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EMERALD HILLS (PRJ-1107880)

LOCAL MOBILITY ANALYSIS

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Reference Number	Agency	Date
15133-07 TA Report	City of San Diego	August 1, 2024

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
APN	Assessor's Parcel Number
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
DU	Dwelling Unit
HCM	Highway Capacity Manual
LMA	Local Mobility Analysis
LOS	Level of Service
MTS	Metropolitan Transit System
OY	Opening Year
PHF	Peak Hour Factor
SANDAG	San Diego Association of Governments
SDP	Site Development Permit
TSM	Transportation Study Manual
v/c	Volume to Capacity
VTM	Vesting Tentative Map

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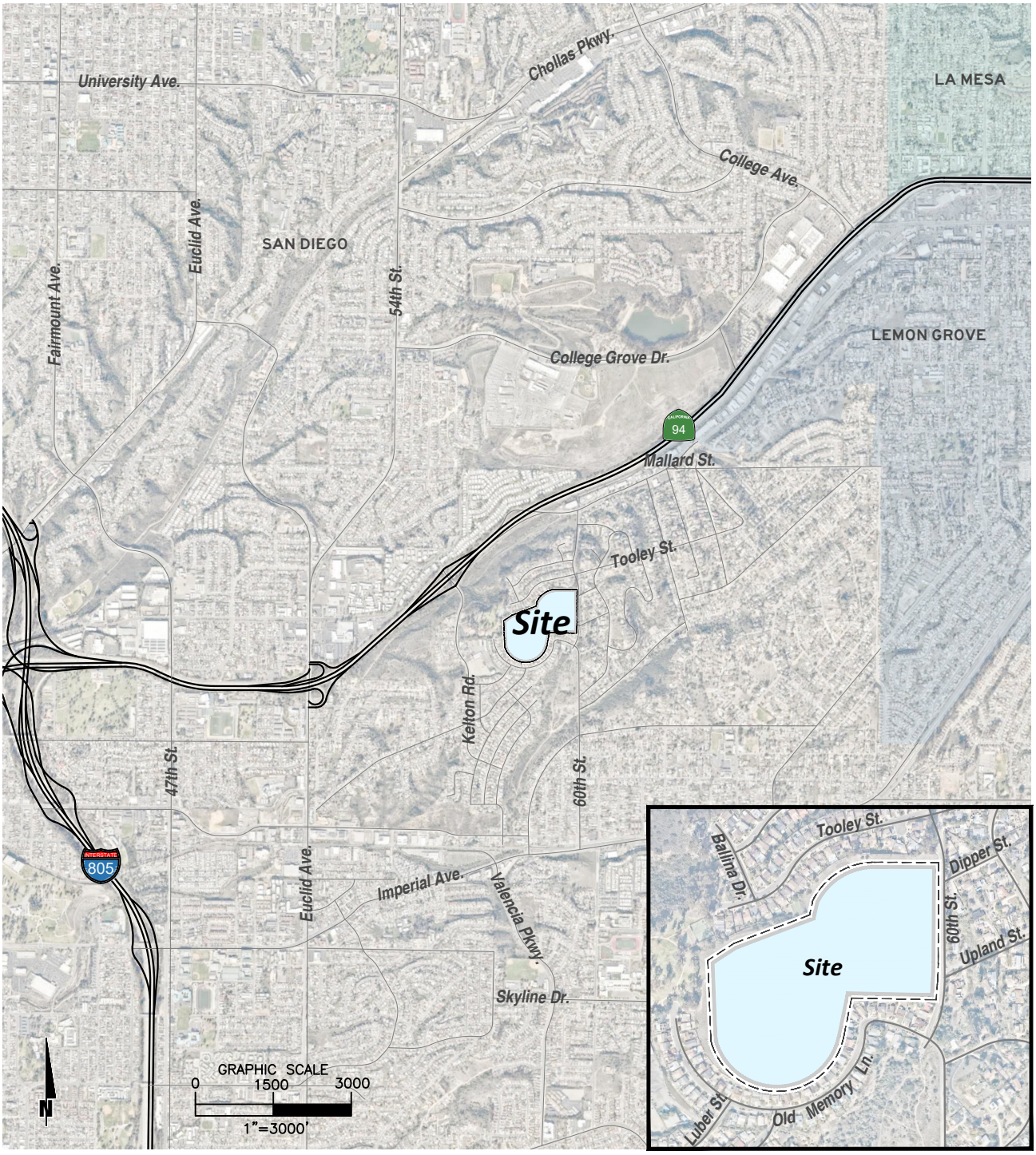
ES EXECUTIVE SUMMARY

This report presents the results of the Local Mobility Analysis (LMA) for Emerald Hills development (Project), which is located at 5702 Old Memory Lane (Assessor's Parcel Number [APN] 543-240-02-00) in the Encanto Neighborhood Community Planning Area in the City of San Diego, as shown in Exhibit ES-1. The Project requires Neighborhood Development Permit (NDP), Vesting Tentative Map (VTM), Neighborhood Use Permit (NUP), and Site Development Permit (SDP) and has an anticipated Opening Year of 2028. The Project does not require nor propose a Community Plan Amendment or rezone. The purpose of this LMA is to evaluate the effects of the Project on mobility, access, circulation, and related safety elements in the proximate area of the Project and recommend improvements to achieve acceptable operations consistent with the City's General Plan level of service goals and policies. This LMA has been prepared in accordance with the City of San Diego's Transportation Study Manual (TSM) (current version dated September 19, 2022). (1)

ES.1 PROJECT DESCRIPTION

The Project requires a Vesting Tentative Map (VTM), Site Development Permit (SDP), Neighborhood Use Permit (NUP), and Neighborhood Development Permit (NDP) for the removal of existing broadcasting towers and outbuildings. In addition, the Project proposes to subdivide the 31.18-acre lot into 123 single-family residential lots (including 13 affordable housing lots), the construction of a single-family dwelling on each lot, seven Homeowner's Association (HOA) open space lots, and the construction of 32-foot-wide public streets (within 56-feet of right-of-way) for internal circulation. The Project is anticipated to have an Opening Year of 2028 and is expected to be constructed in 18 phases (models and 17 production phases). Project traffic will have access to 60th Street via a Project Access (Street "A") located between Dipper Street and Upland Street. There is also emergency access proposed to the west to the existing cul-de-sac terminus of Old Memory Lane.

EXHIBIT ES-1: LOCATION MAP



ES.2 TRIP GENERATION

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the City of San Diego's Trip Generation Manual (Revised May 2003) using the single-family detached residential land use category were used. (2) The Project is anticipated to generate approximately 1,107 average daily trips (ADT) with 89 AM peak hour trips (18 in, 71 out) and 111 PM peak hour trips (77 in, 33 out). The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

ES.3 PROJECT IMPROVEMENTS

The Project will also construct the following improvements as design features in conjunction with development of the site and the improvements needed to facilitate site access:

- Project to install stop control for egress traffic from the Project Access on 60th Street.
- Frontage improvements proposed by the Project will include sidewalk improvements, driveway modifications to accommodate site access, and landscaping improvements as required by City standards. Project to improve to accommodate the ultimate half-section improvements for 60th Street along the Project's frontage as a Local Collector per City standards.

There are no transportation operational effects identified at the study area intersections and roadway segments under all analysis scenarios. As such, no improvements are recommended other than the frontage improvements and internal streets.

There is an existing sidewalk along the Project's frontage on 60th Street, however, it is currently street adjacent, and the Project would improve this sidewalk to accommodate a 5-foot sidewalk separated by a 7-foot green streets swale between the traveled way and the sidewalk. The Project's frontage improvements will also increase the on-street pavement width to 18-feet to improve shared traveled way with both bicycles and vehicular traffic as well as accommodate a 5-foot decomposed granite trail within a 10-foot trail easement.

ES.4 LEVEL OF SERVICE SUMMARY

A summary of level of service (LOS) results for all analysis scenarios is presented in Table ES-1.

TABLE ES-1: SUMMARY OF LOS

		Existing (2024)		Opening Year (2028) Baseline		Opening Year (2028) + Project	
#	Intersection	AM	PM	AM	PM	AM	PM
1	60th St. & Federal Bl.	B	C	B	C	B	C
2	60th St. & Project Access	N/A	N/A	N/A	N/A	B	C
3	60th St. & Imperial Av.	C	B	C	B	C	B

ES.4.1 EXISTING (2024)

The study area intersections are currently operating at an acceptable LOS during the peak hours (LOS C or better).

ES.4.2 OPENING YEAR (2028)

Similarly, the study area intersections and roadway segments are anticipated to continue to operate at an acceptable LOS under Opening Year (2028) Without and With Project trips (LOS C or better). The City's Guidelines specify that improvements consistent with the community plan should be considered if the project adds greater than 50% of the total daily vehicle trips on the segment or contribute its fair share towards an improvement if a project contributes less than 50% of the total daily vehicle trips on the segment. With 7,339 existing daily trips on 60th Street, the Project would be contributing between 7-8% of the existing traffic to the segments of 60th Street.

ES.5 SYSTEMIC SAFETY REVIEW

The following study area intersections met the systemic safety review criteria for potential hotspots:

- The intersections of 60th St. & Federal Bl. (#1) and 60th St. & Imperial Av. (#3) met all systemic safety criteria for Pedestrian Scenarios #2 and #3 as well as Bicycle Scenario #1.
- The intersection of 60th St. & Project Access (#2) met all systemic safety criteria for Bicycle Scenario #3

The following countermeasures are recommended:

- High visibility pedestrian crossings be implemented as a countermeasure for the intersections of 60th St. & Federal Bl. (#1) and 60th St. & Imperial Av. (#3)

ES.6 PARKING REQUIREMENTS

The minimum required parking for the proposed Project is based on the standards outlined in the City of San Diego Land Development Code (LDC, Chapter 14, Article 2, and Division 5). According to Table 142-05B in the *San Diego Municipal Code, Chapter 14, Article 2, Division 5: Parking Regulations*, a minimum of 2 spaces per dwelling unit is required for all single dwelling units, or at least 246 automobile spaces. The Project proposes to provide 2 car garages for each dwelling unit for a total of 246 automobile spaces, which meets the requirements.

ES.7 COMPLETE COMMUNITIES: MOBILITY CHOICES

The minimum required number of VMT Reduction Measure points = 5 points

- Measure #7 – Shade Trees (8 trees x 0.20 per each tree = 1.6 points)
- Measure #8 – Pedestrian Resting Area/Recreation Node 2.5 points per each 250 square feet of resting area (200 square feet = 2.0 points)
- Measure #12 – Bicycle Repair Station (1.5 points)
- Total provided VMT Reduction Measures (5.1 points)

1 INTRODUCTION

The purpose of this Local Mobility Analysis (LMA) for the proposed Emerald Hills project is to evaluate effects of the Project on mobility, access, circulation, and related safety elements in the proximate area of the Project and recommend improvements to achieve acceptable operations consistent with the City of San Diego's Transportation Study Manual (TSM) (current version dated September 19, 2022).

1.1 PROJECT DESCRIPTION

The Project requires a Vesting Tentative Map (VTM), Site Development Permit (SDP), Neighborhood Development Permit (PDP), and Neighborhood Use Permit (NUP) for the removal of existing broadcasting towers and outbuildings. In addition, the Project proposes to subdivide the 31.18-acre lot into 123 single-family residential lots (including 13 affordable housing lots), the construction of a single-family dwelling on each lot, seven Homeowner's Association (HOA) open space lots, and the construction of 32 foot wide public streets (within a 56 foot right-of-way) for internal circulation. The Project is anticipated to have an Opening Year of 2028 and is expected to be constructed in 18 phases (models and 17 production phases). The Project site is located at 5702 Old Memory Lane (APN: 543-240-0200) in the Encanto Neighborhood Community Planning Area in the City of San Diego. A site plan is shown in Exhibit 1-1. Project traffic will have access to 60th Street via a Public Street located between Dipper Street and Upland Street. There is also emergency access proposed to the west of the Project site along the existing cul-de-sac terminus of Old Memory Lane.

1.2 STUDY AREA

Based on the screening criteria in the TSM, a local mobility analysis (LMA) is required for any project that is expected to generate more than 1,000 daily unadjusted driveway vehicle trips (and is consistent with the community plan and zoning designation). For projects that generate less than 2,400 daily final driveway trips, the typical study area intersections are as follows:

- All signalized intersections and signalized project driveways located within ½-mile path of travel distance measured from the center of the intersection formed by each project driveway AND the project will add 50 or more peak hour final primary (cumulative) trips to any turning movement at the intersection.
- All unsignalized intersections (side street stop controlled, all-way stop controlled, and roundabouts) and unsignalized project driveways located within ½-mile path of travel distance measured from the center of the intersection formed by each project driveway AND the project will add 50 or more peak hour final trips in either direction.
- All freeway ramp terminal intersections where a project adds 50 or more peak hour final primary (cumulative) (AM or PM) net new trips in either direction must be analyzed regardless of their distance from the project site.

EXHIBIT 1-1: SITE PLAN

PARKING SUMMARY

SINGLE FAMILY (MARKET RATE)

REQUIRED		
NO. UNITS	SPACES REQ'D / UNIT (PER SDMC TABLE 142–05B)	TOTAL SPACES
123	2 SPACE/UNIT	246
PROVIDED		
123	2 (GARAGE)	246

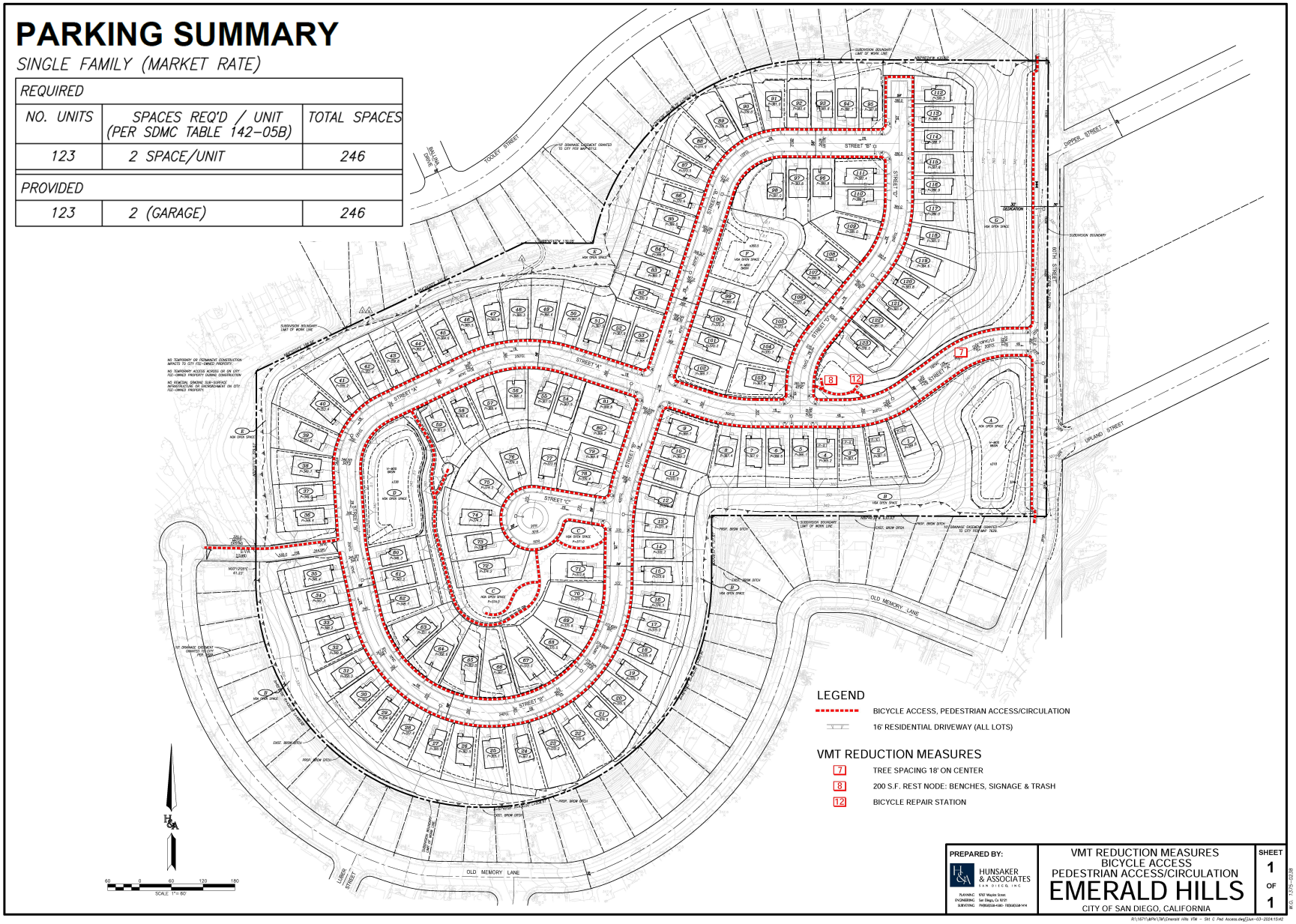
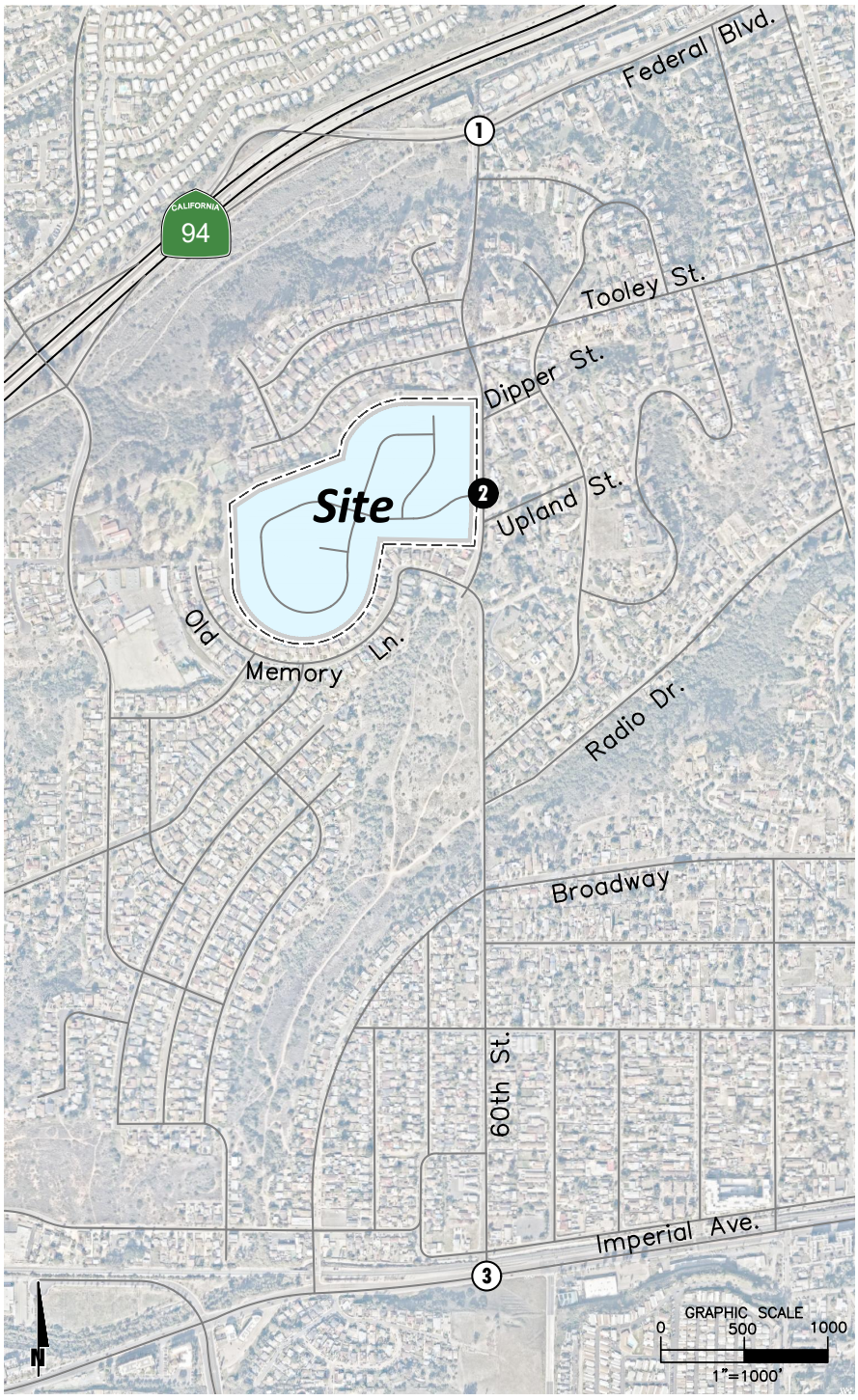


EXHIBIT 1-2: STUDY AREA



LEGEND:

① = *Existing Intersection Analysis Location*

② = *Future Intersection Analysis Location*

The 3 study area intersections shown in Exhibit 1-2 and listed in Table 1-1 were selected for evaluation in this LMA based on consultation with City of San Diego staff and City of San Diego Transportation Study Manual (September 2022) Guidelines.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

#	Intersection
1	60th St. & Federal Bl.
2	60th St. & Project Access
3	60th St. & Imperial Av.

Per the City's Guidelines, roadway segment analysis should be evaluated for any roadway segment that has identified improvements in the Community Plan and where 1,000 or more daily final primary trips (if consistent with the Community Plan). The Project evaluated the potential effects of the Project along its fronting roadway segments.

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

#	Roadway	Segment Limits
1	60th St.	North of Project Access
2	60th St.	South of Project Access

2 ANALYSIS APPROACH AND METHODOLOGIES

This section of the report presents the methodologies used to perform the vehicular analyses summarized in this report. The methodologies described are consistent with City of San Diego's Guidelines.

2.1 ANALYSIS SCENARIOS

The intersection and roadways within the Project were analyzed for each of the following scenarios:

- Existing (2024) Conditions
- Opening Year (2028) Without Project
- Opening Year (2028) Plus Project

2.2 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing a breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.3 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 7th Edition Highway Capacity Manual (HCM) (7th Edition) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

2.3.1 SIGNALIZED INTERSECTIONS

The City of San Diego requires signalized intersection operations analysis based on the methodology described in the HCM. Intersection LOS operations are based on an intersection's average control delay. Control delays include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Synchro plus SimTraffic 12 software, Version 12.2, Build 1, Revision 18) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures

of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failure are noticeable.	35.01 to 55.0	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

[1] Source: HCM, 7th Edition.

[2] If V/C is greater than 1.0, then LOS F per HCM.

2.3.2 UNSIGNALIZED INTERSECTIONS

The City of San Diego requires the operations of unsignalized intersections to be evaluated using the methodology described in the HCM. (3) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	>50.00	F

[1] Source: HCM, 7th Edition.

[2] If V/C is greater than 1.0, then LOS F per HCM.

2.4 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the City of San Diego Roadway Segment LOS by Classification and Average Daily Traffic (ADT) provided in Appendix F (Table Appendix F-1) of the City's TSM. (1) These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian and bicycle traffic. In other words, while using ADT for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the ADT-based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity.

2.5 CRITERIA FOR IDENTIFYING WHETHER PROJECT TRIGGERS OFF-SITE IMPROVEMENTS

Off-site improvements that are needed to accommodate Project traffic to address access, circulation, and safety for the various modes of travel should be determined based on the following analysis methods for each facility type (see also City's TSM page 44 for additional details on each of the facilities listed below):

- Pedestrian Facilities:
  - Closing sidewalk Gaps/Removing Obstructions
  - Accommodating Pedestrian Demand
- Bicycle Facilities:
  - Accommodating Bicycle Demand

- Transit Facilities:
    - Transit Priority Treatments/Improvements
    - Proposed Transit Stops
    - Transit Stop Amenities
- Signalized Intersections:
    - Adding or lengthening a turn lane
    - Signal Timing Improvements/Signal Modifications
- Unsignalized Intersections:
    - Considerations for intersection improvements:
    - Constructing a Roundabout or Traffic Signal at an all-way stop-controlled intersection
    - Constructing a Roundabout or Traffic Signal at a side-street stop-controlled intersection
    - Improvements to a Roundabout Intersection:
- Roadway Segments:
    - Improvements identified in the community plan (including upgrading to ultimate classification):
    - Planned new circulation element roadways:

2.6 SYSTEMIC SAFETY REVIEW METHODOLOGY

Study intersections were compared to the City of San Diego's Systemic Safety: The Data-Driven Path to Vision Zero (current version dated April 2019) to determine if a study intersection met any hot spot criteria identified in Appendix C: Identification of Systemic Hotspots of the report. A Systemic Safety Analysis has been conducted for each of the study area intersections to evaluate whether they meet the hotspot criteria per the Vision Zero document for vehicular traffic, bicycles, and pedestrians. Should the intersection meet the hotspot criteria, engineering countermeasures are proposed where feasible.

3 EXISTING CONDITIONS

This section provides a description of the existing roadways within the study area as identified in the Encanto Neighborhood Community Plan (adopted by City Council on November 16, 2015) and a review of existing peak hour intersection operations and roadway segment analyses.

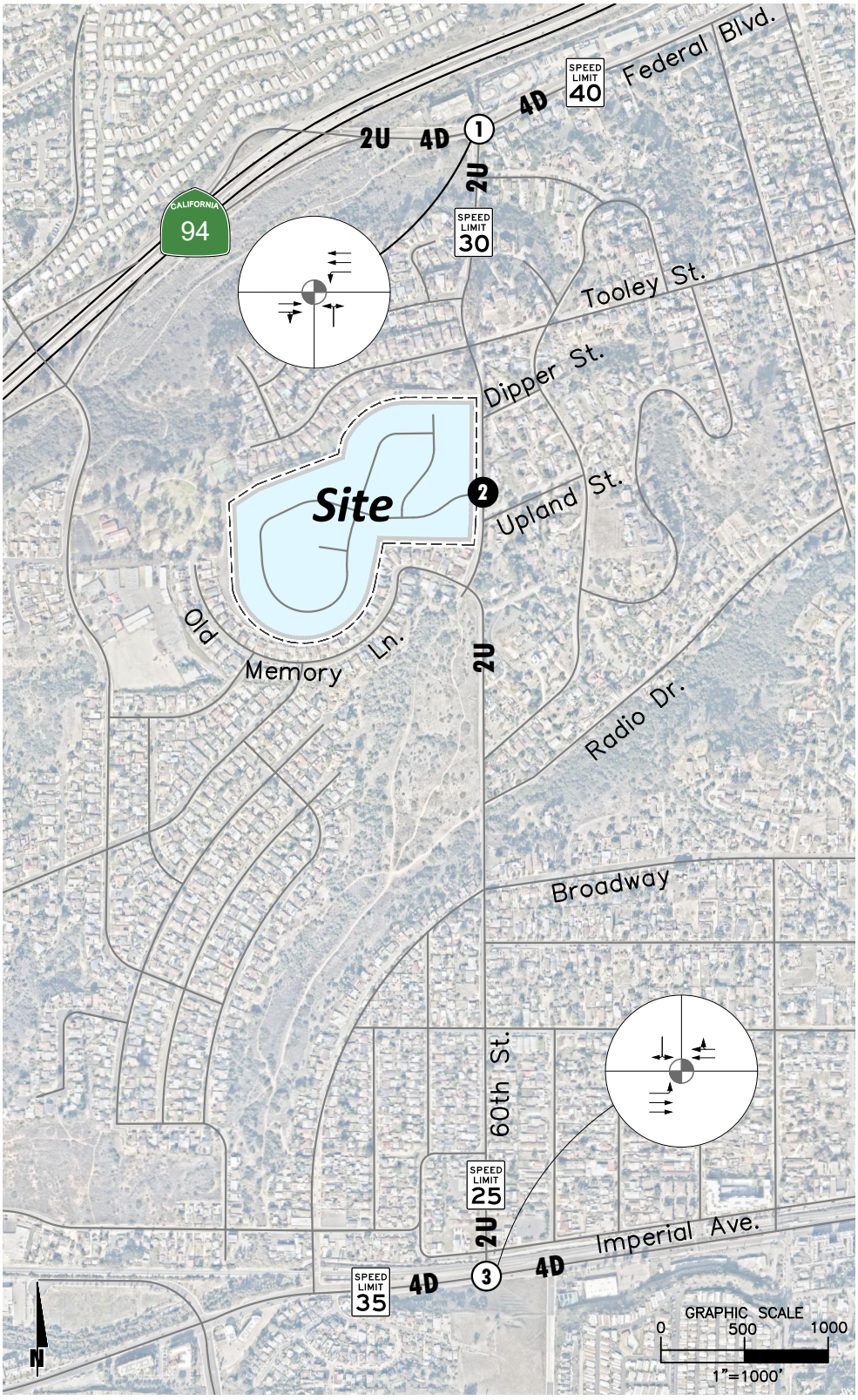
3.1 EXISTING ROADWAY NETWORK

The study area includes a total of 2 existing intersections and 1 future intersection as shown previously in Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified in the Encanto Community Plan, are described subsequently. Exhibit 3-2 shows the functional street classifications in the Encanto Community Plan and Exhibit 3-3 illustrates the applicable roadway cross-sections.

- **Federal Boulevard** is classified as a 4-lane Collector with Center Left Turn Lane east of 60th Street in the *Encanto Neighborhood Community Plan*. The roadway is currently 4-lanes but narrows to 2-lanes just west of the existing Public Storage use. There are sidewalks and Class II bike lanes along Federal Boulevard from the Public Storage to the east of 60th Street. The posted speed limit is 40 miles per hour along Federal Boulevard. No on-street parking is permitted.
- **60th Street** is classified as a 2-lane Collector between Federal Boulevard and Imperial Avenue in the *Encanto Neighborhood Community Plan*. There are sidewalks on the west side of 60th Street between Federal Boulevard to Old Memory Lane. There is no sidewalk on the east side in the same segment between Federal Boulevard to Old Memory Lane. There are no sidewalks on either side of 60th Street between Old Memory Lane and Broadway. There are sidewalks on both sides of 60th Street between Broadway and Wunderlin Avenue, and on the west side the sidewalk is present south to Akins Avenue. There are certain sections that have a sidewalk in place on the east side of 60th between Brooklyn Avenue down to Kenwood Street, but there are certain properties that do not have an improved sidewalk adjacent to the curb (either a dirt/grass path or the property wall/fencing is brought all the way up to the curb. The posted speed limit is 30 miles per hour along 60th Street between Federal Boulevard to Old Memory Lane and then 25 miles per hour between Old Memory Lane and Imperial Avenue. No on-street parking is permitted along 60th Street between Federal Boulevard and Broadway, but there is on-street parking permitted on either side south of Broadway to Akins Avenue with the exception of every third Monday between the hours of 10 AM and 1 PM.
- **Imperial Avenue** is classified as a 4-lane Major Arterial in the *Encanto Neighborhood Community Plan*. Although there is a sidewalk/pedestrian landing around the northwest and northeast corners at the intersection of 60th Street and Imperial Avenue to accommodate pedestrians, the sidewalk does not continue on the north side of Imperial Avenue beyond the intersection to either the west or east. There is a sidewalk in place on the south side of Imperial Avenue to the west and east of 60th Street. The posted speed limit is 35 miles per hour on Imperial Avenue. There are either painted red cubs or signage prohibiting on-street parking on either side of Imperial Avenue in the vicinity of 60th Street.

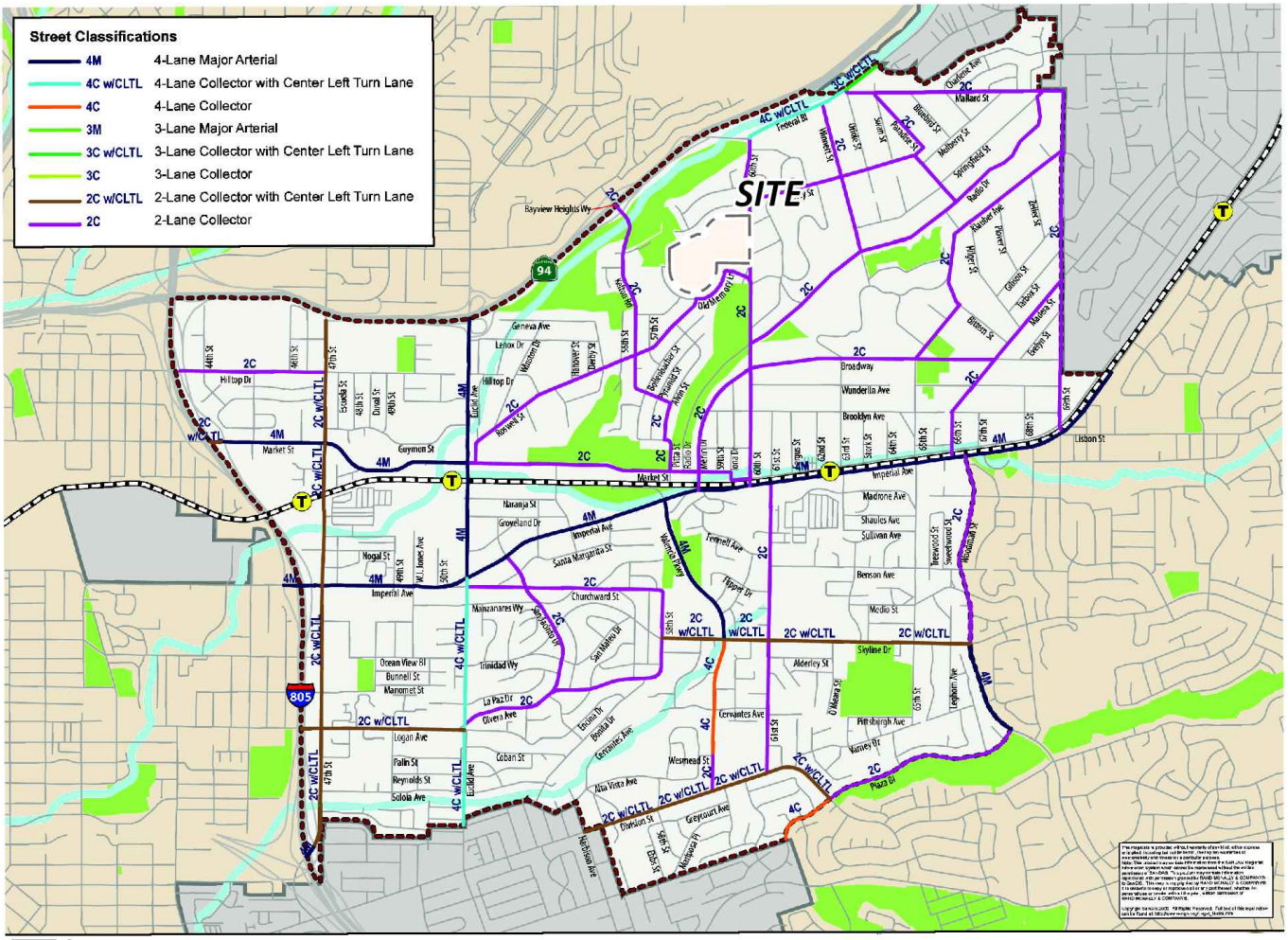
EXHIBIT 3-1 : EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

(0) = Existing Intersection Analysis Location
(0) = Future Intersection Analysis Location
= Existing Traffic Lane
= Existing Traffic Signal
4 = Number of Lanes
D = Divided
U = Undivided

EXHIBIT 3-2 : BUILDOUT STREET CLASSIFICATIONS PER THE ENCANTO NEIGHBORHOODS COMMUNITY PLAN



3.2 BICYCLE FACILITIES

The planned bicycle network for the Encanto Community Plan is shown in Exhibit 3-3. 60th Street (between Federal Boulevard and Broadway), Old Memory Lane, and Tooley Street are considered Class III bike facilities, which are shared vehicular/bicycle routes. Federal Boulevard and Imperial Avenue have existing Class II bike lanes. These existing Class II bike lanes are signed and striped bike lanes.

However, as shown in Exhibit 3-3, Imperial Avenue is proposed to have buffered bike lanes. Exhibit 3-3 also identifies planned Class I bike paths along 60th Street which are off-street paths that are separated from vehicular traffic. The existing Class I bike paths include the existing trails to the north of the Project through the Emerald Hills Open Space and the trails to the south of the Project through the Chollas Radio Open Space.

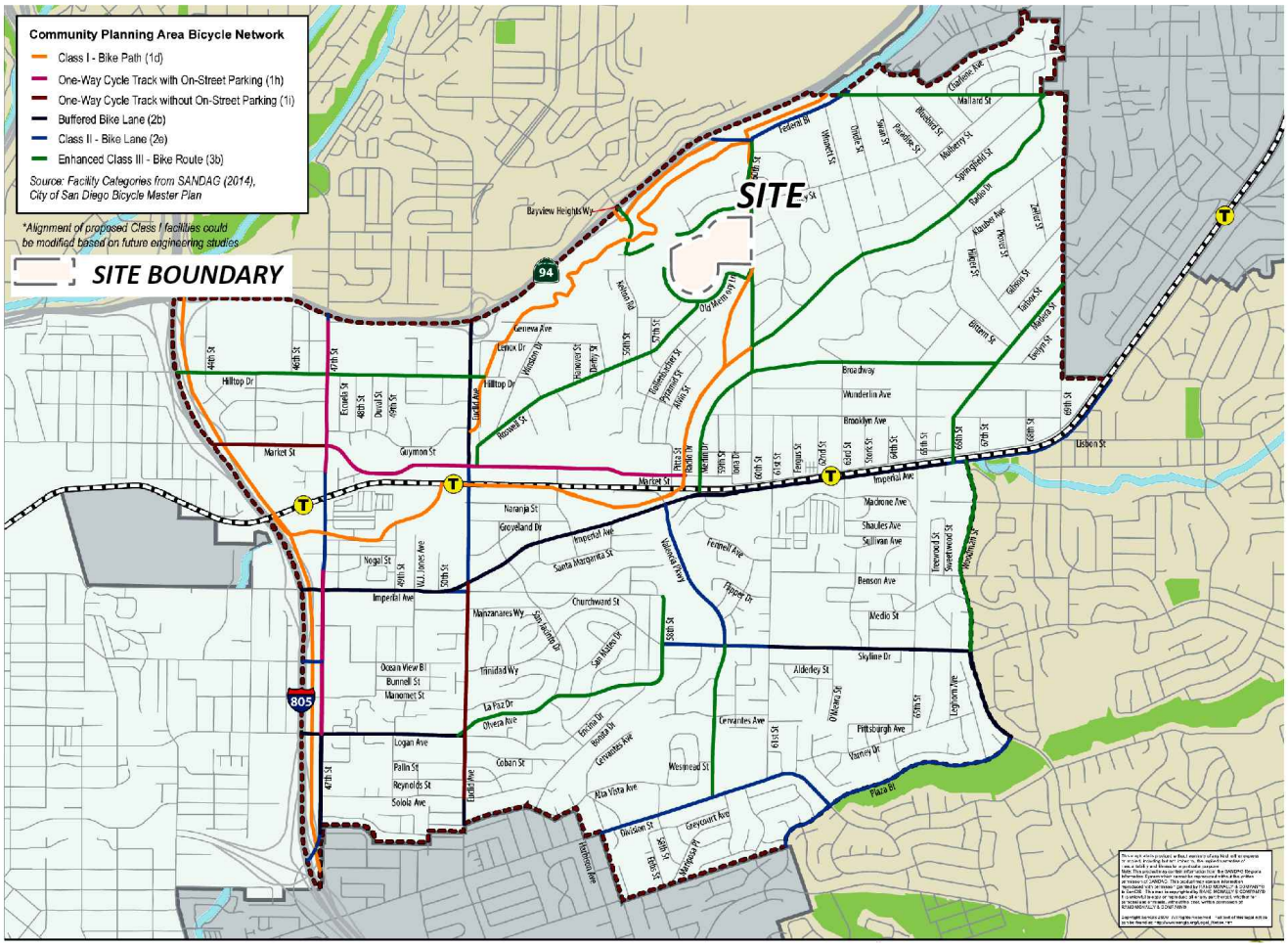
3.3 PEDESTRIAN FACILITIES

There are contiguous five foot wide sidewalks along Federal Boulevard from the Public Storage to the east of 60th Street, and a contiguous on the west side of 60th Street between Federal Boulevard and Old Memory Lane. The sidewalk on the west side of 60th Street is five feet wide from Federal Boulevard to Tooley Street and approximately four feet wide from Tooley Street to Old Memory Lane. In addition, there is no sidewalk on the east side in the same segment between Federal Boulevard to Old Memory Lane. There are no sidewalks on either side of 60th Street between Old Memory Lane and Broadway. There are contiguous five foot wide sidewalks on both sides of 60th Street between Broadway and Wunderlin Avenue and only the five foot wide contiguous sidewalk on the west side continues south to Akins Avenue. There are certain sections that have a five foot wide sidewalk in place on the east side of 60th between Brooklyn Avenue down to Kenwood Street (non-contiguous), but there are certain properties that do not accommodate a paved sidewalk adjacent to the curb (either a dirt/grass path or the property wall/fencing is brought all the way up to the curb. All sidewalks are located curb-adjacent.

Although there is a sidewalk/pedestrian landing around the northwest and northeast corners at the intersection of 60th Street and Imperial Avenue to accommodate pedestrians, the sidewalk does not continue on the north side of Imperial Avenue beyond the intersection to either the west or east. There is a sidewalk in place on the south side of Imperial Avenue to the west and east of 60th Street.

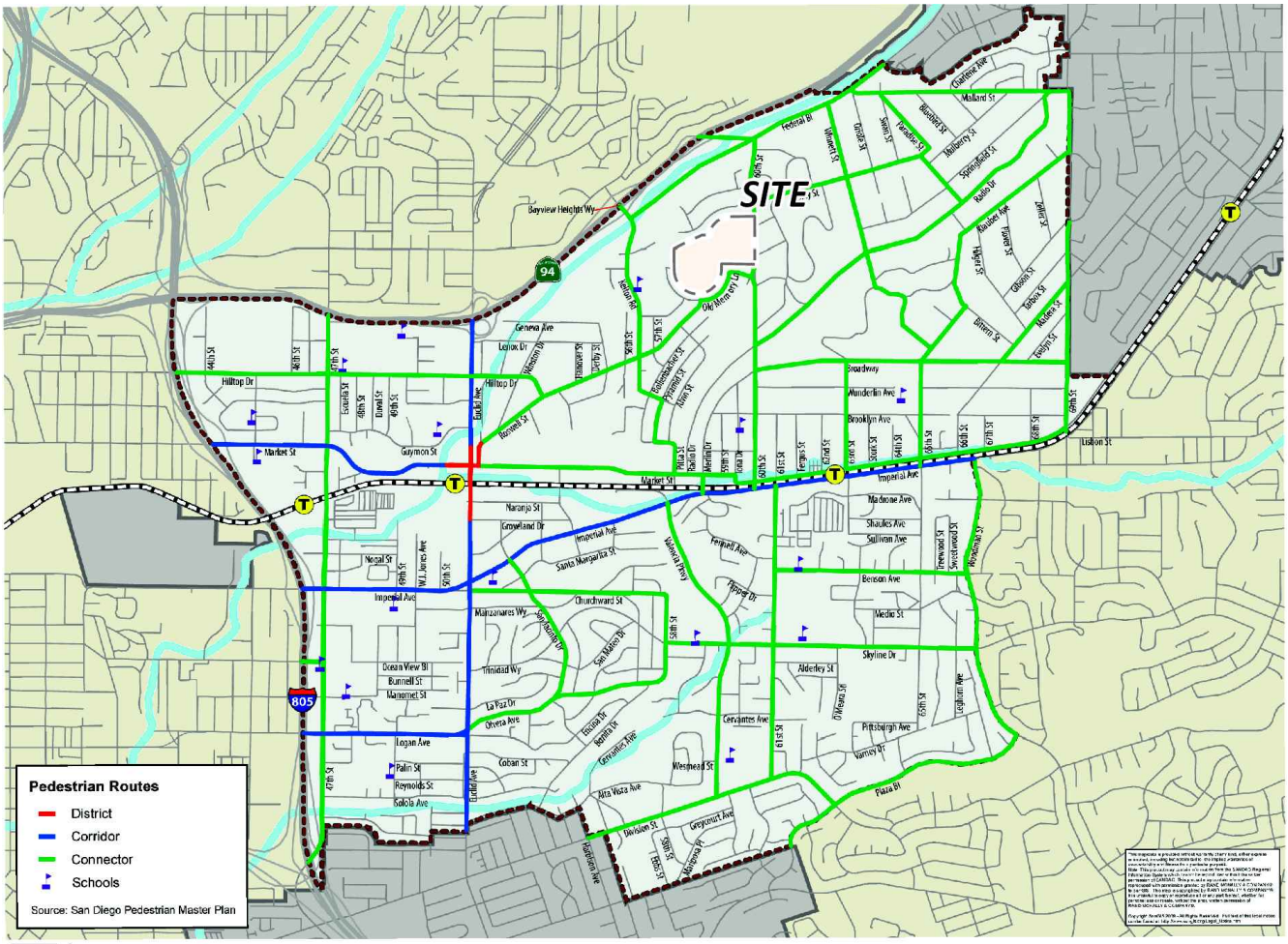
There are crosswalks on the south leg across 60th Street and on the east leg across Federal Boulevard at the intersection of 60th Street and Federal Boulevard. These crosswalks provided connectivity to existing sidewalks. There are no other marked crosswalks along 60th Street until Imperial Avenue. At Imperial Avenue there are crosswalks on the west leg and the north leg across 60th Street. These crosswalks also provide connectivity to existing sidewalks, although there is a sidewalk/pedestrian landing around the northwest and northeast corners at the intersection of 60th Street and Imperial Avenue to accommodate pedestrians, the sidewalk does not continue on the north side of Imperial Avenue beyond the intersection to either the west or east.

EXHIBIT 3-3 : PLANNED BICYCLE NETWORK PER ENCANTO NEIGHBORHOODS COMMUNITY PLAN



Bicycle Facility recommended classifications have been developed at a planning level and may be refined upon further analysis at the project level.

EXHIBIT 3-4 : EXISTING PEDESTRIAN FACILITIES PER THE ENCANTO NEIGHBORHOOD COMMUNITY PLAN



3.4 EXISTING TRANSIT SERVICE

The study area is currently served by the San Diego Metropolitan Transit System (MTS) with bus service along Imperial Avenue (via Route 4) and Atkins Avenue (via Route 916/917). There are currently bus stops along Route 4 on Imperial Avenue at 60th Street. However, there are currently no transit routes or stops along 60th Street near the proposed Project. The existing transit services and bus stop locations are illustrated in Exhibit 3-5.

3.5 EXISTING (2024) TRAFFIC VOLUMES

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected on Tuesday, January 30, 2024, when local schools were in session. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix A.

Existing weekday ADT volumes on arterial highways throughout the study area are shown in Exhibit 3-6. Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.36 = Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 8.8 percent. As such, the above equation utilizing a factor of 11.36 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of 7.6 percent (i.e., 1/8.8 = 11.36) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. This factor is consistent with that used for other traffic studies within the study area. Existing weekday AM and weekday PM peak hour intersection volumes are shown in Exhibit 3-6.

EXHIBIT 3-5 : TRANSIT ROUTES PER THE ENCANTO NEIGHBORHOOD COMMUNITY PLAN

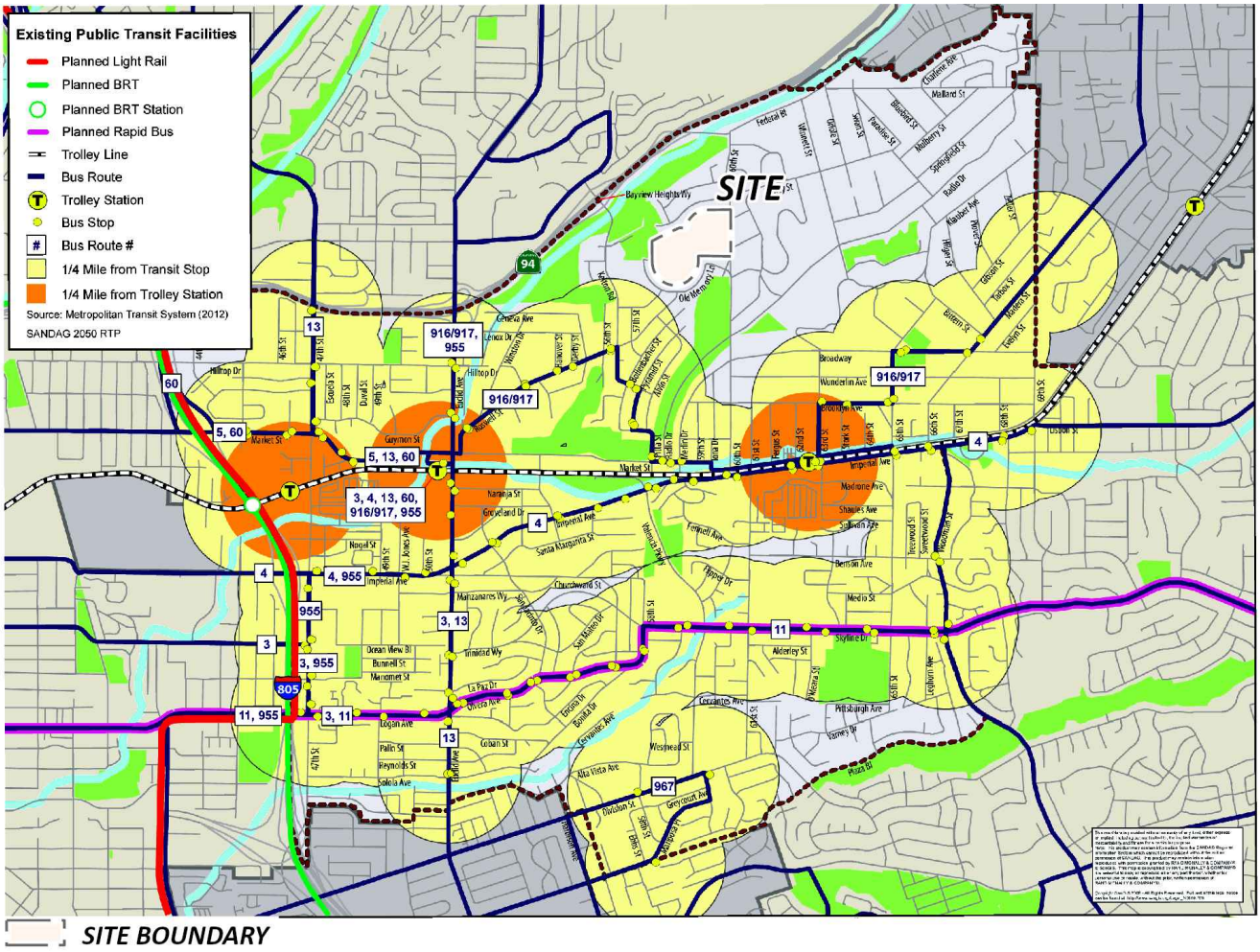
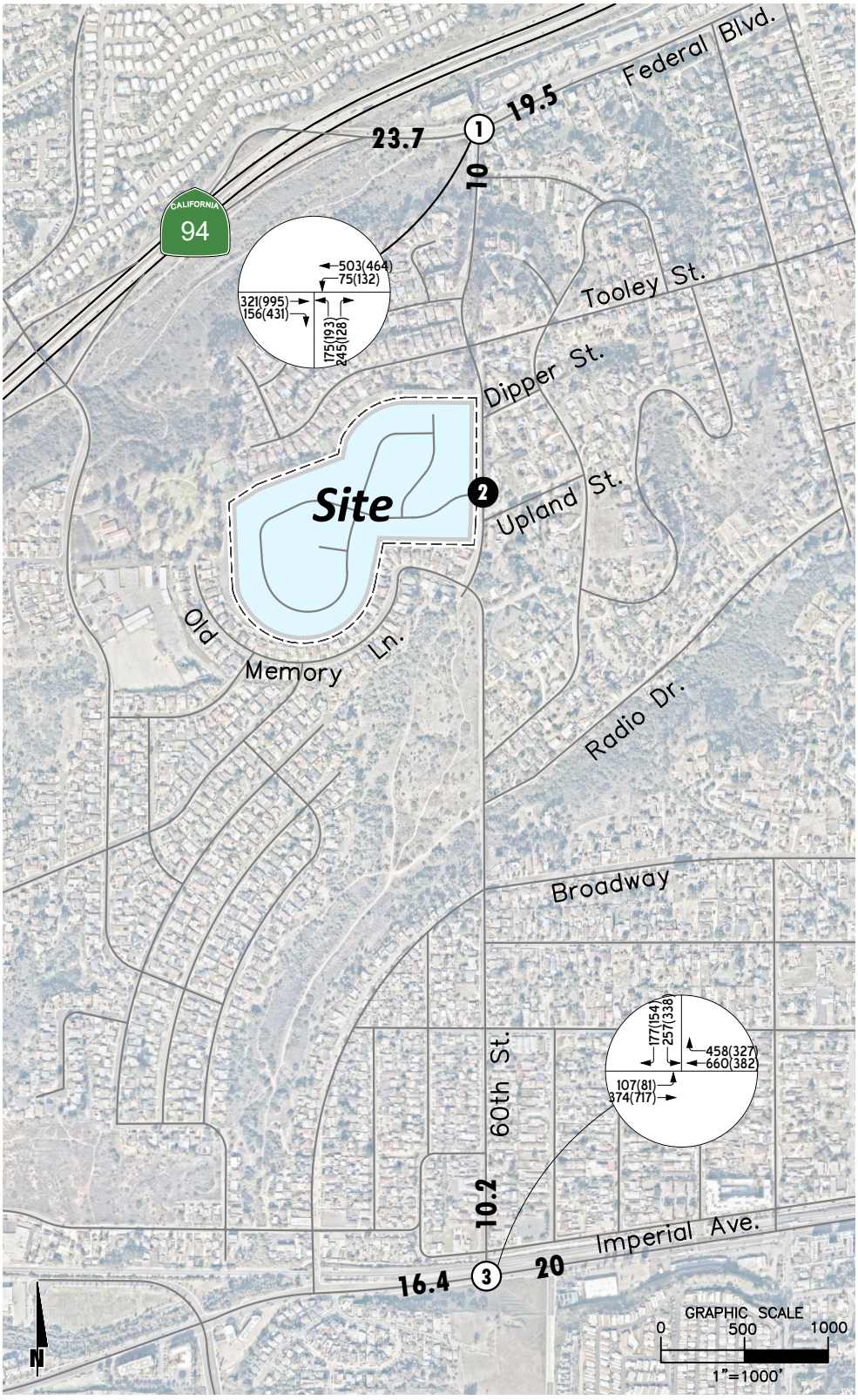


EXHIBIT 3-6 : EXISTING (2024) TRAFFIC VOLUMES



LEGEND:

- (0) = Existing Intersection Analysis Location
- 0 = Future Intersection Analysis Location
- = Existing Traffic Lane
- 10 = ADT (In Thousands)
- 10(10) = Existing Traffic Volume in AM(PM)

3.6 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.3 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that all existing study area intersections are currently operating at LOS C or better during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this LMA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2024) CONDITIONS

#	Intersection	Traffic Control[2]	Delay[1] (secs.) AM	Delay[1] (secs.) PM	Level of Service AM	Level of Service PM
1	60th St. & Federal Bl.	TS	11.7	22.6	B	C
2	60th St. & Project Access		Future Intersection			
3	60th St. & Imperial Av.	TS	26.0	15.1	C	B

[1] Per the Highway Capacity Manual (7th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] TS = Traffic Signal

3.7 ROADWAY SEGMENT ANALYSIS

Table 3-2 provides a summary of the Existing (2024) conditions roadway segment capacity analysis. As shown in Table 3-2, the study area roadway segments are currently operating at LOS C or better based on the daily roadway capacity and LOS criteria.

TABLE 3-2: ROADWAY SEGMENT ANALYSIS FOR EXISTING (2024) CONDITIONS

#	Roadway	Segment Limits	Roadway Section[4]	LOS Capacity[1]	Existing (2024) Vol	Existing (2024) V/C[2]	Existing (2024) LOS[3]
1	60th St.	North of Project Access	2U	10,000	7,339	0.734	C
2	60th St.	South of Project Access	2U	10,000	7,339	0.734	C

[1] These maximum roadway capacities are obtained from Table Appendix F-1 of the City's TSM.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

[4] U = Undivided

4 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

This section presents the estimated trip generation to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project proposes to subdivide the 31.18-acre lot into 123 single-family residential lots, the construction of a single-family dwelling on each lot, 7 HOA open space lots, and the construction of 32-foot-wide public streets within 56-foot right-of-way for internal circulation. As noted previously, 13 of the dwelling units will be designated as affordable to moderate income households, or approximately 10% of the residential units on site. San Diego Municipal Code Section 143.0720 defines affordable to moderate income as a housing cost of not less than 28% of the gross income of the household or exceeds 35% of 110% of the area median income, as adjusted for household size. Project traffic will be served by a single access point on 60th Street.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic generated by a development. In order to estimate the generated traffic volumes of the proposed Project, the City of San Diego's Trip Generation Manual (May 2003) was used for the single family detached residential land use category (urbanized area).

The proposed Project trip generation summary is shown in Table 4-1. As shown in Table 4-1, the proposed Project is anticipated to generate approximately 1,107 ADT with 89 (18 in, 71 out) AM peak hour trips and 111 (77 in, 33 out) PM peak hour trips. The AM peak hour is the peak hour that occurs between 7-9 AM and the PM peak hour is the peak hour that occurs between 4-6 PM.

TABLE 4-1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	Units[2]	AM Peak Hour			PM Peak Hour			Daily Rate (trips/DU)
		In	Out	Total	In	Out	Total	
Rate: Single Family Detached - Urbanized Area	DU	0.14	0.58	0.72	0.63	0.27	0.90	9.00
Trip Generation: Emerald Hills	123 DU	18	71	89	77	33	111	1,107

[1] Trip Generation Source: City of San Diego, Trip Generation Manual, Revised May 2003.

[2] DU = Dwelling Units

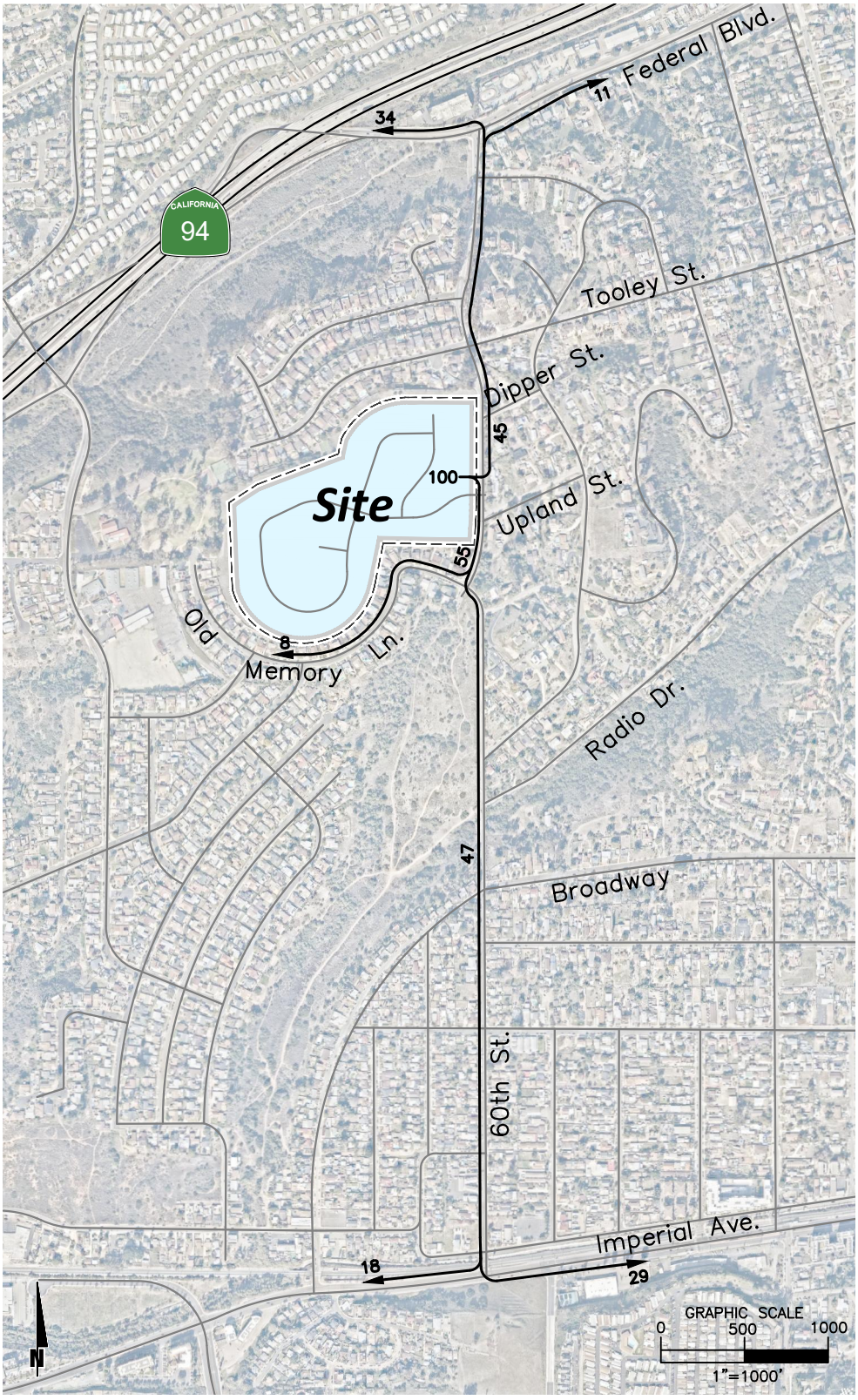
4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. Based on the existing volumes along 60th Street adjacent to the Project, the traffic would distribute approximately 45% to the north on 60th Street towards Federal Boulevard and 47% southbound on 60th Street with 8% westbound on Old Memory Lane. Distribution of Project traffic is anticipated to be similar to that of the surrounding existing residential neighborhood. As such, existing traffic volumes were used to determine the distribution of Project traffic. Project trip distribution patterns are shown at Exhibit 4-1.

4.3 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. As noted previously, existing traffic volumes were used to determine the distribution of Project traffic. Based on the identified Project traffic generation and trip distribution patterns, the Project-only ADT and peak hour intersection turning movement volumes are shown at Exhibit 4-2.

EXHIBIT 4-1 : PROJECT TRIP DISTRIBUTION

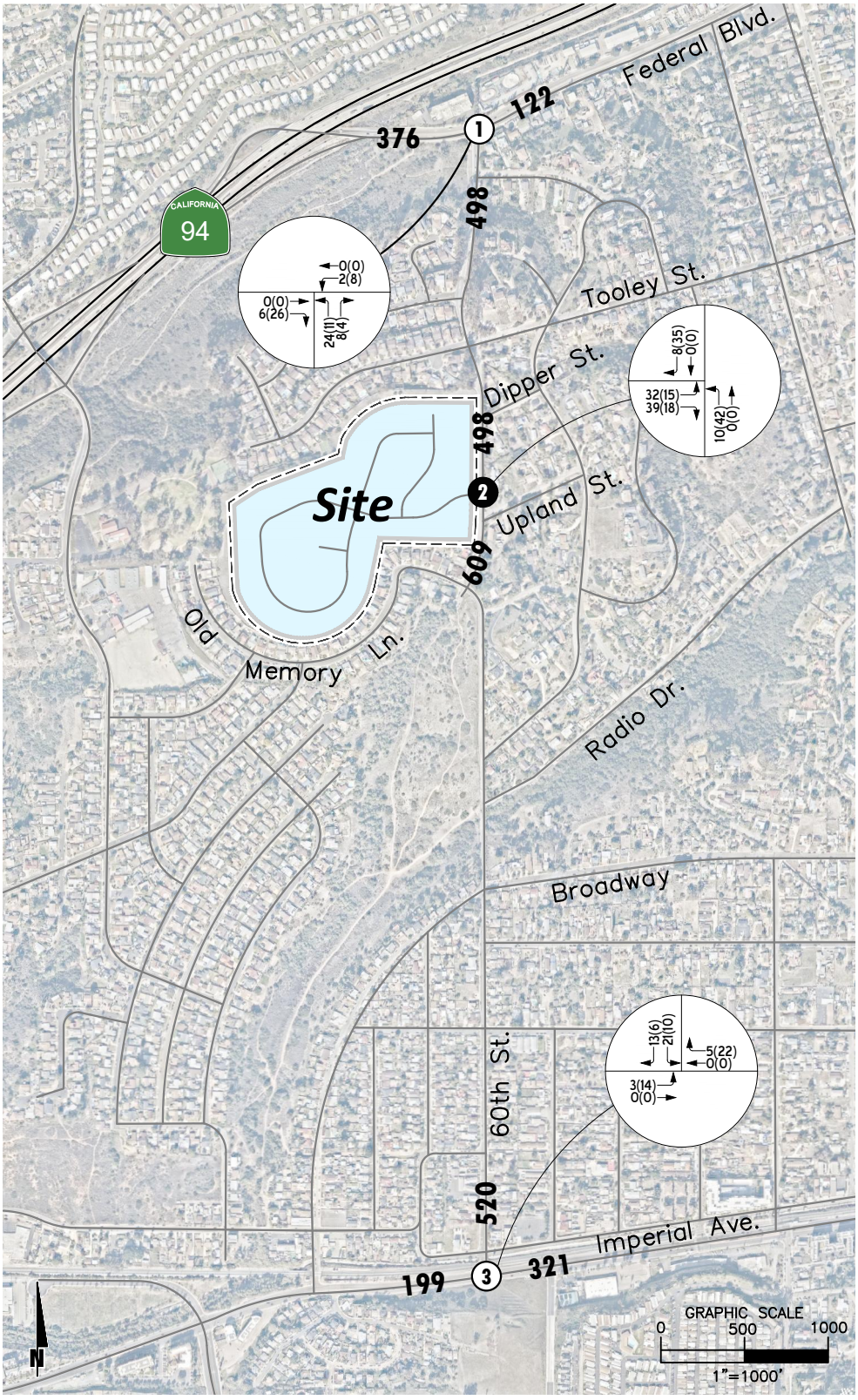


LEGEND:

10 *= Percent To/From Project*

= Trip Distribution

EXHIBIT 4-2 : PROJECT ONLY TRAFFIC VOLUMES



LEGEND:

(0) = *Existing Intersection Analysis Location*

0 = *Future Intersection Analysis Location*

= *Existing Traffic Lane*

10 = *ADT*

10(10) = *Existing Traffic Volume in AM(PM)*

5 CUMULATIVE PROJECTS

A project list was developed for the purposes of this analysis based on projects found on the City's Open Development Services Department website. The project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. Where applicable, these other development projects anticipated to contribute traffic to study area intersections have been manually added to the study area network to generate Opening Year (2028) forecasts. The development projects included in this analysis are listed in Table 5-1 and their locations are graphically shown in Exhibit 5-1.

Any additional traffic generated by other projects not on the projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections. Other development trip generation has been calculated for only those projects that are likely to contribute traffic to one or more of the study area intersections (other projects identified for disclosure purposes only). Other development trip generation is summarized on Table 5-2. Resulting Other Development Project Only ADT and peak hour intersection turning movement volumes considered in this LMA are reflected in Exhibit 5-2. Only projects in the boldface text in Table 5-2 are included in the LMA as the other projects listed are not anticipated to contribute any trips to the study area intersections based on their respective locations/proximity to the study area intersections. However, all known projects within the general vicinity of the study area have been identified for disclosure purposes.

TABLE 5-1: OTHER DEVELOPMENT LAND USE SUMMARY

No.	Project Name (Case Number)	Street Address/Location	Land Use	Quantity	Units[1]	Status
1	Sinanian Development (PRJ-1079488)	5256 Naranja St.	Senior Housing	138	DU	In Process
2	Hilltop & Euclid (Project 560527)	Between Hilltop & 94, west of Euclid	Single Family Residential & Mixed-Use	113	DU	Approved
				8.485	TSF	
3	Woodman Court (Project 435473)	345 Woodman St.	Single Family Residential	20	DU	In Process
4	Paradise Hills (PRJ-1100304)	Jamancha Rd.	Gas Station w/ Convenience Store	12	VFP	CUP Issued
5	Kroc II (Project 552436)	6605-6845 University Av.	Recreation Building (Fitness Center w/ Outdoor Sports Fiel	50.914	TSF	Approved
6	Willie James (PRJ-1098634)	219 Willie James Jones Av.	Multi-Family Residential (11 units plus 2 ADU)	13	DU	In Process
7	Southwest Village Apartments (PRJ-1055391)	323 Willie James Jones Av.	Affordable Housing	81	DU	In Process
8	Sol House (PRJ-1076741)	5040 Logan Avenue	Multi-Family Residential & Café	147	DU	In Process
9	PRJ-1095360	5349 Santa Margarita St.	Apartments	34	DU	In Process
10	Euclid & Naranja CUP (Project 697291)	409 Euclid Av.	Commercial Building with Drive-Through	1.800	TSF	Approved
11	Building + American Legion Hall (Project 64789	465 47th St.	Apartments (16 DU and 18 ADU)	43	DU	Approved
12	PRJ-1110620	6818 Brooklyn Av.	Detached Residential	16	ADU	In Process
13	PRJ-1111087	641-655 67th St.	Affordable Housing	26	ADU	In Process
14	PRJ-1081552	256 San Jacinto Dr.	Multi-Family Residential (includes 18 ADU)	72	DU	In Process
15	PMT-3268297	730 47th St.	Apartments	11	DU	In Process

[1] TSF = Thousand Square Feet; DU = Dwelling Units; VSP = Vehicle Fueling Positions; ADU = Accessory Dwelling Unit

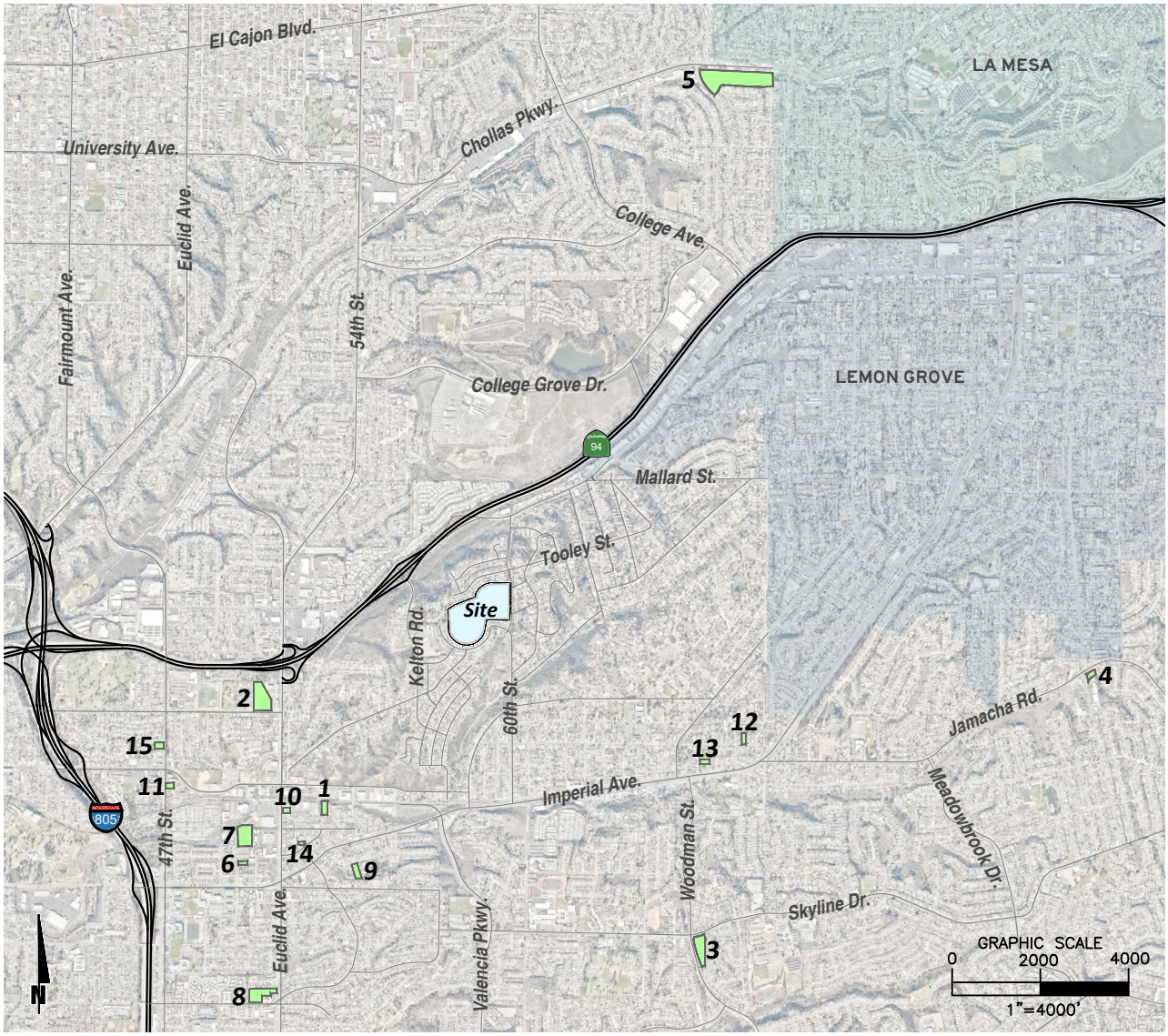
TABLE 5-2: OTHER DEVELOPMENT TRIP GENERATION SUMMARY

Project ID: Land Use	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Trips
#1: Senior Housing	**138 DU**	**9**	**35**	**44**	**39**	**17**	**56**	**552**
#2: Single Family	113 DU	16	65	81	71	31	102	1,018
#2: Mixed-Use	8.485 TSF	6	4	10	15	15	30	340
#3: Single Family	**20 DU**	**3**	**12**	**15**	**13**	**5**	**18**	**180**
#4: Gas Station w/ Convenience Store	12 VFP	74	74	148	84	84	168	1,860
#5: Recreation Building	50.914 TSF	49	33	82	110	73	183	2,038
#6: Multifamily	**13 DU**	**2**	**7**	**9**	**7**	**3**	**10**	**104**
#7: Affordable Homes	**81 DU**	**10**	**41**	**51**	**45**	**19**	**64**	**648**
#8: Multi-Family Residential & Café	147 DU	19	75	94	82	35	117	1,176
#9: Apartments	**34 DU**	**4**	**17**	**21**	**19**	**8**	**27**	**272**
#10: Commercial with Drive-Thru	**1.800 TSF**	**14**	**9**	**23**	**23**	**23**	**46**	**568**
#11: Apartments (16 DU and 18 ADU)	43 DU	6	22	28	24	10	34	344
#12: Detached Residential	**16 DU**	**2**	**9**	**11**	**10**	**4**	**14**	**144**
#13: Affordable Housing	**26 DU**	**4**	**15**	**19**	**16**	**7**	**23**	**234**
#14: Multifamily	**72 DU**	**9**	**37**	**46**	**40**	**17**	**57**	**576**
#15: Apartments	11 DU	1	6	7	6	3	9	88
SUBTOTAL		**57**	**182**	**239**	**212**	**103**	**315**	**3,278**
GRAND TOTAL		**228**	**461**	**689**	**604**	**354**	**958**	**10,142**

Note: Only the **boldface** projects were included for the analysis, as other projects are not anticipated to contribute traffic to study intersect

[1] DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

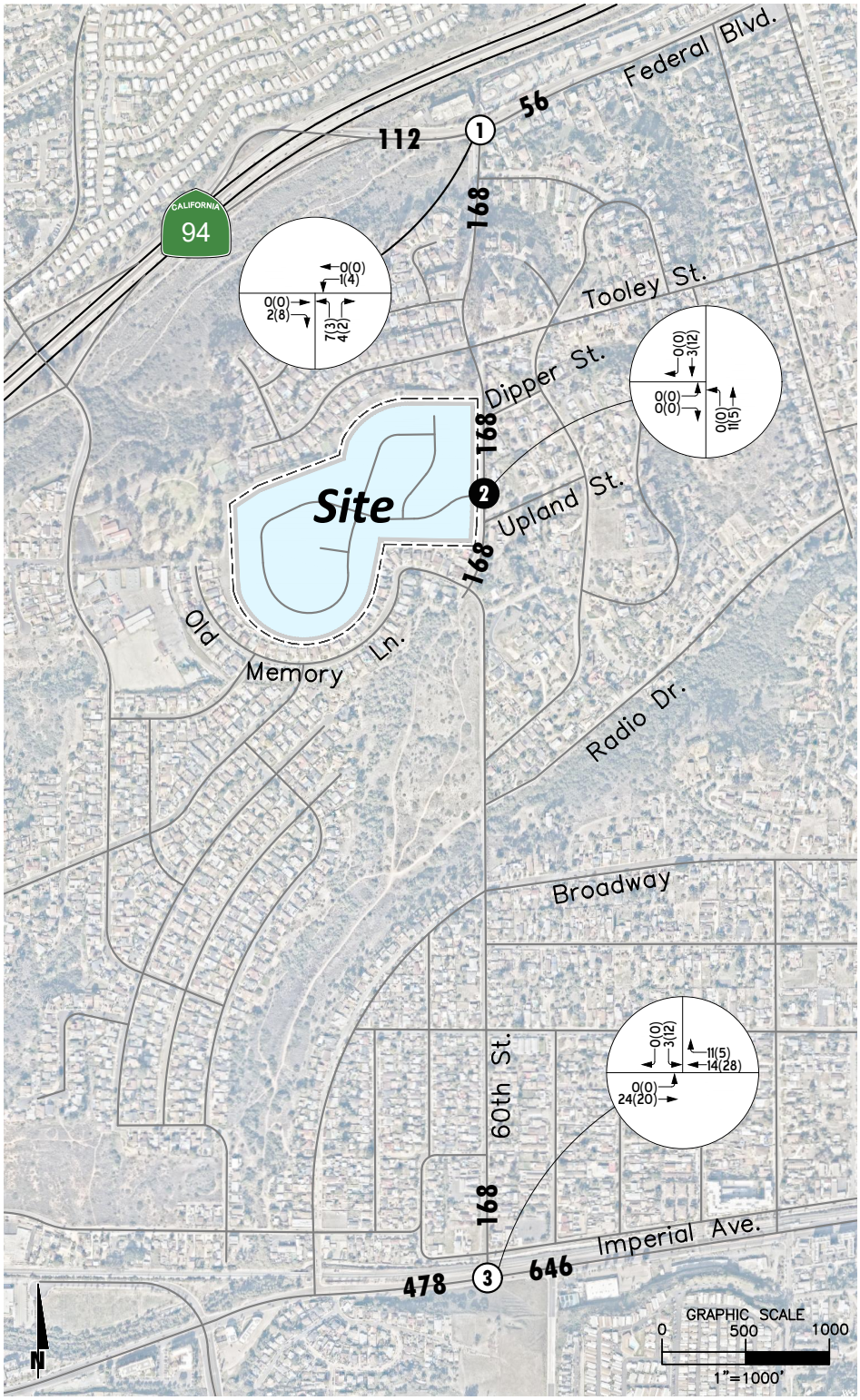
EXHIBIT 5-1: CUMULATIVE DEVELOPMENT LOCATION MAP



LEGEND:

= Cumulative Development Sites

EXHIBIT 5-2: CUMULATIVE ONLY TRAFFIC VOLUMES



LEGEND:

- (0) = *Existing Intersection Analysis Location*
- (0) = *Future Intersection Analysis Location*
- = *Existing Traffic Lane*
- 10 = *ADT*
- 10(10) = *Existing Traffic Volume in AM(PM)*

6 OPENING YEAR (2028)

This section discusses the traffic forecasts for Opening Year (2028) scenario Without and With the proposed Project and the resulting intersection operations and roadway segment analyses. The Opening Year (2028) analysis determines the potential circulation system deficiencies. The analysis evaluates the Opening Year (2028) scenario by adding existing traffic counts with a background ambient growth factor to forecast Opening Year (2028) traffic conditions. In an effort to conduct a conservative analysis, an ambient growth factor accounts for background (area-wide) traffic increases that occur over time up to the year 2028 from the year 2024 has been utilized in addition to traffic generated by individual cumulative projects. Traffic volumes generated by the Project are then added to assess the Opening Year (2028) traffic conditions. The 2028 roadway network is similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project. The Opening Year (2028) traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year (2028) Without Project
    - Existing 2024 counts
    - Ambient growth traffic (2.0% total)
    - Other Development traffic
- Opening Year (2028) With Project
    - Existing 2024 counts
    - Ambient growth traffic (2.0% total)
    - Other Development traffic
    - Project traffic

The ambient growth rate is based on the San Diego Association of Governments (SANDAG) Series 14 Regional Growth Forecast Documentation and Baseline Subregional Allocation (per growth in population between 2016 and 2050), which results in 0.5% background growth per year. (3) A list of other development projects was compiled from information available on the City's Open Development Services Department website.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year (2028) are consistent with those shown previously at Exhibit 3-1, with the exception of the following:

- Project Access and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year (2028) only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

6.2 OPENING YEAR (2028) BASELINE TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2024) traffic volumes plus an ambient growth factor of 2.0% and traffic from pending and approved development projects. The weekday ADT volumes and peak hour volumes which can be expected for Opening Year (2028) Without Project traffic are shown at Exhibit 6-1.

6.3 OPENING YEAR (2028) PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2024) traffic volumes plus an ambient growth factor of 2.0%, traffic from pending and approved development projects, and the addition of Project traffic. The weekday ADT volumes and peak hour volumes which can be expected for Opening Year (2028) With Project traffic are shown at Exhibit 6-2.

6.4 OPENING YEAR (2028) INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study area intersections to evaluate their operations under Opening Year (2028) Without and With Project scenarios. As shown in Table 6-1, the study area intersections are anticipated to operate at LOS C or better for both Without and With Project traffic. The intersection operations analysis worksheets for Opening Year (2028) Without and With Project traffic are included in Appendix C and Appendix D of this LMA, respectively.

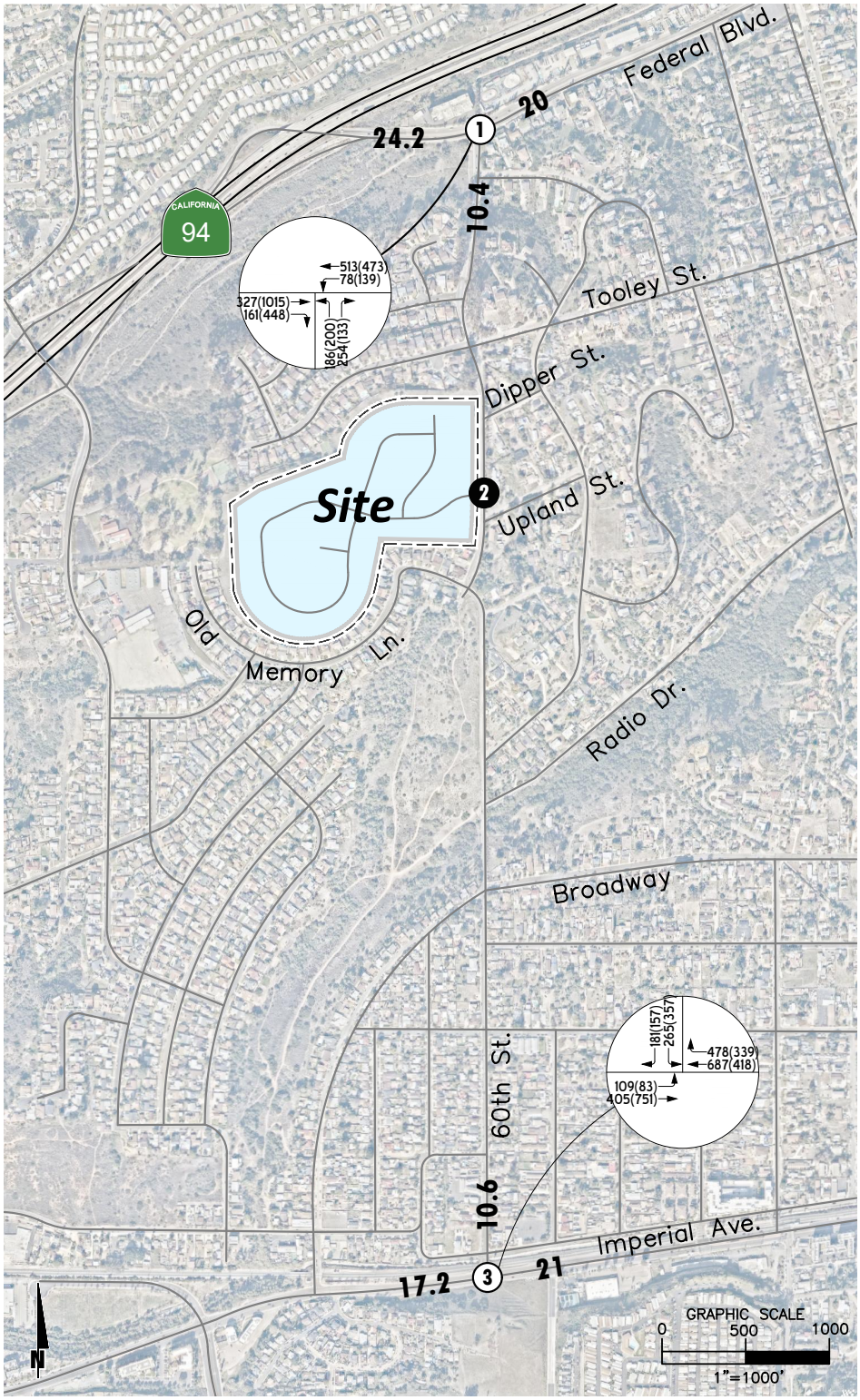
TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR (2028) CONDITIONS

			Opening Year (2028) Baseline				Opening Year (2028) + Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
#	Intersection	Traffic Control[2]	AM	PM	AM	PM	AM	PM	AM	PM
1	60th St. & Federal Bl.	TS	12.1	25.6	B	C	12.7	29.4	B	C
2	60th St. & Project Access	**SSSC**	Future Intersection				11.8	15.3	B	C
3	60th St. & Imperial Av.	TS	29.7	16.4	C	B	34.5	18.1	C	B

1 Per the Highway Capacity Manual (7th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

2 TS = Traffic Signal; SSSC = Side-Street Stop Control; **SSSC** = Improvement

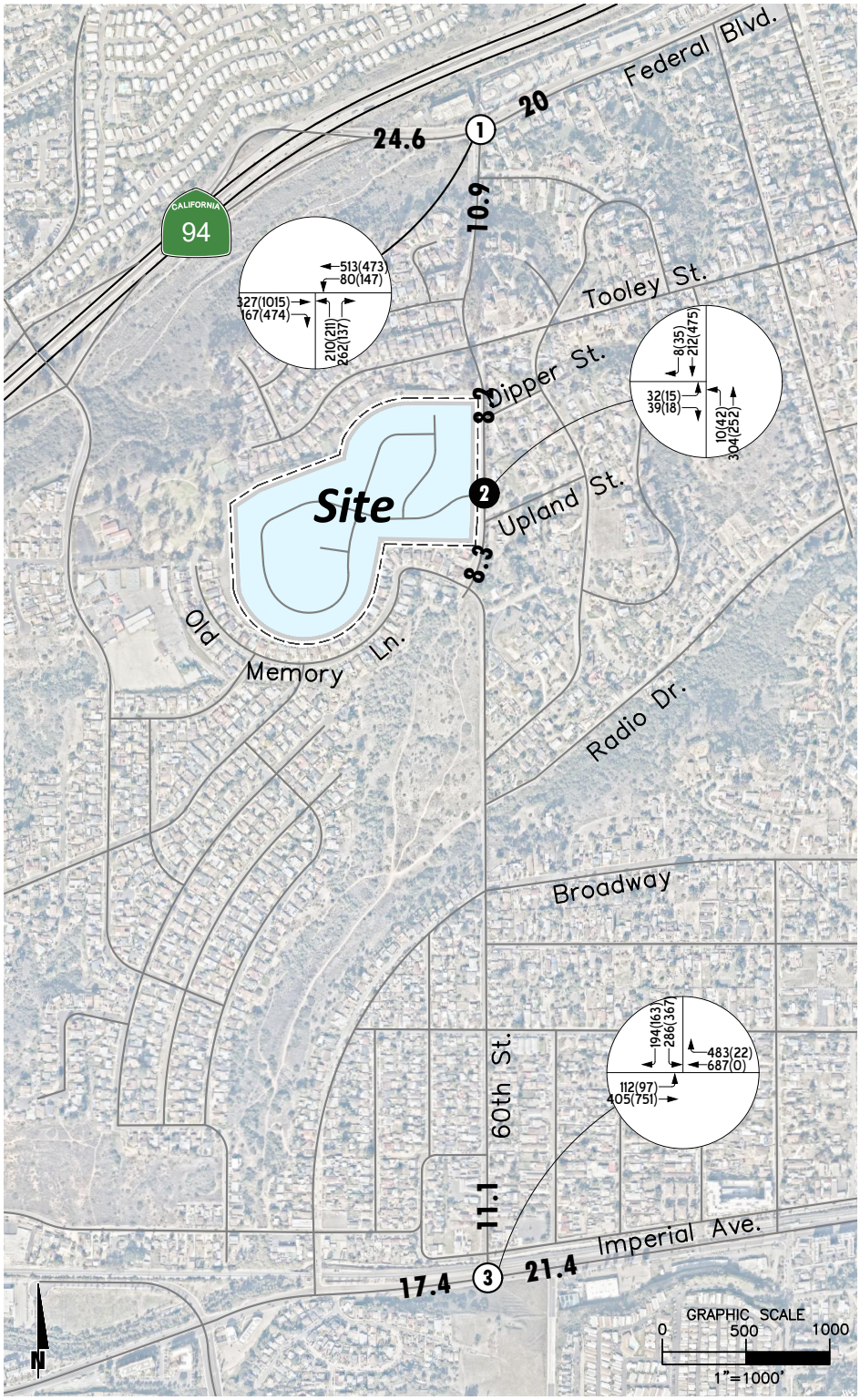
EXHIBIT 6-1: OPENING YEAR (2028) BASELINE TRAFFIC VOLUMES



LEGEND:

- (0) = *Existing Intersection Analysis Location*
- (0) = *Future Intersection Analysis Location*
- = *Existing Traffic Lane*
- 10 = *ADT (In Thousands)*
- 10(10) = *Existing Traffic Volume in AM(PM)*

EXHIBIT 6-2: OPENING YEAR (2028) PLUS PROJECT TRAFFIC VOLUMES



LEGEND:

(0) = *Existing Intersection Analysis Location*

0 = *Future Intersection Analysis Location*

= *Existing Traffic Lane*

10 = *ADT (In Thousands)*

10(10) = *Existing Traffic Volume in AM(PM)*

6.5 ROADWAY SEGMENT ANALYSIS

Table 6-2 provides a summary of the Opening Year (2028) roadway segment capacity analysis. As shown in Table 6-2, the study area roadway segments would be expected to operate at LOS D or better based on the daily roadway capacity and LOS criteria.

TABLE 6-2: ROADWAY SEGMENT ANALYSIS FOR OPENING YEAR (2028) CONDITIONS

			Roadway	LOS E	Opening Year (2028) Baseline			Opening Year (2028) + Project		
#	Roadway	Segment Limits	Section[4]	Capacity[1]	Vol	V/C[2]	LOS[3]	Vol	V/C[2]	LOS[3]
1	60th St.	North of Project Access	2U	10,000	7,654	0.765	C	8,152	0.815	D
2	60th St.	South of Project Access	2U	10,000	7,654	0.765	C	8,264	0.826	D

[1] These maximum roadway capacities are obtained from Table Appendix F-1 of the City's TSM.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

[4] U = Undivided

6.6 PROJECT EFFECTS AND RECOMMENDED IMPROVEMENTS

Based on the criteria discussed in Section 2.5 *Criteria for Identifying Improvements* of this LMA:

- 60th Street at Imperial Avenue (#3) has an existing southbound left turn PM peak hour volume that exceeds 300 vehicles per hour. However, the intersection is anticipated to operate at LOS C under Opening Year (2028) traffic and dual southbound left turn lanes does not appear feasible with regard to the width of 60th Street and the existing railroad tracks along the north side of Imperial Avenue. The vehicles are served by a single southbound left/right turn lane and storage is identified between Atkins Avenue and Kenwood Street (the space between Atkins Avenue and Imperial Avenue over the tracks is not included in the measured distance). Table 6-3 summarizes the queuing analysis results for 60th Street at Imperial Avenue for both Opening Year (2028) and Opening Year (2028) Plus Project traffic scenario which indicates the addition of Project traffic does not result in queues extending to Kenwood Street. Queuing analysis worksheets are provided in Appendix E.
- Roadway segment analysis demonstrates there are no project effects on the roadway segments and therefore no improvements, beyond the improvements to 60th Street, are proposed.

TABLE 6-3: PEAK HOUR QUEUING SUMMARY AT 60TH STREET & IMPERIAL AVENUE

			Opening Year (2028) Baseline				Opening Year (2028) + Project			
		Available Storage	95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
Intersection	Movement	Distance (Feet)[2]	AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
60th St. & Imperial Av.	SBL/R	500	301	283	Yes	Yes	383	321	Yes	Yes

* SBL/T = Southbound Left/Right

[1] Storage Distance is acceptable if the expected 95 percent queue is less than or equal to the available storage distance.

[2] SBL/R measured from north of Atkins Avenue to Kenwood Street (measurement does not include area over the tracks). All distances measured from stop bar (or curb-return) to curb-return (between intersections).

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7 SYSTEMIC SAFETY REVIEW

The City of San Diego's TSM requires that a Systemic Safety Review to be conducted to determine if any of the study intersections meet the criteria to be identified as a Systemic Hotspot for pedestrians, bicycles, or vehicles. The City of San Diego's Systemic Safety, The Data-Driven Path to Vision Zero Report (April 2019), provides methodologies to identify pedestrian, bicycle, and vehicle hotspots based on specific intersection criteria.

7.1 BICYCLE & PEDESTRIAN FACILITIES

Section 3.3 Bicycle & Pedestrian Facilities identifies the existing and planned bicycle and pedestrian facilities in the study area.

7.2 SITE ACCESS

As stated previously, Project traffic will have access to 60th Street via a Public Street located between Dipper Street and Upland Street. There is also emergency access proposed to the west of the Project site along the existing cul-de-sac terminus of Old Memory Lane.

Frontage improvements proposed by the Project will include sidewalk improvements (previously shown on Exhibit 1-1), driveway improvements to accommodate site access, and landscaping improvements as required by City standards. The walking paths and distances to the nearest existing transit stops are identified on Exhibit 7-1.

7.3 PEDESTRIAN HOT SPOTS

Table 7-1 provides a summary of the pedestrian systemic safety review for the 3 study area intersections. All criteria must be met in order to consider implementing countermeasures for each intersection. As shown in Table 7-1, Intersection #1: 60th St./Federal Bl. and Intersection #3: 60th St./Imperial Av. meets all systemic safety criteria for Scenarios #2 and #3. Potential countermeasures that can be considered are signal phasing (lead pedestrian interval (LPI)), high visibility pedestrian crosswalks, and/or pedestrian countdown signal heads. It is recommended that high visibility pedestrian crossing be implemented as a countermeasure for these locations

7.4 BICYCLE HOT SPOTS

Table 7-2 provides a summary of the bicycle systemic safety review for the 3 study area intersections. All criteria must be met in order to consider implementing countermeasures for each intersection. As shown in Table 7-2, Intersection #1: 60th St./Federal Bl. and Intersection #3: 60th St./Imperial Av. meets all systemic safety criteria for Scenario #1. Potential countermeasures that can be considered for Scenario #1 are loop detectors. A review of field conditions indicates that bicycle loop detectors are currently installed at each of the aforementioned intersections on the east-west approaches. As such, no additional countermeasures are proposed.

Additionally, Intersection #2: 60th St./Project Access meets all systemic safety criteria for Scenario #3. A potential countermeasure that can be considered for Scenario #3 is a public safety messaging campaign. However, this countermeasure may be infeasible for a development of this size. As such, no countermeasure is proposed.

EXHIBIT 7-1: PROJECT TRANSIT STOP ACCESS

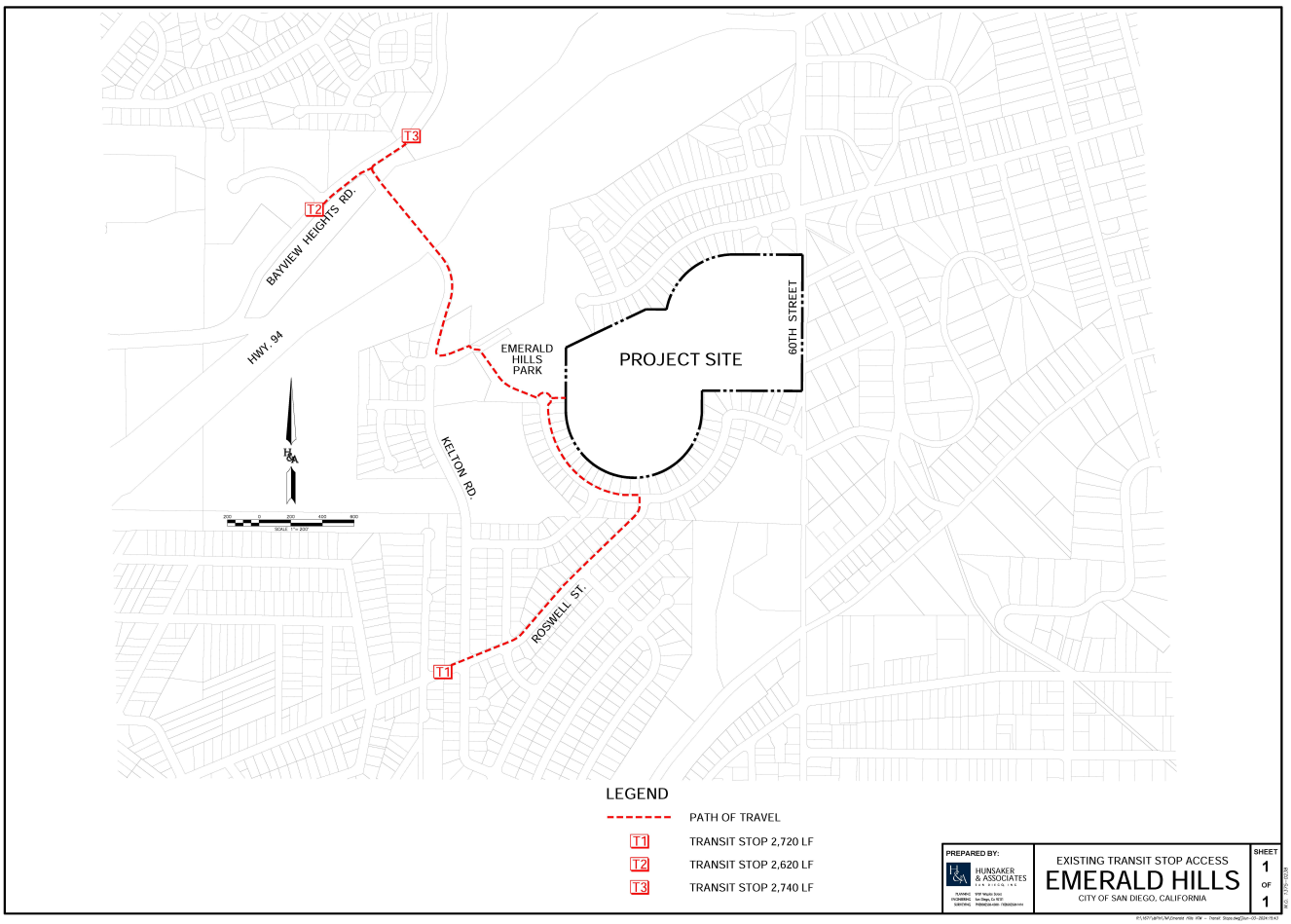

TABLE 7-1: PEDESTRIAN SYSTEMIC SAFETY REVIEW

#	Intersection	Pedestrian Criteria Scenario #1				Pedestrian Criteria Scenario #2				Pedestrian Criteria Scenario #3			
		Signalized?	3 Lanes (1-Way) + 4 Lanes (2-Way) OR 3 Lanes (1-Way) + 3 Lanes (1-Way)	Primary Road ADT 7,001-15,000	Met All Criteria?	Signalized?	4 Lanes (2-Way) + 2 Lanes (2-Way)	Primary Road ADT 7,001-25,000	Met All Criteria?	Signalized?	4 Lanes (2-Way) + 2 Lanes (2-Way)	Primary Road ADT 15,001-25,000	Met All Criteria?
1	60th St. & Federal Bl.	Yes	No	No	No	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	**Yes**
2	60th St. & Project Access	No	No	Yes	No	No	No	No	No	No	No	No	No
3	60th St. & Imperial Av.	Yes	No	No	No	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	**Yes**

General Notes:

1. Footprint criteria is based on the City of San Diego's Systemic Safety. The Data-Driven Path to Vision Zero Report, April 2019, Appendix C: Identification of Systemic Hotspots
2. **Bold** = intersection meets hotspot criteria

TABLE 7-2: BICYCLE SYSTEMIC SAFETY REVIEW

#	Intersection	Bicycle Criteria Scenario #1			Bicycle Criteria Scenario #2			Bicycle Criteria Scenario #3		
		Signalized?	4 Lane Intersects 2 Lane	Met All Criteria?	Signalized?	4 Lane Intersects 4 Lane	Met All Criteria?	Side Street Stop Control?	2 Lane Intersects 2 Lane	Met All Criteria?
1	60th St. & Federal Bl.	Yes	Yes	**Yes**	Yes	No	No	No	No	No
2	60th St. & Project Access	No	No	No	No	No	No	Yes	Yes	**Yes**
3	60th St. & Imperial Av.	Yes	Yes	**Yes**	Yes	No	No	No	No	No

General Notes:

1. Footprint criteria is based on the City of San Diego's Systemic Safety. The Data-Driven Path to Vision Zero Report, April 2019, Appendix C: Identification of Systemic Hotspots
2. **Bold** = intersection meets hotspot criteria

7.5 VEHICULAR HOT SPOTS

Table 7-3 provides a summary of the vehicular systemic safety review for the 3 study area intersections. All criteria must be met in order to consider implementing countermeasures for each intersection. As shown in Table 7-3, no study area intersections met all systemic safety criteria for any scenario. As such, no countermeasures are proposed.

TABLE 7-3: VEHICULAR SYSTEMIC SAFETY REVIEW

		Vehicular Criteria Scenario #1					Vehicular Criteria Scenario #2				
#	Intersection	Signalized?	4 Lanes (2-Way) + 2 Lanes (2-Way)	Primary Road ADT >15,000	Secondary Road ADT <7,000	Met All Criteria?	Signalized?	6 Lanes (2-Way) + 4 Lanes (2-Way)	Primary Road ADT >15,000	Secondary Road ADT <7,000	Met All Criteria?
1	60th St. & Federal Bl.	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No
2	60th St. & Project Access	No	No	No	Yes	No	No	No	No	Yes	No
3	60th St. & Imperial Av.	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No

		Vehicular Criteria Scenario #3				Vehicular Criteria Scenario #4				
#	Intersection	Signalized?	4 Lanes (2-Way) + 4 Lanes (2-Way)	Secondary Road ADT >7,000	Met All Criteria?	Signalized?	3 Lanes (1-Way) + 3 Lanes (1-Way)	Primary Road ADT ≤15,000	Secondary Road ADT >7,000	Met All Criteria?
1	60th St. & Federal Bl.	Yes	No	Yes	No	Yes	No	Yes	Yes	No
2	60th St. & Project Access	No	No	Yes	No	No	No	No	Yes	No
3	60th St. & Imperial Av.	Yes	No	Yes	No	Yes	No	Yes	Yes	No

General Notes:

1. Footprint criteria is based on the City of San Diego's Systemic Safety. The Data-Driven Path to Vision Zero Report, April 2019, Appendix C: Identification of Systemic Hotspots
2. **Bold** = intersection meets hotspot criteria

8 SITE ACCESS

The Project proposes access to the site via the full access driveway that will have a stop sign on the approach to 60th Street and a proposed emergency vehicle access (EVA) road from the terminus of Old Memory Lane adjacent to Emerald Hills Neighborhood Park. The EVA road will have knox boxes and gates accessible to emergency vehicles only.

8.1 QUEUING ANALYSIS

The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. SimTraffic (Synchro plus SimTraffic 12 software, Version 12.2, Build 1, Revision 18) is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. These random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each applicable turn lane. A SimTraffic simulation has been recorded up to 10 times, during the weekday AM and weekday PM peak hours, and has been seeded for 10-minute periods with 60-minute recording intervals. The results of the queuing analysis worksheets for the weekday AM and PM peak hours are provided in Appendix E of this report for Opening Year (2028) traffic conditions. These results are summarized in Table 8-1. As shown, there are no queuing issues anticipated at the Project Access based on the current site plan with respect to its spacing between Dipper Street and Upland Street.

TABLE 8-1: PEAK HOUR QUEUING SUMMARY

Intersection	Movement	Available Storage Distance (Feet)[2]	95th Percentile Queue (Feet) AM Peak	95th Percentile Queue (Feet) PM Peak	Acceptable? [1] AM	Acceptable? [1] PM
60th St. & Project Access	NBL/T	200	17	59	Yes	Yes
	SBT/R	350	2	7	Yes	Yes
	EBL/R	200	53	43	Yes	Yes

* NBL/T = Northbound Left/Through, SBT/R = Southbound Through/Right, EBL/R = Eastbound Left/Right

[1] Storage Distance is acceptable if the expected 95 percent queue is less than or equal to the available storage distance.

[2] NBL/T measured from Project Access to Upland Street, SBT/R measured from Project Access to Dipper Street, and EBL/R measured from 60th Street to Street "D." All distances measured from stop bar (or curb-return) to curb-return (between intersections).

8.2 SIGHT DISTANCE ANALYSIS

Horizontal and vertical sight distance have been evaluated for the Project Access on 60th Street based on the City of San Diego Street Design Manual, AASHTO Green Book, and Caltrans Highway Design Manual. (6) As defined by the AASHTO Green Book, sight distance is the length of the roadway ahead that is visible to the driver. The available sight distance on a roadway should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path.

Adequate visibility for vehicular and pedestrian traffic can be accommodated at the Project Access by limiting sight obstructions within the identified limited use area. Any landscaping/hardscape within the limited use area should not exceed 36-inches in height. The limited use area should be kept clear of any landscaping or any other obstructions that may impede the visibility of the driver, including on-

street parking. As such, restrictions to on-street parking within the limited use areas are also necessary. Minimum horizontal and vertical sight distances for the Project Access are provided in Appendix F for the Project Access. The sight distance lines, limited use area, and clear sight triangles per City's standards are illustrated in Appendix F and are calculated per American Association of State Highway Transportation Officials (AASHTO) Standards.

9 PARKING

This section discusses the City of San Diego's required parking based on the Project's land use, the estimated parking demand of the Project, and the proposed parking to be provided by the Project.

The minimum required parking for the proposed Project is based on the standards outlined in the City of San Diego Land Development Code (LDC, Chapter 14, Article 2, and Division 5). According to Table 142-05B in the *San Diego Municipal Code, Chapter 14, Article 2, Division 5: Parking Regulations*, a minimum of 2 spaces per dwelling unit is required for all single dwelling units. Based on the City of San Diego Parking ratio for single dwelling units, the Project would be required to provide at least 246 automobile spaces. The parking summary is provided on Table 9-1 which identifies the Project is parked as required by the San Diego Municipal Code (Table 142-05B).

TABLE 9-1: PARKING SUMMARY

	Spaces Required/Unit[1]	Total Spaces
Required Parking:		
- 123 Dwelling Units	2 spaces/unit	246
Provided Parking:		
- 123 Dwelling Units	2 spaces/unit (garage)	246

[1] Per San Diego Municipal Code Table 142-05B, single family (market rate).

The Project proposes to provide 2 car garages for each dwelling unit for a total of 246 automobile spaces, which meets the requirements.

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10 PROJECT EFFECTS AND RECOMMENDATIONS

10.1 FRONTAGE SITE ACCESS RECOMMENDATIONS

The following recommendations are based on improvements needed for site access for the proposed Project and are shown in Exhibit 10-1.

Recommendation 1 **– Intersection #2:** ***60th Street & Project Access (Street "A")*** – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the eastbound approach (egress Project traffic) to implement side-street stop-controlled intersection. Project to accommodate one egress and one ingress lane on the driveway to facilitate site access (two lanes).

Recommendation 2 – 60th Street is a north-south oriented roadway located on the eastern boundary. Project proposes to dedicate 30 feet to widen and construct 60th Street at its ultimate half-section width as a 2-Lane Collector (60-foot right-of-way) from the Project's northern boundary to the Project's southern boundary consistent with the City's standards.

Project to provide emergency access only from internal "Street B" to the existing cul-de-sac terminus of Old Memory Lane to the west of the Project.

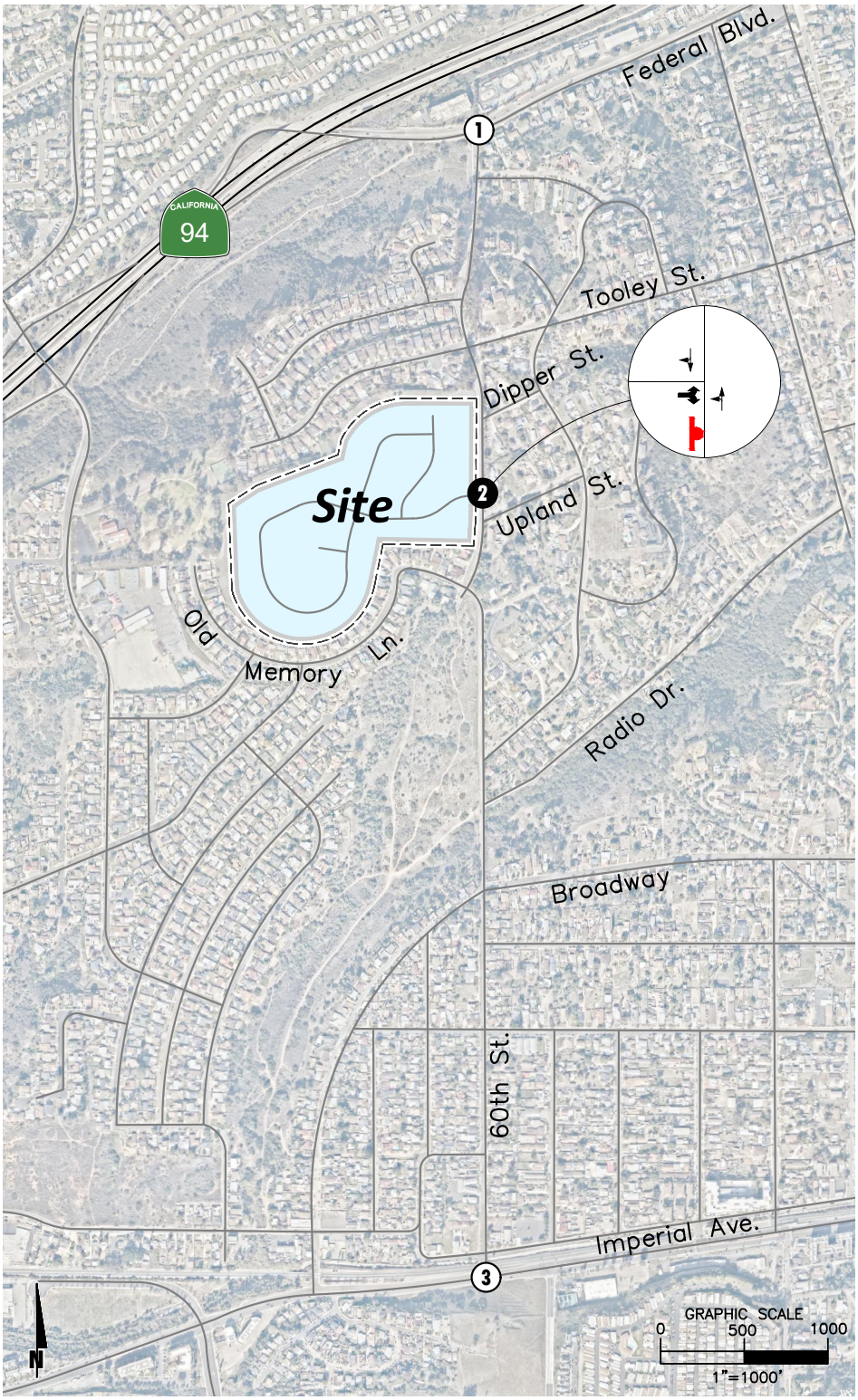
Bicycle/Pedestrian Facilities:

Project proposes to improve 60th Street along its frontage and proposes an additional 10-foot trail easement. The improvements for 60th Street will include 18-feet of pavement west of the centerline and 12-foot parkway with 5-foot non-contiguous sidewalk and a 7-foot green streets swale. The 10-foot trail easement will include a 5-foot stabilized decomposed granite path. The proposed improved sidewalk and trail will accommodate additional pedestrians.

On-site traffic signing and striping should be implemented per the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site. Street "A" will allow for free-flow traffic throughout the development (no stops) and stop signs will be placed on the southbound approach of both Street "B" and Street "D." Street "B" will also include a stop control on the eastbound approach at Street "D" while Street "D" allows for free-flow (no stop). Street "C" will have a stop control on the eastbound approach at Street "B" while Street "B" allows for free-flow (no stop).

There are no transportation operational effects identified at the study area intersections and roadway segments under all analysis scenarios. As such, no improvements are recommended other than the frontage improvements and internal streets.

EXHIBIT 10-1: SITE ACCESS RECOMMENDATIONS



LEGEND:

(0) = *Existing Intersection Analysis Location*
0 = *Future Intersection Analysis Location*
= *Existing Traffic Lane*
= *Traffic Lane Improvement*
= *Stop Sign Improvement*

11 COMPLETE COMMUNITIES: MOBILITY CHOICES

In December 2020, the City of San Diego adopted the Complete Communities: Mobility Choices Program and development projects located within the City are required to comply with these regulations.

11.1 MOBILITY CHOICES ORDINANCE

The San Diego Municipal Code (SDMC) Ordinance Number O-21274 adopted on December 9, 2020, provides the development regulations for the Mobility Choices portion of the Complete Communities program.

In accordance with SDMC sections 143.1101,143.1102, and 143.110, development that is required to provide VMT reduction measures shall satisfy those requirements by implementing the measures identified below:

As provided in SDMC section 143.1103(b)(1):

- Development in Mobility Zone 2 shall include VMT Reduction Measures totaling at least 5 points or 8 points for projects that provides more than the minimum parking required in Chapter 14, Article 2, Division 5.

The Project is in Mobility Zone 2 and will be required to include VMT reduction measures totaling at least 5 points. These measures shall be located on-site or adjacent to the development site such that the measure can be shown on a site plan. On-site measures shall be privately maintained in perpetuity. Any measure that is on-site for public use shall ensure public access. Measures within the right-of-way shall comply with the City of San Diego Street Design Manual, Land Development Code, San Diego Municipal Code, and applicable Council Policies.

The Applicant proposes to provide the following VMT Reduction Measures:

VMT Reduction Measure #7: Planting shade trees adjacent to a public pedestrian walkway beyond minimum standards (shall be consistent with Land Development Code Landscape Standards and be maintained by the property owner). The minimum spacing between trees is 20 feet. Each tree will allow for a 0.2 point reduction.

- The Project will include 8 trees with 20 feet spacing as part of the Project plans, which will result in a net 1.6 points[1].

VMT Reduction Measure #8: Installing pedestrian resting area/recreation node on-site, adjacent to public pedestrian walkway (with signage designating the space as publicly available). The resting area/recreation node shall be maintained by the property owner. Each resting area (multiple of 250 square feet) will result in 2.5 points (partial points available).

- The Project will include a 200-square-foot resting area with benches, signage, and trash as part of the neighborhood design, which will net 2.0 points.

VMT Reduction Measure #12: Providing an on-site bicycle repair station. By installing an on-site bicycle repair station, a 1.5 points reduction is available.

- The Project will install a bicycle repair station, which results in 1.5 points.

With the implementation of the 3 VMT Reduction Measures, the Project will provide a total of 5.1 points of VMT Reduction Measures.

12 REFERENCES

1. **City of San Diego.** *Transportation Study Manual (TSM).* City of San Diego : s.n., September 19, 2022.
2. —. *San Diego Municipal Code Land Development Code: Trip Generation Manual.* San Diego : s.n., Revised May 2003.
3. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 7th Edition. s.l. : National Academy of Sciences, 2022.
4. **City of San Diego.** *Systemic Safety: The Data-Driven Path to Vision Zero.* San Diego : s.n., April 2019.
5. **San Diego Association of Governments (SANDAG).** *Series 14 Regional Growth Forecast Documentation and Baseline Subregional Allocation.* s.l. : SANDAG, December 2, 2021.
6. **City of San Diego.** *Street Design Manual.* San Diego : s.n., March 2017 Edition.
7. —. *Complete Communities https://www.sandiego.gov/complete-communities.*

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13 CERTIFICATIONS

The contents of this LMA report represent an accurate depiction of the operations associated with the proposed Emerald Hills. The information contained in this LMA report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at cso@urbanxroads.com.

Charlene So, PE
Principal
URBAN CROSSROADS, INC.
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APPENDIX A: TRAFFIC COUNTS

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of San Diego
N/S: 60th Street
E/W: Federal Boulevard
Weather: Clear

File Name : 01_SDG_60th_Fed AM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	Federal Boulevard Westbound			60th Street Northbound				Federal Boulevard Eastbound						
Start Time	Left	Thru	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	8	125	133	49	42	19	91	60	38	7	98	26	322	348
07:15 AM	22	114	136	63	47	22	110	56	33	0	89	22	335	357
07:30 AM	20	126	146	45	45	15	90	93	40	0	133	15	369	384
07:45 AM	19	119	138	43	64	26	107	85	36	5	121	31	366	397
Total	69	484	553	200	198	82	398	294	147	12	441	94	1392	1486
08:00 AM	21	126	147	45	85	29	130	70	42	3	112	32	389	421
08:15 AM	15	132	147	42	51	18	93	73	38	3	111	21	351	372
08:30 AM	24	113	137	54	45	14	99	81	28	1	109	15	345	360
08:45 AM	16	120	136	55	42	11	97	69	46	3	115	14	348	362
Total	76	491	567	196	223	72	419	293	154	10	447	82	1433	1515
Grand Total	145	975	1120	396	421	154	817	587	301	22	888	176	2825	3001
Apprch %	12.9	87.1		48.5	51.5			66.1	33.9					
Total %	5.1	34.5	39.6	14	14.9		28.9	20.8	10.7		31.4	5.9	94.1	

	Federal Boulevard Westbound			60th Street Northbound			Federal Boulevard Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	20	126	146	**45**	45	90	**93**	40	**133**	369
07:45 AM	19	119	138	43	64	107	85	36	121	366
08:00 AM	**21**	126	**147**	45	**85**	**130**	70	**42**	112	**389**
08:15 AM	15	**132**	147	42	51	93	73	38	111	351
Total Volume	75	503	578	175	245	420	321	156	477	1475
% App. Total	13	87		41.7	58.3		67.3	32.7		
PHF	.893	.953	.983	.972	.721	.808	.863	.929	.897	.948

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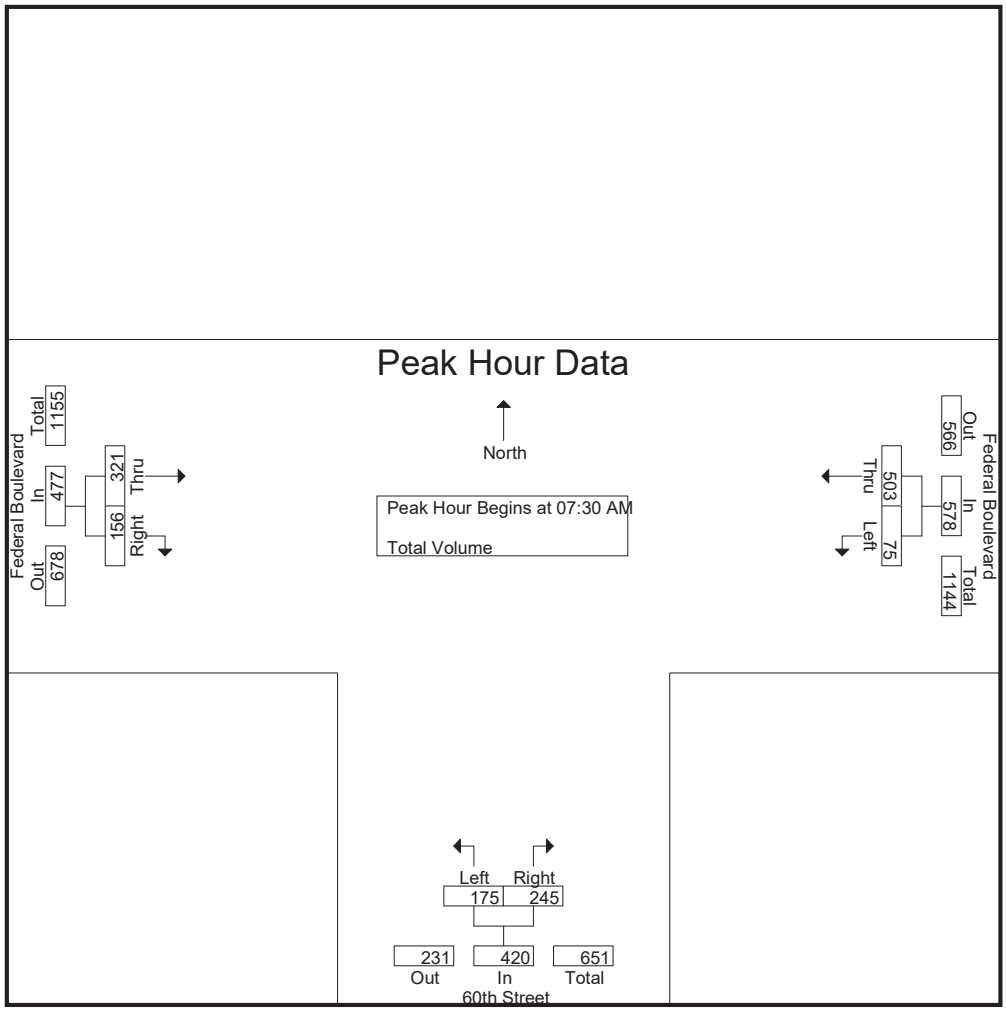
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:15 AM			07:30 AM		
+0 mins.	20	126	146	**63**	47	110	**93**	40	**133**
+15 mins.	19	119	138	45	45	90	85	36	121
+30 mins.	**21**	126	**147**	43	64	107	70	**42**	112
+45 mins.	15	**132**	147	45	**85**	**130**	73	38	111
Total Volume	75	503	578	196	241	437	321	156	477
% App. Total	13	87		44.9	55.1		67.3	32.7	
PHF	.893	.953	.983	.778	.709	.840	.863	.929	.897

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City of San Diego
N/S: 60th Street
E/W: Federal Boulevard
Weather: Clear

File Name : 01_SDG_60th_Fed PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	Federal Boulevard Westbound			60th Street Northbound				Federal Boulevard Eastbound						
Start Time	Left	Thru	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	35	134	169	60	28	3	88	237	89	5	326	8	583	591
04:15 PM	23	109	132	47	39	8	86	257	99	14	356	22	574	596
04:30 PM	37	127	164	33	30	7	63	249	130	27	379	34	606	640
04:45 PM	37	94	131	53	31	6	84	252	113	8	365	14	580	594
Total	132	464	596	193	128	24	321	995	431	54	1426	78	2343	2421
05:00 PM	38	108	146	54	28	6	82	216	95	4	311	10	539	549
05:15 PM	40	98	138	45	43	11	88	229	93	7	322	18	548	566
05:30 PM	40	101	141	48	22	2	70	244	100	5	344	7	555	562
05:45 PM	31	107	138	36	30	2	66	216	98	8	314	10	518	528
Total	149	414	563	183	123	21	306	905	386	24	1291	45	2160	2205
Grand Total	281	878	1159	376	251	45	627	1900	817	78	2717	123	4503	4626
Apprch %	24.2	75.8		60	40			69.9	30.1					
Total %	6.2	19.5	25.7	8.3	5.6		13.9	42.2	18.1		60.3	2.7	97.3	

	Federal Boulevard Westbound			60th Street Northbound			Federal Boulevard Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	35	**134**	**169**	**60**	28	**88**	237	89	326	583
04:15 PM	23	109	132	47	**39**	86	**257**	99	356	574
04:30 PM	**37**	127	164	33	30	63	249	**130**	**379**	**606**
04:45 PM	37	94	131	53	31	84	252	113	365	580
Total Volume	132	464	596	193	128	321	995	431	1426	2343
% App. Total	22.1	77.9		60.1	39.9		69.8	30.2		
PHF	.892	.866	.882	.804	.821	.912	.968	.829	.941	.967

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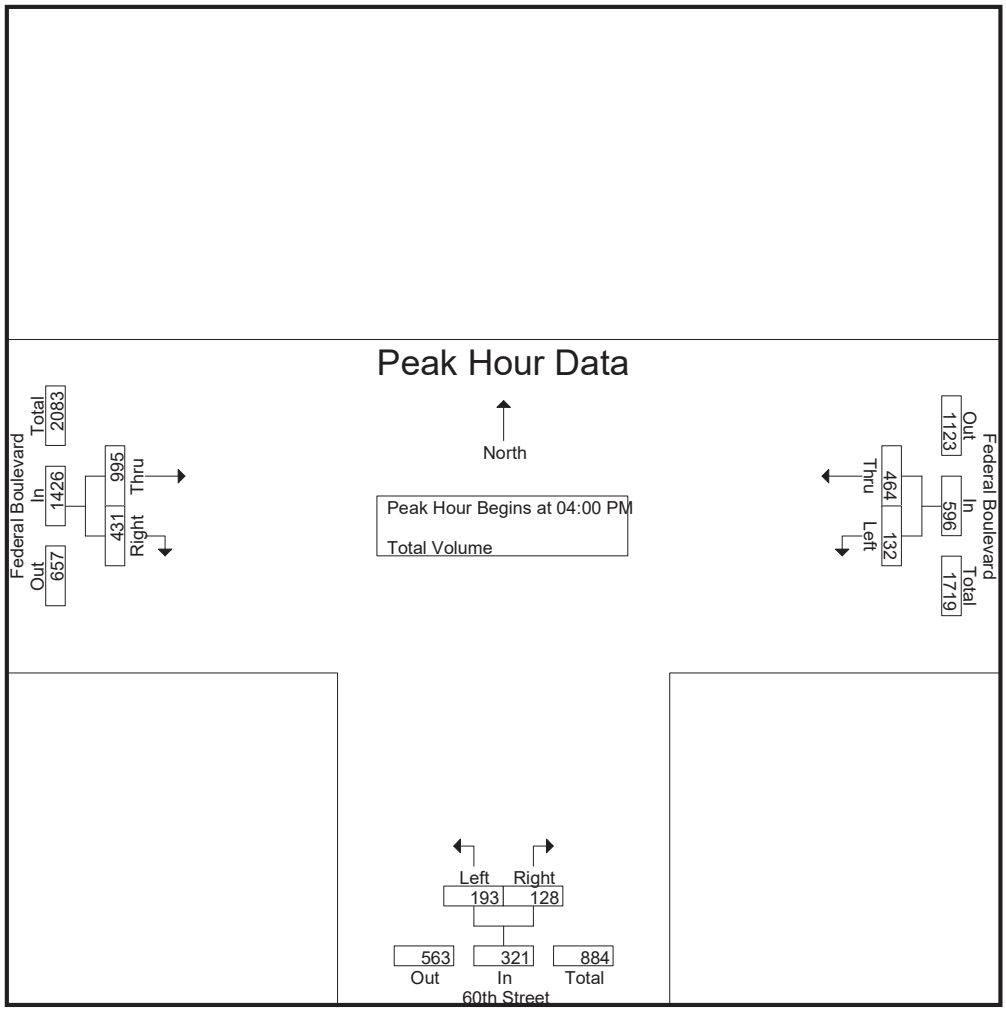
E/W: Federal Boulevard
Weather: Clear

File Name : 01_SDG_60th_Fed PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:45 PM			04:00 PM		
+0 mins.	35	**134**	**169**	53	31	84	237	89	326
+15 mins.	23	109	132	**54**	28	82	**257**	99	356
+30 mins.	**37**	127	164	45	**43**	**88**	249	**130**	**379**
+45 mins.	37	94	131	48	22	70	252	113	365
Total Volume	132	464	596	200	124	324	995	431	1426
% App. Total	22.1	77.9		61.7	38.3		69.8	30.2	
PHF	.892	.866	.882	.926	.721	.920	.968	.829	.941

Location: San Diego
N/S: 60th Street
E/W: Federal Boulevard

Date: 1/30/2024
Day: Tuesday

PEDESTRIANS

	North Leg 60th Street Pedestrians	East Leg Federal Boulevard Pedestrians	South Leg 60th Street Pedestrians	West Leg Federal Boulevard Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

	North Leg 60th Street Pedestrians	East Leg Federal Boulevard Pedestrians	South Leg 60th Street Pedestrians	West Leg Federal Boulevard Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

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951-268-6268

Location: San Diego
N/S: 60th Street
E/W: Federal Boulevard

Date: 1/30/2024
Day: Tuesday

BICYCLES

	Southbound 60th Street			Westbound Federal Boulevard			Northbound 60th Street			Eastbound Federal Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	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	1	0	1
7:30 AM	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
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
8:15 AM	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
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	1	2

	Southbound 60th Street			Westbound Federal Boulevard			Northbound 60th Street			Eastbound Federal Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	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
4:30 PM	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
5:00 PM	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
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 VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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951/268-8268

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City of San Diego
N/S: 60th Street
E/W: Upland Street
Weather: Clear

File Name : 05_SDG_60th_Upl AM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	60th Street Southbound			Upland Street Westbound			60th Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	2	38	40	0	0	0	48	0	48	88
07:15 AM	0	57	57	0	2	2	55	0	55	114
07:30 AM	0	48	48	0	0	0	56	0	56	104
07:45 AM	1	56	57	1	0	1	68	0	68	126
Total	3	199	202	1	2	3	227	0	227	432
08:00 AM	0	57	57	0	1	1	79	0	79	137
08:15 AM	0	43	43	1	1	2	70	0	70	115
08:30 AM	0	48	48	0	2	2	66	0	66	116
08:45 AM	0	43	43	0	0	0	67	0	67	110
Total	0	191	191	1	4	5	282	0	282	478
Grand Total	3	390	393	2	6	8	509	0	509	910
Apprch %	0.8	99.2		25	75		100	0		
Total %	0.3	42.9	43.2	0.2	0.7	0.9	55.9	0	55.9	

	60th Street Southbound			Upland Street Westbound			60th Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**1**	56	**57**	**1**	0	1	68	0	68	126
08:00 AM	0	**57**	57	0	1	1	**79**	0	**79**	**137**
08:15 AM	0	43	43	1	1	**2**	70	0	70	115
08:30 AM	0	48	48	0	**2**	2	66	0	66	116
Total Volume	1	204	205	2	4	6	283	0	283	494
% App. Total	0.5	99.5		33.3	66.7		100	0		
PHF	.250	.895	.899	.500	.500	.750	.896	.000	.896	.901

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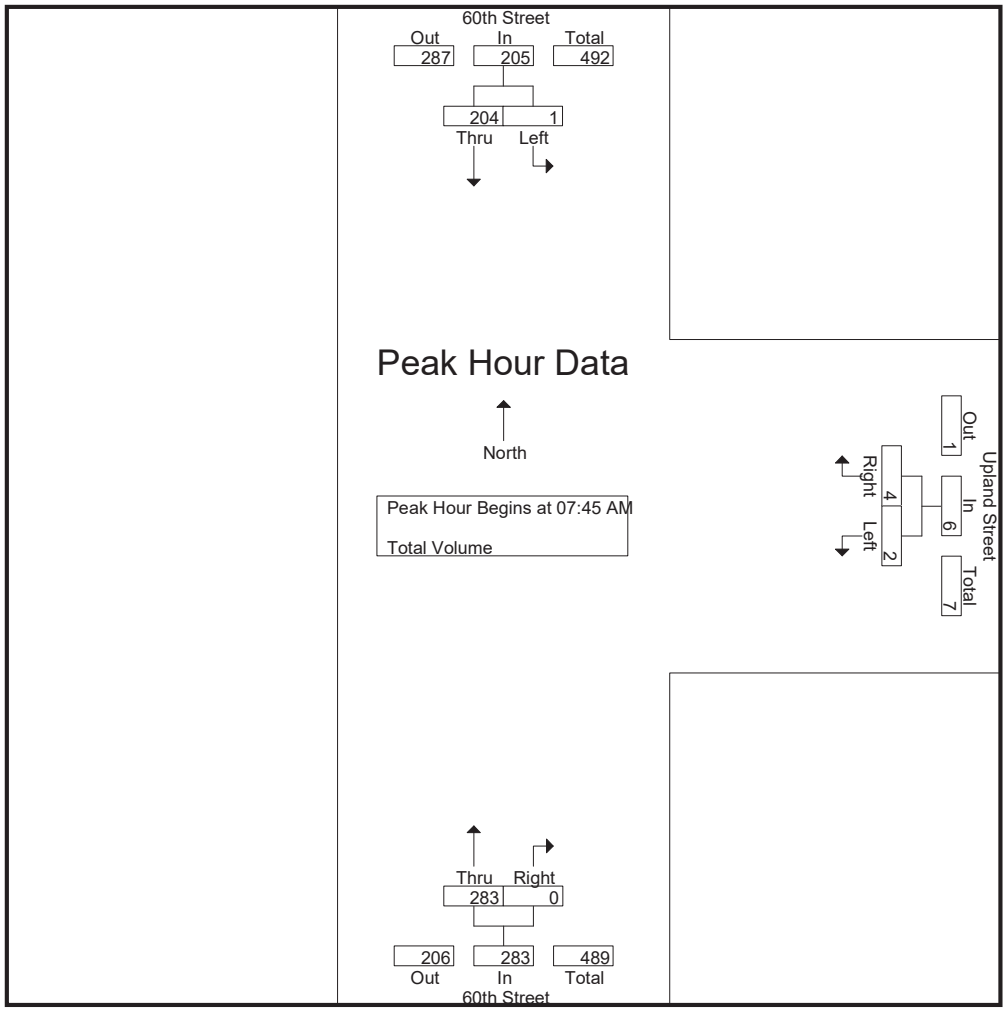
City of San Diego
N/S: 60th Street
E/W: Upland Street
Weather: Clear

File Name : 05_SDG_60th_Upl AM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:45 AM			07:45 AM		
+0 mins.	0	**57**	**57**	**1**	0	1	68	0	68
+15 mins.	0	48	48	0	1	1	**79**	0	**79**
+30 mins.	**1**	56	57	1	1	**2**	70	0	70
+45 mins.	0	57	57	0	**2**	2	66	0	66
Total Volume	1	218	219	2	4	6	283	0	283
% App. Total	0.5	99.5		33.3	66.7		100	0	
PHF	.250	.956	.961	.500	.500	.750	.896	.000	.896

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City of San Diego
N/S: 60th Street
E/W: Upland Street
Weather: Clear

File Name : 05_SDG_60th_Upl PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	60th Street Southbound			Upland Street Westbound			60th Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	95	95	0	0	0	65	0	65	160
04:15 PM	0	102	102	0	0	0	57	0	57	159
04:30 PM	1	120	121	0	0	0	48	1	49	170
04:45 PM	0	106	106	0	1	1	71	1	72	179
Total	1	423	424	0	1	1	241	2	243	668
05:00 PM	0	116	116	0	1	1	57	2	59	176
05:15 PM	2	109	111	0	0	0	64	0	64	175
05:30 PM	1	112	113	0	0	0	53	0	53	166
05:45 PM	0	109	109	0	0	0	61	0	61	170
Total	3	446	449	0	1	1	235	2	237	687
Grand Total	4	869	873	0	2	2	476	4	480	1355
Apprch %	0.5	99.5		0	100		99.2	0.8		
Total %	0.3	64.1	64.4	0	0.1	0.1	35.1	0.3	35.4	

	60th Street Southbound			Upland Street Westbound			60th Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	1	**120**	**121**	0	0	0	48	1	49	170
04:45 PM	0	106	106	0	**1**	**1**	**71**	1	**72**	**179**
05:00 PM	0	116	116	0	1	1	57	**2**	59	176
05:15 PM	**2**	109	111	0	0	0	64	0	64	175
Total Volume	3	451	454	0	2	2	240	4	244	700
% App. Total	0.7	99.3		0	100		98.4	1.6		
PHF	.375	.940	.938	.000	.500	.500	.845	.500	.847	.978

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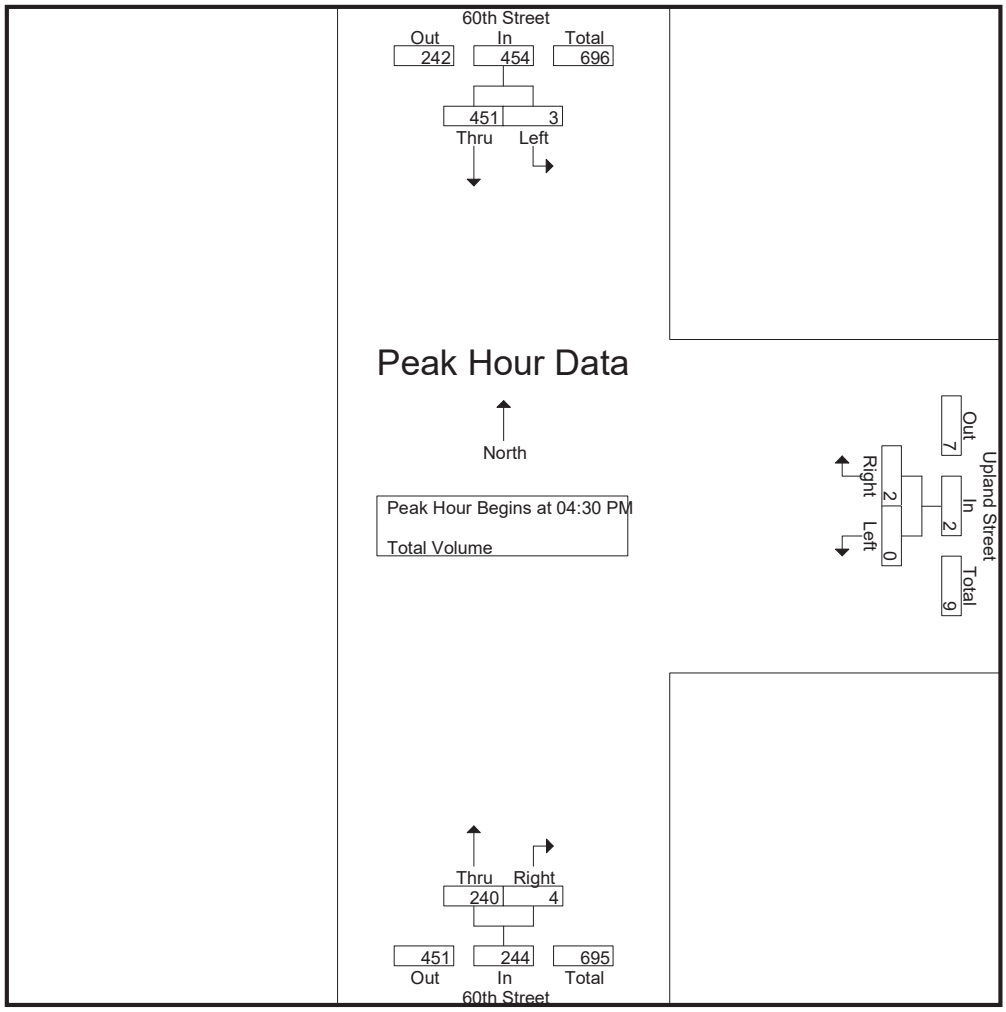
City of San Diego
N/S: 60th Street
E/W: Upland Street
Weather: Clear

File Name : 05_SDG_60th_Upl PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:15 PM			04:45 PM		
+0 mins.	1	**120**	**121**	0	0	0	**71**	1	**72**
+15 mins.	0	106	106	0	0	0	57	**2**	59
+30 mins.	0	116	116	0	**1**	**1**	64	0	64
+45 mins.	**2**	109	111	0	1	1	53	0	53
Total Volume	3	451	454	0	2	2	245	3	248
% App. Total	0.7	99.3		0	100		98.8	1.2	
PHF	.375	.940	.938	.000	.500	.500	.863	.375	.861

Location: San Diego
N/S: 60th Street
E/W: Upland Street

Date: 1/30/2024
Day: Tuesday

PEDESTRIANS

	North Leg 60th Street	East Leg Upland Street	South Leg 60th Street	West Leg Upland Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
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	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg 60th Street	East Leg Upland Street	South Leg 60th Street	West Leg Upland Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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951-268-0268

Location: San Diego
N/S: 60th Street
E/W: Upland Street

Date: 1/30/2024
Day: Tuesday

BICYCLES

	Southbound 60th Street			Westbound Upland Street			Northbound 60th Street			Eastbound Upland Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	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
7:30 AM	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
8:00 AM	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
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 VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound 60th Street			Westbound Upland Street			Northbound 60th Street			Eastbound Upland Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	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
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	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
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 VOLUMES:	0	1	0	0	0	0	0	0	0	0	0	0	1

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City of San Diego
N/S: 60th Street
E/W: Imperial Avenue
Weather: Clear

File Name : 07_SDG_60th_Imp AM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	60th Street Southbound				Imperial Avenue Westbound				Imperial Avenue Eastbound					
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	35	35	5	70	174	93	5	267	13	62	75	10	412	422
07:15 AM	42	43	7	85	189	102	2	291	6	74	80	9	456	465
07:30 AM	62	49	7	111	191	117	8	308	21	114	135	15	554	569
07:45 AM	82	49	11	131	153	102	6	255	34	99	133	17	519	536
Total	221	176	30	397	707	414	21	1121	74	349	423	51	1941	1992
08:00 AM	73	52	8	125	169	112	5	281	28	76	104	13	510	523
08:15 AM	40	27	5	67	167	127	3	294	24	85	109	8	470	478
08:30 AM	40	29	2	69	124	76	4	200	20	83	103	6	372	378
08:45 AM	39	33	3	72	93	74	3	167	15	78	93	6	332	338
Total	192	141	18	333	553	389	15	942	87	322	409	33	1684	1717
Grand Total	413	317	48	730	1260	803	36	2063	161	671	832	84	3625	3709
Apprch %	56.6	43.4			61.1	38.9			19.4	80.6				
Total %	11.4	8.7		20.1	34.8	22.2		56.9	4.4	18.5	23	2.3	97.7	

	60th Street Southbound			Imperial Avenue Westbound			Imperial Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	62	49	111	**191**	117	**308**	21	**114**	**135**	**554**
07:45 AM	**82**	49	**131**	153	102	255	**34**	99	133	519
08:00 AM	73	**52**	125	169	112	281	28	76	104	510
08:15 AM	40	27	67	167	**127**	294	24	85	109	470
Total Volume	257	177	434	680	458	1138	107	374	481	2053
% App. Total	59.2	40.8		59.8	40.2		22.2	77.8		
PHF	.784	.851	.828	.890	.902	.924	.787	.820	.891	.926

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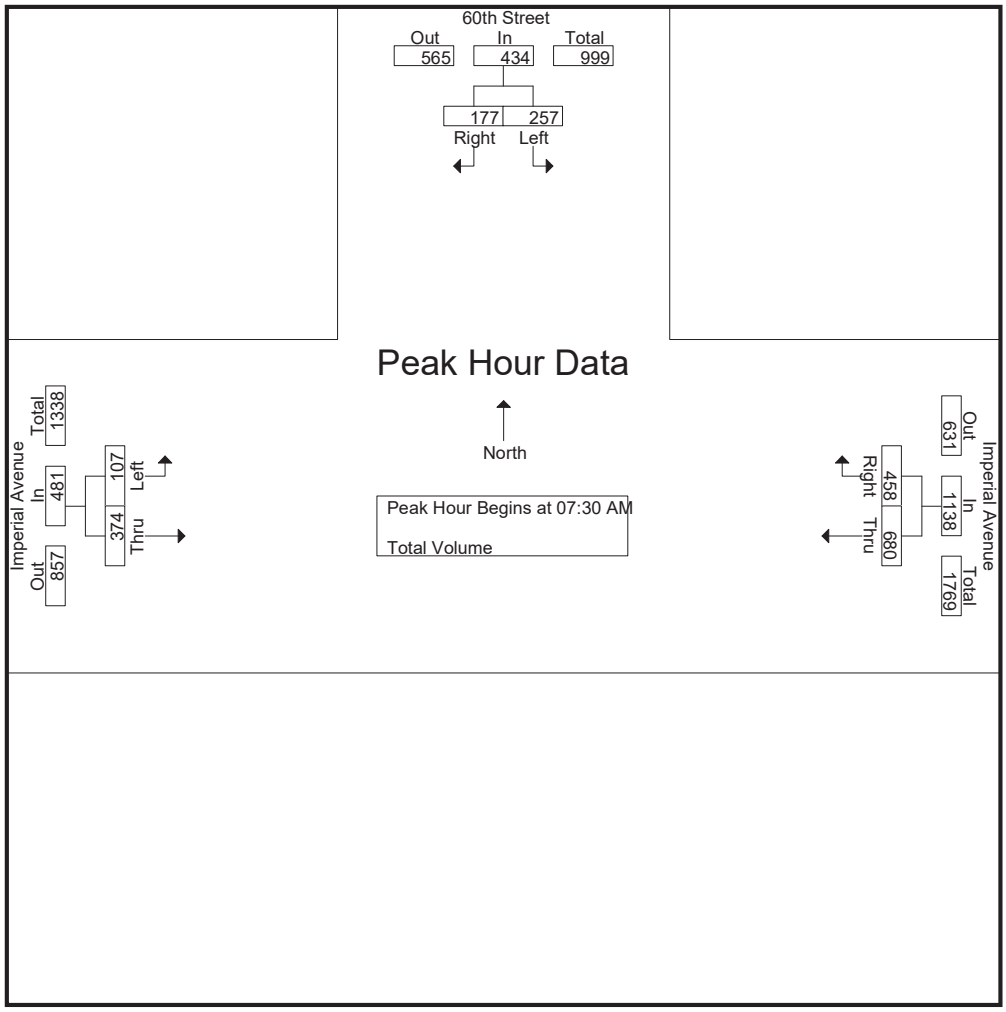
(951) 268-6268

City of San Diego
N/S: 60th Street
E/W: Imperial Avenue
Weather: Clear

File Name : 07_SDG_60th_Imp AM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:30 AM			07:30 AM		
+0 mins.	42	43	85	**191**	117	**308**	21	**114**	**135**
+15 mins.	62	49	111	153	102	255	**34**	99	133
+30 mins.	**82**	49	**131**	169	112	281	28	76	104
+45 mins.	73	**52**	125	167	**127**	294	24	85	109
Total Volume	259	193	452	680	458	1138	107	374	481
% App. Total	57.3	42.7		59.8	40.2		22.2	77.8	
PHF	.790	.928	.863	.890	.902	.924	.787	.820	.891

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City of San Diego
N/S: 60th Street
E/W: Imperial Avenue
Weather: Clear

File Name : 07_SDG_60th_Imp PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 1

Groups Printed- Total Volume

	60th Street Southbound				Imperial Avenue Westbound				Imperial Avenue Eastbound					
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	66	23	2	89	93	93	14	186	17	176	193	16	468	484
04:15 PM	69	39	7	108	94	71	9	165	24	179	203	16	476	492
04:30 PM	96	25	4	121	101	70	8	171	15	146	161	12	453	465
04:45 PM	94	39	8	133	104	79	8	183	17	189	206	16	522	538
Total	325	126	21	451	392	313	39	705	73	690	763	60	1919	1979
05:00 PM	76	40	7	116	107	77	14	184	25	190	215	21	515	536
05:15 PM	85	44	9	129	83	83	10	166	21	163	184	19	479	498
05:30 PM	83	31	5	114	88	88	11	176	18	175	193	16	483	499
05:45 PM	77	29	2	106	143	95	9	238	15	139	154	11	498	509
Total	321	144	23	465	421	343	44	764	79	667	746	67	1975	2042
Grand Total	646	270	44	916	813	656	83	1469	152	1357	1509	127	3894	4021
Apprch %	70.5	29.5			55.3	44.7			10.1	89.9				
Total %	16.6	6.9		23.5	20.9	16.8		37.7	3.9	34.8	38.8	3.2	96.8	

	60th Street Southbound			Imperial Avenue Westbound			Imperial Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**94**	39	**133**	104	79	183	17	189	206	**522**
05:00 PM	76	40	116	**107**	77	**184**	**25**	**190**	**215**	515
05:15 PM	85	**44**	129	83	83	166	21	163	184	479
05:30 PM	83	31	114	88	**88**	176	18	175	193	483
Total Volume	338	154	492	382	327	709	81	717	798	1999
% App. Total	68.7	31.3		53.9	46.1		10.2	89.8		
PHF	.899	.875	.925	.893	.929	.963	.810	.943	.928	.957

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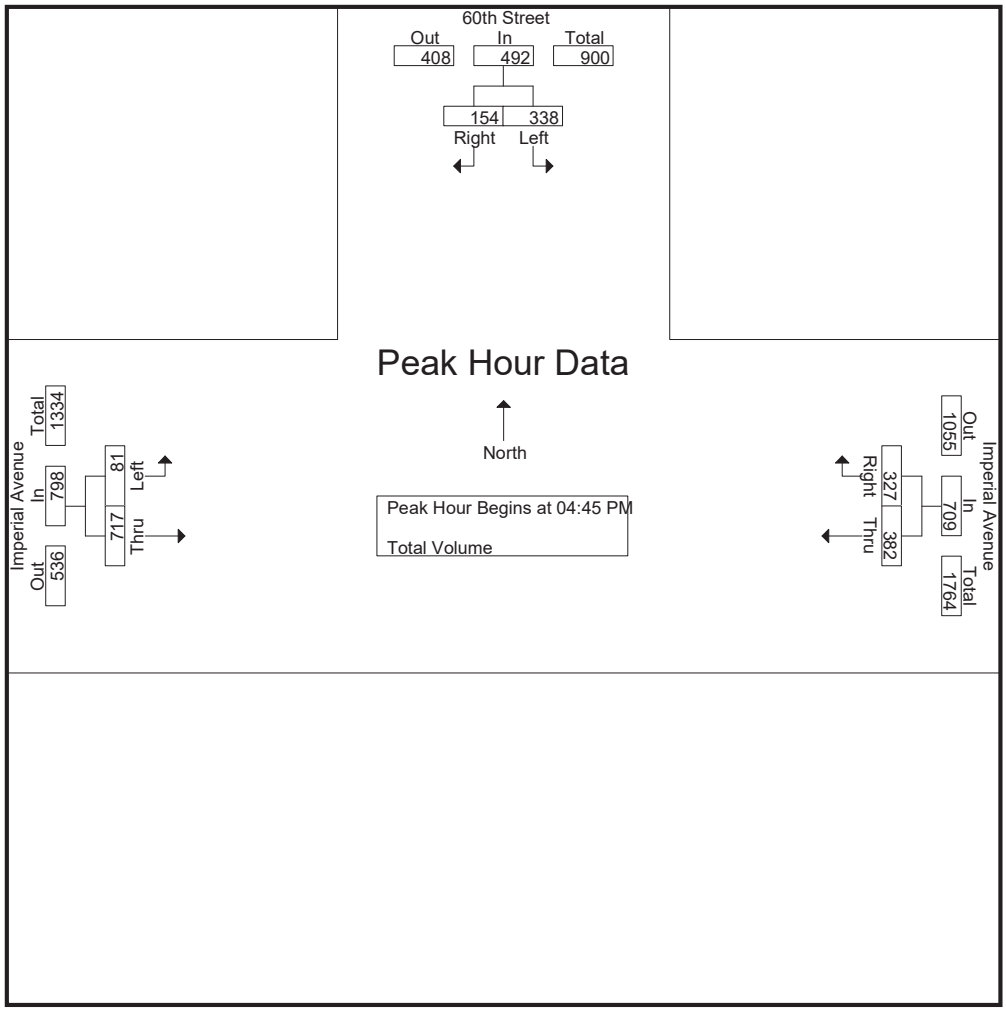
City of San Diego
N/S: 60th Street
E/W: Imperial Avenue
Weather: Clear

File Name : 07_SDG_60th_Imp PM
Site Code : 05124069
Start Date : 1/30/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			05:00 PM			04:45 PM		
+0 mins.	**96**	25	121	107	77	184	17	189	206
+15 mins.	94	39	**133**	83	83	166	**25**	**190**	**215**
+30 mins.	76	40	116	88	88	176	21	163	184
+45 mins.	85	**44**	129	**143**	**95**	**238**	18	175	193
Total Volume	351	148	499	421	343	764	81	717	798
% App. Total	70.3	29.7		55.1	44.9		10.2	89.8	
PHF	.914	.841	.938	.736	.903	.803	.810	.943	.928

Location: San Diego
N/S: 60th Street
E/W: Imperial Avenue

Date: 1/30/2024
Day: Tuesday

PEDESTRIANS

	North Leg 60th Street	East Leg Imperial Avenue	South Leg Dead End	West Leg Imperial Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	2	3
7:15 AM	0	0	0	2	2
7:30 AM	0	0	0	1	1
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	0	0	0	1	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	6	7

	North Leg 60th Street	East Leg Imperial Avenue	South Leg Dead End	West Leg Imperial Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	5	0	0	13	18
4:15 PM	2	0	0	2	4
4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	1	2
5:00 PM	0	0	0	1	1
5:15 PM	0	0	0	1	1
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	8	0	0	20	28

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951-268-0268

Location: San Diego
N/S: 60th Street
E/W: Imperial Avenue

Date: 1/30/2024
Day: Tuesday

BICYCLES

	Southbound 60th Street			Westbound Imperial Avenue			Northbound Dead End			Eastbound Imperial Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	2
7:45 AM	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	1	0	1
8:15 AM	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
8:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	0	2	0	3	0	0	0	0	0	2	0	7

	Southbound 60th Street			Westbound Imperial Avenue			Northbound Dead End			Eastbound Imperial Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:15 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
4:30 PM	0	0	1	0	0	0	0	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	1	0	0	0	0	0	1	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	1	0	0	0	1	0	0	2
TOTAL VOLUMES:	0	0	1	0	2	2	0	0	0	1	5	0	11

Counts Unlimited, Inc.

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Phone: (951) 268-6268
email: counts@countsunlimited.com

City of San Diego
60th Street
B/ Dipper Street - Upland Street
24 Hour Directional Volume Count

SDG001
Site Code: 051-24069

Start Time	1/30/24 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	40			6	49				
12:15		3	41			10	54				
12:30		2	44			4	36				
12:45		5	38	11	163	8	66	28	205	39	368
01:00		2	54			4	55				
01:15		3	46			7	53				
01:30		4	51			3	45				
01:45		1	52	10	203	8	61	22	214	32	417
02:00		6	44			7	73				
02:15		2	51			2	71				
02:30		4	46			4	72				
02:45		1	48	13	189	4	99	17	315	30	504
03:00		2	55			3	96				
03:15		3	**73**			4	92				
03:30		3	**56**			0	80				
03:45		9	**60**	17	244	4	86	11	354	28	598
04:00		6	**62**			4	92				
04:15		19	61			3	102				
04:30		24	47			5	**121**				
04:45		22	72	71	242	3	**108**	15	423	86	665
05:00		24	58			9	**112**				
05:15		35	65			2	**107**				
05:30		67	48			12	107				
05:45		44	59	170	230	8	99	31	425	201	655
06:00		53	47			9	80				
06:15		50	38			15	95				
06:30		53	39			17	83				
06:45		56	31	212	155	30	72	71	330	283	485
07:00		49	25			39	77				
07:15		58	33			**57**	56				
07:30		54	35			**48**	51				
07:45		65	18	226	111	**56**	38	200	222	426	333
08:00		**82**	31			**56**	41				
08:15		**70**	20			43	51				
08:30		**69**	25			48	40				
08:45		**66**	20	287	96	42	39	189	171	476	267
09:00		40	22			45	35				
09:15		49	20			39	32				
09:30		46	14			35	31				
09:45		54	9	189	65	36	32	155	130	344	195
10:00		33	20			35	33				
10:15		40	10			33	38				
10:30		47	12			50	22				
10:45		43	13	163	55	34	14	152	107	315	162
11:00		44	7			41	21				
11:15		28	10			48	17				
11:30		39	7			39	10				
11:45		55	6	166	30	46	12	174	60	340	90
Total		1535	1783	1535	1783	1065	2956	1065	2956	2600	4739
Combined Total		3318		3318		4021		4021		7339	
AM Peak	-	08:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	287	-	-	-	217	-	-	-	-	-
P.H.F.		0.875				0.952					
PM Peak	-	-	03:15	-	-	-	04:30	-	-	-	-
Vol.	-	-	251	-	-	-	448	-	-	-	-
P.H.F.			0.860				0.926				
Percentage		46.3%	53.7%			26.5%	73.5%				
ADT/AADT		ADT 7,339		AADT 7,339							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
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City of San Diego
Imperial Avenue
W/ 60th Street
24 Hour Directional Volume Count

SDG002
Site Code: 051-24069

Start Time	1/30/24 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		20	85			12	89				
12:15		21	78			11	93				
12:30		16	106			9	106				
12:45		11	111	68	380	14	111	46	399	114	779
01:00		18	119			6	109				
01:15		15	115			9	102				
01:30		9	108			5	114				
01:45		16	121	58	463	8	140	28	465	86	928
02:00		9	120			8	119				
02:15		8	126			6	111				
02:30		14	154			15	133				
02:45		11	144	42	544	21	123	50	486	92	1030
03:00		8	148			5	116				
03:15		11	142			17	129				
03:30		5	147			21	133				
03:45		5	208	29	645	24	154	67	532	96	1177
04:00		11	193			32	114				
04:15		11	203			35	126				
04:30		11	161			56	122				
04:45		10	**206**	43	763	50	135	173	497	216	1260
05:00		15	**215**			58	**140**				
05:15		18	**184**			83	**118**				
05:30		24	**193**			115	**114**				
05:45		33	154	90	746	104	**170**	360	542	450	1288
06:00		30	145			112	118				
06:15		36	157			120	111				
06:30		52	119			140	102				
06:45		63	111	181	532	147	106	519	437	700	969
07:00		75	111			204	87				
07:15		80	90			**225**	107				
07:30		**135**	126			**233**	84				
07:45		**133**	107	423	434	**191**	68	853	346	1276	780
08:00		**104**	112			**213**	85				
08:15		**109**	96			189	53				
08:30		103	84			151	62				
08:45		93	78	409	370	123	56	676	256	1085	626
09:00		116	69			143	52				
09:15		100	68			110	51				
09:30		87	79			106	38				
09:45		83	55	386	271	115	37	474	178	860	449
10:00		93	63			91	43				
10:15		114	47			106	42				
10:30		84	51			93	41				
10:45		105	53	396	214	88	28	378	154	774	368
11:00		88	44			95	29				
11:15		90	29			92	16				
11:30		101	32			120	12				
11:45		113	38	392	143	100	25	407	82	799	225
Total		2517	5505	2517	5505	4031	4374	4031	4374	6548	9879
Combined Total		8022		8022		8405		8405		16427	
AM Peak	-	07:30	-	-	-	07:15	-	-	-	-	-
Vol.	-	481	-	-	-	862	-	-	-	-	-
P.H.F.		0.891				0.925					
PM Peak	-	-	04:45	-	-	-	05:00	-	-	-	-
Vol.	-	-	798	-	-	-	542	-	-	-	-
P.H.F.			0.928				0.797				
Percentage		31.4%	68.6%			48.0%	52.0%				
ADT/AADT		ADT 16,427		AADT 16,427							

APPENDIX B: EXISTING (2024) INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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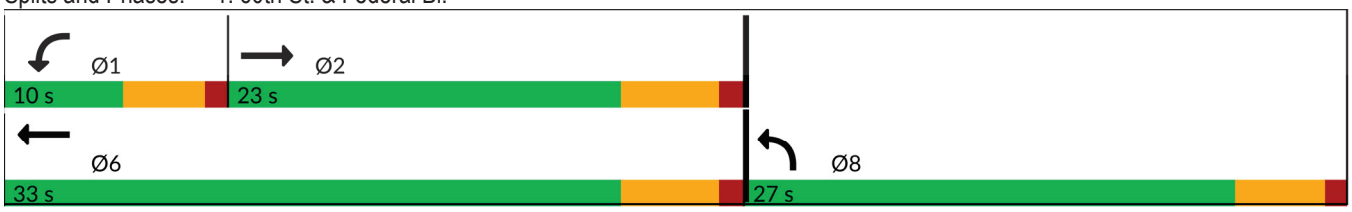
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	321	75	503	175
Future Volume (vph)	321	75	503	175
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	23.0	10.0	33.0	27.0
Total Split (%)	38.3%	16.7%	55.0%	45.0%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	12.5	5.7	17.6	14.7
Actuated g/C Ratio	0.29	0.13	0.40	0.34
v/c Ratio	0.47	0.34	0.36	0.67
Control Delay (s/veh)	12.2	27.1	9.8	15.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.2	27.1	9.8	15.4
LOS	B	C	A	B
Approach Delay (s/veh)	12.3		12.1	15.5
Approach LOS	B		B	B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 43.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 13.1	Intersection LOS: B
Intersection Capacity Utilization 55.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	321	156	75	503	175	245
Future Volume (veh/h)	321	156	75	503	175	245
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	338	152	79	529	184	165
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	629	277	133	1637	234	210
Arrive On Green	0.26	0.26	0.07	0.46	0.26	0.26
Sat Flow, veh/h	2475	1048	1781	3647	885	794
Grp Volume(v), veh/h	250	240	79	529	350	0
Grp Sat Flow(s),veh/h/ln	1777	1652	1781	1777	1683	0
Q Serve(g_s), s	4.6	4.7	1.6	3.6	7.3	0.0
Cycle Q Clear(g_c), s	4.6	4.7	1.6	3.6	7.3	0.0
Prop In Lane		0.63	1.00		0.53	0.47
Lane Grp Cap(c), veh/h	469	436	133	1637	445	0
V/C Ratio(X)	0.53	0.55	0.59	0.32	0.79	0.00
Avail Cap(c_a), veh/h	828	770	255	2596	980	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.9	12.0	16.9	6.5	12.9	0.0
Incr Delay (d2), s/veh	0.9	1.1	1.6	0.1	3.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.4	0.6	0.7	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.8	13.0	18.5	6.6	16.0	0.0
LnGrp LOS	B	B	B	A	B	
Approach Vol, veh/h	490			608	350	
Approach Delay, s/veh	12.9			8.1	16.0	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.4	15.4				22.8	15.0
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	5.4	17.6				27.6	22.0
Max Q Clear Time (g_c+I1), s	3.6	6.7				5.6	9.3
Green Ext Time (p_c), s	0.0	2.1				3.3	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	11.7
HCM 7th LOS	B

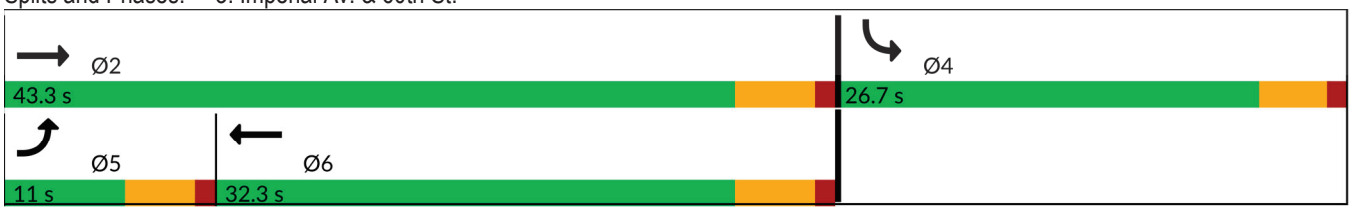
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	107	374	660	257
Future Volume (vph)	107	374	660	257
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	11.0	43.3	32.3	26.7
Total Split (%)	15.7%	61.9%	46.1%	38.1%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	6.5	32.5	24.5	19.4
Actuated g/C Ratio	0.10	0.52	0.39	0.31
v/c Ratio	0.62	0.21	0.81	0.82
Control Delay (s/veh)	48.8	8.3	19.2	33.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.8	8.3	19.2	33.6
LOS	D	A	B	C
Approach Delay (s/veh)		17.3	19.3	33.6
Approach LOS		B	B	C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 62.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 21.9	Intersection LOS: C
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	107	374	660	458	257	177
Future Volume (veh/h)	107	374	660	458	257	177
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	402	710	468	276	157
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	147	1982	820	537	311	177
Arrive On Green	0.08	0.56	0.40	0.40	0.29	0.29
Sat Flow, veh/h	1781	3647	2131	1336	1084	617
Grp Volume(v), veh/h	115	402	619	559	434	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1596	1704	0
Q Serve(g_s), s	4.0	3.6	20.1	20.3	15.4	0.0
Cycle Q Clear(g_c), s	4.0	3.6	20.1	20.3	15.4	0.0
Prop In Lane	1.00			0.84	0.64	0.36
Lane Grp Cap(c), veh/h	147	1982	715	642	489	0
V/C Ratio(X)	0.78	0.20	0.87	0.87	0.89	0.00
Avail Cap(c_a), veh/h	181	2148	764	686	597	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.4	7.0	17.3	17.3	21.5	0.0
Incr Delay (d2), s/veh	12.9	0.0	9.8	11.3	13.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.1	8.9	8.3	7.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	41.3	7.0	27.1	28.6	34.7	0.0
LnGrp LOS	D	A	C	C	C	
Approach Vol, veh/h		517	1178		434	
Approach Delay, s/veh		14.6	27.8		34.7	
Approach LOS		B	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.4		22.7	9.8	30.6
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		38.1		22.1	6.4	27.1
Max Q Clear Time (g_c+I1), s		5.6		17.4	6.0	22.3
Green Ext Time (p_c), s		2.7		0.7	0.0	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	26.0
HCM 7th LOS	C

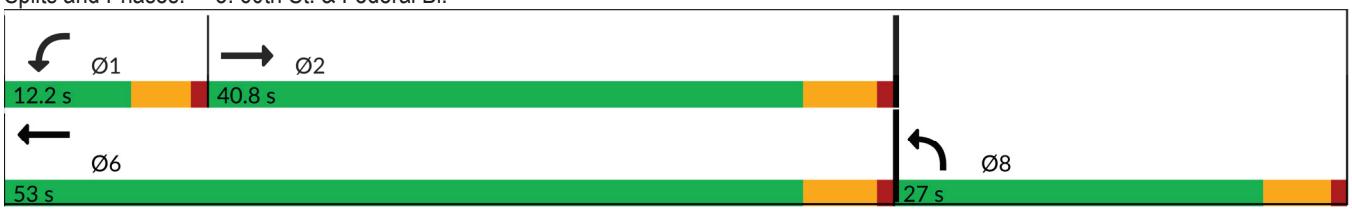
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	995	132	464	193
Future Volume (vph)	995	132	464	193
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	40.8	12.2	53.0	27.0
Total Split (%)	51.0%	15.3%	66.3%	33.8%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	34.5	7.5	46.7	17.3
Actuated g/C Ratio	0.46	0.10	0.63	0.23
v/c Ratio	0.90	0.76	0.21	0.77
Control Delay (s/veh)	27.5	63.2	6.8	36.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.5	63.2	6.8	36.4
LOS	C	E	A	D
Approach Delay (s/veh)	27.6		19.3	36.4
Approach LOS	C		B	D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 74.4	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay (s/veh): 26.7	Intersection LOS: C
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	995	431	132	464	193	128
Future Volume (veh/h)	995	431	132	464	193	128
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1026	388	136	478	199	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1201	448	171	2266	233	125
Arrive On Green	0.47	0.47	0.10	0.64	0.21	0.21
Sat Flow, veh/h	2626	945	1781	3647	1107	595
Grp Volume(v), veh/h	716	698	136	478	307	0
Grp Sat Flow(s),veh/h/ln	1777	1700	1781	1777	1708	0
Q Serve(g_s), s	24.3	25.1	5.1	3.9	11.9	0.0
Cycle Q Clear(g_c), s	24.3	25.1	5.1	3.9	11.9	0.0
Prop In Lane		0.56	1.00		0.65	0.35
Lane Grp Cap(c), veh/h	843	806	171	2266	360	0
V/C Ratio(X)	0.85	0.87	0.79	0.21	0.85	0.00
Avail Cap(c_a), veh/h	918	879	198	2469	548	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.9	16.1	30.3	5.2	26.0	0.0
Incr Delay (d2), s/veh	7.2	8.6	14.9	0.0	8.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	9.8	2.7	1.0	5.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	23.0	24.6	45.1	5.2	34.1	0.0
LnGrp LOS	C	C	D	A	C	
Approach Vol, veh/h	1414			614	307	
Approach Delay, s/veh	23.8			14.1	34.1	
Approach LOS	C			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.2	37.9				49.1	19.4
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	7.6	35.4				47.6	22.0
Max Q Clear Time (g_c+I1), s	7.1	27.1				5.9	13.9
Green Ext Time (p_c), s	0.0	5.4				3.3	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	22.6
HCM 7th LOS	C

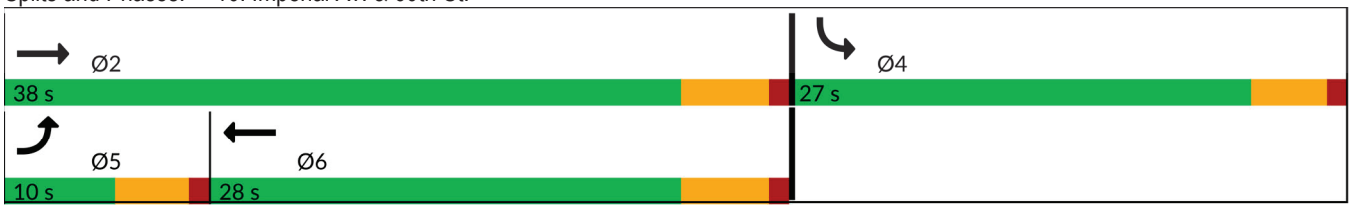
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	81	717	382	338
Future Volume (vph)	81	717	382	338
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	10.0	38.0	28.0	27.0
Total Split (%)	15.4%	58.5%	43.1%	41.5%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	5.6	22.5	15.1	18.9
Actuated g/C Ratio	0.11	0.43	0.29	0.36
v/c Ratio	0.43	0.48	0.61	0.78
Control Delay (s/veh)	35.4	11.6	11.4	26.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.4	11.6	11.4	26.2
LOS	D	B	B	C
Approach Delay (s/veh)		14.1	11.5	26.2
Approach LOS		B	B	C

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 51.9	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay (s/veh): 16.1	Intersection LOS: B
Intersection Capacity Utilization 65.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	717	382	327	338	154
Future Volume (veh/h)	81	717	382	327	338	154
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	747	398	296	352	130
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	125	1654	577	424	414	153
Arrive On Green	0.07	0.47	0.30	0.30	0.33	0.33
Sat Flow, veh/h	1781	3647	2026	1420	1255	464
Grp Volume(v), veh/h	84	747	366	328	483	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1576	1722	0
Q Serve(g_s), s	2.2	6.8	8.7	8.8	12.5	0.0
Cycle Q Clear(g_c), s	2.2	6.8	8.7	8.8	12.5	0.0
Prop In Lane	1.00			0.90	0.73	0.27
Lane Grp Cap(c), veh/h	125	1654	531	471	568	0
V/C Ratio(X)	0.67	0.45	0.69	0.70	0.85	0.00
Avail Cap(c_a), veh/h	201	2438	847	751	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.7	8.7	14.8	14.8	14.9	0.0
Incr Delay (d2), s/veh	2.3	0.2	1.6	1.9	6.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	3.1	2.8	5.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	24.0	8.8	16.4	16.7	21.1	0.0
LnGrp LOS	C	A	B	B	C	
Approach Vol, veh/h		831	694		483	
Approach Delay, s/veh		10.4	16.6		21.1	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		27.4		20.4	8.0	19.5
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		32.8		22.4	5.4	22.8
Max Q Clear Time (g_c+I1), s		8.8		14.5	4.2	10.8
Green Ext Time (p_c), s		5.3		1.1	0.0	3.4

Intersection Summary	
HCM 7th Control Delay, s/veh	15.1
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX C: OPENING YEAR (2028) WITHOUT PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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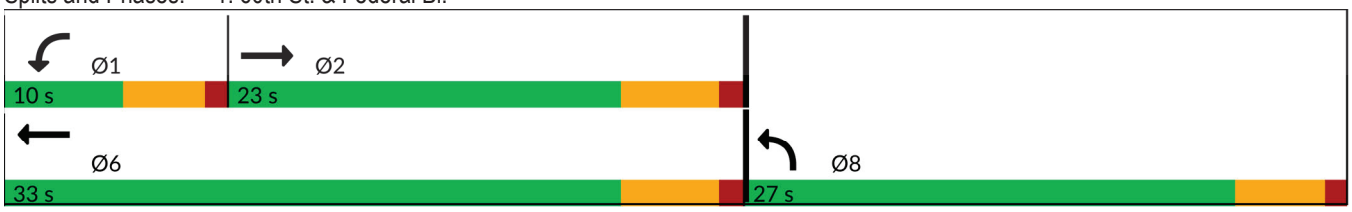
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	327	78	513	186
Future Volume (vph)	327	78	513	186
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	23.0	10.0	33.0	27.0
Total Split (%)	38.3%	16.7%	55.0%	45.0%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	12.6	5.7	17.7	15.4
Actuated g/C Ratio	0.28	0.13	0.40	0.35
v/c Ratio	0.48	0.36	0.38	0.69
Control Delay (s/veh)	12.6	28.3	10.2	16.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.6	28.3	10.2	16.1
LOS	B	C	B	B
Approach Delay (s/veh)	12.6		12.7	16.1
Approach LOS	B		B	B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 44.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay (s/veh): 13.7	Intersection LOS: B
Intersection Capacity Utilization 57.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	327	161	78	513	186	254
Future Volume (veh/h)	327	161	78	513	186	254
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	157	82	540	196	174
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	613	274	135	1613	246	219
Arrive On Green	0.26	0.26	0.08	0.45	0.28	0.28
Sat Flow, veh/h	2462	1058	1781	3647	890	790
Grp Volume(v), veh/h	256	245	82	540	371	0
Grp Sat Flow(s),veh/h/ln	1777	1650	1781	1777	1684	0
Q Serve(g_s), s	4.8	5.0	1.7	3.8	7.9	0.0
Cycle Q Clear(g_c), s	4.8	5.0	1.7	3.8	7.9	0.0
Prop In Lane		0.64	1.00		0.53	0.47
Lane Grp Cap(c), veh/h	460	427	135	1613	466	0
V/C Ratio(X)	0.56	0.57	0.61	0.33	0.80	0.00
Avail Cap(c_a), veh/h	810	752	249	2541	960	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.4	12.4	17.3	6.8	12.9	0.0
Incr Delay (d2), s/veh	1.1	1.2	1.6	0.1	3.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	0.6	0.8	2.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.4	13.7	18.9	6.9	16.1	0.0
LnGrp LOS	B	B	B	A	B	
Approach Vol, veh/h	501			622	371	
Approach Delay, s/veh	13.5			8.5	16.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.5	15.4				22.9	15.7
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	5.4	17.6				27.6	22.0
Max Q Clear Time (g_c+I1), s	3.7	7.0				5.8	9.9
Green Ext Time (p_c), s	0.0	2.1				3.4	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.1
HCM 7th LOS	B

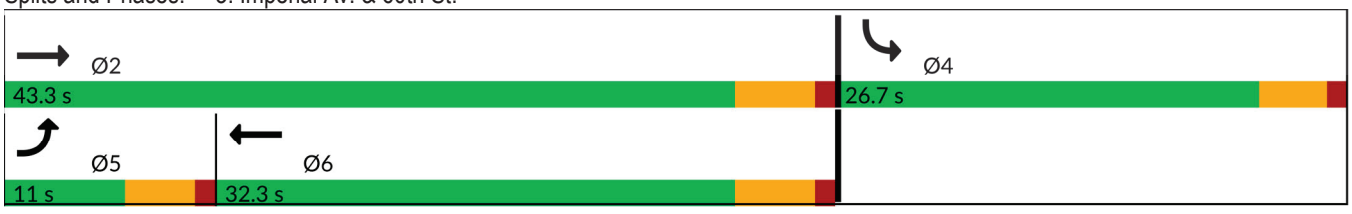
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	109	405	687	265
Future Volume (vph)	109	405	687	265
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	11.0	43.3	32.3	26.7
Total Split (%)	15.7%	61.9%	46.1%	38.1%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	6.5	33.2	25.2	19.9
Actuated g/C Ratio	0.10	0.52	0.40	0.31
v/c Ratio	0.65	0.23	0.84	0.84
Control Delay (s/veh)	50.7	8.5	20.9	35.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	50.7	8.5	20.9	35.6
LOS	D	A	C	D
Approach Delay (s/veh)		17.5	21.0	35.6
Approach LOS		B	C	D

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 63.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay (s/veh): 23.2	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	109	405	687	478	265	181
Future Volume (veh/h)	109	405	687	478	265	181
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	435	739	490	285	162
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	149	1981	821	539	317	180
Arrive On Green	0.08	0.56	0.40	0.40	0.29	0.29
Sat Flow, veh/h	1781	3647	2129	1338	1084	616
Grp Volume(v), veh/h	117	435	644	585	448	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1596	1704	0
Q Serve(g_s), s	4.2	4.0	22.2	22.5	16.5	0.0
Cycle Q Clear(g_c), s	4.2	4.0	22.2	22.5	16.5	0.0
Prop In Lane	1.00			0.84	0.64	0.36
Lane Grp Cap(c), veh/h	149	1981	717	644	498	0
V/C Ratio(X)	0.78	0.22	0.90	0.91	0.90	0.00
Avail Cap(c_a), veh/h	175	2074	738	662	577	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.3	7.3	18.2	18.3	22.2	0.0
Incr Delay (d2), s/veh	15.0	0.1	13.8	16.2	15.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.2	10.5	10.0	8.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	44.3	7.3	32.0	34.6	37.7	0.0
LnGrp LOS	D	A	C	C	D	
Approach Vol, veh/h		552	1229		448	
Approach Delay, s/veh		15.2	33.2		37.7	
Approach LOS		B	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.6		23.7	10.1	31.5
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		38.1		22.1	6.4	27.1
Max Q Clear Time (g_c+I1), s		6.0		18.5	6.2	24.5
Green Ext Time (p_c), s		3.0		0.6	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	29.7
HCM 7th LOS	C

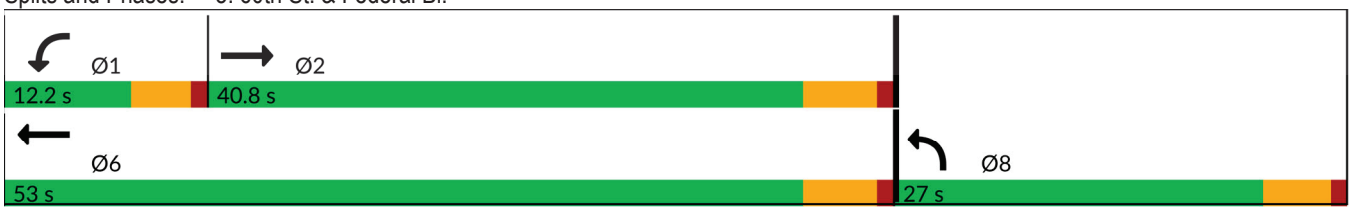
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1015	139	473	200
Future Volume (vph)	1015	139	473	200
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	40.8	12.2	53.0	27.0
Total Split (%)	51.0%	15.3%	66.3%	33.8%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	35.2	7.6	47.4	17.7
Actuated g/C Ratio	0.47	0.10	0.63	0.23
v/c Ratio	0.92	0.80	0.21	0.79
Control Delay (s/veh)	29.8	68.5	6.9	38.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	29.8	68.5	6.9	38.0
LOS	C	E	A	D
Approach Delay (s/veh)	29.9		20.9	38.1
Approach LOS	C		C	D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 75.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay (s/veh): 28.7	Intersection LOS: C
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1015	448	139	473	200	133
Future Volume (veh/h)	1015	448	139	473	200	133
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1046	406	143	488	206	112
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1188	454	179	2266	238	130
Arrive On Green	0.47	0.47	0.10	0.64	0.22	0.22
Sat Flow, veh/h	2608	960	1781	3647	1103	599
Grp Volume(v), veh/h	734	718	143	488	319	0
Grp Sat Flow(s),veh/h/ln	1777	1697	1781	1777	1707	0
Q Serve(g_s), s	26.4	27.5	5.6	4.1	12.8	0.0
Cycle Q Clear(g_c), s	26.4	27.5	5.6	4.1	12.8	0.0
Prop In Lane		0.57	1.00		0.65	0.35
Lane Grp Cap(c), veh/h	840	802	179	2266	369	0
V/C Ratio(X)	0.87	0.89	0.80	0.22	0.86	0.00
Avail Cap(c_a), veh/h	883	844	190	2375	527	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.9	17.1	31.3	5.4	26.9	0.0
Incr Delay (d2), s/veh	9.4	11.7	18.3	0.0	10.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	11.4	3.2	1.1	6.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.3	28.8	49.6	5.5	37.0	0.0
LnGrp LOS	C	C	D	A	D	
Approach Vol, veh/h	1452			631	319	
Approach Delay, s/veh	27.5			15.5	37.0	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.7	39.1				50.8	20.4
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	7.6	35.4				47.6	22.0
Max Q Clear Time (g_c+I1), s	7.6	29.5				6.1	14.8
Green Ext Time (p_c), s	0.0	4.2				3.3	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	25.6
HCM 7th LOS	C

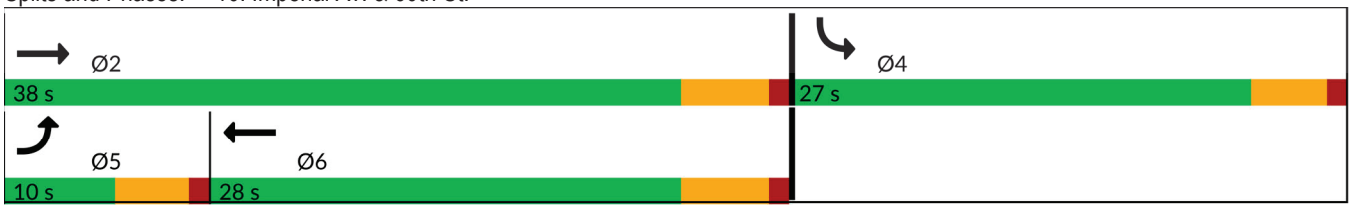
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	83	751	418	357
Future Volume (vph)	83	751	418	357
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	10.0	38.0	28.0	27.0
Total Split (%)	15.4%	58.5%	43.1%	41.5%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	5.6	23.5	16.2	19.9
Actuated g/C Ratio	0.10	0.44	0.30	0.37
v/c Ratio	0.46	0.50	0.64	0.81
Control Delay (s/veh)	37.4	12.0	12.1	28.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	12.0	12.1	28.4
LOS	D	B	B	C
Approach Delay (s/veh)		14.5	12.2	28.5
Approach LOS		B	B	C

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 53.8	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay (s/veh): 17.1	Intersection LOS: B
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	751	418	339	357	157
Future Volume (veh/h)	83	751	418	339	357	157
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	782	435	308	372	134
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	124	1661	606	426	428	154
Arrive On Green	0.07	0.47	0.31	0.31	0.34	0.34
Sat Flow, veh/h	1781	3647	2067	1386	1264	455
Grp Volume(v), veh/h	86	782	391	352	507	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1583	1723	0
Q Serve(g_s), s	2.4	7.6	9.9	10.0	13.9	0.0
Cycle Q Clear(g_c), s	2.4	7.6	9.9	10.0	13.9	0.0
Prop In Lane	1.00			0.88	0.73	0.26
Lane Grp Cap(c), veh/h	124	1661	545	486	584	0
V/C Ratio(X)	0.70	0.47	0.72	0.72	0.87	0.00
Avail Cap(c_a), veh/h	190	2307	802	714	764	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.0	9.2	15.6	15.6	15.7	0.0
Incr Delay (d2), s/veh	2.6	0.2	1.8	2.1	8.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	3.6	3.3	6.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	25.6	9.4	17.4	17.7	24.1	0.0
LnGrp LOS	C	A	B	B	C	
Approach Vol, veh/h		868	743		507	
Approach Delay, s/veh		11.0	17.5		24.1	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.8		21.7	8.1	20.7
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		32.8		22.4	5.4	22.8
Max Q Clear Time (g_c+I1), s		9.6		15.9	4.4	12.0
Green Ext Time (p_c), s		5.5		1.1	0.0	3.5

Intersection Summary	
HCM 7th Control Delay, s/veh	16.4
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX D: OPENING YEAR (2028) WITH PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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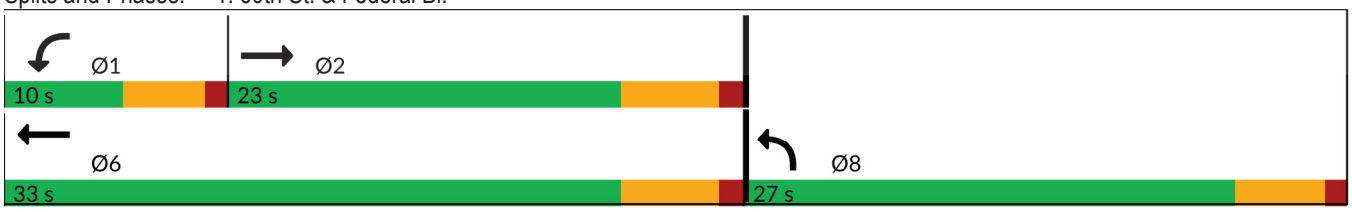
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	327	80	513	210
Future Volume (vph)	327	80	513	210
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	23.0	10.0	33.0	27.0
Total Split (%)	38.3%	16.7%	55.0%	45.0%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	12.7	5.7	17.8	16.6
Actuated g/C Ratio	0.28	0.13	0.39	0.36
v/c Ratio	0.49	0.38	0.39	0.72
Control Delay (s/veh)	12.9	29.8	10.9	17.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.9	29.8	10.9	17.8
LOS	B	C	B	B
Approach Delay (s/veh)	12.9		13.5	17.8
Approach LOS	B		B	B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 45.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 14.6	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	327	167	80	513	210	262
Future Volume (veh/h)	327	167	80	513	210	262
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	164	84	540	221	183
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	586	273	135	1573	273	226
Arrive On Green	0.25	0.25	0.08	0.44	0.30	0.30
Sat Flow, veh/h	2426	1088	1781	3647	921	762
Grp Volume(v), veh/h	260	248	84	540	405	0
Grp Sat Flow(s),veh/h/ln	1777	1644	1781	1777	1687	0
Q Serve(g_s), s	5.1	5.3	1.8	4.0	8.9	0.0
Cycle Q Clear(g_c), s	5.1	5.3	1.8	4.0	8.9	0.0
Prop In Lane		0.66	1.00		0.55	0.45
Lane Grp Cap(c), veh/h	446	413	135	1573	499	0
V/C Ratio(X)	0.58	0.60	0.62	0.34	0.81	0.00
Avail Cap(c_a), veh/h	785	727	242	2463	932	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.1	13.1	17.8	7.3	13.0	0.0
Incr Delay (d2), s/veh	1.2	1.4	1.7	0.1	3.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.6	0.7	0.9	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.3	14.5	19.6	7.4	16.2	0.0
LnGrp LOS	B	B	B	A	B	
Approach Vol, veh/h	508			624	405	
Approach Delay, s/veh	14.4			9.1	16.2	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.6	15.4				23.0	16.8
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	5.4	17.6				27.6	22.0
Max Q Clear Time (g_c+I1), s	3.8	7.3				6.0	10.9
Green Ext Time (p_c), s	0.0	2.1				3.4	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	12.7
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	39	10	304	212	8
Future Vol, veh/h	32	39	10	304	212	8
Conflicting Peds, #/hr	0	2	0	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	42	11	330	230	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	588	238	240	0	-	0
Stage 1	236	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	471	801	1327	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	466	799	1325	-	-	-
Mov Cap-2 Maneuver	466	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	711	-	-	-	-	-

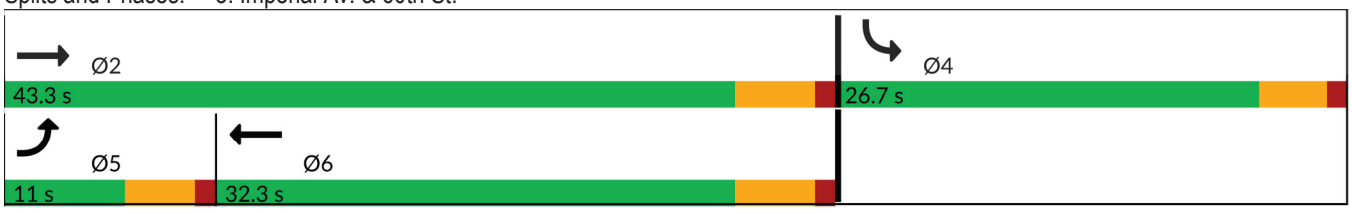
Approach	EB	NB	SB
HCM Control Delay, s/v	11.83	0.25	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	57	-	604	-	-
HCM Lane V/C Ratio	0.008	-	0.128	-	-
HCM Control Delay (s/veh)	7.7	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	112	405	687	286
Future Volume (vph)	112	405	687	286
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	11.0	43.3	32.3	26.7
Total Split (%)	15.7%	61.9%	46.1%	38.1%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	6.4	34.2	26.0	21.3
Actuated g/C Ratio	0.10	0.52	0.40	0.33
v/c Ratio	0.69	0.23	0.84	0.88
Control Delay (s/veh)	54.8	8.7	21.3	39.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.8	8.7	21.3	39.9
LOS	D	A	C	D
Approach Delay (s/veh)		18.7	21.4	40.0
Approach LOS		B	C	D

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 65.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay (s/veh): 24.9	Intersection LOS: C
Intersection Capacity Utilization 80.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	112	405	687	483	286	194
Future Volume (veh/h)	112	405	687	483	286	194
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	435	739	495	308	176
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	152	1945	799	530	334	191
Arrive On Green	0.09	0.55	0.39	0.39	0.31	0.31
Sat Flow, veh/h	1781	3647	2120	1345	1082	618
Grp Volume(v), veh/h	120	435	647	587	485	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1594	1704	0
Q Serve(g_s), s	4.5	4.3	23.6	24.0	18.7	0.0
Cycle Q Clear(g_c), s	4.5	4.3	23.6	24.0	18.7	0.0
Prop In Lane	1.00			0.84	0.64	0.36
Lane Grp Cap(c), veh/h	152	1945	700	628	526	0
V/C Ratio(X)	0.79	0.22	0.92	0.93	0.92	0.00
Avail Cap(c_a), veh/h	168	1990	708	635	553	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	7.9	19.6	19.8	22.7	0.0
Incr Delay (d2), s/veh	17.6	0.1	17.8	21.0	20.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.4	12.0	11.4	10.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	48.2	8.0	37.5	40.7	43.2	0.0
LnGrp LOS	D	A	D	D	D	
Approach Vol, veh/h		555	1234		485	
Approach Delay, s/veh		16.7	39.0		43.2	
Approach LOS		B	D		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		42.4		25.6	10.4	32.0
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		38.1		22.1	6.4	27.1
Max Q Clear Time (g_c+I1), s		6.3		20.7	6.5	26.0
Green Ext Time (p_c), s		3.0		0.3	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	34.5
HCM 7th LOS	C

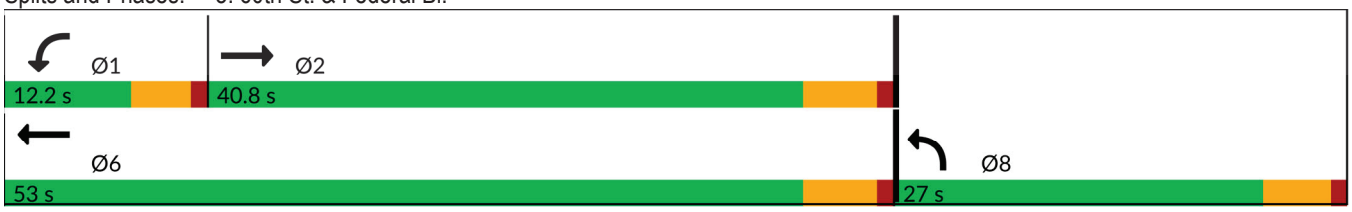
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBT	WBL	WBT	NBL
Lane Configurations				
Traffic Volume (vph)	1015	147	473	211
Future Volume (vph)	1015	147	473	211
Turn Type	NA	Prot	NA	Prot
Protected Phases	2	1	6	8
Permitted Phases				
Detector Phase	2	1	6	8
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.4	9.6	15.4	27.0
Total Split (s)	40.8	12.2	53.0	27.0
Total Split (%)	51.0%	15.3%	66.3%	33.8%
Yellow Time (s)	4.4	3.6	4.4	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	4.6	5.4	5.0
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	None
Act Effct Green (s)	35.5	7.6	47.7	18.3
Actuated g/C Ratio	0.46	0.10	0.62	0.24
v/c Ratio	0.94	0.86	0.22	0.81
Control Delay (s/veh)	32.3	78.0	7.0	39.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.3	78.0	7.0	39.9
LOS	C	E	A	D
Approach Delay (s/veh)	32.3		23.9	39.9
Approach LOS	C		C	D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 76.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay (s/veh): 31.3	Intersection LOS: C
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: 60th St. & Federal Bl.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1015	474	147	473	211	137
Future Volume (veh/h)	1015	474	147	473	211	137
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1046	433	152	488	218	116
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1156	470	184	2255	249	133
Arrive On Green	0.47	0.47	0.10	0.63	0.22	0.22
Sat Flow, veh/h	2559	1001	1781	3647	1112	592
Grp Volume(v), veh/h	748	731	152	488	335	0
Grp Sat Flow(s),veh/h/ln	1777	1690	1781	1777	1708	0
Q Serve(g_s), s	28.4	29.8	6.2	4.3	13.9	0.0
Cycle Q Clear(g_c), s	28.4	29.8	6.2	4.3	13.9	0.0
Prop In Lane		0.59	1.00		0.65	0.35
Lane Grp Cap(c), veh/h	833	793	184	2255	383	0
V/C Ratio(X)	0.90	0.92	0.83	0.22	0.88	0.00
Avail Cap(c_a), veh/h	854	813	184	2298	510	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.9	18.3	32.4	5.7	27.6	0.0
Incr Delay (d2), s/veh	12.1	15.6	24.2	0.0	12.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	13.1	3.7	1.2	6.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	30.1	33.9	56.6	5.7	40.0	0.0
LnGrp LOS	C	C	E	A	D	
Approach Vol, veh/h	1479			640	335	
Approach Delay, s/veh	32.0			17.8	40.0	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.2	39.9				52.1	21.5
Change Period (Y+Rc), s	4.6	5.4				5.4	5.0
Max Green Setting (Gmax), s	7.6	35.4				47.6	22.0
Max Q Clear Time (g_c+I1), s	8.2	31.8				6.3	15.9
Green Ext Time (p_c), s	0.0	2.7				3.3	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	29.4
HCM 7th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	42	252	475	35
Future Vol, veh/h	15	18	42	252	475	35
Conflicting Peds, #/hr	0	5	0	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	20	46	274	516	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	906	545	559	0	-	0
Stage 1	540	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	307	538	1012	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	288	533	1007	-	-	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	699	-	-	-	-	-

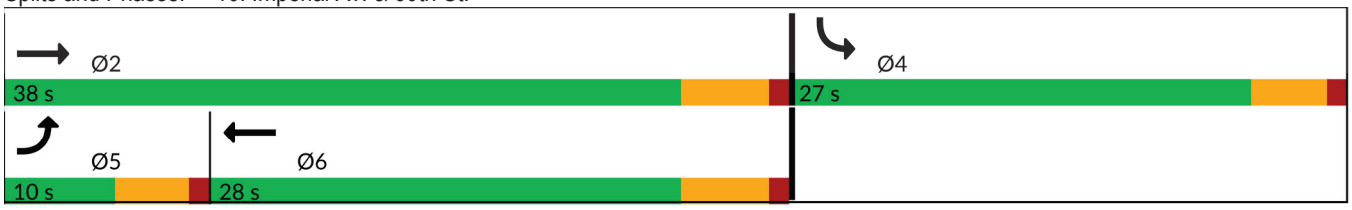
Approach	EB	NB	SB
HCM Control Delay, s/v	15.34	1.25	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	257	-	384	-	-
HCM Lane V/C Ratio	0.045	-	0.093	-	-
HCM Control Delay (s/veh)	8.7	0	15.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	97	751	418	367
Future Volume (vph)	97	751	418	367
Turn Type	Prot	NA	NA	Prot
Protected Phases	5	2	6	4
Permitted Phases				
Detector Phase	5	2	6	4
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.2	27.2	26.6
Total Split (s)	10.0	38.0	28.0	27.0
Total Split (%)	15.4%	58.5%	43.1%	41.5%
Yellow Time (s)	3.6	4.2	4.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.2	5.2	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	None	None	None
Act Effct Green (s)	5.6	23.8	16.4	20.4
Actuated g/C Ratio	0.10	0.44	0.30	0.37
v/c Ratio	0.55	0.50	0.65	0.83
Control Delay (s/veh)	42.2	12.1	12.0	29.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.2	12.1	12.0	29.6
LOS	D	B	B	C
Approach Delay (s/veh)		15.6	12.1	29.6
Approach LOS		B	B	C

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 54.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay (s/veh): 17.8	Intersection LOS: B
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: Imperial Av. & 60th St.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	97	751	418	361	367	163
Future Volume (veh/h)	97	751	418	361	367	163
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	782	435	331	382	140
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	130	1670	590	446	433	159
Arrive On Green	0.07	0.47	0.31	0.31	0.34	0.34
Sat Flow, veh/h	1781	3647	2000	1441	1258	461
Grp Volume(v), veh/h	101	782	405	361	523	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1571	1723	0
Q Serve(g_s), s	2.9	7.9	10.8	10.9	15.1	0.0
Cycle Q Clear(g_c), s	2.9	7.9	10.8	10.9	15.1	0.0
Prop In Lane	1.00			0.92	0.73	0.27
Lane Grp Cap(c), veh/h	130	1670	550	486	593	0
V/C Ratio(X)	0.77	0.47	0.74	0.74	0.88	0.00
Avail Cap(c_a), veh/h	182	2211	768	680	732	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.0	9.5	16.3	16.3	16.3	0.0
Incr Delay (d2), s/veh	7.9	0.2	2.3	2.8	10.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.4	4.0	3.7	6.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	31.9	9.7	18.6	19.1	26.7	0.0
LnGrp LOS	C	A	B	B	C	
Approach Vol, veh/h		883	766		523	
Approach Delay, s/veh		12.2	18.8		26.7	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		30.0		22.8	8.5	21.5
Change Period (Y+Rc), s		5.2		4.6	4.6	5.2
Max Green Setting (Gmax), s		32.8		22.4	5.4	22.8
Max Q Clear Time (g_c+I1), s		9.9		17.1	4.9	12.9
Green Ext Time (p_c), s		5.5		1.0	0.0	3.4

Intersection Summary	
HCM 7th Control Delay, s/veh	18.1
HCM 7th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX E: QUEUING ANALYSIS WORKSHEETS

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Intersection: 3: Imperial Av. & 60th St.

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	118	211	168	332	351	360
Average Queue (ft)	67	88	50	177	194	177
95th Queue (ft)	113	164	119	296	337	301
Link Distance (ft)		841	841	363	363	623
Upstream Blk Time (%)				2	2	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)	70					
Storage Blk Time (%)	13	10				
Queuing Penalty (veh)	26	10				

Intersection: 3: Imperial Av. & 60th St.

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	119	215	187	187	223	327
Average Queue (ft)	55	112	74	102	100	177
95th Queue (ft)	101	175	137	164	178	283
Link Distance (ft)		841	841	363	363	623
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	70					
Storage Blk Time (%)	6	17				
Queuing Penalty (veh)	22	14				

Intersection: 2: 60th St. & Driveway

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	70	35	2
Average Queue (ft)	30	2	0
95th Queue (ft)	53	17	2
Link Distance (ft)	501	197	349
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Imperial Av. & 60th St.

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	114	212	156	343	371	424
Average Queue (ft)	69	89	49	173	203	217
95th Queue (ft)	114	168	116	284	342	383
Link Distance (ft)		841	841	363	363	623
Upstream Blk Time (%)				1	1	0
Queuing Penalty (veh)				0	0	0
Storage Bay Dist (ft)	70					
Storage Blk Time (%)	17	9				
Queuing Penalty (veh)	35	10				

Intersection: 2: 60th St. & Driveway

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	45	78	12
Average Queue (ft)	19	20	0
95th Queue (ft)	43	59	7
Link Distance (ft)	501	197	349
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Imperial Av. & 60th St.

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	118	242	206	201	213	365
Average Queue (ft)	63	116	77	105	104	197
95th Queue (ft)	111	191	152	167	182	321
Link Distance (ft)		841	841	363	363	623
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	70					
Storage Blk Time (%)	11	16				
Queuing Penalty (veh)	42	15				

APPENDIX F: INTERSECTION SIGHT DISTANCE

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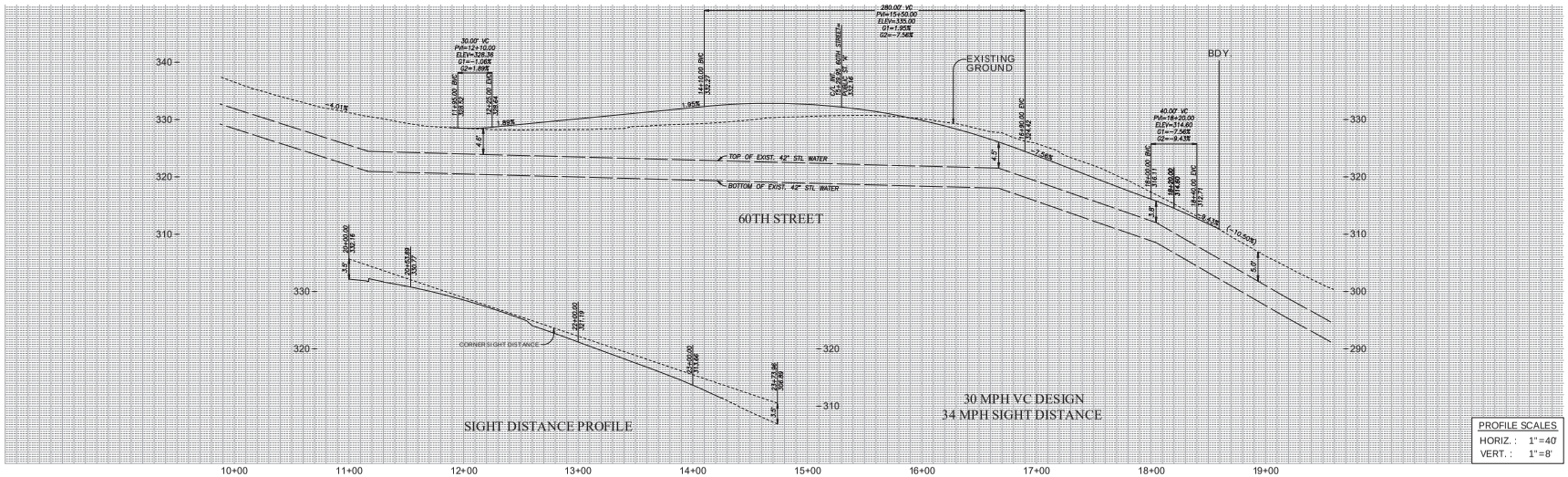

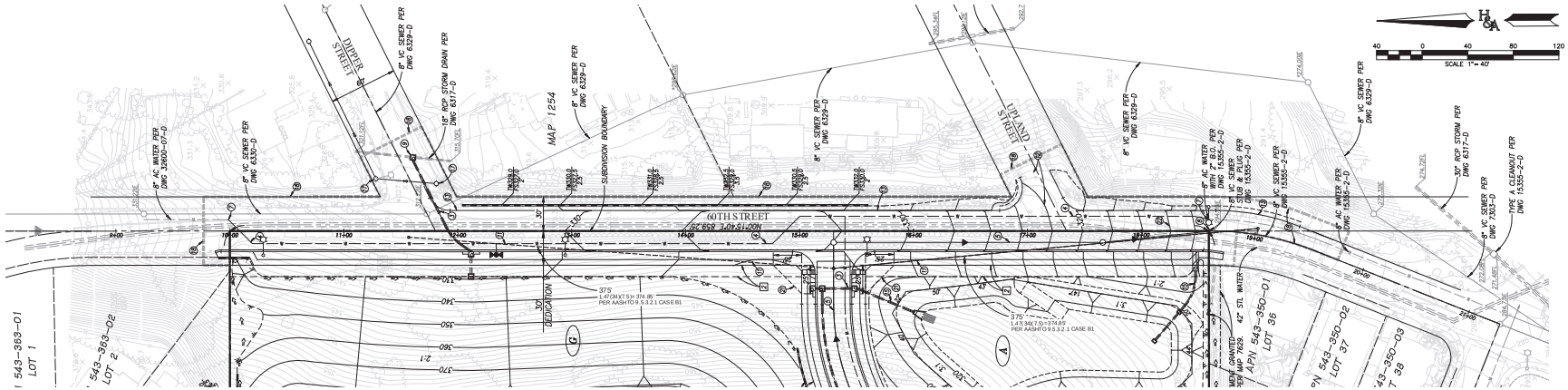

60TH STREET

DESIGN NOTES

1. REMOVE EX. MANHOLE & RELOCATE
2. 24' CONCRETE EVA DRIVEWAY
3. RCP STORM DRAIN PUBLIC
4. 8" PVC WATER PUBLIC
5. 8" PVC SEWER PUBLIC
6. 4'x4' FILTERRA INLET TYPE UNIT
7. WATER POC
8. SEWER POC
9. STORM DRAIN POC
10. EVA SWING GATE WITH KNOX BOX
11. SIGHT DISTANCE TRIANGLES
12. TRANSITION AC PAVEMENT, COMFORT NOT BASED ON CALTRANS STANDARD
13. CURB AND GUTTER
14. ADDITIONAL 7' PARKWAY
15. STORM DRAIN PRIVATE
16. EXIST. TWO-STORY TRANSMITTER BUILDING TO BE REMOVED
17. EXIST. UTILITY POLE TO REMAIN
18. LIMIT OF WORK LINE
19. PROP. PVT. 10' MOUNTABLE APRON WITH EVMA
20. PROP. PLANTABLE AREA
21. VISIBILITY AREA NO OBJECTS HIGHER THAN 24"

PROPOSED EASEMENTS

1. 15' PRIVATE STORM DRAIN
2. 10' PUBLIC TRAIL

PREPARED BY:
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PLANNING 9707 Waples Street
ENGINEERING San Diego, CA 92121
SURVEYING Telephone: (858) 558-4500 Fax: (858) 558-1414

60TH STREET PLAN / PROFILE
EMERALD HILLS
CITY OF SAN DIEGO, CALIFORNIA

SHEET C6

W.O. 1375-02SB

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