575
	Average	AM	7:45 AM	732
		PM	2:30 PM	593
		PM	4:45 PM	586
Yale/Royce	Tue, Nov 15, 2022	AM	7:45 AM	380
		PM	2:15 PM	285
		PM	4:45 PM	214
	Wed, Nov 16, 2022	AM	7:45 AM	385
		PM	2:15 PM	291
		PM	4:45 PM	177
	Average	AM	7:45 AM	383
		PM	2:15 PM	288
		PM	4:45 PM	196
Yale/University	Tue, Nov 15, 2022	AM	7:45 AM	2,393
		PM	2:30 PM	1,578
		PM	4:45 PM	2,556
	Wed, Nov 16, 2022	AM	8:00 AM	2,373
		PM	2:30 PM	1,651
		PM	4:45 PM	2,544
	Average	AM	8:00 AM	2,383
		PM	2:30 PM	1,615
		PM	4:45 PM	2,550

Intersection Level of Service (LOS) analysis was prepared during the AM, PM, and school peak hours for Existing conditions and results are shown in Table 3. Under Existing conditions, the study intersections are operating at acceptable LOS (LOS C or better) during both AM and PM peak periods.

Table 3 - Existing Conditions Intersection Peak Hour LOS

#	Intersection	Methodology	Existing					
			AM		Evening PM		School PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Ave and Michelson Dr	HCM[1] 4-WSC[2]	17.7	C	14.0	B	13.3	B
2	Yale Ave and Royce Rd	HCM 2-WSC[3]	17.9	C	10.6	B	10.6	B
3	Yale Ave and University Dr	ICU[4]	0.53	A	0.48	A	0.32	A

As shown in Table 4, the roadway segment analysis illustrates Yale Avenue operations at LOS A for Existing conditions.

Table 4 - Existing Conditions Roadway Study Segment LOS

#	Segment	Existing				
		Type	Total Capacity	ADT	V/C	LOS
A	Yale Ave North of Michelson Dr	Commuter	13,000	540	0.04	A
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A

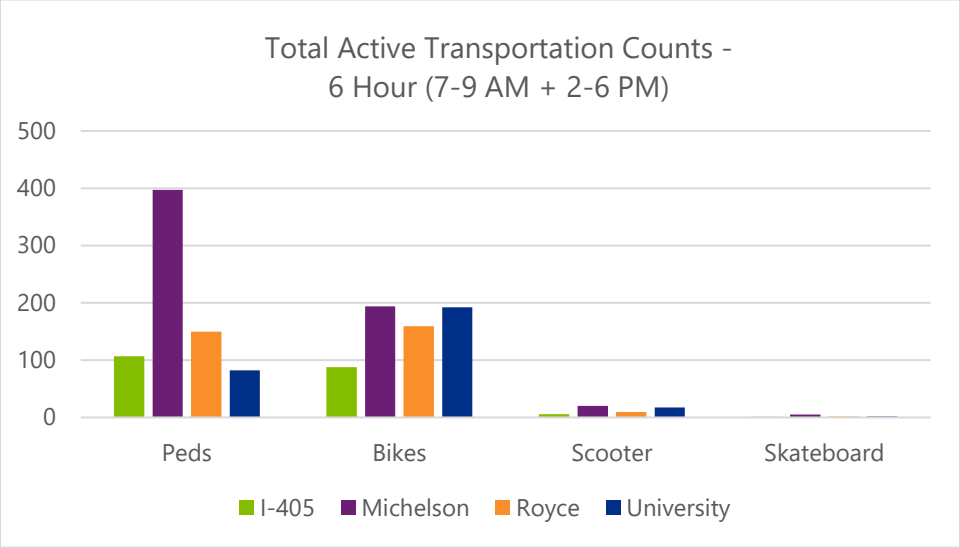
Table 5 and Figure 3 show the total active transportation movement counts during AM (7AM-9AM) and PM (2PM-6PM) periods (six hours) at the study intersections and at I-405 overcrossing by mode. The highest pedestrian movement is at Yale Avenue and Michelson Drive directly adjacent RSJMS. Bicycle counts show more even distribution throughout the study area, suggesting bicyclists traverse the entire study corridor while pedestrians are either walking to nearby homes or loading by automobile along adjacent streets. This observation was supported by field observations. Scooters and skateboards were observed as a less common travel mode, with a total of 53 and 10 observed respectively.

[1] Highway Capacity Manual 6th Edition
[2] Four-way stop controlled
[3] Two-way stop controlled
[4] Intersection Capacity Utilization

Table 5 - November 2022 AM and PM Periods Active Transportation Counts

Mode	I-405 Overcrossing	Yale/Michelson	Yale/Royce	Yale/University	Total by Mode
Pedestrians	107	397	150	82	735
Bicyclists	88	194	160	192	634
Scooter	6	20	10	18	53
Skateboard	1	5	2	2	10
Total by Segment	**201**	**616**	**321**	**294**	**1431**

Figure 3—Total Active Transportation Counts along Yale Avenue



B. Buildout Conditions

In the adopted General Plan Circulation Element, Yale Avenue is classified as a secondary highway between University Drive and Michelson Drive. North of Michelson Drive, Yale Avenue is classified as a commuter highway with a planned vehicular overcrossing over I-405. The City has coordinated with OCTA regarding implementation of the Project and the Project does not intend to formally change the OCTA managed Master Plan of Arterial Highways (MPAH) classification of Yale Avenue.

Since the City General Plan identifies the potential future construction of Yale Avenue over I-405 to serve car traffic, additional traffic scenarios were analysis with and without the roadway crossing. Therefore, the following four (4) buildout conditions are evaluated for traffic analysis considering the possibility of a vehicular overcrossing and the number of vehicle travel lanes on Yale Avenue:

- I-405 Vehicular Overcrossing (OC) with Four-Lane Yale Avenue
- I-405 Vehicular OC with Two-Lane Yale Avenue
- No I-405 Vehicular OC with Four-Lane Yale Avenue
- No I-405 Vehicular OC With Two-lane Yale Avenue

The study intersection forecast LOS analysis was prepared during the AM and PM peak periods as shown in Table 6.

Table 6 – Forecast Buildout Conditions Study Intersection Peak Hour LOS

#	Intersection	Methodology	Buildout Year I-405 Vehicular OC With Four-Lane Yale Ave		Buildout Year I-405 Vehicular OC With Two-Lane Yale Ave		Buildout Year No I-405 Vehicular OC With Four-Lane Yale Ave		Buildout Year No I-405 Vehicular OC With Two-Lane Yale Ave	
			AM	PM	AM	PM	AM	PM	AM	PM
			LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS
1	Yale Avenue and Michelson Drive	HCM[5] 4-WSC[6]	F	F	F	F	C	C	C	C
2	Yale Avenue and Royce Road	HCM 2-WSC[7]	E	C	E	C	C	B	C	B
3	Yale Avenue and University Drive	ICU[8]	B	A	B	A	B	A	B	A

N/A = Not Applicable

The following intersections under buildout year I-405 vehicular OC with four-lane Yale Avenue are expected to operate at LOS E or worse during either AM or PM peak hours:

- Yale Avenue and Michelson Drive (AM LOS F | PM LOS F for four-way stop-controlled operation)
- Yale Avenue and Royce Road (AM LOS E for two-way stop-controlled operation)

The following intersections under buildout year I-405 vehicular OC with two-lane Yale Avenue are expected to operate at LOS E or worse during either AM or PM peak hours:

- Yale Avenue and Michelson Drive (AM LOS F | PM LOS F for four-way stop-controlled operation)
- Yale Avenue and Royce Road (AM LOS E for two two-way stop-controlled operation)

Signalization is identified as a potential improvement to provide acceptable LOS at Yale Avenue and Michelson Drive as it meets signal warrants. A four-way stop controlled

[5] Highway Capacity Manual 6th Edition
[6] Four-way stop controlled
[7] Two-way stop controlled
[8] Intersection Capacity Utilization

intersection at Yale Avenue and Royce Road is identified as a potential improvement to reduce delay.

The study roadway segment forecast LOS analysis was prepared for daily traffic as shown in Table 7.

Table 7 - Buildout Conditions Roadway Study Segment LOS

#	Segment	Buildout Year I-405 Vehicular OC with Four-Lane Yale Ave	Buildout Year I-405 Vehicular OC with Two-Lane Yale Ave	Buildout Year No I-405 Vehicular OC with Four-Lane Yale Ave	Buildout Year No I-405 Vehicular OC with Two-Lane Yale Ave
		LOS	LOS	LOS	LOS
A	Yale Avenue North of Michelson Drive	D	D	A	A
B	Yale Avenue between Michelson Drive and Royce Road	A	A	A	A
C	Yale Avenue between Royce Road and University Drive	A	A	A	A

As shown in Table 7, the study segments are forecast to operate at acceptable LOS (LOS D or better) operations under all four buildout conditions scenarios.

Collision Data

Within the study area, a total of six collisions were recorded between March 2016 and March 2018 and are identified in Figure 4. Of the six collisions, four property damage only collisions were reported at the intersection of Yale Avenue and University Drive. At the intersection of Yale Avenue and Michelson Drive two collisions with bicyclists are recorded near the south leg crosswalk.


3/6/2016
2/24/2018
3/24/2018
12/23/2017
11/8/2017
3/19/2016
2/23/2017
2/8/2016
YALE AVE
MICHELSON DR
UNIVERSITY DR
ROYCE DR
Rancho San Joaquin Middle School
SOUTH YALE IMPROVEMENTS
Figure 4. Collision Map
SOUTH YALE IMPROVEMENTS
MARK THOMAS
LEGEND
XX/XX/XX Collision Date
Property Damage Only Collision
Cyclist Collision
Vehicle, Nighttime
Vehicle, Daytime

V. Deficiencies and Justifications

The City of Irvine General Plan Circulation Element designates Yale Avenue as a secondary highway, where secondary highways provide for the movement of traffic between planning areas and/or the movement of traffic to and from activity centers within planning areas. North of Michelson Drive and over I-405, Yale Avenue is designated as a commuter highway. A commuter highway functions primarily as a collector facility which has the ability to handle through traffic movements between arterials. However, the commuter highway segment over I-405 remains undeveloped, resulting in Yale Avenue being built for more vehicular travel lanes than needed for traffic demands.

In addition to an excess roadway ROW for current traffic demand, the existing bicycle facilities along Yale Avenue are not separated from motor vehicles. The feedback from the Project's community engagement largely supported a separated cycletrack along Yale Avenue to lower the bicyclist level of stress which in turn can improve multi-modal conditions and encourage more bicycle trips. As shown by the 2023 United States Federal Highway Administration (FHWA) study titled "Developing Crash Modification Factors for Separated Bicycle Lanes", converting a Class II bike lane to a Class IV separated bikeway yields a 50% or more reduction in crashes. Implementation of lower stress bicycle facilities may encourage additional pedestrian trips through increased separation from moving car traffic and with less cyclists use of the sidewalk.

The community also noted an absence of pedestrian crossings, particularly at the community paseos south of Michelson Drive. The FHWA utilizes a chart for pedestrian crash countermeasures by roadway features, included in the "Guide for Improving Safety at Uncontrolled Crossing Locations". The City also considers factors such as posted speed limits, number of vehicle lanes, and vehicle and pedestrians volumes for installation of countermeasures at uncontrolled crossing. A Rectangular Rapid Flashing Beacon (RRFB) is proposed in conjunction with the proposed pedestrian crosswalk under the Project location conditions.

Other identified Project corridor challenges include:

- The lack of a crosswalk on the east leg of the Yale Avenue and University Drive intersection.
- Bicycle riding behavior observed along sidewalks introduces potential conflicts with pedestrians.
- Bicyclists counter-flow riding observed within the roadway introduces potential conflicts with other bicyclists and vehicles.

- An unmarked crossing at Royce Road intersection where there are sight distance concerns.

The Project will address existing challenges and reconfigure underutilized roadway space to provide improved bicycle facilities with a higher level of comfort and enhance pedestrian facilities for those who walk and bicycle and roll (skateboard, scooter, etc.) along Yale Avenue.

VI. Project Description

A. Proposal and Alternatives

Criteria was developed to support an evaluation of potential bicycle facility and roadway elements in December 2022. The criteria sought to identify positive outcomes or avoidance of issues of potential roadway concepts. The criteria included the following:

- Explores a new bikeway concept;
- Offers low stress bicycle facilities;
- Offers low stress pedestrian facilities;
- Provides direct access to University Trail and William R. Mason Regional Park;
- Provides direct access to RSJMS;
- Avoids conflicts with RSJMS parking and circulation;
- Matches drivers expectations;
- Avoids tree impacts;
- Impose minor impact on traffic operations;
- Allows for center medians or raised buffers;
- Avoids utility impacts;
- Avoids requiring new maintenance equipment; and
- Avoids complex reconfiguration of University Drive signal operations.

Potential roadway concepts evaluated through the criteria included the following:

- Two-way Class IV (cycletrack) on east side;
- Two-way Class IV (cycletrack) on west side;
- Class I (multi-use path) on east side;
- Class I (multi-use path) on west side;
- One-way Class IV (cycletrack) on both sides; and
- Class II (on-street bike lanes) with median (similar to Michelson Drive).

Utilizing the criteria, the concepts were narrowed to four (4) cross-section alternatives for subsequent public review and are shown in Attachment B – Cross Section Alternatives. The four alternatives included:

1. Alternative 1: 2-Way Class IV (Cycletrack) -West Side
    a. Provides a 12′ wide two-way cycletrack with a 4′ landscaped median on the west side of the roadway. Provides one 11′ vehicle travel lane and parking is available on both sides of the roadway. Includes a 10′ middle two-way turn lane.

2. Alternative 2: 2-Way Class IV (Cycletrack) -West Side Hybrid
    a. Provides a 12′ wide two-way cycletrack with a 4′ landscaped median on the west side of the roadway. Provides one 12′ vehicle travel lane and 6′ buffered Class II bike lane in each direction. Parking is available only on the east side of the roadway.
3. Alternative 3: 1-Way Class IV (Cycletrack)
    a. Provides a 7′ one-way cycletrack, 5′ landscaped median, and one 12′ vehicle travel lane in both directions. Parking is available on both sides of the roadway.
4. Alternative 4: Class II Buffered Bike Lanes and Widened Shared Use Path
    a. A 6′ Class II bike lane, 3′ buffer, and 12′ vehicle travel lane is provided in each direction. A 14′ median runs along the center of the roadway.

1. Preferred Project

Based on public feedback, Alternative 3, a one-way Class IV (cycletrack), was identified as the most desired Project cross-section. The public's support for the one-way Class IV (cycletrack) concept was documented during the second community workshop, where potential cross-sections were presented, and during the second public survey, where participants were asked to identify and rank the Project alternatives. The public's endorsement of Alternative 3 was further demonstrated through a Southern California Association of Governments (SCAG) *Go Human* demonstration event. One-way Class IV (cycletracks) were temporarily installed between Michelson Drive and Royce Road with materials from the SCAG *Go Human* Kit of Parts. This event provided an opportunity for the public to experience the Alternative 3 concept firsthand and provide immediate feedback. Alternative 3 was further refined with more design features in the finalized concept.

The preferred Project concept includes:

- One-way Class IV (cycletracks) on each side of the roadway that are 6 to 7-feet wide with raised landscaped/concrete buffers.
- New and modified pavement delineation (striping) and signage.
- Parking and passenger loading/unloading zones adjacent to the landscaped/concrete buffers between north end of Yale Avenue and the community paseo approximately 700 feet south of Michelson Drive. Approximately 46 vehicles could park south of Michelson Drive and 19 could park north of Michelson Drive after implementation of the Project.
- Reduced crossing distances for pedestrians at all intersections and the paseo (via the Class IV cycletrack buffers).
- High-visibility crosswalk markings, advanced yield lines, pedestrian refuge islands (via the Class IV cycletrack buffers), and installation of a Rectangular Rapid Flashing Beacons (RRFB) traffic control device at the paseo approximately 700 feet south of Michelson Drive.
- Traffic signal modifications for bicycle operations and green crossbike paint at the Yale Avenue and University Drive intersection. Additional improvements at the Yale Avenue and University Drive intersection include modification to the southwest corner guard rail for a widened and upgraded ADA curb ramp within City ROW.
- Additional streetlights throughout the Project area.
- New sidewalk, curb, and gutter at north end of Yale Avenue to connect to the pedestrian and bicycle I-405 overcrossing.

The proposed Project recommends modification to the traffic signal operations to provide a dedicated phase to allow bicyclists and pedestrians to cross University and for northbound cyclists to access the cycletrack. The traffic signal modifications are included in the cost estimates for the project and the operations have been reviewed assuming the signal phasing operations which is not forecast to cause deficient level of service operations.

The preferred Project improvements are located within the existing City owned ROW and will have minimal impacts on existing landscaping and sidewalks. Project benefits include but are not limited to a reduction in roadway collisions; diversified travel options; enhanced connections to the City's off-street trail network; reduced air, noise, and stormwater pollution; reduced motorist speeding behavior, and community-building and increased quality of life with recreational facilities.

Figure 5 —Bicyclists riding in the temporary Class IV cycletrack on Yale Avenue during the SCAG Go Human Demonstration Event on August 26th, 2023

2. Alternatives Withdrawn from Consideration

The first online public survey was open from October 4th, 2022 to November 4th, 2022 which identified the following improvements as most effective in encouraging walking and biking along the Project Corridor:

1. Enhanced bicycle/pedestrian separation from moving cars
2. Improved crossings at existing intersections
3. Wider bike lanes
4. Slower vehicle speeds

On October 22nd, 2022, a Project workshop was held in-person at the University Community Center in Irvine. Approximately 50 attendees attended. From the engagement at the public workshop, the Project Team identified the following considerations for the corridor;

- Enhanced bicycle/pedestrian separation from moving cars
- Support improved crossings at existing intersections
- Slower motor vehicle speeds
- Suggestions for a center median
- Additional pedestrian crossings
    - Particularly at Yale Avenue and Royce Road intersection and at paseo north of Tamarack Way where there is no marked crossing or pedestrian curb ramps

In December 2022, the following concepts were evaluated for consideration in the development of Project alternatives:

- Two-way Class IV (cycletrack) on east side;
- Two-way Class IV (cycletrack) on west side;
- Class I (multi-use path) on east side;
- Class I (multi-use path) on west side;
- One-way Class IV (cycletrack) on both sides; and
- Class II (on-street bike lanes) with median (similar to Michelson Drive).

The initial scoring identified the top three concepts as the two-way cycletrack on the west side, two-way cycletrack on the east side, and the one-way cycletrack on both sides of Yale Avenue. Four cross-section alternatives were developed based on this initial evaluation of concepts. Feedback was sought on the cross-section alternatives in the second public survey that was open from March 8th, 2023 to April 7th, 2023. Table 8 below details the results of the survey when respondents were asked for their first and second choice cross-section alternative:

Table 8 - Survey Results for Preferred Cross-Section Alternatives

Cross-Section Alternative	1st Choice for % of Respondents	2nd Choice for % of Respondents
Alternative 3 (One-Way Cycletrack)	30%	33%
Alternative 4 (Buffered Bike Lanes and Widened Shared Use Path)	28%	17%
Alternative 1 (Two-Way Cycletrack-West Side)	23%	29%
Existing Conditions	13%	9%
Alternative 2 (Two-Way Cycletrack- West Side Hybrid)	6%	13%

Alternatives 1, 2, and 4 were removed from consideration following strong support for Alternative 3 from the public and City staff.

3. No Project Alternative

In the No Project alternative, no improvements are proposed along the Yale Avenue corridor. Consequently, the Yale Avenue corridor would remain a wide roadway without the benefit of enhancing bicyclist and pedestrian mobility and safety that support the City's goal of GHG reductions and potential management of travel speeds.

4. Project Phasing

Implementation of the Project would be carried out in a single project phase.

B. Material Alternatives and Restrictions

The Project implementation will include construction of two one-way Class IV cycletracks and two raised buffers. Cycletrack construction would consist of concrete, asphalt concrete, and aggregates for base materials as available to the City.

The Project team has also identified and analyzed landscaped and hardscaped options for the proposed raised buffers. Selected materials will be identified during the Plan, Specification, and Estimate (PS&E) phase and will be indicated on the Project construction plans.

C. Non-Standard Design Features / Variances

The Project concept includes variances from the City Standard Plans with vehicle travel lane widths and parking lane widths.

The Class IV separated cycletrack may be the first facility of its kind within the City, subject to other parallel City efforts, that requires a deviation from the current City standards or minimum requirements. Standard Plan 104 note 9 from the City Standard Plans states each parallel parking space shall have a minimum dimension of 8 feet wide by 22 feet long and shall be in accordance with the zoning ordinance section 4-4-1 A.5. The Project concept proposes 7-foot

wide parking along a landscaped buffer, consistent with the National City Transportation Officials (NACTO) Urban Street Design Guide which recommends parking stalls be 7-9 feet wide. The City Signing and Striping Guidelines also call for 13-foot travel lanes next to raised medians, while the project proposes 11-foot-wide travel lanes. Caltrans Design Information Bulletin 94 (DIB 94) provides justification for the concept travel lane widths in *Table 5.3 Suggested Minimum Lane Widths by Place Type and Proposed Operating Speed*. As the Project is in a suburban area and has posted speed limits of 40-45 miles per hour, DIB 94 recommends 11 to 12-foot vehicle travel lane widths.

D. Utilities

Table 9 identifies the companies and agencies who own utilities within or near the study limits.

Table 9—Yale Avenue Utility Inventory

Company	Utility Equipment	Required Relocations
AT&T Distribution	• Buried, conduit, building, and underground substructures	No
COX Communications	• Underground 2" Conduit	No
Irvine Ranch Water District	• 12" RCP Sewer • 8" Water Line • 6" ACP RW • 4" Service Line RW	Potential
Municipal Water District of Orange County	• 12" ACP water main • 54" inside-diameter welded-steel East Orange County Feeder No. 2 and accompanying manhole structures, air-release-vacuum-valve structure • 40' wide permanent easement right-of-way	Potential
Southern California Edison	• UG Conductor 0-750V	No
Southern California Gas Company	• 8" HSL 35-20-4 • 3" PA	No

1. Determination of Prior Rights

Prior rights have yet to be confirmed but will be identified in the Caltrans B-letters process via coordination with the identified utility companies in the Project area. Through this process the utilities companies will provide their rights within the roadway.

From a review of received As-Builts and GIS maps, it can be assumed that AT&T Distribution, COX Communications, Irvine Ranch Water District, Southern California Edison, and Southern California Gas Company have a franchise agreement with the City as they all have infrastructure within the roadway and/or sidewalk of Yale Avenue. Metropolitan Water District (MWD) is assumed to pre-exist the roadway and appears to have permanent right-of-way 20 feet to either side of the 55-inch pipeline. It is assumed at this point that they have prior rights and would likely be the City's liability for any potential cost for adjustments.

2. Required Relocations

The Project utility mapping analysis revealed challenges in accurately determining the locations of various utilities but relocations of all utilities were determined to be unlikely. Continued utility coordination will be necessary during the Project's preliminary engineering phase. The telecommunications GIS maps did not provide accurate alignments for manholes or pull boxes so aerial imagery and site visit review was utilized to identify their locations. Additionally, most utilities lack elevation details, except for the water lines. The available information suggests that the water lines were placed approximately 10 feet below elevation.

Anticipated conflicts which are likely to require relocations within the study area include water valve covers in the proposed landscaped/concrete buffers and Class IV cycletracks. The water lines located 10 feet under the surface and running parallel to the buffers are unlikely to require relocation and instead may constrain the types and placements of plants within the proposed landscaped/concrete buffers.

E. Drainage

The Project proposes two total Filterra treatments at the storm drain inlets on the west and east sides of Yale Avenue near the University Drive intersection.

F. Landscaping & Irrigation

The Project will incorporate plant selections harmonizing with the surrounding landscape areas and adhere to the guidelines outlined in the City Landscape Manual and Standard Plans. The Project irrigation strategy will prioritize water efficiency, employing techniques such as bubblers and drip irrigation systems detailed in the City Landscape Manual and Standard Plans.

G. Traffic Signal Improvements

The proposed Project recommends modification to the traffic signal operations to provide a dedicated phase to stop motor vehicle traffic and allow bicyclists and pedestrians to cross University and for northbound cyclists to access the cycletrack. The traffic signal modifications are included in the cost estimates for the project and the operations have been reviewed assuming the signal phasing operations which is not forecast to cause deficient level of service operations.

H. Conformance with General Plan and Zoning Code Standards

The Project is in conformance with the following objectives from the City's General Plan:

Element B Circulation

Objective B-3 addresses multi-modal goals by finding policies that support a pedestrian circulation system to support and encourage walking as a mode of transportation.

Element K Parks and Recreation

Objective K-3 aims to establish parks and recreation facilities with safe and easy access via policy (c), which uses the adopted 2017 Parks Master Plan to locate parks adjacent to public shared-use paths in an effort to connect parks to nearby paths for enhanced connectivity.

In addition to conformance with the City's General Plan, the Project was identified in the City's SATP as a potential opportunity to support mobility for bicyclists by implementing a Class IV cycletrack.

The Project also supports regional bicycle planning efforts which include OC Active, Orange County Transportation Agency's (OCTA) 2022 Long-Range Transportation Plan, and the 2016 OC Foothills Bikeways Strategy. The Project will connect to the existing bikeways on University Drive that are part of Corridor J, the Jeffrey Corridor of the OC Foothills Bikeways Strategy. When completed, Corridor J will provide over nine (9) miles of connected Class I and Class II bikeways.

I. Inter-Agency Considerations

The City is the lead agency for the Project. Inter-agency coordination has been ongoing throughout the Project planning process with OC Parks, Orange County Fire Authority (OCFA), and Irvine Police Department. OC Parks manages William R. Mason Regional Park which is adjacent to the Project area and located south of University Drive. The Project team has consulted with OCFA on allowable roadway design and with OC Parks related to potential habitat impacts in the regional park.

The following utility companies have infrastructure within the Project area where continued coordination will be needed; AT&T Distribution, Cox Communications, Irvine Ranch Water District, Municipal Water District of Orange County, Southern California Edison, and Southern California Gas Company.

J. Project Schedule

The Project's planning phase concluded in Summer 2024. The Project engineering phase is expected to begin in Fall 2024 and be completed within one (1) to two (2) years and one (1) additional year for Project construction.

K. Project Costs

The estimate cost of construction of the Project, based on 30% concept plans, is $7,865,000. Components of the Project cost include the construction of curb ramps, sidewalk, bike paths, landscaping, drainage, RRFB, traffic signal modification, and street lighting. A detailed construction cost estimate is provided in Attachment D- Engineering Cost Estimate. The total project cost is estimated to be $9,440,000, which includes the following project phases - preliminary engineering, final design, construction, construction engineering and other supporting costs, as detailed in Table 10.

Table 10 - Summary of Project Costs

Phase	Assumptions	Amount
Preliminary Engineering and Environmental Document	Completed	$325,000
Final Design and Right of Way Engineering and Administration	Includes contingency and management estimate	$500,000
Construction	Includes 25% contingency	$7,865,000
Construction Engineering and Administration	Includes contingency and management estimate	$573,000
Other Costs	Administration Costs	$177,000
	Total - All Phases	**$9,440,000**

VII. Agreements/Permits

The following coordination, agreements, and permit approvals will be required prior to commencement of project construction:

A. Utilities

Utility notification letters were sent to utility companies identified by the Dig Alert website for the study area. Continued coordination with the following companies will be required to confirm the locations, extents, and costs of necessary relocations:

- AT&T Distribution
- COX Communications
- Irvine Ranch Water District
- Municipal Water District of Orange County
- Southern California Gas Company
- Southern California Edison

B. Inter-Agency

OC Parks; Review of proposed improvements within City ROW along Yale Avenue and at the Yale Avenue and University Drive intersection.

OCTA; Review of proposed improvements within City ROW along Yale Avenue as it relates to the MPAH.

C. Intra-Agency

City of Irvine – California Environmental Quality Act Clearance documents; Approval of construction bid documents.

VIII. Right-of-Way

A. Existing ROW

The existing ROW is 91-feet wide along Yale Avenue within the project limit. The proposed Project improvements are to be implemented within the existing 64-foot curb-to-curb width within the existing City owned ROW. The improvements will have minimal changes to existing landscaping and sidewalks. Yale Avenue's existing roadway configuration is as follows:

- 5-foot sidewalk on the west side of the roadway.
- 4-foot landscaped area on the west side of the roadway.
- One 8-foot Class II bike lane.
- Two 24-foot motor vehicle travel lanes.
- One 8-foot Class II bike lane.

- 11-foot landscaped area on the east side of the roadway.
- 9-foot sidewalk on the east side of the roadway.

B. Constraints

William R. Mason Park

William R. Mason Park, located south of the University Drive and Yale Avenue intersection, is maintained by OC Parks and is an environmentally sensitive area. As an environmentally sensitive area, there are constraints on allowable development at the Yale Avenue and University Drive intersection. While an additional crossing on the east leg would benefit bicycle and pedestrian access to and from the University Trail, the nearby environmentally sensitive OC Parks land limits the development of a direct north-south crosswalk. Modification of the OC Parks managed area would impact protected habitat and require notable landform modifications that could also affect the creek flowlines. The existing University Drive and Yale Avenue intersection only provides crosswalks on the north and west legs of the intersection and therefore does not provide direct pedestrian and bicycle connectivity to the east side of Yale Avenue.

To address this constraint, the Project proposes providing a diagonal crossbike through the intersection. The Project improvements will accomplish greater bicycle access to and from the University trail and William R. Mason Park and support the implementation of one-way Class IV cycletracks.

University Park Homeowner's Association (HOA)

The University Park HOA owns the ROW adjacent to the roadway between University Drive and Michelson Drive as well as the community paseos. The Project's enhancements will not encroach on the HOA's ROW.

C. Proposed ROW

The Project improvements are planned within the existing City owned ROW. No additional ROW is proposed.

IX. Environmental Clearance

The proposed improvements will not create additional travel lanes and instead will include one-way Class IV bicycle facilities and pedestrian crossings that qualify for both a California Environmental Quality Act (CEQA) Class 1 Categorical Exemption (per Section 15301 of the CEQA Guidelines), the California Public Resources Code (PRC) 21080.25, as well as a Statutory Exemption under Senate Bill (SB) 922. The City is preparing a Notice of Exemption per the statutory exemption identified in PRC 21080.25.

The Project is statutorily exempt from a Water Quality Management Plan (WQMP) as the Project would reduce overall impervious areas in the study area. Despite this, a WQMP was prepared before the notice of the statutory exemption. The WQMP found that the post-Project conditions will increase the pervious roadway area to a total of 0.79 acres.

A biological study for the Project area was conducted which resulted in the following findings and recommendations:

- Due to the nature of the Project activities, no impacts are anticipated on special-status species, and existing landscaped and ornamental habitat on-site will be protected to the greatest extent possible through implementation of measure BIO - 1.
- Project activities should be conducted outside of the nesting bird season if feasibly possible as per measure BIO - 2.
- If the Project must occur during the nesting season (February 1–September 15), then preconstruction nesting bird surveys should be conducted by a qualified biologist as described in measure BIO - 3.
- In order to prevent the proliferation and spread of noxious, invasive weed species, all construction equipment, associated tools, and personnel footwear should be thoroughly washed before arriving on-site, as stated in measure BIO - 4.

A cultural study was conducted for the Project area. No archaeological resources were identified in the Project area and the potential for the Project to encounter or affect subsurface cultural materials during construction and its excavations is low. Additionally, no historic resources exist within or directly adjacent to the Project limits. The University Park neighborhood is not locally designated or identified as a potential historic district in the City of Irvine's General Plan. Therefore, the Project area contains no historical resources under CEQA. The Project does not have the potential to cause significant adverse impacts on historical resources under CEQA.

An Initial Site Assessment (ISA) was performed with the purpose to review, evaluate, and document present and past land uses and practices, and visually examine Project area conditions to identify recognized environmental conditions (RECs). A REC is defined as the presence or likely presence of any hazardous substances or petroleum hydrocarbons on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum hydrocarbons into structures or into the ground, groundwater, or surface water of the Project area. The REC term does not include de minimis conditions that generally do not present a threat to human health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. The ISA assessment did not reveal any RECs in connection with the proposed Project area.

X. Public Involvement/Hearing Process

The Project engagement, which included Phase I, Phase II, and the *Go Human* demonstration event, identified a variety of challenges and concerns as well as improvements.

Phase I included the following activities:

- Three (3) meetings at Rancho San Joaquin Middle School
  - School District meeting – August 26th, 2022
  - Executive Board Parent Teacher's Association – October 4th, 2022
  - Associated Study Body meeting – October 4th, 2022
- One (1) stakeholder meeting
  - In-Person Meeting – October 12th, 2022
- Five (5) Community Homeowner Association (HOA) meetings
  - Parkcrest HOA – October 6th, 2022
  - Parkside HOA – October 11th, 2022
  - University HOA – October 12th, 2022
  - The Terrace HOA – October 25th, 2022
  - Village Park – November 2nd, 2022
- One (1) in-person public workshop
  - October 22nd, 2022
- One (1) online survey
  - Via Mentimeter - October 4th, 2022 to November 4th, 2022
- Digital and print promotion of the Project

Phase II included the following activities:

- One (1) stakeholder meeting
  - Virtual Meeting – March 7th 2023
- One (1) virtual public workshop
  - Zoom Workshop – March 8th, 2023
- One (1) presentation at Rancho San Joaquin Middle School
  - Parent Teacher Association Presentation – March 16th, 2023
- Two (2) Community Homeowner Association (HOA) meetings
  - Parkside HOA – February 28th, 2023
  - Village Park HOA – March 30th, 2023
- One (1) online survey
  - Via Mentimeter – March 8th, 2023 to April 7th, 2023
- Digital and print promotion of the Project

- One (1) SCAG *Go Human* Demonstration event on August 26, 2023, which included the following:
    - Demonstration of separated one-way Class IV cycletrack
    - Community engagement hubs at Royce Road and University Drive
    - Digital and print promotion of the Go Human Demonstration event

Tribal consultation pursuant to Assembly Bill 52 is not required for the Project because the project is statutorily exempt from the requirement to comply with CEQA. The construction will be minor and will occur within the confines of the existing roadway.

The Project engagement was critical for guiding the vision for Yale Avenue and advancing the Project from its initial identification in the City's 2020 SATP. The engagement feedback will continue to be instrumental in the development of the Project through engineering and design. From Phase I, Phase II, and the *Go Human* demonstration event, the following Project priorities were identified:

- Incorporate physical separation between transportation modes, most especially between vehicles and bicyclists and bicyclists and pedestrians, through the construction of one-way Class IV cycletracks.
- Promote traffic calming through travel lane narrowing and other engineering and signage measures.
- Install crosswalks and other pedestrian crossing enhancements at the community paseos and at Royce Road.
- Install crossing enhancements at the existing crosswalks at Michelson Drive and University Drive.
- Consider parking and/or loading spaces near RSJMS that support student pick-up and drop-off as well as parking lot overflow during special events.
- Balance muti-modal travel needs and the community desire to maintain limited parking on Yale Avenue.

XI. Other Considerations

A. Impacts on Non-Motorized Transportation and Pedestrian Modes

During construction, modifications between existing curbs along Yale Avenue between the I-405 bridge and University Drive may require temporary impacts to bicycle and pedestrian routes within the study area. Detour routes will be accessible and clearly signed to direct bicyclists and pedestrians around the construction areas. The Project's one-way Class IV facilities will ultimately improve active transportation roadway user mobility and safety due to the physical separation between vehicles.

B. Prolonged Temporary Road and/or Ramp Closure

Construction of the proposed improvements will not require prolonged temporary road closures. To minimize construction impacts to local circulation, measures will be taken to minimize street/lane closures and detours, particularly during weekday rush hours and RSJMS related loading activity. Traffic control/detour plans will be prepared for necessary closures using approved City of Irvine traffic control guidelines.

C. Hazardous Waste or Material

Within the Project area, there is record of one site with recognized environmental conditions (REC). In May 1997, the Irvine Ranch Water District reported a release of 9,000 gallons of reclaimed water to the Orange County Emergency Management Division. Reportedly, a line broke on the customers side of a meter due to new installation of a gate valve. The reclaimed water flowed down the road into San Diego Creek down to Newport Back Bay. Based on this information, this listing does not represent a recognized environmental condition to the Project.

The following precautionary recommendation is provided in the event of unknown or suspect materials are encountered during construction:

<u>General Site Disturbance Activities</u>

If unknown wastes or suspect materials are discovered during construction by the contractor, which they believe may involve hazardous waste/materials, the contractor shall:

- Immediately stop work in the vicinity of the suspected contaminant, removing workers and the public from the area;
- Notify the City of Irvine Director of Public Works;
- Secure the areas as directed by the City;
- Notify the implementing agency's Hazardous Waste/Materials Coordinator; and
- Perform remedial activities as required under existing regulatory agency standards.

D. Wetland and Floodplain

The Project area lies on the Orange County Coastal Plain approximately 114 feet above mean sea level. The Orange County Basin is bounded to the north by the Puente and Chino Hills, to the east by the Santa Ana Mountains, to the south by the San Joaquin Hills, and to the southwest by the Pacific Ocean (DWR, 2003).

The Orange County basin underlies the lower Santa Ana River watershed and is characterized by a deep structural alluvial basin containing a thick accumulation of interbedded sand, silt and clay. The Irvine subbasin, bounded by the Santa Ana Mountains and the San Joaquin Hills, forms the southern-most portion of the basin. Irvine area aquifers are thinner and contain

greater percentages of clay and silt deposits than aquifers in the main portion of the basin (DWR, 2003).

The nearest groundwater monitoring well is located approximately 1,800 feet southeast of the Project area and the average depth-to-groundwater during the June 2023 groundwater event was approximately 48 feet below the top of well casing, with general groundwater flow direction to the northwest (Geotracker Global ID T0605900193).

According to the 2004 Preliminary Digital Geologic Map of the Santa Ana 30' x 50' Quadrangle, Southern California, version 2.0 compiled by Douglas M. Morton, subsurface materials at the Project area are primarily Marine deposits which in part are overlain by local, mostly alluvial fan, deposits. A concealed fault is depicted in the northern portion of the Project area.

As presented in the Environmental Data Resources (EDR) Radius map report, the Project area surface soil (to a depth of 22 inches) is a sandy loam, with very slow infiltration rates, which is underlain by a sandy clay/sandy clay loam. The soil has a high corrosion potential for uncoated steel.

E. Roadway Reconstruction, Restoration, Pavement Rehabilitation

The existing pavement along Yale Avenue is in very good condition and shows minimal signs of wear throughout the study limits. The City of Irvine prepared a Pavement Management Plan in 2023 which identified Yale Avenue with a Pavement Condition Index (PCI) ranging from 85 to 100 within the Project limits. The construction of the proposed roadway improvements will also be with materials consistent with the standard City requirements and shall be identified during the PS&E phase of the Project.

F. Bus and Emergency Lanes

The Project will not include bus or emergency lanes but through coordination with the OCFA, the Project design will provide facilities that accommodate emergency vehicles.

G. Interim Features

No interim improvements are proposed.

H. Traffic Management Plan

A Traffic Management Plan (TMP) will be prepared for approval by the City of Irvine prior to the commencement of construction activities. The TMP will describe necessary detours, emergency routes, and other measures to provide congestion relief and safety during short-term construction activities. Construction staging should be developed to minimize traffic impacts with considerations for phased implementation. Local residents and RSJMS stakeholders will be consulted in the development of construction staging and the TMP to best reflect school-

related traffic and activities and to maintain access to the residential communities directly adjacent to Yale Avenue. Detour routes for pass through traffic shall be identified where appropriate. The TMP will meet City of Irvine traffic control guidelines.

I. Biological Requirements

No materials or equipment shall be placed on the dirt or vegetation adjacent to the developed portions of the Project area (i.e., outside of the existing concrete footprint). Work should occur outside of nesting bird season which occurs annually between February 15th and September 15th. Should work be required during nesting bird season, pre-disturbance avian nesting surveys must be conducted by a qualified biologist. Survey reports shall be furnished to OC Parks upon request. If nests or nesting behaviors are identified, the biologist shall notify the OC Parks Natural Resources Program Coordinator within 24 hours with a report summarizing survey findings. The biologist shall establish appropriate no-work buffers, and the City shall be solely responsible for complying with all federal, state, and local laws.

To prevent invasive weed seed spread, vehicles, equipment, tools, and personnel footwear shall be cleaned before each entrance onto the Project site.

XII. Recommendations

After extensive community and stakeholder engagement and close collaboration between City and Mark Thomas staff, the Project team recommends Alternative 3 (Class IV Separated Bikeway/Cycletrack) with the following improvements be advanced for final design and implementation:

<u>Bicycle Enhancements</u>

- Separated, one-way Class IV cycletracks along both sides of Yale Avenue from the southern boundary at University Drive to the north terminus that connects to the I-405 pedestrian and bicycle bridge.
- Intersection improvements at Yale Avenue and University Drive which include a diagonal bicycle crossing with green markings.
- Intersection improvements at Yale Avenue and Royce Road which include green conflict paint

Pedestrian Enhancements

- Crossing enhancements at the community paseos.
- High-visibility crosswalk markings, advanced yield lines, pedestrian refuges (via the Class IV cycletrack buffers), and installation of an RRFB are likely to be recommended by the City at the paseos.
- Crossing enhancements including an upgraded ADA ramp at the southwest corner of Yale Avenue and University Drive intersection.

RECOMMENDED BY:

Melissa Dugan
Project Development Administrator
City of Irvine

Paul Martin, PE, TE
Project Manager
Mark Thomas

MARK THOMAS

Attachment A – Engineering Concepts

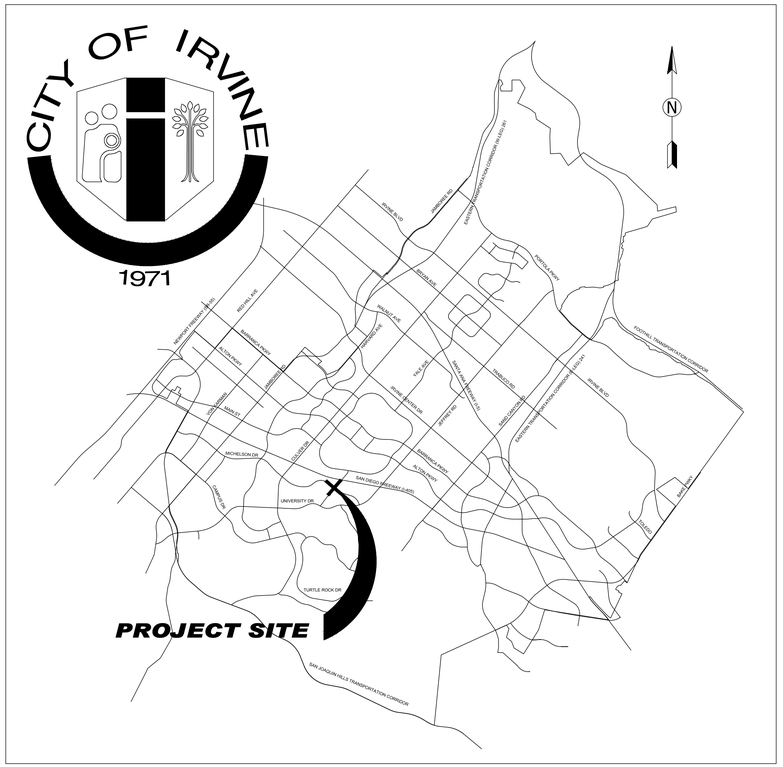
CONSTRUCTION PLANS FOR THE IMPROVEMENT OF

SOUTH YALE CORRIDOR IMPROVEMENTS

CIP# 312204

INDEX OF DRAWINGS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2-3	TYPICAL SECTIONS
4-5	LAYOUT



VICINITY MAP

NOT TO SCALE

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TOLL FREE 1-800-227-2600

Underground Service Alert of Southern California

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CITY APPROVAL:

30% CONCEPT PLANS

NO.	DATE	REVISIONS	ENGR.	APPROV.	DATE
7					
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PLAN PREPARED BY:
MARK THOMAS
MARK THOMAS & COMPANY
2121 ALTON PARKWAY, SUITE 210
IRVINE, CA 92606

DESIGN ENGINEER R.C.E. No. DATE

		DATE
DRAWN BY:	T. MIYATA	2/20/2024
DESIGNED BY:	T. MIYATA	2/20/2024
CHECKED BY:	A. SILVA	2/20/2024
RECOMMENDED BY:		DATE

APPROVED BY:
CITY ENGINEER

STEVEN CARRILLO R.C.E. NO. 73170 DATE

IRVINE RANCH WATER DISTRICT
APPROVED OF DOMESTIC WATER, SANITARY SEWER & RECYCLED WATER FACILITIES IRWD CODE 7969, PROJECT NUMBER 311611

APPROVED BY: DATE
SUPERVISED BY: DATE
REVIEWED BY: DATE

SOUTH YALE
CORRIDOR IMPROVMENTS

TITLE SHEET

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

PLAN CHECK NO. X
CIP NO. 312204
PROJECT NO. X
SHEET 1 OF 5

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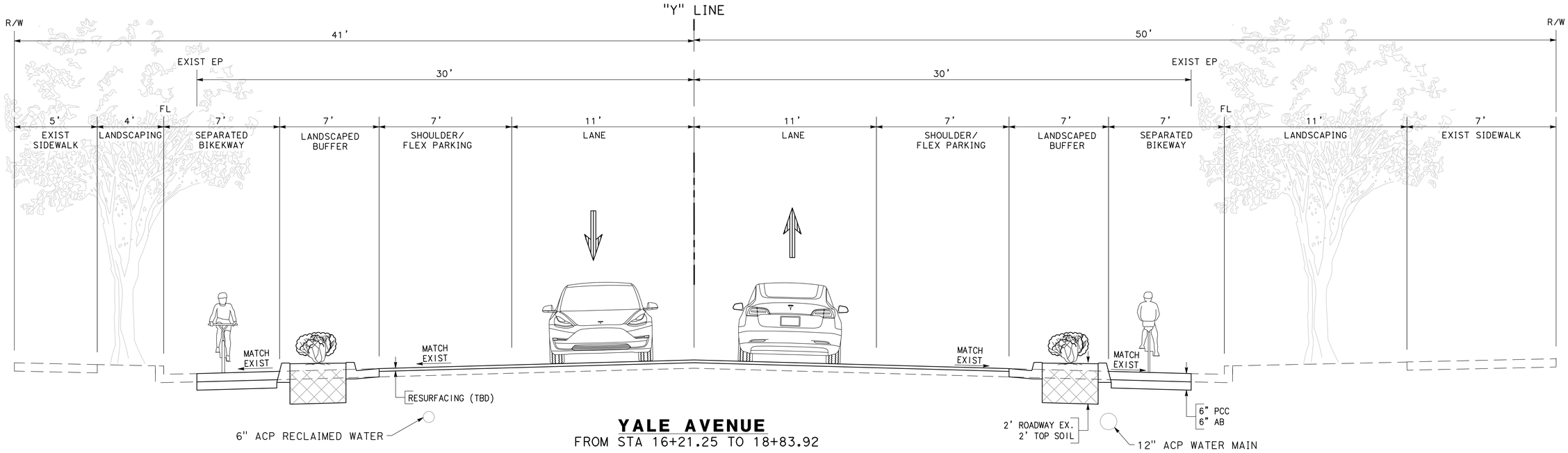

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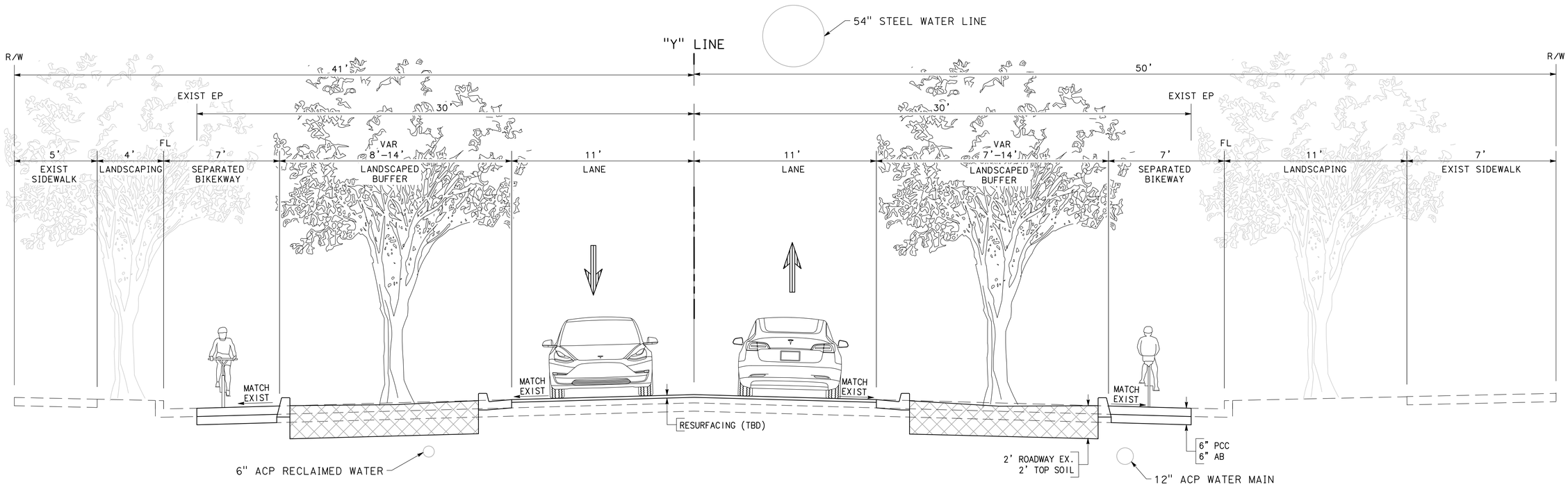

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CHECKED BY: A. SILVA — DATE 2/20/2024

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MARK THOMAS & COMPANY
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IRVINE, CA 92606

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TRAFFIC SIGNALS
SOUTH YALE
CORRIDOR IMPROVEMENTS

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

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SHEET 2 OF 5

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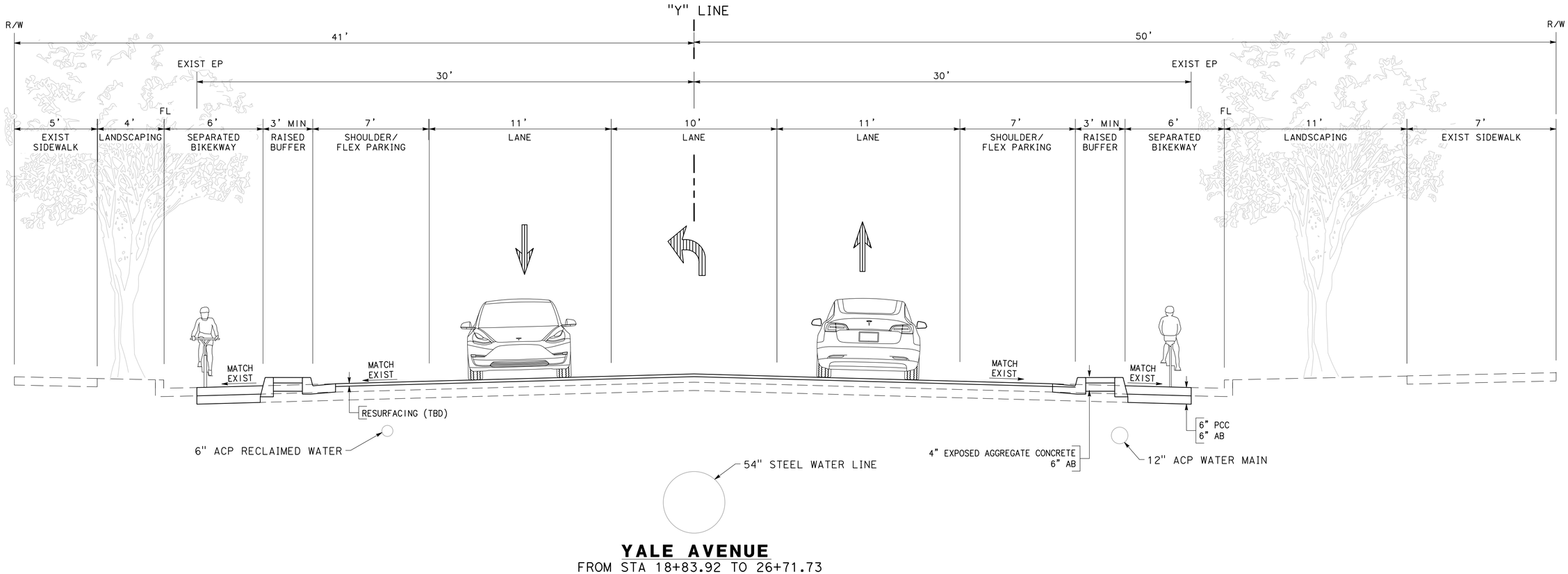

YALE AVENUE

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IRVINE, CA 92606

SOUTH YALE
CORRIDOR IMPROVEMENTS
TYPICAL SECTIONS

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204

SHEET 2 OF 5

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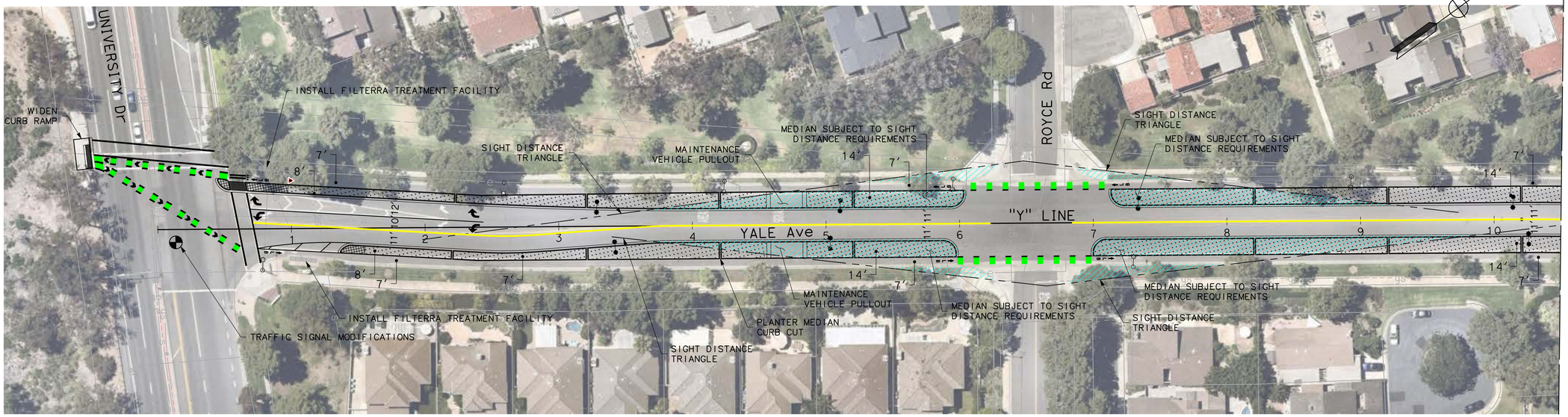
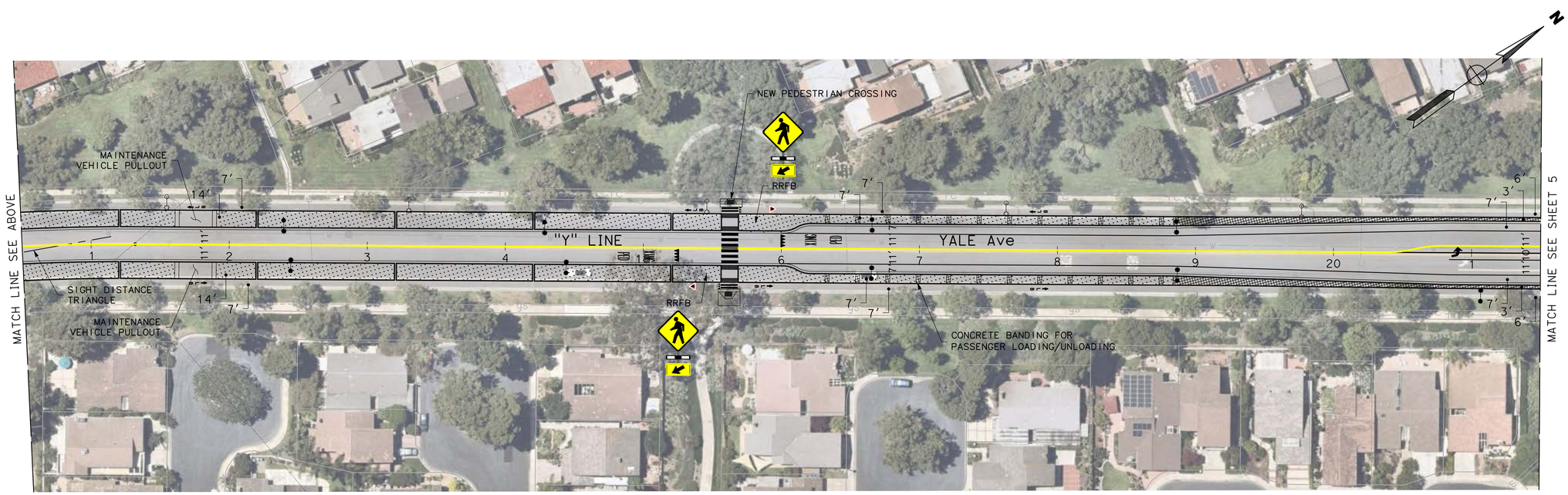
SHEET REVISED: 8/15/07

LEGEND:

EXPOSED AGGREGATE CONCRETE
LANDSCAPE
LIMITED USE AREA
NEW SIDEWALK
NEW ASPHALT
EXISTING STREET LIGHT
PROPOSED STREET LIGHT





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SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204

SHEET 4 OF 5

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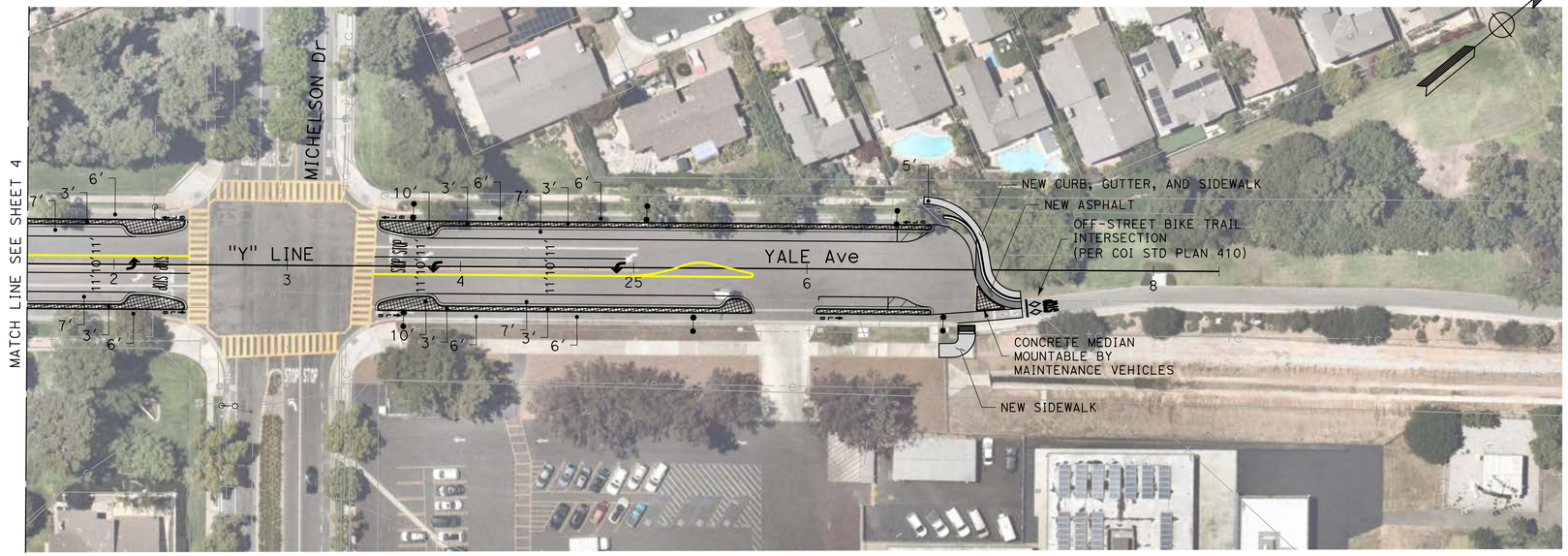

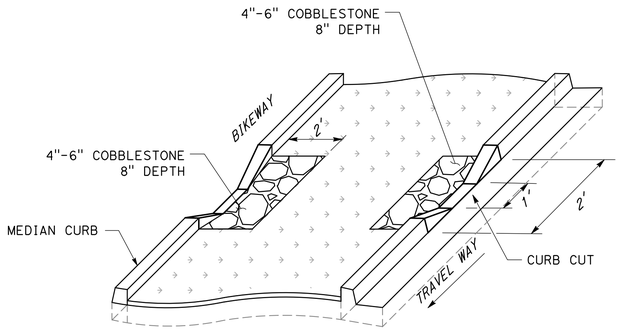

PLANTER MEDIAN CURB CUT AND COBBLESTONE DETAIL

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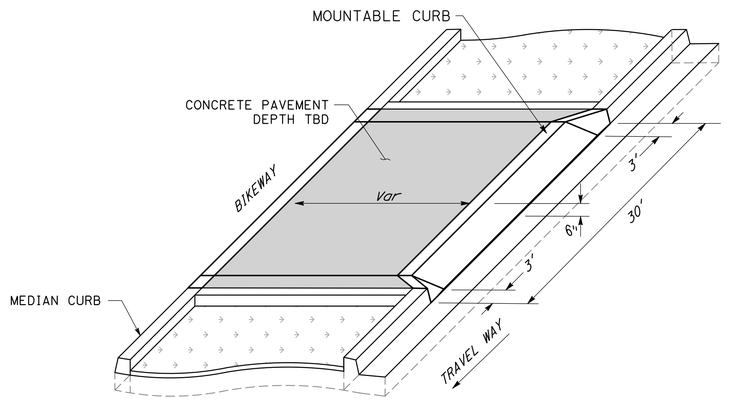

MAINTENANCE VEHICLE PULLOUT

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SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204

SHEET 5 OF 5

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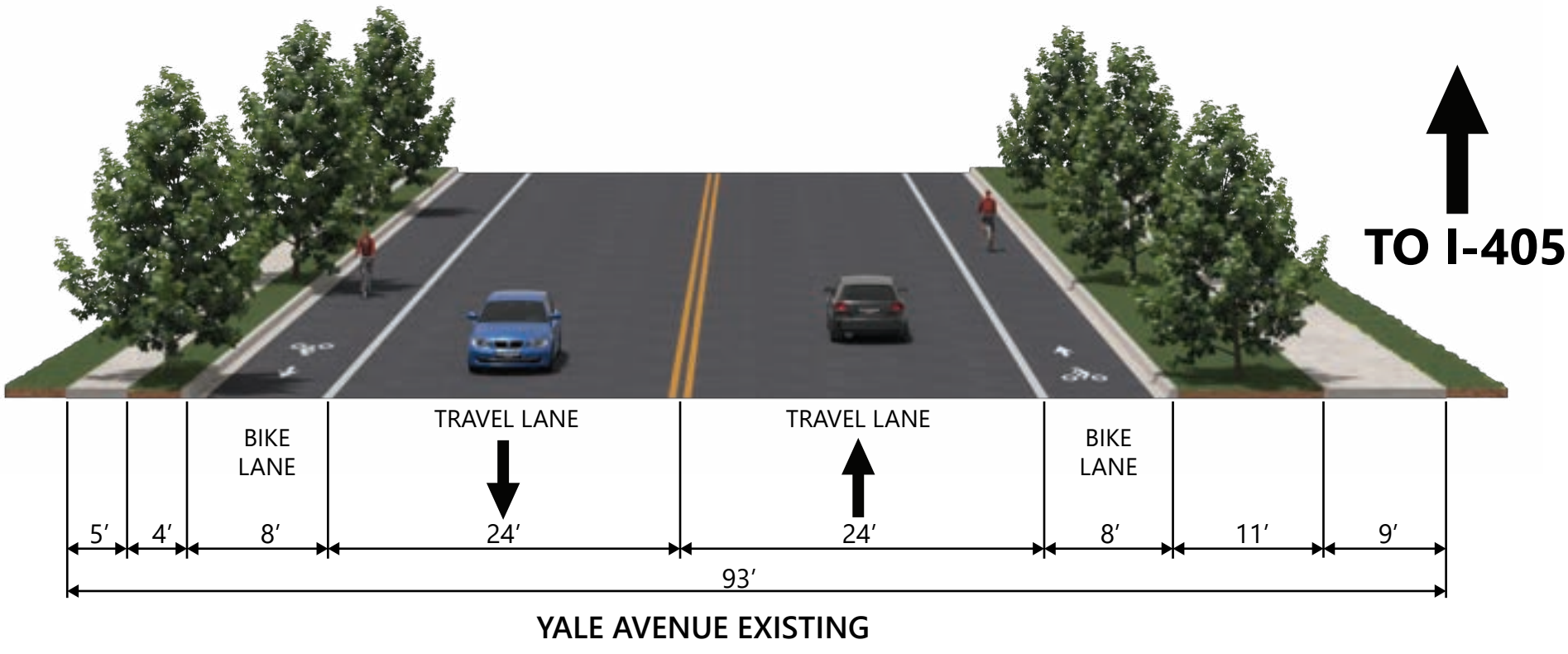
SHEET REVISED: 8/15/07

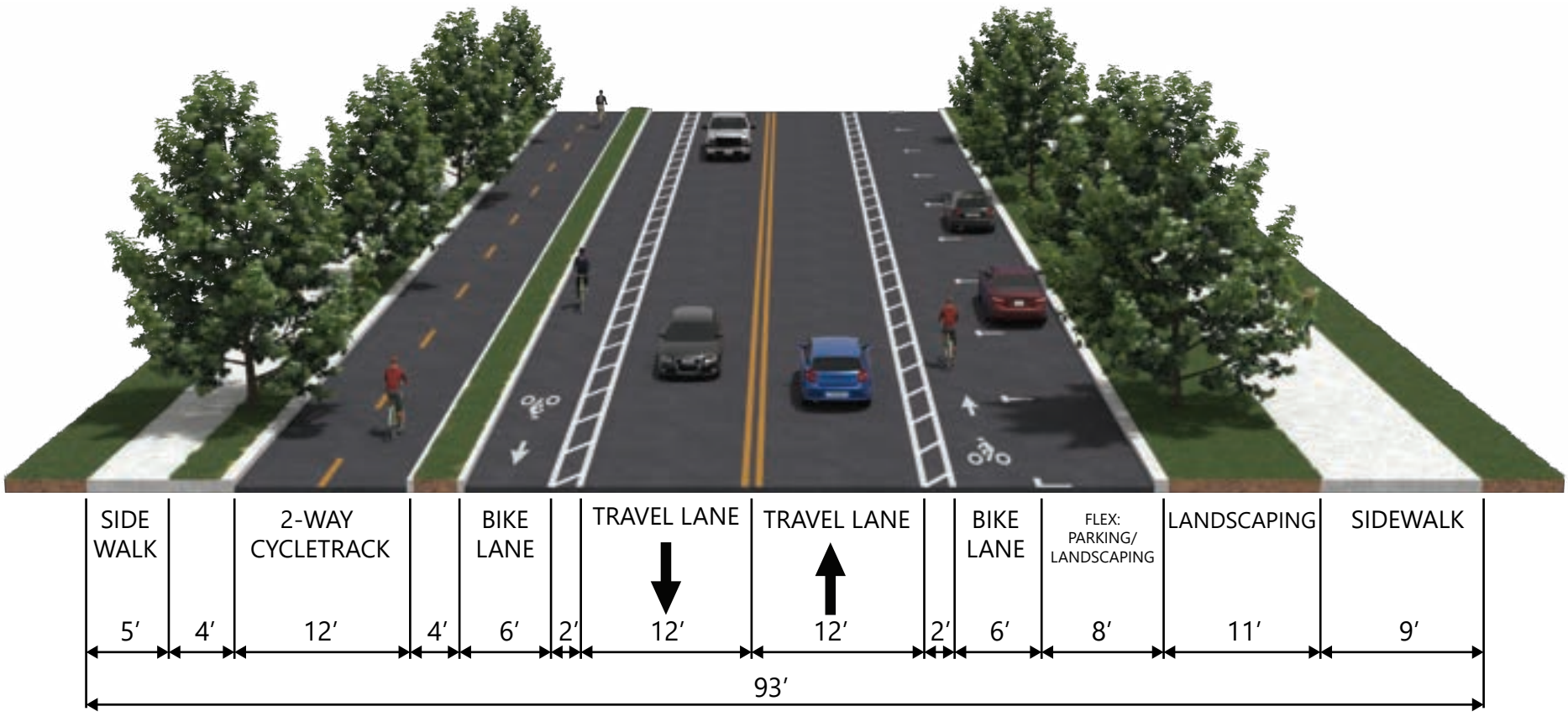
MARK THOMAS

Attachment B – Cross-Section Alternatives

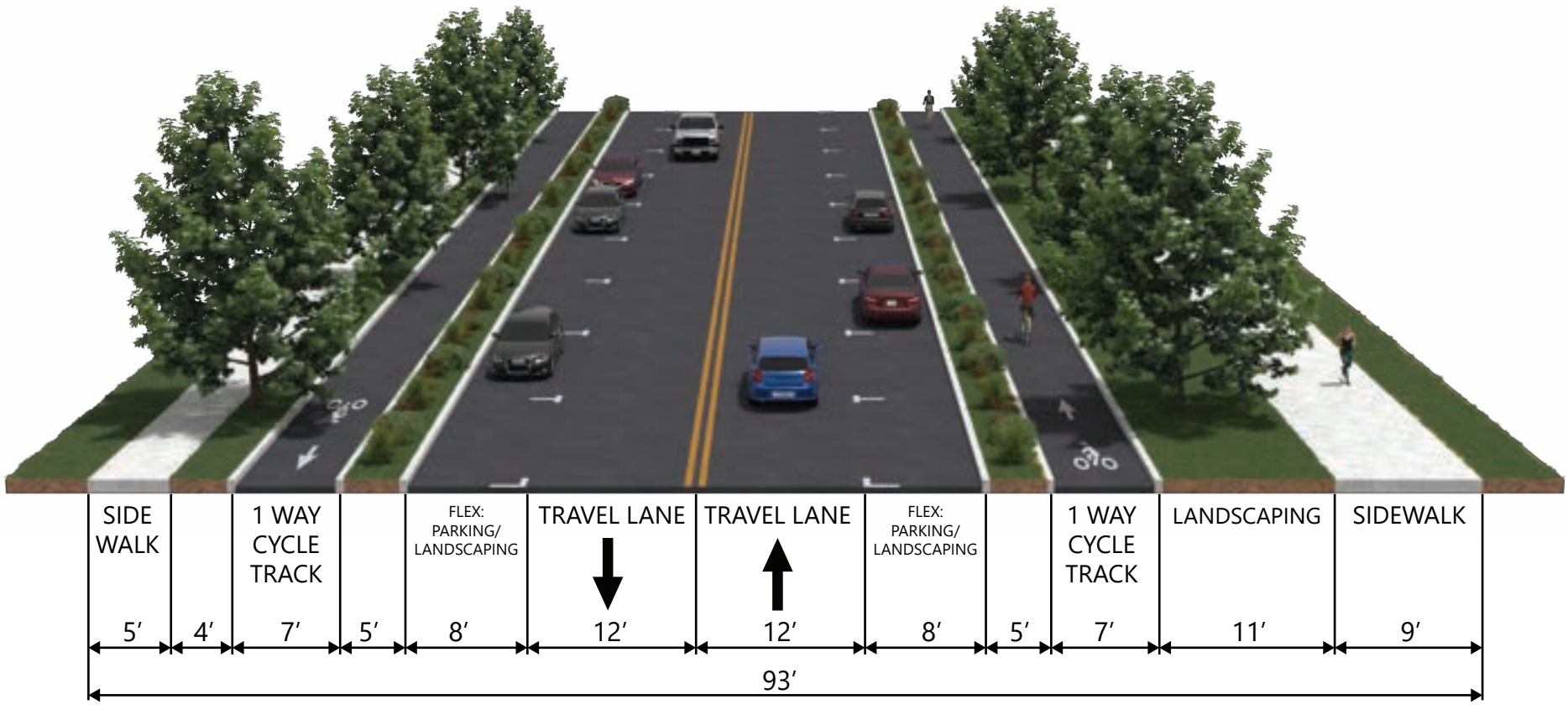


YALE AVENUE EXISTING

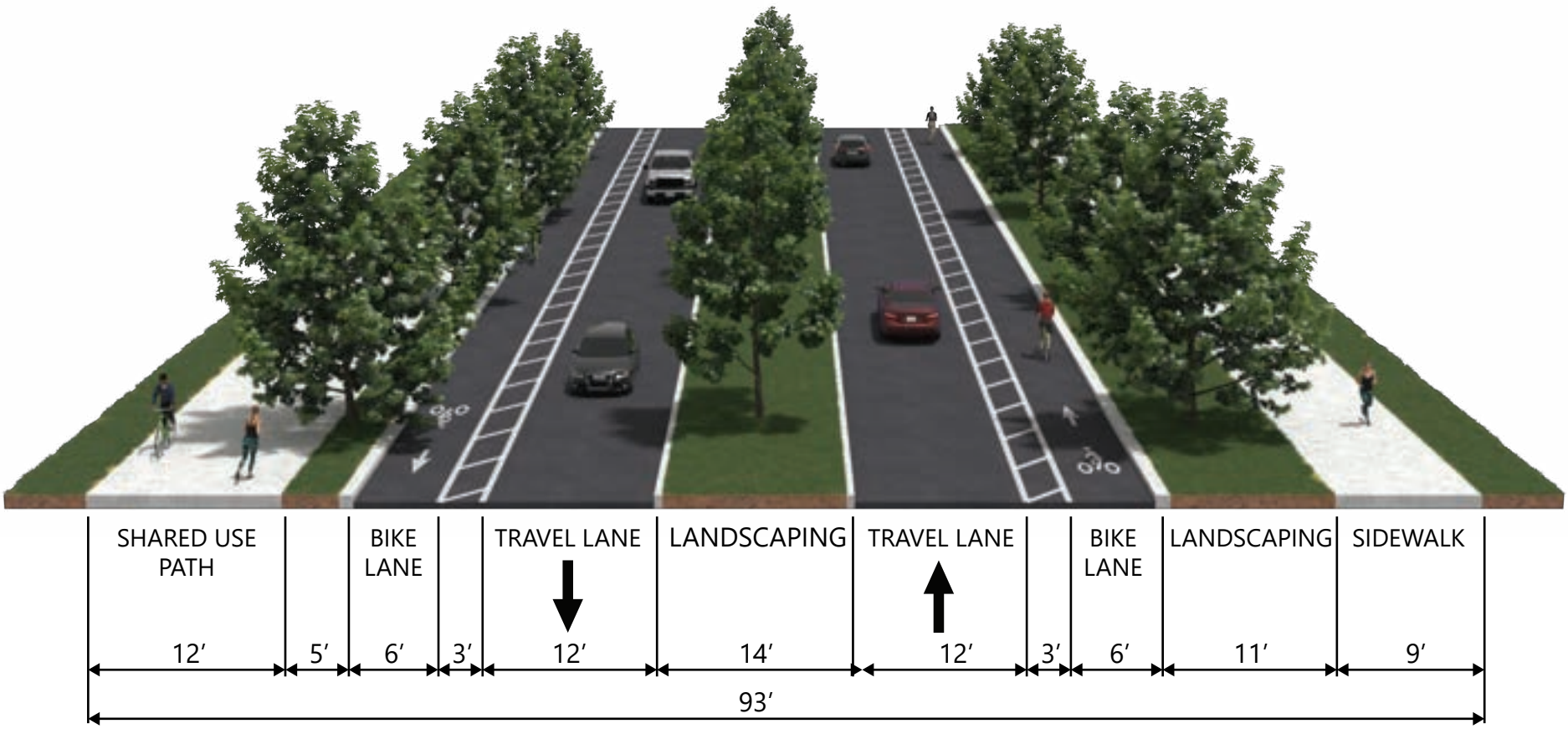
ALTERNATIVE 1: 2-WAY CYCLETRACK - WEST SIDE



ALTERNATIVE 2: 2-WAY CYCLETRACK - WEST SIDE HYBRID



ALTERNATIVE 3: 1-WAY CYCLETRACK



ALTERNATIVE 4: BUFFERED BIKE LANES AND WIDENED SHARED USE PATH

Attachment C – Utility Maps

LEGEND:

TEXTURED CONCRETE

LANDSCAPE

EXISTING STREET LIGHT

PROPOSED STREET LIGHT

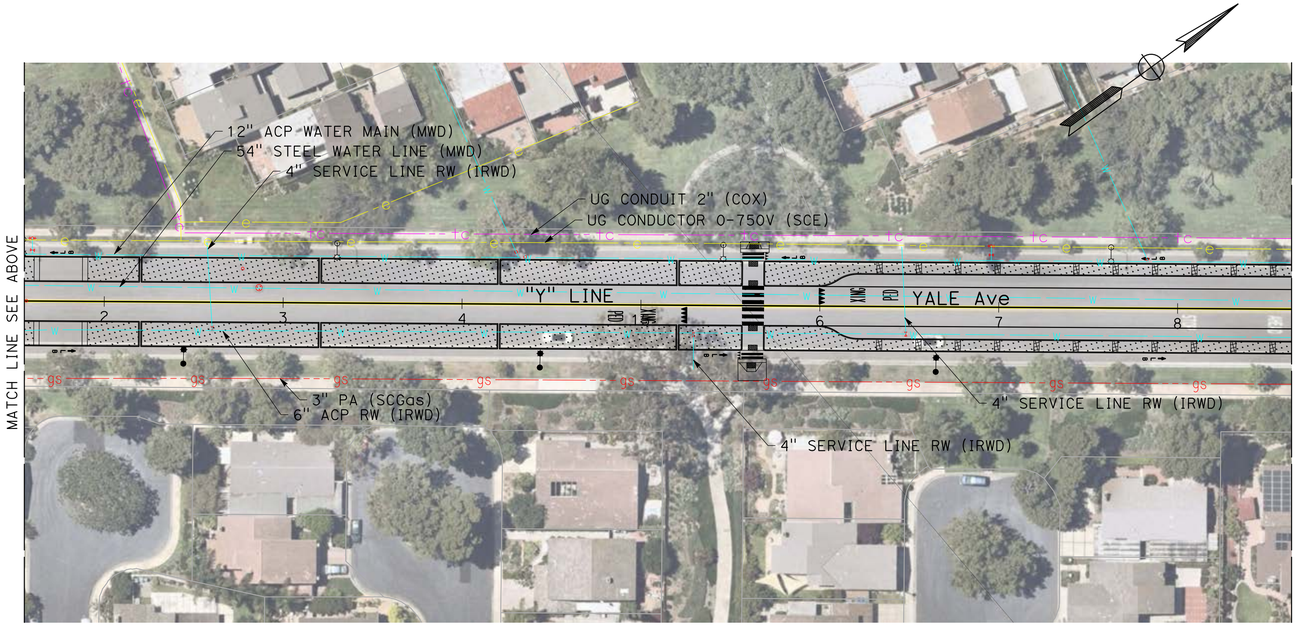
WATER

SEWER

GAS

TELECOM

ELECTRIC



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DRAWN BY: S. STRAUB DATE 12/26/2023

DESIGNED BY: S. STRAUB DATE 12/26/2023

CHECKED BY: A. SILVA DATE 12/26/2023

REGISTERED PROFESSIONAL ENGINEER — PATRICIA H. SOMERVILLE No. C91559 Exp. 09/30/25 CIVIL — STATE OF CALIFORNIA

PLAN PREPARED BY:
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MARK THOMAS & COMPANY
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IRVINE, CA 92606

DESIGN ENGINEER R.C.E. No. DATE

SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204

SHEET 4 OF 5

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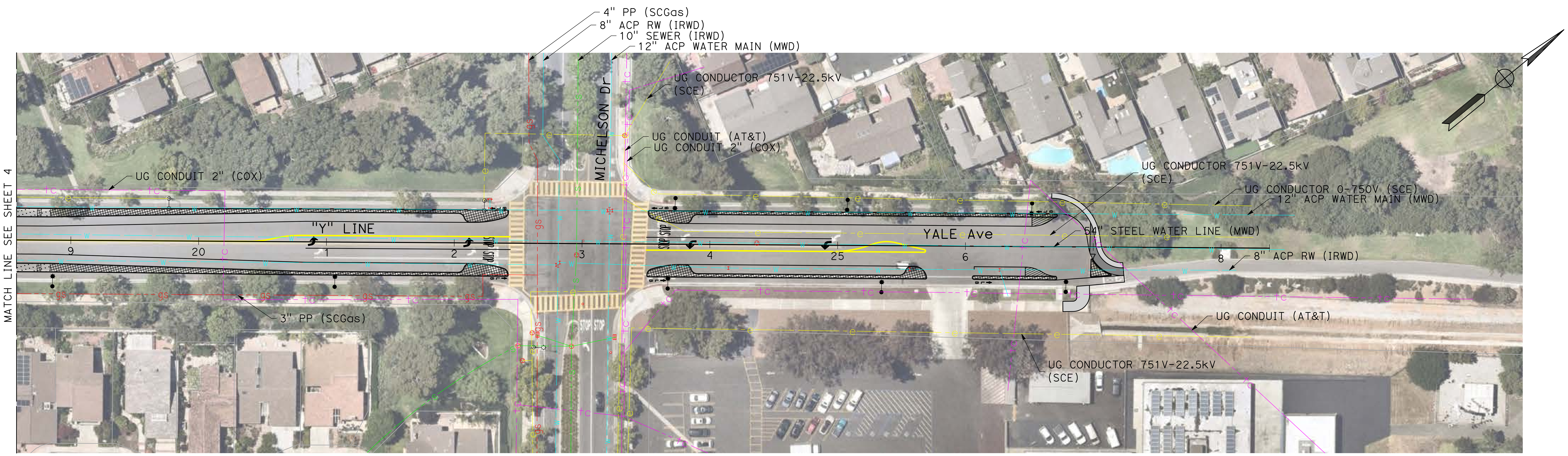

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DRAWN BY: S. STRAUB — DATE 12/26/2023
DESIGNED BY: S. STRAUB — DATE 12/26/2023
CHECKED BY: A. SILVA — DATE 12/26/2023

REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

PLAN PREPARED BY:
MARK THOMAS
MARK THOMAS & COMPANY
2121 ALTON PARKWAY, SUITE 210
IRVINE, CA 92606

DESIGN ENGINEER | R.C.E. No. | DATE

SOUTH YALE
CORRIDOR IMPROVEMENTS
LAYOUT

CITY OF IRVINE
PUBLIC WORKS DEPARTMENT

CIP NO. 312204

SHEET 5 OF 5

SHEET REVISED: 8/15/07

MARK THOMAS

Attachment D – Engineering Cost Estimates

South Yale Corridor Improvements

Yale Avenue (University Drive to I-405)

(30% Concept Plans)

MARK THOMAS

ITEM No.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY					
1	Install Concrete - Curb Ramp	EA	3	$ 8,000	$24,000
2	Install Concrete - Curb	LF	9590	$ 30	$287,700
3	Install Concrete - Maintenance	SF	1570	$ 15	$23,550
4	Install Concrete - Sidewalk	SF	1480	$ 15	$22,200
5	Install Concrete - Textured Pavment	SF	6510	$ 25	$162,750
6	Install Concrete - Bike Path	SF	22860	$ 15	$342,900
7	Roadway Excavation	CY	31900	$ 65	$2,073,500
8	Remove Concrete	SF	1200	$ 2	$2,400
9	Hot Mix Asphalt	TON	360	$ 260	$93,600
10	Slurry Seal	SF	104000	$ 0.33	$34,320
11	CL2 Aggregate Base	CY	16000	$ 45	$720,000
12	Signing and Striping	LS	1	$ 33,000	$33,000
13	Landscape, Irrigation, Green Infrastructure	SF	34420	$ 35	$1,204,700
				SUBTOTAL	**$5,024,620**
DRAINAGE					
14	Minor Drainage	EA	2	$ 15,000	$30,000
				SUBTOTAL	**$30,000**
ELECTRICAL					
15	Rapid Rectangular Flashing Beacon System	EA	1	$ 45,000	$45,000
16	Traffic Signal Modification	EA	1	$ 100,000	$100,000
17	Street Lighting	EA	14	$ 20,000	$280,000
18	Cycle Track Lighting	LS	1	$ 240,000	$240,000
				SUBTOTAL	**$665,000**
19	Mobilization (10% of Items 1-18)	LS	1	$ 572,000	$572,000
				CONTINGENCY (25%) *	$1,573,000
				CONSTRUCTION SUBTOTAL	$5,719,620
GRAND TOTAL					
				CONSTRUCTION TOTAL=	**$7,864,620**

* This concept level estimate includes a 25% contingency intended to compensate for the use of preliminary and limited information.

General Note: Where applicable, only minor drainage improvements for transportation projects to address safety are included.

Utility improvements such as water, communication, gas, etc. are not included in these estimates.

MARK THOMAS

Attachment E – Traffic Analysis

City of Irvine

South Yale Corridor Improvements Traffic Analysis

April 12, 2024

Submitted to:

11797.23 | Prepared by **Iteris, Inc.**

Innovating Through Informatics™

DOCUMENT VERSION CONTROL

DOCUMENT NAME	SUBMITTAL DATE	VERSION NO.
Draft 1	May 10, 2023	1.0
Final Draft	February 28, 2024	2.0
Final	April 12, 2024	3.0

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Appendix A – 2022 Traffic Counts

Appendix B – ICU Calculation Sheets

Appendix C – HCM Synchro Worksheets

Appendix D – Traffic Signal Warrants

1 EXECUTIVE SUMMARY

The purpose of this report is to study the traffic impacts of the potential elimination of a future street upgrade of Yale Avenue from an existing two-lane commuter street to a four-lane secondary arterial between Michelson Drive and University Drive. This future reclassification is currently assumed in the City of Irvine's General Plan and OCTA's Master Plan of Arterial Highways (MPAH).

The Irvine Strategic Active Transportation Plan (ISATP) includes analysis of existing conditions and potential barriers to active transportation within the City. The plan identified the South Yale Corridor as a potential active transportation project. Therefore, instead of a street upgrade for vehicular traffic, bicycle and pedestrian friendly street design solutions are under consideration for this roadway segment which would be incompatible with upgrading the street classification.

Traffic counts were collected along Yale Avenue and at the intersections of Yale Avenue and Michelson Drive, Yale Avenue and Royce Road, and Yale Avenue and University Drive in November 2022. In existing conditions all three study area intersections and roadway segments operate at satisfactory levels of service. There are two pairs of Buildout Scenarios with and without the widening to four lanes.

1. **No Future Vehicular crossing of Yale Avenue over I-405** – In this scenario pair the elimination of the future widening Yale Avenue from two-lanes to four-lanes will not result in any deficient level of service at any of the three study intersections or roadway segments. All intersections and arterial segments will continue to operate at satisfactory levels of service.

2. **Future Vehicular crossing of Yale Avenue over I-405** – This is the current General Plan and MPAH scenario. In this scenario pair, in both the four-lane and two-lane scenarios the intersection of Yale Avenue and Michelson Drive would operate and unsatisfactory levels of service with the existing four-way stop control. However, this intersection meets signal warrants based on future peak hour volumes. Based on the assumption that the intersection would be signalized should a vehicular overcrossing of I-405 be implemented, then the intersection would operate at satisfactory levels of service using the ICU methodology.

   The intersection of Yale Avenue and Royce Avenue would operate at unsatisfactory levels of service using the existing two-way stop control configuration. The future volumes at the intersection do not warrant a traffic signal. A four-lane stop controlled analysis was therefore performed as a sensitivity test. Although the overall intersection delay increases with a four-way control the intersection level of service as defined by the approach with maximum delay would improve in both two-lane and four-lane Yale Avenue scenarios. In the case of the four-lane Yale Avenue scenario, the intersection would operate at a satisfactory level of service but with the two-lane stop control (the existing configuration) the level of service would remain unsatisfactory.

- Since the purpose of the study is for the potential removal of the street widening of Yale Avenue, there is no VMT impact under CEQA.

2 INTRODUCTION

The purpose of this report is to study the traffic impacts of the potential elimination of a future street upgrade of Yale Avenue from an existing two-lane commuter street to a four-lane secondary arterial between Michelson Drive and University Drive. This future reclassification is currently assumed in the City of Irvine's General Plan and OCTA's Master Plan of Arterial Highways (MPAH).

The Irvine Strategic Active Transportation Plan (ISATP) includes analysis of existing conditions and potential barriers to active transportation within the City. The plan identified the South Yale Corridor as a potential active transportation project. Therefore, instead of a street upgrade for vehicular traffic, bicycle and pedestrian friendly street design solutions are under consideration for this roadway segment, which would be incompatible with upgrading the street classification.

2.1 Project Description

The study analyses existing traffic conditions and operations as well as four future scenarios as described below. The current Yale Avenue overcrossing of I-405 is for non-vehicular traffic only. As part of the City of Irvine's General Plan and OCTA's MPAH Buildout conditions, a two-lane vehicular overcrossing (OC) of I-405 is assumed to be built. However, since there are currently no plans to build a vehicular OC, traffic analysis was performed with and without the vehicular OC. Future year No Project and With Project scenarios were analyzed using the Irvine Transportation Analysis Model (ITAM). The four future scenarios are:

1. **Buildout Year I-405 Vehicular OC with Four-lane Yale Avenue** – Analyzes the widening of Yale Avenue from a two-lane to a four-lane Secondary arterial between University Drive and Michelson Drive. The I-405 OC along Yale Avenue was modeled as a two-lane Commuter consistent with the current Master Plan of Arterial Highways (MPAH).
2. **Buildout Year I-405 Vehicular OC with Two-lane Yale Avenue** – Analyzes the removal of future street widening of Yale Avenue, keeping Yale Avenue as a two-lane Commuter Street between University Drive and Michelson Drive. The I-405 vehicular OC along Yale Avenue was modeled as a Commuter Street.
3. **Buildout Year No I-405 Vehicular OC with Four-lane Yale Avenue** – Analyzes the widening of Yale Avenue from a two-lane to a four-lane Secondary arterial between University Drive and Michelson Drive consistent with the current Master Plan of Arterial Highway (MPAH). I-405 OC along Yale Avenue will remain as pedestrians and bicycles only.
4. **Buildout Year No I-405 Vehicular OC with Two-lane Yale Avenue** – Analyzes the removal of street widening of Yale Avenue, keeping Yale Avenue two-lane Commuter Street between University Drive and Michelson Drive. I-405 OC along Yale Avenue will remain as pedestrians and bicycles only.

2.2 Project Site

The project study area is Yale Avenue bounded by University Drive (to the south) and the pedestrian and bicycle crossing over Interstate 405 (to the north). Along the roadway, three segments and three intersections were analyzed. The three segments are:

1. Yale Avenue north of Michelson Drive;
2. Yale Avenue between Michelson Drive and Royce Road; and
3. Yale Avenue between Royce Road and University Drive.

The three intersections are:

A. Yale Avenue and Michelson Drive;
B. Yale Avenue and Royce Road; and
C. Yale Avenue and University Drive.

Figure 2-1 illustrates the study area within the City of Irvine boundary and **Figure 2-2** illustrates the project site and the study intersections.

Figure 2-1: Study Area within the City of Irvine

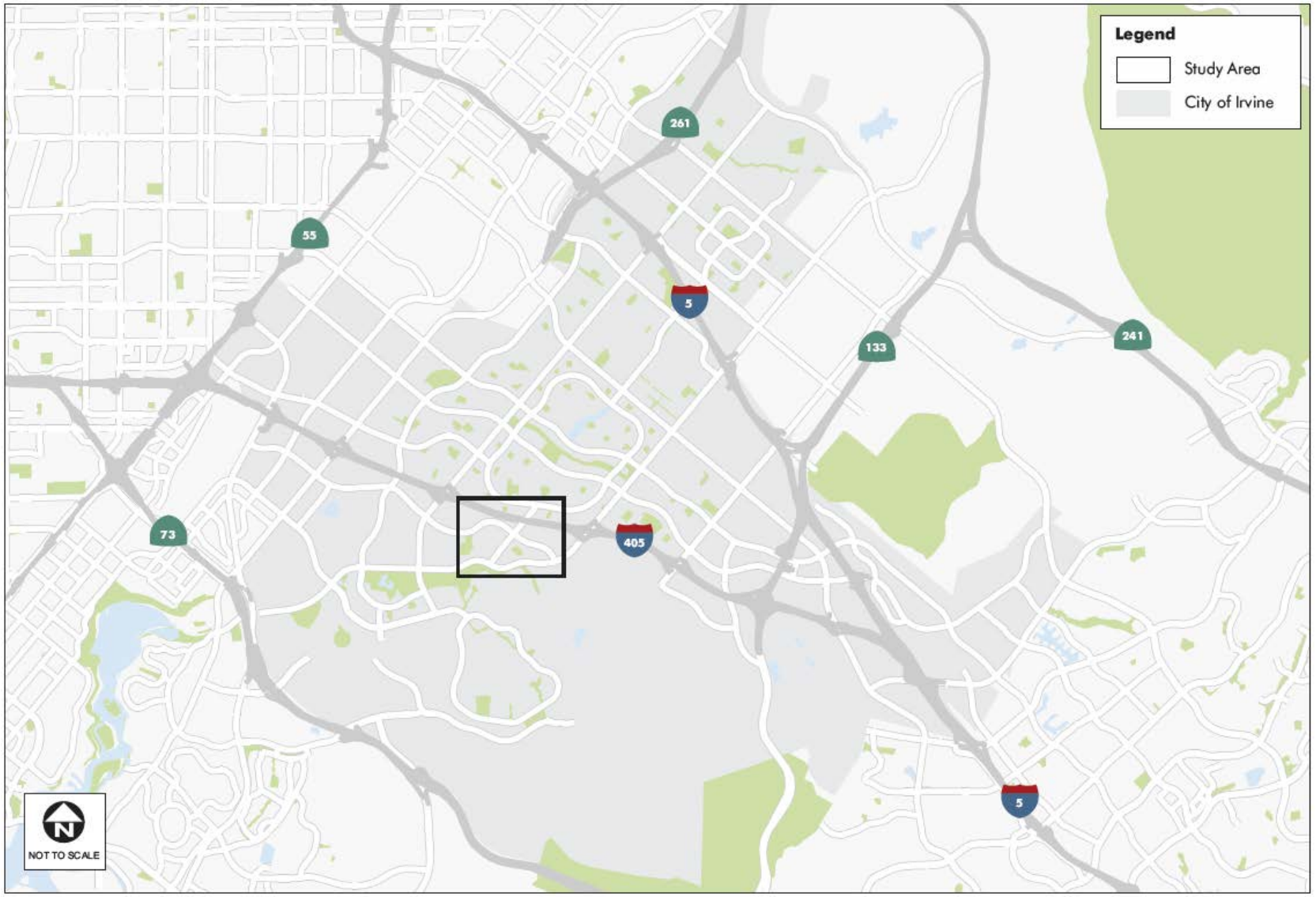
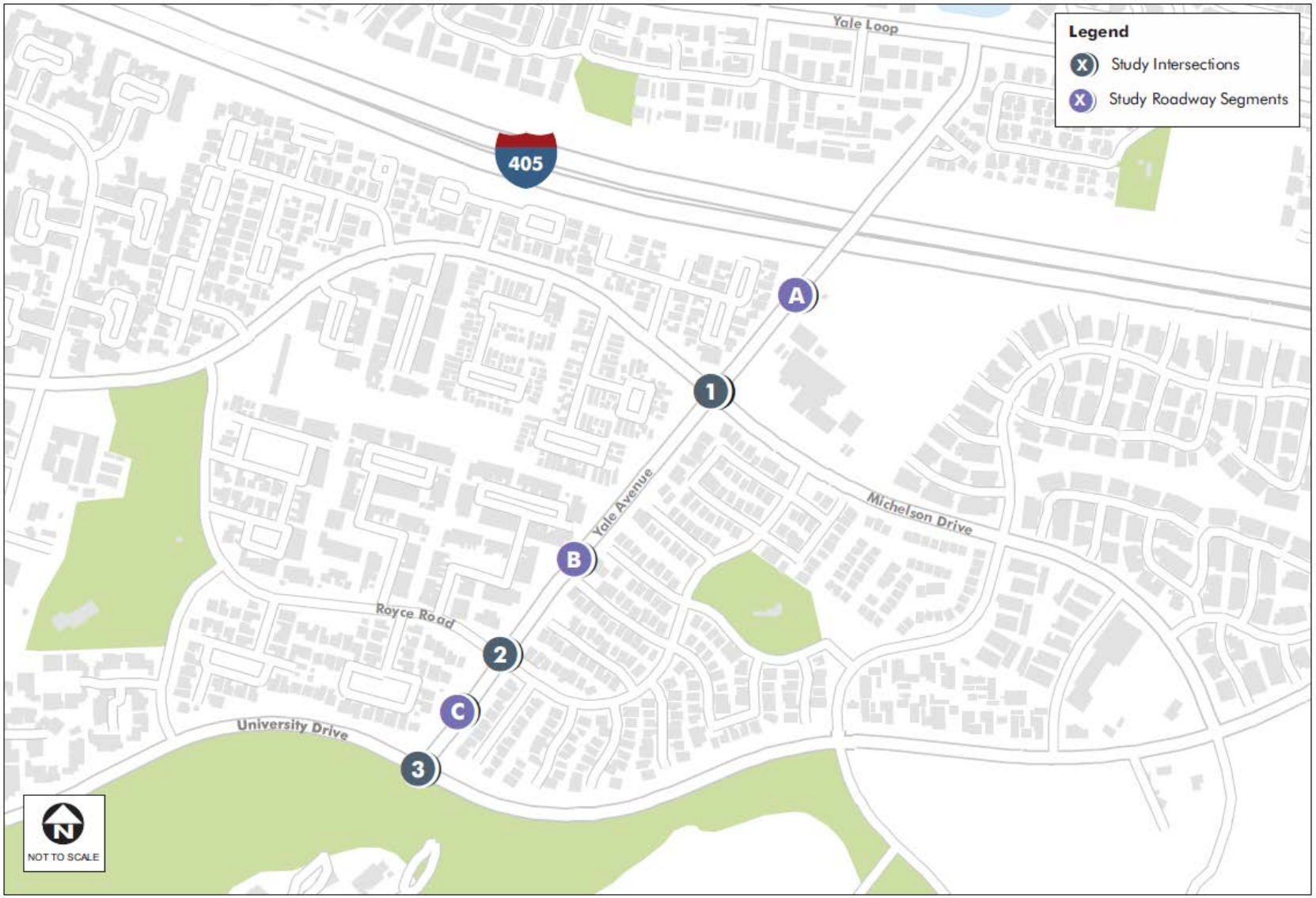


Figure 2-2: South Yale Corridor Project Site



3 INTERSECTION ANALYSIS METHODOLOGY

The City of Irvine uses the Intersection Capacity Utilization (ICU) methodology for the calculation of signalized intersection Level of Service (LOS). The ICU methodology compares the volume-to-capacity (V/C) ratios of conflicting turn movements at an intersection, sums these critical conflicting V/C ratios for each intersection approach, and determines the overall ICU. The resulting ICU is expressed in terms of level of service (LOS), where LOS A represents free-flow activity and LOS F represents overcapacity operation. Parameters set by the City for ICU calculations, including lane capacity, right-turn treatment, and clearance interval are included in the analysis.

LOS definitions for signalized intersections and roadways are provided in **Table 3-1.** LOS E or worse is considered deficient at these locations by the City of Irvine.

Table 3-1: ICU Level of Service Definitions

LOS	Description	ICU
A	At this LOS, traffic volumes are low and speed is not restricted by other vehicles. All signal cycles clear with no vehicles waiting through more than one original cycle.	≤ 0.60
B	At this LOS, traffic volumes begin to be affected by other traffic. Between one and ten percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.61 – 0.70
C	At this LOS, operating speeds and maneuverability are closely controlled by other traffic. Between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.71 – 0.80
D	At this LOS, traffic will operate at tolerable operating speeds, although with restricted maneuverability.	0.81 – 0.90
E	Traffic will experience restricted speeds, vehicles will frequently have to wait through two or more cycles at signalized intersections, and any additional traffic will result in breakdown of the traffic carrying ability of the system.	0.91 – 1.00
F	Long queues of traffic, unstable flow, stoppages of long duration with traffic volumes and traffic, speed can drop to zero. Traffic volumes will be less than the volume which occurs at LOS E.	>1.00

The City of Irvine does not have any criteria for HCM analysis for unsignalized intersections. The unsignalized intersection will be evaluated using the latest Highway Capacity Manual 6th Edition (HCM 6) methodology. The HCM 6 methodology defines LOS by the average vehicle delay experienced by all vehicles traveling through the intersection. Traffic operations analysis for HCM methodologies will be completed using Synchro software.

Table 3-2 presents the average delay associated with each LOS grade as well as a qualitative description of intersection operations at that grade.

Table 3-2: HCM Level of Service Definitions

LOS	Description	Unsignalized Intersection Delay (Seconds)
A	• Free flowing, virtually no delay. • Minimal traffic.	≤ 10.0
B	• Free flow and choice of lanes. • Delays are minimal. • All cars clear intersection easily.	>10.0 – 15.0
C	• Good operation. • Delays starting to become a factor but still within acceptable limits.	>15.0 – 25.0

D	• Approaching unstable flow. • Queues at intersection are quite long but most cars clear intersection on their green signal. • Occasionally, several vehicles must wait for a second green signal. • Congestion is moderate.	>25.0 – 35.0
E	• Severe congestion and delay. • Most of the available capacity is used. • Many cars must wait through a complete signal cycle to clear the intersection.	>35.0 – 50.0
F	• Excessive delay and congestion. • Most cars must wait through more than one on one signal cycle. • Queues are very long, and drivers are obviously irritated.	>50.0

Source: Highway Capacity Manual 6th Edition

The arterial roadway analysis involved the calculation of average daily traffic (ADT) volume-to-capacity (V/C) ratios on study roadway segments. **Table 3-3** summarizes the roadway capacities per the City of Irvine Traffic Study Guidelines 2023 within the study area.

Table 3-3: Roadway Classification and Daily Capacities

Roadway Classification	Number of Lanes	Daily Capacity
Expressway	6 Lanes	135,000
Major Arterial	8 Lanes Divided	72,000
	6 Lanes Divided	54,000
Primary Arterial	4 Lanes Divided	32,000
Secondary Arterial	4 Lanes Undivided	28,000
Commuter	2 Lanes Undivided	13,000

4 EXISTING CONDITIONS

4.1 Existing Corridor Land Uses

The adjacent land use along the South Yale Corridor is primarily residential with Rancho San Joaquin Middle School located in the northeast quadrant of the intersection of Michelson Drive and Yale Avenue.

4.2 Existing Roadways and Intersections

The speed limit on Yale Avenue between Michelson Drive and Royce Road is currently 45 miles per hour (mph) and between Royce Road and University Drive the speed limit is 40 mph. Yale Avenue is a two-lane roadway (one-lane in each direction) with Class II bike lane in each direction. The intersections of Yale Avenue and Michelson Drive (four-way stop-controlled) and Yale Avenue and Royce Road (two-way stop-controlled) are unsignalized. Yale Avenue and University Drive is a signalized intersection.

Figure 4-1 illustrates the land uses within the study area and **Figure 4-2** illustrates the lane configurations for each study intersection.

4.3 Transit Services

The study area is currently served by one bus transit service operated by OCTA, which is Community Route 167 as shown in **Figure 4-3**. This service operates between the Village in the City of Orange and University Center Area in UCI. The route traverses Michelson Drive between University Drive and Culver Drive within the study area. The service operates an hourly service on weekdays only, with 18 buses per day in each direction.

Figure 4-1: South Yale Corridor Land Use

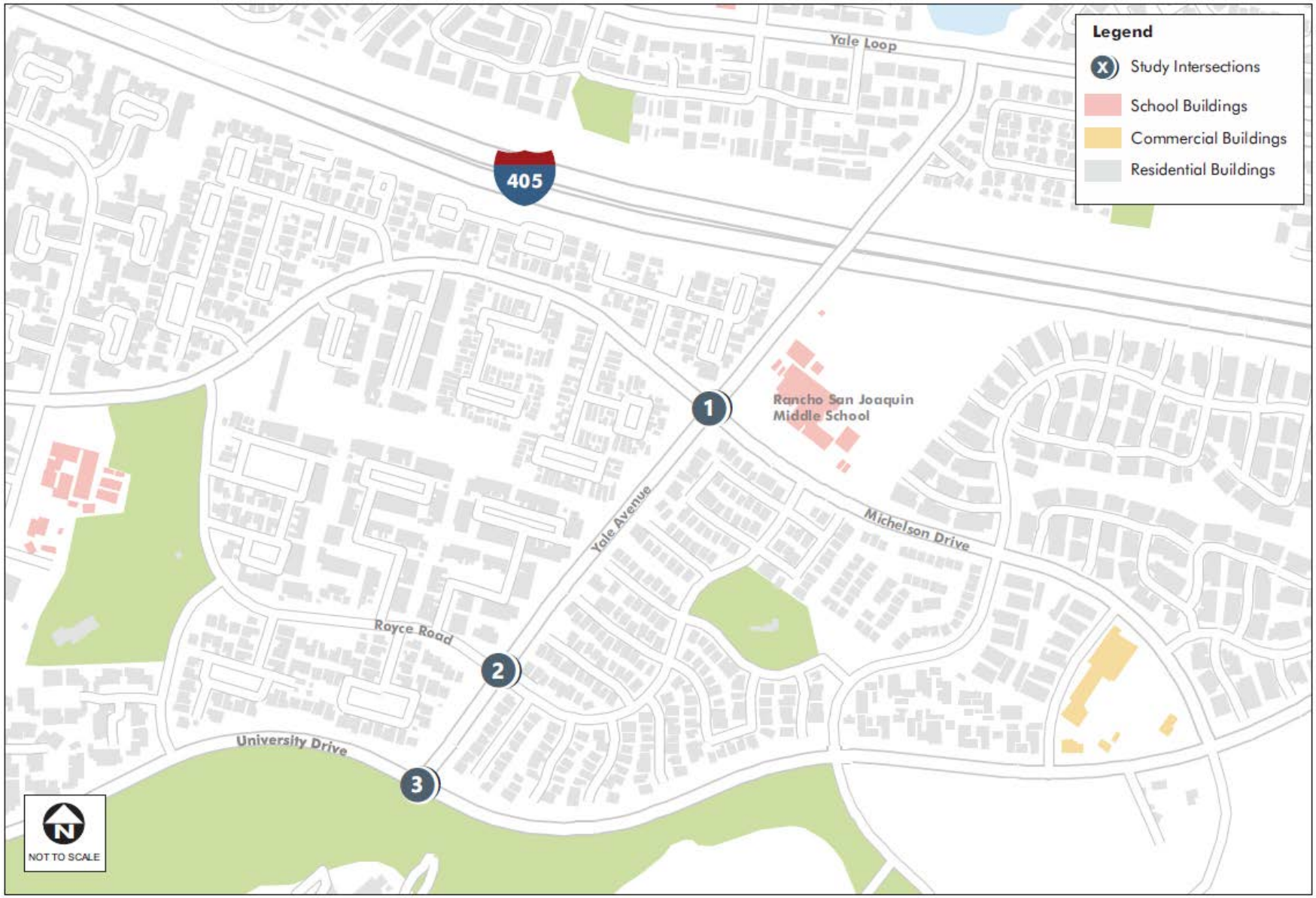
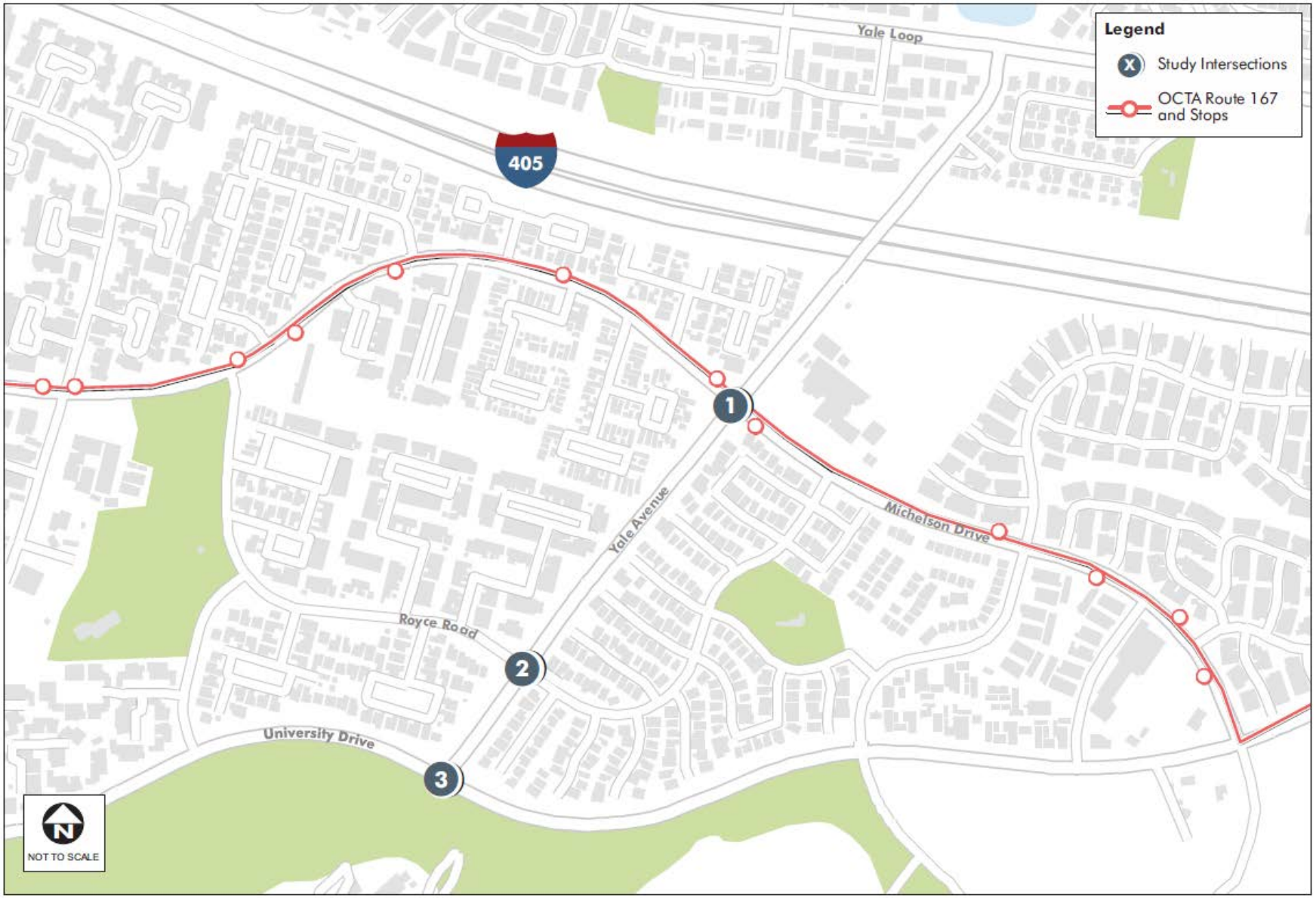


Figure 4-2: Existing Lane Configurations

Figure 4-3: South Yale Corridor Commuter Route 167 Bus Stops



4.4 Existing Traffic Counts

Traffic counts were performed on Tuesday 15th and Wednesday 16th of November 2022. AM and PM peak hour counts were collected between 7:00 AM to 9:00 AM and 2:30 PM to 6:00 PM, respectively, along with arterial average daily traffic (ADT) counts which are provided in **Appendix A**. The two-day weekday counts were averaged as is per City standard practice. PM traffic counts were extended beyond the traditional 4:00 PM to 6:00 PM time period to include the school peak hour at Rancho San Joaquin Middle School.

The Covid-19 pandemic along with the associated lockdowns and remote work requirements has affected traffic patterns and volumes, including shifting traffic to different times of the day. While traffic volumes recovered during 2022 a comparison with available pre-Covid counts was performed to determine the most existing traffic counts to use for the analysis. Year 2018/2019 intersection turning movement counts for two of the three intersection turning movements were available from the ITAM post-processor. **Table 4-1** shows the intersection turning movement count comparison between 2022 and 2018/2019 for the traditional AM and PM peak periods.

In November 2022, the AM peak hour traffic volumes at the intersection of Yale Avenue and Michelson Drive were around 67% higher than pre-Covid conditions, while the evening PM peak hour traffic volumes were around 32% lower than pre-Covid conditions. At the intersection of Yale Avenue and University Drive, the AM peak hour traffic volumes were approximately 32% lower than pre-Covid conditions and 30% lower in the evening PM peak hour.

While the volumes along University Drive are higher in 2018 compared to 2022 this mainly relates to the east-west through movements. At the time of the 2022 count, there was construction on eastbound University Drive near I-405 but since volumes were lower in both eastbound and westbound directions it seems more likely that this is due to a secular reduction in weekday peak hour traffic due to increased working from home. The volumes on Yale Avenue itself are actually higher in 2022 compared to 2018 so it was determined that the year 2022 counts would better reflect current conditions.

Table 4-1: Intersection Turning Movement Count Comparison

Intersection	Peak Hour	Year	Northbound			Southbound			Eastbound			Westbound			Int. Total	LT Total	THRU Total	RT Total
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right				
Yale Avenue and Michelson Drive	AM	2022	13	56	33	21	37	52	65	135	21	88	193	20	732	186	420	126
		2018/2019	10	4	14	5	1	4	7	173	25	16	177	1	437	38	355	44
		Diff	3	52	19	16	36	48	58	-39	-5	72	16	19	295	148	65	82
		% Diff	30%	>100%	>100%	>100%	>100%	>100%	>100%	-22%	-18%	>100%	9%	>100%	67%	>100%	18%	>100%
	PM (4:45 PM)	2022	14	1	57	2	0	3	2	284	7	13	204	1	586	30	489	68
		2018/2019	11	1	58	1	2	2	2	505	15	19	241	2	859	33	749	77
		Diff	3	-1	-1	1	-2	1	-1	-221	-8	-6	-37	-1	-273	-4	-261	-9
		% Diff	23%	-50%	-2%	50%	-100%	50%	-25%	-44%	-53%	-32%	-15%	-50%	-32%	-11%	-35%	-12%
Yale Avenue and University Drive	AM	2022	0	0	0	76	0	104	81	769	0	0	1,319	35	2,382	156	2,088	139
		2018/2019	0	0	0	67	0	119	67	1,278	0	0	1,930	33	3,494	134	3,208	152
		Diff	0	0	0	9	0	-15	14	-509	0	0	-612	2	-1,112	22	-1,121	-14
		% Diff	---	---	---	13%	---	-13%	20%	-40%	---	---	-32%	5%	-32%	16%	-35%	-9%
	PM (4:45 PM)	2022	0	0	0	13	0	21	68	1,416	0	0	1,001	32	2,550	81	2,417	53
		2018/2019	0	0	0	27	0	30	64	2,071	0	0	1,406	37	3,635	91	3,477	67
		Diff	0	0	0	-14	0	-9	4	-656	0	0	-405	-6	-1,086	-11	-1,061	-15
		% Diff	---	---	---	-52%	---	-30%	5%	-32%	---	---	-29%	-15%	-30%	-12%	-31%	-22%

The 2022 ADT counts on the arterial roadways shown in **Table 4-2** indicate that traffic volume on Yale Avenue was higher than pre-Covid volumes.

Table 4-2: Arterial Daily Flow Comparison

#	Segment	Year 2022	Year 2018	% Difference
A	Yale Avenue north of Michelson Drive	540	Not Available	Not Available
B	Yale Avenue between Michelson Drive and Royce Road	1,230	1,130	9%
C	Yale Avenue between Royce Road and University Drive	1,770	1,160	53%

Figure 4-4 illustrates the existing vehicle traffic counts.

Figure 4-4: Existing Vehicle Traffic Counts

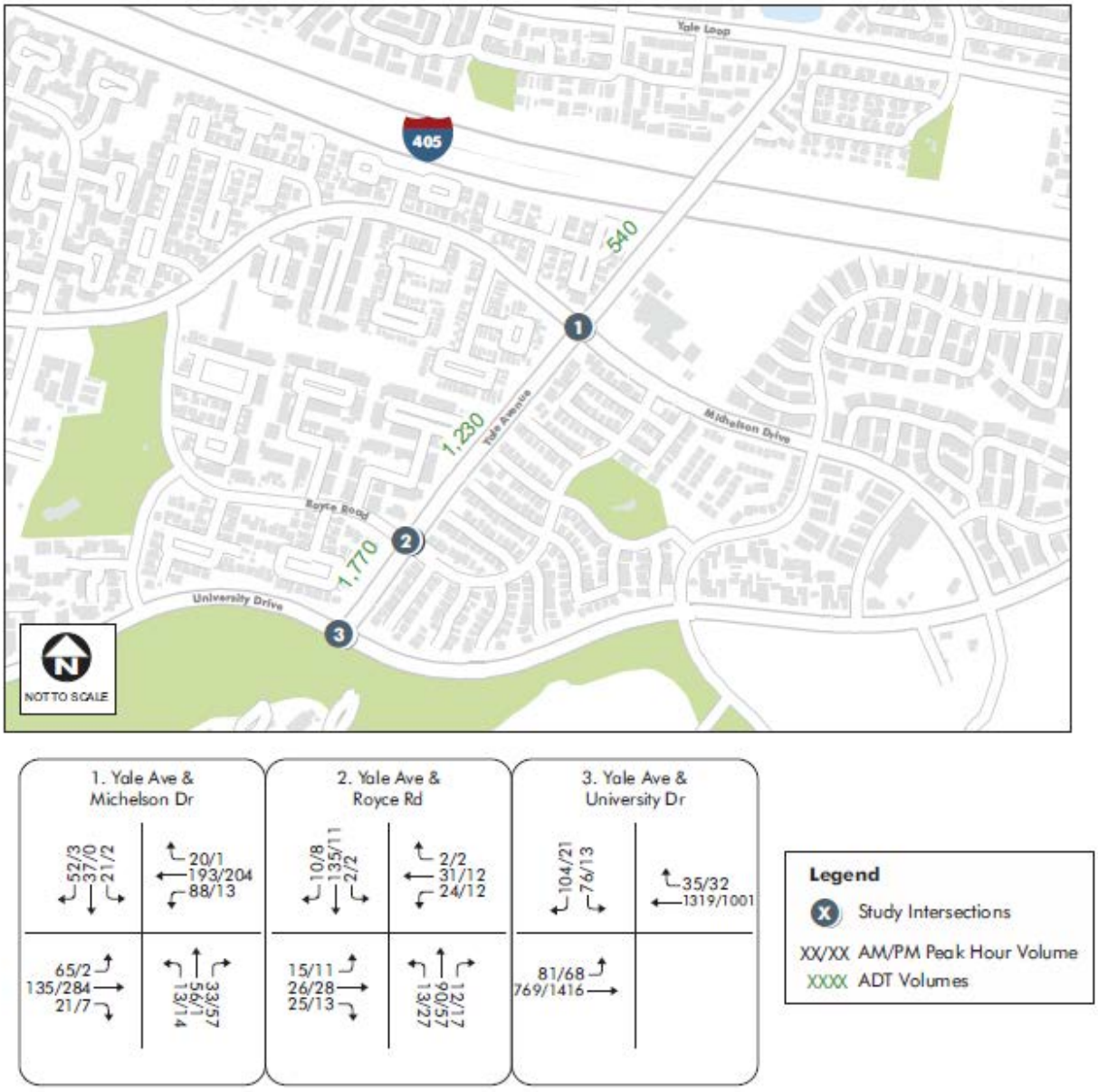


Figure 4-5 illustrates the existing conditions bicycle and pedestrian counts during the AM and PM peak hours (1hr).

Figure 4-5: Existing Pedestrian and Bike Counts AM and Evening PM Peak Hours (1Hr)

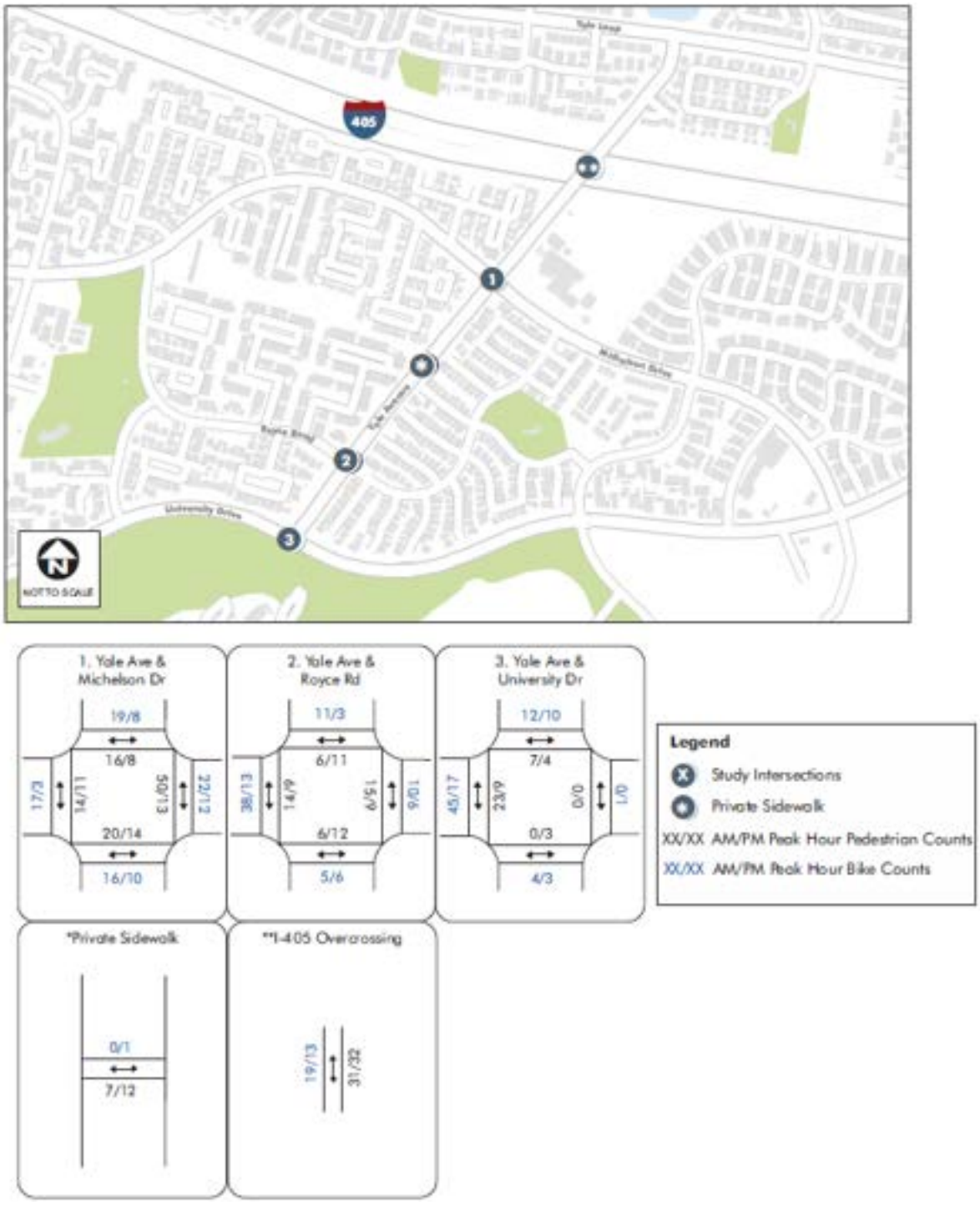


Figure 4-6 illustrates the existing conditions bicycle and pedestrian counts during school peak hour (1hr).

Figure 4-6: Existing Pedestrian and Bike Counts School Peak Hour (1Hr)

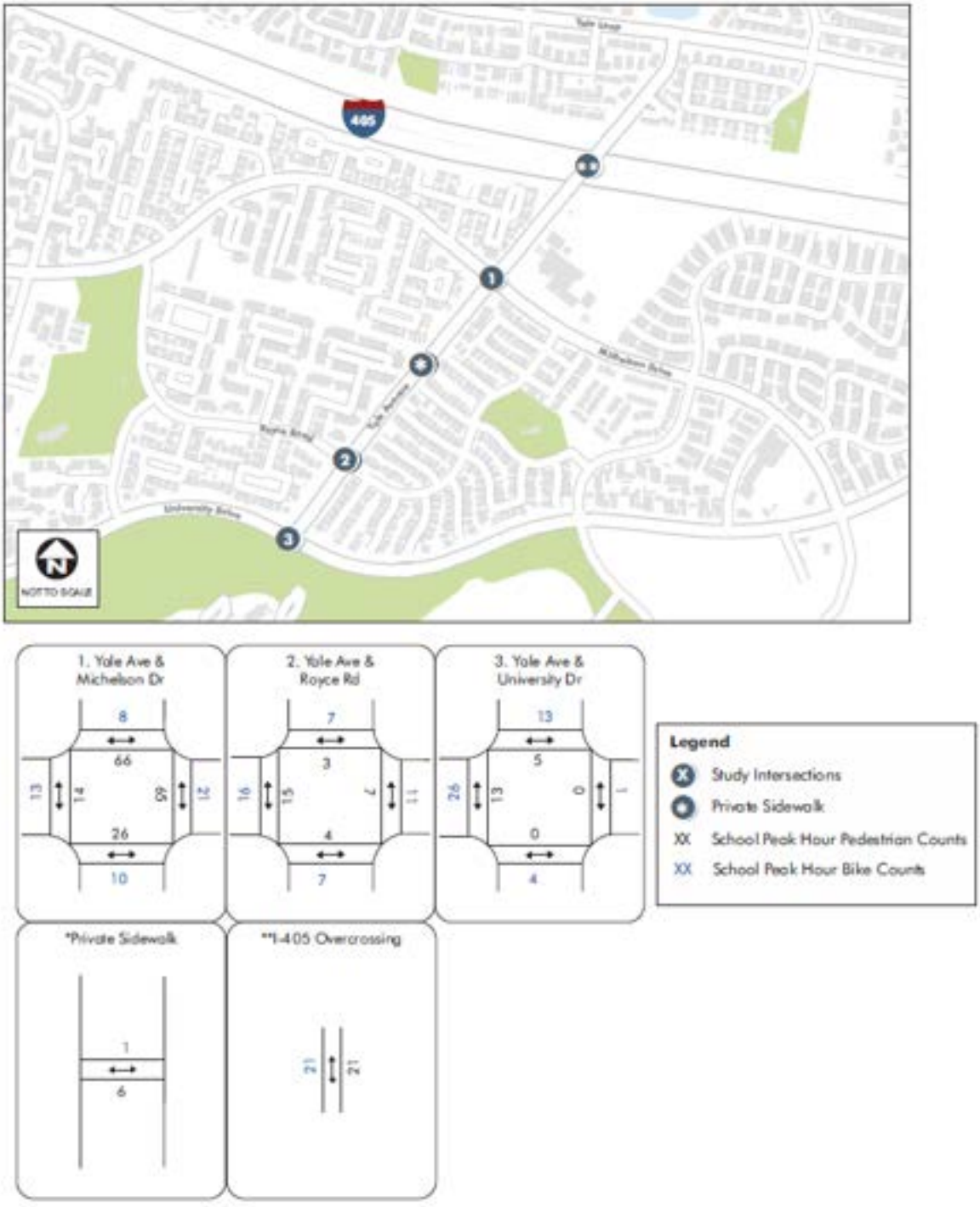
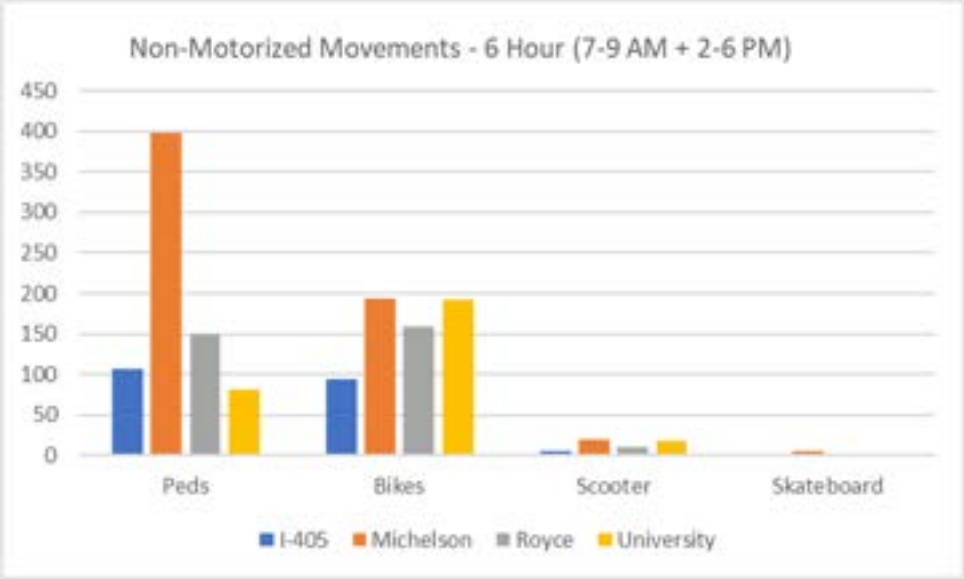


Table 4-3 and Figure 4-7 shows the total non-motorized movements during AM (7AM-9AM) and PM (2:30 PM-6PM) periods (six hours) at the study intersections and at I-405 overcrossing by mode. The main pedestrian movement is at Yale Avenue and Michelson Drive around the Rancho San Joaquin Middle School. Bicycles are more evenly spread throughout the study area. This suggests bikes traversing the whole corridor while pedestrians are either walking to nearby homes or being picked up by parents from school who are waiting on adjacent streets. This observation was supported by field observations. Only a small number of scooters and skateboards were observed.

Table 4-3: November 2022 AM and PM Periods Non-Motorized Counts

Mode	I-405 Overcrossing	Yale Avenue and Michelson Drive	Yale Avenue and Royce Road	Yale Avenue and University Drive
Pedestrian	107	397	150	82
Bicycle	88	194	160	192
Scooter	6	20	10	18
Skateboard	1	5	2	2
Total	**201**	**616**	**321**	**294**

Figure 4-7: Non-motorized movements by Location and Mode



4.5 Existing Conditions Traffic Analysis

The intersection LOS results were calculated during the AM, PM, and school peak hours for Existing conditions and the results are shown in **Table 4-4**. The ICU worksheets are provided in **Appendix B**. The synchro worksheets are provided in **Appendix C**. Under Existing conditions, the study intersections are operating at LOS C or better during both AM and PM peak hours.

Table 4-4: Existing Conditions Intersection Peak Hour LOS

#	Intersection	Methodology	Existing					
			AM		Evening PM		School PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Avenue and Michelson Drive[1]	HCM 6th 4-WSC	17.7	C	14.0	B	13.3	B
2	Yale Avenue and Royce Road[1]	HCM 6th 2-WSC	17.9	C	10.6	B	10.6	B
3	Yale Avenue and University Drive	ICU	0.53	A	0.48	A	0.32	A

Note:

[1] Unsignalized intersection

2-WSC: 2-way stop control

4-WSC: 4-way stop control

The roadway segment LOS results during existing conditions are shown in **Table 4-5**. The study roadway segments operate at LOS A under Existing conditions.

Table 4-5: Existing Conditions Roadway Segment LOS

#	Segment	Existing				
		Type	Total Capacity	ADT	V/C	LOS
A	Yale Avenue north of Michelson Drive	Commuter	13,000	540	0.04	A
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A

5 DEVELOPMENT OF FUTURE FORECAST TRAFFIC VOLUMES AND METHODOLOGY

Future traffic volumes were extracted from the City's traffic model ITAM. Prior to running ITAM, the highway networks were reviewed to ensure that they adequately represented the roadway system in the study area.

ITAM uses future model forecasts along with existing model volumes and existing traffic counts to generate post-processed forecast model volumes for the four Buildout year scenarios. **Figure 5-1** through **Figure 5-4** illustrates the buildout year turning movement volumes from ITAM while **Table 5-1** summarizes the buildout year daily volumes on the arterial segments.

Figure 5-1: Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue Traffic Volumes

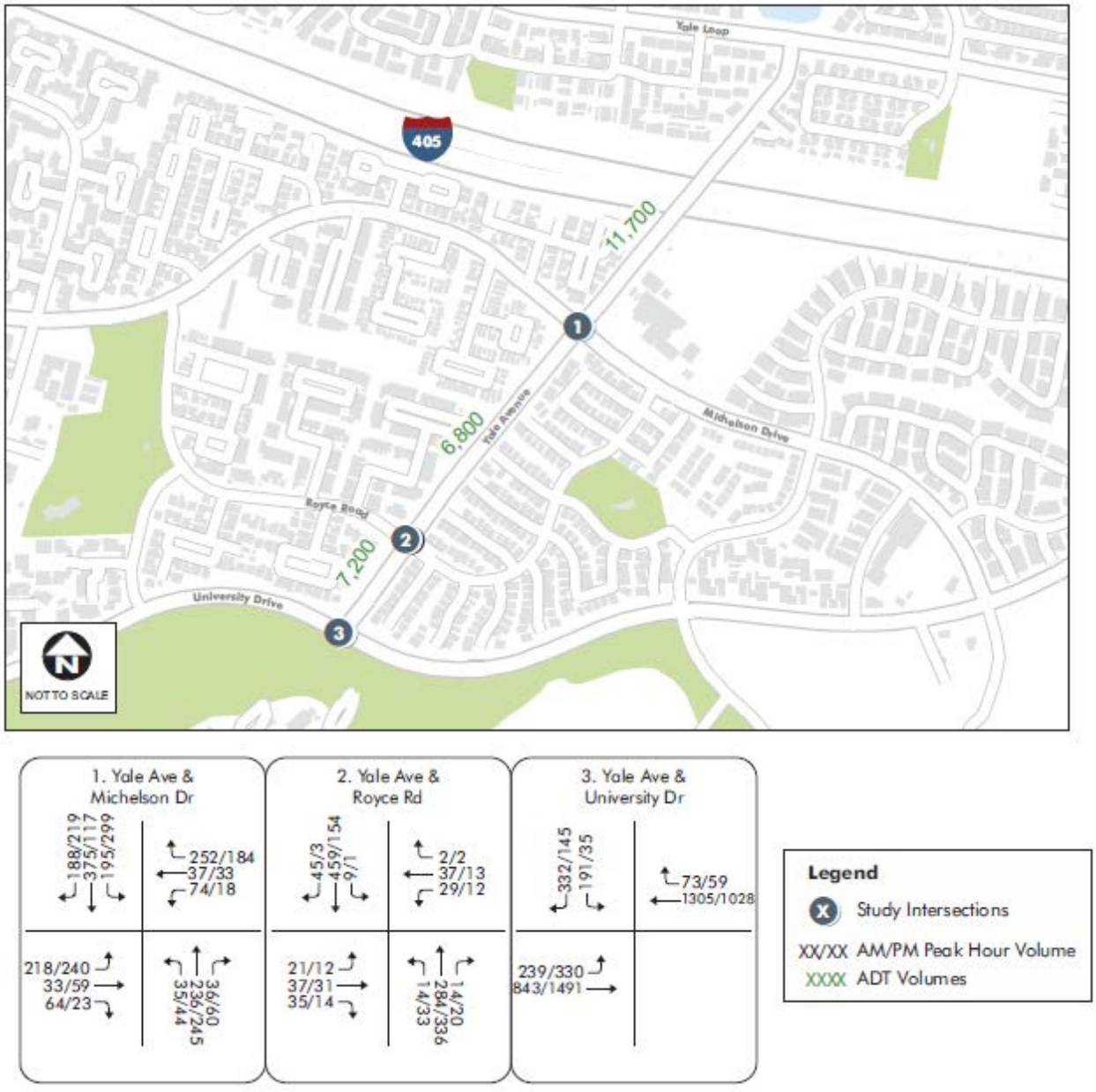


Figure 5-2: Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue Traffic Volumes

Figure 5-3: Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue Traffic Volumes

Figure 5-4: Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue Traffic Volumes

Table 5-1: Forecast Buildout Year Arterial Segment Volumes

#	Segment	Existing	Buildout Year Post-Processed ADT			
			I-405 Vehicular OC with 4-Lane Yale Avenue	I-405 Vehicular OC with 2-Lane Yale Avenue	No I-405 Vehicular OC with 4-Lane Yale Avenue	No I-405 Vehicular OC with 2-Lane Yale Avenue
A	Yale Avenue north of Michelson Drive	540	11,700	11,400	570	570
B	Yale Avenue between Michelson Drive and Royce Road	1,230	6,800	6,300	2,600	2,400
C	Yale Avenue between Royce Road and University Drive	1,770	7,200	6,800	3,200	3,000

Two different Buildout networks were used, one with an I-405 vehicular OC along Yale Avenue and the other with an I-405 pedestrians and bicyclists-only OC along Yale Avenue. Using traffic forecasts based on the City of Irvine's traffic model ITAM, Yale Avenue volumes from both Buildout scenarios with 2 lanes are lower than with 4 lanes. Also, the Buildout scenario with I-405 vehicular OC are higher than the scenarios with No I-405 vehicular OC, likely due to the network using Yale Avenue as an alternative route for some origin-destination pairs which could potentially increase traffic along Yale Avenue.

6 BUILDOUT YEAR TRAFFIC OPERATIONS

LOS analysis was conducted to evaluate the future scenarios:

- Buildout Year I-405 Vehicular OC with Four-lane Yale Avenue,
- Buildout Year I-405 Vehicular OC with Two-lane Yale Avenue,
- Buildout Year No I-405 Vehicular OC with Four-lane Yale Avenue, and
- Buildout Year No I-405 Vehicular OC with Two-lane Yale Avenue during AM and PM peak hours.

The signalized intersections were analyzed using the ICU methodology, and additional HCM analyses were completed at the unsignalized intersections.

6.1 Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue

The intersection LOS results were calculated during the AM and PM peak hours are shown in **Table 6-1**. The ICU worksheets are provided in **Appendix B**. The synchro worksheets are provided in **Appendix C**. Two (2) intersections are expected to operate at LOS E or worse during either AM or PM peak hours:

- Yale Avenue and Michelson Drive (AM LOS F | PM LOS F for 4-way stop-controlled operation)
- Yale Avenue and Royce Road (AM LOS E for 2-way stop-controlled operation)

LOS is also shown for informational purposes using the ICU methodology at Yale Avenue and Michelson Drive and using a four-way stop-controlled methodology at Yale Avenue and Royce Road, which both operate at satisfactory levels of service. Unlike ICU analysis, for HCM analysis typically the delay for the most restrictive approach is reported rather than the delay for the intersection. Therefore, in the case of Royce Road, the delay in the eastbound and westbound direction is reduced significantly. Although there is an increase in delay for the northbound and southbound movements compared to 2-way stop-controlled operation, overall delay for the intersection increases, but with an improvement in reported LOS (since stop-controlled intersections are reported by worst approach).

Table 6-1: Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue Intersection LOS

#	Intersection	Methodology	Existing				Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue			
			AM		PM		AM		PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Avenue and Michelson Drive	HCM 6th 4-WSC	17.7	C	14.0	B	**388.4**	**F**	**341.5**	**F**
		ICU	--	--	--	--	0.43	A	0.46	A
2	Yale Avenue and Royce Road[1]	HCM 6th 2-WSC	17.9	C	10.6	B	**41.5**	**E**	19.5	C
		HCM 6th 4-WSC	--	--	--	--	16.0	C	11.2	B
3	Yale Avenue and University Drive	ICU	0.53	A	0.48	A	0.68	B	0.56	A

Note: Bolded *cell denotes deficient LOS (V/C ≥ 0.91)*

[1] Unsignalized intersection

2-WSC: 2-way stop control

4-WSC: 4-way stop control

A traffic signal warrant study per Manual on Uniform Traffic Control Devices (MUTCD) was performed for both intersections. The unsignalized intersection of Yale Avenue and Royce Road does not meet the peak hour volume warrant, while the unsignalized intersection of Yale Avenue and Michelson Drive does meet the peak hour volume warrant, meaning that signal installation may be recommended. The peak hour volume warrant is provided in

Appendix D.

The roadway segment LOS results during Buildout Year I-405 Vehicular OC with four-lane Yale Avenue are shown in **Table 6-2**. The study roadway segments are expected to operate at LOS D or better under Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue scenario conditions.

Table 6-2: Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue Roadway Segment LOS

#	Segment	Existing					Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue				
		Type	Total Capacity	ADT	V/C	LOS	Type	Total Capacity	ADT	V/C	LOS
A	Yale Avenue north of Michelson Drive	Commuter	13,000	540	0.04	A	Commuter	13,000	11,700	0.90	D
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A	Secondary	28,000	6,800	0.24	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A	Secondary	28,000	7,200	0.26	A

6.2 Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue

The intersection LOS results were calculated during the AM and PM peak hours for as shown in **Table 6-3**. The ICU worksheets are provided in **Appendix B**. The synchro worksheets are provided in **Appendix C**.

As shown in **Table 6-3**, the following two (2) intersections are expected to operate at LOS E or worse during AM or PM peak hours:

- Yale Avenue and Michelson Drive (AM LOS F | PM LOS F for 4-way stop-controlled operation)
- Yale Avenue and Royce Road (AM LOS E for 2-way stop-controlled operation)

LOS is also shown for informational purposes using the ICU methodology at Yale Avenue and Michelson Drive and using a four-way stop-controlled methodology for Yale Avenue and Royce Road. Unlike the four-lane Yale Avenue conditions (summarized in *Section 6.1*), the two-way stop-control would not result in a satisfactory level of service in the AM peak.

Table 6-3: Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue Intersection LOS

#	Intersection	Methodology	Existing				Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue			
			AM		PM		AM		PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Avenue and Michelson Drive	HCM 6th 4-WSC	17.7	C	14.0	B	**903.6**	**F**	**456.8**	**F**
		ICU	--	--	--	--	0.51	A	0.54	A
2	Yale Avenue and Royce Road[1]	HCM 6th 2-WSC	17.9	C	10.6	B	**46.3**	**E**	19.1	C
		HCM 6th 4-WSC	--	--	--	--	38.8	**E**	16.1	C
3	Yale Avenue and University Drive	ICU	0.53	A	0.48	A	0.68	B	0.56	A

Note: Bolded *cell denotes deficient LOS (V/C ≥ 0.91)*
[1] Unsignalized intersection
2-WSC: 2-way stop control
4-WSC: 4-way stop control

A traffic signal warrant study per Manual on Uniform Traffic Control Devices (MUTCD) was performed for both intersections. The unsignalized intersection of Yale Avenue and Royce Road does not meet the peak hour volume warrant, while the unsignalized intersection of Yale Avenue and Michelson Drive does meet the peak hour volume warrant and signal installation should be considered. The peak hour volume warrant is provided in **Appendix D.**

The roadway segment LOS results during Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue are summarized in **Table 6-4**. The study roadway segments are expected to operate at LOS D or better under Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue scenario conditions.

Table 6-4: Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue Roadway Segment LOS

#	Segment	Existing					Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue				
		Type	Total Capacity	ADT	V/C	LOS	Type	Total Capacity	ADT	V/C	LOS
A	Yale Avenue north of Michelson Drive	Commuter	13,000	540	0.04	A	Commuter	13,000	11,400	0.88	D
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A	Secondary	28,000	6,300	0.23	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A	Secondary	28,000	6,800	0.24	A

6.3 Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue

The intersection LOS results were calculated during the AM and PM peak hours for Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue scenario, and the results are summarized in **Table 6-5**. The ICU worksheets are provided in **Appendix B**. The synchro worksheets are provided in **Appendix C**. The study intersections are expected to operate at LOS C or better during both AM and PM peak hours under the Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue scenario conditions.

Table 6-5: Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue Intersection LOS

#	Intersection	Methodology	Existing				Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue			
			AM		PM		AM		PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Avenue and Michelson Drive[1]	HCM 6th 4-WSC	17.7	C	14.0	B	24.2	C	18.1	C
2	Yale Avenue and Royce Road[1]	HCM 6th 2-WSC	17.9	C	10.6	B	22.9	C	12.0	B
3	Yale Avenue and University Drive	ICU	0.53	A	0.48	A	0.61	B	0.55	A

Note:

[1] Unsignalized intersection

2-WSC: 2-way stop control

4-WSC: 4-way stop control

The roadway segment LOS results during Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue are summarized in **Table 6-6**. The study roadway segments are expected to operate at LOS A under Buildout Year No I-405 Vehicular OC Four-Lane Yale Avenue scenario conditions.

Table 6-6: Buildout Year No I-405 Vehicular OC Four-Lane Yale Avenue Roadway Segment LOS

#	Segment	Existing					Buildout Year No I-405 Vehicular OC with Four-Lane Yale Avenue				
		Type	Total Capacity	ADT	V/C	LOS	Type	Total Capacity	ADT	V/C	LOS
A	Yale Avenue north of Michelson Drive	Commuter	13,000	540	0.04	A	Commuter	13,000	570	0.04	A
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A	Secondary	28,000	2,600	0.09	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A	Secondary	28,000	3,200	0.11	A

6.4 Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue

The intersection LOS results were calculated during the AM and PM peak hours for Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue conditions, and the results are summarized in **Table 6-7**. The ICU worksheets are provided in **Appendix B**. The synchro worksheets are provided in **Appendix C**. The study intersections are expected to operate at LOS C or better during both AM and PM peak hours under Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue scenarios conditions.

Table 6-7: Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue Intersection LOS

#	Intersection	Methodology	Existing				Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue			
			AM		PM		AM		PM	
			V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS	V/C Delay	LOS
1	Yale Avenue and Michelson Drive[1]	HCM 6th 4-WSC	17.7	C	14.0	B	20.4	C	18.4	C
2	Yale Avenue and Royce Road[1]	HCM 6th 2-WSC	17.9	C	10.6	B	24.7	C	11.9	B
3	Yale Avenue and University Drive	ICU	0.53	A	0.48	A	0.61	B	0.55	A

Note:

[1] Unsignalized intersection

2-WSC: 2 ways stop control

4-WSC: 4 ways stop control

The roadway segments LOS results during Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue conditions are summarized in **Table 6-8**. The study roadway segments are expected to operate at LOS A under Buildout Year No I-405 Vehicular OC Two-Lane Yale Avenue scenario conditions.

Table 6-8: Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue Roadway Segment LOS

#	Segment	Existing					Buildout Year No I-405 Vehicular OC with Two-Lane Yale Avenue				
		Type	Total Capacity	ADT	V/C	LOS	Type	Total Capacity	ADT	V/C	LOS
A	Yale Avenue north of Michelson Drive	Commuter	13,000	540	0.04	A	Commuter	13,000	570	0.04	A
B	Yale Avenue between Michelson Drive and Royce Road	Commuter	13,000	1,230	0.09	A	Secondary	28,000	2,400	0.09	A
C	Yale Avenue between Royce Road and University Drive	Commuter	13,000	1,770	0.14	A	Secondary	28,000	3,000	0.11	A

7 SIGNAL WARRANTS

The following unsignalized intersections are expected to operate deficiently under Buildout Year I-405 vehicular overcrossing under both four-lane Yale Avenue and two-lane Yale Avenue scenarios:

- Yale Avenue and Michelson Drive
- Yale Avenue and Royce Road

Traffic signal warrant studies per Manual on Uniform Control Devices (MUTCD) was performed for both intersections. The intersection of Yale Avenue and Michelson Drive met the conditions for Warrant 3 (Peak Hour) with AM and PM peak hour volumes as shown in **Figure 7-1** and **Figure 7-2**, while the intersection of Yale Avenue and Royce Road did not meet the conditions for Warrant 3 (Peak Hour) for either AM or PM peak hour volumes.

Figure 7-1: Buildout Year I-405 Vehicular OC with Four-Lane Yale Avenue – MUTCD Traffic Signal Warrant (Yale Avenue and Michelson Drive)

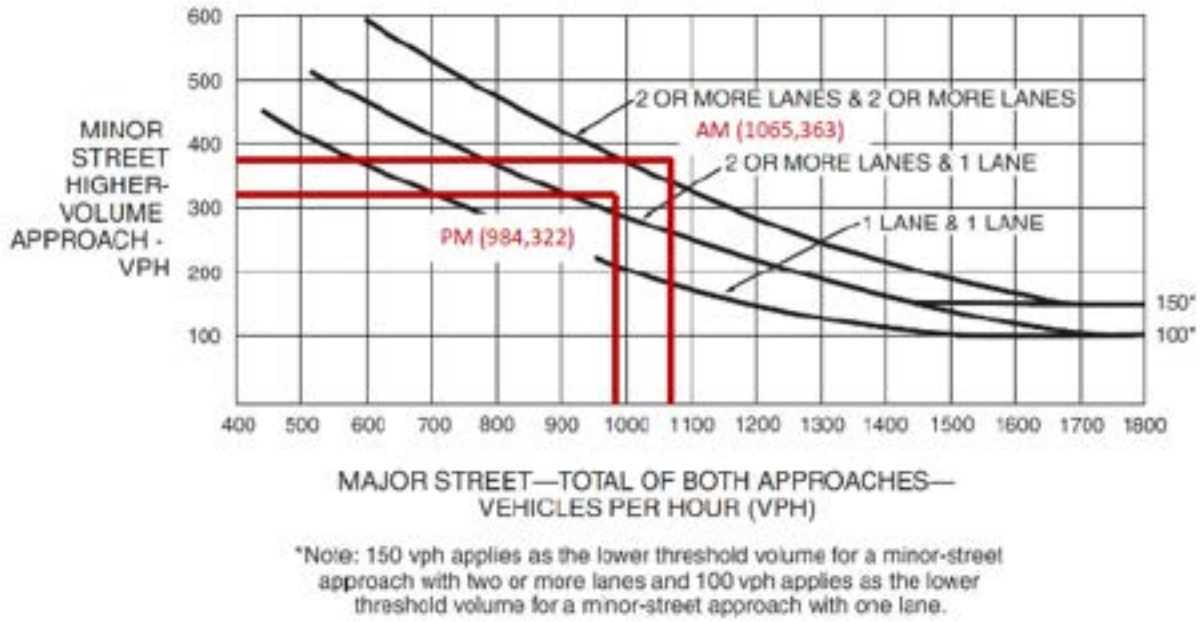
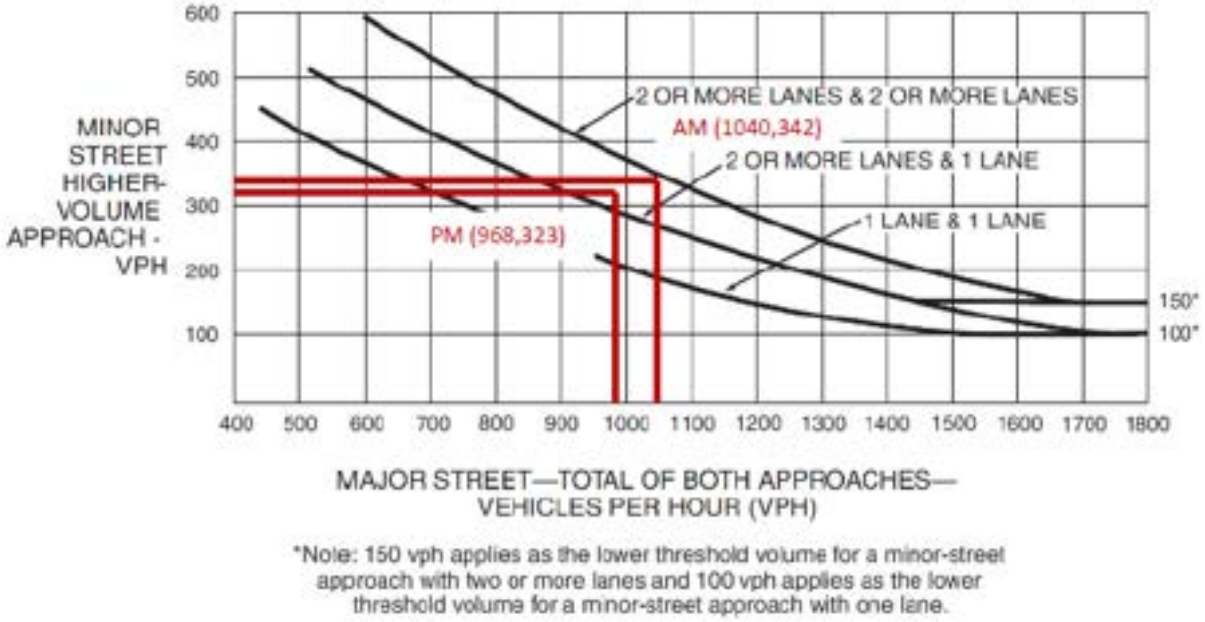


Figure 7-2: Buildout Year I-405 Vehicular OC with Two-Lane Yale Avenue – MUTCD Traffic Signal Warrant (Yale Avenue and Michelson Drive)



8 FINDINGS AND RECOMMENDATIONS

In existing conditions all three study area intersections and roadway segments operate at satisfactory levels of service. There are two pairs of Buildout Scenarios with and without the widening to four lanes.

1. **No Future Vehicular crossing of Yale Avenue over I-405** – In this scenario pair, the elimination of the future widening Yale Avenue from two-lanes to four-lanes will not result in any deficient level of service at any of the three study intersections or roadway segments. All intersections and arterial segments will continue to operate at satisfactory levels of service.

2. **Future Vehicular crossing of Yale Avenue over I-405** – This is the current General Plan and MPAH scenario. In this scenario pair, in both the four-lane and two-lane scenarios the intersection of Yale Avenue and Michelson Drive would operate and unsatisfactory levels of service with the existing four-way stop control. However, this intersection meets signal warrants based on future peak hour volumes. Based on the assumption that the intersection would be signalized should a vehicular overcrossing of I-405 be implemented, then the intersection would operate at satisfactory levels of service using the ICU methodology.

   The intersection of Yale Avenue and Royce Avenue would operate at unsatisfactory levels of service using the existing two-way stop control configuration. The future volumes at the intersection do not warrant a traffic signal. A four-lane stop controlled analysis was therefore performed as a sensitivity test. Although the overall intersection delay increases with a four-way control the intersection level of service as defined by the approach with maximum delay would improve in both two -lane and four lane Yale Avenue scenarios. In the case of the four-lane Yale Avenue configuration, the intersection would operate at a satisfactory level of service, but with the two-lane stop control (the existing configuration), the level of service would remain unsatisfactory.

Since the purpose of the study is for the potential removal of the street widening of Yale Avenue, there is no VMT impact under CEQA.

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City of Irvine

South Yale Avenue Traffic Study

Technical Appendix

Submitted to:

11797 | Prepared by **Iteris, Inc.**

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APPENDIX A– 2022 TRAFFIC COUNTS

South Yale Corridor Study -Average Daily Traffic Summary

ID	Location	ADT	AM Peak	PM School Peak	PM Evening	AM Peak %	PM School Peak%	PM Evening%
1	Yale Ave north of Michelson Dr	540	250	135	8	46%	25%	1%
2	Yale Ave north of Royce Rd	1,230	253	188	89	21%	15%	7%
3	Yale Ave south of Royce Rd	1,770	295	217	133	17%	12%	8%

		Tuesday 11/15/2022			Wednesday 11/16/2022			Average		
ID	Location	NB	SB	Combined	NB	SB	Combined	NB	SB	Combined
1	Yale Ave north of Michelson Dr	259	253	512	280	288	568	270	270	540
2	Yale Ave north of Royce Rd	722	563	1,285	646	522	1,168	680	540	1,230
3	Yale Ave south of Royce Rd	978	821	1,799	926	811	1,737	950	820	1,770

Volumes for: Tuesday, November 15, 2022 **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: **ADT1 Yale north of Michelson** Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 1

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	0		1		
0:15	0		0			12:15	1		0		
0:30	0		0			12:30	1		0		
0:45	0	0	0	0	0	12:45	0	2	0	1	3
1:00	0		0			13:00	1		0		
1:15	0		0			13:15	0		0		
1:30	0		0			13:30	0		1		
1:45	0	0	0	0	0	13:45	0	1	0	1	2
2:00	0		0			14:00	1		1		
2:15	0		0			14:15	4		2		
2:30	0		0			14:30	14		0		
2:45	0	0	0	0	0	14:45	22	41	4	7	48
3:00	0		0			15:00	19		45		
3:15	0		0			15:15	7		16		
3:30	0		0			15:30	1		3		
3:45	0	0	0	0	0	15:45	5	32	2	66	98
4:00	0		0			16:00	7		21		
4:15	0		0			16:15	1		3		
4:30	0		0			16:30	1		2		
4:45	0	0	0	0	0	16:45	0	9	0	26	35
5:00	1		1			17:00	1		0		
5:15	1		0			17:15	0		1		
5:30	0		0			17:30	0		1		
5:45	0	2	0	1	3	17:45	0	1	1	3	4
6:00	1		1			18:00	0		2		
6:15	1		0			18:15	0		0		
6:30	0		2			18:30	1		1		
6:45	0	2	0	3	5	18:45	2	3	3	6	9
7:00	3		0			19:00	2		3		
7:15	11		6			19:15	0		0		
7:30	10		11			19:30	0		0		
7:45	15	39	5	22	61	19:45	0	2	0	3	5
8:00	47		29			20:00	0		0		
8:15	64		61			20:15	0		0		
8:30	3		5			20:30	0		0		
8:45	0	114	6	101	215	20:45	0	0	0	0	0
9:00	1		2			21:00	0		0		
9:15	2		2			21:15	0		0		
9:30	1		0			21:30	0		1		
9:45	1	5	2	6	11	21:45	0	0	0	1	1
10:00	0		1			22:00	0		0		
10:15	2		1			22:15	0		0		
10:30	1		0			22:30	0		0		
10:45	1	4	0	2	6	22:45	0	0	0	0	0
11:00	0		0			23:00	0		0		
11:15	1		0			23:15	0		0		
11:30	0		1			23:30	0		1		
11:45	1	2	2	3	5	23:45	0	0	0	1	1
Total Vol.	168		138		**306**		91		115		**206**

Daily Totals

NB	SB	Combined
259	253	**512**

	AM			PM		
Split %	54.9%	45.1%	**59.8%**	44.2%	55.8%	**40.2%**
Peak Hour	7:30	7:30	**7:30**	14:30	14:45	**14:30**
Volume	136	106	**242**	62	68	**127**
P.H.F.	0.53	0.43	**0.48**	0.84	0.38	**0.50**

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Volumes for: Wednesday, November 16, 2022 **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: **ADT1 Yale north of Michelson** Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 2

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	0		2		
0:15	0		0			12:15	0		0		
0:30	0		0			12:30	1		1		
0:45	0	0	0	0	0	12:45	0	1	1	4	5
1:00	0		0			13:00	0		0		
1:15	0		0			13:15	2		0		
1:30	0		0			13:30	0		1		
1:45	0	0	0	0	0	13:45	0	2	0	1	3
2:00	0		0			14:00	7		4		
2:15	0		0			14:15	6		1		
2:30	0		0			14:30	9		3		
2:45	0	0	0	0	0	14:45	22	44	4	12	56
3:00	0		0			15:00	25		58		
3:15	0		0			15:15	6		16		
3:30	0		0			15:30	2		3		
3:45	0	0	0	0	0	15:45	5	38	4	81	119
4:00	0		0			16:00	7		19		
4:15	0		0			16:15	0		1		
4:30	0		0			16:30	0		0		
4:45	0	0	0	0	0	16:45	2	9	0	20	29
5:00	0		0			17:00	1		5		
5:15	0		0			17:15	0		0		
5:30	0		0			17:30	1		2		
5:45	1	1	1	1	2	17:45	0	2	0	7	9
6:00	0		0			18:00	0		1		
6:15	0		0			18:15	0		0		
6:30	0		0			18:30	0		1		
6:45	1	1	0	0	1	18:45	0	0	0	2	2
7:00	1		3			19:00	0		0		
7:15	7		0			19:15	0		0		
7:30	4		1			19:30	0		1		
7:45	23	35	8	12	47	19:45	0	0	0	1	1
8:00	57		34			20:00	0		1		
8:15	68		71			20:15	0		0		
8:30	3		6			20:30	0		0		
8:45	7	135	6	117	252	20:45	0	0	0	1	1
9:00	0		2			21:00	1		2		
9:15	2		2			21:15	1		0		
9:30	1		1			21:30	0		2		
9:45	1	4	3	8	12	21:45	0	2	0	4	6
10:00	1		3			22:00	0		0		
10:15	2		0			22:15	0		0		
10:30	1		1			22:30	0		0		
10:45	0	4	0	4	8	22:45	0	0	0	0	0
11:00	1		1			23:00	0		2		
11:15	0		5			23:15	0		0		
11:30	0		3			23:30	0		1		
11:45	1	2	1	10	12	23:45	0	0	0	3	3
Total Vol.		182		152	**334**			98		136	**234**

Daily Totals

NB	SB	Combined
280	288	**568**

	AM			PM		
Split %	54.5%	45.5%	**58.8%**	41.9%	58.1%	**41.2%**
Peak Hour	7:30	7:45	**7:45**	14:15	14:30	**14:30**
Volume	152	119	**270**	62	81	**143**
P.H.F.	0.56	0.42	**0.49**	0.67	0.35	**0.43**

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Volumes for: Tuesday, November 15, 2022 **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: **ADT2 Yale north of Royce** Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 1

AM Period	NB		SB			PM Period	NB		SB		
0:00	1		0			12:00	21		13		
0:15	0		0			12:15	12		6		
0:30	0		0			12:30	9		8		
0:45	0	1	0	0	1	12:45	18	60	7	34	94
1:00	1		0			13:00	12		6		
1:15	0		0			13:15	8		3		
1:30	0		0			13:30	12		9		
1:45	0	1	0	0	1	13:45	7	39	6	24	63
2:00	0		0			14:00	27		7		
2:15	0		0			14:15	25		7		
2:30	0		0			14:30	18		5		
2:45	0	0	0	0	0	14:45	43	113	4	23	136
3:00	0		0			15:00	27		61		
3:15	0		0			15:15	6		19		
3:30	0		0			15:30	10		7		
3:45	0	0	0	0	0	15:45	16	59	7	94	153
4:00	0		0			16:00	21		25		
4:15	0		0			16:15	20		8		
4:30	0		0			16:30	6		9		
4:45	0	0	1	1	1	16:45	13	60	2	44	104
5:00	0		0			17:00	19		4		
5:15	0		0			17:15	18		4		
5:30	1		1			17:30	30		7		
5:45	0	1	0	1	2	17:45	13	80	5	20	100
6:00	1		1			18:00	9		6		
6:15	2		2			18:15	8		3		
6:30	2		0			18:30	4		1		
6:45	4	9	3	6	15	18:45	6	27	2	12	39
7:00	3		1			19:00	8		4		
7:15	6		6			19:15	4		5		
7:30	6		10			19:30	4		3		
7:45	11	26	13	30	56	19:45	3	19	2	14	33
8:00	36		40			20:00	4		0		
8:15	46		82			20:15	6		1		
8:30	10		9			20:30	3		0		
8:45	8	100	9	140	240	20:45	1	14	1	2	16
9:00	12		5			21:00	2		2		
9:15	5		4			21:15	1		1		
9:30	15		6			21:30	0		1		
9:45	7	39	10	25	64	21:45	4	7	0	4	11
10:00	7		17			22:00	2		0		
10:15	8		12			22:15	1		0		
10:30	9		5			22:30	0		0		
10:45	7	31	3	37	68	22:45	2	5	1	1	6
11:00	5		15			23:00	1		0		
11:15	9		14			23:15	1		0		
11:30	6		9			23:30	0		1		
11:45	9	29	11	49	78	23:45	0	2	1	2	4
Total Vol.		237		289	**526**			485		274	**759**

Daily Totals

NB	SB	Combined
722	563	**1285**

	AM			PM		
Split %	45.1%	54.9%	**40.9%**	63.9%	36.1%	**59.1%**
Peak Hour	7:45	7:30	**7:45**	14:00	15:00	**14:15**
Volume	103	145	**247**	113	94	**190**
P.H.F.	0.56	0.44	**0.48**	0.81	0.39	**0.54**

cs@aimtd.com Tell. 714 253 7888

Volumes for: ################## **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: ADT2 Yale north of Royce Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 2

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	11		6		
0:15	1		0			12:15	9		4		
0:30	0		0			12:30	9		3		
0:45	0	1	0	0	1	12:45	9	38	6	19	57
1:00	0		0			13:00	11		3		
1:15	0		0			13:15	10		6		
1:30	0		0			13:30	5		7		
1:45	0	0	0	0	0	13:45	16	42	8	24	66
2:00	0		0			14:00	11		14		
2:15	0		0			14:15	23		5		
2:30	0		0			14:30	13		11		
2:45	0	0	0	0	0	14:45	41	88	2	32	120
3:00	0		0			15:00	17		76		
3:15	0		0			15:15	11		10		
3:30	0		0			15:30	17		10		
3:45	0	0	0	0	0	15:45	17	62	5	101	163
4:00	0		0			16:00	15		17		
4:15	0		0			16:15	11		9		
4:30	0		1			16:30	10		5		
4:45	0	0	1	2	2	16:45	16	52	6	37	89
5:00	0		0			17:00	8		5		
5:15	0		0			17:15	14		6		
5:30	0		0			17:30	20		5		
5:45	0	0	2	2	2	17:45	18	60	4	20	80
6:00	0		0			18:00	8		5		
6:15	1		2			18:15	10		4		
6:30	2		3			18:30	4		5		
6:45	2	5	4	9	14	18:45	6	28	4	18	46
7:00	3		6			19:00	2		6		
7:15	6		3			19:15	3		3		
7:30	3		6			19:30	5		1		
7:45	10	22	9	24	46	19:45	3	13	0	10	23
8:00	49		45			20:00	5		5		
8:15	40		85			20:15	4		3		
8:30	9		10			20:30	2		1		
8:45	5	103	8	148	251	20:45	4	15	3	12	27
9:00	6		2			21:00	2		0		
9:15	7		10			21:15	2		0		
9:30	5		7			21:30	1		2		
9:45	8	26	9	28	54	21:45	3	8	2	4	12
10:00	5		8			22:00	2		0		
10:15	12		1			22:15	2		0		
10:30	7		3			22:30	1		1		
10:45	12	36	3	15	51	22:45	4	9	2	3	12
11:00	10		5			23:00	1		1		
11:15	5		1			23:15	1		1		
11:30	7		1			23:30	2		1		
11:45	12	34	4	11	45	23:45	0	4	0	3	7
Total Vol.		227		239	**466**			419		283	**702**

Daily Totals

NB	SB	Combined
646	522	**1168**

	AM			PM		
Split %	48.7%	51.3%	**39.9%**	59.7%	40.3%	**60.1%**
Peak Hour	7:45	7:45	**7:45**	14:15	15:00	**14:15**
Volume	108	149	**257**	94	101	**188**
P.H.F.	0.55	0.44	**0.51**	0.72	0.33	**0.51**

cs@aimtd.com Tell. 714 253 7888

Volumes for: Tuesday, November 15, 2022 **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: **ADT3 Yale south of Royce** Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 1

AM Period	NB		SB			PM Period	NB		SB		
0:00	3		0			12:00	26		15		
0:15	0		1			12:15	19		13		
0:30	1		0			12:30	16		7		
0:45	0	4	1	2	6	12:45	18	79	15	50	129
1:00	1		0			13:00	17		5		
1:15	0		0			13:15	13		10		
1:30	1		2			13:30	19		15		
1:45	1	3	0	2	5	13:45	13	62	11	41	103
2:00	0		0			14:00	34		14		
2:15	0		0			14:15	38		6		
2:30	1		0			14:30	18		12		
2:45	1	2	0	0	2	14:45	45	135	8	40	175
3:00	1		0			15:00	32		59		
3:15	0		1			15:15	10		22		
3:30	0		0			15:30	15		6		
3:45	1	2	0	1	3	15:45	23	80	11	98	178
4:00	0		0			16:00	20		25		
4:15	0		0			16:15	13		9		
4:30	0		0			16:30	11		16		
4:45	0	0	2	2	2	16:45	18	62	6	56	118
5:00	0		1			17:00	25		13		
5:15	0		0			17:15	27		6		
5:30	1		3			17:30	37		7		
5:45	1	2	2	6	8	17:45	21	110	7	33	143
6:00	2		1			18:00	15		8		
6:15	1		2			18:15	19		8		
6:30	2		3			18:30	14		8		
6:45	4	9	5	11	20	18:45	8	56	8	32	88
7:00	4		4			19:00	12		7		
7:15	7		11			19:15	12		8		
7:30	6		14			19:30	4		7		
7:45	15	32	23	52	84	19:45	6	34	4	26	60
8:00	37		55			20:00	9		7		
8:15	47		86			20:15	13		4		
8:30	13		14			20:30	5		2		
8:45	11	108	18	173	281	20:45	5	32	4	17	49
9:00	18		7			21:00	2		7		
9:15	8		4			21:15	4		1		
9:30	15		10			21:30	4		4		
9:45	13	54	11	32	86	21:45	7	17	3	15	32
10:00	7		23			22:00	6		1		
10:15	7		13			22:15	2		3		
10:30	9		14			22:30	6		2		
10:45	4	27	10	60	87	22:45	5	19	4	10	29
11:00	7		19			23:00	5		1		
11:15	6		14			23:15	4		0		
11:30	10		9			23:30	2		3		
11:45	12	35	15	57	92	23:45	3	14	1	5	19
Total Vol.		278		398	**676**			700		423	**1123**

Daily Totals

NB	SB	Combined
978	821	**1799**

	AM			PM		
Split %	41.1%	58.9%	**37.6%**	62.3%	37.7%	**62.4%**
Peak Hour	7:45	7:30	**7:45**	14:00	14:30	**14:15**
Volume	112	178	**290**	135	101	**218**
P.H.F.	0.60	0.52	**0.55**	0.71	0.43	**0.60**

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Volumes for: Wednesday, November 16, 2022 **CITY:** Irvine Rancho San Joaquin **PROJECT:** SC3579

Location: **ADT3 Yale south of Royce** Prepared by: Field Data Services of Arizona, Inc. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

DAY 2

AM Period	NB		SB			PM Period	NB		SB		
0:00	2		1			12:00	14		12		
0:15	2		0			12:15	20		8		
0:30	1		0			12:30	13		7		
0:45	0	5	0	1	6	12:45	9	56	14	41	97
1:00	2		1			13:00	17		4		
1:15	1		1			13:15	13		13		
1:30	0		0			13:30	13		10		
1:45	0	3	1	3	6	13:45	24	67	16	43	110
2:00	1		0			14:00	23		17		
2:15	1		0			14:15	29		8		
2:30	0		0			14:30	14		13		
2:45	0	2	0	0	2	14:45	40	106	10	48	154
3:00	0		2			15:00	23		75		
3:15	0		0			15:15	12		13		
3:30	0		1			15:30	16		10		
3:45	0	0	0	3	3	15:45	18	69	15	113	182
4:00	0		0			16:00	25		21		
4:15	0		0			16:15	22		12		
4:30	0		1			16:30	19		7		
4:45	0	0	1	2	2	16:45	21	87	7	47	134
5:00	0		1			17:00	18		13		
5:15	0		1			17:15	20		10		
5:30	0		0			17:30	34		7		
5:45	1	1	2	4	5	17:45	25	97	12	42	139
6:00	1		0			18:00	12		9		
6:15	2		6			18:15	21		10		
6:30	1		6			18:30	9		10		
6:45	3	7	5	17	24	18:45	11	53	4	33	86
7:00	4		8			19:00	16		10		
7:15	8		8			19:15	6		5		
7:30	7		14			19:30	11		4		
7:45	10	29	20	50	79	19:45	10	43	2	21	64
8:00	49		59			20:00	12		7		
8:15	46		93			20:15	10		2		
8:30	12		16			20:30	4		4		
8:45	13	120	14	182	302	20:45	4	30	3	16	46
9:00	6		7			21:00	6		0		
9:15	8		13			21:15	4		1		
9:30	4		11			21:30	3		2		
9:45	7	25	17	48	73	21:45	3	16	6	9	25
10:00	6		12			22:00	8		2		
10:15	9		7			22:15	2		3		
10:30	8		7			22:30	1		5		
10:45	13	36	8	34	70	22:45	5	16	3	13	29
11:00	9		12			23:00	3		2		
11:15	5		5			23:15	3		2		
11:30	12		9			23:30	5		1		
11:45	18	44	9	35	79	23:45	3	14	1	6	20
Total Vol.		272		379	**651**			654		432	**1086**

Daily Totals

NB	SB	Combined
926	811	**1737**

	AM			PM		
Split %	41.8%	58.2%	**37.5%**	60.2%	39.8%	**62.5%**
Peak Hour	8:00	7:45	**7:45**	14:00	15:00	**14:15**
Volume	120	188	**305**	106	113	**212**
P.H.F.	0.61	0.51	**0.55**	0.69	0.38	**0.54**

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South Yale Corridor Study -Intersection Turning Movement Count Summary

				NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
				Yale			Yale			Michelson			Michelson			
Intersection	Date	Peak	Hour Starting	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Yale/Michelson	Tue, Nov 15, 22	AM	7:45 AM	13	53	34	18	36	46	56	125	25	83	200	21	710
		PM	2:30 PM	14	21	48	20	19	26	23	164	15	46	168	17	581
		PM	4:45 PM	15	1	65	1	0	1	1	283	4	14	212	0	597
	Wed, Nov 16, 22	AM	7:45 AM	13	58	32	23	38	58	74	144	16	92	186	19	753
		PM	2:30 PM	16	17	40	27	23	31	30	171	24	46	164	15	604
		PM	4:45 PM	12	0	49	2	0	5	2	285	10	12	196	2	575
	Average	AM	7:45 AM	13	56	33	21	37	52	65	135	21	88	193	20	732
		PM	2:30 PM	15	19	44	24	21	29	27	168	20	46	166	16	593
		PM	4:45 PM	14	1	57	2	0	3	2	284	7	13	204	1	586

				NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
				Yale			Yale			Royce			Royce			
Intersection	Date	Peak	Hour Starting	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Yale/Royce	Tue, Nov 15, 22	AM	7:45 AM	13	87	12	3	130	11	16	27	22	26	31	2	380
		PM	2:15 PM	13	97	23	3	64	8	14	26	7	12	16	2	285
		PM	4:45 PM	27	64	16	1	8	8	14	34	14	10	16	2	214
	Wed, Nov 16, 22	AM	7:45 AM	12	93	12	1	139	9	14	24	27	22	31	1	385
		PM	2:15 PM	14	70	22	0	83	11	20	26	6	16	19	4	291
		PM	4:45 PM	26	50	17	2	13	7	7	22	11	13	8	1	177
	Average	AM	7:45 AM	13	90	12	2	135	10	15	26	25	24	31	2	383
		PM	2:15 PM	14	84	23	2	74	10	17	26	7	14	18	3	288
		PM	4:45 PM	27	57	17	2	11	8	11	28	13	12	12	2	196

				NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
				Yale			Yale			University			University			
Intersection	Date	Peak	Hour Starting	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Yale/University	Tue, Nov 15, 22	AM	7:45 AM	0	0	0	76	0	103	74	729	0	0	1,373	36	2,393
		PM	2:30 PM	0	0	0	32	0	70	89	627	0	0	727	33	1,578
		PM	4:45 PM	0	0	0	10	0	22	69	1,438	0	0	984	32	2,556
	Wed, Nov 16, 22	AM	8:00 AM	0	0	0	75	0	105	87	809	0	0	1,264	33	2,373
		PM	2:30 PM	0	0	0	44	0	74	61	750	0	0	691	31	1,651
		PM	4:45 PM	0	0	0	16	0	20	66	1,393	0	0	1,018	31	2,544
	Average	AM	8:00 AM	0	0	0	76	0	104	81	769	0	0	1,319	35	2,383
		PM	2:30 PM	0	0	0	38	0	72	75	689	0	0	709	32	1,615
		PM	4:45 PM	0	0	0	13	0	21	68	1,416	0	0	1,001	32	2,550

INTERSECTION TURNING MOVEMENT COUNTS

T319

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Irvine Rancho San Joaquin	PROJECT #:	SC3579
Tue, Nov 15, 22	NORTH & SOUTH:	Yale	LOCATION #:	1
	EAST & WEST:	Michelson	CONTROL:	STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

	NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND Michelson			WESTBOUND Michelson				U-TURNS				
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
7:00 AM	1	0	2	0	0	0	1	15	1	0	17	2	39	0	0	0	0	0
7:15 AM	2	2	1	2	3	1	4	11	2	4	21	5	58	0	0	0	0	0
7:30 AM	1	3	2	3	2	6	4	18	2	4	21	3	69	0	0	0	0	0
7:45 AM	3	4	1	0	2	3	5	27	5	5	62	6	123	0	0	0	0	0
8:00 AM	2	17	9	7	12	10	20	49	9	22	30	9	196	0	0	0	0	0
8:15 AM	7	31	16	9	21	31	30	35	10	48	71	5	314	0	0	0	0	0
8:30 AM	1	1	8	2	1	2	1	14	1	8	37	1	77	0	0	0	0	0
8:45 AM	0	0	7	3	1	2	0	27	0	8	37	0	85	0	0	0	1	1
VOLUMES	17	58	46	26	42	55	65	196	30	99	296	31	961	0	0	0	1	1
APPROACH %	14%	48%	38%	21%	34%	45%	22%	67%	10%	23%	69%	7%						
APP/DEPART	121	/	154	123	/	170	291	/	269	426	/	368	0					
BEGIN PEAK HR		7:45 AM																
VOLUMES	13	53	34	18	36	46	56	125	25	83	200	21	710					
APPROACH %	13%	53%	34%	18%	36%	46%	27%	61%	12%	27%	66%	7%						
PEAK HR FACTOR		0.463			0.410			0.660			0.613		0.565					
APP/DEPART	100	/	130	100	/	144	206	/	177	304	/	259	0					
02:00 PM	2	0	25	0	0	1	2	27	2	3	41	0	103	0	0	1	0	1
2:15 PM	2	2	20	2	0	0	1	43	3	4	49	1	127	0	0	0	0	0
2:30 PM	1	4	10	0	0	0	4	59	3	4	34	6	125	0	0	0	0	0
2:45 PM	3	8	19	2	1	1	9	36	6	4	32	5	126	0	0	0	0	0
3:00 PM	7	6	13	12	14	19	8	37	3	29	60	4	212	0	1	0	0	1
3:15 PM	3	3	6	6	4	6	2	32	3	9	42	2	118	0	0	0	0	0
3:30 PM	2	0	7	1	0	2	1	37	2	5	46	0	103	0	0	0	0	0
3:45 PM	6	2	11	2	0	0	1	36	4	3	31	2	98	0	0	0	0	0
4:00 PM	3	4	12	6	8	7	2	38	1	16	46	1	144	0	0	0	0	0
4:15 PM	6	1	15	0	1	2	0	51	3	4	51	0	134	0	0	0	0	0
4:30 PM	2	0	5	1	0	1	0	48	5	5	37	1	105	0	0	0	0	0
4:45 PM	6	0	8	0	0	0	0	55	1	2	45	0	117	0	0	0	0	0
5:00 PM	2	1	17	0	0	0	1	70	0	3	50	0	144	0	0	1	0	1
5:15 PM	4	0	14	1	0	0	0	82	3	1	46	0	151	0	0	0	0	0
5:30 PM	3	0	26	0	0	1	0	76	0	8	71	0	185	0	0	0	0	0
5:45 PM	4	0	9	1	0	0	0	53	3	1	41	0	112	0	0	0	0	0
VOLUMES	56	31	217	34	28	40	31	780	42	101	722	22	2,104	0	1	2	0	3
APPROACH %	18%	10%	71%	33%	27%	39%	4%	91%	5%	12%	85%	3%						
APP/DEPART	304	/	83	102	/	171	853	/	1,030	845	/	820	0					
BEGIN PEAK HR		4:45 PM																
VOLUMES	15	1	65	1	0	1	1	283	4	14	212	0	597					
APPROACH %	19%	1%	80%	50%	0%	50%	0%	98%	1%	6%	94%	0%						
PEAK HR FACTOR		0.698			0.500			0.847			0.715		0.807					
APP/DEPART	81	/	1	2	/	18	288	/	349	226	/	229	0					

Yale

NORTH SIDE

Michelson WEST SIDE EAST SIDE **Michelson**

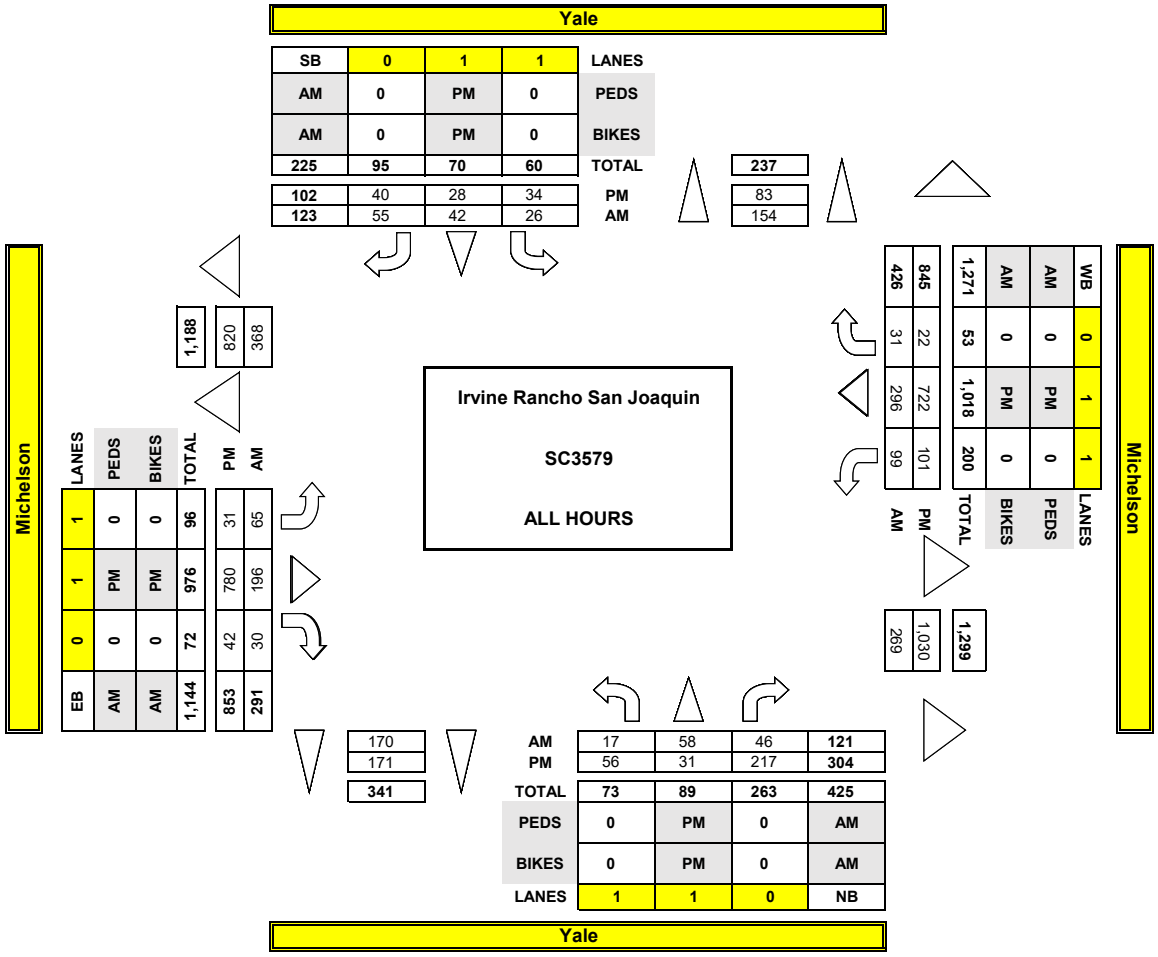
SOUTH SIDE

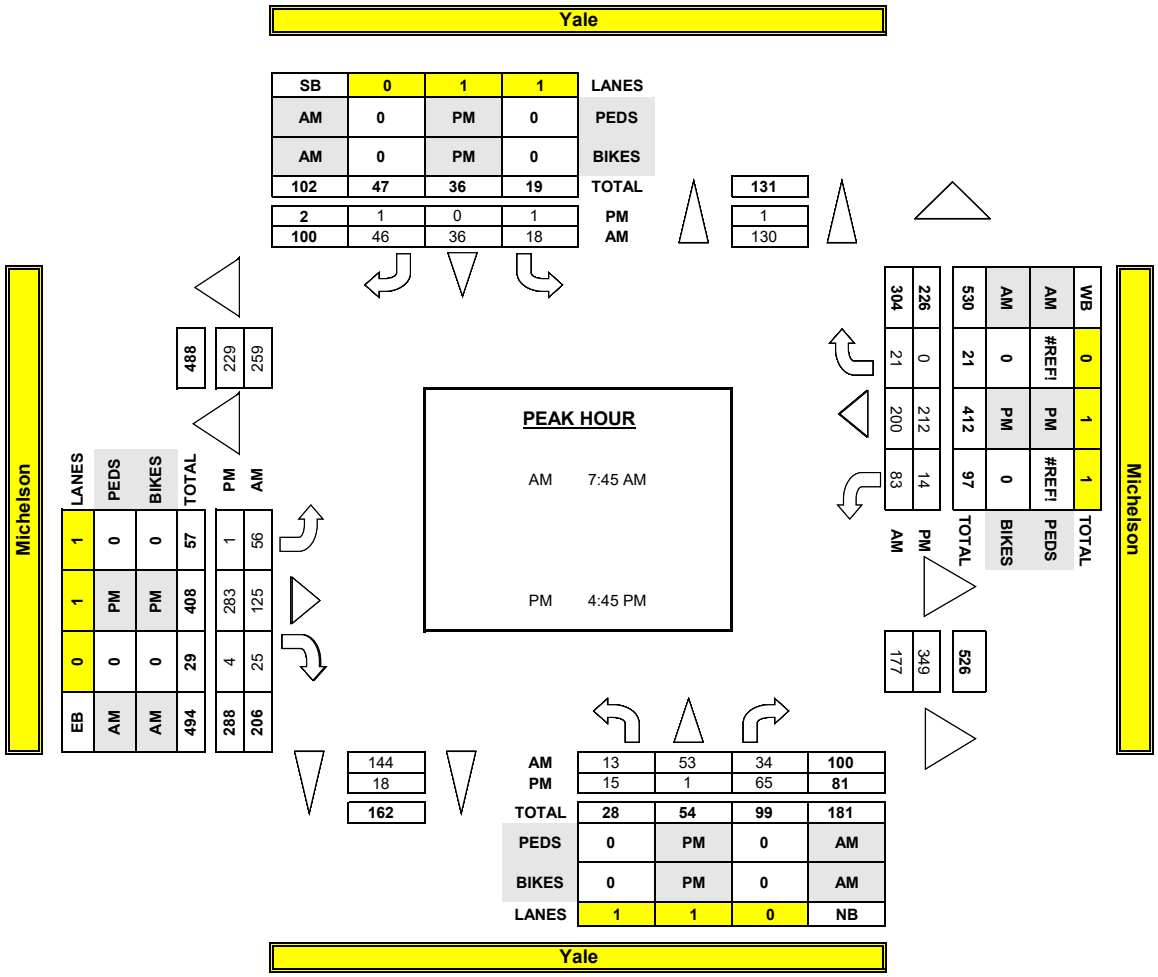
Yale

2:30 PM	14	21	48	20	19	26	23	164	15	46	168	17	581

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T319

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Michelson

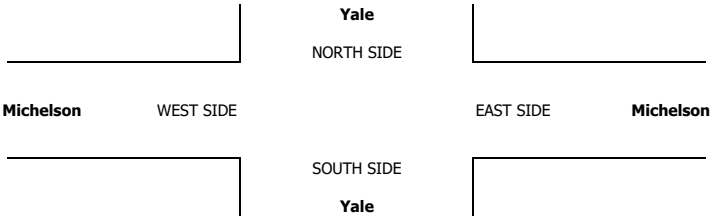
PROJECT #: SC3579
LOCATION #: 1
CONTROL: STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

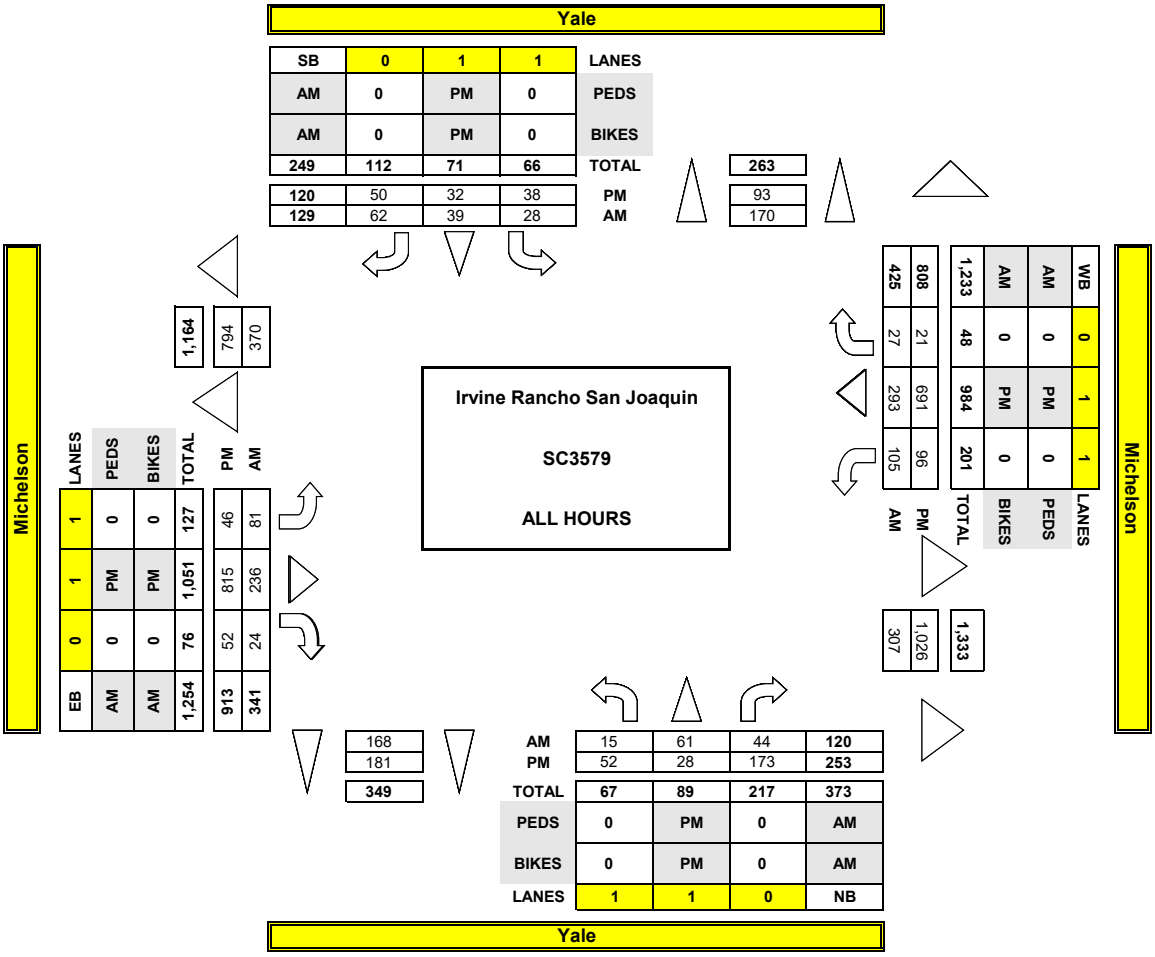
		NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND Michelson			WESTBOUND Michelson				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	1	0	2	0	1	2	1	16	2	2	11	0	38	0	0	0	0	0
	7:15 AM	0	0	4	0	0	0	1	12	3	0	30	6	56	0	0	0	0	0
	7:30 AM	1	1	3	0	0	1	1	23	0	6	23	2	61	0	0	0	0	0
	7:45 AM	3	4	3	0	1	7	15	32	6	4	46	4	125	0	0	0	0	0
	8:00 AM	5	21	13	5	13	16	25	54	6	27	44	11	240	0	0	0	0	0
	8:15 AM	2	32	11	14	23	34	33	41	3	53	64	3	313	0	0	0	0	0
	8:30 AM	3	1	5	4	1	1	1	17	1	8	32	1	75	0	0	0	0	0
	8:45 AM	0	2	3	5	0	1	4	41	3	5	43	0	107	0	1	0	0	1
	VOLUMES	15	61	44	28	39	62	81	236	24	105	293	27	1,015	0	1	0	0	1
	APPROACH %	13%	51%	37%	22%	30%	48%	24%	69%	7%	25%	69%	6%						
	APP/DEPART	120	/	170	129	/	168	341	/	307	425	/	370	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	13	58	32	23	38	58	74	144	16	92	186	19	753					
	APPROACH %	13%	56%	31%	19%	32%	49%	32%	62%	7%	31%	63%	6%						
	PEAK HR FACTOR		0.572			0.419			0.688			0.619		0.601					
	APP/DEPART	103	/	151	119	/	146	234	/	199	297	/	257	0					
PM	02:00 PM	3	2	7	2	1	1	4	29	3	9	44	2	107	0	0	1	0	1
	2:15 PM	3	2	17	1	0	0	2	44	2	4	29	2	106	0	0	0	0	0
	2:30 PM	2	4	6	2	1	0	3	37	4	10	21	2	92	0	0	0	0	0
	2:45 PM	6	7	12	1	2	1	10	45	6	5	40	5	140	0	0	0	0	0
	3:00 PM	7	4	13	14	18	26	16	45	13	26	62	5	249	1	0	0	0	1
	3:15 PM	1	2	9	10	2	4	1	44	1	5	41	3	123	0	0	0	0	0
	3:30 PM	4	0	11	2	0	1	2	28	1	5	32	0	86	0	0	0	0	0
	3:45 PM	5	2	10	0	2	2	3	46	1	2	46	0	119	0	0	0	0	0
	4:00 PM	3	5	6	4	6	9	2	52	5	5	53	0	150	0	0	0	0	0
	4:15 PM	2	0	9	0	0	1	0	43	1	8	37	0	101	0	0	0	0	0
	4:30 PM	1	0	7	0	0	0	0	54	4	1	48	0	115	0	0	0	0	0
	4:45 PM	4	0	11	0	0	0	1	56	3	3	42	1	121	0	0	0	0	0
	5:00 PM	2	0	8	2	0	3	1	61	1	4	44	0	126	0	0	0	0	0
	5:15 PM	2	0	11	0	0	0	0	88	4	3	59	0	167	0	0	0	0	0
	5:30 PM	4	0	19	0	0	2	0	80	2	2	51	1	161	0	0	0	0	0
	5:45 PM	3	0	17	0	0	0	1	63	1	4	42	0	131	0	0	1	0	1
	VOLUMES	52	28	173	38	32	50	46	815	52	96	691	21	2,094	1	0	2	0	3
	APPROACH %	21%	11%	68%	32%	27%	42%	5%	89%	6%	12%	86%	3%						
	APP/DEPART	253	/	93	120	/	181	913	/	1,026	808	/	794	0					
	BEGIN PEAK HR		2:30 PM																
	VOLUMES	16	17	40	27	23	31	30	171	24	46	164	15	604					
	APPROACH %	22%	23%	55%	33%	28%	38%	13%	76%	11%	20%	73%	7%						
	PEAK HR FACTOR		0.730			0.349			0.760			0.605		0.606					
	APP/DEPART	73	/	62	81	/	94	225	/	238	225	/	210	0					

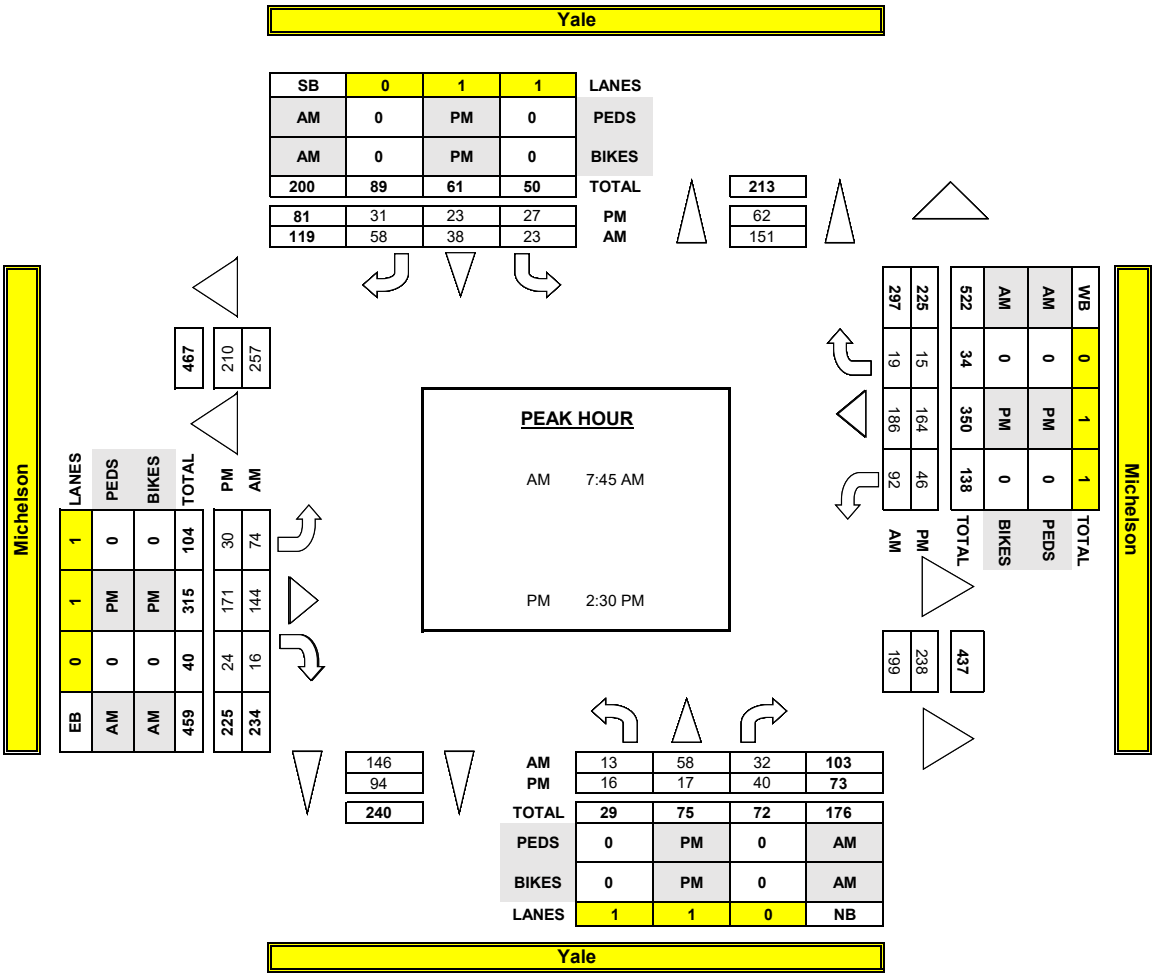


4:45 PM	12	0	49	2	0	5	2	285	10	12	196	2	575

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T319

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Royce

PROJECT #: SC3579
LOCATION #: 2
CONTROL: STOP E/W

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

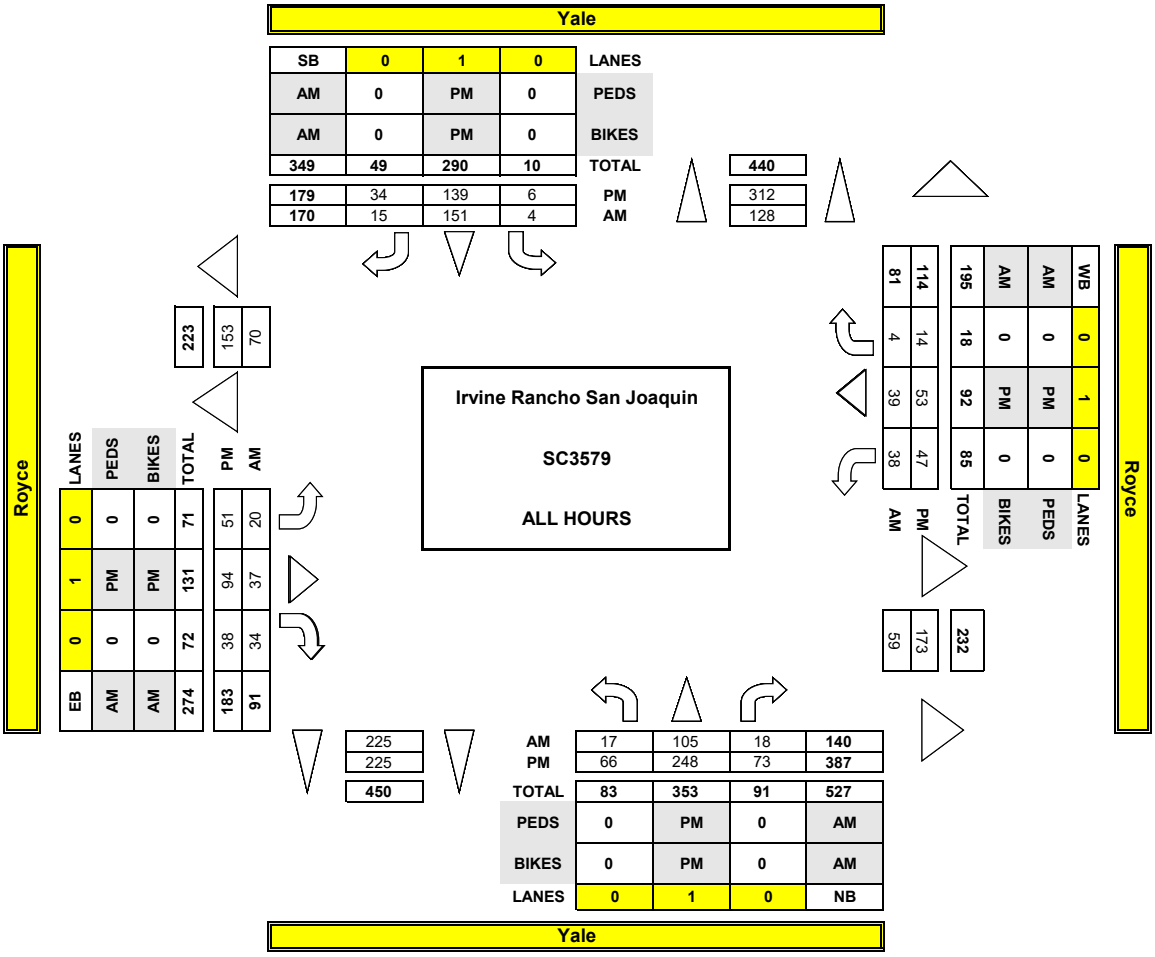
Add U-Turns to Left Turns

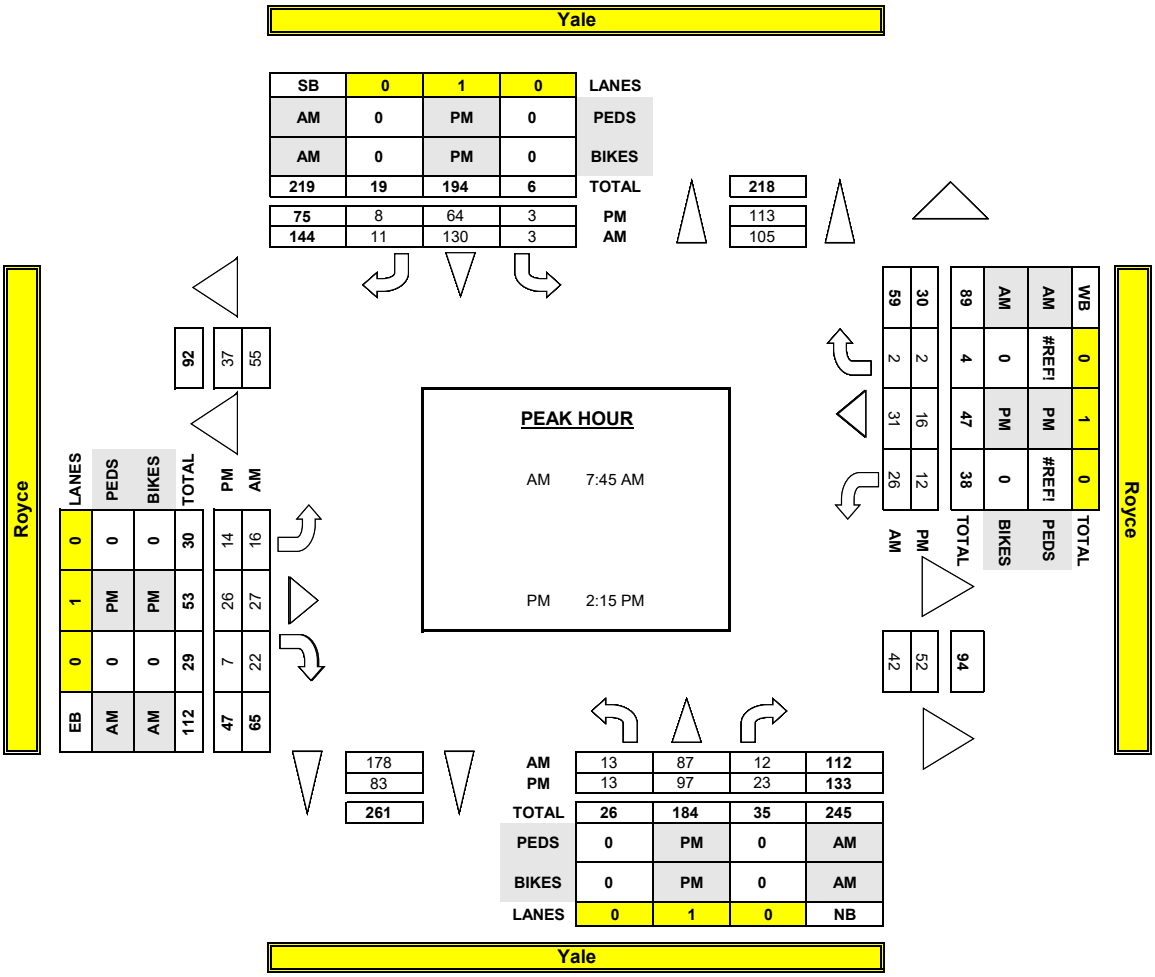
		NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND Royce			WESTBOUND Royce				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	1	3	0	0	1	0	0	2	2	1	0	0	10	0	0	0	0	0
	7:15 AM	0	5	2	1	4	1	1	2	3	4	4	1	28	0	0	1	0	1
	7:30 AM	0	3	3	0	9	1	2	1	2	3	2	1	27	0	0	0	0	0
	7:45 AM	3	15	2	0	13	0	0	4	3	7	10	1	58	0	0	0	0	0
	8:00 AM	5	27	5	1	37	2	5	7	10	8	7	1	115	0	0	0	0	0
	8:15 AM	4	36	2	2	72	8	10	12	6	8	10	0	170	0	0	0	0	0
	8:30 AM	1	9	3	0	8	1	1	4	3	3	4	0	37	0	0	0	0	0
	8:45 AM	3	7	1	0	7	2	1	5	5	4	2	0	37	2	0	0	0	2
	VOLUMES	17	105	18	4	151	15	20	37	34	38	39	4	482	2	0	1	0	3
	APPROACH %	12%	75%	13%	2%	89%	9%	22%	41%	37%	47%	48%	5%						
	APP/DEPART	140	/	128	170	/	225	91	/	59	81	/	70	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	13	87	12	3	130	11	16	27	22	26	31	2	380					
	APPROACH %	12%	78%	11%	2%	90%	8%	25%	42%	34%	44%	53%	3%						
	PEAK HR FACTOR		0.667			0.439			0.580			0.819		0.559					
	APP/DEPART	112	/	105	144	/	178	65	/	42	59	/	55	0					
PM	02:00 PM	2	20	12	0	5	2	7	3	3	6	4	0	64	0	0	0	0	0
	2:15 PM	8	23	7	0	5	2	2	6	1	0	3	0	57	0	0	0	0	0
	2:30 PM	2	15	1	0	4	1	3	9	2	6	3	0	46	0	0	0	0	0
	2:45 PM	0	37	8	0	4	0	5	2	2	2	5	1	66	0	0	0	0	0
	3:00 PM	3	22	7	3	51	5	4	9	2	4	5	1	116	0	0	0	0	0
	3:15 PM	1	4	5	0	17	2	2	2	2	3	2	0	40	0	0	0	0	0
	3:30 PM	5	8	2	0	4	3	1	2	0	1	2	1	29	1	0	0	0	1
	3:45 PM	7	14	2	0	7	0	1	9	3	1	1	1	46	0	0	0	0	0
	4:00 PM	2	15	3	0	19	6	5	4	1	5	3	2	65	0	0	1	0	1
	4:15 PM	1	10	2	1	5	2	5	1	1	3	1	5	37	0	0	0	0	0
	4:30 PM	4	4	3	1	5	3	1	6	6	5	7	1	46	0	0	0	0	0
	4:45 PM	5	9	4	0	0	2	4	11	4	2	6	0	47	0	0	0	0	0
	5:00 PM	9	13	3	0	2	2	5	9	8	3	5	1	60	0	0	0	0	0
	5:15 PM	6	17	4	1	2	1	1	6	1	3	2	0	44	0	0	0	0	0
	5:30 PM	7	25	5	0	4	3	4	8	1	2	3	1	63	0	0	0	0	0
	5:45 PM	4	12	5	0	5	0	1	7	1	1	1	0	37	0	0	0	0	0
	VOLUMES	66	248	73	6	139	34	51	94	38	47	53	14	863	1	0	1	0	2
	APPROACH %	17%	64%	19%	3%	78%	19%	28%	51%	21%	41%	46%	12%						
	APP/DEPART	387	/	312	179	/	225	183	/	173	114	/	153	0					
	BEGIN PEAK HR		2:15 PM																
	VOLUMES	13	97	23	3	64	8	14	26	7	12	16	2	285					
	APPROACH %	10%	73%	17%	4%	85%	11%	30%	55%	15%	40%	53%	7%						
	PEAK HR FACTOR		0.739			0.318			0.783			0.750		0.614					
	APP/DEPART	133	/	113	75	/	83	47	/	52	30	/	37	0					

4:45 PM	27	64	16	1	8	8	14	34	14	10	16	2	214

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T319

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Royce

PROJECT #: SC3579
LOCATION #: 2
CONTROL: STOP E/W

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

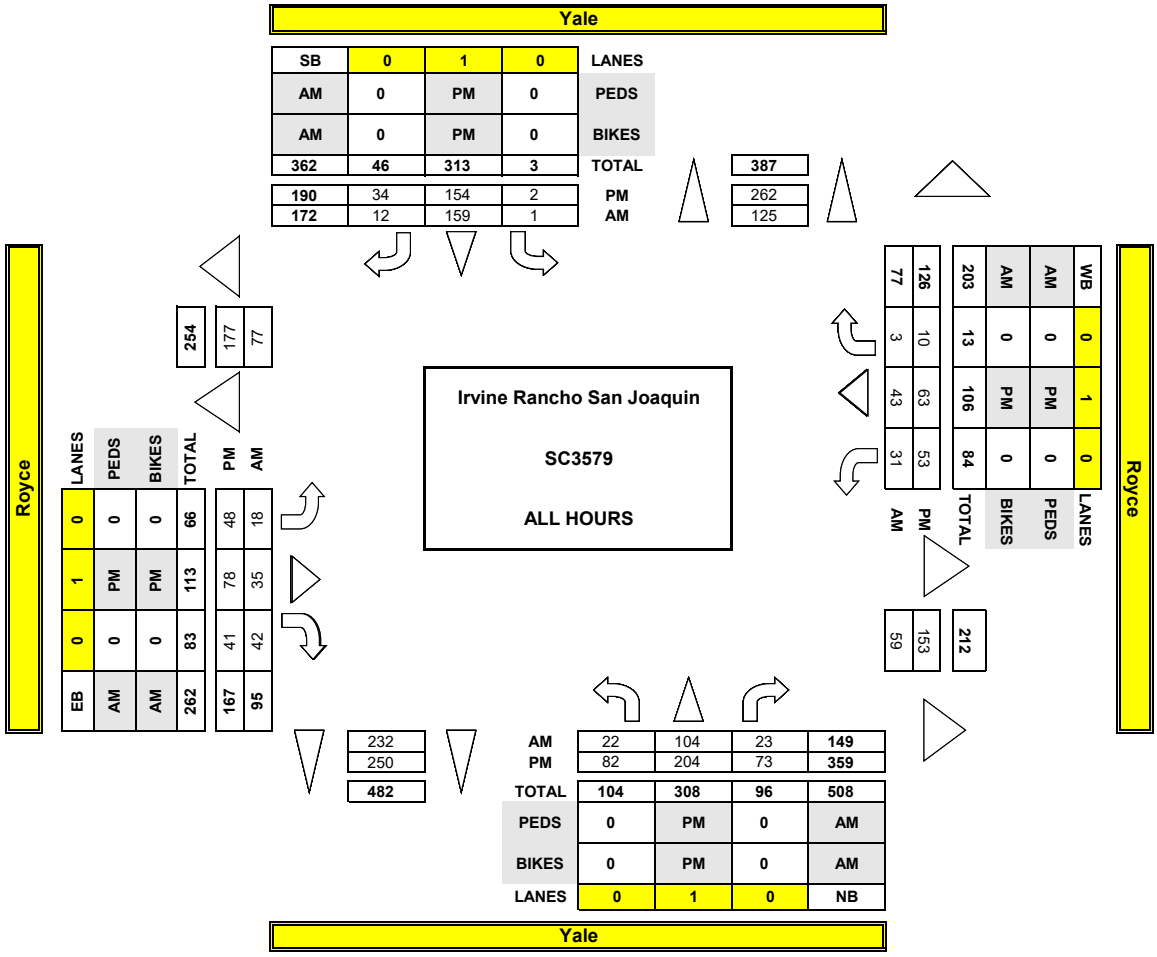
Add U-Turns to Left Turns

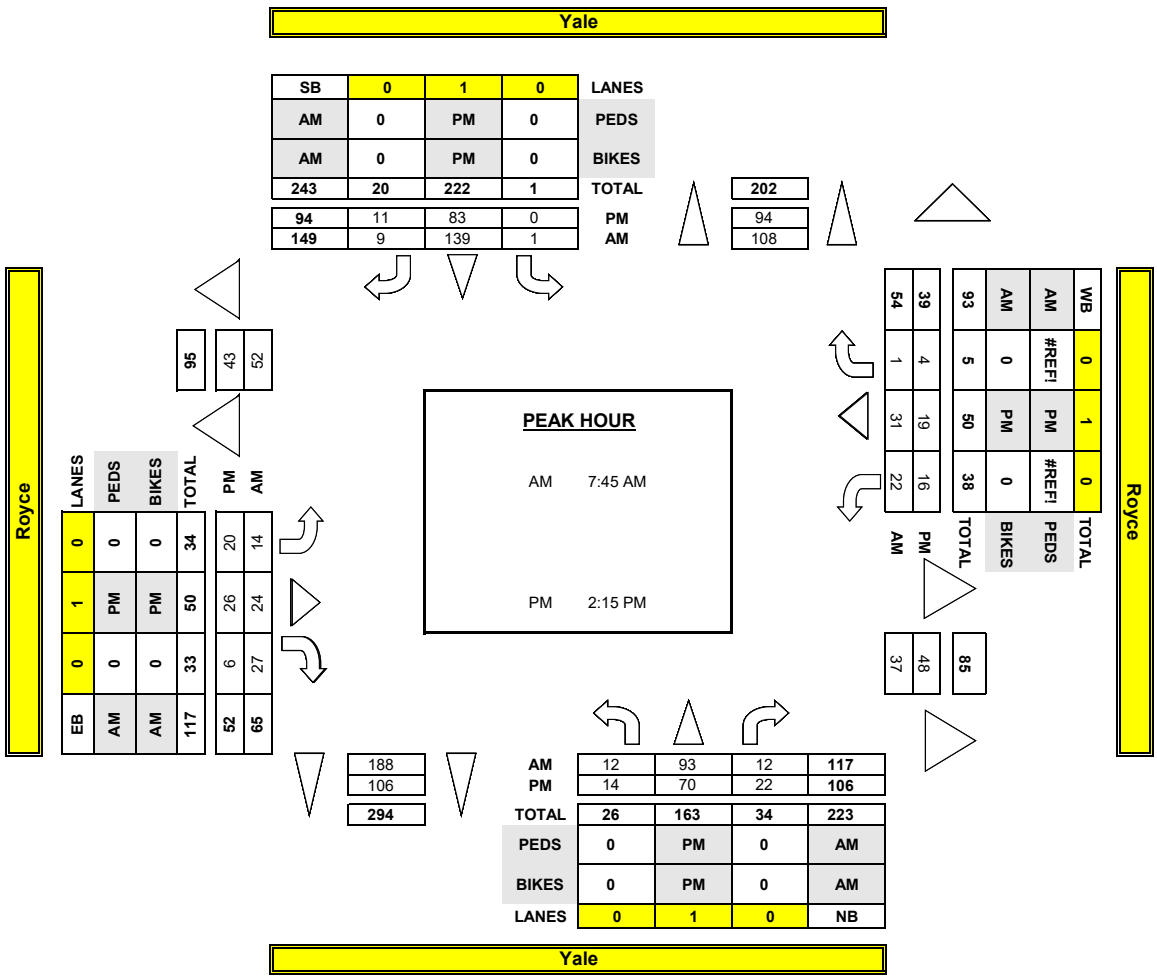
		NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND Royce			WESTBOUND Royce				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	1	3	0	4	2	2	2	1	3	0	0	18	0	0	0	0	0
	7:15 AM	3	3	2	0	2	1	2	5	4	2	5	1	30	0	0	0	0	0
	7:30 AM	4	2	1	0	6	0	0	2	4	4	4	1	28	0	0	0	0	0
	7:45 AM	0	8	2	0	9	0	2	6	9	2	9	0	47	0	0	0	0	0
	8:00 AM	2	43	4	0	43	2	6	8	10	6	9	0	133	0	0	0	0	0
	8:15 AM	7	35	4	1	78	6	5	7	5	10	9	0	167	0	0	0	0	0
	8:30 AM	3	7	2	0	9	1	1	3	3	4	4	1	38	0	0	0	0	0
	8:45 AM	3	5	5	0	8	0	0	2	6	0	3	0	32	0	0	0	0	0
	VOLUMES	22	104	23	1	159	12	18	35	42	31	43	3	493	0	0	0	0	0
	APPROACH %	15%	70%	15%	1%	92%	7%	19%	37%	44%	40%	56%	4%						
	APP/DEPART	149	/	125	172	/	232	95	/	59	77	/	77	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	12	93	12	1	139	9	14	24	27	22	31	1	385					
	APPROACH %	10%	79%	10%	1%	93%	6%	22%	37%	42%	41%	57%	2%						
	PEAK HR FACTOR		0.597			0.438			0.677			0.711		0.576					
	APP/DEPART	117	/	108	149	/	188	65	/	37	54	/	52	0					
PM	02:00 PM	8	9	6	0	9	5	1	1	3	4	4	1	51	1	0	0	0	1
	2:15 PM	9	14	6	0	3	2	7	11	0	4	3	2	61	1	0	0	0	1
	2:30 PM	1	10	3	0	10	1	1	5	1	2	4	2	40	0	0	0	0	0
	2:45 PM	4	32	4	0	2	0	9	8	2	6	4	0	71	0	0	0	0	0
	3:00 PM	0	14	9	0	68	8	3	2	3	4	8	0	119	0	0	0	0	0
	3:15 PM	4	5	3	0	7	3	4	1	2	4	2	2	37	0	0	0	0	0
	3:30 PM	1	12	3	0	6	4	3	2	3	1	4	2	41	0	0	0	0	0
	3:45 PM	2	15	1	0	4	1	2	3	8	3	7	0	46	0	0	0	0	0
	4:00 PM	3	14	8	0	17	0	1	3	1	3	5	0	55	0	0	0	0	0
	4:15 PM	8	10	4	0	8	1	1	7	1	3	3	0	46	0	0	0	0	0
	4:30 PM	8	6	5	0	5	0	4	8	2	0	6	0	44	0	0	0	0	0
	4:45 PM	4	13	4	1	2	3	2	7	1	4	0	1	42	0	0	0	0	0
	5:00 PM	8	5	5	0	4	1	3	6	5	4	4	0	45	0	0	0	0	0
	5:15 PM	5	14	1	0	5	1	0	5	2	3	3	0	39	0	0	0	0	0
	5:30 PM	9	18	7	1	2	2	2	4	3	2	1	0	51	0	0	0	0	0
	5:45 PM	8	13	4	0	2	2	5	5	4	6	5	0	54	0	0	0	0	0
	VOLUMES	82	204	73	2	154	34	48	78	41	53	63	10	842	2	0	0	0	2
	APPROACH %	23%	57%	20%	1%	81%	18%	29%	47%	25%	42%	50%	8%						
	APP/DEPART	359	/	262	190	/	250	167	/	153	126	/	177	0					
	BEGIN PEAK HR		2:15 PM																
	VOLUMES	14	70	22	0	83	11	20	26	6	16	19	4	291					
	APPROACH %	13%	66%	21%	0%	88%	12%	38%	50%	12%	41%	49%	10%						
	PEAK HR FACTOR		0.663			0.309			0.684			0.813		0.611					
	APP/DEPART	106	/	94	94	/	106	52	/	48	39	/	43	0					

4:45 PM	26	50	17	2	13	7	7	22	11	13	8	1	177

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T319

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: University

PROJECT #: SC3579
LOCATION #: 3
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

☐ Add U-Turns to Left Turns

		NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND University			WESTBOUND University				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	4	0	2	3	68	0	0	139	3	219	0	0	0	0	0
	7:15 AM	0	0	0	4	0	7	5	115	0	0	204	4	339	0	0	0	0	0
	7:30 AM	0	0	0	4	0	12	4	128	0	0	339	5	492	0	0	1	0	1
	7:45 AM	0	0	0	7	0	17	9	155	0	0	370	7	565	0	0	0	0	0
	8:00 AM	0	0	0	18	0	34	26	165	0	0	317	12	572	0	0	0	0	0
	8:15 AM	0	0	0	40	0	43	29	190	0	0	339	13	654	0	0	0	1	1
	8:30 AM	0	0	0	11	0	9	10	219	0	0	347	4	600	0	0	1	0	1
	8:45 AM	0	0	0	6	0	11	5	122	0	0	320	5	469	0	0	4	0	4
	VOLUMES	0	0	0	94	0	135	91	1,162	0	0	2,375	53	3,917	0	0	6	1	7
	APPROACH %	0%	0%	0%	41%	0%	59%	7%	92%	0%	0%	98%	2%						
	APP/DEPART	0	/	144	229	/	0	1,259	/	1,257	2,429	/	2,516	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	0	0	0	76	0	103	74	729	0	0	1,373	36	2,393					
	APPROACH %	0%	0%	0%	42%	0%	58%	9%	91%	0%	0%	97%	3%						
	PEAK HR FACTOR		0.000			0.539			0.874			0.935		0.913					
	APP/DEPART	0	/	110	179	/	0	804	/	806	1,410	/	1,477	0					
PM	02:00 PM	0	0	0	3	0	8	26	116	0	0	130	4	287	0	1	1	0	2
	2:15 PM	0	0	0	1	0	6	31	117	0	0	176	9	340	0	0	6	0	6
	2:30 PM	0	0	0	2	0	11	9	125	0	0	198	5	350	0	0	0	0	0
	2:45 PM	0	0	0	3	0	6	35	117	0	0	156	12	329	0	0	0	0	0
	3:00 PM	0	0	0	21	0	40	24	134	0	0	197	12	428	0	0	0	0	0
	3:15 PM	0	0	0	5	0	18	7	189	0	0	203	4	426	0	0	0	0	0
	3:30 PM	0	0	0	3	0	6	23	187	0	0	171	5	395	0	0	0	0	0
	3:45 PM	0	0	0	2	0	8	14	296	0	0	195	9	524	0	0	0	0	0
	4:00 PM	0	0	0	2	0	23	15	245	0	0	207	5	497	0	0	0	0	0
	4:15 PM	0	0	0	2	0	6	11	297	0	0	231	2	549	0	0	0	0	0
	4:30 PM	0	0	0	5	0	12	10	296	0	0	248	4	575	0	0	0	0	0
	4:45 PM	0	0	0	3	0	3	8	384	0	0	245	7	650	0	0	0	0	0
	5:00 PM	0	0	0	6	0	8	15	347	0	0	222	9	607	0	0	1	0	1
	5:15 PM	0	0	0	0	0	5	18	401	0	0	256	8	688	0	0	0	0	0
	5:30 PM	0	0	0	1	0	6	28	306	0	0	261	8	610	0	0	0	0	0
	5:45 PM	0	0	0	3	0	4	14	294	0	0	251	5	571	0	0	1	0	1
	VOLUMES	0	0	0	62	0	170	288	3,851	0	0	3,347	108	7,836	0	1	9	0	10
	APPROACH %	0%	0%	0%	27%	0%	73%	7%	93%	0%	0%	97%	3%						
	APP/DEPART	0	/	397	233	/	0	4,148	/	3,913	3,455	/	3,526	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	0	10	0	22	69	1,438	0	0	984	32	2,556					
	APPROACH %	0%	0%	0%	31%	0%	69%	5%	95%	0%	0%	97%	3%						
	PEAK HR FACTOR		0.000			0.571			0.900			0.944		0.929					
	APP/DEPART	0	/	101	32	/	0	1,508	/	1,448	1,016	/	1,007	0					

Yale

NORTH SIDE

University WEST SIDE EAST SIDE **University**

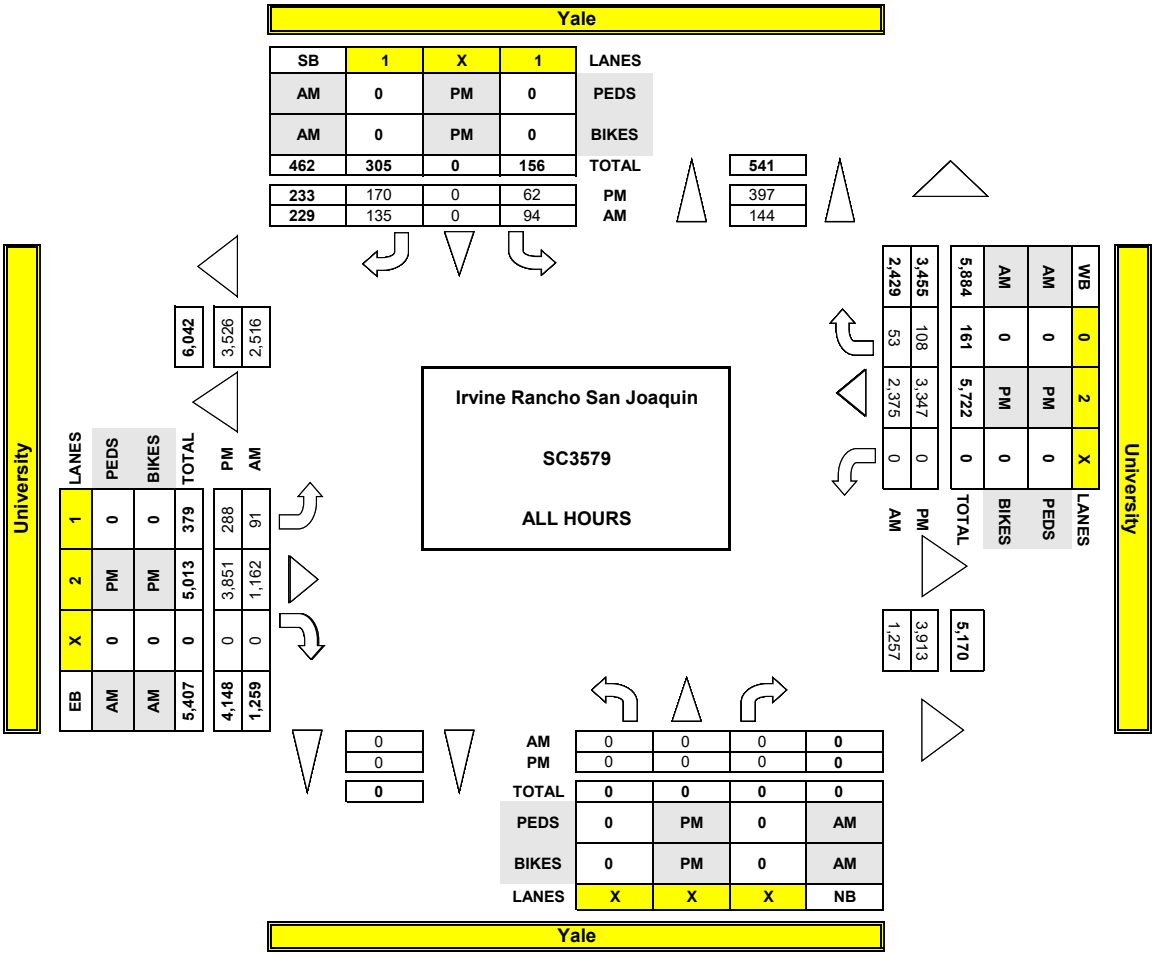
SOUTH SIDE

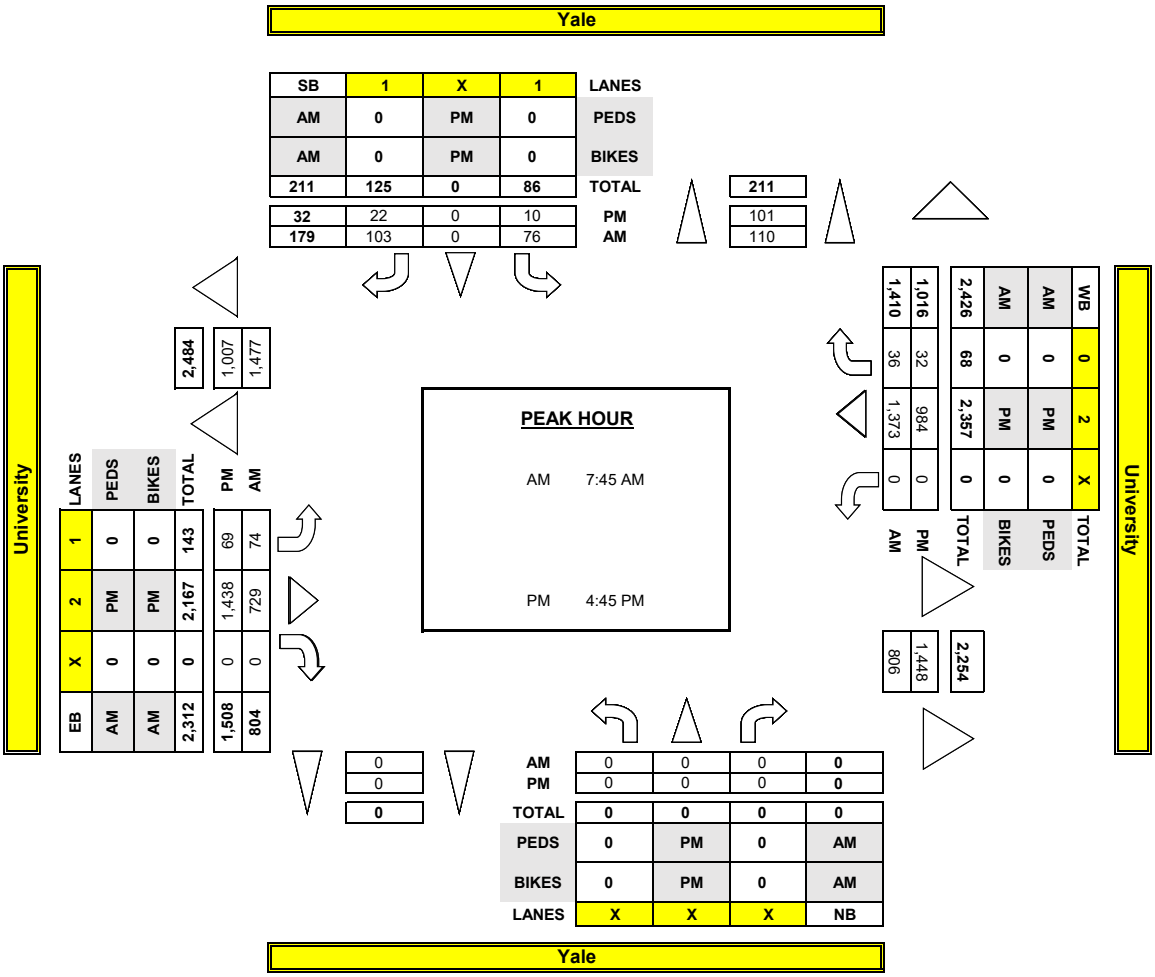
Yale

2:30 PM	0	0	0	32	0	70	89	627	0	0	727	33	1,578

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: University

PROJECT #: SC3579
LOCATION #: 3
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

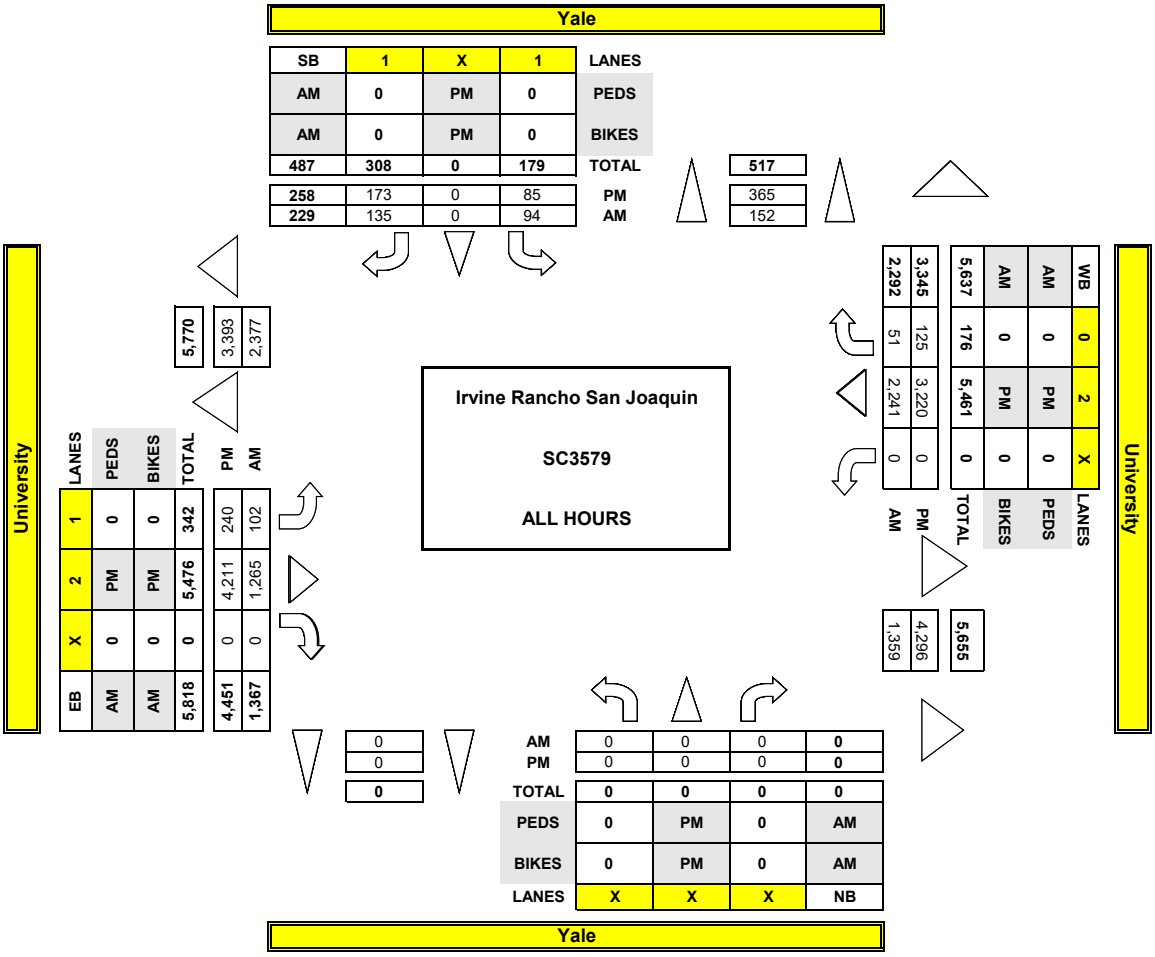
Add U-Turns to Left Turns

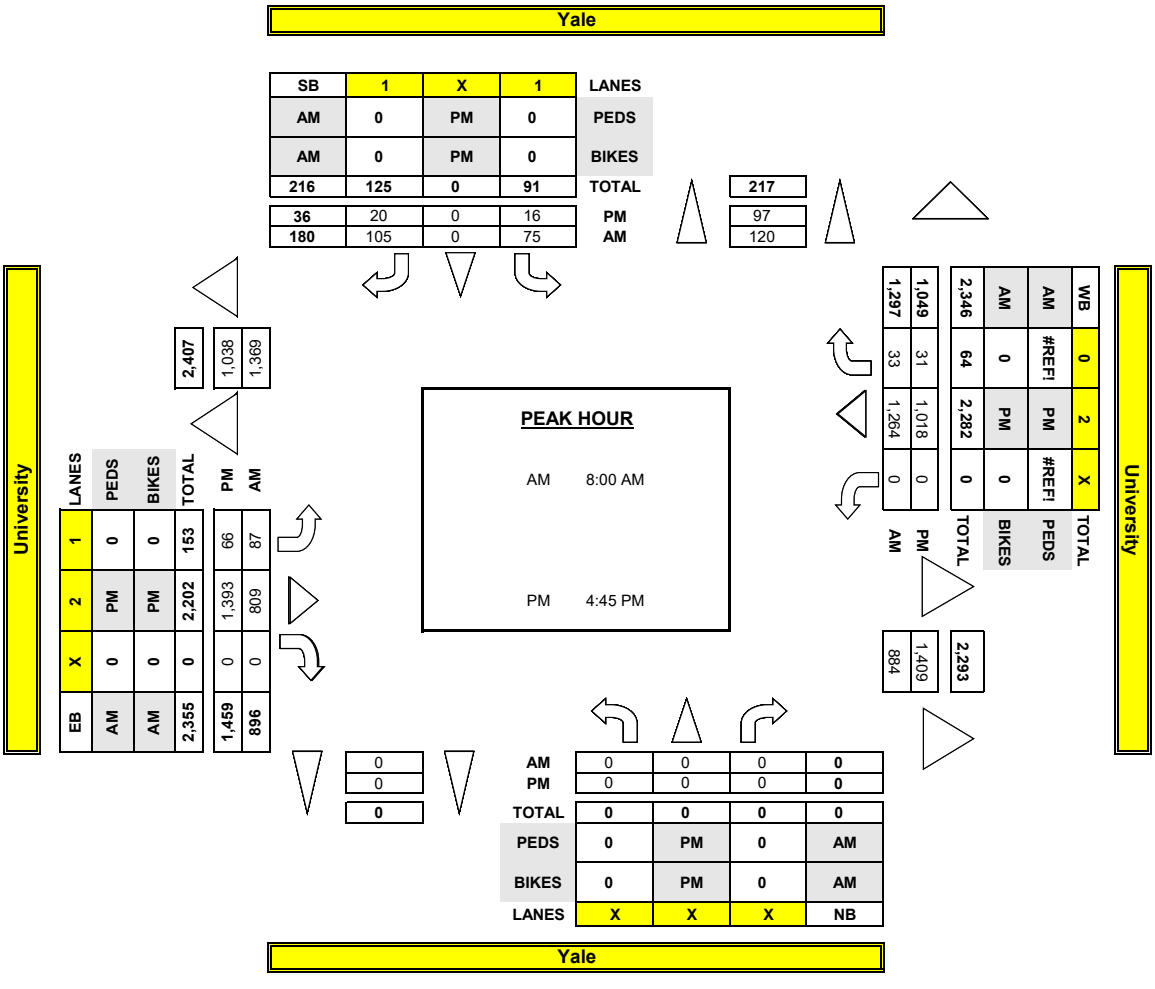
		NORTHBOUND Yale			SOUTHBOUND Yale			EASTBOUND University			WESTBOUND University				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 1	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	0	0	0	2	0	7	2	71	0	0	129	3	214	0	0	0	0	0
	7:15 AM	0	0	0	3	0	3	2	102	0	0	204	6	320	0	0	0	0	0
	7:30 AM	0	0	0	7	0	6	3	123	0	0	310	4	453	0	0	0	0	0
	7:45 AM	0	0	0	7	0	14	8	160	0	0	334	5	528	0	0	1	0	1
	8:00 AM	0	0	0	17	0	32	37	164	0	0	381	10	641	0	0	0	0	0
	8:15 AM	0	0	0	45	0	54	32	193	0	0	256	13	593	0	0	0	0	0
	8:30 AM	0	0	0	10	0	9	9	286	0	0	281	6	601	0	0	0	0	0
	8:45 AM	0	0	0	3	0	10	9	166	0	0	346	4	538	0	0	0	0	0
	VOLUMES	0	0	0	94	0	135	102	1,265	0	0	2,241	51	3,888	0	0	1	0	1
	APPROACH %	0%	0%	0%	41%	0%	59%	7%	93%	0%	0%	98%	2%						
	APP/DEPART	0	/	152	229	/	0	1,367	/	1,359	2,292	/	2,377	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	0	75	0	105	87	809	0	0	1,264	33	2,373					
	APPROACH %	0%	0%	0%	42%	0%	58%	10%	90%	0%	0%	97%	3%						
	PEAK HR FACTOR		0.000			0.455			0.759			0.829		0.926					
	APP/DEPART	0	/	120	180	/	0	896	/	884	1,297	/	1,369	0					
PM	02:00 PM	0	0	0	3	0	10	11	166	0	0	151	10	351	0	0	0	0	0
	2:15 PM	0	0	0	4	0	7	17	173	0	0	139	14	354	0	0	0	0	0
	2:30 PM	0	0	0	6	0	8	7	182	0	0	157	8	368	0	0	0	0	0
	2:45 PM	0	0	0	3	0	9	31	186	0	0	171	10	410	0	0	0	0	0
	3:00 PM	0	0	0	33	0	42	15	180	0	0	186	9	465	0	0	0	0	0
	3:15 PM	0	0	0	2	0	15	8	202	0	0	177	4	408	0	0	0	0	0
	3:30 PM	0	0	0	2	0	9	16	238	0	0	188	1	454	0	0	0	0	0
	3:45 PM	0	0	0	5	0	9	9	274	0	0	199	9	505	0	0	0	0	0
	4:00 PM	0	0	0	5	0	16	22	276	0	0	193	7	519	0	0	0	0	0
	4:15 PM	0	0	0	1	0	12	11	341	0	0	181	7	553	0	0	0	0	0
	4:30 PM	0	0	0	3	0	4	10	330	0	0	233	9	589	0	0	0	0	0
	4:45 PM	0	0	0	0	0	7	16	373	0	0	253	7	656	0	0	0	0	0
	5:00 PM	0	0	0	6	0	6	8	326	0	0	261	10	617	0	0	0	0	0
	5:15 PM	0	0	0	8	0	2	16	371	0	0	227	4	628	0	0	0	0	0
	5:30 PM	0	0	0	2	0	5	26	323	0	0	277	10	643	0	0	0	0	0
	5:45 PM	0	0	0	2	0	12	17	270	0	0	227	6	534	0	0	0	0	0
	VOLUMES	0	0	0	85	0	173	240	4,211	0	0	3,220	125	8,054	0	0	0	0	0
	APPROACH %	0%	0%	0%	33%	0%	67%	5%	95%	0%	0%	96%	4%						
	APP/DEPART	0	/	365	258	/	0	4,451	/	4,296	3,345	/	3,393	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	0	0	0	16	0	20	66	1,393	0	0	1,018	31	2,544					
	APPROACH %	0%	0%	0%	44%	0%	56%	5%	95%	0%	0%	97%	3%						
	PEAK HR FACTOR		0.000			0.750			0.938			0.914		0.970					
	APP/DEPART	0	/	97	36	/	0	1,459	/	1,409	1,049	/	1,038	0					

2:30 PM	0	0	0	44	0	74	61	750	0	0	691	31	1,651

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Michelson

PROJECT #: SC3579
LOCATION #: 1
CONTROL: STOP ALL

NORTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
	7:15 AM	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
	7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4
	8:00 AM	0	0	3	1	5	0	0	0	0	0	0	0	0	0	9
	8:15 AM	0	0	9	0	2	2	1	0	1	0	0	0	0	0	15
	8:30 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	0	2	14	1	8	6	1	1	2	0	0	0	0	0	35
PM	02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	2:45 PM	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3
	3:00 PM	0	4	1	51	0	4	0	2	0	3	0	0	0	0	65
	3:15 PM	1	0	0	0	1	0	0	1	0	0	0	0	0	0	3
	3:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	4:00 PM	0	0	1	2	0	2	0	0	0	1	0	0	0	0	6
	4:15 PM	2	2	0	0	0	0	0	0	0	1	0	0	0	0	5
	4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	4:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	3	2	0	0	0	1	0	0	0	0	0	0	0	0	6
	5:30 PM	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3
	5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	12	10	2	53	2	9	0	5	1	5	0	0	0	0	99

SOUTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	7:15 AM	1	0	1	0	1	1	0	0	0	0	0	0	0	0	4
	7:30 AM	1	5	2	0	0	3	0	0	0	0	0	0	0	0	11
	7:45 AM	0	0	2	0	2	2	0	0	0	0	0	0	0	0	6
	8:00 AM	0	1	4	0	5	3	0	0	0	0	0	0	0	0	13
	8:15 AM	1	0	8	1	1	0	0	0	0	0	0	0	1	0	12
	8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	TOTAL AM	3	10	17	1	10	9	0	0	0	0	0	0	1	0	51
PM	02:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	2:45 PM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4
	3:00 PM	0	3	0	15	0	4	0	0	0	1	0	0	0	0	23
	3:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
	3:30 PM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	4
	3:45 PM	2	0	0	0	1	0	1	0	0	0	0	0	0	0	4
	4:00 PM	1	1	1	0	0	7	0	0	0	0	0	0	0	0	10
	4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	4:30 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
	4:45 PM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
	5:00 PM	1	2	0	0	2	0	0	0	0	0	0	0	0	0	5
	5:15 PM	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	5:30 PM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	4
	5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	TOTAL PM	15	20	1	15	14	12	1	0	0	1	0	0	0	0	79

EAST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
	7:15 AM	1	1	3	0	3	1	0	0	0	0	0	0	0	0	9
	7:30 AM	1	3	2	0	1	0	0	0	0	0	0	0	0	0	7
	7:45 AM	0	1	2	0	3	0	0	0	0	0	0	0	0	0	6
	8:00 AM	0	1	11	0	11	0	1	0	2	0	0	0	0	0	26
	8:15 AM	1	2	22	0	4	0	0	1	0	0	0	0	1	0	31
	8:30 AM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
	8:45 AM	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
	TOTAL AM	6	12	40	0	23	2	1	1	2	0	0	0	1	0	88
PM	02:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	2:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	2:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	2:45 PM	3	0	0	2	0	0	0	0	0	1	0	0	0	0	6
	3:00 PM	0	2	0	55	0	13	0	1	0	0	0	0	0	0	71
	3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:45 PM	2	0	0	0	1	1	0	0	0	0	0	0	0	0	4
	4:00 PM	0	0	0	1	0	7	0	0	0	0	0	0	0	0	8
	4:15 PM	1	3	0	0	0	0	0	0	0	0	0	0	1	0	5
	4:30 PM	0	2	0	0	1	1	0	0	0	1	0	0	0	0	5
	4:45 PM	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
	5:00 PM	1	0	0	0	0	1	1	0	0	0	0	0	0	0	3
	5:15 PM	0	1	0	0	2	0	0	0	1	0	0	0	0	0	4
	5:30 PM	2	1	0	0	1	1	0	0	0	0	0	0	0	0	5
	5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	13	12	0	58	8	25	1	2	1	2	0	0	1	0	123

WEST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	2	0	0	0	1	3	0	0	0	0	0	0	0	0	6
	8:00 AM	0	0	3	0	2	1	0	0	0	0	0	0	0	0	6
	8:15 AM	0	1	3	1	1	4	0	0	1	0	0	0	0	0	11
	8:30 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	8:45 AM	1	0	0	0	1	4	1	0	0	0	0	0	0	0	7
	TOTAL AM	3	1	8	1	6	14	1	0	1	0	0	0	0	0	35
PM	02:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	2:15 PM	2	0	0	0	1	1	0	1	0	0	0	0	0	0	5
	2:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	2
	2:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	3:00 PM	1	1	0	21	0	6	0	1	0	2	0	0	0	1	33
	3:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
	3:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
	3:45 PM	2	1	0	0	0	2	0	0	0	1	0	0	0	1	7
	4:00 PM	1	0	0	1	0	1	0	0	0	1	0	0	0	0	4
	4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	4:45 PM	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
	5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	5:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	5:30 PM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
	5:45 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
	TOTAL PM	12	9	0	22	4	17	0	2	0	6	0	0	0	2	74

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Michelson

PROJECT #: SC3579
LOCATION #: 1
CONTROL: STOP ALL

NORTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
	7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	7:30 AM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	9	0	2	0	0	0	0	0	0	0	0	0	11
	8:15 AM	0	0	7	0	5	12	0	0	0	0	0	0	0	0	24
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	2	1	17	0	7	13	0	1	0	0	0	0	0	0	41
PM	02:00 PM	0	1	0	1	0	1	0	0	1	0	0	0	0	0	4
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	2:45 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
	3:00 PM	0	4	3	52	0	5	0	1	0	0	0	0	0	0	65
	3:15 PM	0	0	2	7	0	0	0	0	0	0	0	0	0	0	9
	3:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
	3:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	4:00 PM	0	1	0	2	0	5	0	0	0	2	0	0	0	0	10
	4:15 PM	0	2	0	0	0	0	1	1	0	0	0	0	0	0	4
	4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	4:45 PM	1	0	0	1	0	1	0	0	0	0	0	0	0	0	3
	5:00 PM	0	2	0	0	0	0	0	1	0	1	0	0	0	0	4
	5:15 PM	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
	5:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	5:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	5	14	6	64	1	15	1	3	1	4	0	0	0	0	114

SOUTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
	7:30 AM	0	0	0	0	2	3	0	0	0	0	0	0	0	0	5
	7:45 AM	0	0	1	0	1	2	0	0	0	0	0	0	0	0	4
	8:00 AM	0	2	4	0	1	2	0	0	0	0	0	0	0	0	9
	8:15 AM	0	2	5	0	3	1	0	0	1	0	0	0	1	0	13
	8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	8:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3
	TOTAL AM	0	9	10	0	9	8	0	0	1	0	0	0	1	0	38
PM	02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	2:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:00 PM	1	0	3	18	3	2	0	0	0	2	0	0	0	1	30
	3:15 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3
	3:30 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
	3:45 PM	1	1	0	0	0	2	0	0	0	1	0	0	0	0	5
	4:00 PM	5	1	0	0	0	3	1	0	0	0	0	0	0	0	10
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	4
	4:45 PM	2	0	2	0	1	0	0	0	0	0	0	0	0	0	5
	5:00 PM	1	2	0	0	1	0	0	0	1	0	0	0	0	0	5
	5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:45 PM	2	4	1	0	0	0	0	0	0	0	0	0	0	0	7
	TOTAL PM	15	12	7	18	11	7	2	0	1	3	0	0	0	1	77

EAST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	1	1	2	0	0	0	0	0	0	0	0	0	0	0	4
	7:30 AM	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
	7:45 AM	9	0	2	0	4	0	0	0	0	0	0	0	0	0	15
	8:00 AM	3	4	14	0	5	0	0	0	0	0	0	0	0	0	26
	8:15 AM	1	3	15	0	11	0	1	1	1	0	0	0	2	0	35
	8:30 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	8:45 AM	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
	TOTAL AM	16	13	33	0	25	0	1	1	1	0	0	0	2	0	92
PM	02:00 PM	1	2	0	0	4	0	1	0	0	0	0	0	0	0	8
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3
	3:00 PM	0	2	0	53	3	13	0	1	0	2	0	0	0	1	75
	3:15 PM	2	1	1	0	1	0	0	0	0	0	0	0	0	0	5
	3:30 PM	1	2	0	0	0	2	1	0	0	0	0	0	0	0	6
	3:45 PM	1	3	0	0	2	0	0	0	0	0	0	0	0	0	6
	4:00 PM	1	2	0	2	0	2	0	0	1	0	0	0	0	0	8
	4:15 PM	1	1	0	0	0	1	1	0	0	0	0	0	0	0	4
	4:30 PM	5	1	0	0	5	0	0	0	0	0	0	0	0	0	11
	4:45 PM	1	2	0	0	0	3	0	0	0	0	0	0	0	0	6
	5:00 PM	1	0	0	0	2	3	0	0	1	0	0	0	0	0	7
	5:15 PM	2	1	0	0	1	0	0	0	0	0	0	0	0	0	4
	5:30 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
	5:45 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	3
	TOTAL PM	17	19	2	56	19	24	4	1	3	2	0	0	0	1	148

WEST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
	7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	7:30 AM	0	0	0	1	0	2	0	0	0	0	0	0	0	0	3
	7:45 AM	1	0	1	0	1	1	0	0	0	0	0	0	0	0	4
	8:00 AM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
	8:15 AM	0	0	7	0	2	13	1	0	0	0	0	0	0	0	23
	8:30 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	3
	8:45 AM	0	3	0	0	0	2	0	0	0	1	0	0	0	0	6
	TOTAL AM	2	6	14	1	3	20	1	0	0	1	0	0	0	0	48
PM	02:00 PM	3	0	0	1	0	4	0	0	0	0	0	0	0	0	8
	2:15 PM	1	1	0	0	0	0	0	1	0	0	0	0	0	0	3
	2:30 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
	2:45 PM	1	1	0	0	1	1	0	0	0	0	0	0	0	0	4
	3:00 PM	1	1	0	25	0	3	0	0	0	0	0	0	0	0	30
	3:15 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
	3:30 PM	2	1	0	0	2	2	0	0	0	0	0	0	0	0	7
	3:45 PM	0	0	0	1	0	2	0	0	0	0	0	0	0	0	3
	4:00 PM	0	2	0	2	0	1	0	0	0	0	0	0	0	0	5
	4:15 PM	1	1	0	0	0	0	1	0	1	0	0	0	0	0	4
	4:30 PM	1	1	0	0	0	0	0	1	0	0	0	0	0	0	3
	4:45 PM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	3
	5:00 PM	1	2	0	0	0	0	0	1	0	1	0	0	0	0	5
	5:15 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:30 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	4
	5:45 PM	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3
	TOTAL PM	16	16	0	30	5	17	1	3	1	1	0	0	0	0	90

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Royce

PROJECT #: SC3579
LOCATION #: 2
CONTROL: STOP E/W

NORTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
	8:00 AM	4	0	2	0	3	0	0	0	0	0	0	0	0	0	9
	8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	TOTAL AM	6	2	2	0	3	1	1	0	0	0	0	0	0	0	15
PM	02:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5
	3:15 PM	0	0	2	0	1	0	0	0	0	0	0	0	0	0	3
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	1	0	0	0	1	0	0	0	0	0	0	4
	4:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
	4:30 PM	2	2	0	0	0	0	1	0	0	0	0	0	0	0	5
	4:45 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
	5:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
	5:15 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3
	5:30 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	TOTAL PM	5	8	3	1	3	9	2	1	0	0	0	0	0	0	32

SOUTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2
	7:15 AM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
	7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
	8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	8:15 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	4
	8:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	8:45 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL AM	6	6	0	0	2	2	0	0	0	0	0	0	1	0	17
PM	02:00 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	2:15 PM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
	2:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	2:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	3:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:30 PM	0	0	0	0	0	2	0	1	0	0	0	0	0	0	3
	3:45 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	4:00 PM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	3
	4:15 PM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
	4:30 PM	1	1	0	1	2	0	0	0	0	0	0	0	0	0	5
	4:45 PM	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3
	5:00 PM	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
	5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL PM	9	8	0	1	8	5	2	1	1	0	0	0	0	0	35

EAST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	1	0	3
	7:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	7:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3
	7:45 AM	1	1	0	0	1	0	0	1	0	0	0	0	0	0	4
	8:00 AM	2	2	2	0	2	0	1	0	0	0	0	0	0	0	9
	8:15 AM	0	1	0	0	2	4	0	1	0	0	0	0	0	0	8
	8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	5	8	2	0	7	4	1	2	0	0	0	0	1	0	30
PM	02:00 PM	1	0	0	0	8	0	0	0	0	0	0	0	0	0	9
	2:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	2:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	2:45 PM	1	2	0	0	0	0	1	0	0	0	0	0	0	0	4
	3:00 PM	1	0	0	1	0	4	0	1	0	0	0	0	0	0	7
	3:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:30 PM	0	0	0	0	1	0	2	1	0	0	0	0	0	0	4
	3:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
	4:00 PM	1	2	0	1	0	0	0	0	1	0	0	0	0	0	5
	4:15 PM	2	1	0	0	0	0	1	0	0	0	0	0	0	0	4
	4:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	4:45 PM	0	1	0	0	5	0	0	0	0	0	0	0	0	0	6
	5:00 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:15 PM	2	1	0	0	1	0	0	0	0	0	0	0	0	0	4
	5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	11	12	0	2	21	4	4	2	2	0	0	0	0	0	58

WEST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	7:45 AM	2	1	1	0	0	3	1	0	0	0	0	0	0	0	8
	8:00 AM	0	0	3	0	6	1	1	0	0	0	0	0	0	0	11
	8:15 AM	2	1	1	0	3	22	0	0	0	0	0	0	0	0	29
	8:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	TOTAL AM	6	5	5	0	9	29	2	0	0	0	0	0	0	0	56
PM	02:00 PM	2	2	0	0	2	3	0	0	0	0	0	0	0	0	9
	2:15 PM	1	1	0	0	0	0	0	1	0	0	0	0	0	0	3
	2:30 PM	2	1	0	0	1	0	0	0	0	0	0	0	0	0	4
	2:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3:00 PM	0	2	0	1	0	6	0	0	0	0	0	0	0	0	9
	3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:30 PM	1	1	0	0	2	2	0	0	0	0	0	0	0	0	6
	3:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	4:00 PM	0	2	0	3	0	4	1	0	0	0	0	0	0	0	10
	4:15 PM	1	0	0	0	1	1	0	0	0	0	0	0	0	0	3
	4:30 PM	1	1	0	0	2	1	0	0	0	0	0	0	0	0	5
	4:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:00 PM	2	0	0	0	0	1	0	0	0	1	0	0	0	0	4
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	1	0	0	0	1	4	0	0	0	0	0	0	0	0	6
	TOTAL PM	14	12	0	4	12	22	1	1	0	1	0	0	0	0	67

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: Royce

PROJECT #: SC3579
LOCATION #: 2
CONTROL: STOP E/W

NORTH SIDE

	PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
	Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4
7:45 AM	1	0	0	0	1	2	0	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	5	1	1	0	1	0	0	0	0	0	8
8:15 AM	1	1	0	0	0	2	0	1	0	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:45 AM	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
TOTAL AM	7	3	0	0	8	6	1	1	1	0	0	0	0	0	27
02:00 PM	0	3	0	1	0	0	1	0	0	0	0	0	0	0	5
2:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	1	0	1	0	4	0	1	0	0	0	0	0	0	7
3:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	3	0	0	0	0	1	0	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
5:15 PM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL PM	12	7	0	2	2	7	1	1	0	1	0	0	0	0	33

SOUTH SIDE

	PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
	Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
8:15 AM	1	1	0	0	0	2	0	1	0	0	0	0	0	0	5
8:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL AM	1	7	1	0	0	5	0	1	0	0	0	0	1	0	16
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3:15 PM	2	0	1	0	0	0	0	0	0	1	0	0	0	0	4
3:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3:45 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
4:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
4:15 PM	2	1	0	0	3	1	0	0	0	0	0	0	0	0	7
4:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	3	1	1	0	1	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL PM	11	4	2	0	5	4	0	0	0	2	0	0	0	0	28

EAST SIDE

	PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
	Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2
7:15 AM	0	0	1	0	3	0	0	0	0	0	0	0	0	0	4
7:30 AM	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
8:00 AM	5	0	3	0	2	0	0	0	0	0	0	0	0	0	10
8:15 AM	1	3	0	0	0	0	2	0	0	0	0	0	0	0	6
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	2	1	0	0	2	1	0	0	0	0	0	0	0	0	6
TOTAL AM	9	7	4	1	9	1	2	0	0	0	0	0	1	0	34
02:00 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
2:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	0	0	1	0	2	1	3	0	0	0	0	0	0	7
3:15 PM	2	0	0	0	2	0	0	0	0	1	0	0	0	0	5
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	1	1	0	0	3	0	0	0	0	0	0	0	0	0	5
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
4:15 PM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
4:45 PM	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	1	0	0	0	1	0	0	0	0	2	0	0	0	0	4
5:15 PM	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3
5:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL PM	12	5	1	1	13	2	2	3	1	3	0	0	0	0	43

WEST SIDE

	PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
	Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	3	1	0	0	0	0	0	0	0	0	0	0	0	0	4
7:45 AM	3	2	0	0	0	2	0	0	0	0	0	0	0	0	7
8:00 AM	2	1	0	0	9	5	1	0	1	0	0	0	0	0	19
8:15 AM	0	1	1	0	4	9	0	3	0	0	0	0	0	0	18
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
8:45 AM	3	0	0	0	0	3	1	0	0	0	0	0	0	0	7
TOTAL AM	11	6	1	0	13	23	2	3	1	0	0	0	0	0	60
02:00 PM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4
2:15 PM	1	0	0	0	2	1	0	1	0	0	0	0	0	0	5
2:30 PM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
2:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	2	0	5	0	8	0	2	0	2	0	0	0	0	19
3:15 PM	0	1	0	2	0	4	0	0	0	1	0	0	0	0	8
3:30 PM	1	2	0	0	1	0	1	0	0	0	0	0	0	0	5
3:45 PM	2	3	0	0	1	1	0	0	0	1	0	0	0	0	8
4:00 PM	1	1	0	1	2	5	0	0	0	1	0	0	0	0	11
4:15 PM	1	0	0	1	2	2	0	0	0	1	0	0	0	0	7
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
4:45 PM	0	2	0	0	1	0	0	1	0	0	0	0	0	0	4
5:00 PM	3	0	0	0	1	1	0	0	0	0	0	0	0	0	5
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	5	1	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL PM	17	15	0	9	13	23	3	4	0	6	0	0	0	0	90

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: University

PROJECT #: SC3579
LOCATION #: 3
CONTROL: SIGNAL

NORTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
	7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4
	8:00 AM	4	1	2	0	2	3	0	0	0	0	0	0	0	0	12
	8:15 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	7
	8:30 AM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
	8:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
	TOTAL AM	4	4	2	0	8	11	0	1	1	0	0	0	0	0	31
PM	02:00 PM	1	0	0	0	9	0	1	0	0	1	0	0	0	0	12
	2:15 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	3
	2:30 PM	1	0	0	0	2	1	0	0	0	0	0	0	0	0	4
	2:45 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	3
	3:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
	3:15 PM	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
	3:30 PM	0	2	0	0	1	0	0	0	1	0	0	0	0	0	4
	3:45 PM	1	0	0	0	7	1	0	0	2	0	0	0	0	0	11
	4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2
	4:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4
	4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
	5:00 PM	0	0	0	0	1	1	1	1	1	0	0	0	0	0	5
	5:15 PM	0	0	0	0	2	0	0	1	1	0	0	0	0	0	4
	5:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	6	6	0	0	28	9	2	4	7	2	0	0	1	0	65

SOUTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	0	0	0	0	3	1	1	0	0	0	0	0	0	0	5
PM	02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
	3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	1	0	1	2	0	0	0	0	0	0	0	0	0	5
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL PM	1	1	0	1	9	0	0	0	0	0	0	0	0	0	12

EAST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1

WEST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	1	0	1	0	1	3	0	0	0	0	0	0	0	0	6
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:45 AM	0	2	0	1	2	6	0	0	0	0	0	0	0	0	11
	8:00 AM	5	1	4	0	10	7	0	1	0	0	0	0	0	0	28
	8:15 AM	2	4	0	1	5	13	0	3	0	0	0	0	0	0	28
	8:30 AM	1	1	0	0	0	3	0	0	0	1	0	0	0	0	6
	8:45 AM	2	0	0	0	1	1	0	1	0	0	0	0	0	0	5
	TOTAL AM	12	8	5	2	19	33	0	5	0	1	0	0	0	0	85
PM	02:00 PM	1	1	0	0	10	0	3	0	0	0	0	0	0	0	15
	2:15 PM	2	1	0	0	3	1	0	1	0	0	0	0	0	0	8
	2:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
	2:45 PM	1	0	0	0	3	0	0	0	1	0	0	0	0	0	5
	3:00 PM	0	5	0	0	1	9	0	0	0	1	0	0	0	0	16
	3:15 PM	0	0	0	0	2	4	0	0	0	1	0	0	0	0	7
	3:30 PM	0	1	0	0	1	0	1	0	1	0	0	0	0	0	4
	3:45 PM	2	1	0	0	6	2	0	0	1	2	0	0	0	0	14
	4:00 PM	1	0	1	0	3	5	0	0	0	1	0	0	0	0	11
	4:15 PM	1	2	0	1	2	1	0	0	0	1	0	0	1	0	9
	4:30 PM	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
	4:45 PM	1	2	0	0	1	0	0	0	0	0	0	0	0	0	4
	5:00 PM	2	0	1	0	1	0	2	0	1	0	0	0	0	0	7
	5:15 PM	0	1	0	0	2	1	0	0	1	0	0	0	0	0	5
	5:30 PM	4	0	0	0	1	0	0	0	0	0	0	0	0	0	5
	5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
	TOTAL PM	16	14	2	1	41	24	6	1	5	6	0	0	1	0	117

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST: University

PROJECT #: SC3579
LOCATION #: 3
CONTROL: SIGNAL

NORTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:30 AM	0	0	0	0	1	0	0	2	0	1	0	0	0	0	4
	7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	8:00 AM	1	0	1	0	0	3	2	0	0	0	0	0	0	0	7
	8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
	TOTAL AM	2	0	1	0	2	8	2	2	0	2	0	0	0	0	19
PM	02:00 PM	0	0	0	0	6	0	1	1	0	0	0	0	0	0	8
	2:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
	2:30 PM	0	3	0	0	2	0	0	0	0	0	0	0	0	0	5
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
	3:15 PM	0	0	0	0	1	1	0	1	0	0	0	0	0	0	3
	3:30 PM	1	0	0	0	1	0	1	1	0	0	0	0	0	0	4
	3:45 PM	3	0	0	0	3	0	0	0	1	0	0	0	0	0	7
	4:00 PM	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
	4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	4:30 PM	1	0	0	0	2	1	0	0	0	0	0	0	0	0	4
	4:45 PM	0	1	0	0	5	0	0	0	1	0	0	0	0	0	7
	5:00 PM	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3
	5:15 PM	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3
	5:30 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
	5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	TOTAL PM	8	5	2	0	25	5	2	3	4	0	0	0	0	0	54

SOUTH SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	TOTAL AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
PM	02:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	TOTAL PM	0	0	0	0	4	0	1	0	1	0	0	0	1	0	7

EAST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	TOTAL PM	0	0	0	0	3	0	0	0	1	0	0	0	1	0	5

WEST SIDE

		PEDS				BYCICLIST				SCOOTER				SKATEBOARD		TOTAL
		Adult		School Age		Bike		E-Bike		Scooter		Mobility Assistance				
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
AM	7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	7:15 AM	4	2	0	0	0	0	0	0	0	0	0	0	0	0	6
	7:30 AM	1	0	0	0	1	0	0	1	0	0	0	0	0	0	3
	7:45 AM	2	1	2	0	1	3	0	1	0	0	0	0	0	0	10
	8:00 AM	6	0	4	0	9	8	0	1	0	0	0	0	0	0	28
	8:15 AM	0	2	0	1	3	9	0	1	0	1	0	0	0	0	17
	8:30 AM	1	2	0	1	0	1	0	0	0	0	0	0	0	0	5
	8:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	3
	TOTAL AM	14	9	6	2	14	23	0	4	0	1	0	0	0	0	73
PM	02:00 PM	0	0	0	0	13	3	1	0	0	0	0	0	0	0	17
	2:15 PM	1	1	1	0	1	0	2	1	0	0	0	0	0	0	7
	2:30 PM	0	1	1	0	2	0	1	0	0	0	0	0	0	0	5
	2:45 PM	1	2	1	0	2	0	1	0	1	0	0	0	0	0	8
	3:00 PM	0	1	0	3	0	7	0	0	0	0	0	0	0	0	11
	3:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
	3:30 PM	1	1	0	0	3	1	1	0	0	0	0	0	0	0	7
	3:45 PM	2	0	0	0	7	0	0	1	1	0	0	0	0	0	11
	4:00 PM	0	2	1	3	0	4	2	0	1	0	0	0	0	0	13
	4:15 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
	4:30 PM	0	0	0	0	6	0	0	1	0	0	0	0	0	0	7
	4:45 PM	0	1	0	0	5	0	0	0	1	0	0	0	0	0	7
	5:00 PM	1	1	0	1	3	1	0	0	0	0	0	0	0	0	7
	5:15 PM	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
	TOTAL PM	8	11	4	7	48	18	8	3	4	0	0	0	0	0	111

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:					
Tue, Nov 15, 22	LOCATION:	Irvine Rancho San Joaquin	PROJECT #:	SC3579	
	NORTH & SOUTH:	Yale	LOCATION #:	4	
	EAST & WEST:		CONTROL:	NO CONTRO	

DIRECTIONALLY COUNTS

	Yale Crossing				TOTAL
	PEDS		BIKES		
	EB	WB	EB	WB	
7:00 AM	0	0	0	0	0
7:15 AM	0	1	0	0	1
7:30 AM	1	0	0	0	1
7:45 AM	1	1	0	0	2
8:00 AM	0	0	0	0	0
8:15 AM	1	0	0	0	1
8:30 AM	1	2	0	0	3
8:45 AM	0	2	0	0	2
TOTAL	4	6	0	0	10
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
3:00 PM	0	3	0	0	3
3:15 PM	1	1	0	0	2
3:30 PM	1	1	0	0	2
3:45 PM	1	0	0	0	1
4:00 PM	1	4	0	0	5
4:15 PM	3	0	0	0	3
4:30 PM	0	3	0	0	3
4:45 PM	1	4	0	1	6
5:00 PM	3	0	0	0	3
5:15 PM	1	0	0	0	1
5:30 PM	3	0	0	0	3
5:45 PM	1	0	0	0	1
TOTAL	16	16	0	1	33

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:					
Wed, Nov 16, 22	LOCATION:	Irvine Rancho San Joaquin	PROJECT #:	SC3579
	NORTH & SOUTH:	Yale	LOCATION #:	4
	EAST & WEST:		CONTROL:	NO CONTROL

DIRECTIONALLY COUNTS

	Yale Crossing				TOTAL
	PEDS		BIKES		
	EB	WB	EB	WB	
7:00 AM	3	0	0	0	3
7:15 AM	0	1	0	0	1
7:30 AM	1	1	0	0	2
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	4	1	0	0	5
8:45 AM	0	2	0	0	2
TOTAL	8	5	0	0	13
2:00 PM	0	1	1	0	2
2:15 PM	1	0	0	0	1
2:30 PM	0	0	0	0	0
2:45 PM	0	1	0	0	1
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	1	0	0	0	1
3:45 PM	0	2	0	0	2
4:00 PM	0	0	0	0	0
4:15 PM	2	2	0	0	4
4:30 PM	0	2	0	0	2
4:45 PM	1	0	0	0	1
5:00 PM	0	1	0	0	1
5:15 PM	2	0	0	0	2
5:30 PM	2	1	0	0	3
5:45 PM	0	1	0	0	1
TOTAL	9	11	1	0	21

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST:

PROJECT #: SC3474
LOCATION #: 1
CONTROL: NO CONTROL

DIRECTIONALLY COUNTS

	PEDS				BIKES				SKATEBOARDS/SCOOTERS				TOTAL
	ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	1	1	0	0	1	0	1	0	0	0	0	0	4
7:15 AM	1	1	0	0	2	3	0	0	0	0	0	0	7
7:30 AM	1	2	0	0	1	0	0	0	0	0	0	0	4
7:45 AM	4	2	0	0	2	2	0	1	0	0	0	0	11
8:00 AM	3	1	0	4	1	0	0	0	0	0	0	0	9
8:15 AM	1	3	0	1	1	4	0	2	0	0	0	0	12
8:30 AM	1	0	0	0	1	2	0	0	0	0	0	0	4
8:45 AM	0	2	0	0	2	5	0	0	0	0	0	0	9
TOTAL	12	12	0	5	11	16	1	3	0	0	0	0	60
2:00 PM	1	0	0	0	2	3	0	0	0	0	0	0	6
2:15 PM	3	0	0	0	2	3	0	0	0	0	0	0	8
2:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	4
2:45 PM	0	0	0	0	1	2	0	0	0	1	0	0	4
3:00 PM	1	1	1	0	0	5	2	0	0	0	1	1	12
3:15 PM	2	1	3	0	2	2	0	0	0	0	0	0	10
3:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
3:45 PM	2	4	2	1	2	2	0	0	0	2	0	0	15
4:00 PM	0	1	2	0	0	1	2	0	0	0	0	0	6
4:15 PM	3	3	0	0	0	1	0	0	1	0	0	0	8
4:30 PM	1	2	1	1	1	0	0	0	0	0	0	0	6
4:45 PM	1	5	0	0	0	0	0	1	0	0	0	0	7
5:00 PM	1	0	0	0	1	3	0	0	0	0	0	0	5
5:15 PM	2	1	0	0	3	0	0	0	0	0	0	0	6
5:30 PM	1	2	0	0	1	0	0	0	0	0	0	0	4
5:45 PM	0	3	0	0	0	1	0	0	0	0	0	0	4
TOTAL	20	23	9	2	17	24	4	1	1	3	1	1	106

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST:

PROJECT #: SC3474
LOCATION #: 405
CONTROL: NO CONTROL

DIRECTIONALLY COUNTS

	PEDS				BIKES				SKATEBOARDS/SCOOTERS				TOTAL
	ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	1	4	0	0	1	0	0	0	0	0	0	0	6
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	2	1	0	0	1	3	0	0	0	0	0	0	7
7:45 AM	8	0	0	0	5	1	0	2	0	0	0	0	16
8:00 AM	3	4	0	2	0	1	0	0	0	0	0	0	10
8:15 AM	1	3	0	0	0	2	0	1	0	0	0	0	7
8:30 AM	1	0	1	0	1	1	0	0	0	0	0	0	4
8:45 AM	0	4	0	0	2	1	0	0	0	1	0	0	8
TOTAL	16	16	1	2	10	10	0	3	0	1	0	0	59
2:00 PM	1	4	0	0	4	2	1	0	0	0	0	0	12
2:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
2:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
2:45 PM	0	1	0	0	1	1	0	0	0	0	0	0	3
3:00 PM	0	0	2	0	3	0	2	1	0	1	0	1	10
3:15 PM	3	1	1	0	1	1	0	0	0	0	0	0	7
3:30 PM	2	0	0	0	3	2	1	2	0	0	0	0	10
3:45 PM	2	1	0	1	3	2	0	0	1	0	0	0	10
4:00 PM	1	6	0	1	0	0	2	0	0	0	0	0	10
4:15 PM	3	1	0	0	2	0	0	0	1	0	0	0	7
4:30 PM	5	6	0	0	2	1	1	0	0	0	0	0	15
4:45 PM	0	5	0	1	4	2	0	0	0	1	0	0	13
5:00 PM	1	0	1	0	0	1	0	0	0	0	0	0	3
5:15 PM	2	0	0	0	1	1	0	0	0	0	0	0	4
5:30 PM	1	1	0	0	4	1	0	0	0	0	0	0	7
5:45 PM	0	1	0	0	1	1	0	0	1	1	0	0	5
TOTAL	21	27	4	3	30	15	7	5	3	3	0	1	119

SB - el powered wheelchair (1)

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Nov 15, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST:

PROJECT #: SC3474
LOCATION #: 1
CONTROL: NO CONTROL

DIRECTIONALLY COUNTS

	PEDS				BIKES				SKATEBOARDS/SCOOTERS				TOTAL
	ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	2	0	0	0	0	0	0	1	0	0	0	0	3
8:00 AM	0	1	0	4	0	0	0	0	0	0	0	0	5
8:15 AM	0	1	0	1	0	0	0	2	0	0	0	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	2	0	5	0	0	0	3	0	0	0	0	13
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
2:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
3:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	3
3:15 PM	0	0	3	0	0	1	0	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	2	1	0	0	0	0	0	0	0	0	3
4:00 PM	0	1	2	0	0	0	2	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	2	9	1	0	2	4	1	0	1	0	0	22

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Wed, Nov 16, 22

LOCATION: Irvine Rancho San Joaquin
NORTH & SOUTH: Yale
EAST & WEST:

PROJECT #: SC3474
LOCATION #: 405
CONTROL: NO CONTROL

DIRECTIONALLY COUNTS

	PEDS				BIKES				SKATEBOARDS/SCOOTERS				TOTAL
	ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		ADULT		SCHOOL AGE		
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	
7:00 AM	1	1	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
8:00 AM	0	0	0	2	0	1	0	0	0	0	0	0	3
8:15 AM	1	1	0	0	0	0	0	1	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	3	3	0	2	1	1	0	3	0	0	0	0	13
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	2	0	0	0	2	0	0	0	0	0	4
3:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	2	0	0	0	0	2	0	0	0	0	0	4
4:15 PM	2	1	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:00 PM	1	0	1	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	8	4	0	2	0	4	1	0	0	0	0	22

APPENDIX B– ICU Calculation Sheets

273 Yale Av. @ Michelson Dr.

Existing S Yale

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	1	1700	13	0.01	14	0.01*
NT	1	1700	56	0.03*	1	
NR	D	1700	33	0.02	57	0.03
SL	1	1700	21	0.01*	2	
ST	1	1700	37	0.02	0	*
SR	D	1700	52	0.03	3	
EL	1	1700	65	0.04*	2	
ET	1	1700	135	0.08	284	0.17*
ER	D	1700	21	0.01	7	
WL	1	1700	88	0.05	13	0.01*
WT	1	1700	193	0.11*	204	0.12
WR	D	1700	20	0.01	1	

Adjustment NBR .01
Overlaps Clearance .05

Total ICU 0.24 0.25

275 Yale Av. @ University Dr.

Existing S Yale

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1	1700	76	0.04*	13	0.01*
ST	0		0		0	
SR	1	1700	104	0.06	21	0.01
EL	1	1700	81	0.05*	68	0.04
ET	2	3400	769	0.23	1416	0.42*
ER	0		0		0	
WL	0		0		0	*
WT	2	3400	1319	0.39*	1001	0.29
WR	D	1700	35	0.02	32	0.02

Overlaps Clearance .05

Total ICU 0.53 0.48

273 Yale Av. @ Michelson Dr.

Existing S Yale_School

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	1	1700	13	0.01	15	0.01
NT	1	1700	56	0.03*	19	0.01*
NR	D	1700	33	0.02	44	0.03
SL	1	1700	21	0.01*	24	0.01*
ST	1	1700	37	0.02	21	0.01
SR	D	1700	52	0.03	29	0.02
EL	1	1700	65	0.04*	27	0.02
ET	1	1700	135	0.08	168	0.10*
ER	D	1700	21	0.01	20	0.01
WL	1	1700	88	0.05	46	0.03*
WT	1	1700	193	0.11*	166	0.10
WR	D	1700	20	0.01	16	0.01

Overlaps Clearance .05

Total ICU 0.24 0.20

275 Yale Av. @ University Dr.

Existing S Yale_School

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1	1700	76	0.04*	38	0.02*
ST	0		0		0	
SR	1	1700	104	0.06	72	0.04
EL	1	1700	81	0.05*	75	0.04*
ET	2	3400	769	0.23	689	0.20
ER	0		0		0	
WL	0		0		0	
WT	2	3400	1319	0.39*	709	0.21*
WR	D	1700	35	0.02	32	0.02

Overlaps Clearance .05

Total ICU 0.53 0.32

273 Yale Av. @ Michelson Dr.

BO I-405 Veh OC 4-Lane S Yale IRVINE

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	1	1700	35	0.02	44	0.03
NT	2	3400	236	0.07*	245	0.07*
NR	D	1700	36	0.02	60	0.04
SL	1	1700	195	0.11*	299	0.18*
ST	2	3400	375	0.11	117	0.04
SR	D	1700	188	0.11	219	0.13
EL	1	1700	218	0.13*	240	0.14*
ET	1	1700	33	0.02	59	0.03
ER	D	1700	64	0.04	23	0.01
WL	1	1700	74	0.04	18	0.01
WT	1	1700	37	0.02*	33	0.02*
WR	D	1700	252	0.15	184	0.11

Adjustment WBR .05
Overlaps Clearance .05

Total ICU 0.43 0.46

275 Yale Av. @ University Dr.

BO I-405 Veh OC 4-Lane S Yale IRVINE

	Ln	Cap	AM PK Hour Vol	AM PK Hour V/C	PM PK Hour Vol	PM PK Hour V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1	1700	191	0.11*	35	0.02*
ST	0		0		0	
SR	1	1700	332	0.20	145	0.09
EL	1	1700	239	0.14*	330	0.19*
ET	2	3400	843	0.25	1491	0.44
ER	0		0		0	
WL	0		0		0	
WT	2	3400	1305	0.38*	1028	0.30*
WR	D	1700	73	0.04	59	0.03

Overlaps Clearance .05

Total ICU 0.68 0.56

273 Yale Av. @ Michelson Dr.

BO I-405 Veh OC 2-Lane S Yale			AM PK Hour		PM PK Hour	IRVINE
	Ln	Cap	Vol	V/C	Vol	V/C
NL	1	1700	32	0.02	41	0.02
NT	1	1700	230	0.14*	243	0.14*
NR	D	1700	33	0.02	56	0.03
SL	1	1700	203	0.12*	303	0.18*
ST	1	1700	346	0.20	103	0.06
SR	D	1700	196	0.12	222	0.13
EL	1	1700	232	0.14*	247	0.15*
ET	1	1700	33	0.02	57	0.03
ER	D	1700	56	0.03	19	0.01
WL	1	1700	60	0.04	14	0.01
WT	1	1700	34	0.02*	29	0.02*
WR	D	1700	248	0.15	173	0.10

Adjustment WBR .04
Overlaps Clearance .05

Total ICU 0.51 0.54

275 Yale Av. @ University Dr.

BO I-405 Veh OC 2-Lane S Yale			AM PK Hour		PM PK Hour	IRVINE
	Ln	Cap	Vol	V/C	Vol	V/C
NL	0		0		0	
NT	0		0	*	0	*
NR	0		0		0	
SL	1	1700	174	0.10*	19	0.01*
ST	0		0		0	
SR	1	1700	298	0.18	140	0.08
EL	1	1700	230	0.14*	341	0.20*
ET	2	3400	858	0.25	1481	0.44
ER	0		0		0	
WL	0		0		0	
WT	2	3400	1315	0.39*	1022	0.30*
WR	D	1700	71	0.04	35	0.02

Overlaps Clearance .05

Total ICU 0.68 0.56

273 Yale Av. @ Michelson Dr.

BO	No	I-405 Veh Ln	Cap	OC 4-Lane S Yale AM PK Hour Vol	V/C	PM PK Hour Vol	IRVINE V/C
NL		1	1700	74	0.04*	2	*
NT		1	1700	0		0	
NR		D	1700	97	0.06	94	0.06
SL		1	1700	0		0	
ST		1	1700	0	*	0	*
SR		D	1700	0		0	
EL		1	1700	0		0	
ET		1	1700	169	0.10*	311	0.18*
ER		D	1700	139	0.08	3	
WL		1	1700	229	0.13*	81	0.05*
WT		1	1700	185	0.11	235	0.14
WR		D	1700	0		0	

Adjustment NBR .02
Overlaps Clearance .05

Total ICU 0.32 0.30

275 Yale Av. @ University Dr.

BO	No	I-405 Veh Ln	Cap	OC 4-Lane S Yale AM PK Hour Vol	V/C	PM PK Hour Vol	IRVINE V/C
NL		0		0		0	
NT		0		0	*	0	*
NR		0		0		0	
SL		1	1700	159	0.09*	40	0.02*
ST		0		0		0	
SR		1	1700	238	0.14	66	0.04
EL		1	1700	129	0.08*	90	0.05
ET		2	3400	901	0.27	1636	0.48*
ER		0		0		0	
WL		0		0		0	*
WT		2	3400	1334	0.39*	1041	0.31
WR		D	1700	44	0.03	37	0.02

Overlaps Clearance .05

Total ICU 0.61 0.55

273 Yale Av. @ Michelson Dr.

BO	No	I-405 Veh	OC	2-Lane S Yale		IRVINE	
				AM PK Hour		PM PK Hour	
	Ln	Cap		Vol	V/C	Vol	V/C
NL	1	1700		71	0.04*	0	*
NT	1	1700		0		0	
NR	D	1700		88	0.05	92	0.05
SL	1	1700		0		0	
ST	1	1700		0	*	0	*
SR	D	1700		0		0	
EL	1	1700		0		0	
ET	1	1700		178	0.10*	318	0.19*
ER	D	1700		132	0.08	0	
WL	1	1700		202	0.12*	75	0.04*
WT	1	1700		191	0.11	227	0.13
WR	D	1700		0		0	
Adjustment					NBR	.02	
Overlaps					Clearance	.05	
Total ICU					0.31		0.30

275 Yale Av. @ University Dr.

BO	No	I-405 Veh	OC	2-Lane S Yale		IRVINE	
				AM PK Hour		PM PK Hour	
	Ln	Cap		Vol	V/C	Vol	V/C
NL	0			0		0	
NT	0			0	*	0	*
NR	0			0		0	
SL	1	1700		146	0.09*	22	0.01*
ST	0			0		0	
SR	1	1700		214	0.13	74	0.04
EL	1	1700		121	0.07*	101	0.06
ET	2	3400		924	0.27	1650	0.49*
ER	0			0		0	
WL	0			0		0	*
WT	2	3400		1344	0.40*	1021	0.30
WR	D	1700		42	0.02	20	0.01
Overlaps					Clearance	.05	
Total ICU					0.61		0.55

APPENDIX C– HCM Synchro Worksheets

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	135	21	88	193	20	13	56	33	21	37	52
Future Vol, veh/h	65	135	21	88	193	20	13	56	33	21	37	52
Peak Hour Factor	0.67	0.67	0.67	0.62	0.62	0.62	0.52	0.52	0.52	0.41	0.41	0.41
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	201	31	142	311	32	25	108	63	51	90	127
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	14.1	17.7	12.1	12.1
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	56	33	65	135	21	88	193	20	21	37
LT Vol	13	0	0	65	0	0	88	0	0	21	0
Through Vol	0	56	0	0	135	0	0	193	0	0	37
RT Vol	0	0	33	0	0	21	0	0	20	0	0
Lane Flow Rate	25	108	63	97	201	31	142	311	32	51	90
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.058	0.235	0.126	0.213	0.414	0.058	0.299	0.612	0.057	0.117	0.193
Departure Headway (Hd)	8.362	7.862	7.162	7.903	7.403	6.703	7.573	7.073	6.373	8.19	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	429	457	500	455	486	534	475	511	562	438	467
Service Time	6.109	5.609	4.909	5.645	5.145	4.445	5.31	4.81	4.11	5.934	5.434
HCM Lane V/C Ratio	0.058	0.236	0.126	0.213	0.414	0.058	0.299	0.609	0.057	0.116	0.193
HCM Control Delay	11.6	13	10.9	12.8	15.3	9.9	13.5	20.4	9.5	12	12.3
HCM Lane LOS	B	B	B	B	C	A	B	C	A	B	B
HCM 95th-tile Q	0.2	0.9	0.4	0.8	2	0.2	1.2	4.1	0.2	0.4	0.7

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	15	26	25	24	31	2	13	90	12	2	135	10
Future Vol, veh/h	15	26	25	24	31	2	13	90	12	2	135	10
Conflicting Peds, #/hr	6	0	6	6	0	6	14	0	14	14	0	14
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	59	59	59	77	77	77	52	52	52	39	39	39
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	44	42	31	40	3	25	173	23	5	346	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	632	630	366	655	633	193	386	0	0	210	0	0
Stage 1	370	370	-	237	237	-	-	-	-	-	-	-
Stage 2	262	260	-	418	396	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	393	399	679	379	397	849	1172	-	-	1361	-	-
Stage 1	650	620	-	766	709	-	-	-	-	-	-	-
Stage 2	743	693	-	612	604	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	346	378	668	311	376	835	1158	-	-	1345	-	-
Mov Cap-2 Maneuver	346	378	-	311	376	-	-	-	-	-	-	-
Stage 1	627	609	-	739	683	-	-	-	-	-	-	-
Stage 2	677	668	-	526	594	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	17.9	0.9	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1158	-	-	441	352	1345	-	-
HCM Lane V/C Ratio	0.022	-	-	0.254	0.21	0.004	-	-
HCM Control Delay (s)	8.2	0	-	15.9	17.9	7.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0.8	0	-	-

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	284	7	13	204	1	14	1	57	2	0	3
Future Vol, veh/h	2	284	7	13	204	1	14	1	57	2	0	3
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	342	8	17	262	1	21	1	84	5	0	7
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	14	12.2	9.4	9.2
HCM LOS	B	B	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	1	57	2	284	7	13	204	1	2	0
LT Vol	14	0	0	2	0	0	13	0	0	2	0
Through Vol	0	1	0	0	284	0	0	204	0	0	0
RT Vol	0	0	57	0	0	7	0	0	1	0	0
Lane Flow Rate	21	1	84	2	342	8	17	262	1	5	0
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.039	0.003	0.132	0.004	0.521	0.011	0.029	0.415	0.002	0.009	0
Departure Headway (Hd)	6.881	6.381	5.681	6.084	5.583	4.881	6.221	5.719	5.018	7.077	6.577
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	563	634	592	650	738	579	633	717	508	0
Service Time	4.595	4.095	3.395	3.784	3.283	2.581	3.921	3.419	2.718	4.793	4.293
HCM Lane V/C Ratio	0.04	0.002	0.132	0.003	0.526	0.011	0.029	0.414	0.001	0.01	0
HCM Control Delay	9.9	9.1	9.3	8.8	14.2	7.6	9.1	12.4	7.7	9.9	9.3
HCM Lane LOS	A	A	A	A	B	A	A	B	A	A	N
HCM 95th-tile Q	0.1	0	0.5	0	3	0	0.1	2	0	0	0

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	11	28	13	12	12	2	27	57	17	2	11	8
Future Vol, veh/h	11	28	13	12	12	2	27	57	17	2	11	8
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	39	18	16	16	3	39	81	24	3	14	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	220	220	33	231	207	99	34	0	0	113	0	0
Stage 1	29	29	-	167	167	-	-	-	-	-	-	-
Stage 2	191	191	-	64	40	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	736	678	1041	724	690	957	1578	-	-	1476	-	-
Stage 1	988	871	-	835	760	-	-	-	-	-	-	-
Stage 2	811	742	-	947	862	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	693	650	1025	653	661	943	1566	-	-	1466	-	-
Mov Cap-2 Maneuver	693	650	-	653	661	-	-	-	-	-	-	-
Stage 1	954	863	-	807	734	-	-	-	-	-	-	-
Stage 2	763	717	-	878	854	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	10.6	2	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1566	-	-	726	673	1466	-	-
HCM Lane V/C Ratio	0.025	-	-	0.101	0.053	0.002	-	-
HCM Control Delay (s)	7.4	0	-	10.5	10.6	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.2	0	-	-

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	168	20	46	166	16	15	19	44	24	21	29
Future Vol, veh/h	27	168	20	46	166	16	15	19	44	24	21	29
Peak Hour Factor	0.76	0.76	0.76	0.61	0.61	0.61	0.71	0.71	0.71	0.36	0.36	0.36
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	221	26	75	272	26	21	27	62	67	58	81
Number of Lanes	1	1	1	1	1	1	1	1	1	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	12.5	13.3	10	10.4
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	19	44	27	168	20	46	166	16	24	21
LT Vol	15	0	0	27	0	0	46	0	0	24	0
Through Vol	0	19	0	0	168	0	0	166	0	0	21
RT Vol	0	0	44	0	0	20	0	0	16	0	0
Lane Flow Rate	21	27	62	36	221	26	75	272	26	67	58
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.044	0.052	0.108	0.068	0.394	0.042	0.141	0.471	0.04	0.134	0.109
Departure Headway (Hd)	7.476	6.976	6.276	6.914	6.414	5.714	6.735	6.235	5.535	7.251	6.751
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	478	512	568	517	559	624	532	577	645	493	529
Service Time	5.242	4.742	4.042	4.669	4.169	3.469	4.487	3.987	3.287	5.013	4.513
HCM Lane V/C Ratio	0.044	0.053	0.109	0.07	0.395	0.042	0.141	0.471	0.04	0.136	0.11
HCM Control Delay	10.6	10.1	9.8	10.2	13.3	8.7	10.6	14.5	8.5	11.1	10.3
HCM Lane LOS	B	B	A	B	B	A	B	B	A	B	B
HCM 95th-tile Q	0.1	0.2	0.4	0.2	1.9	0.1	0.5	2.5	0.1	0.5	0.4

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↰	↱
Traffic Vol, veh/h	17	26	7	14	18	3	14	84	23	2	74	10
Future Vol, veh/h	17	26	7	14	18	3	14	84	23	2	74	10
Conflicting Peds, #/hr	3	0	4	4	0	3	14	0	6	6	0	14
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	78	78	78	70	70	70	31	31	31
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	36	10	18	23	4	20	120	33	6	239	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	458	464	257	460	463	129	285	0	0	159	0	0
Stage 1	265	265	-	166	166	-	-	-	-	-	-	-
Stage 2	193	199	-	294	297	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	513	495	782	512	496	921	1277	-	-	1420	-	-
Stage 1	740	689	-	836	761	-	-	-	-	-	-	-
Stage 2	809	736	-	714	668	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	477	476	770	465	477	914	1262	-	-	1413	-	-
Mov Cap-2 Maneuver	477	476	-	465	477	-	-	-	-	-	-	-
Stage 1	719	677	-	818	744	-	-	-	-	-	-	-
Stage 2	765	720	-	662	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	13.1	0.9	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1262	-	-	503	492	1413	-	-
HCM Lane V/C Ratio	0.016	-	-	0.136	0.091	0.005	-	-
HCM Control Delay (s)	7.9	0	-	13.3	13.1	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0	-	-

Intersection	
Intersection Delay, s/veh	251.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	218	33	64	74	37	252	35	236	36	195	375	188
Future Vol, veh/h	218	33	64	74	37	252	35	236	36	195	375	188
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	263	40	77	95	47	323	51	347	53	453	872	437
Number of Lanes	1	1	1	1	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	67.7	83.3	44.7	388.4
HCM LOS	F	F	E	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	69%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	31%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	157	115	218	33	64	74	37	252	195	250
LT Vol	35	0	0	218	0	0	74	0	0	195	0
Through Vol	0	157	79	0	33	0	0	37	0	0	250
RT Vol	0	0	36	0	0	64	0	0	252	0	0
Lane Flow Rate	51	231	169	263	40	77	95	47	323	453	581
Geometry Grp	6	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.185	0.8	0.573	0.955	0.139	0.255	0.339	0.163	1.048	1.399	1.716
Departure Headway (Hd)	14.991	14.491	14.272	15.063	14.563	13.863	15.218	14.718	14.018	11.221	10.626
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	241	252	255	242	248	261	238	245	262	327	343
Service Time	12.691	12.191	11.972	12.763	12.263	11.563	12.918	12.418	11.718	8.921	8.421
HCM Lane V/C Ratio	0.212	0.917	0.663	1.087	0.161	0.295	0.399	0.192	1.233	1.385	1.694
HCM Control Delay	21.1	57.3	34.5	88.7	19.6	21.2	25.5	20.3	109.5	226.7	359.5
HCM Lane LOS	C	F	D	F	C	C	D	C	F	F	F
HCM 95th-tile Q	0.7	6.1	3.2	8.6	0.5	1	1.4	0.6	10.8	23.2	36

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	37	35	29	37	2	14	284	14	9	459	45
Future Vol, veh/h	21	37	35	29	37	2	14	284	14	9	459	45
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	52	49	40	51	3	20	406	20	12	604	59

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	946	1141	351	826	1160	231	672	0	0	434	0	0
Stage 1	667	667	-	464	464	-	-	-	-	-	-	-
Stage 2	279	474	-	362	696	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	216	199	645	264	194	771	915	-	-	1122	-	-
Stage 1	414	455	-	548	562	-	-	-	-	-	-	-
Stage 2	704	556	-	629	441	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	161	187	635	182	183	759	908	-	-	1115	-	-
Mov Cap-2 Maneuver	161	187	-	182	183	-	-	-	-	-	-	-
Stage 1	399	444	-	529	542	-	-	-	-	-	-	-
Stage 2	612	536	-	499	430	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.2	41.5	0.5	0.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	908	-	-	177	635	183	759	1115	-	-
HCM Lane V/C Ratio	0.022	-	-	0.462	0.078	0.494	0.004	0.011	-	-
HCM Control Delay (s)	9.1	0.1	-	41.7	11.1	42.5	9.8	8.3	0.1	-
HCM Lane LOS	A	A	-	E	B	E	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.3	2.4	0	0	-	-

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	37	35	29	37	2	14	284	14	9	459	45
Future Vol, veh/h	21	37	35	29	37	2	14	284	14	9	459	45
Peak Hour Factor	0.71	0.71	0.71	0.73	0.73	0.73	0.70	0.70	0.70	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	52	49	40	51	3	20	406	20	12	604	59
Number of Lanes	0	1	1	0	1	1	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	11.3	12.3	13	16
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	9%	0%	36%	0%	44%	0%	4%	0%
Vol Thru, %	91%	91%	64%	0%	56%	0%	96%	84%
Vol Right, %	0%	9%	0%	100%	0%	100%	0%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	156	156	58	35	66	2	239	275
LT Vol	14	0	21	0	29	0	9	0
Through Vol	142	142	37	0	37	0	230	230
RT Vol	0	14	0	35	0	2	0	45
Lane Flow Rate	223	223	82	49	90	3	314	361
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.39	0.383	0.173	0.092	0.194	0.005	0.523	0.588
Departure Headway (Hd)	6.302	6.193	7.606	6.704	7.726	6.783	6	5.865
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	568	579	470	532	463	525	599	614
Service Time	4.067	3.957	5.381	4.477	5.505	4.561	3.757	3.621
HCM Lane V/C Ratio	0.393	0.385	0.174	0.092	0.194	0.006	0.524	0.588
HCM Control Delay	13.1	12.8	12	10.2	12.4	9.6	15.2	16.7
HCM Lane LOS	B	B	B	B	B	A	C	C
HCM 95th-tile Q	1.8	1.8	0.6	0.3	0.7	0	3	3.8

Intersection	
Intersection Delay, s/veh	208
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	240	59	23	18	33	184	44	245	60	299	117	219
Future Vol, veh/h	240	59	23	18	33	184	44	245	60	299	117	219
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	289	71	28	23	42	236	65	360	88	695	272	509
Number of Lanes	1	1	1	1	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	63.1	35.4	34.5	341.5
HCM LOS	F	E	D	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	58%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	42%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	163	142	240	59	23	18	33	184	299	78
LT Vol	44	0	0	240	0	0	18	0	0	299	0
Through Vol	0	163	82	0	59	0	0	33	0	0	78
RT Vol	0	0	60	0	0	23	0	0	184	0	0
Lane Flow Rate	65	240	208	289	71	28	23	42	236	695	181
Geometry Grp	6	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.206	0.733	0.618	0.945	0.223	0.082	0.078	0.137	0.72	1.993	0.495
Departure Headway (Hd)	12.455	11.955	11.658	12.984	12.484	11.784	13.209	12.709	12.009	10.318	9.818
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	290	305	312	280	289	306	273	284	304	355	368
Service Time	10.155	9.655	9.358	10.684	10.184	9.484	10.909	10.409	9.709	8.073	7.573
HCM Lane V/C Ratio	0.224	0.787	0.667	1.032	0.246	0.092	0.084	0.148	0.776	1.958	0.492
HCM Control Delay	18.4	41.5	31.5	78.6	18.7	15.5	17	17.4	40.4	479.9	21.9
HCM Lane LOS	C	E	D	F	C	C	C	C	E	F	C
HCM 95th-tile Q	0.8	5.4	3.8	9	0.8	0.3	0.3	0.5	5.2	48.4	2.6

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	31	14	12	13	2	33	336	20	1	154	3
Future Vol, veh/h	12	31	14	12	13	2	33	336	20	1	154	3
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	44	20	16	18	3	47	480	29	1	203	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	569	827	123	733	815	273	216	0	0	517	0	0
Stage 1	216	216	-	597	597	-	-	-	-	-	-	-
Stage 2	353	611	-	136	218	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	405	305	905	309	310	725	1351	-	-	1045	-	-
Stage 1	766	723	-	456	490	-	-	-	-	-	-	-
Stage 2	637	482	-	853	721	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	364	286	891	253	290	714	1341	-	-	1038	-	-
Mov Cap-2 Maneuver	364	286	-	253	290	-	-	-	-	-	-	-
Stage 1	723	717	-	431	463	-	-	-	-	-	-	-
Stage 2	575	455	-	776	715	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.2	19.5	0.8	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1341	-	-	304	891	271	714	1038	-	-
HCM Lane V/C Ratio	0.035	-	-	0.199	0.022	0.126	0.004	0.001	-	-
HCM Control Delay (s)	7.8	0.2	-	19.8	9.1	20.2	10.1	8.5	0	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0.4	0	0	-	-

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	31	14	12	13	2	33	336	20	1	154	3
Future Vol, veh/h	12	31	14	12	13	2	33	336	20	1	154	3
Peak Hour Factor	0.71	0.71	0.71	0.73	0.73	0.73	0.70	0.70	0.70	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	44	20	16	18	3	47	480	29	1	203	4
Number of Lanes	0	1	1	0	1	1	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.7	9.8	11.2	9.2
HCM LOS	A	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	16%	0%	28%	0%	48%	0%	1%	0%
Vol Thru, %	84%	89%	72%	0%	52%	0%	99%	96%
Vol Right, %	0%	11%	0%	100%	0%	100%	0%	4%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	188	43	14	25	2	78	80
LT Vol	33	0	12	0	12	0	1	0
Through Vol	168	168	31	0	13	0	77	77
RT Vol	0	20	0	14	0	2	0	3
Lane Flow Rate	287	269	61	20	34	3	103	105
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.413	0.374	0.108	0.031	0.063	0.004	0.155	0.158
Departure Headway (Hd)	5.172	5.014	6.437	5.587	6.614	5.661	5.443	5.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	692	714	552	635	537	625	655	659
Service Time	2.924	2.767	4.225	3.375	4.41	3.457	3.212	3.179
HCM Lane V/C Ratio	0.415	0.377	0.111	0.031	0.063	0.005	0.157	0.159
HCM Control Delay	11.5	10.8	10	8.6	9.9	8.5	9.2	9.2
HCM Lane LOS	B	B	A	A	A	A	A	A
HCM 95th-tile Q	2	1.7	0.4	0.1	0.2	0	0.5	0.6

Intersection	
Intersection Delay, s/veh	558.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	232	33	56	60	34	248	32	230	33	203	346	196
Future Vol, veh/h	232	33	56	60	34	248	32	230	33	203	346	196
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	280	40	67	77	44	318	47	338	49	472	805	456
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	57.9	57.1	133.3	903.6
HCM LOS	F	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	87%	0%	100%	0%	0%	100%	0%	0%	64%
Vol Right, %	0%	13%	0%	0%	100%	0%	0%	100%	0%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	263	232	33	56	60	34	248	203	542
LT Vol	32	0	232	0	0	60	0	0	203	0
Through Vol	0	230	0	33	0	0	34	0	0	346
RT Vol	0	33	0	0	56	0	0	248	0	196
Lane Flow Rate	47	387	280	40	67	77	44	318	472	1260
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.152	1.183	0.909	0.124	0.197	0.249	0.135	0.922	1.41	3.505
Departure Headway (Hd)	12.988	12.395	13.61	13.092	12.366	13.622	13.104	12.378	11.373	10.592
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	278	298	268	276	292	265	275	296	326	353
Service Time	10.688	10.095	11.31	10.792	10.066	11.322	10.804	10.078	9.073	8.292
HCM Lane V/C Ratio	0.169	1.299	1.045	0.145	0.229	0.291	0.16	1.074	1.448	3.569
HCM Control Delay	18	147.3	73.2	17.6	18.1	20.8	17.8	71.3	231.7	1155.2
HCM Lane LOS	C	F	F	C	C	C	C	F	F	F
HCM 95th-tile Q	0.5	15.1	8.1	0.4	0.7	1	0.5	8.7	23.4	110.5

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	37	36	27	35	2	15	271	14	9	409	44
Future Vol, veh/h	22	37	36	27	35	2	15	271	14	9	409	44
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	52	51	37	48	3	21	387	20	12	538	58

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1075	1057	586	1100	1076	415	605	0	0	415	0	0
Stage 1	600	600	-	447	447	-	-	-	-	-	-	-
Stage 2	475	457	-	653	629	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	197	225	510	190	219	637	973	-	-	1144	-	-
Stage 1	488	490	-	591	573	-	-	-	-	-	-	-
Stage 2	570	568	-	456	475	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	153	212	502	132	207	627	966	-	-	1136	-	-
Mov Cap-2 Maneuver	153	212	-	132	207	-	-	-	-	-	-	-
Stage 1	471	479	-	571	553	-	-	-	-	-	-	-
Stage 2	500	548	-	357	464	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.4	46.3	0.4	0.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	966	-	-	185	502	166	627	1136	-	-
HCM Lane V/C Ratio	0.022	-	-	0.449	0.101	0.512	0.004	0.01	-	-
HCM Control Delay (s)	8.8	0	-	39.4	13	47.4	10.8	8.2	0	-
HCM Lane LOS	A	A	-	E	B	E	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	0.3	2.5	0	0	-	-

Intersection	
Intersection Delay, s/veh	27.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	37	36	27	35	2	15	271	14	9	409	44
Future Vol, veh/h	22	37	36	27	35	2	15	271	14	9	409	44
Peak Hour Factor	0.71	0.71	0.71	0.73	0.73	0.73	0.70	0.70	0.70	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	52	51	37	48	3	21	387	20	12	538	58
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.5	12.3	19.6	38.8
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	5%	37%	0%	44%	0%	2%
Vol Thru, %	90%	63%	0%	56%	0%	89%
Vol Right, %	5%	0%	100%	0%	100%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	59	36	62	2	462
LT Vol	15	22	0	27	0	9
Through Vol	271	37	0	35	0	409
RT Vol	14	0	36	0	2	44
Lane Flow Rate	429	83	51	85	3	608
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.671	0.179	0.097	0.187	0.005	0.905
Departure Headway (Hd)	5.637	7.771	6.856	7.927	6.978	5.357
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	634	465	525	455	515	669
Service Time	3.731	5.477	4.561	5.634	4.685	3.44
HCM Lane V/C Ratio	0.677	0.178	0.097	0.187	0.006	0.909
HCM Control Delay	19.6	12.2	10.3	12.4	9.7	38.8
HCM Lane LOS	C	B	B	B	A	E
HCM 95th-tile Q	5.1	0.6	0.3	0.7	0	11.6

Intersection	
Intersection Delay, s/veh	293.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	247	57	19	14	29	173	41	243	56	303	103	222
Future Vol, veh/h	247	57	19	14	29	173	41	243	56	303	103	222
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	298	69	23	18	37	222	60	357	82	705	240	516
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	57.3	30.1	147.9	456.8
HCM LOS	F	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	81%	0%	100%	0%	0%	100%	0%	0%	32%
Vol Right, %	0%	19%	0%	0%	100%	0%	0%	100%	0%	68%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	41	299	247	57	19	14	29	173	303	325
LT Vol	41	0	247	0	0	14	0	0	303	0
Through Vol	0	243	0	57	0	0	29	0	0	103
RT Vol	0	56	0	0	19	0	0	173	0	222
Lane Flow Rate	60	440	298	69	23	18	37	222	705	756
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.182	1.249	0.913	0.201	0.063	0.058	0.115	0.642	1.973	1.913
Departure Headway (Hd)	11.547	10.911	12.435	11.917	11.191	13.035	12.514	11.784	10.702	9.693
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	313	339	295	303	322	276	288	308	345	385
Service Time	9.247	8.611	10.135	9.617	8.891	10.735	10.214	9.484	8.402	7.393
HCM Lane V/C Ratio	0.192	1.298	1.01	0.228	0.071	0.065	0.128	0.721	2.043	1.964
HCM Control Delay	16.8	165.9	69.7	17.6	14.6	16.5	16.8	33.4	472	442.6
HCM Lane LOS	C	F	F	C	B	C	C	D	F	F
HCM 95th-tile Q	0.7	18.6	8.5	0.7	0.2	0.2	0.4	4.1	46.3	47.9

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	31	14	11	12	1	30	327	19	1	134	2
Future Vol, veh/h	12	31	14	11	12	1	30	327	19	1	134	2
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	44	20	15	16	1	43	467	27	1	176	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	774	777	197	797	765	499	188	0	0	502	0	0
Stage 1	189	189	-	575	575	-	-	-	-	-	-	-
Stage 2	585	588	-	222	190	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	316	328	844	305	333	572	1386	-	-	1062	-	-
Stage 1	813	744	-	503	503	-	-	-	-	-	-	-
Stage 2	497	496	-	780	743	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	288	309	831	253	314	563	1376	-	-	1055	-	-
Mov Cap-2 Maneuver	288	309	-	253	314	-	-	-	-	-	-	-
Stage 1	772	738	-	478	478	-	-	-	-	-	-	-
Stage 2	454	471	-	710	737	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.2	19.1	0.6	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1376	-	-	303	831	282	563	1055	-	-
HCM Lane V/C Ratio	0.031	-	-	0.2	0.024	0.112	0.002	0.001	-	-
HCM Control Delay (s)	7.7	0	-	19.8	9.4	19.4	11.4	8.4	0	-
HCM Lane LOS	A	A	-	C	A	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0.4	0	0	-	-

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	31	14	11	12	1	30	327	19	1	134	2
Future Vol, veh/h	12	31	14	11	12	1	30	327	19	1	134	2
Peak Hour Factor	0.71	0.71	0.71	0.73	0.73	0.73	0.70	0.70	0.70	0.76	0.76	0.76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	44	20	15	16	1	43	467	27	1	176	3
Number of Lanes	0	1	1	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.6	9.6	16.1	9.5
HCM LOS	A	A	C	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	28%	0%	48%	0%	1%
Vol Thru, %	87%	72%	0%	52%	0%	98%
Vol Right, %	5%	0%	100%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	376	43	14	23	1	137
LT Vol	30	12	0	11	0	1
Through Vol	327	31	0	12	0	134
RT Vol	19	0	14	0	1	2
Lane Flow Rate	537	61	20	32	1	180
Geometry Grp	2	5	5	5	5	2
Degree of Util (X)	0.667	0.107	0.03	0.058	0.002	0.243
Departure Headway (Hd)	4.469	6.351	5.497	6.639	5.582	4.852
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	806	560	644	543	634	735
Service Time	2.511	4.144	3.289	4.339	3.381	2.913
HCM Lane V/C Ratio	0.666	0.109	0.031	0.059	0.002	0.245
HCM Control Delay	16.1	9.9	8.5	9.7	8.4	9.5
HCM Lane LOS	C	A	A	A	A	A
HCM 95th-tile Q	5.2	0.4	0.1	0.2	0	0.9

Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	119	139	229	173	12	22	94	56	22	39	55
Future Vol, veh/h	50	119	139	229	173	12	22	94	56	22	39	55
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	143	167	294	222	15	32	138	82	51	91	128
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	15	24.2	19.1	18.1
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	63%	0%	100%	0%	0%	100%	0%	0%	41%
Vol Right, %	0%	37%	0%	0%	100%	0%	0%	100%	0%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	150	50	119	139	229	173	12	22	94
LT Vol	22	0	50	0	0	229	0	0	22	0
Through Vol	0	94	0	119	0	0	173	0	0	39
RT Vol	0	56	0	0	139	0	0	12	0	55
Lane Flow Rate	32	221	60	143	167	294	222	15	51	219
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.083	0.519	0.152	0.341	0.364	0.7	0.497	0.031	0.131	0.503
Departure Headway (Hd)	9.239	8.466	9.071	8.554	7.831	8.589	8.074	7.353	9.205	8.281
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	388	426	396	420	459	423	446	487	390	435
Service Time	6.987	6.214	6.82	6.303	5.579	6.335	5.82	5.099	6.952	6.028
HCM Lane V/C Ratio	0.082	0.519	0.152	0.34	0.364	0.695	0.498	0.031	0.131	0.503
HCM Control Delay	12.8	20	13.4	15.7	15	29.1	18.6	10.3	13.3	19.2
HCM Lane LOS	B	C	B	C	B	D	C	B	B	C
HCM 95th-tile Q	0.3	2.9	0.5	1.5	1.6	5.2	2.7	0.1	0.4	2.8

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	36	34	33	43	2	19	136	18	13	330	64
Future Vol, veh/h	21	36	34	33	43	2	19	136	18	13	330	64
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	51	48	45	59	3	27	194	26	17	434	84

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	710	801	278	556	830	128	527	0	0	228	0	0
Stage 1	519	519	-	269	269	-	-	-	-	-	-	-
Stage 2	191	282	-	287	561	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	321	316	719	414	304	898	1036	-	-	1337	-	-
Stage 1	508	531	-	713	685	-	-	-	-	-	-	-
Stage 2	792	676	-	696	508	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	256	297	708	319	285	885	1028	-	-	1328	-	-
Mov Cap-2 Maneuver	256	297	-	319	285	-	-	-	-	-	-	-
Stage 1	489	518	-	687	660	-	-	-	-	-	-	-
Stage 2	692	651	-	570	495	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.3	22.9	1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1028	-	-	280	708	299	885	1328	-	-
HCM Lane V/C Ratio	0.026	-	-	0.287	0.068	0.348	0.003	0.013	-	-
HCM Control Delay (s)	8.6	0.1	-	22.9	10.5	23.3	9.1	7.7	0.1	-
HCM Lane LOS	A	A	-	C	B	C	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.2	1.5	0	0	-	-

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	309	3	81	234	1	18	1	77	2	0	3
Future Vol, veh/h	2	309	3	81	234	1	18	1	77	2	0	3
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	372	4	104	300	1	26	1	113	5	0	7
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	18.1	13.7	10.4	9.9
HCM LOS	C	B	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	1%	0%	100%	0%	0%	100%	0%	0%	0%
Vol Right, %	0%	99%	0%	0%	100%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	78	2	309	3	81	234	1	2	3
LT Vol	18	0	2	0	0	81	0	0	2	0
Through Vol	0	1	0	309	0	0	234	0	0	0
RT Vol	0	77	0	0	3	0	0	1	0	3
Lane Flow Rate	26	115	2	372	4	104	300	1	5	7
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.054	0.196	0.004	0.624	0.005	0.188	0.501	0.002	0.01	0.013
Departure Headway (Hd)	7.353	6.159	6.534	6.031	5.326	6.514	6.01	5.305	7.719	6.513
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	582	548	599	671	550	600	673	462	547
Service Time	5.107	3.914	4.274	3.771	3.066	4.254	3.751	3.046	5.486	4.279
HCM Lane V/C Ratio	0.053	0.198	0.004	0.621	0.006	0.189	0.5	0.001	0.011	0.013
HCM Control Delay	10.5	10.4	9.3	18.3	8.1	10.8	14.7	8.1	10.6	9.4
HCM Lane LOS	B	B	A	C	A	B	B	A	B	A
HCM 95th-tile Q	0.2	0.7	0	4.3	0	0.7	2.8	0	0	0

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	30	13	17	17	2	34	72	21	1	76	7
Future Vol, veh/h	11	30	13	17	17	2	34	72	21	1	76	7
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	42	18	23	23	3	49	103	30	1	100	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	287	355	74	307	344	85	118	0	0	141	0	0
Stage 1	116	116	-	224	224	-	-	-	-	-	-	-
Stage 2	171	239	-	83	120	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	643	569	973	622	577	957	1468	-	-	1440	-	-
Stage 1	876	799	-	758	717	-	-	-	-	-	-	-
Stage 2	814	706	-	916	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	593	541	958	549	548	943	1457	-	-	1430	-	-
Mov Cap-2 Maneuver	593	541	-	549	548	-	-	-	-	-	-	-
Stage 1	838	793	-	726	686	-	-	-	-	-	-	-
Stage 2	750	676	-	843	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	12	2.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1457	-	-	554	958	548	943	1430	-	-
HCM Lane V/C Ratio	0.033	-	-	0.104	0.019	0.085	0.003	0.001	-	-
HCM Control Delay (s)	7.6	0.1	-	12.3	8.8	12.2	8.8	7.5	0	-
HCM Lane LOS	A	A	-	B	A	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0.3	0	0	-	-

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	125	132	202	178	13	20	87	52	22	39	55
Future Vol, veh/h	53	125	132	202	178	13	20	87	52	22	39	55
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	151	159	259	228	17	29	128	76	51	91	128
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	14.4	20.4	17.3	17.1
HCM LOS	B	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	63%	0%	100%	0%	0%	100%	0%	0%	41%
Vol Right, %	0%	37%	0%	0%	100%	0%	0%	100%	0%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	139	53	125	132	202	178	13	22	94
LT Vol	20	0	53	0	0	202	0	0	22	0
Through Vol	0	87	0	125	0	0	178	0	0	39
RT Vol	0	52	0	0	132	0	0	13	0	55
Lane Flow Rate	29	204	64	151	159	259	228	17	51	219
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.073	0.466	0.155	0.344	0.331	0.6	0.496	0.033	0.126	0.483
Departure Headway (Hd)	8.977	8.205	8.728	8.213	7.492	8.344	7.831	7.112	8.878	7.957
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	397	437	409	435	477	430	459	500	402	450
Service Time	6.777	6.004	6.528	6.012	5.291	6.136	5.622	4.903	6.677	5.755
HCM Lane V/C Ratio	0.073	0.467	0.156	0.347	0.333	0.602	0.497	0.034	0.127	0.487
HCM Control Delay	12.5	18	13.1	15.3	14	23	18.2	10.1	13	18.1
HCM Lane LOS	B	C	B	C	B	C	C	B	B	C
HCM 95th-tile Q	0.2	2.4	0.5	1.5	1.4	3.8	2.7	0.1	0.4	2.6

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	36	35	31	41	2	18	128	17	13	294	66
Future Vol, veh/h	21	36	35	31	41	2	18	128	17	13	294	66
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	51	49	42	56	3	26	183	24	17	387	87

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	761	741	450	780	772	213	483	0	0	215	0	0
Stage 1	474	474	-	255	255	-	-	-	-	-	-	-
Stage 2	287	267	-	525	517	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	322	344	609	313	330	827	1080	-	-	1355	-	-
Stage 1	571	558	-	749	696	-	-	-	-	-	-	-
Stage 2	720	688	-	536	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	263	324	599	241	311	815	1072	-	-	1346	-	-
Mov Cap-2 Maneuver	263	324	-	241	311	-	-	-	-	-	-	-
Stage 1	552	545	-	724	672	-	-	-	-	-	-	-
Stage 2	635	665	-	435	521	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	24.7	0.9	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1072	-	-	298	599	276	815	1346	-	-
HCM Lane V/C Ratio	0.024	-	-	0.269	0.082	0.357	0.003	0.013	-	-
HCM Control Delay (s)	8.4	0	-	21.5	11.5	25.1	9.4	7.7	0	-
HCM Lane LOS	A	A	-	C	B	D	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.1	0.3	1.6	0	0	-	-

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	316	0	75	226	1	17	1	74	2	0	3
Future Vol, veh/h	2	316	0	75	226	1	17	1	74	2	0	3
Peak Hour Factor	0.83	0.83	0.83	0.78	0.78	0.78	0.68	0.68	0.68	0.43	0.43	0.43
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	381	0	96	290	1	25	1	109	5	0	7
Number of Lanes	1	1	1	1	1	1	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	3
HCM Control Delay	18.4	13.4	10.4	9.9
HCM LOS	C	B	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	1%	0%	100%	100%	0%	100%	0%	0%	0%
Vol Right, %	0%	99%	0%	0%	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	75	2	316	0	75	226	1	2	3
LT Vol	17	0	2	0	0	75	0	0	2	0
Through Vol	0	1	0	316	0	0	226	0	0	0
RT Vol	0	74	0	0	0	0	0	1	0	3
Lane Flow Rate	25	110	2	381	0	96	290	1	5	7
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.051	0.19	0.004	0.632	0	0.174	0.484	0.002	0.01	0.013
Departure Headway (Hd)	7.403	6.2	6.478	5.975	5.975	6.519	6.015	5.309	7.768	6.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	577	552	605	0	550	600	673	459	544
Service Time	5.159	3.955	4.217	3.714	3.714	4.261	3.756	3.05	5.536	4.317
HCM Lane V/C Ratio	0.052	0.191	0.004	0.63	0	0.175	0.483	0.001	0.011	0.013
HCM Control Delay	10.6	10.4	9.2	18.5	8.7	10.6	14.3	8.1	10.6	9.4
HCM Lane LOS	B	B	A	C	N	B	B	A	B	A
HCM 95th-tile Q	0.2	0.7	0	4.4	0	0.6	2.6	0	0	0

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	30	14	16	17	2	32	69	20	1	66	7
Future Vol, veh/h	11	30	14	16	17	2	32	69	20	1	66	7
Conflicting Peds, #/hr	10	0	10	10	0	10	9	0	8	8	0	9
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	73	73	73	70	70	70	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	42	20	22	23	3	46	99	29	1	87	9

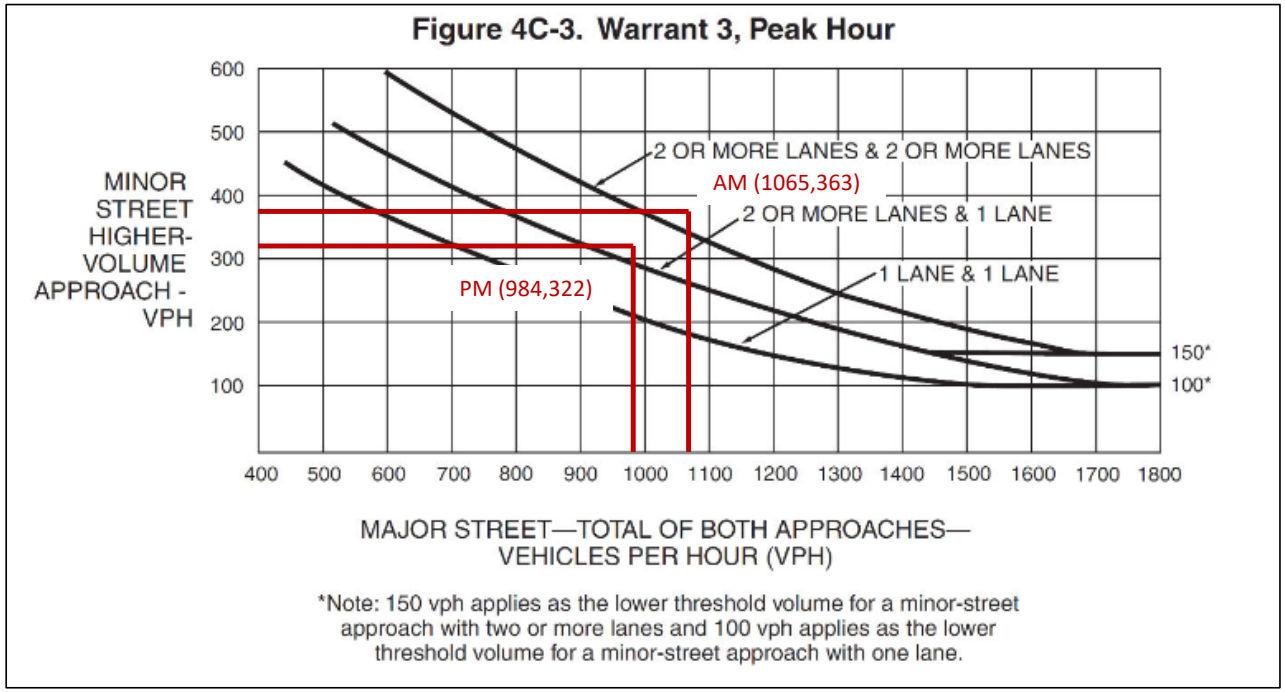
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	332	331	111	349	321	132	105	0	0	136	0	0
Stage 1	103	103	-	214	214	-	-	-	-	-	-	-
Stage 2	229	228	-	135	107	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	621	588	942	606	596	917	1486	-	-	1448	-	-
Stage 1	903	810	-	788	725	-	-	-	-	-	-	-
Stage 2	774	715	-	868	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	574	560	927	536	567	903	1475	-	-	1438	-	-
Mov Cap-2 Maneuver	574	560	-	536	567	-	-	-	-	-	-	-
Stage 1	866	804	-	756	695	-	-	-	-	-	-	-
Stage 2	714	686	-	797	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	11.9	2	0.1
HCM LOS	B	B		

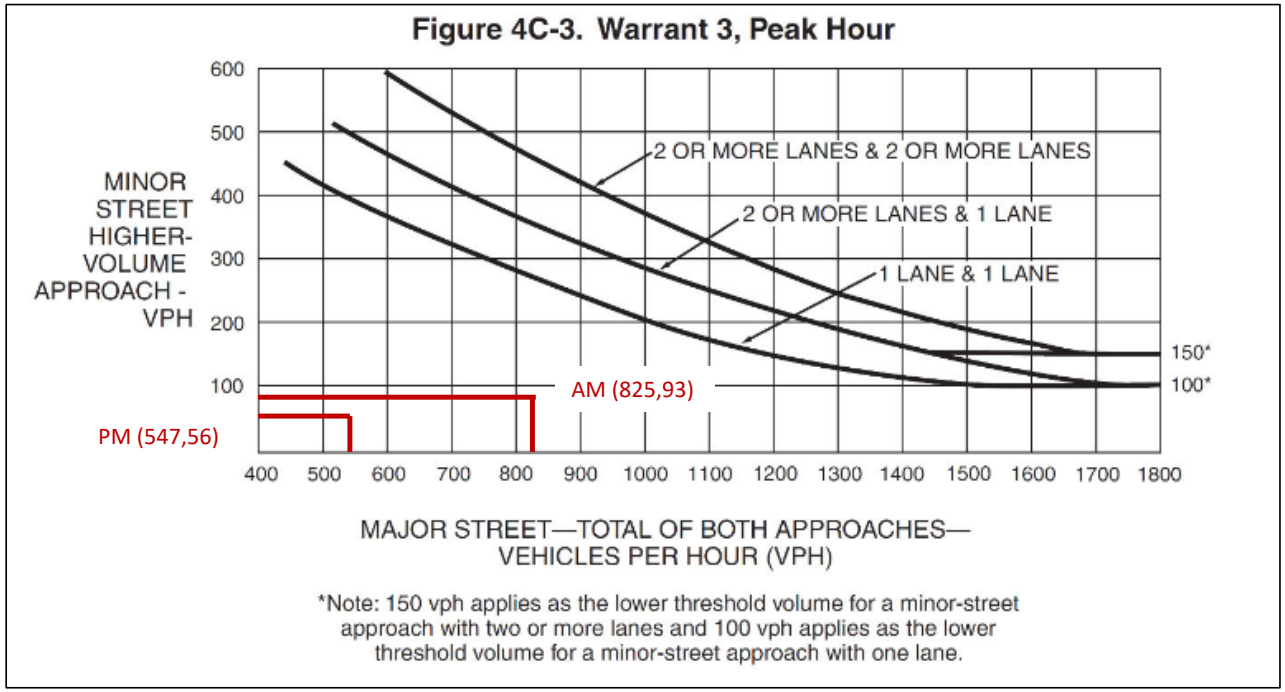
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	564	927	552	903	1438	-	-
HCM Lane V/C Ratio	0.031	-	-	0.102	0.021	0.082	0.003	0.001	-	-
HCM Control Delay (s)	7.5	0	-	12.1	9	12.1	9	7.5	0	-
HCM Lane LOS	A	A	-	B	A	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0.3	0	0	-	-

APPENDIX D– Traffic Signal Warrants

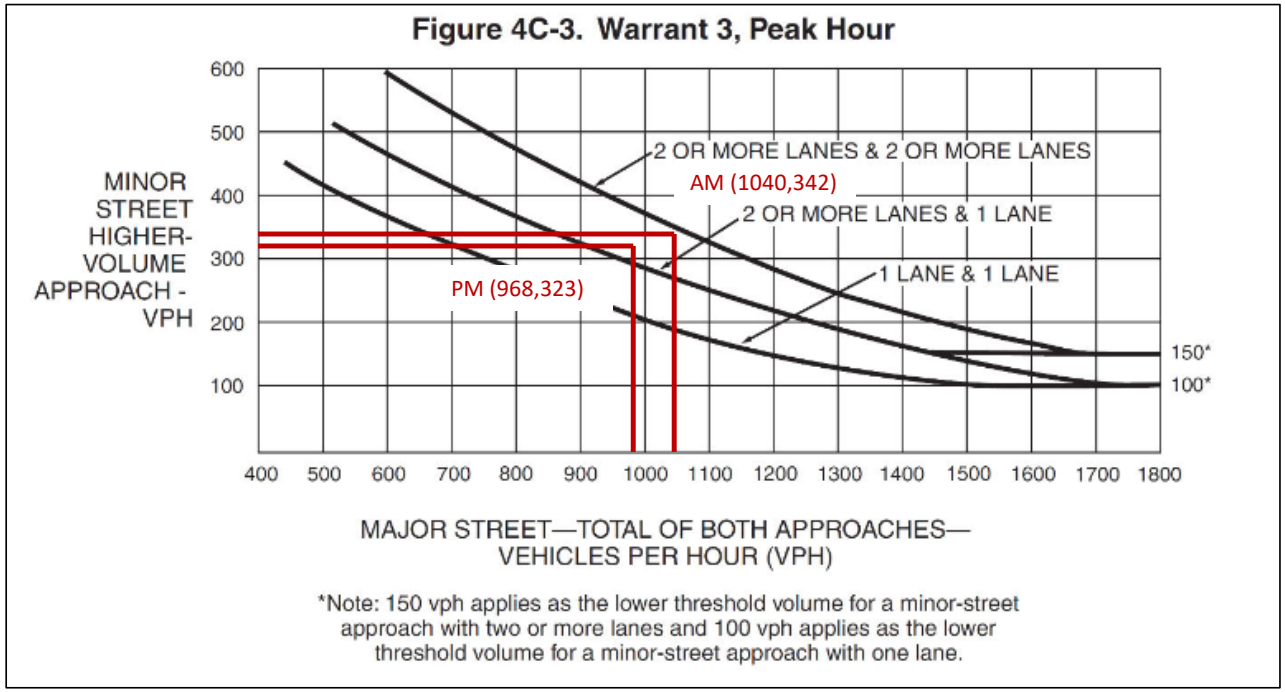
Buildout Year I-405 Vehicular OC With 4-Lane Yale Ave AM/PM Peaks at Yale Ave / Michelson Dr



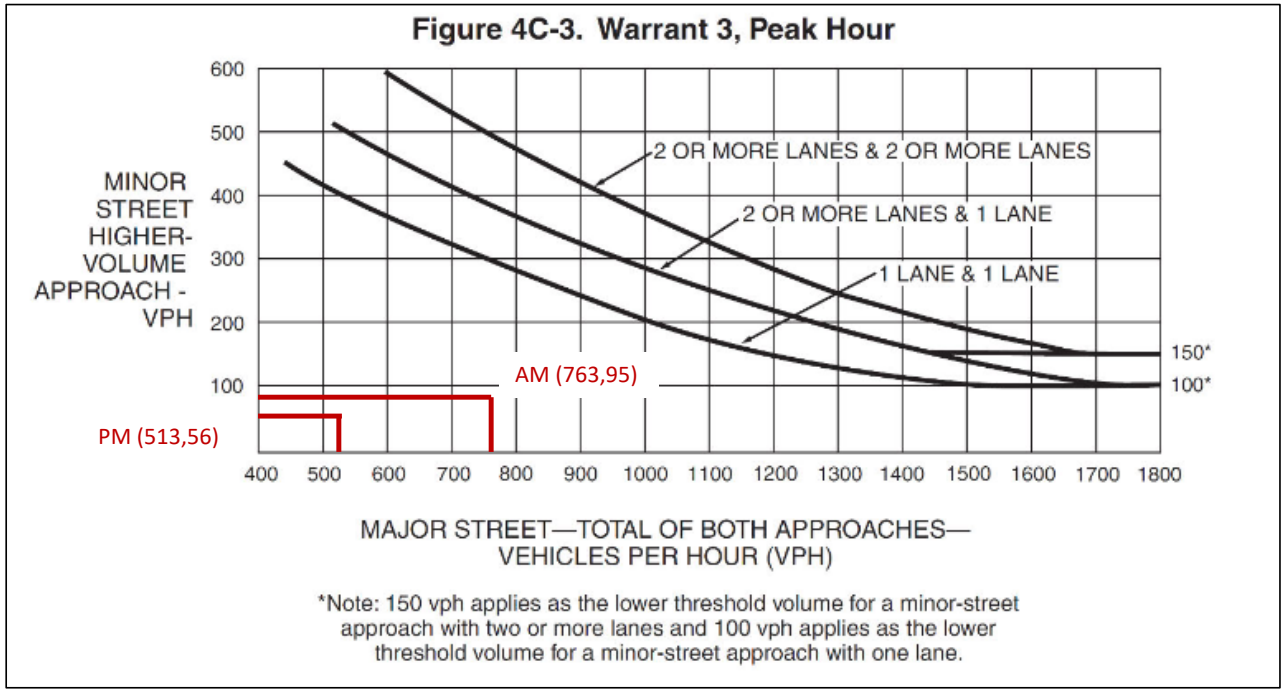
Buildout Year I-405 Vehicular OC With 4-Lane Yale Ave AM/PM Peaks at Yale Ave / Royce Rd



Buildout Year I-405 Vehicular OC With 2-Lane Yale Ave AM/PM Peaks at Yale Ave / Michelson Dr



Buildout Year I-405 Vehicular OC With 2-Lane Yale Ave AM/PM Peaks at Yale Ave / Royce Rd



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iteris.com

MARK THOMAS

Attachment F – Yale Avenue and University Drive Bike and Pedestrian Traffic Analysis

Technical Memorandum

To:	City of Irvine	From:	Iteris, Inc.
Date:	April 25, 2024		
RE:	South Yale Corridor Improvements Traffic Analysis (Bicycle Scramble for Yale/University)		

This memorandum analyzes the traffic impacts of the addition of a bicycle scramble phase or bicycle/pedestrian scramble phase at the intersection of Yale Avenue/University Drive in the City of Irvine.

A diagonal bicycle crossing signal phase has been proposed at the intersection of Yale Avenue and University Drive in the City of Irvine. The City typically uses Intersection Capacity Utilization (ICU) analysis to evaluate intersection capacity. However, this diagonal bicycle crossing signal phase at this intersection would not have an effect on the ICU analysis, but the signal operations. Therefore, the City would like to analyze the intersection using the Highway Capacity Manual 6 (HCM) methodology, using Synchro software version 11.

Study Background

1.1 Study Scenarios

A total of three (3) study scenarios were identified and analyzed. The scenarios include:

1. Future Year No Build Scenario
    - Current signal timing will be used for no build conditions.
2. Future Year Build Scenario Alternative 1
    - Proposed conditions Alternative 1 includes exclusive bicycle only phase (bicycle scramble). A bicycle phase will be added to the existing signal timing, which is in addition to the existing pedestrian phases.
3. Future Year Build Scenario Alternative 2
    - Proposed conditions Alternative 2 includes exclusive bicycle and pedestrian phase (bicycle/pedestrian scramble). An exclusive bicycle and pedestrian phase will be added to the existing signal phasing assuming pedestrian travel at 3.5 feet per second. Additionally, the pedestrian phase concurrent with Yale Avenue motor vehicle phase (west leg of the intersection) will be removed. The crosswalks would not be modified, but the signal phasing would provide bicycle and pedestrian travel only during the exclusive scramble phase when actuated by a pedestrian or cyclist.

1.2 Study Periods

Traffic operations were evaluated for all 3 scenarios during the weekday AM (7:00AM – 9:00AM) and PM (4:00PM – 6:00PM) peak hours under typical weekday conditions.

Traffic Volume Input

1.3 Data Source

Traffic volumes used at the study intersection were obtained from the South Yale Corridor Improvements Traffic Analysis, prepared by Iteris in May 2023. And are based on the Irvine Transportation Analysis Model (ITAM). In the South Yale Corridor Improvements Traffic Analysis, four future scenarios were analyzed. Traffic volumes for Buildout Year No I-405 Vehicular Overcrossing (OC) with Two-lane Yale Avenue was used for the purpose of this analysis, since the future scenario analyzes the removal of street modification of Yale Avenue, keeping Yale Avenue two-lane

Commuter Street between University Drive and Michelson Drive. I-405 OC along Yale Avenue will remain as pedestrians and bicycles only. **Figure 1** illustrates the South Yale Corridor under Buildout Year No I-405 Vehicular OC with Two-lane Yale Avenue. **Table 1** summarizes the intersection traffic volumes for all scenarios.

Figure 1: South Yale Corridor (Buildout Year No I-405 Vehicular OC with Two-lane Yale Avenue)

Table 2: Buildout Intersection Traffic Volumes (All Scenarios)

#	Intersection	Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Yale Avenue and University Drive	AM Peak Hour	*Does Not Exist*			146	-	214	121	924	-	-	1,344	42
		PM Peak Hour				22	-	74	101	1,650	-	-	1,021	20

Note:
NB: Northbound, SB: Southbound, EB: Eastbound, WB: Westbound
L: Left, T: Through, R: Right

It should be noted that traffic volumes for the intersection of Yale Avenue/University are consistent across all 3 scenarios for their respective AM and PM peak hours. The 3 study scenarios only involve the addition of bicycle scramble or bicycle/pedestrian scramble of the intersection, without considering any future street upgrade of Yale Avenue from an existing two-lane commuter street to a four-lane secondary arterial between Michelson Drive and University Drive.

Traffic Operations Analysis

Traffic operations for the three alternatives are documented in this section of the technical memorandum for the intersection of Yale Avenue/University Drive consistent with the current *City of Irvine Traffic Study Guidelines, dated December 2020.*

1.4 Intersection Analysis Methodology

The Highway Capacity Manual (HCM) 6th Edition methodology will be used to evaluate the study intersections. This approach defines the level of service (LOS) by the average vehicle delay in seconds for the turning movements and intersection characteristics at signalized and unsignalized intersections. LOS A represents free-flow activity and LOS F represents overcapacity operation. Traffic operations analysis for HCM methodologies will be completed using Synchro 11 traffic analysis software. Signal timing for future year no build scenario is based on the existing signal timing, which was confirmed on February 6, 2024.

The length of the proposed bicycle crossing or bicycle/pedestrian crossing was provided by Mark Thomas. The diagonal length of crossing was provided as 130 feet. Signal timing for the exclusive bicycle only phase (bicycle scramble) and exclusive bicycle/pedestrian phase (bicycle/pedestrian scramble) was based on the Caltrans speed for bicycles and pedestrians and California Manual on Uniform Traffic Control Devices (CA MUTCD). Following are the Caltrans and CA MUTCD suggested speed for bicycles and pedestrians:

- Bicycle Speed: 14.7 feet/sec
    - *As a note, the minimum green time for bicycle was calculated using a 10 second startup time to provide adequate/additional time for less experienced cyclists*
- Pedestrian Speed: 3.5 feet/sec

LOS definitions for signalized intersections are provided in **Table 2**.

Table 2: Level of Service Definitions

LOS	Description
A	At this LOS, traffic volumes are low, and speed is not restricted by other vehicles. All signal cycles clear with no vehicles waiting through more than one original cycle.
B	At this LOS, traffic volumes begin to be affected by other traffic. Between one and ten percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.
C	At this LOS, operating speeds and maneuverability are closely controlled by other traffic. Between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.
D	At this LOS, traffic will operate at tolerable operating speeds, although with restricted maneuverability.
E	Traffic will experience restricted speeds, vehicles will frequently have to wait through two or more cycles at signalized intersections, and any additional traffic will result in breakdown of the traffic carrying ability of the system.
F	Long queues of traffic, unstable flow, stoppages of long duration with traffic volumes and traffic, speed can drop to zero. Traffic volumes will be less than the volume which occurs at LOS E.

Table 3 and **Table 4** list the signal timing for each phase for all analysis scenarios during AM and PM peak hours, separately. Please note that the total cycle length for each scenario remains consistent.

Table 3: Signal Timing (Total Spilt) for All Analysis Scenarios (AM Peak Hour)

#	Intersection	Analysis Scenario	AM Peak Hour					
			EBL	EBT	WBT	SBL	BIKE/PED	Total Cycle Length
1	Yale Avenue and University Drive	Future Year No Build	30.0	140.0	110.0	60.0	-	200.0
		Future Year Build Alternative 1 (Exclusive Bicycle Only Phase)	50.0	130.0	80.0	50.0	20.0	200.0
		Future Year Build Alternative 2 (Exclusive Bicycle and Pedestrian Phase)	23.0	125.0	102.0	25.0	50.0	200.0

Note:

NB: Northbound, SB: Southbound, EB: Eastbound, WB: Westbound. All timings are in seconds.

L: Left, T: Through, R: Right

Table 4: Signal Timing (Total Spilt) for All Analysis Scenarios (PM Peak Hour)

#	Intersection	Analysis Scenario	PM Peak Hour					
			EBL	EBT	WBT	SBL	BIKE/PED	Total Cycle Length
1	Yale Avenue and University Drive	Future Year No Build	20.0	106.0	86.0	34.0	-	140.0
		Future Year Build Alternative 1 (Exclusive Bicycle Only Phase)	25.0	86.0	61.0	34.0	20.0	140.0
		Future Year Build Alternative 2 (Exclusive Bicycle and Pedestrian Phase)	20.0	56.0	36.0	34.0	50.0	140.0

Note:

NB: Northbound, SB: Southbound, EB: Eastbound, WB: Westbound. All timings are in seconds.

L: Left, T: Through, R: Right

According to the City of Irvine Traffic Study Guidelines, LOS D shall be considered acceptable for the study area. A traffic LOS impact occurs when the intersection operates at an acceptable LOS in the baseline condition and the project causes the location to become deficient. If an intersection is determined to have an LOS impact, then the project will be required to mitigate the intersection, at a minimum, back to the baseline condition.

Table 5 summarizes the intersection LOS results for all analysis scenarios during AM and PM peak hours. Synchro worksheets are provided in **Appendix A**.

Table 5: Intersection LOS for All Analysis Scenarios

#	Intersection	Analysis Scenario	AM Peak Hour		PM Peak Hour	
			Intersection Delay (s)	LOS	Intersection Delay (s)	LOS
1	Yale Avenue and University Drive	Future Year No Build	25.7	C	13.3	B
		Future Year Build Alternative 1 (Exclusive Bicycle Only Phase)	33.9	C	19.8	B
		Future Year Build Alternative 2 (Exclusive Bicycle and Pedestrian Phase)	53.1	D	32.8	C

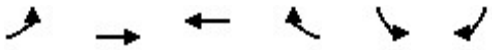
Note: *Permissive + Overlap phasing has been added to SBR Alternative 2 in this analysis.*

As indicated in **Table 5**, the study intersection is anticipated to operate at LOS D or better during both AM and PM peak hours for all analysis scenarios, with the addition of permissive + overlap phasing for the southbound right turn (SBR) movement in Alternative 2. The additional intersection delay associated with Alternative 1 and Alternative 2 are solely related to the addition of exclusive non-vehicular phase, reducing the vehicular green time, and maintaining the overall cycle length.

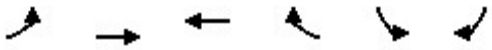
In conclusion, the addition of an exclusive bicycle only phase (bicycle scramble) or the addition of an exclusive bicycle and pedestrian phase (bicycle/pedestrian scramble) will not result in any deficient level of service at the study intersection. However, it should be noted that any increase in active transportation cycle length will degrade the vehicular delay at an intersection. The intersection of Yale Avenue/University Drive will continue to operate at a satisfactory LOS based on traffic volumes from “Buildout Year No I-405 Vehicular Overcrossing with Two-lane Yale Avenue” scenario in the South Yale Corridor Improvements Traffic Analysis.

Appendix A

Future Year No Build



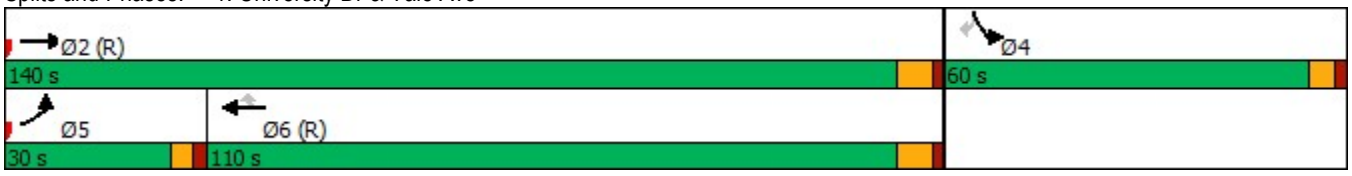
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	121	924	1344	42	146	214
Future Volume (vph)	121	924	1344	42	146	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145			225	0	150
Storage Lanes	1			1	1	1
Taper Length (ft)	75				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor				0.94		0.90
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1489	1770	1431
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				22		227
Link Speed (mph)		55	50		40	
Link Distance (ft)		583	683		620	
Travel Time (s)		7.2	9.3		10.6	
Confl. Peds. (#/hr)				7		23
Confl. Bikes (#/hr)				12		45
Peak Hour Factor	0.82	0.82	0.88	0.88	0.80	0.80
Adj. Flow (vph)	148	1127	1527	48	183	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	1127	1527	48	183	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			

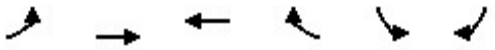


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0
Minimum Split (s)	19.2	17.4	29.4	29.4	32.9	32.9
Total Split (s)	30.0	140.0	110.0	110.0	60.0	60.0
Total Split (%)	15.0%	70.0%	55.0%	55.0%	30.0%	30.0%
Maximum Green (s)	24.8	132.6	102.6	102.6	54.1	54.1
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			5.0	5.0	5.0	5.0
Flash Dont Walk (s)			17.0	17.0	22.0	22.0
Pedestrian Calls (#/hr)			7	7	23	23
Act Effct Green (s)	21.9	161.1	134.0	134.0	25.6	25.6
Actuated g/C Ratio	0.11	0.81	0.67	0.67	0.13	0.13
v/c Ratio	0.76	0.40	0.64	0.05	0.81	0.70
Control Delay	110.3	6.4	22.3	8.6	110.0	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.3	6.4	22.3	8.6	110.0	25.1
LOS	F	A	C	A	F	C
Approach Delay		18.5	21.9		59.6	
Approach LOS		B	C		E	

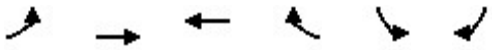
Intersection Summary			
Area Type:	Other		
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 124 (62%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.7		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: University Dr & Yale Ave





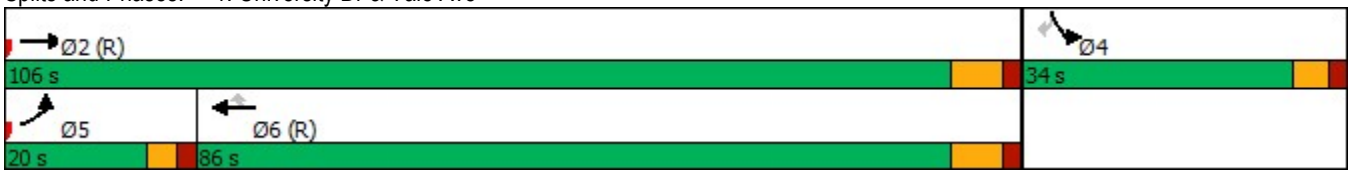
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	101	1650	1021	20	22	74
Future Volume (vph)	101	1650	1021	20	22	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145			225	0	150
Storage Lanes	1			1	1	1
Taper Length (ft)	75				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor				0.96		0.95
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1522	1770	1512
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				22		93
Link Speed (mph)		55	50		40	
Link Distance (ft)		583	683		620	
Travel Time (s)		7.2	9.3		10.6	
Confl. Peds. (#/hr)				4		9
Confl. Bikes (#/hr)				10		18
Peak Hour Factor	0.92	0.92	0.93	0.93	0.80	0.80
Adj. Flow (vph)	110	1793	1098	22	28	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	1793	1098	22	28	93
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0
Minimum Split (s)	19.2	17.4	29.4	29.4	32.9	32.9
Total Split (s)	20.0	106.0	86.0	86.0	34.0	34.0
Total Split (%)	14.3%	75.7%	61.4%	61.4%	24.3%	24.3%
Maximum Green (s)	14.8	98.6	78.6	78.6	28.1	28.1
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.9
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.9
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)			5.0	5.0	5.0	5.0
Flash Dont Walk (s)			17.0	17.0	22.0	22.0
Pedestrian Calls (#/hr)			4	4	9	9
Act Effct Green (s)	14.8	110.1	90.1	90.1	16.6	16.6
Actuated g/C Ratio	0.11	0.79	0.64	0.64	0.12	0.12
v/c Ratio	0.59	0.64	0.48	0.02	0.13	0.36
Control Delay	72.9	8.4	14.5	4.4	54.6	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.9	8.4	14.5	4.4	54.6	13.5
LOS	E	A	B	A	D	B
Approach Delay		12.2	14.3		23.0	
Approach LOS		B	B		C	

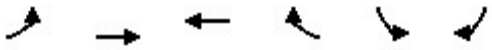
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 104 (74%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: University Dr & Yale Ave



Future Year Build Alternative 1

(Exclusive Bicycle Only Phase)

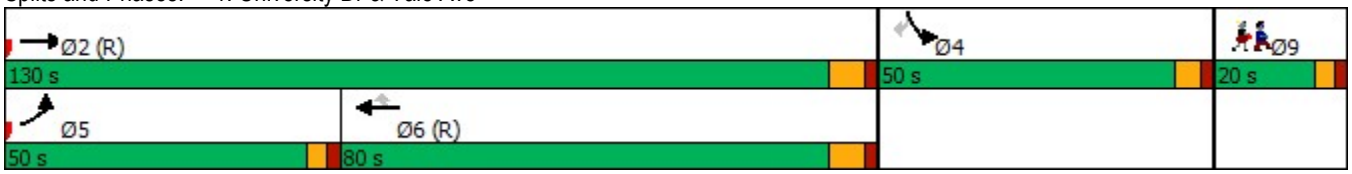


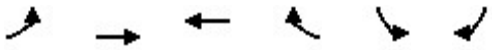
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	121	924	1344	42	146	214	
Future Volume (vph)	121	924	1344	42	146	214	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	145			225	0	150	
Storage Lanes	1			1	1	1	
Taper Length (ft)	75				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				0.94		0.94	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	3539	3539	1484	1770	1485	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				17		237	
Link Speed (mph)		55	50		40		
Link Distance (ft)		583	683		620		
Travel Time (s)		7.2	9.3		10.6		
Confl. Peds. (#/hr)				7		23	
Confl. Bikes (#/hr)				12			
Peak Hour Factor	0.82	0.82	0.88	0.88	0.80	0.80	
Adj. Flow (vph)	148	1127	1527	48	183	268	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	148	1127	1527	48	183	268	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(ft)		12	12		12		
Link Offset(ft)		0	0		0		
Crosswalk Width(ft)		16	16		16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15			9	15	9	
Number of Detectors	1	2	2	1	1	1	
Detector Template	Left	Thru	Thru	Right	Left	Right	
Leading Detector (ft)	20	100	100	20	20	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Turn Type	Prot	NA	NA	Perm	Prot	Perm	
Protected Phases	5	2	6		4		9
Permitted Phases				6		4	
Detector Phase	5	2	6	6	4	4	
Switch Phase							
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0	15.0
Minimum Split (s)	19.2	17.4	29.4	29.4	32.9	32.9	20.0
Total Split (s)	50.0	130.0	80.0	80.0	50.0	50.0	20.0
Total Split (%)	25.0%	65.0%	40.0%	40.0%	25.0%	25.0%	10%
Maximum Green (s)	44.8	122.6	72.6	72.6	44.1	44.1	15.0
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.9	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.9	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)			5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)			17.0	17.0	22.0	22.0	6.0
Pedestrian Calls (#/hr)			7	7	23	23	45
Act Effct Green (s)	22.1	145.2	117.9	117.9	25.5	25.5	
Actuated g/C Ratio	0.11	0.73	0.59	0.59	0.13	0.13	
v/c Ratio	0.76	0.44	0.73	0.05	0.81	0.68	
Control Delay	109.2	12.9	35.6	15.7	110.5	21.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	109.2	12.9	35.6	15.7	110.5	21.5	
LOS	F	B	D	B	F	C	
Approach Delay		24.1	35.0		57.6		
Approach LOS		C	C		E		

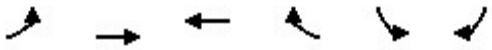
Intersection Summary			
Area Type:	Other		
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 124 (62%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 33.9		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: University Dr & Yale Ave





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	101	1650	1021	20	22	74	
Future Volume (vph)	101	1650	1021	20	22	74	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	145			225	0	150	
Storage Lanes	1			1	1	1	
Taper Length (ft)	75				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				0.96		0.97	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	3539	3539	1517	1770	1543	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				16		93	
Link Speed (mph)		55	50		40		
Link Distance (ft)		583	683		620		
Travel Time (s)		7.2	9.3		10.6		
Confl. Peds. (#/hr)				4		9	
Confl. Bikes (#/hr)				10			
Peak Hour Factor	0.92	0.92	0.93	0.93	0.80	0.80	
Adj. Flow (vph)	110	1793	1098	22	28	93	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	110	1793	1098	22	28	93	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(ft)		12	12		12		
Link Offset(ft)		0	0		0		
Crosswalk Width(ft)		16	16		16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15			9	15	9	
Number of Detectors	1	2	2	1	1	1	
Detector Template	Left	Thru	Thru	Right	Left	Right	
Leading Detector (ft)	20	100	100	20	20	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				



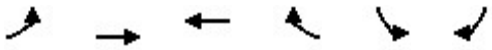
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Turn Type	Prot	NA	NA	Perm	Prot	Perm	
Protected Phases	5	2	6		4		9
Permitted Phases				6		4	
Detector Phase	5	2	6	6	4	4	
Switch Phase							
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0	15.0
Minimum Split (s)	19.2	17.4	29.4	29.4	32.9	32.9	20.0
Total Split (s)	25.0	86.0	61.0	61.0	34.0	34.0	20.0
Total Split (%)	17.9%	61.4%	43.6%	43.6%	24.3%	24.3%	14%
Maximum Green (s)	19.8	78.6	53.6	53.6	28.1	28.1	15.0
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.9	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.9	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)			5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)			17.0	17.0	22.0	22.0	6.0
Pedestrian Calls (#/hr)			4	4	9	9	18
Act Effct Green (s)	15.5	102.1	81.4	81.4	16.6	16.6	
Actuated g/C Ratio	0.11	0.73	0.58	0.58	0.12	0.12	
v/c Ratio	0.56	0.69	0.53	0.02	0.13	0.35	
Control Delay	70.2	15.2	22.1	11.1	54.6	13.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	70.2	15.2	22.1	11.1	54.6	13.3	
LOS	E	B	C	B	D	B	
Approach Delay		18.4	21.9		22.9		
Approach LOS		B	C		C		

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 104 (74%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

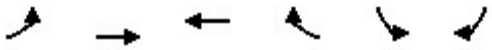
Splits and Phases: 1: University Dr & Yale Ave

Future Year Build Alternative 2

(Exclusive Bicycle and Pedestrian Phase)



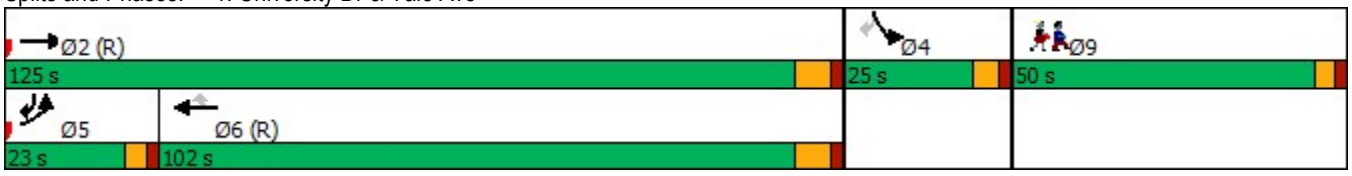
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	121	924	1344	42	146	214	
Future Volume (vph)	121	924	1344	42	146	214	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	145			225	0	150	
Storage Lanes	1			1	1	1	
Taper Length (ft)	75				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				0.94			
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	3539	3539	1488	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				20		227	
Link Speed (mph)		55	50		40		
Link Distance (ft)		583	683		620		
Travel Time (s)		7.2	9.3		10.6		
Confl. Peds. (#/hr)				7			
Confl. Bikes (#/hr)				12			
Peak Hour Factor	0.82	0.82	0.88	0.88	0.80	0.80	
Adj. Flow (vph)	148	1127	1527	48	183	268	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	148	1127	1527	48	183	268	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(ft)		12	12		12		
Link Offset(ft)		0	0		0		
Crosswalk Width(ft)		16	16		16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15			9	15	9	
Number of Detectors	1	2	2	1	1	1	
Detector Template	Left	Thru	Thru	Right	Left	Right	
Leading Detector (ft)	20	100	100	20	20	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				

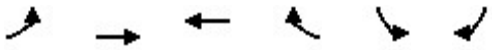


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Turn Type	Prot	NA	NA	Perm	Prot	pm+ov	
Protected Phases	5	2	6		4	5	9
Permitted Phases				6		4	
Detector Phase	5	2	6	6	4	5	
Switch Phase							
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0	45.0
Minimum Split (s)	19.2	17.4	29.4	29.4	19.9	19.2	50.0
Total Split (s)	23.0	125.0	102.0	102.0	25.0	23.0	50.0
Total Split (%)	11.5%	62.5%	51.0%	51.0%	12.5%	11.5%	25%
Maximum Green (s)	17.8	117.6	94.6	94.6	19.1	17.8	45.0
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.2	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.2	
Lead/Lag	Lead		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	3.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)			5.0	5.0			5.0
Flash Dont Walk (s)			17.0	17.0			35.0
Pedestrian Calls (#/hr)			7	7			68
Act Effct Green (s)	17.8	117.6	94.6	94.6	19.1	37.6	
Actuated g/C Ratio	0.09	0.59	0.47	0.47	0.10	0.19	
v/c Ratio	0.94	0.54	0.91	0.07	1.08	0.56	
Control Delay	145.1	26.1	58.2	18.1	171.6	12.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	145.1	26.1	58.2	18.1	171.6	12.0	
LOS	F	C	E	B	F	B	
Approach Delay		39.9	57.0		76.7		
Approach LOS		D	E		E		

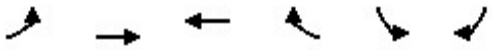
Intersection Summary			
Area Type:	Other		
Cycle Length: 200			
Actuated Cycle Length: 200			
Offset: 124 (62%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 53.1		Intersection LOS: D	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: University Dr & Yale Ave





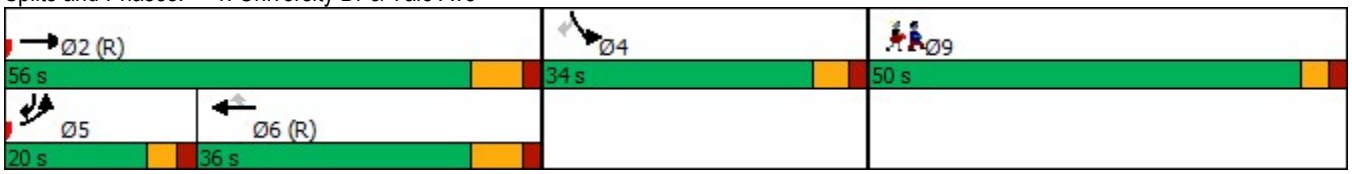
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations							
Traffic Volume (vph)	101	1650	1021	20	22	74	
Future Volume (vph)	101	1650	1021	20	22	74	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	145			225	0	150	
Storage Lanes	1			1	1	1	
Taper Length (ft)	75				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				0.95			
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583	
Flt Permitted	0.950				0.950		
Satd. Flow (perm)	1770	3539	3539	1504	1770	1583	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				12		93	
Link Speed (mph)		55	50		40		
Link Distance (ft)		583	683		620		
Travel Time (s)		7.2	9.3		10.6		
Confl. Peds. (#/hr)				4			
Confl. Bikes (#/hr)				10			
Peak Hour Factor	0.92	0.92	0.93	0.93	0.80	0.80	
Adj. Flow (vph)	110	1793	1098	22	28	93	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	110	1793	1098	22	28	93	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(ft)		12	12		12		
Link Offset(ft)		0	0		0		
Crosswalk Width(ft)		16	16		16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15			9	15	9	
Number of Detectors	1	2	2	1	1	1	
Detector Template	Left	Thru	Thru	Right	Left	Right	
Leading Detector (ft)	20	100	100	20	20	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Turn Type	Prot	NA	NA	Perm	Prot	pm+ov	
Protected Phases	5	2	6		4	5	9
Permitted Phases				6		4	
Detector Phase	5	2	6	6	4	5	
Switch Phase							
Minimum Initial (s)	14.0	10.0	9.0	9.0	14.0	14.0	45.0
Minimum Split (s)	19.2	17.4	29.4	29.4	19.9	19.2	50.0
Total Split (s)	20.0	56.0	36.0	36.0	34.0	20.0	50.0
Total Split (%)	14.3%	40.0%	25.7%	25.7%	24.3%	14.3%	36%
Maximum Green (s)	14.8	48.6	28.6	28.6	28.1	14.8	45.0
Yellow Time (s)	3.2	5.4	5.4	5.4	3.9	3.2	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.2	7.4	7.4	7.4	5.9	5.2	
Lead/Lag	Lead		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	3.0	2.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None
Walk Time (s)			5.0	5.0			5.0
Flash Dont Walk (s)			17.0	17.0			35.0
Pedestrian Calls (#/hr)			4	4			27
Act Effct Green (s)	15.5	93.6	70.0	70.0	14.0	24.3	
Actuated g/C Ratio	0.11	0.67	0.50	0.50	0.10	0.17	
v/c Ratio	0.56	0.76	0.62	0.03	0.16	0.26	
Control Delay	70.3	29.6	36.1	22.4	60.0	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	70.3	29.6	36.1	22.4	60.0	5.9	
LOS	E	C	D	C	E	A	
Approach Delay		31.9	35.9		18.4		
Approach LOS		C	D		B		

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 104 (74%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: University Dr & Yale Ave



SOUTH YALE IMPROVEMENTS

prepared by:

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