

TRANSPORTATION IMPACT ANALYSIS
ALLISON AVENUE TRANSIT ORIENTED DEVELOPMENT
La Mesa, California
May 27, 2021

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EXECUTIVE SUMMARY

The Allison TOD Project proposes the development of 147 apartments. The project site is located on the south side of Allison Avenue between Date Avenue and Spring Street, in the City of La Mesa. Vehicular access to parking is proposed via a full access driveway on Date Avenue, just south of Allison Avenue.

VMТ ANALYSIS

The City is in the process of finalizing City specific standards for conducting Vehicle Miles Travelled (VMT) analysis and guidelines have not yet been adopted at this time. An analysis was conducted using Institute of Traffic Engineers (ITE) 2019 Guidelines which have received wide acceptance from the transportation profession. The Project is consistent with the General Plan and generates 882 daily trips.

The Project is located within ½ mile of an “existing major transit stop” being the existing bus stop (Route 1) at the Allison Avenue / Date Avenue intersection and the La Mesa Boulevard Trolley Station (Orange Line) along the eastern boundary of the site on Spring Street. Both the MTS Route 1 and Orange Line operate with a frequency of service of 15 minutes or less during the morning and afternoon peak commute periods, meeting the definition of an “existing major transit corridor”.

Continuous sidewalks are provided such that residents can walk to the existing MTS bus stop and the Trolley Station with no gap in the sidewalk. Based on the proximity of the transit stop and the trolley station, the connectivity allows the Project to be screened out from requiring a VMT analysis.

TRAFFIC LEVEL OF SERVICE (LOS) ANALYSIS

A traffic LOS analysis was also conducted. The Project study area for the traffic analysis includes the following intersections and street segments:

INTERSECTIONS

1. University Avenue / Baltimore Drive
2. University Avenue / Allison Avenue
3. Allison Avenue / Date Avenue
4. Spring Street/ Allison Avenue
5. La Mesa Boulevard / Acacia Avenue

SEGMENTS

1. **Spring Street:** South of La Mesa Boulevard
2. **Allison Avenue:** Date Avenue to La Mesa Boulevard
3. **University Avenue:** Allison Avenue to Baltimore Drive

PROJECT TRIP GENERATION AND DISTRIBUTION

Project trip generation was estimated using the *SANDAG Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002)*. The Project is calculated to generate 882 average daily trips (ADT) with 71 AM peak hour trips and 79 PM peak hour trips.

The Project traffic distribution as shown on *Figure 9-1* was based on the site location, and access to I-8, existing traffic patterns, and access to other potential destinations such as shopping, work, school, etc.

CUMULATIVE PROJECTS

Based on discussions with the City Staff and research in the vicinity, five (5) Cumulative projects were included for Near-Term Opening Day (Year 2022) analysis.

CONCLUSIONS

All study area intersections are calculated to operate at LOS C or better with the addition of Project traffic and no substantial effect was identified.

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TRANSPORTATION IMPACT ANALYSIS
ALLISON AVENUE TRANSIT ORIENTED DEVELOPMENT

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1.0 INTRODUCTION

Linscott, Law and Greenspan, Engineers (LLG) has prepared this transportation impact analysis to assess the impacts to the street system as a result of the proposed Allison Avenue Transit Oriented Development (TOD) Project located within the City of La Mesa. The Project proposes the development of 147 multi-family dwelling units.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- CEQA Vehicle Miles Travelled (VMT) Assessment
- Substantial Effect Criteria
- Analysis of Existing Conditions
- Cumulative Projects Discussion
- Trip Generation/Distribution/Assignment
- Analysis of Near-Term Scenarios
- Site Access and Circulation Review
- Active Transportation Review
- Conclusions

2.0 PROJECT DESCRIPTION

The project site is located at the southeast corner of the Allison Avenue / Date Avenue intersection. The Project proposes the development of 147 apartments in a four-story over podium building.

Pedestrian access is provided at the lobby on the Podium floor at the northeast corner of the building. Pedestrian access is also provided at a second lobby on the ground floor at the northwest corner of the building. Vehicular parking for 119 vehicles is proposed on the ground floor level. Access to the ground floor parking is proposed via one full access driveway on Date Avenue, located south of Allison Avenue.

Figure 2-1 shows the Project vicinity and *Figure 2-2* illustrates, in more detail, the site location. *Figure 2-3* shows the Conceptual Site Plan.

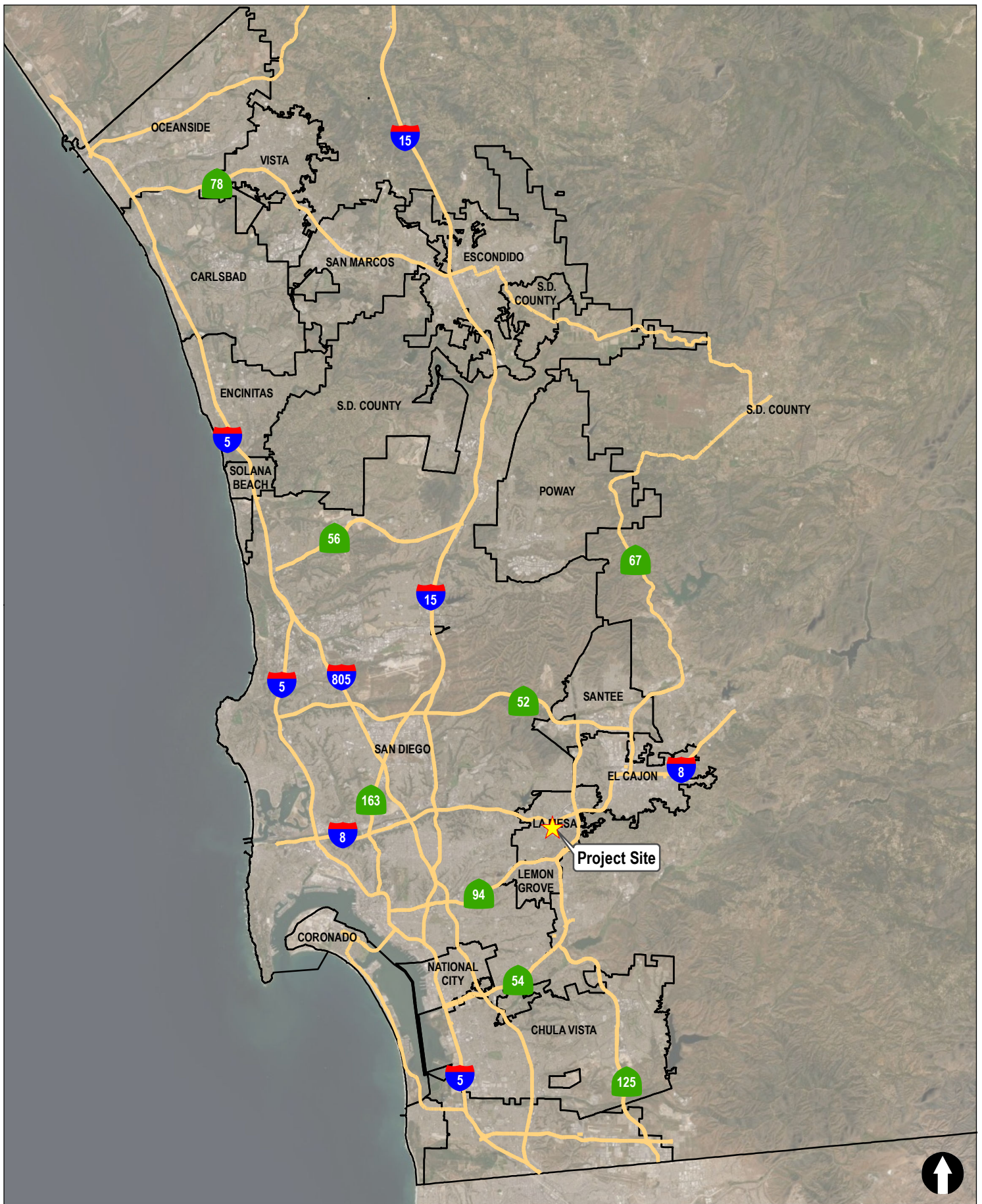
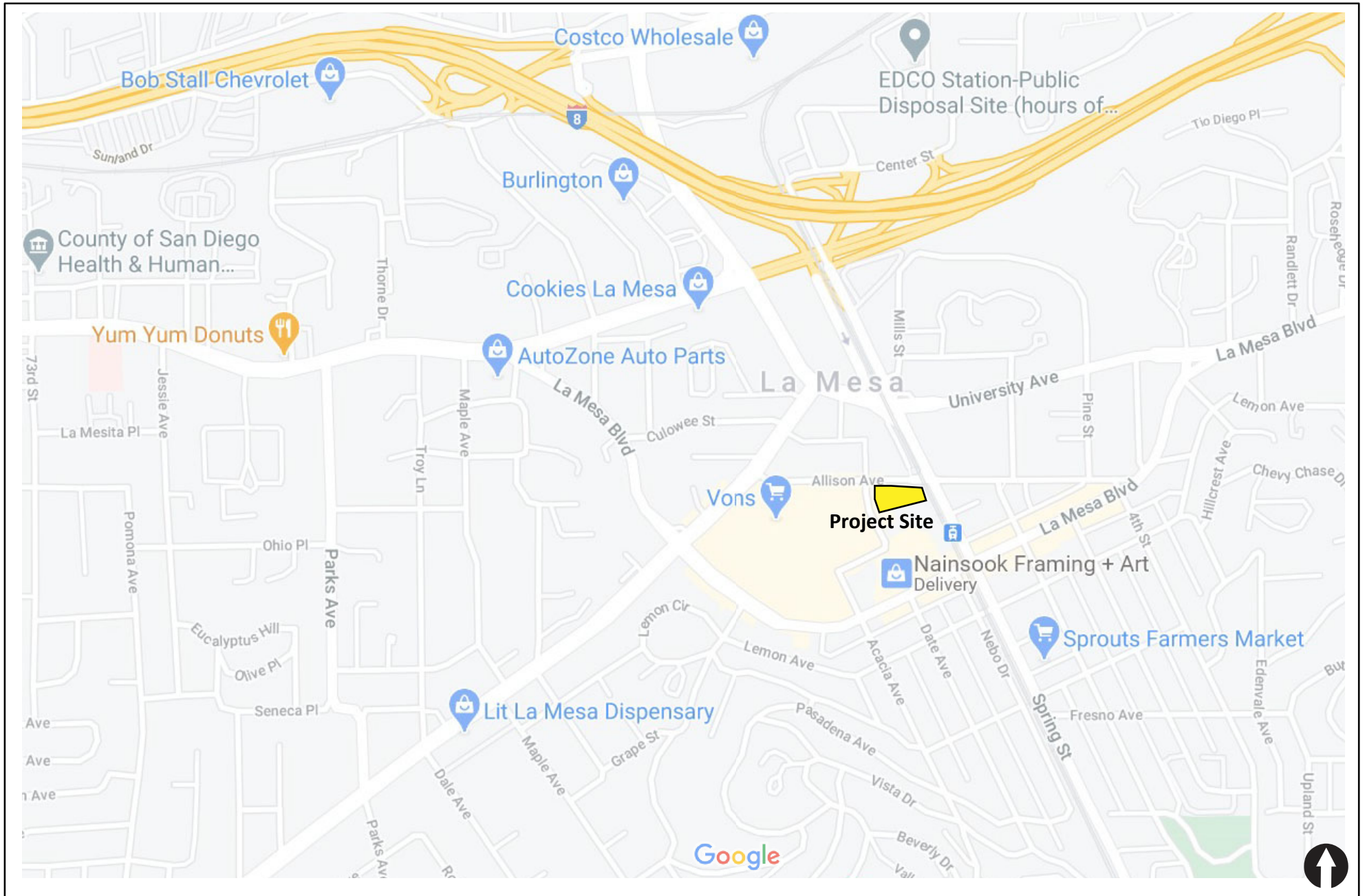


Figure 2-1
Vicinity Map





3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the project area. *Figure 3-1* depicts the existing conditions diagram, including intersection traffic controls and lane configurations.

3.1 Existing Street Network

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

Spring Street

Spring Street is classified as an Arterial according to the *City of La Mesa Circulation Plan*. Between I-8 and Lemon Avenue, Spring Street is generally built as a four-lane roadway with a center Two-Way Left-Turn Lane (TWLTL). However, between University Avenue and Allison Avenue and then again between La Mesa Boulevard and Lemon Avenue, there is no Center TWLTL; instead, there are back-to-back left-turn lanes. Curb, gutter, and sidewalk are provided on the east, and curb and gutter are provided on the west side. The posted speed limit is 35 miles per hour (mph), while curbside parking is prohibited.

Date Avenue

Date Avenue is an unclassified two-lane road according to the *City of La Mesa Circulation Plan*. It is a north / south roadway between just south of University Avenue and Orange Avenue and continues south of La Mesa Boulevard. Curb, gutter and sidewalk are provided. Curbside parking is permitted along the west curb. A speed limit is not posted.

Allison Avenue

Allison Avenue is an unclassified two-lane road according to the *City of La Mesa Circulation Plan*. It is an east / west roadway between University Avenue and La Mesa Boulevard. Curb, gutter and sidewalk are provided. Curbside parking is permitted along both curbs. Mid-block crossings are provided intermittently. Bus stops are also provided on Allison Avenue at Date Avenue. The posted speed limit is 25 mph. Allison Avenue is a designated Bike Route.

University Avenue

University Avenue is classified as an Arterial according to the *City of La Mesa Circulation Plan*. From Parks Avenue to Baltimore Drive, University Avenue is a four-lane roadway with a raised median. Curbside parking is generally permitted. The posted speed limit is 35 mph and curbside parking is allowed in some sections. A bike lane is also provided along this stretch.

3.2 Existing Traffic Volumes

Due to the current Covid situation, traffic counts conducted in 2021 do not reflect the normal traffic volumes. Hence, research was conducted to identify historical traffic volume counts in the Project study area. Counts conducted in September 2018 when area schools were in session were utilized.

Following are the Project Study Area intersections and segments:

INTERSECTIONS

1. University Avenue / Baltimore Drive
2. University Avenue / Allison Avenue
3. Spring Street/ Allison Avenue
4. Allison Avenue / Date Avenue
5. La Mesa Boulevard / Acacia Avenue

STREET SEGMENTS

Spring Street

South of La Mesa Boulevard

Allison Avenue

University Avenue to Date Avenue

University Avenue

Allison Avenue to Baltimore Drive

Counts conducted September 2018 when area schools were in session are available at the following intersections and segments and are used in the analysis.

INTERSECTIONS

1. University Avenue / Baltimore Drive
2. University Avenue / Allison Avenue
3. Spring Street/ Allison Avenue

STREET SEGMENTS

Spring Street: Allison Avenue to La Mesa Boulevard

University Avenue: Allison Avenue to Baltimore Drive

Historical counts were not available at two intersections and one segment. The following method was adopted to develop traffic volumes that reflect non-Covid traffic volumes:

1. Current 2021 (during Covid) counts were conducted at three segments, two of which were also counted in 2018.
2. A relationship (factor) between the Pre-Covid counts and current (during Covid) counts was developed by dividing the Pre-Covid (Year 2018) counts by the current 2021 (during Covid) counts.

3. This relationship (factor) was applied to the intersections and segment for which Pre-Covid counts are not available.

Table 3-1 summarizes the Year 2018 (Pre-Covid) and 2021 (current) total segment volumes. Year 2018 volumes available at the two segments shown in *Table 3-1*. Comparing the volumes, an average of 120% is applied to the counts at the intersections and segment where historical pre-Covid volumes are not available. **Table 3-2** summarizes the segment counts. Year 2021 volumes adjusted for Covid effect was used for the segment of Allison Avenue between University Avenue and Date Street and the Year 2019 counts were used for remaining two segments.

Study area intersections peak hour and segment volumes adjusted for the Year 2021 are depicted on **Figure 3-2**. *Appendix A* contains the Pre-Covid (Year 2018) and Year 2021 count sheets.

**TABLE 3-1
EXISTING TRAFFIC VOLUMES**

Street Segment	Year 2021 (Covid) Counts	Year 2018 (Pre Covid) Counts	Increase %
Spring Street University Ave to Allison Ave	15,291	16,700	109%
University Avenue Allison Ave to Baltimore Dr	15,732	19,340	123%
Average			116%
			120%

**TABLE 3-2
EXISTING INTERSECTION PEAK HOUR VOLUMES**

Street Segment	Year 2019 (Pre-Covid) Counts	Year 2021 (During-Covid) Counts	Covid Factor	Adjusted for Covid
Spring Street South of La Mesa Blvd	16,700	-	-	16,700 ^a
Allison Avenue University Ave to Date St		3,195	120%	3,830 ^b
University Avenue Allison Ave to Baltimore Dr	19,340	15,732	-	19,340 ^a

Footnote:

- a Used Pre-Covid counts in the analysis.
- b Applied Covid factor to Year 2019 (During Covid) counts.

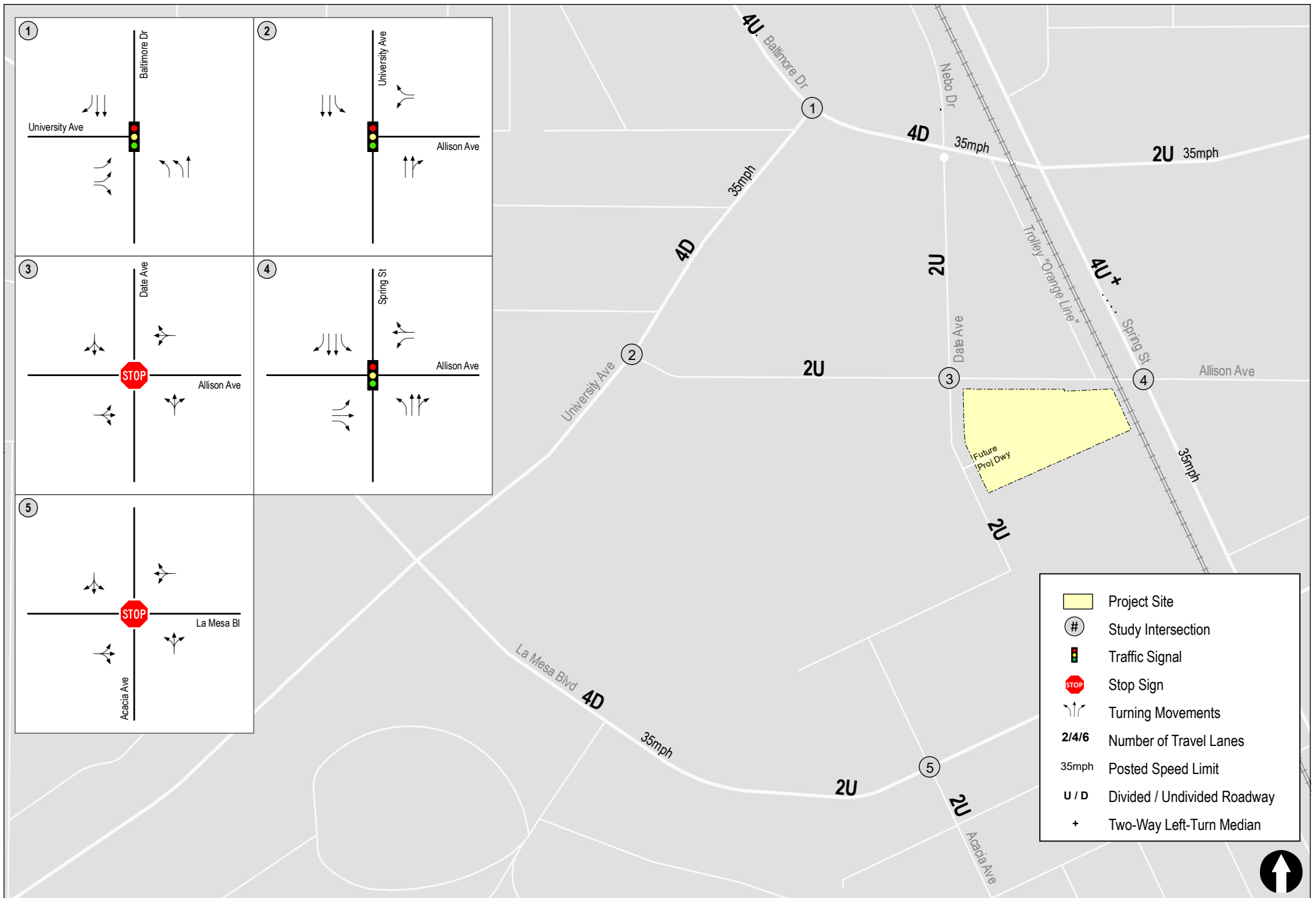
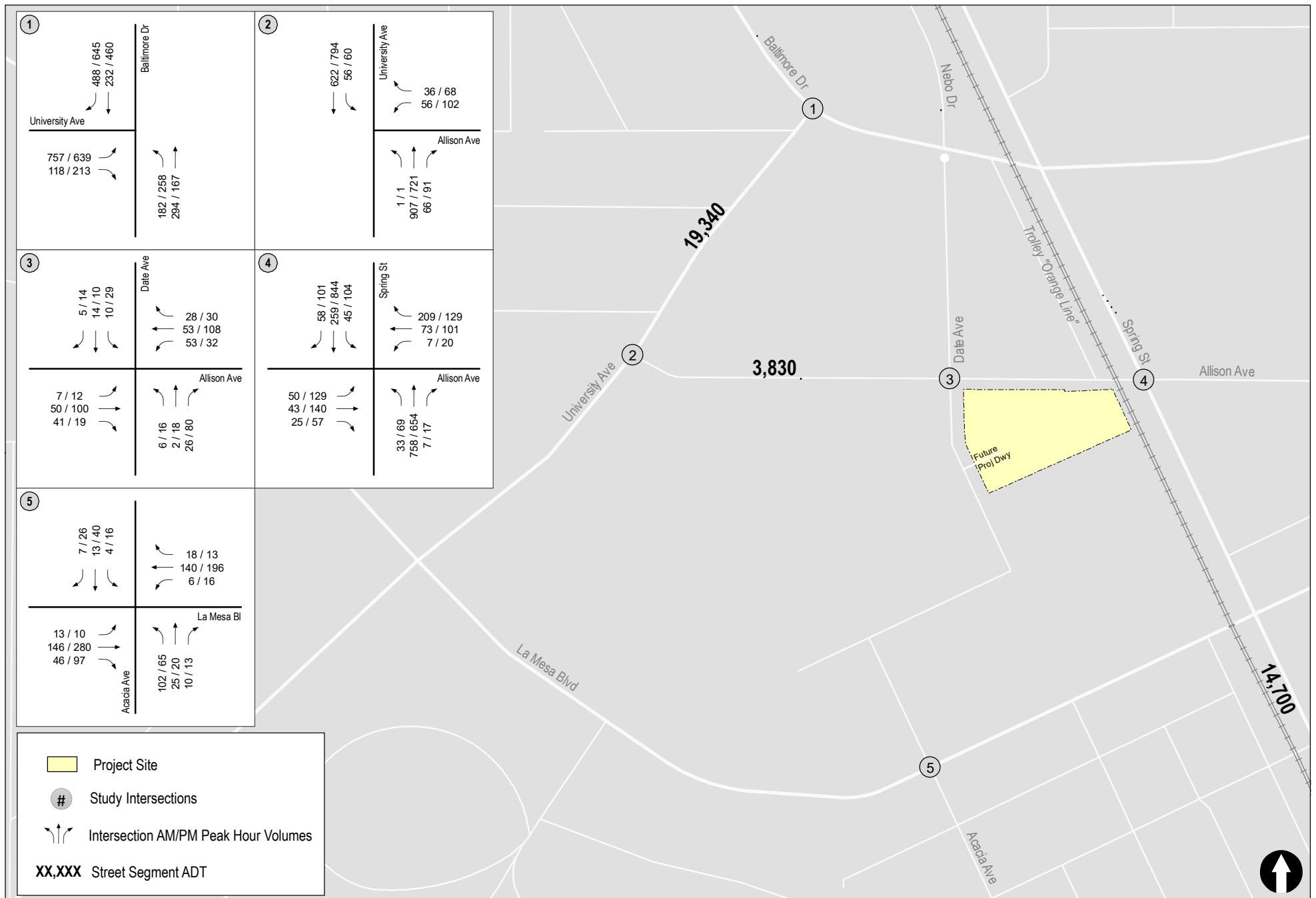


Figure 3-1
Existing Conditions Diagram



4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 VMT Analysis

The Senate Bill (SB) 743 legislation specified that the Governor's Office of Planning and Research (OPR) prepare guidelines for the implementation of SB 743. During the period from the passage of SB 743 in 2013 to the fall of 2018, OPR prepared various sets of guidelines and sought public comments from stakeholders. At the time of preparation of these transportation impact study guidelines, guidance regarding the changes to CEQA initiated by SB 743 were contained in the following documents:

- *CEQA Guidelines Revisions:*

Revisions to the CEQA Guidelines were adopted into CEQA in December 2018 through a formal process conducted by the Natural Resources Agency. Additional changes can only be made through a future CEQA update process.

- *Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory):*

The technical advisory provides recommendations for the preparation of transportation impact analyses under SB 743. It is not formally included in CEQA and can be revised by OPR at any time without going through a formal process. Updated versions of the technical advisory are expected to be issued by OPR as new information becomes available and as California agencies gain experience in applying SB 743 to actual projects. As of the time of preparation of these transportation impact study guidelines, the current version of the technical advisory was dated December 2018.

4.1.1 VMT Methodology

Institute of Transportation Engineers (ITE) San Diego Section prepared the Guidelines For Transportation Impact Studies in May 2019 for use in the San Diego Region. The recommended methodology for conducting a VMT analysis is based on guidance prepared by the OPR as provided in the published Technical Advisory on Evaluating Transportation Impacts in CEQA. At the time of writing of these guidelines, the current version of OPR's technical advisory was dated December 2018. The guidance recommended by OPR has been modified to be better suited to local conditions in the San Diego region. These modifications are noted in the details described later in this chapter.

The basic process is to compare a project's estimated VMT/capita or VMT/employee to average values on a regional, citywide, or community basis. The target is to achieve a project VMT/capita or VMT/employee that is 85% or less of the appropriate average based on suggestions in these guidelines. Note that lead agencies have discretion for choosing a VMT metric and threshold. The selection should represent how VMT reduction is balanced against other objectives of the lead agency and be supported by substantial evidence. The methodology for determining VMT/capita or VMT/employee is related to the project's expected daily trip generation. Other methodologies for VMT analysis could be considered at the discretion of the lead agency. However, it is recommended that any VMT methodologies within a particular analysis use consistent methodologies and that VMT analysis

consider the differences between trip-based VMT analysis methodologies and tour-based VMT methodologies, as described in OPR's technical advisory.

4.1.2 Projects Located Near Transit Stations

OPR's technical advisory contains the following guidance regarding projects located near transit stations. Proposed CEQA Guideline Section 15064.3, subdivision (b)(1), states that lead agencies generally should presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT. This presumption would not apply, however, if project-specific or location-specific information indicates that the project will still generate significant levels of VMT.

An existing major transit stop is defined as “a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.”

For the purposes of these guidelines, the distance between the project site and the transit station is typically based on direct walking distance without missing sidewalks or physical barriers.

Typically, a major transit stop would be considered to be applicable for this purpose if the transit stop were assumed to be in place in SANDAG's Regional Transportation Improvement Program (RTIP) scenario (see Methodology for VMT analysis for further discussion of this scenario).

4.2 Local Transportation Analysis

4.2.1 Project Study Area

The study area was based on the criteria identified in the San Diego Traffic Engineering Council (SANTEC)/Institute of Traffic Engineers (ITE) *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2, 2000. Based on these criteria, the traffic study should include “all local roadway segments, intersections, and mainline freeway locations where the Project will add 50 or more peak hour trips in either direction or freeway ramp meter locations where the Project will add 20 or more peak hour trips in either direction to the existing traffic conditions.

Based on the above criteria, the Project study area includes the following intersections and segments:

INTERSECTIONS

1. University Avenue / Baltimore Drive
2. University Avenue / Allison Avenue
3. Allison Avenue / Date Avenue
4. Spring Street/ Allison Avenue
5. La Mesa Boulevard / Acacia Avenue

STREET SEGMENTS

Spring Street

South of La Mesa Boulevard

Allison Avenue

Date Avenue to la Mesa Boulevard

University Avenue

Allison Avenue to Baltimore Drive

4.2.2 Analysis Scenarios

This traffic analysis assesses the above-mentioned key intersections, street segments, in the Project area in the following scenarios to determine the potential impacts to the road network:

- Existing
- Near-Term (Existing + Cumulative projects) Without Project
- Near-Term (Existing + Cumulative projects) With Project

4.2.3 Methodology

There are various methodologies used to analyze signalized intersections, unsignalized intersections, and street segments. The measure of effectiveness for intersection and segment operations is level of service (LOS), which denotes the operating conditions which occur at a given intersection or on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. LOS designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

In the Highway Capacity Manual 6th Edition (HCM 6), LOS for signalized intersections is defined in terms of delay. The LOS analysis results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Table 4–1 summarizes the signalized intersections levels of service descriptions.

4.2.4 Signalized Intersections

Table 4–2 depicts the criteria, which are based on the average control delay for any particular minor movement (unsignalized intersections) and overall intersection (signalized intersections). For signalized intersections, LOS criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

TABLE 4-1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

LOS	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4-2
INTERSECTION LEVEL OF SERVICE (LOS) & DELAY RANGES

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

Source: Highway Capacity Manual 6th Edition

LOS A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

LOS C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

LOS E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4.2.5 Unsignalized Intersections

For unsignalized intersections, LOS is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This LOS is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits.

LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

4.2.6 Impact of Trolley on the Intersection Level of Service

The Trolley Orange Line, operated by Metropolitan Transit System (MTS) connects Downtown San Diego, La Mesa, and El Cajon. In the Project study area, the Trolley runs parallel to Spring Street and the tracks cross the west leg of Allison Avenue (study area intersections #4), in service of the La Mesa Boulevard station. The following describes how LLG accounted for the additional delay at this intersection, due to the train crossings at this location.

Per MTS, the Trolley Orange Line runs every 15 minutes in each direction during the majority of the day Monday through Friday. Therefore, during each peak hour, eight trains pass by the intersection (four in either direction). However, based on field observations, trains traveling in opposite directions may arrive concurrently, which results in a reduced number of independent gate closures during an hour, though increasing somewhat the gate closure time as compared to a single train passing through.

The following values are based on field observations at the affected intersections. The number of gate closures and the average time of gate closure both reflect the reality of trains occasionally arriving from either direction simultaneously. Thus, the total delay during a single hour was calculated as follows:

- Number of gate closures at the intersection (N_t) = 6
- Average time of gate closure (G_c) = 87 seconds
- Total gate closure time per hour (L_{gc}) = $N_t * G_c = 524$ seconds

This added delay was apportioned among the affected movements at the intersection as a proportion of overall hourly capacity by reducing movement capacity using an adjustment factor within the Synchro software at this intersection for all analysis scenarios. Movements to and from the west leg of the Allison Avenue / Spring Street intersection are stopped during gate closure, but through traffic on the main street (Spring Street) continues to receive a green light.

4.2.7 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of La Mesa's *Daily Roadway Segment Capacity* (**Table 4-3**) for the City of La Mesa General Plan. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics.

TABLE 4-3
DAILY ROADWAY SEGMENT CAPACITY (CITY OF LA MESA)

La Mesa Street Classification	SANTEC Roadway Classification	Typical Lane Configuration	Level of Service				
			A	B	C	D	E
Parkway Arterial	Major Arterial	6 Lanes	20,000	28,000	40,000	45,000	50,000
Arterial	Major Arterial	4 Lanes	15,000	21,000	30,000	35,000	40,000
Arterial	Major Arterial *	2 Lanes	7,875	11,025	15,750	18,375	21,000
Major Collector	Secondary Arterial (Collector 4 Lanes)	4 Lanes	10,000	14,000	20,000	25,000	30,000
Local Collector	Collector (No Center Lane, Continuous left turn lane)	4 Lanes	5,000	7,000	10,000	13,000	15,000
Local Collector	Collector (Commercial / Industrial Fronting)	2 Lanes	2,500	3,500	5,000	6,500	8,000
Local Streets	Collector (Multi-Family)	2 Lanes	2,500	3,500	5,000	6,500	8,000

Legend:

*La Mesa has arterials with two lanes and continuous left-turn lanes. Capacity of these roadways is, therefore, half of a four-lane arterial with an additional capacity adjustment to account for the continuous left-turn lanes.

Note: V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volumes basis. The acceptable LOS for freeways, roadways, and intersections is generally LOS D.

Source: Table 4.13-2 Daily Roadway Segment Capacity, La Mesa General Plan.

5.0 CEQA VMT ASSESSMENT

Following is the VMT analysis.

5.1 Project Size

The Project is calculated to generate a total of 882 ADT. This is more than the minimum 200 ADT that would not require a VMT analysis or presumed to have less than significant VMT impacts per the ITE guidelines (Section 4.1.1). Hence, the Project is not screened out on the basis of Project size.

5.2 Projects Located Near Transit Stations

The Project is located within a ½ mile distance of the La Mesa Boulevard Trolley Station and adjacent to the MTS bus stop serving Routes 1 and 7. The Orange Trolley line connects La Mesa to downtown San Diego in the west to El Cajon in the east and operates with a 15-minute frequency during the peak hours, Monday through Friday. Bus Route 1 connects Fashion Valley Transit Center in the west to downtown La Mesa and operates with a 15-minute frequency during the peak hours, Monday through Friday. The Orange Trolley line and MTS bus Route 1 both meet the criteria of a high-quality transit corridor.

Based on the above discussion and the convenient and the close walkable access to the trolley and bus services, the Project would be screened out and a detailed transportation VMT analysis would not be required.

6.0 SUBSTANTIAL EFFECT CRITERIA

The City of La Mesa utilizes SANTEC/ITE Traffic Impact Study Guidelines with LOS D being the minimum acceptable LOS (see footnote in *Table 4-3*). Therefore, a substantial effect would be identified when the addition of project traffic results in a level of service dropping from LOS D or better to substandard LOS E or F. These thresholds as applied to roadway segments are based upon an acceptable increase in the Volume / Capacity (V/C) ratio. The City defined thresholds are shown in *Table 6-1*.

If the project exceeds the thresholds in *Table 6-1*, then the project is considered to have a substantial “direct” or “cumulative” project effect. A substantial effect can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 6-1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered substantial and unmitigated.

**TABLE 6-1
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS**

Level of Service with Project ^b	Allowable Increase Due to Project Impacts ^a					
	Freeways		Roadway Segments		Intersections	Ramp Metering ^c
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E and F	0.01	1.0	0.02	1.0	2.0	2.0

Footnotes:

- If a proposed project’s traffic causes the values shown in the table to be exceeded, the effects are determined to be substantial. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note b), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project’s direct substantial and/or cumulatively considerable traffic effects.
- All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis. The acceptable LOS for freeways, roadways, and intersections is generally “D” (“C” for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.
- The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

General Notes:

- Delay = Average control delay per vehicle measured in seconds for intersections or minutes for ramp meters
- LOS = Level of Service
- V/C = Volume to Capacity ratio
- Speed = Arterial speed measured in miles per hour

7.0 ANALYSIS OF EXISTING CONDITIONS

7.1 Peak Hour Intersection Levels of Service

Table 7-1 summarizes the peak hour intersection analyses for the existing scenario. As seen in *Table 7-1*, all study area intersections are calculated to currently operate at LOS D or better.

The Existing peak hour intersection analysis worksheets are included in *Appendix B*.

**TABLE 7-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Delay ^a	LOS ^b
1. University Ave / Baltimore Dr	Signal	AM	22.7	C
		PM	45.5	D
2. University Ave / Allison Ave	Signal	AM	7.5	A
		PM	7.7	A
3. Allison Ave / Date Ave	AWSC ^c	AM	8.1	A
		PM	9.0	A
4. Allison Ave / Spring St	Signal	AM	20.4	C
		PM	26.1	C
5. La Mesa Blvd / Acacia Ave	AWSC	AM	9.3	A
		PM	12.7	B

Footnotes:

a. Average delay expressed in seconds per vehicle.

b. Level of Service.

c. AWSC – All-Way Stop Controlled intersection. Overall intersection delay and LOS are reported.

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

7.2 Segment Operations

Table 7–2 summarizes the Existing segment operations. As seen in *Table 7–2*, all study area segments are calculated to currently operate at LOS C or better.

TABLE 7–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	LOS E Capacity ^a	ADT ^b	LOS ^c	V/C ^d
Spring Street ^e South of La Mesa Blvd	Sec. Art. Coll.	30,000	14,700	C	0.490
Allison Avenue ^f University Ave to Date St	Local Collector	8,000	3,830	C	0.479
University Avenue ^e Allison Ave to Baltimore Dr	Sec. Art. Coll.	40,000	19,340	B	0.484

Footnotes:

- a. Capacities based on City of La Mesa Roadway Classification Table.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity.
- e. Pre-Covid Year 2018 count.
- f. Year 2021 count adjusted upward for Covid.

8.0 CUMULATIVE PROJECTS

Based on a research of planned cumulative projects in the project vicinity, 5 projects were identified, that could potentially add traffic to the Project study area. These projects are briefly described below. In addition to these four projects, a 5% growth factor was applied to the existing traffic to account for any projects as yet unknown, in the project vicinity. Historical ADT counts are not available. Hence, a conservative growth of 5% over three years or, just under 2% per year was applied.

8.1 Description of Projects

Following are brief descriptions of the four cumulative projects:

COSTCO GAS

An existing Costco store on Fletcher Parkway, just north of Baltimore Drive, is planning to install a gas station in place of an existing Babies “R” Us. This project is calculated to generate a net of 59 AM peak hour trips and 73 PM peak hour trips. This gas station is currently open for business but was not when the traffic counts used in this analysis were conducted. Hence, for the purpose for this traffic study, the gas station trips were added as a cumulative project.

A copy of the project report dated February 22, 2018, prepared by Kittleson & Associates is included in *Appendix C*.

ALVARADO CREEK SPECIFIC PLAN

The Alvarado Creek Specific Plan includes the development of 950 apartments in four buildings on a site south of I-8 and east of 70th Street. This project will replace an existing RV Resort Campground. The project is calculated to generate a net of 5,415 ADT with 342 AM peak hour trips and 487 PM peak hour trips. Pertinent pages from the Alvarado Creek Specific Plan traffic study prepared by Kimley Horn are included in *Appendix C*.

JACKSON DRIVE STARBUCKS

The Lake Murray Village project includes the development of a 2,000-square foot (SF) Starbucks coffee shop located in the northwest quadrant of the Jackson Drive / Center Drive intersection in the City of La Mesa. The project is calculated to generate a total of 1,228 ADT with 133 AM peak hour trips and 65 PM peak hour trips. It may be noted that this project will likely not contribute any traffic to the Project study area intersections and segments. Pertinent pages from the La Mesa Starbucks traffic study prepared by LLG Engineers are included in *Appendix C*.

SPRING STREET STARBUCKS

The Spring Street Starbucks is a 1,850 SF coffee shop located in the northeast quadrant of the Spring Street / Palm Avenue intersection in the City of La Mesa. The project is calculated to generate a total of 908 ADT with 126 AM peak hour trips and 40 PM peak hour trips. It may be noted that this project will likely not contribute any traffic to the Project study area intersections and segments. Pertinent pages from the La Mesa Starbucks traffic study prepared by LLG Engineers are included in *Appendix C*.

SPRING STREET MIXED-USE

The Spring Street Mixed-Use Project is located at 4210 Spring Street and consists of 48 multi-family dwelling units. The project is calculated to generate a total of 288 ADT with 23 AM peak hour trips and 26 PM peak hour trips. A traffic study was not prepared for this project.

7601 UNIVERSITY AVENUE

The 7601 University Avenue Project consists of 60 multi-family dwelling units. The project is calculated to generate a total of 360 ADT with 29 AM peak hour trips and 32 PM peak hour trips. A traffic study was not prepared for this project.

JEFFERSON LA MESA

The Jefferson La Mesa project consists of 230 multi-family dwelling units. The Project also includes 4 live/work units. The “work” part is 712 SF per unit, for a total of 2,848 SF. The total square footage of these dwelling units is 165,760. In addition, an onsite gym and swimming pool will be built for the occupants. The project is calculated to generate a total of 1,494 ADT with 103 AM peak hour trips and 134 PM peak hour trips. Pertinent pages from the Jefferson La Mesa traffic study prepared by LLG Engineers are included in *Appendix C*.

MONTABELLO

The Montebello project consists of Montebello North and Montebello South and is located east of Maple Avenue on either side of El Cajon Boulevard. Montebello North Site consists of 120 multi-family units and 6,000 of retail. This development will replace the existing 37 multi-family units, 5 single family units and 5,500 restaurant / specialty retail currently on the site.

Montebello South is located in the southwest quadrant of the El Cajon Boulevard / Maple Avenue intersection and consists of 80 apartments, 5,000 SF of specialty retail and 3,000 SF of office.

The project is calculated to generate a total of 993 ADT with 68 AM peak hour trips and 92 PM peak hour trips. Pertinent pages from the Montebello traffic study prepared by Kimley Horn are included in *Appendix C*.

8.2 Summary of Cumulative Projects Trips

Table 8-1 summarizes the trip generation for each of the above cumulative projects. As seen in *Table 8-1*, the cumulative projects listed above are calculated to generate a total of 11,126 ADT with 973 (293 inbound and 690 outbound) AM peak hour trips and 949 (621 inbound and 328 outbound) PM peak hour trips.

Figure 8-1 depicts the Near-Term (Existing + Cumulative projects) Without Project traffic.

**TABLE 8-1
CUMULATIVE PROJECTS TRIP GENERATION**

Project	Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
					% of ADT ^a	In:Out Split ^a	Volume			% of ADT ^a	In:Out Split	Volume		
			Rate ^a	Volume			In	Out	Total			In	Out	Total
1. Costco Gas	Gas Station	32 FP		440			26	33	59			34	39	73
2. Alvarado Creek SP	Apartments	950 DU		5,415			86	346	432			342	145	487
3. Jackson Drive Starbucks	Coffee Shop	2,000 SF		1,228			68	65	133			33	32	65
4. Spring Street Starbucks	Coffee Shop	1,850 SF		908			63	63	126			20	20	40
5. 4210 Spring Street	Apartments	48 DU	6 /DU	288	8%	20:80	5	18	23	9%	70:30	18	8	26
6. 7601 University Avenue	Apartments	60 DU	6 /DU	360	8%	20:80	6	23	29	9%	70:30	23	9	32
7. Jefferson La Mesa	Apartments	230 DU	6 /DU	1,380	8%	20:80	22	88	110	9%	70:30	87	37	124
	Live / Work Units (4 Ea)	2,848 SF	40 /KSF	114	3%	60:40	2	1	3	9%	50:50	5	5	10
8. Montebello North	Mixed Use			253			(-4)	19	15			18	5	23
Montebello South	Mixed Use			740			19	34	53			41	28	69
Total Trips				11,126			293	690	973			621	328	949

Footnotes:

a. Trip generation was obtained from the respective traffic studies.

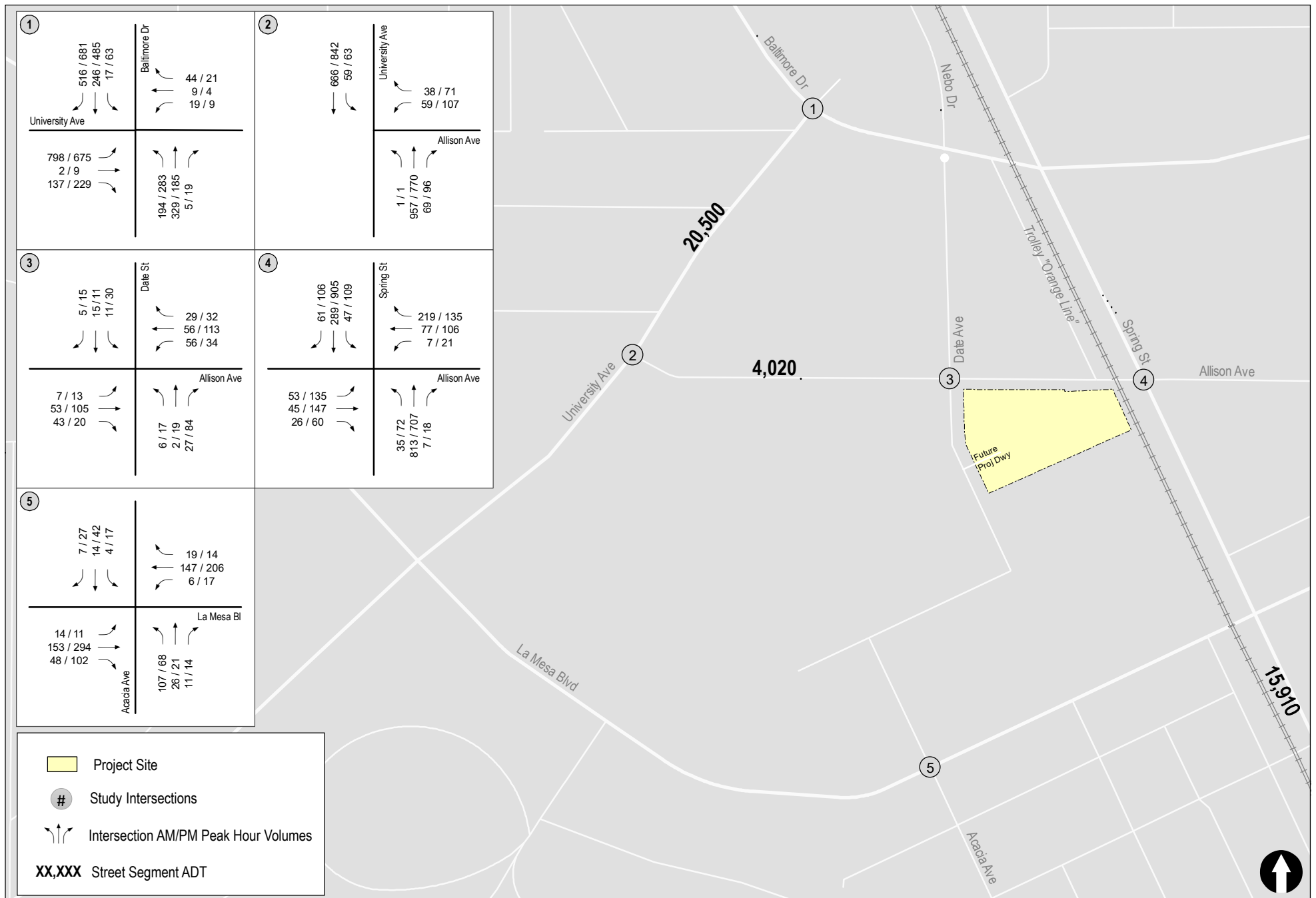


Figure 8-2
Near-Term Without Project Traffic Volumes

9.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

9.1 Trip Generation

Trip generation rates were taken from the SANDAG (*Not So*) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, to determine the traffic generated by the proposed Project. The Project falls within the multi-family dwelling unit trip generation category.

Table 9–1 tabulates the total project traffic generation. The project is calculated to generate approximately 882 ADT with 71 AM peak hour trips (14 inbound / 57 outbound) and 79 PM peak hour trips (55 inbound / 24 outbound).

9.2 Trip Distribution

The Project traffic distribution and assignment to the street system was primarily based on the existing traffic counts and other factors, such as project access, the proximity of the project to freeways, and potential employment, retail, and educational opportunities.

Figure 9–1 depicts the estimated Project trip distribution.

9.3 Trip Assignment

The Project traffic was assigned based on the regional project trip distribution on *Figure 7-1*. Project traffic was assigned to the main access driveway at Date Avenue. Of the total project traffic, 79% was assigned on Allison Drive to the west of Date Avenue and 21% was assigned on Allison Drive, east of Date Avenue.

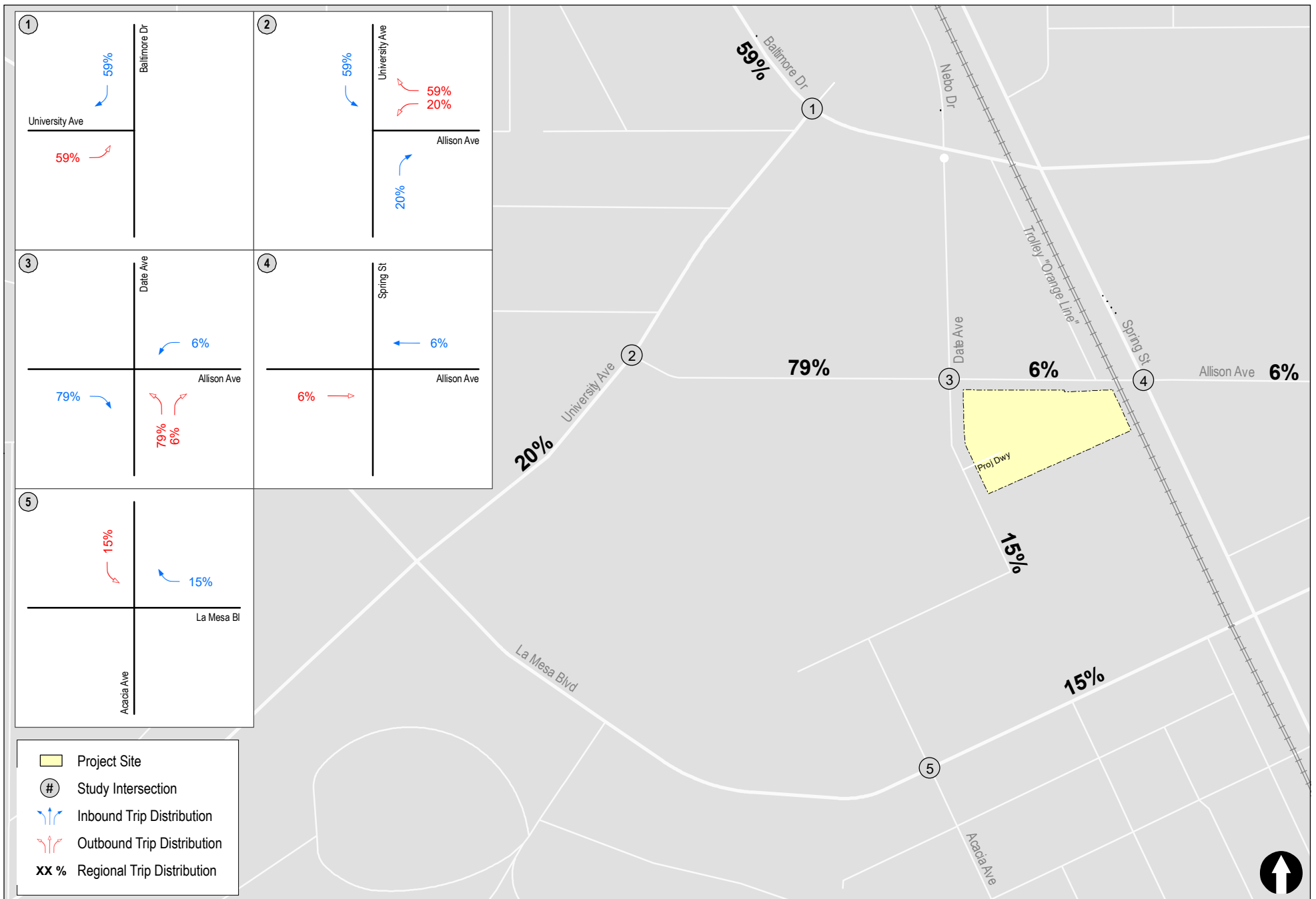
Figure 9–2 depicts the Project trip assignment. **Figure 9–3** depicts the Near-Term + Project traffic volumes.

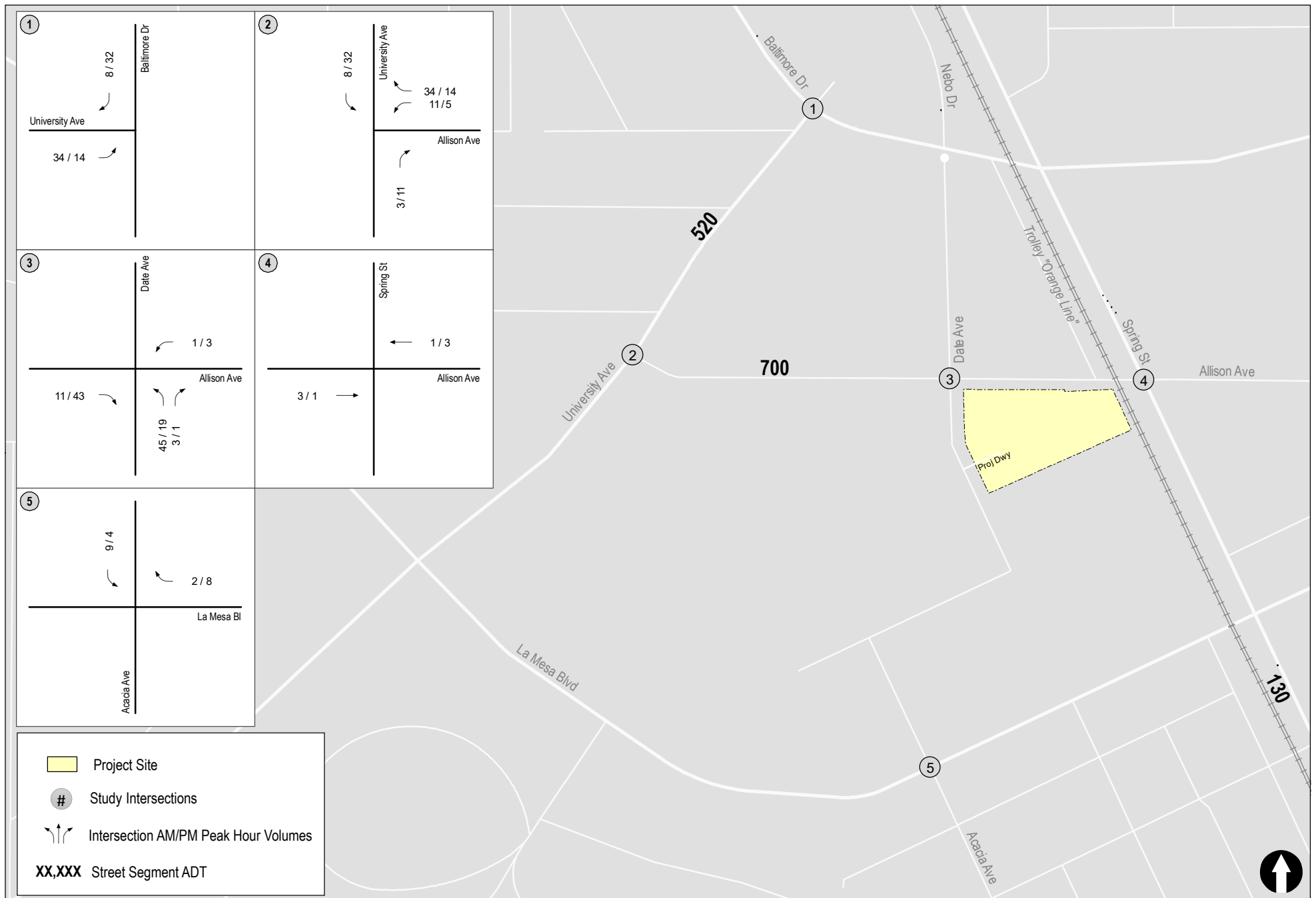
**TABLE 9-1
PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate ^a	Volume	% of ADT ^a	In:Out Split ^a	Volume			% of ADT ^a	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Apartments	147 DU	6 /DU	882	8%	20 : 80	14	57	71	9%	70 : 30	55	24	79

Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.





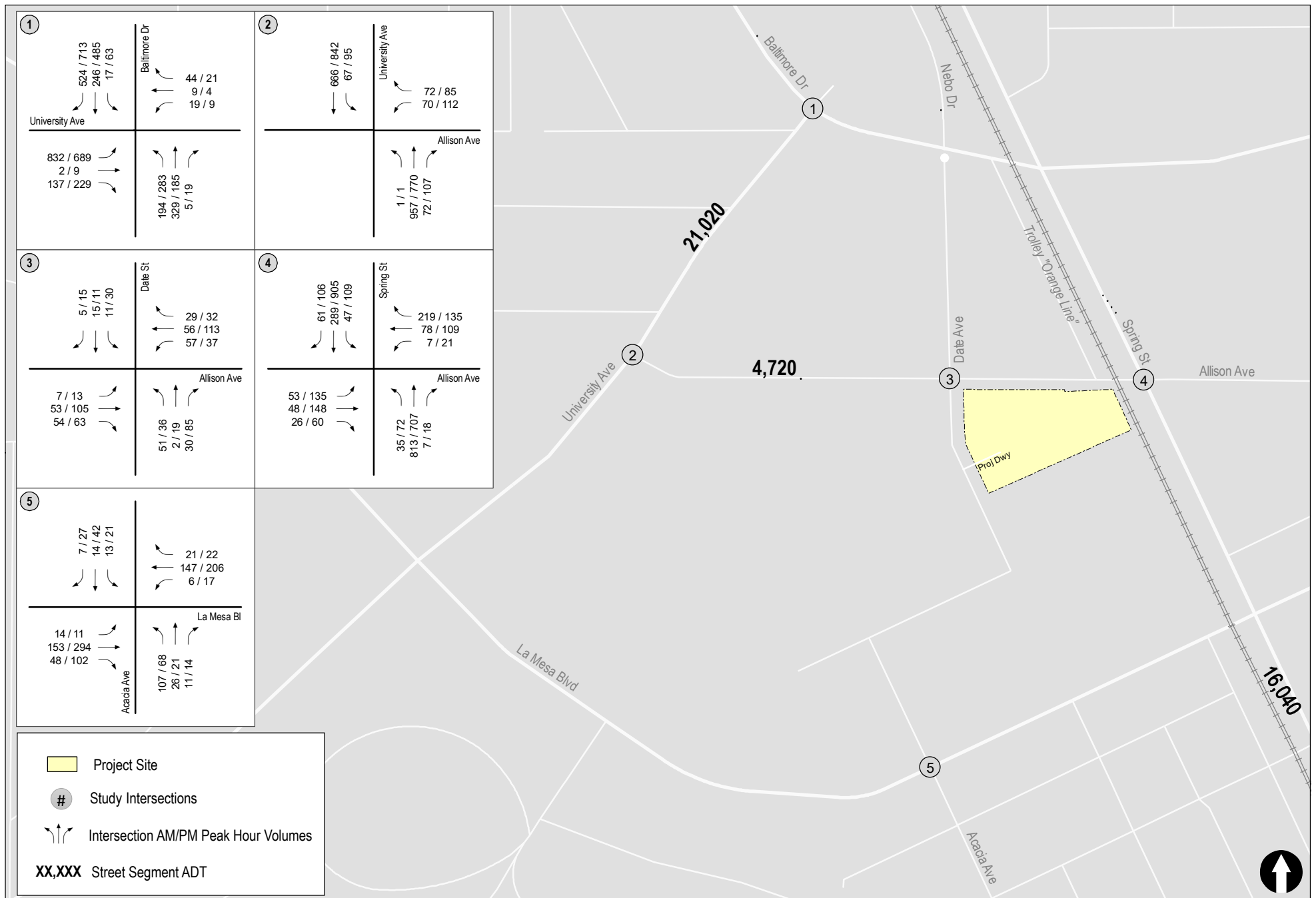


Figure 9-3
Near-Term + Project Traffic Volumes

10.0 ANALYSIS OF NEAR-TERM SCENARIOS

10.1 Near-Term without Project

10.1.1 Intersection Analysis

The proposed Jefferson La Mesa Project on Baltimore Drive at University Avenue will add the fourth (East) leg to the University Avenue / Baltimore Avenue intersection. As a result, this intersection will be modified to a four-leg intersection and the traffic signal will also be modified as appropriate. The modified intersection geometry will be as follows:

- Southbound (Baltimore Drive): Dual right-turn lanes, one through lane and one left-turn lane
- Westbound (Driveway): One shared through / right lane and one left-turn lane
- Northbound (University Avenue): Dual left-turn lanes, one shared through / right lane
- Eastbound (University Avenue): One left-turn lane, one shared through / left lane and one right-turn lane.

The University Avenue / Baltimore Avenue intersection was analyzed using the above geometry in the near-term scenarios. **Table 10-1** summarizes the peak hour intersection analyses in the Near-Term without Project. As seen in *Table 10-1*, all study area intersections are calculated to continue to operate at LOS C or better. In the PM peak hour, the University Avenue / Baltimore Drive intersection is calculated to operate with lower delay than existing due to the improvements described above.

The Near-Term without Project peak hour intersection analysis worksheets are included in *Appendix C*.

10.1.2 Segment Operations

Table 10-2 summarizes the Near-Term without Project segment operations. As seen in *Table 10-2*, all study area segments are calculated to operate at LOS B or better.

10.2 Near-Term with Project

10.2.1 Intersection Analysis

Table 10-1 summarizes the peak hour intersection analyses in the Near-Term with Project. As seen in *Table 10-1*, with the addition of Project traffic, all study area intersections are calculated to continue to operate at LOS C or better. In the PM peak hour, the University Avenue / Baltimore Drive intersection is calculated to operate with lower delay than existing due to the improvements described above.

The Near-Term with Project peak hour intersection analysis worksheets are included in *Appendix D*.

10.2.2 Segment Operations

Table 10-2 summarizes the Near-Term without Project segment operations. As seen in *Table 10-2*, with the addition of Project traffic, all study area segments are calculated to operate at LOS C or better.

**TABLE 10-1
NEAR-TERM INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing		Near-Term Without Project		Near-Term With Project		Δ^c
			Delay ^a	LOS ^b	Delay	LOS	Delay	LOS	
1. University Ave / Baltimore Dr	Signal	AM	22.7	C	24.3	C	24.9	C	0.6
		PM	45.5	D	28.5	C	29.3	C	0.8
2. University Ave / Allison Ave	Signal	AM	7.5	A	7.9	A	8.8	A	0.9
		PM	7.7	A	8.0	A	8.9	A	0.9
3. Allison Ave / Date Ave	AWSC ^d	AM	8.1	A	8.6	A	9.1	A	0.5
		PM	9.0	A	9.5	A	9.9	A	0.4
4. Allison Ave / Spring St	Signal	AM	20.4	C	21.8	C	21.8	C	0.0
		PM	26.1	C	29.0	C	29.2	C	0.2
5. La Mesa Blvd / Acacia Ave	AWSC	AM	9.3	A	9.7	A	9.8	A	0.1
		PM	12.7	B	16.1	C	16.3	C	0.2

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Δ denotes an increase in delay due to project.
- d. AWSC – Two-Way Stop Controlled intersection. Overall intersection delay and LOS are reported.

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

TABLE 10-2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Roadway Class	LOS E Capacity ^a	Existing			Near-Term Without Project			Near-Term With Project			Δ^e
			ADT ^b	V/C ^c	LOS ^d	ADT	V/C	LOS	ADT	V/C	LOS	
Spring Street South of La Mesa Blvd	Sec. Art. Coll.	30,000	14,700	C	0.490	15,910	C	0.530	16,040	C	0.535	0.005
Allison Avenue University Ave to Date St	Local Collector	8,000	3,830	C	0.479	4,020	C	0.503	4,720	C	0.590	0.088
University Avenue Allison Ave to Baltimore Dr	Sec. Art. Coll.	40,000	19,340	B	0.484	20,500	B	0.513	21,020	C	0.526	0.014

Footnotes:

- a. Capacities based on City of La Mesa Roadway Classification & LOS table.
- b. Average Daily Traffic
- c. Volume to Capacity ratio
- d. Level of Service
- e. Δ denotes a project-induced increase in the Volume to Capacity ratio

11.0 SITE ACCESS AND CIRCULATION REVIEW

The Project fronts Date Avenue to the west, Allison Avenue to the north and the Trolley to the east. A neighboring property fronts the southern boundary of the Project. Access is planned via the driveway on Date Avenue to the ground floor parking. Pedestrian access is available to the lobby at the southeast corner of Allison Avenue / Date Avenue intersection at the ground floor level of the building. Pedestrian access is also available to the Leasing Office / lobby /lounge at the northeast corner of the building on the Podium floor.

The maximum traffic exiting the driveway is 48 during the AM peak hour and maximum traffic entering the driveway is 46 during the PM peak hour, or less than one vehicle per minute. Thus, the planned access driveway on Date Avenue is adequate and will accommodate the traffic forecasted to use this driveway.

12.0 ACTIVE TRANSPORTATION REVIEW

12.1 Pedestrian Mobility

12.1.1 Existing Pedestrian Conditions

Sidewalks are provided along all streets in the study area. The Project will maintain the existing sidewalks and landscaping along its frontage on Date Avenue and Allison Avenue.

According to the *La Mesa Bicycle Facilities and Alternative Transportation Plan*, February 2012, the number of pedestrians in a day at the Allison Avenue / Spring Street intersection is 614.

12.1.2 Future Pedestrian Improvements

SPRING STREET PEDESTRIAN AND BICYCLE IMPROVEMENTS PLAN

In March of 2015, *A Smart Growth – Pedestrian and Bicycle Improvements Plan* was created for the City of La Mesa by Kimley Horn to help pedestrians and bicyclists feel more comfortable navigating downtown. Detailed in this plan are the proposed renovations to Spring Street from Center Street to University Avenue. Drawings from the above referenced document depicting the proposed bike and pedestrian enhancements are included in *Appendix E*. The plan includes the following:

- Section A-A is an 8-foot sidewalk for pedestrian use and a 16-foot class III Bike lane shared with vehicles on the southbound side of Spring Street from Center Street to the beginning of the Spring Street overcrossing. A chain link railing on top of the existing bridge barrier is also proposed.
- Section B-B continues from the end of the above section until the I-8 El Cajon off-ramp overcrossing. Starting from the west side is a proposed retaining wall separated by a 5-foot gap from an additional chain link railing. Continuing west, a 5-foot sidewalk, curb and gutter, are proposed. Further east is a 13-foot Class III Bike Lane and a 12-foot left turn lane. Continuing east, the proposed design contains the existing curb and gutter along with a 3-foot gap to the existing bridge column.
- Section C-C is the portion of Spring Street between Center Street and the Spring Street on-ramp overcrossing, a 5-foot sidewalk and chain link railing is proposed on northbound Spring Street.
- Section D-D branches off at the end of Section C-C and reconnects to Spring Street underneath the El Cajon off-ramp overcrossing. The proposed improvements include a 5-foot sidewalk and retaining wall on the east side of the already existing bridge columns.
- Section E-E of the Spring Street Pedestrian and Bicycle improvement plan continues from the end of section D-D and runs until the war memorial that's located on the corner of Spring proposed and University Avenue. The detailed improvements in this section include a 6-foot sidewalk east of Nebo Drive.

- Included in the improvement plan are two high visibility crosswalks. The first is located at the intersection of Spring proposed and the Eastbound I-8 entrance ramp. The second Crosswalk is located on the west leg of the University and Spring proposed intersection.

As shown in Sheets 1 and 2 of the *North Spring Street Smart Growth - Pedestrian and Bicycle Improvements*, March 2015, (*Appendix E*) pedestrians to and from the site will be able to cross Nebo Drive at the northeast corner of the site and use a new sidewalk to access Spring Street. Currently, Phase 1 Spring Street improvements have been completed.

12.2 Transit Mobility

12.2.1 Existing Transit Conditions

Bus Routes

Transit service is provided to the area via the Route 18 Bus Route and the Orange Trolley Line. Route 18 provides bus service to the area via University Avenue and Allison Avenue.

Currently, transit service in the vicinity of the Project site is provided by the San Diego Metropolitan Transit System (MTS) by Routes 1 and 852. Bus stops serving these routes are located on Allison Ave at University Ave.

Route 1, with service between the Hillcrest Transit Ctr. and Grossmont Transit Ctr. operates between 4:49 AM and 11:14 PM with a 15-minute frequency for the most part of the day on weekdays and between 6:28 AM to 8:34 PM with a frequency of a 30-minute frequency on weekends.

Route 852 with service from University Avenue / 54th Street to Grossmont transit Center operates from 5:00 am to 11:00 pm Monday through Friday at 30-minute frequency during the AM and PM peak hours. On Saturdays, this route runs from 6:30 AM to 10:30 PM and on Sundays from 6:30 AM to 9:30 PM at 30-minute frequency.

Appendix E contains the Route Maps and schedules of MTS routes 1 and 852.

Trolley Line

La Mesa Boulevard Station located between Allison Avenue and La Mesa Boulevard is the nearest Orange Line Trolley station to the Project site, located about 1,500 feet from the project site. As noted in the *La Mesa Bicycle Facilities and Alternative Transportation Plan*, February 2012, the “La Mesa Boulevard station does not have a dedicated parking lot, however public off- and on-street parking exists within the nearby Civic Center complex. La Mesa’s downtown district supports pedestrian travel and the district is well served by primary bus routes, reducing the need for a dedicated transit parking lot.”

The Orange Trolley Line Provides service to the area via the La Mesa Boulevard Station. Trolleys run from 5:00 AM to 1:00 AM and run on 15-minute intervals mostly on weekdays. On Saturdays, the trolley runs on 30-minute intervals from 5:30 AM to 1:00 AM. On Sundays, the Orange Line Trolley Runs from 5:30 AM to 11:30 PM.

12.2.2 Future Transit Improvements

No improvements to the existing transit facilities are planned.

12.3 Bicycle Mobility

12.3.1 Existing Bicycle Conditions

Within the Project study area, Class 2 bike lanes are provided as follows:

- On University Drive in the eastbound direction only, between Allison Avenue and Baltimore Drive
- On University Avenue in both directions, east of Spring Street up to La Mesa Boulevard (east).
- Allison Avenue between University Avenue and La Mesa Boulevard is a designated bike route.

According to the La Mesa Bicycle Facilities and Alternative Transportation Plan, February 2012, the number of cyclists in a day at the Allison Avenue / Spring Street intersection is 53.

12.3.2 Future Bicycle Improvements

No future improvements are planned in the Project study area roadway segments.

13.0 CONCLUSIONS

The Project is located within ½ mile of a high-quality transit corridor and would therefore be screened out of needing a formal VMT analysis. The capacity and LOS analysis indicates all study area intersections and segments are calculated to operate at LOS D or better. Therefore, no improvements are required.

TECHNICAL APPENDICES

**ALLISON AVENUE TRANSIT ORIENTED
DEVELOPMENT**

La Mesa, California
May 26, 2021

LLG Ref. 3-20-3323

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APPENDICES

APPENDIX

- A. Intersection and Segment Manual Count Sheets
- B. Peak Hour Intersection Analysis Worksheets – Existing
- C. Excerpts from Cumulative Project Traffic Studies and Peak Hour Intersection Analysis Worksheets – Near-Term Without Project
- D. Peak Hour Intersection Analysis Worksheets – Near-Term With Project
- E. Extract from the *Smart Growth – Pedestrian and Bicycle Improvements, North Spring Street* and Routes 1 and 852 Maps and Schedules

ATTACHMENT A

INTERSECTION AND SEGMENT MANUAL COUNT SHEET

Intersection Turning Movement - Peak Hour Vehicle Count



Location: #01
 Intersection: Date Avenue & Allison Avenue
 Date of Count: Thursday, January 07, 2021

File Name: ITM-21-002-01
 Project: LLG Ref. 3-20-3323
 La Mesa

AM	Date Avenue Southbound			Allison Avenue Westbound			Date Avenue Northbound			Allison Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	3	7	6	0	0	6	2	7	3	34
7:15	2	1	1	7	7	9	2	1	4	6	8	1	49
7:30	2	4	1	8	10	3	2	1	3	0	14	7	55
7:45	1	6	1	18	13	11	0	0	8	3	10	10	81
8:00	2	1	0	9	13	4	1	0	2	1	10	11	54
8:15	3	1	2	9	8	5	2	1	9	2	8	6	56
8:30	1	2	0	2	12	3	4	3	4	0	13	8	52
8:45	1	6	4	8	12	4	1	2	11	1	9	12	71
Total	12	21	9	64	82	45	12	8	47	15	79	58	452
Approach%	28.6	50.0	21.4	33.5	42.9	23.6	17.9	11.9	70.1	9.9	52.0	38.2	
Total%	2.7	4.6	2.0	14.2	18.1	10.0	2.7	1.8	10.4	3.3	17.5	12.8	

AM Intersection Peak Hour: 07:30 to 08:30

Volume	8	12	4	44	44	23	5	2	22	6	42	34	246
Approach%	33.3	50.0	16.7	39.6	39.6	20.7	17.2	6.9	75.9	7.3	51.2	41.5	
Total%	3.3	4.9	1.6	17.9	17.9	9.3	2.0	0.8	8.9	2.4	17.1	13.8	
PHF			0.75			0.66			0.60			0.89	0.94

PM	Date Avenue Southbound			Allison Avenue Westbound			Date Avenue Northbound			Allison Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	7	1	3	8	20	7	4	2	15	3	17	3	90
16:15	2	2	6	4	17	2	1	6	12	4	28	3	87
16:30	8	3	1	10	24	9	4	5	11	3	16	4	98
16:45	7	2	2	5	29	7	4	2	29	0	22	6	115
17:00	3	1	1	7	14	3	8	0	11	3	19	8	78
17:15	6	2	3	6	23	1	2	1	16	0	21	2	83
17:30	6	3	3	7	19	1	2	2	10	1	22	1	77
17:45	3	2	1	3	22	3	4	1	8	3	16	2	68
Total	42	16	20	50	168	33	29	19	112	17	161	29	696
Approach%	53.8	20.5	25.6	19.9	66.9	13.1	18.1	11.9	70.0	8.2	77.8	14.0	
Total%	6.0	2.3	2.9	7.2	24.1	4.7	4.2	2.7	16.1	2.4	23.1	4.2	

PM Intersection Peak Hour: 16:00 to 17:00

Volume	24	8	12	27	90	25	13	15	67	10	83	16	390
Approach%	54.5	18.2	27.3	19.0	63.4	17.6	13.7	15.8	70.5	9.2	76.1	14.7	
Total%	6.2	2.1	3.1	6.9	23.1	6.4	3.3	3.8	17.2	2.6	21.3	4.1	
PHF			0.92			0.83			0.68			0.78	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #01
 Intersection: Date Avenue & Allison Avenue
 Date of Count: Thursday, January 07, 2021

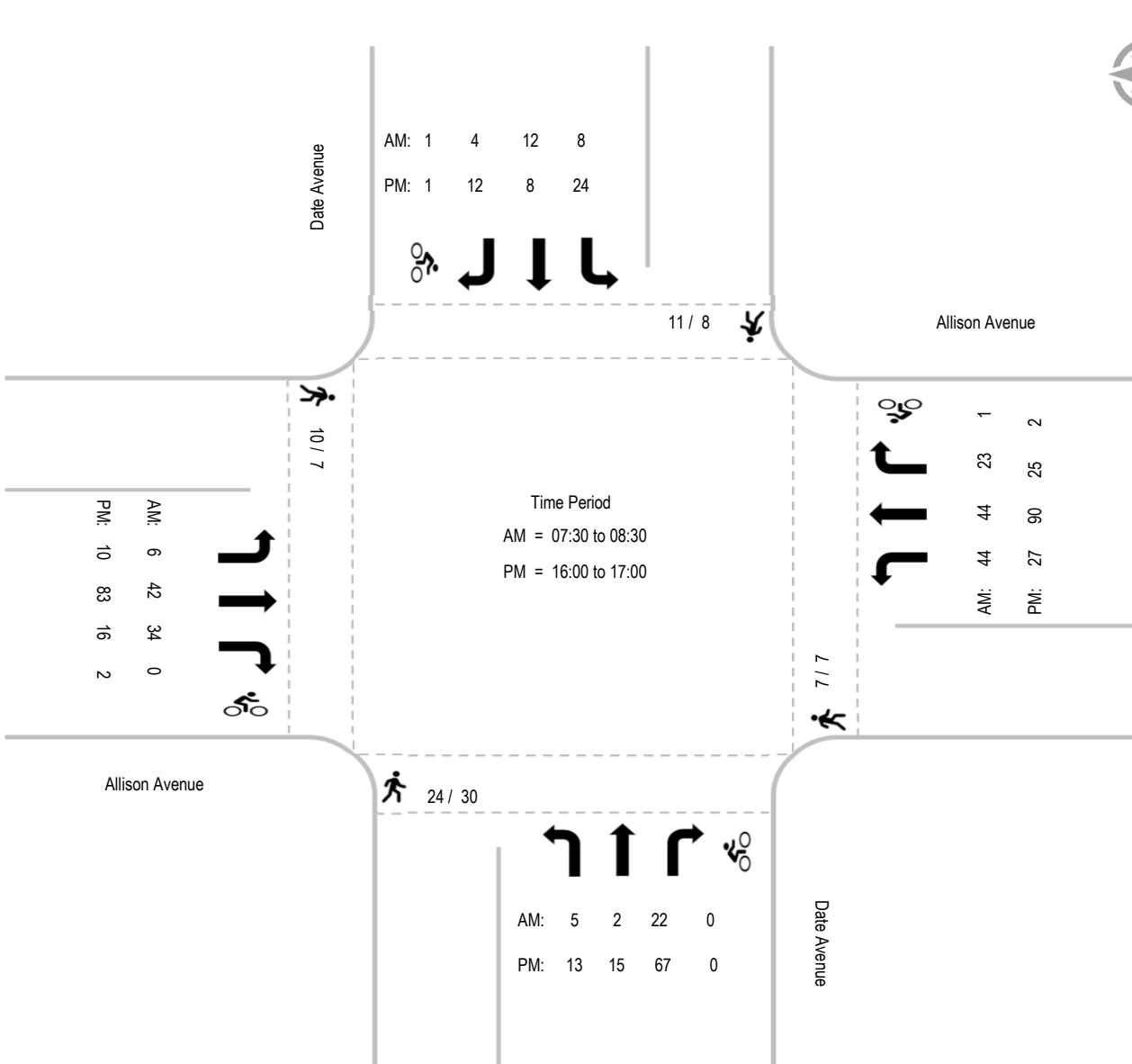
File Name: ITM-21-002-01
 Project: LLG Ref. 3-20-3323
 La Mesa

AM	Date Avenue Southbound				Allison Avenue Westbound				Date Avenue Northbound				Allison Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	1	0	0	0	4	0	0	0	3	0	0	0	9	0
7:15	1	0	1	0	3	0	0	0	2	0	0	0	0	0	0	0	6	1
7:30	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0
7:45	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	3	0
8:00	2	0	0	0	2	0	0	0	7	0	0	0	0	0	0	0	11	0
8:15	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	5	0
8:30	3	0	0	0	1	0	1	0	4	0	0	0	1	0	0	0	9	1
8:45	3	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	7	0
Ped Total	11				7				24				10				52	
Bike Total		0	1	0		0	1	0		0	0	0		0	0	0		2

PM	Date Avenue Southbound				Allison Avenue Westbound				Date Avenue Northbound				Allison Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	9	0	0	0	2	0	1	0	11	1
16:15	2	0	0	0	3	0	0	0	5	0	0	0	1	0	0	0	11	0
16:30	2	0	0	0	1	2	0	0	3	0	0	0	3	0	0	0	9	2
16:45	2	1	0	0	2	0	0	0	5	0	0	0	1	0	0	0	10	1
17:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:15	0	0	0	0	1	0	0	0	3	0	0	0	0	0	1	0	4	1
17:30	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0
17:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	8				7				30				7				52	
Bike Total		1	0	0		2	0	0		0	0	0		0	2	0		5

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location: #01	File Name: ITM-21-002-01
	Intersection: Date Avenue & Allison Avenue	Project: LLG Ref. 3-20-3323
	Date of Count: Thursday, January 07, 2021	La Mesa



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #02
 Intersection: Acacia Avenue & La Mesa Boulevard
 Date of Count: Thursday, January 07, 2021

File Name: ITM-21-002-02
 Project: LLG Ref. 3-20-3323
 La Mesa

AM	Acacia Avenue Southbound			La Mesa Blvd Westbound			Acacia Avenue Northbound			La Mesa Blvd Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	1	0	1	1	16	1	9	4	0	0	12	4	49
7:15	0	1	0	1	16	1	13	5	1	0	14	3	55
7:30	0	1	0	1	25	2	24	6	2	0	19	6	86
7:45	1	1	1	2	32	3	22	10	2	5	23	11	113
8:00	1	3	0	1	32	6	28	1	0	3	34	8	117
8:15	0	5	4	2	21	4	22	6	4	1	34	9	112
8:30	1	2	1	0	32	2	13	4	2	2	31	10	100
8:45	0	0	3	1	43	2	14	6	2	2	26	4	103
Total	4	13	10	9	217	21	145	42	13	13	193	55	735
Approach%	14.8	48.1	37.0	3.6	87.9	8.5	72.5	21.0	6.5	5.0	73.9	21.1	
Total%	0.5	1.8	1.4	1.2	29.5	2.9	19.7	5.7	1.8	1.8	26.3	7.5	

AM Intersection Peak Hour: 07:45 to 08:45

Volume	3	11	6	5	117	15	85	21	8	11	122	38	442
Approach%	15.0	55.0	30.0	3.6	85.4	10.9	74.6	18.4	7.0	6.4	71.3	22.2	
Total%	0.7	2.5	1.4	1.1	26.5	3.4	19.2	4.8	1.8	2.5	27.6	8.6	
PHF			0.56			0.88			0.84			0.95	0.94

PM	Acacia Avenue Southbound			La Mesa Blvd Westbound			Acacia Avenue Northbound			La Mesa Blvd Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	5	5	4	3	30	4	21	2	0	4	54	13	145
16:15	1	6	3	1	47	5	16	3	3	1	43	13	142
16:30	6	8	5	3	45	3	13	6	4	2	52	17	164
16:45	3	12	8	1	39	6	19	5	2	1	62	16	174
17:00	3	9	5	5	43	0	10	3	3	3	66	22	172
17:15	1	4	4	4	36	2	12	3	2	2	53	26	149
17:30	1	6	1	5	37	1	17	2	5	1	59	11	146
17:45	2	1	2	3	37	1	16	3	3	1	41	11	121
Total	22	51	32	25	314	22	124	27	22	15	430	129	1213
Approach%	21.0	48.6	30.5	6.9	87.0	6.1	71.7	15.6	12.7	2.6	74.9	22.5	
Total%	1.8	4.2	2.6	2.1	25.9	1.8	10.2	2.2	1.8	1.2	35.4	10.6	

PM Intersection Peak Hour: 16:30 to 17:30

Volume	13	33	22	13	163	11	54	17	11	8	233	81	659
Approach%	19.1	48.5	32.4	7.0	87.2	5.9	65.9	20.7	13.4	2.5	72.4	25.2	
Total%	2.0	5.0	3.3	2.0	24.7	1.7	8.2	2.6	1.7	1.2	35.4	12.3	
PHF			0.74			0.92			0.79			0.88	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #02	File Name: ITM-21-002-02
Intersection: Acacia Avenue & La Mesa Boulevard	Project: LLG Ref. 3-20-3323
Date of Count: Thursday, January 07, 2021	La Mesa

AM	Acacia Avenue Southbound				La Mesa Blvd Westbound				Acacia Avenue Northbound				La Mesa Blvd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	2	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0	7	0
7:15	1	0	0	1	1	0	0	0	0	0	0	0	2	0	1	0	4	2
7:30	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	5	1
7:45	4	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	6	0
8:00	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	3	1
8:15	3	0	0	0	1	0	0	0	3	0	0	0	2	0	0	0	9	0
8:30	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	11	0
8:45	2	0	0	0	3	0	0	0	4	0	0	0	1	0	0	0	10	0
Ped Total	21				15				11				8				55	
Bike Total		0	0	1		0	1	0		1	0	0		0	1	0		4

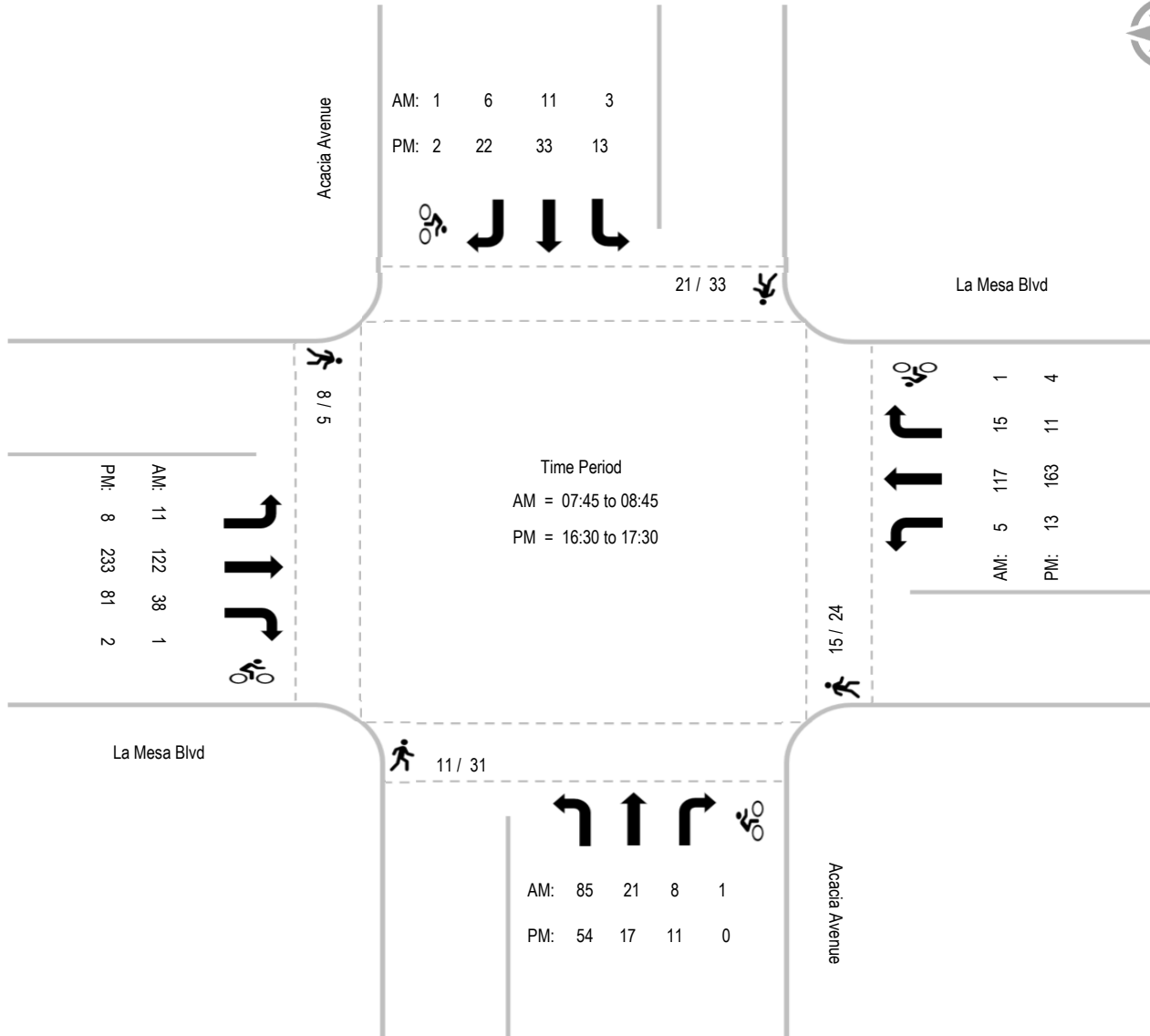
PM	Acacia Avenue Southbound				La Mesa Blvd Westbound				Acacia Avenue Northbound				La Mesa Blvd Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	8	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	10	0
16:15	4	0	0	0	0	0	0	0	2	0	0	0	1	0	2	0	7	2
16:30	5	0	2	0	2	0	3	0	8	0	0	0	1	0	0	0	16	5
16:45	3	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0	8	0
17:00	3	0	0	0	3	0	0	0	6	0	0	0	1	0	0	0	13	0
17:15	5	0	0	0	7	0	0	0	6	0	0	0	0	0	0	0	18	0
17:30	4	0	0	0	9	0	1	0	4	0	0	0	1	0	0	0	18	1
17:45	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0
Ped Total	33				24				31				5				93	
Bike Total		0	2	0		0	4	0		0	0	0		0	2	0		8

Intersection Turning Movement - Peak Hour Summary



Location: #02
 Intersection: Acacia Avenue & La Mesa Boulevard
 Date of Count: Thursday, January 07, 2021

File Name: ITM-21-002-02
 Project: LLG Ref. 3-20-3323
 La Mesa



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **University Ave, between Allison Ave and Baltimore Dr**

Date: Thursday, January 7, 2021					Total Daily Volume: 15732										Description: Total Volume								
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
53	24	16	35	71	170	415	685	913	814	917	1046	1316	1144	1278	1521	1416	1337	922	607	457	263	177	135
20	3	4	12	19	26	70	123	247	204	238	226	337	268	301	427	383	340	281	161	137	78	67	53
7	6	8	6	13	36	76	151	265	182	191	265	296	313	289	378	315	350	243	160	105	66	29	29
17	4	3	6	19	50	119	158	189	212	245	275	346	260	328	353	382	342	205	160	116	62	40	22
9	11	1	11	20	58	150	253	212	216	243	280	337	303	360	363	336	305	193	126	99	57	41	31

Date: Thursday, January 7, 2021					Total Daily Volume: 7991												Description: Eastbound Volume							
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
21	12	7	23	43	124	278	341	507	414	474	536	688	587	678	758	655	621	422	280	224	142	93	63	
10	2	0	8	8	22	48	66	135	104	123	120	193	130	160	230	191	154	133	81	72	44	36	23	
2	2	5	4	6	29	55	82	156	94	95	138	130	144	142	216	158	152	95	80	46	36	14	14	
6	4	2	5	13	37	79	82	104	109	138	145	183	148	174	153	186	165	102	66	59	34	23	11	
3	4	0	6	16	36	96	111	112	107	118	133	182	165	202	159	120	150	92	53	47	28	20	15	

Date: Thursday, January 7, 2021					Total Daily Volume: 7741												Description: Westbound Volume						
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
32	12	9	12	28	46	137	344	406	400	443	510	628	557	600	763	761	716	500	327	233	121	84	72
10	1	4	4	11	4	22	57	112	100	115	106	144	138	141	197	192	186	148	80	65	34	31	30
5	4	3	2	7	7	21	69	109	88	96	127	166	169	147	162	157	198	148	80	59	30	15	15
11	0	1	1	6	13	40	76	85	103	107	130	163	112	154	200	196	177	103	94	57	28	17	11
6	7	1	5	4	22	54	142	100	109	125	147	155	138	158	204	216	155	101	73	52	29	21	16

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Spring St, between Allison Ave and Baltimore Dr**

Date: Thursday, January 7, 2021					Total Daily Volume: 15291										Description: Total Volume								
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
91	71	35	41	82	254	425	715	745	833	936	1072	1086	1133	1199	1432	1458	1290	767	546	438	286	218	138
26	21	13	8	15	39	86	135	166	180	246	209	226	262	260	362	398	348	246	144	140	90	66	40
28	14	11	9	14	48	80	171	201	181	256	279	270	265	341	377	362	319	223	150	98	71	65	37
22	17	9	14	16	71	116	181	187	215	204	293	286	304	270	365	340	354	157	139	99	69	50	41
15	19	2	10	37	96	143	228	191	257	230	291	304	302	328	328	358	269	141	113	101	56	37	20

Date: Thursday, January 7, 2021					Total Daily Volume: 7572												Description: Northbound Volume							
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
31	25	10	25	53	193	315	494	463	492	474	588	568	570	587	634	607	468	311	234	176	117	92	45	
10	7	3	5	11	27	59	94	97	117	109	119	142	130	121	167	165	139	88	66	66	38	29	13	
9	5	4	4	8	37	63	116	123	97	146	153	135	136	177	166	164	113	98	58	36	31	32	13	
7	5	1	9	12	52	83	128	130	135	98	157	156	158	127	167	142	129	61	60	34	24	19	13	
5	8	2	7	22	77	110	156	113	143	121	159	135	146	162	134	136	87	64	50	40	24	12	6	

Date: Thursday, January 7, 2021					Total Daily Volume: 7719												Description: Southbound Volume							
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
60	46	25	16	29	61	110	221	282	341	462	484	518	563	612	798	851	822	456	312	262	169	126	93	
16	14	10	3	4	12	27	41	69	63	137	90	84	132	139	195	233	209	158	78	74	52	37	27	
19	9	7	5	6	11	17	55	78	84	110	126	135	129	164	211	198	206	125	92	62	40	33	24	
15	12	8	5	4	19	33	53	57	80	106	136	130	146	143	198	198	225	96	79	65	45	31	28	
10	11	0	3	15	19	33	72	78	114	109	132	169	156	166	194	222	182	77	63	61	32	25	14	

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Allison Ave, between University Ave and Date Ave**

Date: Thursday, January 7, 2021					Total Daily Volume: 3195										Description: Total Volume								
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
14	2	4	7	7	23	50	141	179	200	260	251	298	263	294	332	271	219	131	78	65	57	25	24
3	0	0	0	2	7	5	25	47	55	60	52	76	61	75	91	60	57	44	20	15	10	3	12
1	1	3	1	1	8	9	32	40	46	65	45	81	64	60	87	79	56	24	18	19	20	10	5
2	0	1	3	2	1	8	38	41	40	53	94	72	79	70	67	59	51	35	27	18	16	4	5
8	1	0	3	2	7	28	46	51	59	82	60	69	59	89	87	73	55	28	13	13	11	8	2

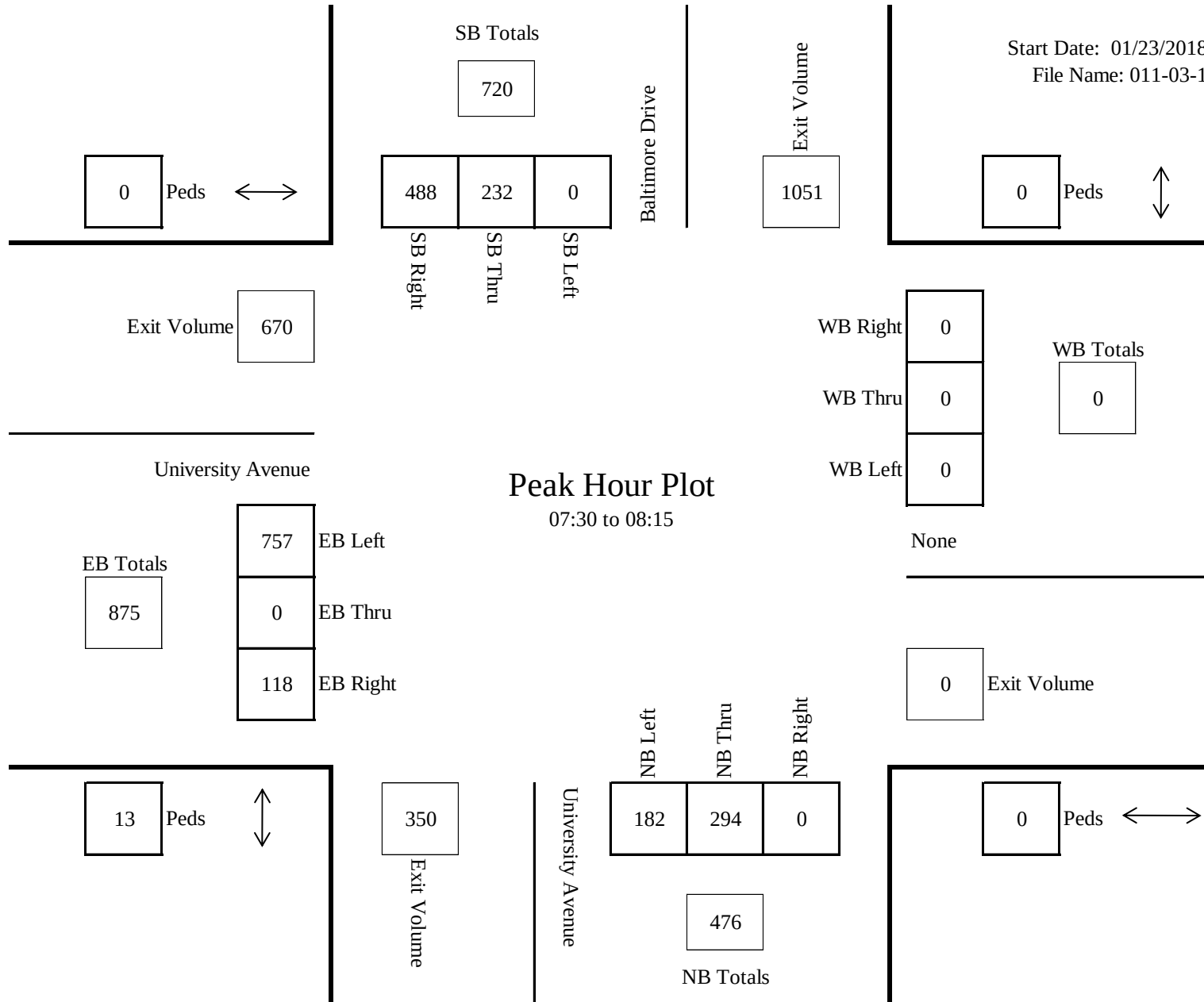
Date: Thursday, January 7, 2021					Total Daily Volume: 1764												Description: Eastbound Volume							
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
7	2	1	2	4	13	24	98	108	107	136	136	165	148	171	201	134	117	67	42	31	29	13	8	
1	0	0	0	2	5	2	17	29	27	29	24	41	27	36	72	30	31	24	10	4	6	1	4	
0	1	1	1	1	4	4	22	24	24	38	21	43	40	33	49	44	30	10	12	11	10	6	2	
1	0	0	1	1	0	4	24	23	27	30	59	40	49	46	34	28	26	20	15	6	6	1	1	
5	1	0	0	0	4	14	35	32	29	39	32	41	32	56	46	32	30	13	5	10	7	5	1	

Date: Thursday, January 7, 2021					Total Daily Volume: 1431												Description: Westbound Volume							
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	
7	0	3	5	3	10	26	43	71	93	124	115	133	115	123	131	137	102	64	36	34	28	12	16	
2	0	0	0	0	2	3	8	18	28	31	28	35	34	39	19	30	26	20	10	11	4	2	8	
1	0	2	0	0	4	5	10	16	22	27	24	38	24	27	38	35	26	14	6	8	10	4	3	
1	0	1	2	1	1	4	14	18	13	23	35	32	30	24	33	31	25	15	12	12	10	3	4	
3	0	0	3	2	3	14	11	19	30	43	28	28	27	33	41	41	25	15	8	3	4	3	1	

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Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111



Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #03 Baltimore Drive & University Avenue

File Name: 011-03-1

	Baltimore Drive Southbound				None Westbound				University Avenue Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
7:00	0	21	56	0	0	0	0	0	26	85	0	1	163	0	24	4	380
7:15	0	43	106	4	0	0	0	0	51	118	0	0	162	0	22	1	507
7:30	0	54	138	0	0	0	0	0	45	79	0	0	151	0	15	1	483
7:45	0	63	129	0	0	0	0	0	53	80	0	0	233	0	23	1	582
Total	0	181	429	4	0	0	0	0	175	362	0	1	709	0	84	7	1952
8:00	0	46	114	0	0	0	0	0	37	68	0	0	197	0	42	5	509
8:15	0	69	107	0	0	0	0	0	47	67	0	0	176	0	38	6	510
8:30	0	48	102	0	0	0	0	0	45	59	0	1	133	0	45	6	439
8:45	0	56	98	0	0	0	0	0	33	54	0	0	173	0	40	0	454
Total	0	219	421	0	0	0	0	0	162	248	0	1	679	0	165	17	1912
Grand Total	0	400	850	4	0	0	0	0	337	610	0	2	1388	0	249	24	3864
Approach%	-	31.9	67.8	0.3	-	-	-	-	35.5	64.3	-	0.2	83.6	-	15.0	1.4	
Total%	-	10.4	22.0	0.1	-	-	-	-	8.7	15.8	-	0.1	35.9	-	6.4	0.6	

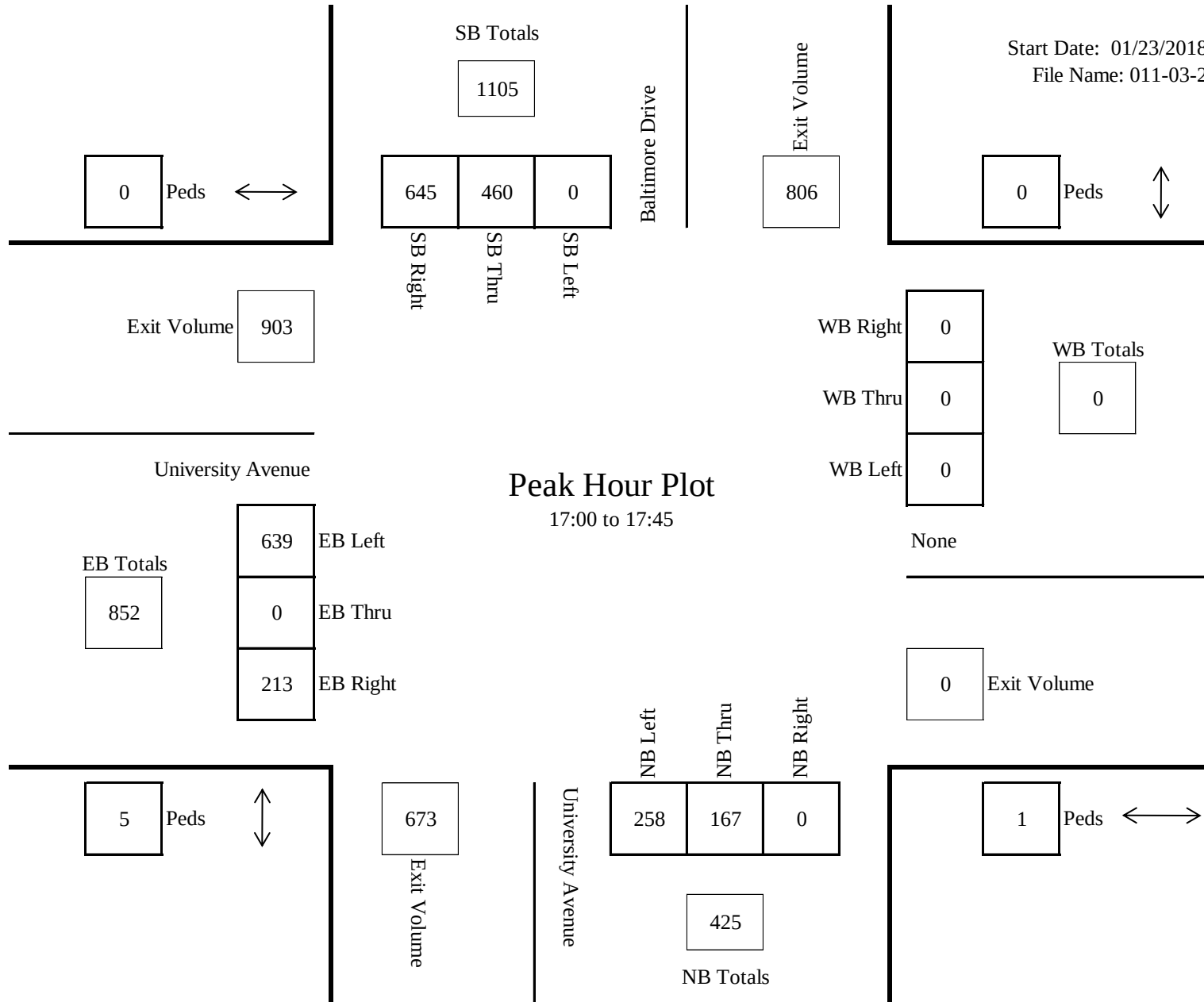
Peak hour analysis for the period 07:30 to 08:15

Volume	-	232	488	-	-	-	-	-	182	294	-	-	757	-	118	13	2,084
Approach%	-	32.2	67.8	-	-	-	-	-	38.2	61.8	-	-	85.2	-	13.3	1.5	
Total%	-	11.1	23.4	-	-	-	-	-	8.7	14.1	-	-	36.3	-	5.7	0.6	
PHF				0.94				#####				0.89				0.86	

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Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111



Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #03 Baltimore Drive & University Avenue

File Name: 011-03-2

	Baltimore Drive Southbound				None Westbound				University Avenue Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
16:00	0	100	135	0	0	0	0	0	68	51	0	0	151	0	49	7	561
16:15	0	112	146	0	0	0	0	0	73	57	0	0	153	0	38	6	585
16:30	0	123	131	0	0	0	0	0	66	48	0	0	148	0	52	4	572
16:45	0	95	127	0	0	0	0	0	39	44	0	0	132	0	41	3	481
Total	0	430	539	0	0	0	0	0	246	200	0	0	584	0	180	20	2199
17:00	0	97	164	0	0	0	0	0	73	44	0	1	141	0	65	0	585
17:15	0	104	151	0	0	0	0	0	65	38	0	0	181	0	51	2	592
17:30	0	134	171	0	0	0	0	0	62	44	0	0	167	0	53	3	634
17:45	0	125	159	0	0	0	0	0	58	41	0	0	150	0	44	0	577
Total	0	460	645	0	0	0	0	0	258	167	0	1	639	0	213	5	2388
Grand Total	0	890	1184	0	0	0	0	0	504	367	0	1	1223	0	393	25	4587
Approach%	-	42.9	57.1	-	-	-	-	-	57.8	42.1	-	0.1	74.5	-	23.9	1.5	
Total%	-	19.4	25.8	-	-	-	-	-	11.0	8.0	-	0.0	26.7	-	8.6	0.5	

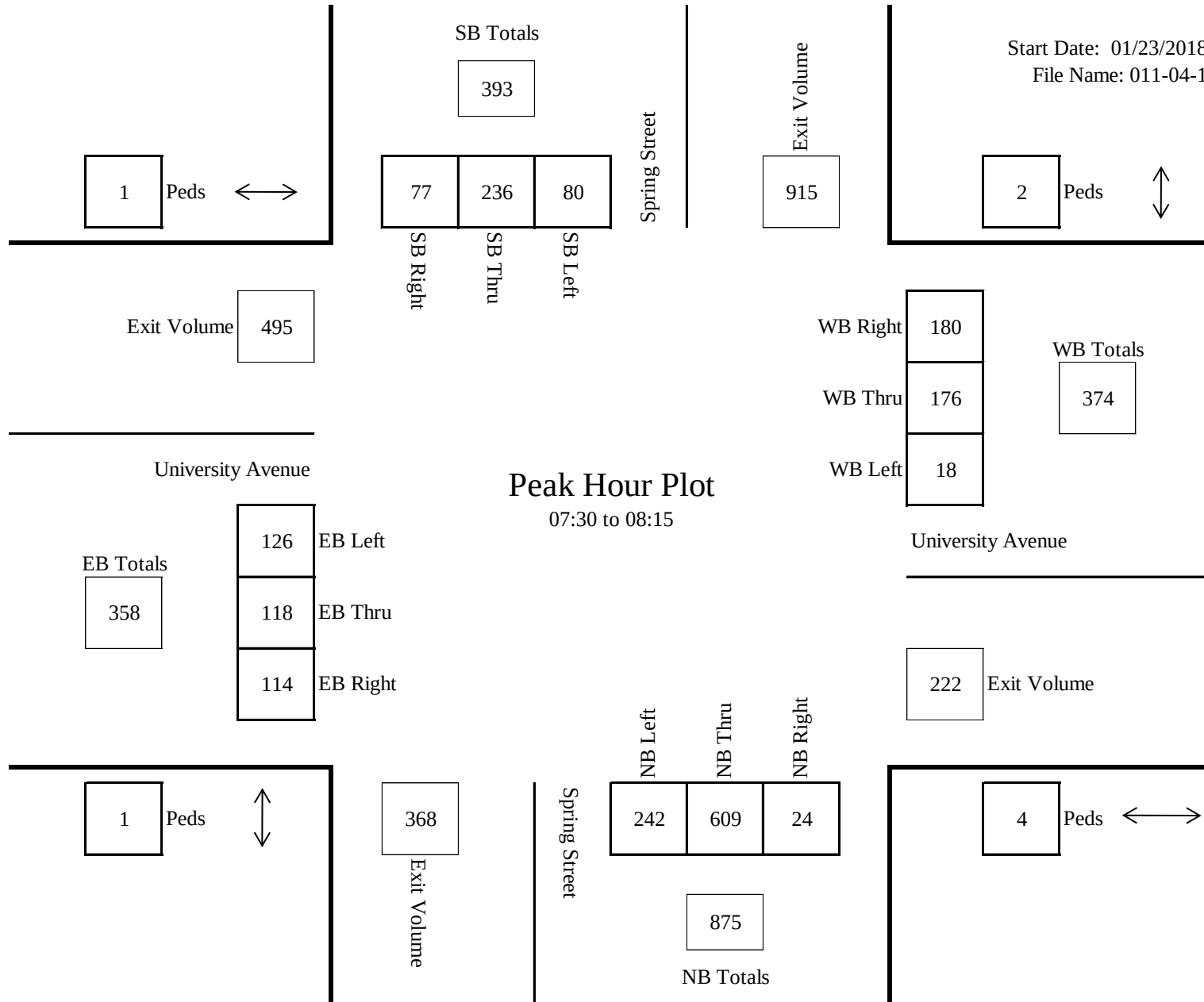
Peak hour analysis for the period 17:00 to 17:45

Volume	-	460	645	-	-	-	-	-	258	167	-	1	639	-	213	5	2,388
Approach%	-	41.6	58.4	-	-	-	-	-	60.6	39.2	-	0.2	74.6	-	24.9	0.6	
Total%	-	19.3	27.0	-	-	-	-	-	10.8	7.0	-	0.0	26.8	-	8.9	0.2	
PHF				0.91				#####				0.90				0.92	

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4542 Ruffner Street #100 * San Diego, CA 92111



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4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #04 Spring Street & University Avenue

File Name: 011-04-1

	Spring Street Southbound				University Avenue Westbound				Spring Street Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
7:00	9	38	13	0	6	19	47	1	84	183	6	2	19	8	17	0	452
7:15	13	49	17	0	3	49	43	2	83	132	2	3	23	21	13	0	453
7:30	15	55	16	0	6	65	48	0	69	160	7	0	33	23	27	0	524
7:45	18	61	32	0	3	34	37	1	63	164	5	3	38	29	31	1	520
Total	55	203	78	0	18	167	175	4	299	639	20	8	113	81	88	1	1949
8:00	26	56	13	0	6	27	50	1	62	157	8	1	30	25	32	0	494
8:15	21	64	16	1	3	50	45	0	48	128	4	0	25	41	24	0	470
8:30	16	54	11	0	3	32	44	3	45	162	4	3	45	30	20	0	472
8:45	22	71	17	0	8	25	42	0	40	141	4	0	31	20	42	0	463
Total	85	245	57	1	20	134	181	4	195	588	20	4	131	116	118	0	1899
Grand Total	140	448	135	1	38	301	356	8	494	1227	40	12	244	197	206	1	3848
Approach%	19.3	61.9	18.6	0.1	5.4	42.8	50.6	1.1	27.9	69.2	2.3	0.7	37.7	30.4	31.8	0.2	
Total%	3.6	11.6	3.5	0.0	1.0	7.8	9.3	0.2	12.8	31.9	1.0	0.3	6.3	5.1	5.4	0.0	

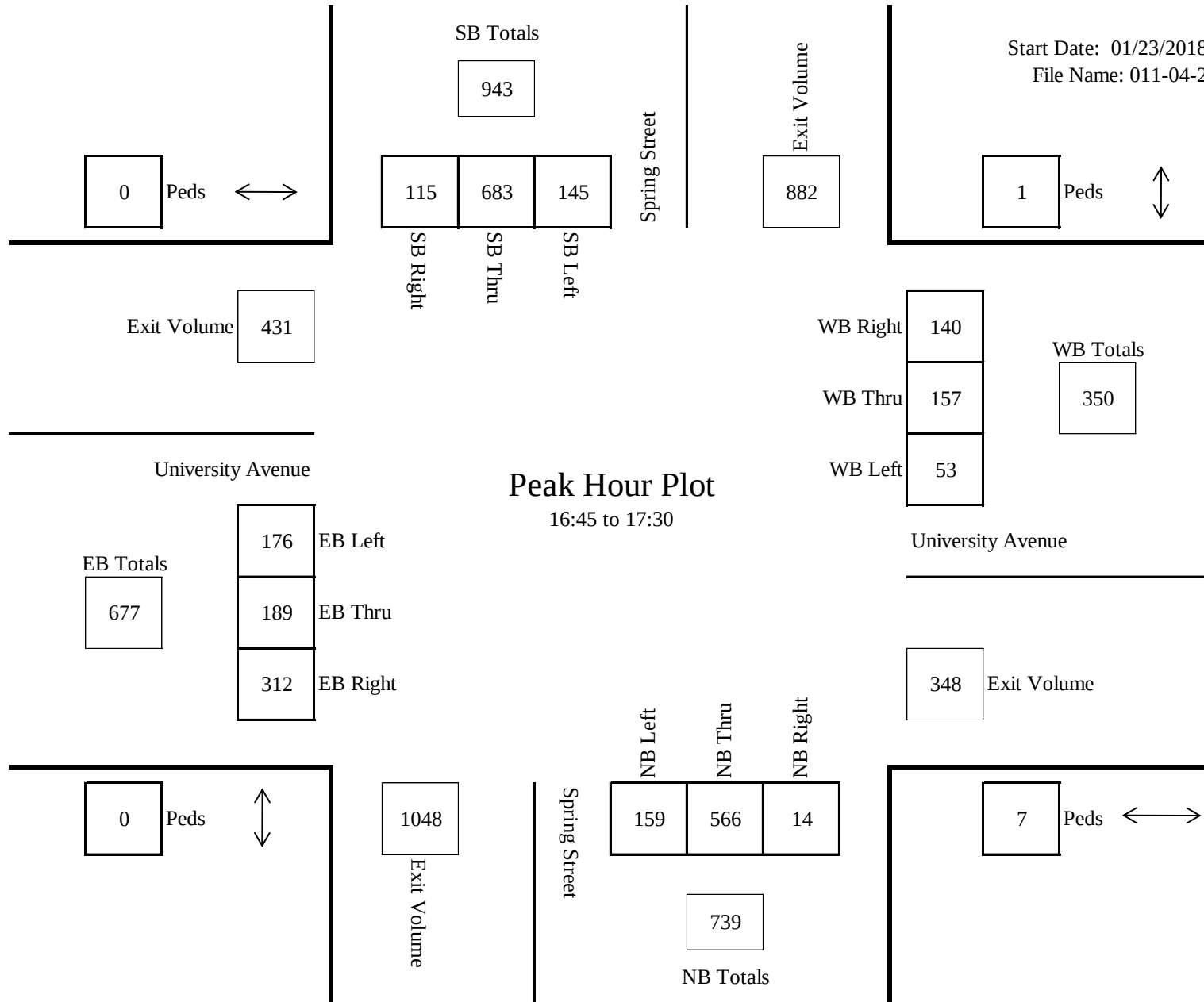
Peak hour analysis for the period 07:30 to 08:15

Volume	80	236	77	1	18	176	180	2	242	609	24	4	126	118	114	1	2,008
Approach%	20.3	59.9	19.5	0.3	4.8	46.8	47.9	0.5	27.5	69.3	2.7	0.5	35.1	32.9	31.8	0.3	
Total%	4.0	11.8	3.8	0.0	0.9	8.8	9.0	0.1	12.1	30.3	1.2	0.2	6.3	5.9	5.7	0.0	
PHF				0.89				0.79				0.93				0.91	

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Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111



Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #04 Spring Street & University Avenue

File Name: 011-04-2

	Spring Street Southbound				University Avenue Westbound				Spring Street Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
16:00	25	164	30	0	8	31	48	3	40	147	6	1	42	37	69	0	651
16:15	47	160	38	1	13	39	34	1	42	107	7	4	42	33	72	1	641
16:30	25	167	26	0	12	28	39	0	47	102	5	1	43	35	85	0	615
16:45	30	179	30	0	9	39	27	0	43	150	3	1	36	51	70	0	668
Total	127	670	124	1	42	137	148	4	172	506	21	7	163	156	296	1	2575
17:00	46	159	33	0	16	44	52	1	42	137	2	1	54	48	78	0	713
17:15	35	182	29	0	11	34	33	0	26	136	3	3	48	43	86	0	669
17:30	34	163	23	0	17	40	28	0	48	143	6	2	38	47	78	0	667
17:45	39	149	27	1	4	31	27	1	25	105	4	1	31	33	95	0	573
Total	154	653	112	1	48	149	140	2	141	521	15	7	171	171	337	0	2622
Grand Total	281	1323	236	2	90	286	288	6	313	1027	36	14	334	327	633	1	5197
Approach%	15.3	71.8	12.8	0.1	13.4	42.7	43.0	0.9	22.5	73.9	2.6	1.0	25.8	25.3	48.9	0.1	
Total%	5.4	25.5	4.5	0.0	1.7	5.5	5.5	0.1	6.0	19.8	0.7	0.3	6.4	6.3	12.2	0.0	

Peak hour analysis for the period 16:45 to 17:30

Volume	145	683	115	-	53	157	140	1	159	566	14	7	176	189	312	-	2,717
Approach%	15.4	72.4	12.2	-	15.1	44.7	39.9	0.3	21.3	75.9	1.9	0.9	26.0	27.9	46.1	-	
Total%	5.3	25.1	4.2	-	2.0	5.8	5.2	0.0	5.9	20.8	0.5	0.3	6.5	7.0	11.5	-	
PHF				0.96				0.78				0.94				0.94	

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Intersection Turning Movement - Peak Hour Vehicle Count



Location: #01	File Name: ITM-18-056-01
Intersection: University Avenue & Allison Street	Project: LLG Ref. 3-18-2856
Date of Count: Thursday, May 24, 2018	La Mesa

AM	University Avenue Southbound			Allison Street Westbound			University Avenue Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	12	87	0	7	0	3	0	169	12	0	0	0	290
7:15	5	170	0	14	0	4	0	140	15	0	0	0	348
7:30	9	184	0	15	0	7	0	246	19	0	0	0	480
7:45	26	157	0	13	0	11	0	279	17	0	0	0	503
8:00	16	111	0	14	0	14	1	242	15	0	0	0	413
8:15	11	102	0	10	0	7	0	189	16	0	0	0	335
8:30	12	114	0	12	0	10	0	180	11	0	0	0	339
8:45	17	110	0	11	0	7	0	155	16	0	0	0	316
Total	108	1035	0	96	0	63	1	1600	121	0	0	0	3024
Approach%	9.4	90.6	-	60.4	-	39.6	0.1	92.9	7.0	-	-	-	
Total%	3.6	34.2	-	3.2	-	2.1	0.0	52.9	4.0	-	-	-	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	56	622	-	56	-	36	1	907	66	-	-	-	1,744
Approach%	8.3	91.7	-	60.9	-	39.1	0.1	93.1	6.8	-	-	-	
Total%	3.2	35.7	-	3.2	-	2.1	0.1	52.0	3.8	-	-	-	
PHF			0.88			0.82			0.82			#DIV/0!	0.87

PM	University Avenue Southbound			Allison Street Westbound			University Avenue Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	13	180	0	23	0	16	1	187	25	0	0	0	445
16:15	18	205	0	26	0	16	0	189	21	0	0	0	475
16:30	22	166	0	22	0	18	0	168	37	0	0	0	433
16:45	13	204	0	31	0	13	1	169	27	0	0	0	458
17:00	14	194	0	27	0	22	0	177	31	0	0	0	465
17:15	17	215	0	24	0	18	0	187	16	0	0	0	477
17:30	16	181	0	20	0	15	0	188	17	0	0	0	437
17:45	12	169	0	14	0	9	0	165	16	0	0	0	385
Total	125	1514	0	187	0	127	2	1430	190	0	0	0	3575
Approach%	7.6	92.4	-	59.6	-	40.4	0.1	88.2	11.7	-	-	-	
Total%	4.1	50.1	-	6.2	-	4.2	0.1	47.3	6.3	-	-	-	

PM Intersection Peak Hour: 16:45 to 17:45

Volume	60	794	-	102	-	68	1	721	91	-	-	-	1,837
Approach%	7.0	93.0	-	60.0	-	40.0	0.1	88.7	11.2	-	-	-	
Total%	3.4	45.5	-	5.8	-	3.9	0.1	41.3	5.2	-	-	-	
PHF			0.92			0.87			0.98			#DIV/0!	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #01
 Intersection: University Avenue & Allison Street
 Date of Count: Thursday, May 24, 2018

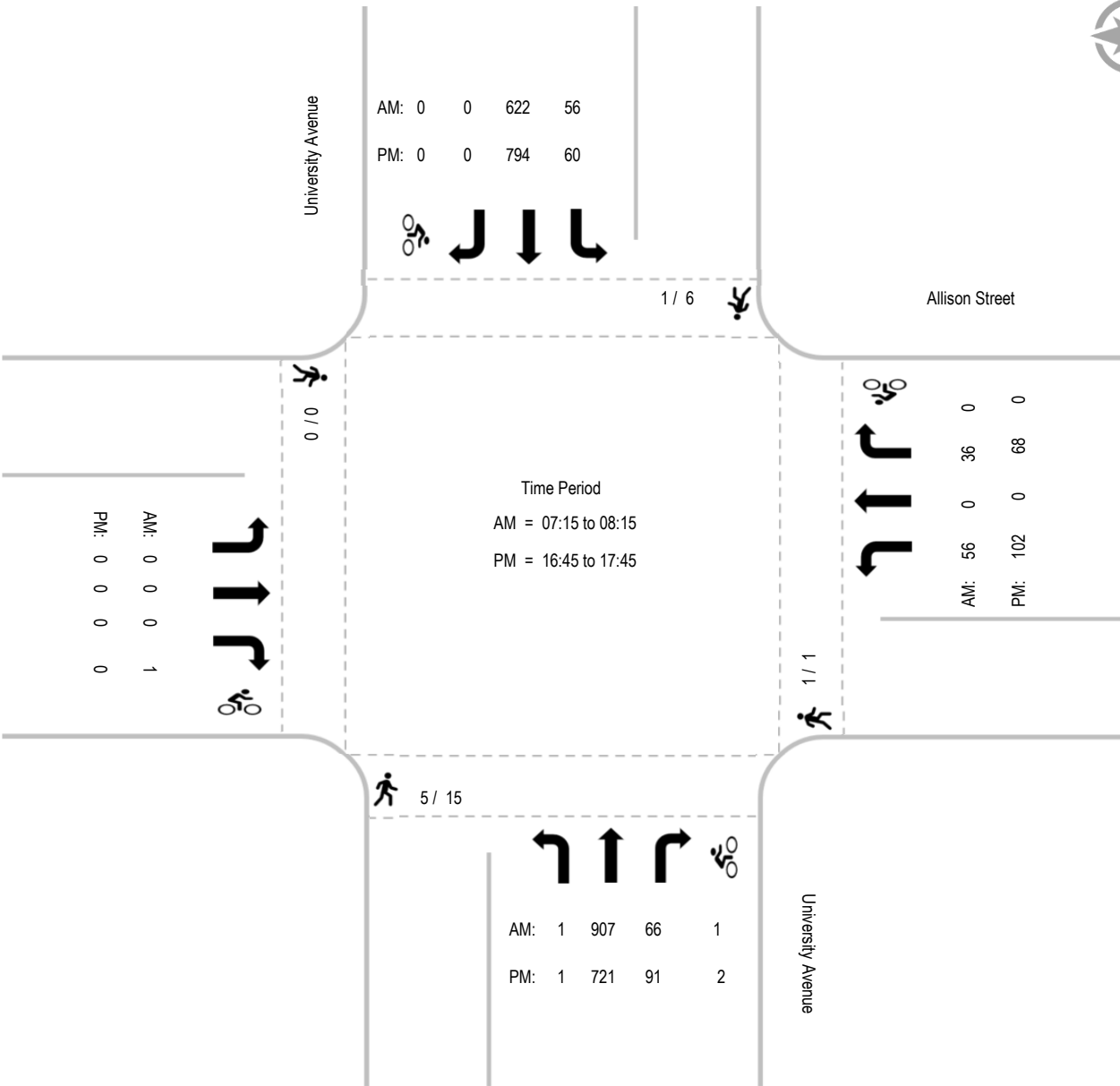
File Name: ITM-18-056-01
 Project: LLG Ref. 3-18-2856
 La Mesa

AM	University Avenue Southbound				Allison Street Westbound				University Avenue Northbound				Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:00	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				1				5				0				7	
Bike Total		0	0	0		0	0	0		0	1	0		0	0	1		2

PM	University Avenue Southbound				Allison Street Westbound				University Avenue Northbound				Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0
16:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
16:30	3	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0
16:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	1	2
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
17:45	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
Ped Total	6				1				15				0				22	
Bike Total		0	0	0		0	0	0		0	0	2		0	0	0		2

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#01	File Name:	ITM-18-056-01
	Intersection:	University Avenue & Allison Street	Project:	LLG Ref. 3-18-2856
	Date of Count:	Thursday, May 24, 2018		La Mesa



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #02
Intersection: Spring Street & Allison Street
Date of Count: Thursday, May 17, 2018

File Name: ITM-18-056-01
Project: LLG Ref. 3-18-2856
La Mesa

AM	Spring Street Southbound			Allison Street Westbound			Spring Street Northbound			Allison Street Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	2	39	9	0	14	41	6	194	1	7	8	8	329
7:15	12	48	16	0	11	31	9	191	0	13	10	8	349
7:30	9	57	12	1	23	42	12	160	1	12	8	3	340
7:45	10	60	23	4	21	41	6	180	2	15	17	6	385
8:00	9	63	11	1	24	47	8	209	0	16	6	3	397
8:15	10	85	8	1	18	56	9	208	2	9	13	10	429
8:30	16	51	14	1	10	65	10	161	3	10	7	6	354
8:45	12	57	12	2	12	45	14	166	1	12	10	7	350
Total	80	460	105	10	133	368	74	1469	10	94	79	51	2933
Approach%	12.4	71.3	16.3	2.0	26.0	72.0	4.8	94.6	0.6	42.0	35.3	22.8	
Total%	2.7	15.7	3.6	0.3	4.5	12.5	2.5	50.1	0.3	3.2	2.7	1.7	

AM Intersection Peak Hour: 07:45 to 08:45

Volume	45	259	56	7	73	209	33	758	7	50	43	25	1,565
Approach%	12.5	71.9	15.6	2.4	25.3	72.3	4.1	95.0	0.9	42.4	36.4	21.2	
Total%	2.9	16.5	3.6	0.4	4.7	13.4	2.1	48.4	0.4	3.2	2.7	1.6	
PHF			0.87			0.95			0.91			0.78	0.91

PM	Spring Street Southbound			Allison Street Westbound			Spring Street Northbound			Allison Street Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	22	204	26	6	20	26	18	127	2	25	27	14	517
16:15	33	261	31	6	36	38	23	198	6	24	37	16	709
16:30	26	194	19	4	31	23	17	164	2	38	30	20	568
16:45	23	188	30	4	16	40	19	172	3	28	28	11	562
17:00	22	201	21	6	18	28	10	120	6	39	45	10	526
17:15	23	241	10	3	13	37	9	130	3	20	24	6	519
17:30	20	188	8	5	16	35	8	122	6	31	25	11	475
17:45	16	189	18	4	12	34	5	74	4	20	29	13	418
Total	185	1666	163	38	162	261	109	1107	32	225	245	101	4294
Approach%	9.2	82.7	8.1	8.2	35.1	56.6	8.7	88.7	2.6	39.4	42.9	17.7	
Total%	6.3	56.8	5.6	1.3	5.5	8.9	3.7	37.7	1.1	7.7	8.4	3.4	

PM Intersection Peak Hour: 16:15 to 17:15

Volume	104	844	101	20	101	129	69	654	17	129	140	57	2,365
Approach%	9.9	80.5	9.6	8.0	40.4	51.6	9.3	88.4	2.3	39.6	42.9	17.5	
Total%	6.6	53.9	6.5	1.3	6.5	8.2	4.4	41.8	1.1	8.2	8.9	3.6	
PHF			0.81			0.78			0.81			0.87	0.083

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #02
 Intersection: Spring Street & Allison Street
 Date of Count: Thursday, May 17, 2018

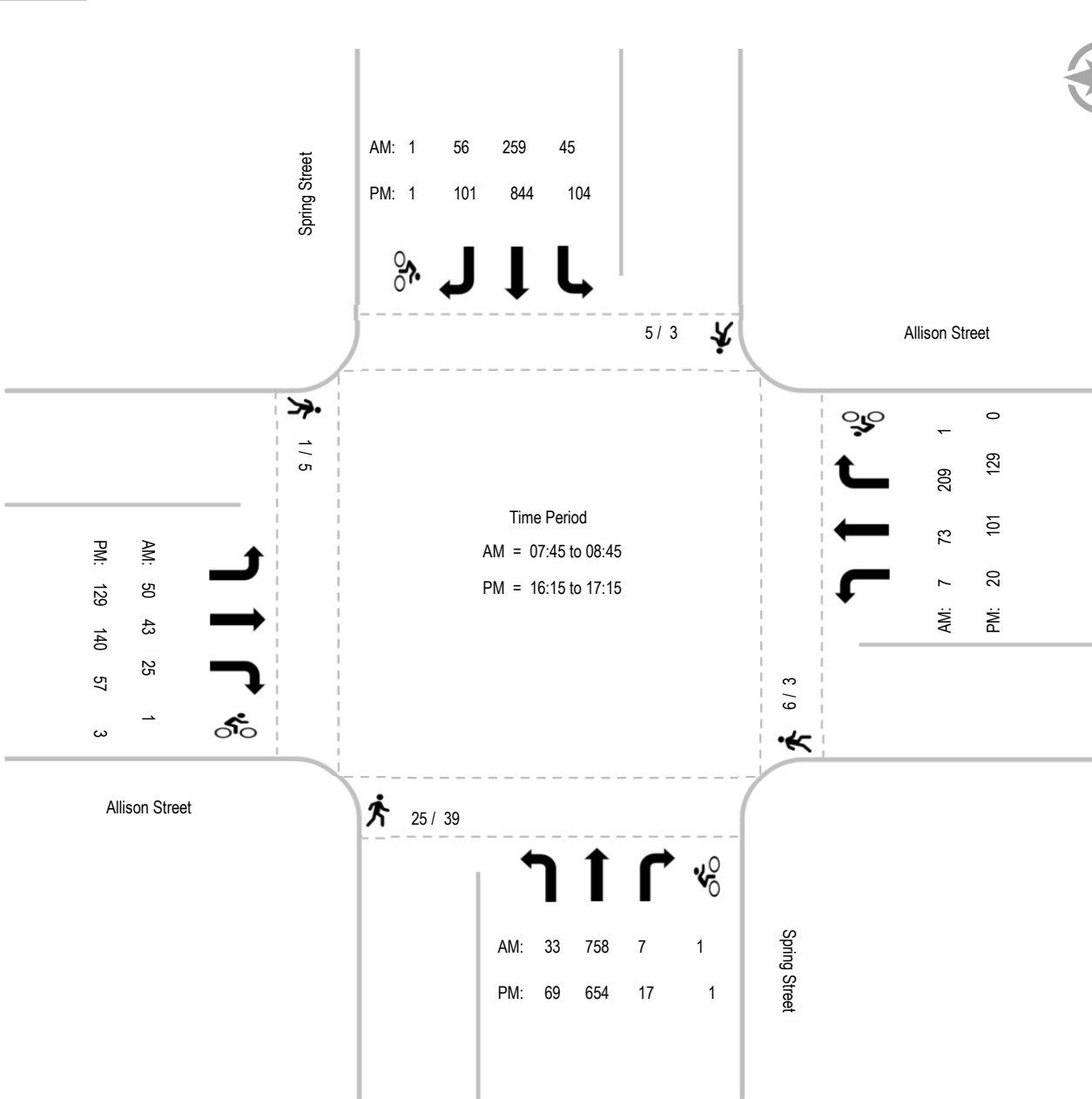
File Name: ITM-18-056-01
 Project: LLG Ref. 3-18-2856
 La Mesa

AM	Spring Street Southbound				Allison Street Westbound				Spring Street Northbound				Allison Street Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0
7:15	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	2	1
7:30	0	0	0	0	1	0	0	0	8	0	0	0	0	0	0	0	9	0
7:45	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0
8:00	1	0	0	0	1	0	0	0	4	0	1	0	1	0	0	0	7	1
8:15	2	1	0	0	2	0	0	0	2	0	0	0	0	0	0	0	6	1
8:30	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	3	0
8:45	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	1
Ped Total	5				6				25				1				37	
Bike Total		1	0	0		0	1	0		0	1	0		0	1	0		4

PM	Spring Street Southbound				Allison Street Westbound				Spring Street Northbound				Allison Street Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	6	0
16:15	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	0	8	0
16:30	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	5	1
16:45	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	4	0
17:00	1	0	0	0	1	0	0	0	8	0	1	0	1	0	2	0	11	3
17:15	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	4	0
17:30	0	1	0	0	0	0	0	0	4	0	0	0	1	0	0	0	5	1
17:45	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0
Ped Total	3				3				39				5				50	
Bike Total		1	0	0		0	0	0		0	1	0		0	3	0		5

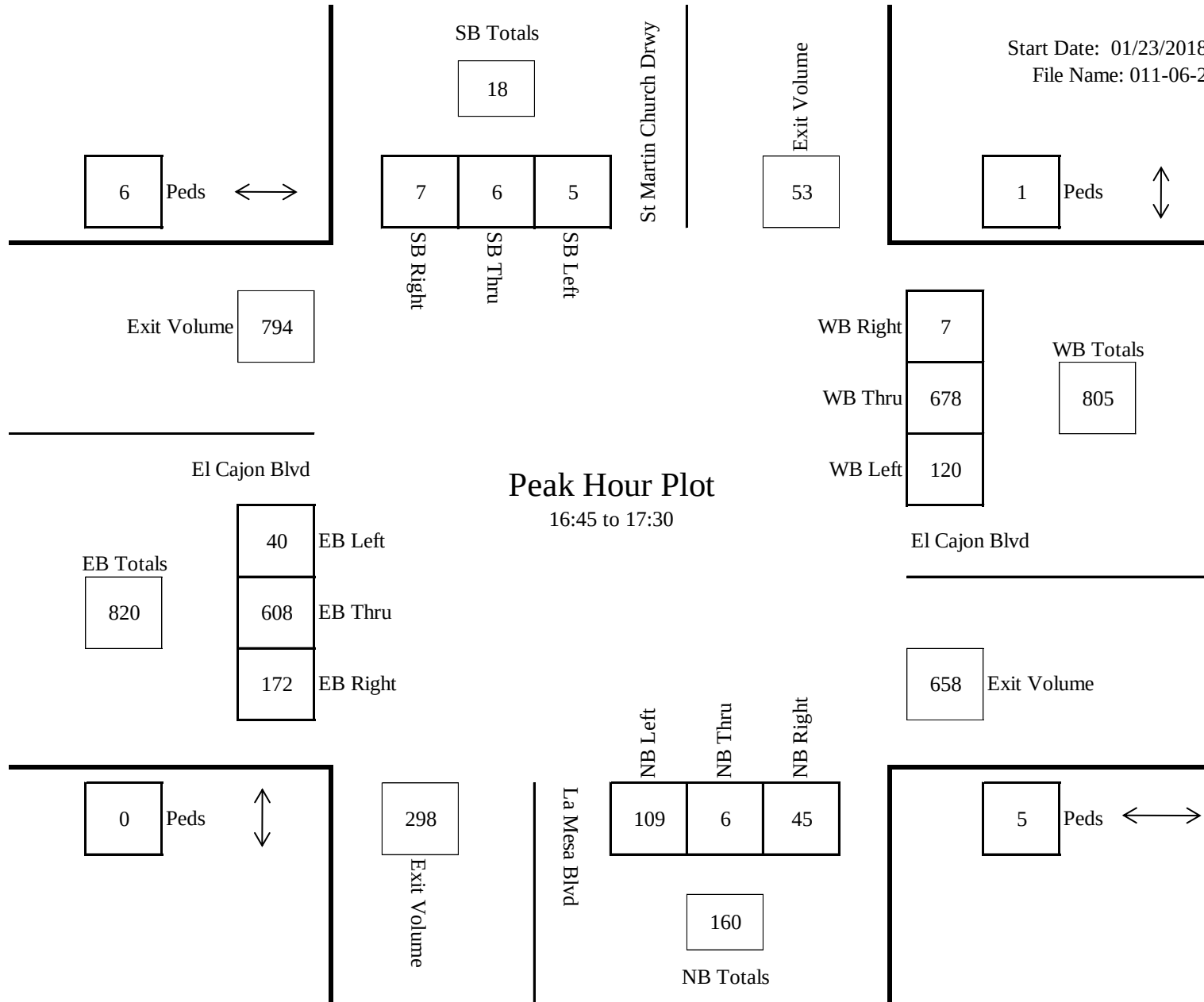
Intersection Turning Movement - Peak Hour Summary

LINS COTT LAW & GREENSPAN engineers	Location:	#02	File Name:	ITM-18-056-01
	Intersection:	Spring Street & Allison Street	Project:	LLG Ref. 3-18-2856
	Date of Count:	Thursday, May 17, 2018		La Mesa



Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111



Linscott Law & Greenspan Engineers

4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #07 La Mesa Blvd & University Avenue

File Name: 011-07-1

	La Mesa Blvd Southbound				University Avenue Westbound				La Mesa Blvd Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
7:00	3	10	14	0	6	75	4	0	12	40	24	3	10	148	10	2	361
7:15	9	15	15	1	5	127	7	0	34	30	17	0	23	148	13	1	445
7:30	6	19	37	3	16	198	9	0	32	56	31	1	35	214	15	0	672
7:45	10	30	30	2	25	142	10	0	31	86	47	3	41	246	27	0	730
Total	28	74	96	6	52	542	30	0	109	212	119	7	109	756	65	3	2208
8:00	25	25	22	2	18	116	19	0	23	49	15	1	38	207	13	3	576
8:15	32	29	18	3	13	121	13	0	28	52	10	2	26	135	16	4	502
8:30	21	18	13	2	14	116	9	0	30	40	12	3	21	173	19	0	491
8:45	18	19	13	2	16	90	9	0	30	37	16	9	8	160	25	1	453
Total	96	91	66	9	61	443	50	0	111	178	53	15	93	675	73	8	2022
Grand Total	124	165	162	15	113	985	80	0	220	390	172	22	202	1431	138	11	4230
Approach%	26.6	35.4	34.8	3.2	9.6	83.6	6.8	-	27.4	48.5	21.4	2.7	11.3	80.3	7.7	0.6	
Total%	2.9	3.9	3.8	0.4	2.7	23.3	1.9	-	5.2	9.2	4.1	0.5	4.8	33.8	3.3	0.3	

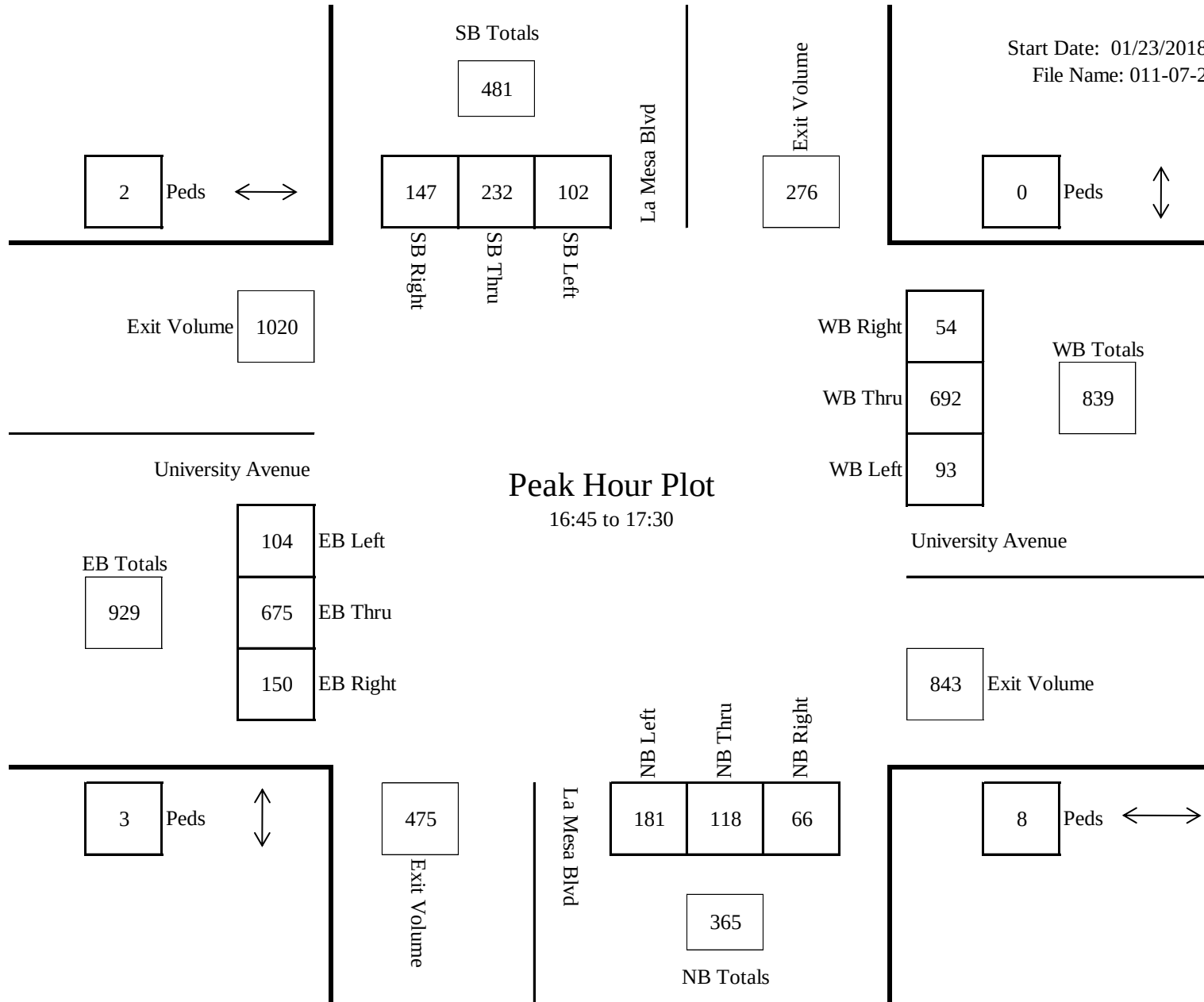
Peak hour analysis for the period 07:30 to 08:15

Volume	73	103	107	10	72	577	51	-	114	243	103	7	140	802	71	7	2,480
Approach%	24.9	35.2	36.5	3.4	10.3	82.4	7.3	-	24.4	52.0	22.1	1.5	13.7	78.6	7.0	0.7	
Total%	2.9	4.2	4.3	0.4	2.9	23.3	2.1	-	4.6	9.8	4.2	0.3	5.6	32.3	2.9	0.3	
PHF				0.89				0.78				0.70				0.81	

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4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #07 La Mesa Blvd & University Avenue

File Name: 011-07-2

	La Mesa Blvd Southbound				University Avenue Westbound				La Mesa Blvd Northbound				University Avenue Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
16:00	28	62	25	1	16	152	16	0	50	35	23	5	22	151	23	1	610
16:15	24	54	26	0	24	174	20	0	37	33	24	5	17	130	27	2	597
16:30	27	73	19	4	23	152	13	1	36	28	22	1	40	153	31	4	627
16:45	32	50	30	1	15	166	13	0	36	23	10	4	26	157	35	1	599
Total	111	239	100	6	78	644	62	1	159	119	79	15	105	591	116	8	2433
17:00	29	70	37	0	32	178	16	0	46	34	13	4	28	176	32	0	695
17:15	28	68	51	0	19	154	10	0	56	39	21	0	18	154	38	0	656
17:30	13	44	29	1	27	194	15	0	43	22	22	0	32	188	45	2	677
17:45	15	70	37	2	25	138	8	0	35	33	13	3	25	121	34	0	559
Total	85	252	154	3	103	664	49	0	180	128	69	7	103	639	149	2	2587
Grand Total	196	491	254	9	181	1308	111	1	339	247	148	22	208	1230	265	10	5020
Approach%	20.6	51.7	26.7	0.9	11.3	81.7	6.9	0.1	44.8	32.7	19.6	2.9	12.1	71.8	15.5	0.6	
Total%	3.9	9.8	5.1	0.2	3.6	26.1	2.2	0.0	6.8	4.9	2.9	0.4	4.1	24.5	5.3	0.2	

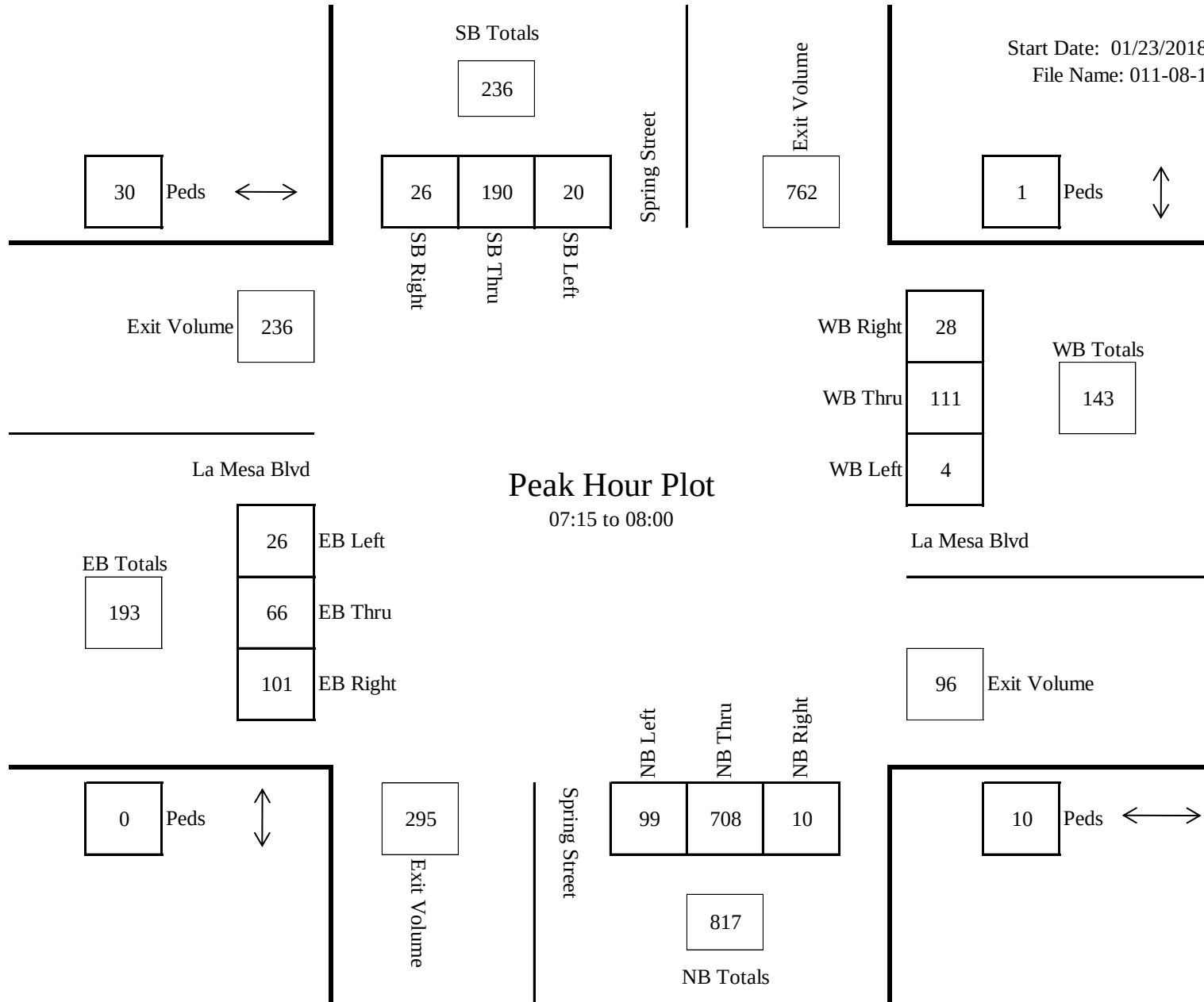
Peak hour analysis for the period 16:45 to 17:30

Volume	102	232	147	2	93	692	54	-	181	118	66	8	104	675	150	3	2,627
Approach%	21.1	48.0	30.4	0.4	11.1	82.5	6.4	-	48.5	31.6	17.7	2.1	11.2	72.4	16.1	0.3	
Total%	3.9	8.8	5.6	0.1	3.5	26.3	2.1	-	6.9	4.5	2.5	0.3	4.0	25.7	5.7	0.1	
PHF				0.82				0.89				0.80				0.87	

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4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #08 Spring Street & La Mesa Blvd

File Name: 011-08-1

	Spring Street Southbound				La Mesa Blvd Westbound				Spring Street Northbound				La Mesa Blvd Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
7:00	2	35	4	5	0	9	9	0	26	228	1	2	5	3	8	0	337
7:15	3	43	4	11	0	23	10	0	15	200	4	5	3	10	16	0	347
7:30	3	47	6	5	1	32	7	1	27	162	2	2	6	12	21	0	334
7:45	6	44	9	7	0	40	5	0	29	186	4	1	9	23	32	0	395
Total	14	169	23	28	1	104	31	1	97	776	11	10	23	48	77	0	1413
8:00	8	56	7	7	3	16	6	0	28	160	0	2	8	21	32	0	354
8:15	8	61	6	4	2	21	10	0	32	150	6	3	5	19	17	0	344
8:30	6	38	9	4	2	28	10	0	39	132	4	3	13	18	24	0	330
8:45	10	56	18	9	0	17	11	2	42	141	8	4	2	25	15	0	360
Total	32	211	40	24	7	82	37	2	141	583	18	12	28	83	88	0	1388
Grand Total	46	380	63	52	8	186	68	3	238	1359	29	22	51	131	165	0	2801
Approach%	8.5	70.2	11.6	9.6	3.0	70.2	25.7	1.1	14.4	82.5	1.8	1.3	14.7	37.8	47.6	-	
Total%	1.6	13.6	2.2	1.9	0.3	6.6	2.4	0.1	8.5	48.5	1.0	0.8	1.8	4.7	5.9	-	

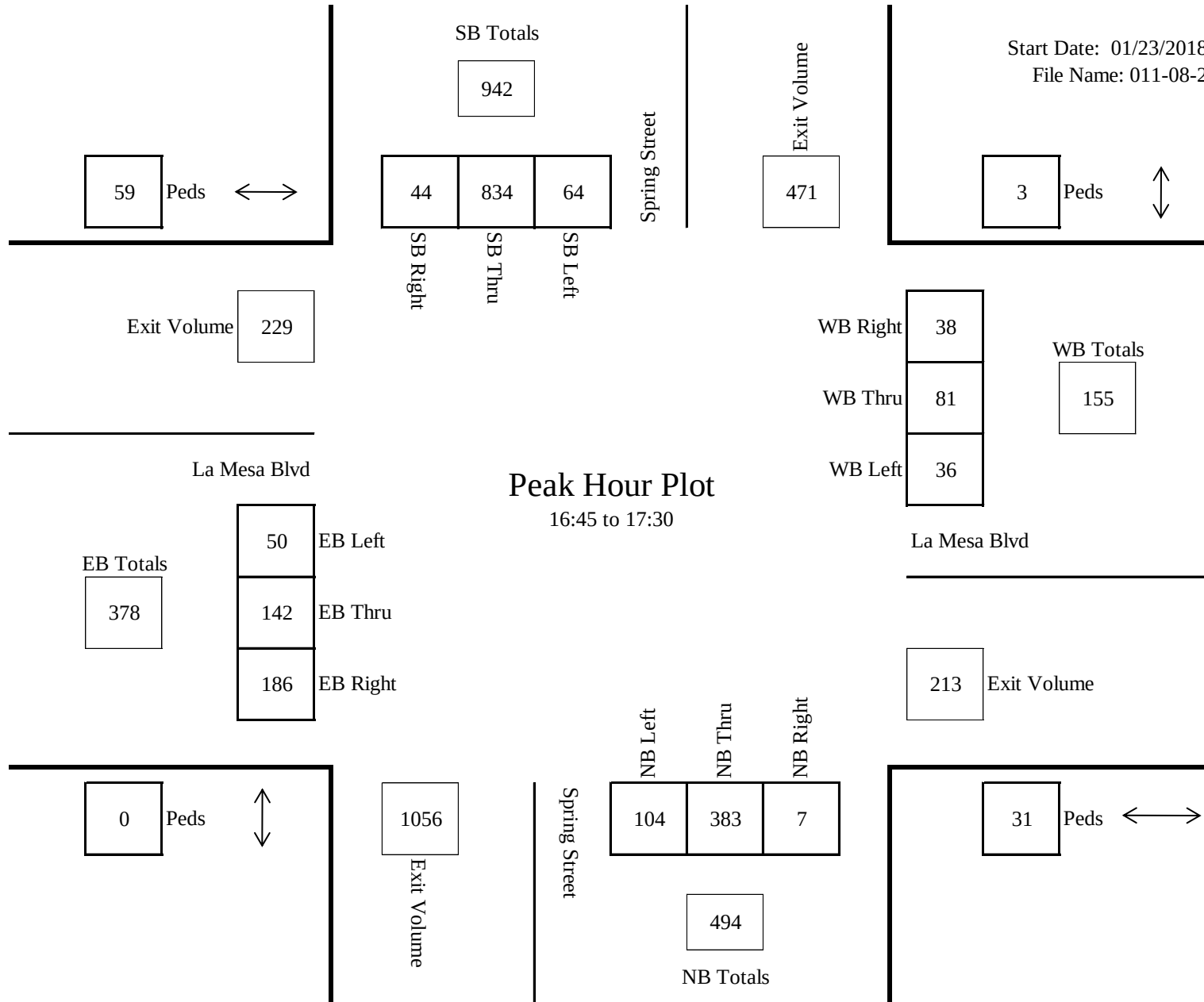
Peak hour analysis for the period 07:15 to 08:00

Volume	20	190	26	30	4	111	28	1	99	708	10	10	26	66	101	-	1,430
Approach%	7.5	71.4	9.8	11.3	2.8	77.1	19.4	0.7	12.0	85.6	1.2	1.2	13.5	34.2	52.3	-	
Total%	1.4	13.3	1.8	2.1	0.3	7.8	2.0	0.1	6.9	49.5	0.7	0.7	1.8	4.6	7.1	-	
PHF				0.85				0.80				0.92				0.75	

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4542 Ruffner Street #100 * San Diego, CA 92111

Project: BC 18-011 La Mesa

Start Date: 01/23/2018

Location: #08 Spring Street & La Mesa Blvd

File Name: 011-08-2

	Spring Street Southbound				La Mesa Blvd Westbound				Spring Street Northbound				La Mesa Blvd Eastbound				
Start Time	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Interval Total
16:00	16	172	30	10	10	26	10	2	27	115	2	8	12	30	36	0	506
16:15	14	177	11	15	8	30	12	5	25	97	4	11	7	25	38	1	480
16:30	21	204	9	8	10	17	9	0	20	86	2	14	10	35	50	0	495
16:45	19	225	10	6	9	12	8	1	22	117	1	8	11	38	42	0	529
Total	70	778	60	39	37	85	39	8	94	415	9	41	40	128	166	1	2010
17:00	24	164	8	14	13	22	8	0	32	93	2	13	16	46	40	0	495
17:15	15	225	12	24	4	29	9	0	26	87	1	6	15	22	49	0	524
17:30	6	220	14	15	10	18	13	2	24	86	3	4	8	36	55	0	514
17:45	20	163	11	13	5	25	14	2	32	81	7	11	12	22	37	0	455
Total	65	772	45	66	32	94	44	4	114	347	13	34	51	126	181	0	1988
Grand Total	135	1550	105	105	69	179	83	12	208	762	22	75	91	254	347	1	3998
Approach%	7.1	81.8	5.5	5.5	20.1	52.2	24.2	3.5	19.5	71.4	2.1	7.0	13.1	36.7	50.1	0.1	
Total%	3.4	38.8	2.6	2.6	1.7	4.5	2.1	0.3	5.2	19.1	0.6	1.9	2.3	6.4	8.7	0.0	

Peak hour analysis for the period 16:45 to 17:30

Volume	64	834	44	59	36	81	38	3	104	383	7	31	50	142	186	-	2,062
Approach%	6.4	83.3	4.4	5.9	22.8	51.3	24.1	1.9	19.8	73.0	1.3	5.9	13.2	37.6	49.2	-	
Total%	3.1	40.4	2.1	2.9	1.7	3.9	1.8	0.1	5.0	18.6	0.3	1.5	2.4	6.9	9.0	-	
PHF				0.91				0.92				0.89				0.93	

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ATTACHMENT B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Existing AM
02/18/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 		 	
Traffic Volume (veh/h)	757	118	182	294	232	488
Future Volume (veh/h)	757	118	182	294	232	488
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	880	137	204	330	247	519
Peak Hour Factor	0.86	0.86	0.89	0.89	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1068	490	310	991	1278	560
Arrive On Green	0.31	0.31	0.09	0.53	0.36	0.36
Sat Flow, veh/h	3456	1585	3456	1870	3647	1556
Grp Volume(v), veh/h	880	137	204	330	247	519
Grp Sat Flow(s),veh/h/ln	1728	1585	1728	1870	1777	1556
Q Serve(g_s), s	13.2	3.6	3.2	5.6	2.7	17.9
Cycle Q Clear(g_c), s	13.2	3.6	3.2	5.6	2.7	17.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1068	490	310	991	1278	560
V/C Ratio(X)	0.82	0.28	0.66	0.33	0.19	0.93
Avail Cap(c_a), veh/h	1269	582	353	1022	1293	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	14.6	24.6	7.5	12.3	17.2
Incr Delay (d2), s/veh	3.9	0.3	3.7	0.2	0.1	21.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	1.4	1.8	0.9	8.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	14.9	28.3	7.7	12.4	38.7
LnGrp LOS	C	B	C	A	B	D
Approach Vol, veh/h	1017			534	766	
Approach Delay, s/veh	20.9			15.6	30.2	
Approach LOS	C			B	C	
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	34.1		21.7		9.5	24.6
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5
Max Green Setting (Gmax), s	30.5		20.5		5.7	20.3
Max Q Clear Time (g_c+I1), s	7.6		15.2		5.2	19.9
Green Ext Time (p_c), s	2.0		2.1		0.0	0.2
Intersection Summary						
HCM 6th Ctrl Delay			22.7			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Existing AM
02/18/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	56	36	907	66	56	622
Future Volume (veh/h)	56	36	907	66	56	622
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	44	1106	80	64	707
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	165	147	1602	116	116	2359
Arrive On Green	0.09	0.09	0.48	0.48	0.07	0.66
Sat Flow, veh/h	1781	1585	3454	243	1781	3647
Grp Volume(v), veh/h	68	44	585	601	64	707
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1826	1781	1777
Q Serve(g_s), s	1.3	1.0	9.5	9.5	1.3	3.1
Cycle Q Clear(g_c), s	1.3	1.0	9.5	9.5	1.3	3.1
Prop In Lane	1.00	1.00		0.13	1.00	
Lane Grp Cap(c), veh/h	165	147	847	871	116	2359
V/C Ratio(X)	0.41	0.30	0.69	0.69	0.55	0.30
Avail Cap(c_a), veh/h	873	777	1121	1153	246	3167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	15.6	7.5	7.5	16.7	2.6
Incr Delay (d2), s/veh	1.6	1.1	1.2	1.1	4.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	2.5	2.5	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.5	16.8	8.7	8.7	20.8	2.7
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	112		1186			771
Approach Delay, s/veh	17.2		8.7			4.2
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	22.1			29.0	7.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.1	23.3			32.9	18.1
Max Q Clear Time (g_c+l1), s	3.3	11.5			5.1	3.3
Green Ext Time (p_c), s	0.0	6.1			5.4	0.2
Intersection Summary						
HCM 6th Ctrl Delay			7.5			
HCM 6th LOS			A			

Intersection												
Intersection Delay, s/veh	8.1											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	50	41	53	53	28	6	2	26	10	14	5
Future Vol, veh/h	7	50	41	53	53	28	6	2	26	10	14	5
Peak Hour Factor	0.89	0.89	0.89	0.66	0.66	0.66	0.60	0.60	0.60	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	56	46	80	80	42	10	3	43	13	19	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8.5	7.5	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	7%	40%	34%
Vol Thru, %	6%	51%	40%	48%
Vol Right, %	76%	42%	21%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	98	134	29
LT Vol	6	7	53	10
Through Vol	2	50	53	14
RT Vol	26	41	28	5
Lane Flow Rate	57	110	203	39
Geometry Grp	1	1	1	1
Degree of Util (X)	0.067	0.126	0.233	0.05
Departure Headway (Hd)	4.235	4.12	4.136	4.642
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	873	855	774
Service Time	2.242	2.13	2.226	2.651
HCM Lane V/C Ratio	0.067	0.126	0.237	0.05
HCM Control Delay	7.5	7.7	8.5	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.9	0.2

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Existing AM
02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	43	25	7	73	209	33	758	7	45	259	58
Future Volume (veh/h)	50	43	25	7	73	209	33	758	7	45	259	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	64	55	32	7	77	220	36	833	8	52	298	67
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	497	462	16	97	276	57	1168	11	87	1190	452
Arrive On Green	0.06	0.31	0.31	0.01	0.27	0.27	0.04	0.32	0.32	0.05	0.33	0.33
Sat Flow, veh/h	1519	1595	1319	1781	363	1038	1519	3606	35	1781	3554	1349
Grp Volume(v), veh/h	64	55	32	7	0	297	36	410	431	52	298	67
Grp Sat Flow(s),veh/h/ln	1519	1595	1319	1781	0	1401	1519	1777	1864	1781	1777	1349
Q Serve(g_s), s	2.4	1.4	0.9	0.2	0.0	11.6	1.4	11.9	11.9	1.7	3.6	2.0
Cycle Q Clear(g_c), s	2.4	1.4	0.9	0.2	0.0	11.6	1.4	11.9	11.9	1.7	3.6	2.0
Prop In Lane	1.00		1.00	1.00		0.74	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	84	497	462	16	0	372	57	576	604	87	1190	452
V/C Ratio(X)	0.76	0.11	0.07	0.43	0.00	0.80	0.63	0.71	0.71	0.60	0.25	0.15
Avail Cap(c_a), veh/h	246	785	700	155	0	584	184	953	999	197	1869	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	14.4	12.7	28.9	0.0	20.1	27.9	17.5	17.5	27.4	14.2	13.7
Incr Delay (d2), s/veh	13.3	0.1	0.1	16.7	0.0	4.2	10.7	1.7	1.6	6.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.5	0.3	0.2	0.0	3.9	0.6	4.6	4.8	0.8	1.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	14.5	12.8	45.6	0.0	24.3	38.5	19.1	19.0	33.9	14.3	13.8
LnGrp LOS	D	B	B	D	A	C	D	B	B	C	B	B
Approach Vol, veh/h		151			304			877			417	
Approach Delay, s/veh		25.3			24.8			19.9			16.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	23.5	5.0	22.8	6.7	24.2	7.7	20.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	31.5	5.1	28.9	7.1	30.9	9.5	24.5				
Max Q Clear Time (g_c+I1), s	3.7	13.9	2.2	3.4	3.4	5.6	4.4	13.6				
Green Ext Time (p_c), s	0.0	5.1	0.0	0.3	0.0	2.2	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	146	46	6	140	18	102	25	10	4	13	7
Future Vol, veh/h	13	146	46	6	140	18	102	25	10	4	13	7
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.84	0.84	0.84	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	154	48	7	159	20	121	30	12	7	23	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.3	9.2	9.6	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	74%	6%	4%	17%
Vol Thru, %	18%	71%	85%	54%
Vol Right, %	7%	22%	11%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	205	164	24
LT Vol	102	13	6	4
Through Vol	25	146	140	13
RT Vol	10	46	18	7
Lane Flow Rate	163	216	186	43
Geometry Grp	1	1	1	1
Degree of Util (X)	0.227	0.273	0.241	0.059
Departure Headway (Hd)	5.015	4.554	4.647	4.943
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	713	785	770	720
Service Time	3.069	2.597	2.691	3.007
HCM Lane V/C Ratio	0.229	0.275	0.242	0.06
HCM Control Delay	9.6	9.3	9.2	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	1.1	0.9	0.2

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Existing PM
02/18/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↗	↔↔	↑	↑↑	↗
Traffic Volume (veh/h)	639	213	258	167	460	645
Future Volume (veh/h)	639	213	258	167	460	645
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	743	248	290	188	489	686
Peak Hour Factor	0.86	0.86	0.89	0.89	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	938	430	406	1060	1309	574
Arrive On Green	0.27	0.27	0.12	0.57	0.37	0.37
Sat Flow, veh/h	3456	1585	3456	1870	3647	1557
Grp Volume(v), veh/h	743	248	290	188	489	686
Grp Sat Flow(s),veh/h/ln	1728	1585	1728	1870	1777	1557
Q Serve(g_s), s	11.1	7.5	4.5	2.7	5.6	20.5
Cycle Q Clear(g_c), s	11.1	7.5	4.5	2.7	5.6	20.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	938	430	406	1060	1309	574
V/C Ratio(X)	0.79	0.58	0.71	0.18	0.37	1.20
Avail Cap(c_a), veh/h	1149	527	466	1092	1309	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	17.5	23.7	5.8	12.9	17.6
Incr Delay (d2), s/veh	3.2	1.2	4.4	0.1	0.2	104.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.1	2.0	0.8	2.0	22.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.0	18.7	28.0	5.9	13.0	121.9
LnGrp LOS	C	B	C	A	B	F
Approach Vol, veh/h	991			478	1175	
Approach Delay, s/veh	21.2			19.3	76.6	
Approach LOS	C			B	E	
Timer - Assigned Phs	2		4		5	6
Phs Duration (G+Y+Rc), s	36.0		19.6		11.0	25.0
Change Period (Y+Rc), s	4.5		4.5		4.5	4.5
Max Green Setting (Gmax), s	32.5		18.5		7.5	20.5
Max Q Clear Time (g_c+I1), s	4.7		13.1		6.5	22.5
Green Ext Time (p_c), s	1.1		2.0		0.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			45.5			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Existing PM
02/18/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	102	68	721	91	60	794
Future Volume (veh/h)	102	68	721	91	60	794
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	83	879	111	68	902
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	194	1358	171	123	2216
Arrive On Green	0.12	0.12	0.43	0.43	0.07	0.62
Sat Flow, veh/h	1781	1585	3267	401	1781	3647
Grp Volume(v), veh/h	124	83	492	498	68	902
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1798	1781	1777
Q Serve(g_s), s	2.3	1.7	7.8	7.8	1.3	4.5
Cycle Q Clear(g_c), s	2.3	1.7	7.8	7.8	1.3	4.5
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	218	194	760	769	123	2216
V/C Ratio(X)	0.57	0.43	0.65	0.65	0.55	0.41
Avail Cap(c_a), veh/h	909	809	1148	1161	276	3297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	14.4	8.0	8.0	16.0	3.4
Incr Delay (d2), s/veh	2.3	1.5	0.9	0.9	3.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.6	2.1	2.1	0.6	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	15.9	9.0	9.0	19.9	3.5
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	207		990			970
Approach Delay, s/veh	16.5		9.0			4.6
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.9	19.7			26.6	8.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	22.9			32.9	18.1
Max Q Clear Time (g_c+l1), s	3.3	9.8			6.5	4.3
Green Ext Time (p_c), s	0.0	5.4			7.2	0.5
Intersection Summary						
HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	100	19	32	108	30	16	18	80	29	10	14
Future Vol, veh/h	12	100	19	32	108	30	16	18	80	29	10	14
Peak Hour Factor	0.78	0.78	0.78	0.83	0.83	0.83	0.68	0.68	0.68	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	128	24	39	130	36	24	26	118	32	11	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	9.3	8.7	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	9%	19%	55%
Vol Thru, %	16%	76%	64%	19%
Vol Right, %	70%	15%	18%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	131	170	53
LT Vol	16	12	32	29
Through Vol	18	100	108	10
RT Vol	80	19	30	14
Lane Flow Rate	168	168	205	58
Geometry Grp	1	1	1	1
Degree of Util (X)	0.208	0.216	0.261	0.079
Departure Headway (Hd)	4.477	4.629	4.587	4.956
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	773	780	720
Service Time	2.52	2.67	2.627	3.009
HCM Lane V/C Ratio	0.21	0.217	0.263	0.081
HCM Control Delay	8.7	9	9.3	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.8	1	0.3

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Existing PM
02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	140	57	20	101	129	69	654	17	104	844	101
Future Volume (veh/h)	129	140	57	20	101	129	69	654	17	104	844	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	165	179	73	21	106	136	76	719	19	120	970	116
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	505	500	42	132	170	92	1144	30	153	1241	471
Arrive On Green	0.13	0.32	0.32	0.02	0.21	0.21	0.06	0.32	0.32	0.09	0.35	0.35
Sat Flow, veh/h	1519	1595	1319	1781	632	810	1519	3536	93	1781	3554	1350
Grp Volume(v), veh/h	165	179	73	21	0	242	76	361	377	120	970	116
Grp Sat Flow(s),veh/h/ln	1519	1595	1319	1781	0	1442	1519	1777	1853	1781	1777	1350
Q Serve(g_s), s	7.6	6.2	2.6	0.8	0.0	11.5	3.6	12.4	12.5	4.8	17.6	4.4
Cycle Q Clear(g_c), s	7.6	6.2	2.6	0.8	0.0	11.5	3.6	12.4	12.5	4.8	17.6	4.4
Prop In Lane	1.00		1.00	1.00		0.56	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	199	505	500	42	0	302	92	575	600	153	1241	471
V/C Ratio(X)	0.83	0.35	0.15	0.50	0.00	0.80	0.83	0.63	0.63	0.78	0.78	0.25
Avail Cap(c_a), veh/h	305	612	589	131	0	370	162	727	758	235	1542	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	19.0	14.8	34.8	0.0	27.1	33.5	20.7	20.7	32.3	21.0	16.7
Incr Delay (d2), s/veh	10.7	0.4	0.1	8.7	0.0	9.9	16.5	1.1	1.1	9.0	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.2	0.8	0.5	0.0	4.6	1.7	5.0	5.2	2.4	7.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	19.4	14.9	43.4	0.0	36.9	50.0	21.8	21.8	41.3	23.1	17.0
LnGrp LOS	D	B	B	D	A	D	D	C	C	D	C	B
Approach Vol, veh/h		417			263			814			1206	
Approach Delay, s/veh		27.3			37.5			24.4			24.4	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	27.8	6.2	27.4	8.9	29.7	14.0	19.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	29.5	5.3	27.7	7.7	31.3	14.5	18.5				
Max Q Clear Time (g_c+I1), s	6.8	14.5	2.8	8.2	5.6	19.6	9.6	13.5				
Green Ext Time (p_c), s	0.1	4.1	0.0	1.1	0.0	5.6	0.2	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			26.1									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	280	97	16	196	13	65	20	13	16	40	26
Future Vol, veh/h	10	280	97	16	196	13	65	20	13	16	40	26
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.79	0.79	0.79	0.74	0.74	0.74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	318	110	17	213	14	82	25	16	22	54	35
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.8	11.1	10.5	10
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	66%	3%	7%	20%
Vol Thru, %	20%	72%	87%	49%
Vol Right, %	13%	25%	6%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	98	387	225	82
LT Vol	65	10	16	16
Through Vol	20	280	196	40
RT Vol	13	97	13	26
Lane Flow Rate	124	440	245	111
Geometry Grp	1	1	1	1
Degree of Util (X)	0.204	0.596	0.354	0.177
Departure Headway (Hd)	5.911	4.875	5.211	5.74
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	605	743	690	623
Service Time	3.962	2.875	3.252	3.793
HCM Lane V/C Ratio	0.205	0.592	0.355	0.178
HCM Control Delay	10.5	14.8	11.1	10
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	0.8	4	1.6	0.6

ATTACHMENT C

EXCERPTS FROM CUMULATIVE PROJECT TRAFFIC STUDIES AND PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM WITHOUT PROJECT



750 THE CITY DRIVE, SUITE 410
ORANGE, CA 92868
P 714.468.1997

P18079

KIT
SANDRA
ITS

WEEKDAY		WEEKEND	
AM	PM	AM	PM

MEMORANDUM

Date: February 22, 2018

Project #: 22492

To: Jeffrey Manchester, City of La Mesa Engineering Project Manager

Q. Is Babies R Us closed today?

Cc: Jenifer Murillo, Costco Wholesale Warehouse

From: Neelam Dorman, Kittelson & Associates, Inc

Project: Costco La Mesa Fuel Station Addition

Subject: **Costco-Specific Trip Generation Information**

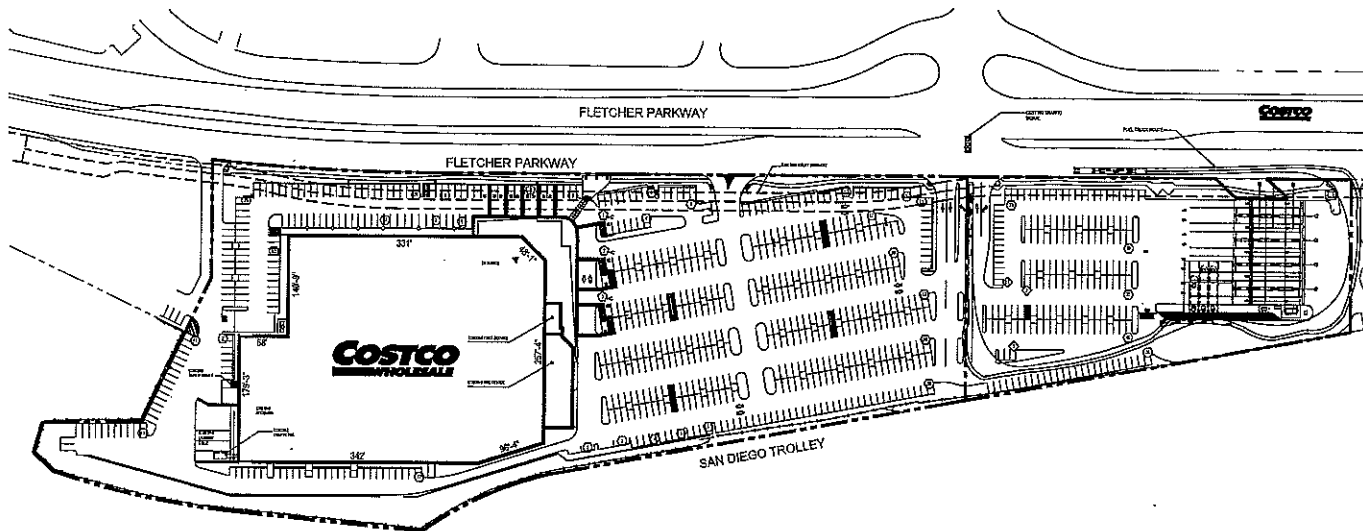
Kittelson & Associates, Inc. (KAI) has prepared this summary of the trip generation characteristics expected for the proposed addition of a Costco Gasoline fuel station to the existing Costco Warehouse on Fletcher Parkway in La Mesa, California. The purpose of this memorandum is to provide specific trip generation details exclusively associated with Costco Gasoline facilities for use in the City of La Mesa.

PROPOSED DEVELOPMENT

Costco is proposing to build a Costco Gasoline fuel station on the eastern portion of the parking lot of their La Mesa Fletcher Parkway location. The site for the fuel station is currently developed as a Babies R Us retail store which will be demolished and replaced by the Costco Gasoline development. The La Mesa Costco Gasoline fuel station will consist of four islands (sixteen dispensers) with a total of thirty-two (32) vehicle fueling positions, located in the eastern portion of the site. The site plan for the proposed Costco Gasoline fuel station is provided in **Figure 1**.

COSTCO FUEL STATION TRIP GENERATION DATABASE

For the past 20 years, Kittelson and Associates, Inc. (KAI) has maintained a database of traffic data and travel characteristics for Costco Wholesale. The database contains transportation information such as trip rates, trip type percentages, and parking demand for Costco locations in the United States, as well as Canada and Mexico. The database is updated and refined each time new Costco traffic counts or information become available to KAI. In order to best evaluate the anticipated transportation characteristics of the proposed fuel station addition to the existing La Mesa Costco, the Costco database was used to develop the trip generation estimate since it provides use-specific data that most accurately represents the anticipated traffic characteristics of the unique development type.



PROJECT DATA

CLIENT: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PROJECT ADDRESS: 8125 FLETCHER PKWY
LA MESA, CA 91942

ZONING: CM-F-D

EXISTING SITE AREA: 11.00 ACRES (479,088 S.F.)
BABIES R US SITE AREA: 3.26 ACRES (141,984 S.F.)
TOTAL SITE AREA: 14.26 ACRES (621,072 S.F.)

BUILDING DATA:

COSTCO:	
BUILDING AREA	127,225 S.F.
TIRE CENTER	4,585 S.F.
FOOD SERVICE	1,211 S.F.
TOTAL BUILDING	133,421 S.F.
BABIES R US (DEMOLISHED BUILDING AREA):	39,682 S.F.

EXISTING PARKING DATA:

PARKING PROVIDED:	
10' WIDE STALLS	84 STALLS
9' WIDE STALLS	878 STALLS
8' WIDE STALLS	76 STALLS
1/2 ACCESSIBLE STALLS	19 STALLS
TOTAL PARKING	857 STALLS

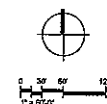
PROPOSED PARKING PROVIDED:

10' WIDE STALLS	74 STALLS
9' WIDE STALLS	695 STALLS
8' WIDE STALLS	2 STALLS
1/2 ACCESSIBLE STALLS	14 STALLS
TOTAL PARKING	763 STALLS

NO. OF STALLS PER 1000 S.F.
OF BUILDING AREA: 5.86 STALLS

NOTES:
EXISTING CONDITIONS TO BE FIELD VERIFIED.

VICINITY MAP



COSTCO WHOLESALE
LA MESA, CA
#468

8125 FLETCHER PKWY
LA MESA, CA 91942



81-1400-31
FEBRUARY 9, 2018

PROPOSED
SITE PLAN

DD11-06

COSTCO WHOLESALE

LA MESA, CA

PROPOSED SITE PLAN

FEBRUARY 9, 2018

Evaluating the transportation-related impact of the Costco Gasoline addition requires special consideration as there is an existing Costco warehouse that has been in operation on the site for several years. As such, the site currently generates traffic based on the existing Costco development's characteristics, market, and Costco membership base. In evaluating the fuel station addition, it is essential to isolate out the new uses and characteristics of the project, as these are the elements that will affect and change the site's existing trip generation. Costco Gasoline fuel stations all function as ancillary uses to the main Costco warehouses that share their sites. The fuel stations are only available for members and require a Costco membership card to activate the pumps for dispensing gasoline. Payment can only be made with credit card and, unlike traditional gas/service station operations, there are no other automotive services (such as repairs) or other type of sales (including food or sundries) associated with the Costco Gasoline facility. All Costco Gasoline facilities have a minimum of one attendant working at all times who is responsible for expediting members' use of the fuel pumps, directing entering vehicles to open pump locations, and managing on-site queues from the pumps.

The Costco transportation database contains a large quantity of data related to Costco Gasoline fuel stations. Trip generation rates and trip type information for over 90 Costco Gasoline facilities located throughout the U.S. are included. Costco has invested significant effort into developing this use-specific trip generation database for both their warehouses and their fuel stations because of the unique characteristics of Costco customer travel that exist due to membership requirements and the nature of Costco sales. These unique elements apply to the trip generation for Costco warehouses, Costco Gasoline fuel stations, and the interaction of trips between the two.

Costco Gasoline Trip Characteristics

The data collected at existing Costco Gasoline sites indicate the trip generation characteristics summarized in **Table 1** for total gas station trip generation rates, internal trip capture between the fuel station and the warehouse, as well as pass-by and diverted trip capture from the surrounding street system.

The data below has isolated 15 Costco Gasoline sites that have 20+ fueling positions.

TABLE 1 COSTCO GASOLINE TRIP GENERATION CHARACTERISTICS (20+FUELING POSITIONS)

Trip Characteristic	AM Peak Hour	PM Peak Hour	Saturday Midday Peak Hour
Total Trip Ends (50/50 entering/exiting split)	335	543	649
Internal Trip Percentage	-	34%	35%
Pass-by Trip Percentage	33%	37%	33%
Diverted Trip Percentage	43%	37%	36%

As indicated in the table, the unique nature of Costco operations and its membership requirements result in different trip characteristics than those observed at the standard fuel stations summarized in

the standard reference, *Trip Generation*, published by the Institute of Transportation Engineers (ITE). The percentage of pass-by trips at Costco fuel stations is considerably lower than that quoted in the ITE manual for typical fuel stations. Correspondingly, membership requirements also have a significant effect on trip internalization (or sharing of trips) between the warehouse and the fuel station. Fewer people exclusively visit a Costco fuel station (in comparison to a typical standalone station) because they have another primary purpose for visiting the site (that being a trip to the warehouse).

Internal Trips

A key finding from the studies conducted at Costco facilities is the fact that approximately 34% of the weekday p.m. peak hour trips and 35% of the Saturday midday peak hour trips to and from Costco fuel stations are internal capture trips. Internal capture trips account for those members who patronize both the warehouse and the gasoline pumps during a single visit to the Costco site. As such, although they account for a trip to both the warehouse and the fuel station, they only account for one overall vehicle trip to the site and on the surrounding transportation system. Table 1 shows that, based on studies including surveys at Costco fuel stations and membership card transaction data, on average 34% of the members buying gas during the weekday p.m. peak hour and 35% of members buying gas during the weekend peak hours are members whose main purpose to the site is to visit the Costco warehouse. At some sites this number ranges as high as 75%, but for the purposes of a conservative analysis the average estimate is used for this estimate.

Pass-by Trips

Pass-by trips represent members (and trips) that are currently traveling on the immediate surrounding street network for some other primary purpose (such as a trip from work to home) and stop into the site during their normal travel. Pass-by trips do not result in a net increase in traffic on the surrounding transportation system. The only impact occurs at site access driveways where they become turning movements. Based on data collected through customer surveys at Costco fuel stations, on average 33% of members buying gas during the weekday a.m. peak hour, 37% of members buying gas during the weekday p.m. peak hour, and 33% of members buying gas during the Saturday midday peak hour can be classified as pass-by trip capture from the surrounding street system. This is lower than the average pass-by rate quoted in the ITE *Trip Generation Handbook*, 3rd Edition, for typical service stations (50%), attributable to the unique travel characteristics that result from Costco's membership requirements.

Diverted Trips

Diverted trips represent members (and trips) that are traveling nearby (but not directly adjacent to) the site for some other primary purpose, but reroute to the site for fuel during their normal travel. Diverted trips therefore have a slightly greater impact on the surrounding transportation system, but the impact is limited only to those one or two intersections along the route that lead to the site access driveways. Based on data collected through customer surveys at Costco fuel stations, on average 43% of members buying gas during the weekday a.m. peak hour, 37% of the members buying gas during the weekday p.m. peak hour, and 36% of the members buying gas during the Saturday

midday peak hour can be classified as diverted trip capture from the surrounding street system. This is roughly equal to the average diverted trip rate quoted in the ITE *Trip Generation Handbook*, 3rd Edition, for typical service stations (35%).

COSTCO GASOLINE FUEL STATION TRIP GENERATION ESTIMATE

A trip generation estimate for the proposed La Mesa Costco Gasoline fuel station was prepared based on Costco-specific data housed in the database and is summarized in Table 2.

TABLE 2 COSTCO GASOLINE TRIP GENERATION – LA MESA COSTCO

Costco Gasoline Fuel Station	Size (positions)	Weekday AM Peak Hour Trips	Weekday PM Peak Hour Trips	Saturday Midday Peak Hour Trips
Total Trip Ends (50/50 split)	32	335	543	649
Internal Trips (34% PM, 35% Sat)		-	185	227
Total External Trips		335	358	422
Pass-by Trips (33% AM, 37% PM, 33% Sat)		110	132	139
Diverted Trips (43% AM, 37% PM, 36% Sat)		144	132	152
Total Net New Costco Trips		82-81	94 ✓	132-131

As shown in Table 2, it is anticipated that the proposed La Mesa Costco Gasoline fuel station addition will generate approximately 82 net new weekday p.m. peak hour trip ends (41 in/41 out), 94 net new weekday p.m. peak hour trip ends (47 in/47 out) and approximately 132 net new Saturday midday peak hour trip ends (66 in/66 out). Again, the estimate accounts for the documented internalization (sharing) of trips between the proposed fuel station and the existing Costco warehouse, as well as pass-by/diverted trips to the fuel station from traffic already on adjacent roadways.

SANDAG AND ITE GASOLINE TRIP GENERATION ESTIMATE (WEEKDAY)

Per the City of La Mesa Traffic Assessment Letter guidelines, the SANDAG Traffic Generators manual (Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002) was used to generate trips for a typical gas station to provide a comparison for trips generated per the Costco database. The closest land use from the SANDAG Traffic Generators manual would be an Older Service Station Design as this the Costco gas station use does not include a food mart or carwash. SANDAG trip generation rates for an older service gas station design are outlined in Table 3. Table 3 displays the average a.m. and p.m. peak hour gasoline trip generation rates, the average pass-by, and diverted trip capture as well as the trip estimates.

TABLE 3 SANDAG TRIP GENERATION RATE AND ESTIMATES FOR OLDER SERVICE STATION DESIGN (WEEKDAY)

Land Use	Size (fueling space)	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Older Service Station Design	1	150	0.035	0.035	0.07	0.045	0.045	0.09
Older Service Station Design	32	4,800 ✓	168	168	336	216	216	432
Pass-by Trips (28%)		1,344 ✓	47	47	94	60	60	~~121~~ 120
Diverted Trips (51%)		2,448 ✓	86	86	~~717~~	110	110	220
Net New Trips		1,008 ✓	~~36~~ 35	~~36~~ 35	~~72~~ 70	46 ✓	46 ✓	92 ✓

Some of the key findings shown in **Table 3**, in comparison to **Table 2**, suggest that the Costco gasoline and SANDAG's older service station design data sets have similar weekday a.m. peak hour trip ends and p.m. peak hour trip ends after pass-by and diverted trip adjustments. Costco gasoline trips are slightly higher than the net trips produced through the SANDAG methodology.

As the SANDAG trip rates manual does not provide data for weekend conditions, the ITE Trip Generation Manual (10th Edition) trip rates were sourced for comparison for that time period. The most similar land use designation would be Gasoline/Service Station (944). Saturday trip rates and estimates are reported in the table below however the pass-by and diverted trip percentages are reported for the p.m. peak period as none were available for the Saturday peak period and the p.m. peak period percentages were lower than that reported for the a.m. peak period (Trip Generation Handbook 3rd Edition).

TABLE 4 ITE TRIP GENERATION MANUAL TRIP GENERATION RATE AND ESTIMATES FOR SERVICE STATION DESIGN (WEEKEND)

Land Use	Size (fueling space)	Daily	Midday Peak Hour		
			In	Out	Total
Gasoline/Service Station	1	182.17	6.385	6.385	12.77
Gasoline/Service Station	32	5,829 ✓	204 ✓	204 ✓	409-410
Pass-by Trips (42%)	2448	~~2,973~~	86 ✓	86 ✓	172 ✓
Diverted Trips (34%)	1982	~~1,632~~	69 ✓	69 ✓	~~139~~ 138
Net New Trips		1,224	49 ✓	49 ✓	98 ✓

1339

Some of the key findings shown in **Table 4**, in comparison to **Table 2**, suggest that the Costco gasoline data set generates a higher number of trip ends for the Saturday peak hour as compared to the ITE data set.

Based on the review of both SANDAG and ITE trip estimates (Tables 3 and 4), the Costco database provides a more conservative evaluation of net new trips for all peak hours. Therefore, for the purposes of this memorandum the Costco database trip estimates would be sourced for next steps.

what about ADTS?

EXISTING LAND USE TRIP CREDIT

For the City of La Mesa, trip credits were estimated for the existing site use, Babies R Us, that is intended to be demolished and replaced by the Costco gas station addition. The existing building is best categorized as Specialty Retail/Strip Commercial per SANDAG's land use description and is approximately 39,682 square feet. SANDAG trip generation rates and estimates of existing land uses are displayed in **Table 5**.

TABLE 5 SANDAG TRIP GENERATION RATE ESTIMATES FOR EXISTING LAND USES

Land Use	Size (1,000 square feet)	AM Peak Hour				PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Specialty Retail/Strip Commercial	1	40	0.018	0.012	0.03	0.045	0.045	0.09
Specialty Retail/Strip	39.682	1,587 ✓	29 ✓	19 ✓	48 ✓	71	71	143 ✓
Pass-by Trips (15%)		238 ✓	4 ✓	3 ✓	7 ✓	11 ✓	11 ✓	22 ✓
Diverted Trips (40%)		635 ✓	11 ✓	8 ✓	19 ✓	29 ✓	29 ✓	57 ✓
Net New Trips		714 ✓	14	8	22 ✓	32 ✓	32 ✓	64 ✓

As the SANDAG trip rates manual does not provide data for weekend conditions, the ITE Trip Generation Manual (10th Edition) trip rates were sourced for comparison. The most similar land use designation would be Baby Superstore (865). Saturday trip rates and estimates are reported in the table below however the pass-by and diverted trip percentages are reported for the Shopping Center land use (Trip Generation Handbook 3rd Edition) as no data was available for the Baby Superstore land use. ITE trip generation rates and estimates of existing land uses are displayed in **Table 6**.

TABLE 6 ITE TRIP GENERATION MANUAL TRIP GENERATION RATE AND ESTIMATES FOR EXISTING LAND USES (WEEKEND)

Land Use	Size (1,000 square feet)	Daily	Midday Peak Hour		
			In	Out	Total
Baby Superstore	1	-	1.977	1.753	3.73
Baby Superstore	39.682	-	78 ✓	70 ✓	148 ✓
Pass-by Trips (26%)		-	20 ✓	18 ✓	38 ✓
Diverted Trips (35%)		-	27 ✓	24 ✓	52 ✓
Net New Trips		-	31 ✓	27 ✓	58 ✓

CONCLUSION

The conservative Costco-specific trip generation estimate was then compared to the trip generation characteristics of the current use on site (Babies R Us) to determine the net trip generation impact of the proposed redevelopment.

As shown in **Table 7**, the new net trips for the proposed project would be approximately 60 trips in the a.m. peak hour, 30 trips in the p.m. peak hour, and 70 trips in the Saturday midday peak hour. This represents on average approximately one additional net new trip into or out of the site each minute during peak periods, as compared to existing conditions.

TABLE 7 NET NEW PROJECT TRIPS

Scenario	AM Peak Hour			PM Peak Hour			Sat MD Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Project Trips	41	41 ✓	82 ✓	47 ✓	47 ✓	94 ✓	66 ✓	66	132 ✓
Existing Trip Credit	-18 ✓	-9 ✓	-22 ✓	-32 ✓	-32 ✓	-64 ✓	-31 ✓	-27 ✓	-58 ✓
Net New Project Trips	28	32	60	15 ✓	15 ✓	30 ✓	35	39	70
	26	33	59				34	39	73

We trust that this memorandum provides the necessary information to document the anticipated trip generation of the proposed Costco Gasoline station addition to the La Mesa Costco site. If you have any questions about this summary, or if you require additional information, please contact us at 714-468-1182 or ndorman@kittelson.com.

ALVARADO SPECIFIC PLAN



Transportation Report Part II: Local Transportation Analysis (LOS/Delay-Based)

MARCH 2020

Prepared By:

Kimley»Horn

4 PROJECT TRAFFIC

The following section describes the trip generation, distribution, and assignment related to the proposed Project.

4.1 TRIP GENERATION

Trip generation for the project site were estimated using traffic generation rates from SANDAG's *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002). The proposed site would consist of four multi-family residential buildings providing an upper estimate of approximately 950 dwelling units (du). A 5% trip generation reduction was applied to the multi-family residences due to the project being within 1/4-mile from a transit station (70th Street Trolley Station). The 15,000 sf of onsite commercial (retail) uses would serve the residents and therefore assumed not to generate any external trips. Any minor increase in trips due to workers and deliveries would be less than the trip reduction associated with residential customers not having to leave the site.

The project will claim existing trips associated with the San Diego RV Resort campground, which provides 167 campsites for recreational vehicles.

Discounting the trip credits associated with the mobile home, the net trip generation for the proposed site is summarized below.

Project Trips (Buildings 1-4):

- 4,747 daily trips (ADT)
- 405 a.m. peak-hour trips (75 in, 330 out)
- 434 p.m. peak-hour trips (305 in, 129 out)

Table 4-1 further details the trip generation for the proposed site.

4.2 TRIP DISTRIBUTION

Traffic trip distribution for the proposed Project was based on SANDAG's select zone analysis model run and the existing roadway network and proposed access locations within the study area. The select zone model run output is provided in **Appendix II-F**

Figure 4-1 and **Figure 4-2** illustrate the estimated traffic distribution for the proposed Project.

4.3 TRIP ASSIGNMENT

Based on the expected Project trip distributions, daily, a.m., and p.m. peak-hour Project trips were assigned to the roadway network and through the study intersections. The trip assignment for the proposed Project is presented in **Figure 4-3**.

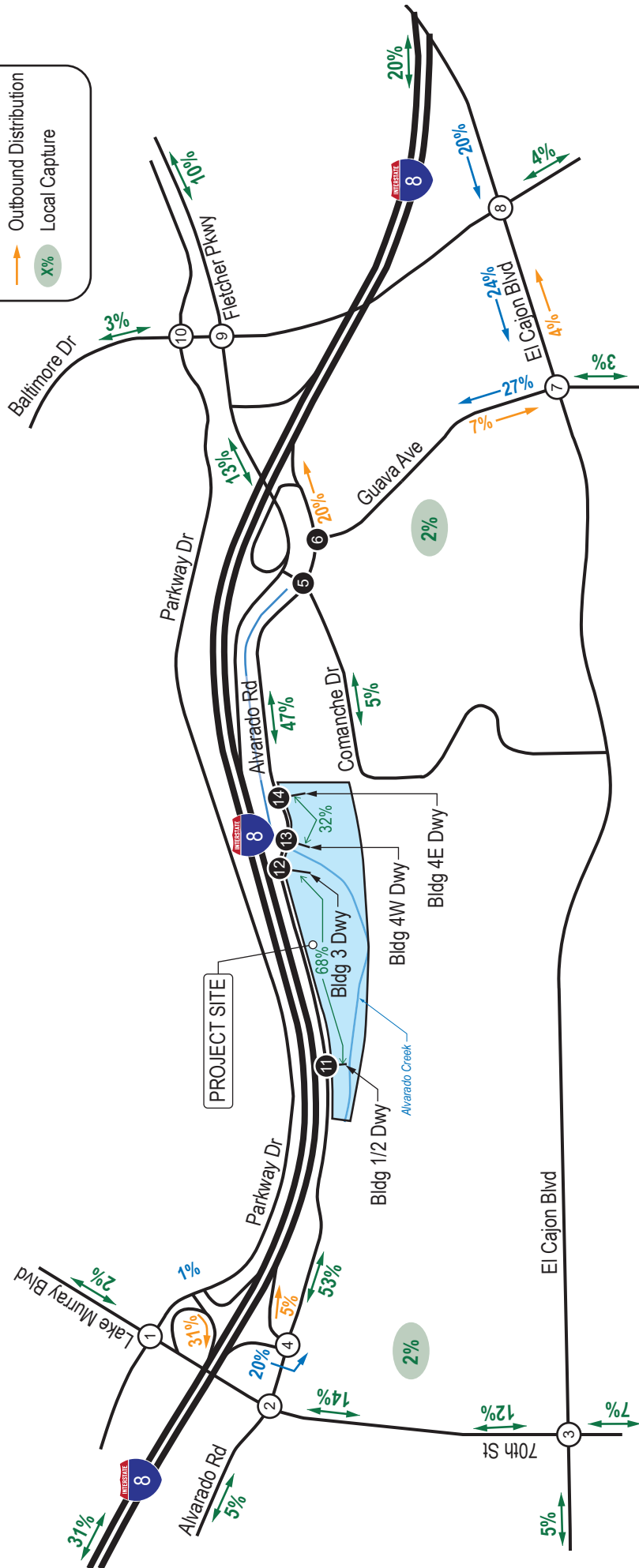
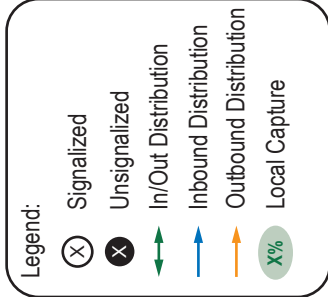
Alvarado Creek

Land Use	Land Use as listed in SANDAG	Units ¹	Trip Rate ²	Daily Trips ³	AM Peak-Hour			PM Peak-Hour						
					% of ADT ²	In:Out Ratio ²	In	Out	Total	% of ADT ²	In:Out Ratio ²	In	Out	Total
Driveway Trips ³														
<i>Proposed</i>														
Building 1	Apartment	60 du	6 / du	360	8%	2.00 : 8.00	6	23	29	9%	7.00 : 3.00	23	9	32
Building 2	Apartment	280 du	6 / du	1,680	8%	2.00 : 8.00	27	107	134	9%	7.00 : 3.00	106	45	151
Building 3	Apartment	307 du	6 / du	1,842	8%	2.00 : 8.00	29	118	147	9%	7.00 : 3.00	116	50	166
Building 4	Apartment	303 du	6 / du	1,818	8%	2.00 : 8.00	29	116	145	9%	7.00 : 3.00	115	49	164
(Transit Reduction 5%)			/	-285		:	-5	-18	-23		:	-18	-8	-26
Proposed Total							86	346	432			342	145	487
<i>Existing</i>														
San Diego RV Resort	Campground	167 campsites	4 / campsites	668	4%	4.00 : 6.00	11	16	27	8%	7.00 : 3.00	37	16	53
Existing Total		668			11			16	27					
NET TRIP GENERATION =				4,747	75			330	405	305			129	434

Note:

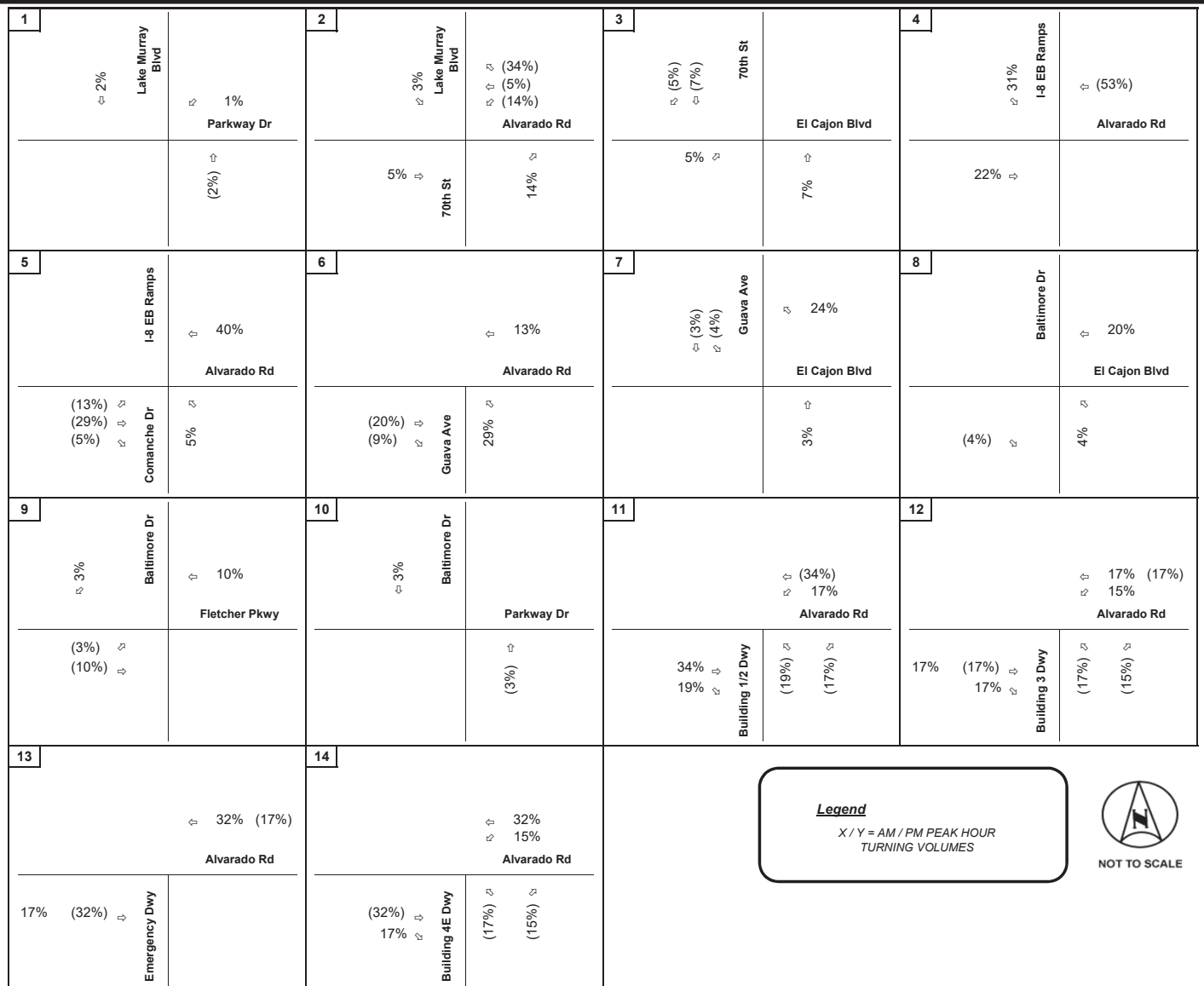
1. du = dwelling unit
2. Trip rates referenced from the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, SANDAG, April 2002
3. Driveway trips are the total number of trips generated by a site.

K:\SND_TPT0195144001_ALVARADO_TIA\ANALYSIS\EXCEL\144001TG01.xlsm\Summary



NOT TO SCALE

Alvarado Creek



TRANSPORTATION IMPACT ANALYSIS

JEFFERSON LA MESA

La Mesa, California
May 2, 2019

LLG Ref. 3-18-2856

Prepared by:
Narasimha Prasad
Senior Transportation Engineer

Under the Supervision of:
John Boarman P. E.
Principal

**Linscott, Law &
Greenspan, Engineers**
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

**TABLE 8-1
PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate ^a	Volume	% of ADT	In : Out Split	Volume			% of ADT	In : Out Split	Volume		
						In	Out	Total			In	Out	Total
Apartments	230 DU	6/DU	1,380	8%	20:80	22	88	110	9%	70:30	87	37	124
Live / Work Units (4 units of 712 SF each)	2,848 SF	40/KSF	114	3%	60:40	2	1	3	9%	50:50	5	5	10
Total			1,494			24	89	113			92	42	134

Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

NWC Jackson Drive & Center Drive Development

Traffic Study

Prepared for:

Rainbow Investment Company
10620 Trenea Street, Suite 110
San Diego, CA 92131

Prepared by:

Marc Mizuta, PE, TE, PTOE



5694 Mission Center Road, #602-121
San Diego, CA 92108

February 2018

Table 4-1
Weekday Trip Generation Summary

TRIP GENERATION RATES								
Land Use	Weekday Daily		AM PEAK			PM PEAK		
			Rate	In:Out Ratio		Rate	In:Out Ratio	
Coffee Shop w/Drive Thru ¹	818.58 trips / ksf		100.58	0.51 : 0.49		42.80	0.50 : 0.50	
TRIP GENERATION CALCULATIONS								
Land Use	Amount	ADT	AM PEAK			PM PEAK		
			In	Out	Total	In	Out	Total
Proposed Project								
Coffee Shop w/Drive Thru	2,000 ksf	1,638	91	87	178	44	43	87
Less Pass-by Trips (25%)		-410	-23	-22	-45	-11	-11	-22
Driveway Trips		1,638	91	87	178	44	43	87
Net New Trips		1,228	68	65	133	33	32	65

Notes:

ksf: 1,000 square feet

1. The trip rates are based on the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition*.

As shown in the table, the project is forecasted to generate a total of 1,638 daily trips with 178 AM peak-hour trips and 87 PM peak-hour trips at the project driveways. After applying the passby trip credits, the project is forecasted to generate a net total of 1,228 daily trips with 133 AM peak-hour trips and 65 PM peak-hour trips.

4.3 Project Trip Distribution

Based on existing travel patterns in the study area and on logical connections to regional facilities, the following list shows the assumed project trip distribution for the proposed project:

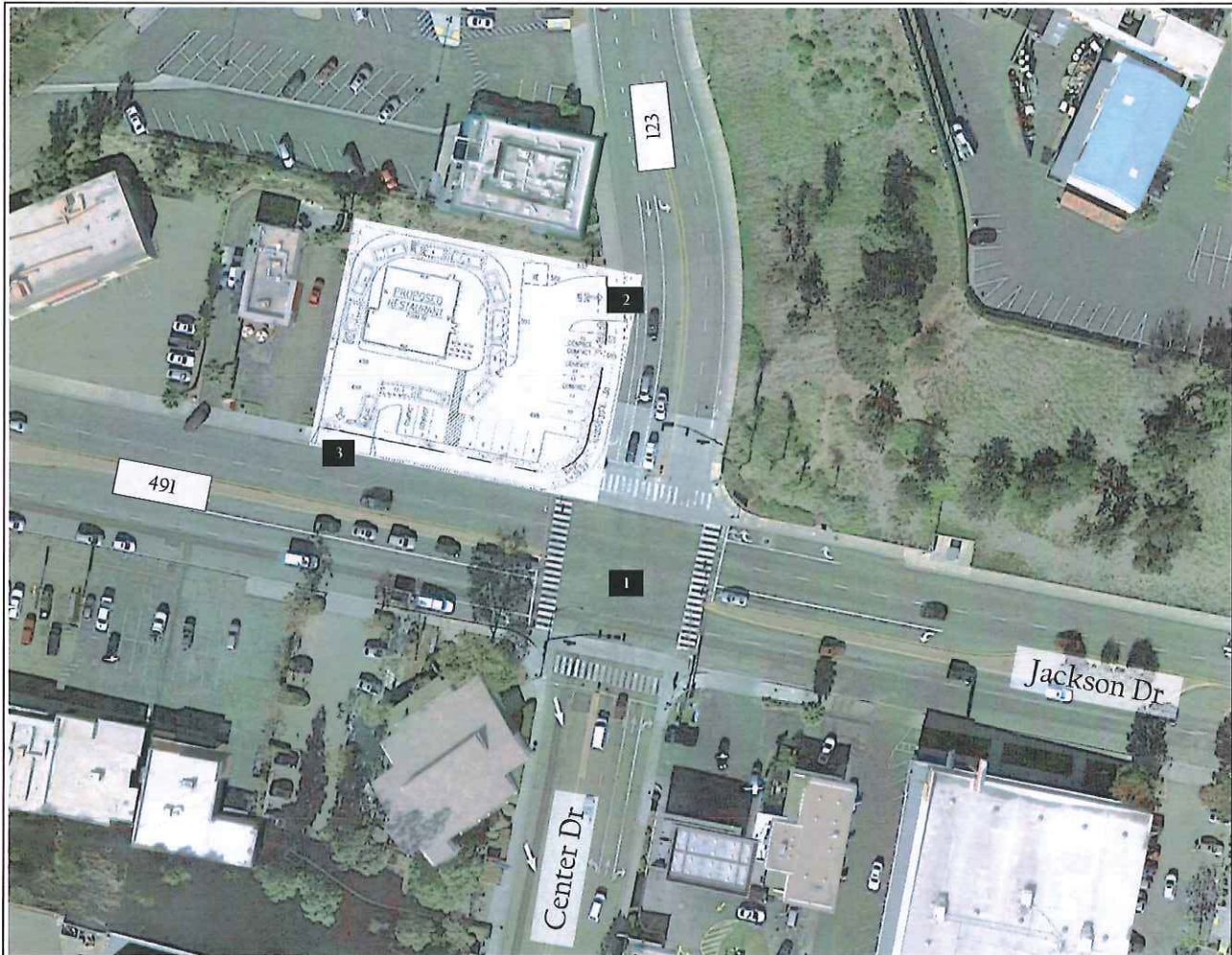
- 10 percent to/from the north via Center Drive
- 10 percent to/from the south via Center Drive
- 40 percent to/from the east via Jackson Drive
- 40 percent to/from the west via Jackson Drive

The raised center median along Jackson Drive and the painted center median along Center Drive results in out-of-direction travel. All project traffic entering from the west off of Jackson Drive was assumed to make a U-turn at Center Drive and turn right into the project site. All exiting traffic destined to travel north along Center Drive was assumed to make a right-turn onto Center Drive and travel along Jackson Drive and Murray Drive.

Figure 4-1 displays the assumed project trip distribution through the study intersection and project driveways.

4.4 Project Trip Assignment

Based on the project trip generation and distribution, the project trips were assigned to the intersection and project driveways in the study area. Figure 4-2 illustrates the weekday project trip assignment and Figure 4-3 illustrates the passby trip assignment.



LEGEND

↑ SBRT ← SBTH ↓ SBLT ↑ WBRT ← WBTH ↓ WBLT	↑ EBLT ← EBTH ↓ EBRT ↑ NB LT ← NB TH ↓ NB RT
↑ 14 / 6 ← 7 / 3 ↓ 33 / 16 ← 27 / 13 ↑ 7 / 3	← 7 / 3 ↓ 46 / 22

Center Dr & Jackson Dr

Center Dr & Project Dwy

Project Dwy & Jackson Dr

↑ 14 / 6 ← 7 / 3 ↓ 33 / 16 ← 27 / 13 ↑ 7 / 3	← 7 / 3 ↓ 46 / 22	↑ 20 / 10 ← 68 / 33 ↓ 7 / 3 ↑ 27 / 13
--	--	---



NWC Jackson Drive & Center Drive Development

Project Trip Assignment

Figure 4-2



TRANSPORTATION IMPACT ANALYSIS

LA MESA STARBUCKS

La Mesa, California
April 17, 2018

LLG Ref. 3-17-2824

Prepared by:
Narasimha Prasad
Senior Transportation Engineer

Under the Supervision of:
John Boarman, P. E.
Principal

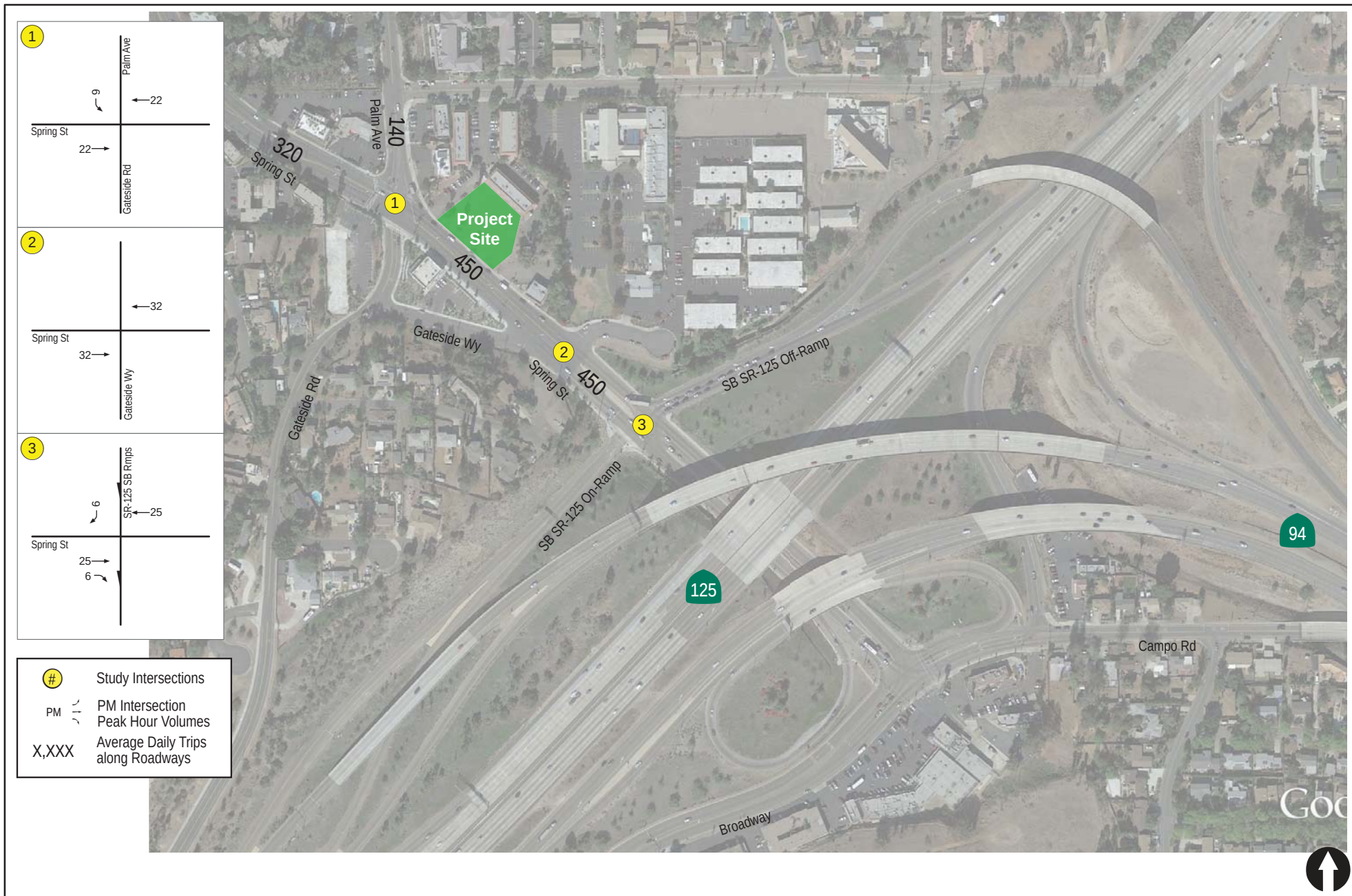
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Greenspan, Engineers**
4542 Ruffner Street
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TABLE 8-1
TRIP GENERATION

Coffee Shop	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate ^a	Volume	Rate ^b	Volume			Rate	Volume		
					In	Out	Total		In	Out	Total
Total Trips	1.85 KSF	818.58 /KSF	1,514	113.44 /KSF	105	105	210	35.43 /KSF	33	33	66
Pass-by Trips (40%)			606		42	42	84		13	13	26
Primary Trips (60%)			908		63	63	126		20	20	40

Footnotes:

- Daily Trip rate is based on the 9th Edition of the *Trip Generation Manual*, Institute of Transportation Engineers (ITE).
- AM and PM peak hour rates are based on trip generation rates of Starbucks Stores in Colorado from the *Trip Generation of Coffee Shops with Combination Drive-Through and Sit-Down Facilities*, Technical Committee of the Colorado-Wyoming Section of ITE. See **Appendix C**.
- Pass-by Trip rates are based on the pass-by rates for fast-food restaurants from the *(Not So) Brief Guide of Traffic Generation rates for the San Diego Region*, April 2002, SANDAG.





Kimley-Horn
and Associates, Inc.

■
Suite 301
517 Fourth Avenue
San Diego, California
92101

August 4, 2008

Mr. Arnold Schmidt
3175 Cauby Street # 90
San Diego, CA 92110

Re: Traffic Assessment Letter for the Montebello North Mixed Use Project

Dear Mr. Schmidt:

In accordance with the City of La Mesa's request for a traffic assessment letter, Kimley-Horn and Associates has evaluated the potential traffic impacts associated with your project. The site is located on the north side of El Cajon Boulevard, just east of Thorne Drive in the community of La Mesa, in the San Diego County. The proposed project consists of the development of 122 residential condominiums, and 6,000 square feet of retail use. The existing site currently is occupied by 37 mobile homes dwelling units, 5 single families' residential units, a 2,200 square feet high-turn over restaurant and 3,300 specialty retail use. The majority of the project traffic would take access off the east side of Thorne Drive. In addition, the project will provide a secondary access along the north side of El Cajon Boulevard that would serve primarily the proposed retail uses. **Figure 1** depicts the project location in a regional context. **Figure 2** shows the site plan for the proposed project. The **Appendix** to this letter contains all the existing traffic volumes information and analysis worksheets. The following paragraphs summarize the key findings of the traffic assessment letter for your project.

Project Traffic

Trip Generation

Trip generation rates published by the SANDAG *Brief Guide of Vehicular Traffic Generation Rates* for the San Diego Region, April 2002 were applied in order to determine the traffic generation characteristics of the site.

Table 5 summarizes the trip generation for the proposed project. As shown in the table, the proposed project would have a total trip generation of approximately 972 daily trips, including 66 (16 in, 50 out) a.m. peak-hour trips, and 88 (57 in, 31 out) p.m. peak-hour trips. The existing site uses currently generate approximately 719 daily trips, including 51 (20 in and 31 out) a.m. peak-hour trips, and 65 (39 in, 26 out) p.m. peak-hour trips. Since the existing trips generation for the current uses is consider trip credits for the proposed new site, the net trip generation for the proposed project is 253 daily trips, including 15 (- 4 in, 19 out) a.m. peak-hour trips and 23 (18 in, 5 out) p.m. peak-hour trips.

Trip Distribution

The project trip distribution for the proposed project is based on existing travel patterns in the study area and freeway access locations. The following list shows the assumed project trip distribution for the proposed project:

- 65 percent to/from the east along El Cajon Boulevard
 - 50 percent to/from the east along El Cajon Boulevard
 - 15 percent to/from the south along La Mesa Boulevard
- 35 percent to/from the west along El Cajon Boulevard
 - 33 percent to/from the west along El Cajon Boulevard
 - 2 percent to/from the south along Parks Avenue

Figures 7 and 8 display the assumed project trip distribution through the study intersection and along the roadway segment, respectively.

Trip Assignment

Based on the project trip distribution, the peak-hour and daily project trips were assigned to the study intersection and local roadway network in the study area. **Figures 9 and 10** show the project trip assignment at the study intersections and along the roadway segments, respectively.

TABLE 5
TRIP GENERATION SUMMARY

Land Use	Land Use as listed in SANDAG	Units ¹	Trip Rate ²	Daily Trips	AM Peak-Hour			PM Peak-Hour			Total	Total		
					% of ADT ²	In:Out Ratio ²	In	Out	In:Out Ratio ²	In			Out	
DRIVEWAY TRIPS ³														
Proposed														
	Apartment	122 du	6 / du	732	8%	2.00 : 8.00	12	47	59	9%	7.00 : 3.00	46	20	66
	Specialty Retail/Strip Commercial	6 ksf	40 / ksf	240	3%	6.00 : 4.00	4	3	7	9%	5.00 : 5.00	11	11	22
Proposed Total					972		16	50	66			57	31	88
Existing														
	Family	37 du	5 / du	185	8%	3.00 : 7.00	4	11	15	11%	6.00 : 4.00	12	8	20
	Single Family Detached	5 du	10 / du	50	8%	3.00 : 7.00	1	3	4	10%	7.00 : 3.00	4	1	5
	Sit-down, high turnover	2.2 ksf	160 / ksf	352	8%	5.00 : 5.00	14	14	28	8%	6.00 : 4.00	17	11	28
	Specialty Retail/Strip Commercial	3.3 ksf	40 / ksf	132	3%	6.00 : 4.00	1	3	4	9%	5.00 : 5.00	6	6	12
Existing Total					719		20	31	51			39	26	65
NET TRIP GENERATION =				253		-4	19	15			18	5	23	

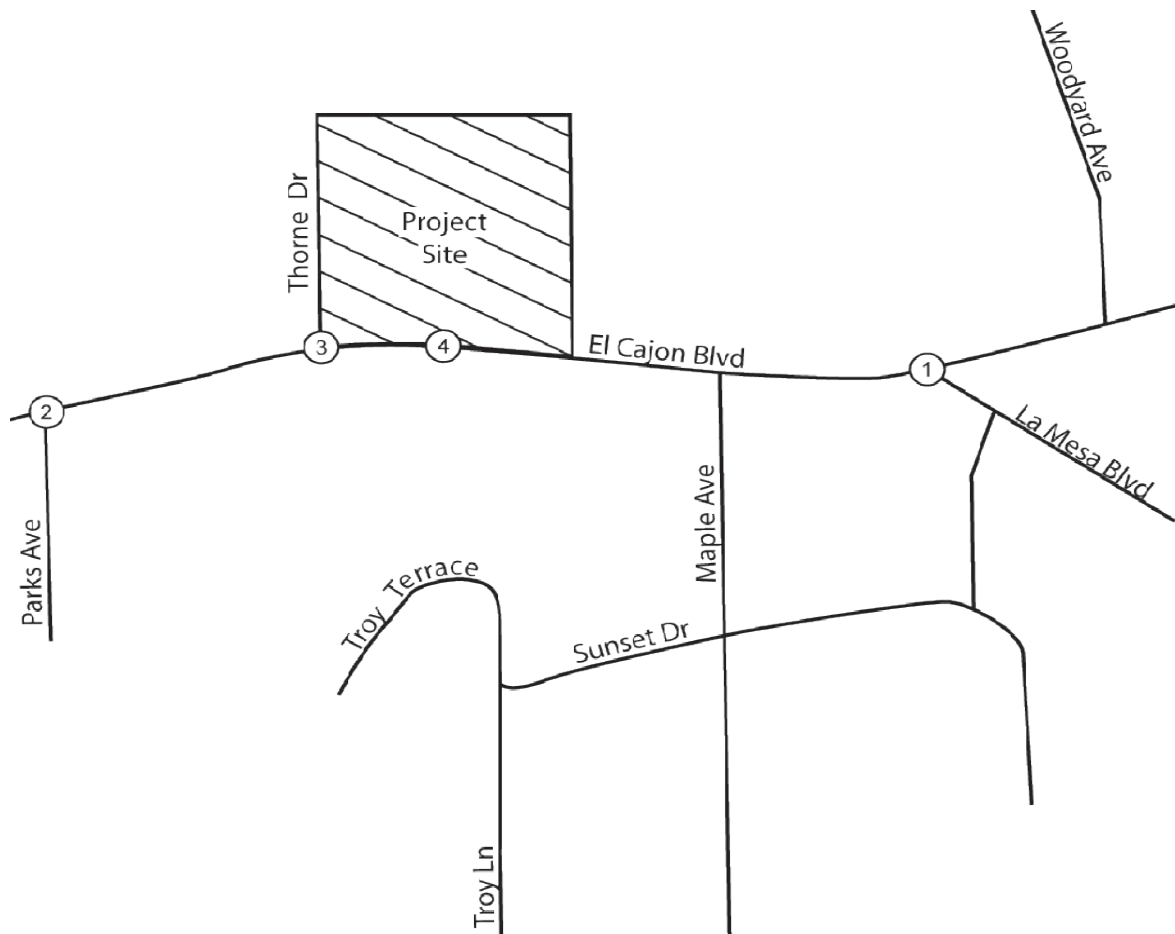
Note:

1. DU = Dwelling Unit
2. Trip rates referenced from the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, SANDAG, April 2002
3. Driveway trips are the total number of trips generated by a site.

K:\PT0905603001\excel\603001.TG01.xls\Summary North

Montebello- North Site

1 Private Dwy 50% El Cajon Blvd	2 Parks Ave (33%) (67%) El Cajon Blvd	3 Thorne Dr 95% El Cajon Blvd	4 Project Dwy 5% El Cajon Blvd
35% (50%) (15%) La Mesa Blvd	33%	35% (65%)	



Legend

X% / (Y%) = IN / OUT PERCENT
DISTRIBUTION



NOT TO SCALE



Kimley-Horn
and Associates, Inc.

Suite 301
517 Fourth Avenue
San Diego, California
92101

December 20, 2007

Mr. Arnold Schmidt
3175 Cauby Street # 90
San Diego, CA 92110

Re: Traffic Assessment Letter for the Montebello South Mixed Use Project

Dear Mr. Schmidt:

In accordance with the City of La Mesa's request for a traffic assessment letter, Kimley-Horn and Associates has evaluated the potential traffic impacts associated with your project. The site is located on the south side of El Cajon Boulevard, just north of Troy Terrace in the community of La Mesa, in the San Diego County. The proposed project consists of the development of 80 residential condominiums, 3,310 square feet of office and 4,840 square feet of retail use. The existing site is currently vacant. The project would take access off the south side of El Cajon Boulevard. As part of the proposed project, a new driveway will be constructed at the northwest corner of the project site. The second access point will be the existing private driveway along the east side of the site. The second access point will be shared with a recent constructed mixed-use residential development. Both project access points will function as right-in/right-out stop controlled intersections. **Figure 1** depicts the project location in a regional context. **Figure 2** shows the site plan for the proposed project. The **Appendix** to this letter contains all the existing traffic volumes information and analysis worksheets. The following paragraphs summarize the key findings of the traffic assessment letter for your project.

Project Traffic

Trip Generation

Trip generation rates published by the SANDAG *Brief Guide of Vehicular Traffic Generation Rates* for the San Diego Region, April 2002 were applied in order to determine the traffic generation characteristics of the site. The net trip generation was estimated for the a.m. and p.m. peak-hour and daily traffic.

Table 5 summarizes the trip generation for the proposed project. As shown in the table, the proposed project would have a total trip generation of approximately 740 daily trips, including 53 (19 in, 34 out) a.m. peak-hour trips, and 69 (41 in, 28 out) p.m. peak-hour trips.

Trip Distribution

The project trip distribution for the proposed project is based on existing travel patterns in the study area and freeway access locations. The following list shows the assumed project trip distribution for the proposed project:

- 65 percent to/from the east along El Cajon Boulevard
 - 50 percent to/from the east along El Cajon Boulevard
 - 15 percent to/from the south along La Mesa Boulevard
- 35 percent to/from the west along El Cajon Boulevard
 - 33 percent to/from the west along El Cajon Boulevard
 - 2 percent to/from the south along Parks Avenue

Figures 7 and 8 display the assumed project trip distribution through the study intersection and along the roadway segment, respectively.

Trip Assignment

Based on the project trip distribution, the peak-hour and daily project trips were assigned to the study intersection and local roadway network in the study area. **Figures 9 and 10** show the project trip assignment at the study intersections and along the roadway segments, respectively.

**TABLE 5
TRIP GENERATION SUMMARY**

Land Use					AM Peak-Hour					PM Peak-Hour				
					% of ADT ²	In:Out Ratio ²	In	Out	Total	% of ADT ²	In:Out Ratio ²	In	Out	Total
DRIVEWAY TRIPS ³														
<i>Proposed</i>														
	Apartment	80 / du	6 / du	480	8%	2.00 : 8.00	8	30	38	9%	7.00 : 3.00	30	13	43
	Specialty Retail/Strip Commercial	5 / ksf	40 / ksf	194	3%	6.00 : 4.00	3	3	6	9%	5.00 : 5.00	9	8	17
	Standard Commercial Office	3 / ksf	20 / ksf	66	14%	9.00 : 1.00	8	1	9	13%	2.00 : 8.00	2	7	9
Proposed Total				740	19 34 53					41 28 69				
NET TRIP GENERATION =				740	19 34 53					41 28 69				

Note:

1. DU = Dwelling Unit; Ksf= Thousand Square Feet

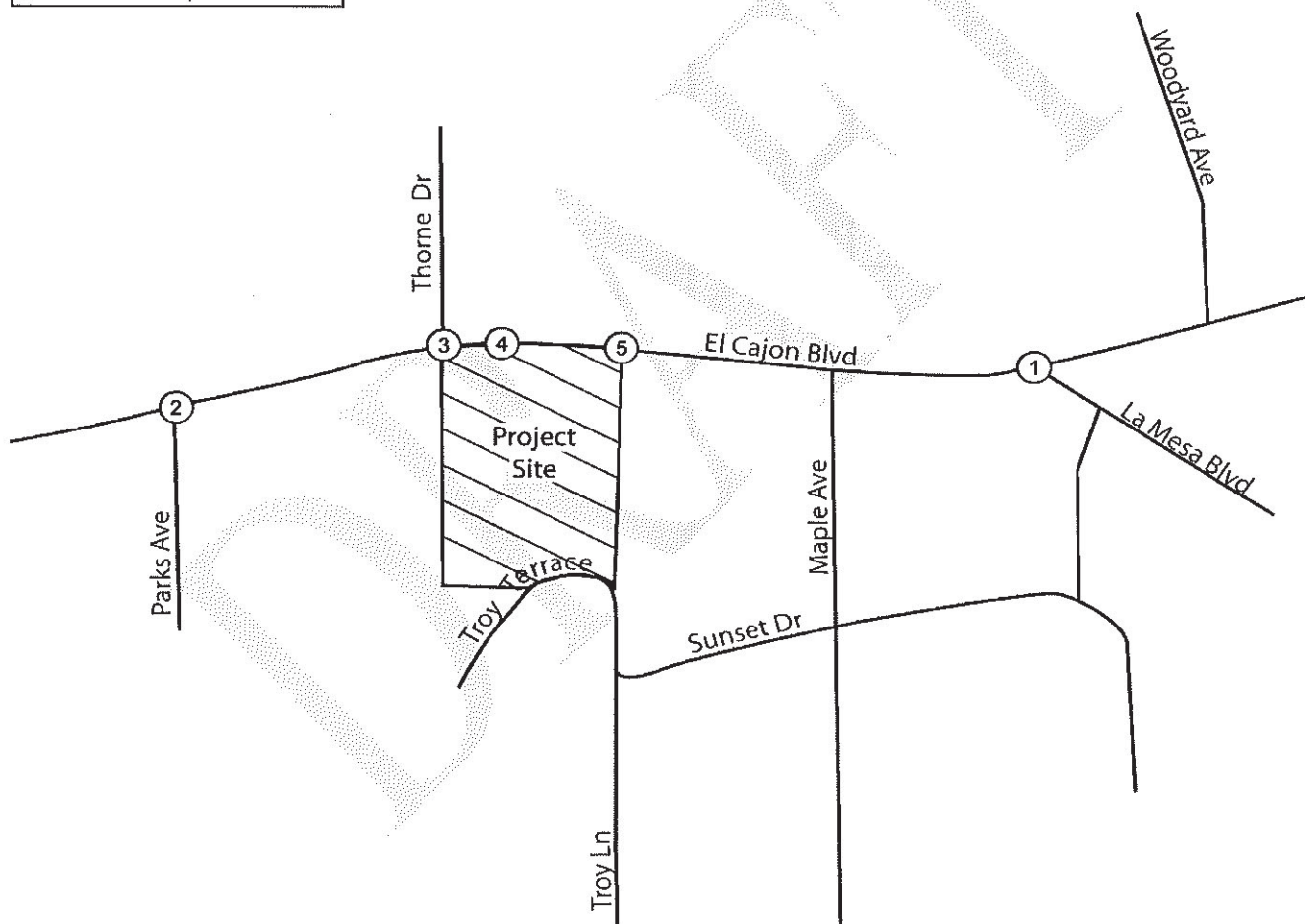
2. Trip rates referenced from the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, SANDAG, April 2002

3. Driveway trips are the total number of trips generated by a site.

K:\TPT\095603061\Excel\503001TG01.xls\Summary South

Montebello- South Site

1 Private Dwy 50% El Cajon Blvd (35%) (50%) (15%) La Mesa Blvd 15%	2 Parks Ave (33%) (65%) (2%) El Cajon Blvd 33% 2%	3 Thorne Dr 65% (35%) El Cajon Blvd 100%	4 65% (35%) El Cajon Blvd 50% (50%) Project Dwy 1
5 65% El Cajon Blvd (50%) (50%) Project Dwy 2 (50%)			



Legend

X% / (Y%) = IN / OUT PERCENT DISTRIBUTION



NOT TO SCALE



Kimley-Horn
and Associates, Inc.

FIGURE 7

Project Trip Distribution - Study Intersections

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Near Term AM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	798	2	124	19	9	44	191	329	5	17	246	516
Future Volume (veh/h)	798	2	124	19	9	44	191	329	5	17	246	516
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	929	0	144	21	10	48	215	370	5	18	262	549
Peak Hour Factor	0.86	0.92	0.86	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1146	0	510	104	16	79	314	595	8	38	474	689
Arrive On Green	0.32	0.00	0.32	0.06	0.06	0.06	0.09	0.32	0.32	0.02	0.25	0.25
Sat Flow, veh/h	3563	0	1585	1781	281	1347	3456	1841	25	1781	1870	2718
Grp Volume(v), veh/h	929	0	144	21	0	58	215	0	375	18	262	549
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1628	1728	0	1866	1781	1870	1359
Q Serve(g_s), s	15.6	0.0	4.4	0.7	0.0	2.3	3.9	0.0	11.1	0.7	7.9	12.3
Cycle Q Clear(g_c), s	15.6	0.0	4.4	0.7	0.0	2.3	3.9	0.0	11.1	0.7	7.9	12.3
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1146	0	510	104	0	95	314	0	603	38	474	689
V/C Ratio(X)	0.81	0.00	0.28	0.20	0.00	0.61	0.69	0.00	0.62	0.47	0.55	0.80
Avail Cap(c_a), veh/h	1555	0	692	491	0	449	397	0	643	136	573	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	0.0	16.5	29.3	0.0	30.0	28.8	0.0	18.7	31.6	21.2	22.8
Incr Delay (d2), s/veh	2.4	0.0	0.3	0.9	0.0	6.2	3.4	0.0	1.7	8.9	1.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	1.5	0.3	0.0	1.0	1.7	0.0	4.7	0.4	3.4	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	16.8	30.3	0.0	36.3	32.2	0.0	20.4	40.5	22.2	27.3
LnGrp LOS	C	A	B	C	A	D	C	A	C	D	C	C
Approach Vol, veh/h	1073			79			590			829		
Approach Delay, s/veh	21.9			34.7			24.7			26.0		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.9	25.6	25.5		10.4	21.1	8.3					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	5.0	22.5	28.5		7.5	20.0	18.0					
Max Q Clear Time (g_c+I1), s	2.7	13.1	17.6		5.9	14.3	4.3					
Green Ext Time (p_c), s	0.0	1.5	3.4		0.1	2.0	0.2					

Intersection Summary

HCM 6th Ctrl Delay 24.3

HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Near Term AM
02/18/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	38	957	69	59	666
Future Volume (veh/h)	59	38	957	69	59	666
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	46	1167	84	67	757
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	167	148	1633	117	119	2383
Arrive On Green	0.09	0.09	0.49	0.49	0.07	0.67
Sat Flow, veh/h	1781	1585	3455	242	1781	3647
Grp Volume(v), veh/h	72	46	616	635	67	757
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1827	1781	1777
Q Serve(g_s), s	1.5	1.0	10.4	10.4	1.4	3.4
Cycle Q Clear(g_c), s	1.5	1.0	10.4	10.4	1.4	3.4
Prop In Lane	1.00	1.00		0.13	1.00	
Lane Grp Cap(c), veh/h	167	148	863	888	119	2383
V/C Ratio(X)	0.43	0.31	0.71	0.72	0.56	0.32
Avail Cap(c_a), veh/h	845	752	1085	1116	238	3065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	16.1	7.7	7.7	17.3	2.6
Incr Delay (d2), s/veh	1.8	1.2	1.7	1.6	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.4	2.8	2.9	0.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.1	17.3	9.4	9.4	21.4	2.7
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	118		1251			824
Approach Delay, s/veh	17.8		9.4			4.2
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.0	23.0			30.1	8.1
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.1	23.3			32.9	18.1
Max Q Clear Time (g_c+I1), s	3.4	12.4			5.4	3.5
Green Ext Time (p_c), s	0.0	6.1			5.8	0.2
Intersection Summary						
HCM 6th Ctrl Delay			7.9			
HCM 6th LOS			A			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	53	43	56	56	29	6	2	27	11	15	5
Future Vol, veh/h	7	53	43	56	56	29	6	2	27	11	15	5
Peak Hour Factor	0.89	0.89	0.89	0.66	0.66	0.66	0.60	0.60	0.60	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	60	48	85	85	44	10	3	45	15	20	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	8.6	7.6	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	7%	40%	35%
Vol Thru, %	6%	51%	40%	48%
Vol Right, %	77%	42%	21%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	103	141	31
LT Vol	6	7	56	11
Through Vol	2	53	56	15
RT Vol	27	43	29	5
Lane Flow Rate	58	116	214	41
Geometry Grp	1	1	1	1
Degree of Util (X)	0.069	0.133	0.246	0.054
Departure Headway (Hd)	4.271	4.143	4.153	4.691
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	868	850	767
Service Time	2.278	2.154	2.247	2.7
HCM Lane V/C Ratio	0.069	0.134	0.252	0.053
HCM Control Delay	7.6	7.8	8.6	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	1	0.2

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Near Term AM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	45	26	7	77	219	35	800	7	47	285	61
Future Volume (veh/h)	53	45	26	7	77	219	35	800	7	47	285	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	68	58	33	7	81	231	38	879	8	54	328	70
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	505	470	16	98	280	59	1200	11	87	1218	463
Arrive On Green	0.06	0.32	0.32	0.01	0.27	0.27	0.04	0.33	0.33	0.05	0.34	0.34
Sat Flow, veh/h	1519	1595	1319	1781	364	1037	1519	3608	33	1781	3554	1349
Grp Volume(v), veh/h	68	58	33	7	0	312	38	433	454	54	328	70
Grp Sat Flow(s),veh/h/ln	1519	1595	1319	1781	0	1401	1519	1777	1864	1781	1777	1349
Q Serve(g_s), s	2.7	1.6	1.0	0.2	0.0	12.9	1.5	13.2	13.2	1.8	4.1	2.2
Cycle Q Clear(g_c), s	2.7	1.6	1.0	0.2	0.0	12.9	1.5	13.2	13.2	1.8	4.1	2.2
Prop In Lane	1.00		1.00	1.00		0.74	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	85	505	470	16	0	378	59	591	620	87	1218	463
V/C Ratio(X)	0.80	0.11	0.07	0.43	0.00	0.82	0.64	0.73	0.73	0.62	0.27	0.15
Avail Cap(c_a), veh/h	234	749	672	148	0	558	180	910	954	188	1773	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	14.9	13.1	30.3	0.0	21.1	29.2	18.1	18.1	28.7	14.6	14.0
Incr Delay (d2), s/veh	15.8	0.1	0.1	16.8	0.0	6.4	11.2	1.8	1.7	7.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.5	0.3	0.2	0.0	4.5	0.7	5.2	5.4	0.9	1.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	15.0	13.2	47.1	0.0	27.5	40.3	19.9	19.8	35.7	14.8	14.2
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	B	B
Approach Vol, veh/h		159			319			925			452	
Approach Delay, s/veh		27.2			27.9			20.7			17.2	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	25.0	5.1	24.0	6.9	25.6	7.9	21.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	31.5	5.1	28.9	7.3	30.7	9.5	24.5				
Max Q Clear Time (g_c+I1), s	3.8	15.2	2.2	3.6	3.5	6.1	4.7	14.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.4	0.0	2.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	153	48	6	147	19	107	26	11	4	14	7
Future Vol, veh/h	14	153	48	6	147	19	107	26	11	4	14	7
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.84	0.84	0.84	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	161	51	7	167	22	127	31	13	7	25	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	9.4	9.7	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	74%	7%	3%	16%
Vol Thru, %	18%	71%	85%	56%
Vol Right, %	8%	22%	11%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	215	172	25
LT Vol	107	14	6	4
Through Vol	26	153	147	14
RT Vol	11	48	19	7
Lane Flow Rate	171	226	195	45
Geometry Grp	1	1	1	1
Degree of Util (X)	0.241	0.289	0.255	0.062
Departure Headway (Hd)	5.065	4.598	4.691	5.014
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	779	762	708
Service Time	3.124	2.646	2.741	3.087
HCM Lane V/C Ratio	0.243	0.29	0.256	0.064
HCM Control Delay	9.7	9.5	9.4	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	1.2	1	0.2

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Near Term PM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	675	9	224	9	4	21	271	185	19	63	485	681
Future Volume (veh/h)	675	9	224	9	4	21	271	185	19	63	485	681
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	741	0	243	10	4	23	301	206	21	68	533	748
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	893	0	397	66	9	51	395	666	68	94	631	934
Arrive On Green	0.25	0.00	0.25	0.04	0.04	0.04	0.11	0.40	0.40	0.05	0.34	0.34
Sat Flow, veh/h	3563	0	1582	1781	240	1381	3456	1670	170	1781	1870	2769
Grp Volume(v), veh/h	741	0	243	10	0	27	301	0	227	68	533	748
Grp Sat Flow(s),veh/h/ln	1781	0	1582	1781	0	1622	1728	0	1840	1781	1870	1385
Q Serve(g_s), s	13.6	0.0	9.4	0.4	0.0	1.1	5.8	0.0	5.8	2.6	18.2	16.9
Cycle Q Clear(g_c), s	13.6	0.0	9.4	0.4	0.0	1.1	5.8	0.0	5.8	2.6	18.2	16.9
Prop In Lane	1.00		1.00	1.00		0.85	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	893	0	397	66	0	60	395	0	734	94	631	934
V/C Ratio(X)	0.83	0.00	0.61	0.15	0.00	0.45	0.76	0.00	0.31	0.72	0.84	0.80
Avail Cap(c_a), veh/h	1033	0	458	465	0	423	426	0	734	232	691	1023
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	22.9	32.2	0.0	32.6	29.6	0.0	14.2	32.2	21.2	20.8
Incr Delay (d2), s/veh	5.1	0.0	1.9	1.1	0.0	5.3	7.4	0.0	0.2	10.0	8.8	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	3.5	0.2	0.0	0.5	2.7	0.0	2.3	1.3	8.9	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	0.0	24.8	33.3	0.0	37.8	37.0	0.0	14.5	42.2	30.0	25.0
LnGrp LOS	C	A	C	C	A	D	D	A	B	D	C	C
Approach Vol, veh/h	984			37			528			1349		
Approach Delay, s/veh	28.4			36.6			27.3			27.9		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	32.0		21.8	12.4	27.8		7.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	9.0	25.0		20.0	8.5	25.5		18.0				
Max Q Clear Time (g_c+I1), s	4.6	7.8		15.6	7.8	20.2		3.1				
Green Ext Time (p_c), s	0.0	1.1		1.7	0.1	3.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay 28.1

HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Near Term PM
02/18/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	107	71	770	96	63	842
Future Volume (veh/h)	107	71	770	96	63	842
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	87	939	117	72	957
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	218	194	1399	174	126	2250
Arrive On Green	0.12	0.12	0.44	0.44	0.07	0.63
Sat Flow, veh/h	1781	1585	3273	396	1781	3647
Grp Volume(v), veh/h	130	87	525	531	72	957
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1799	1781	1777
Q Serve(g_s), s	2.5	1.9	8.6	8.6	1.4	5.0
Cycle Q Clear(g_c), s	2.5	1.9	8.6	8.6	1.4	5.0
Prop In Lane	1.00	1.00		0.22	1.00	
Lane Grp Cap(c), veh/h	218	194	782	791	126	2250
V/C Ratio(X)	0.60	0.45	0.67	0.67	0.57	0.43
Avail Cap(c_a), veh/h	876	779	1106	1119	266	3177
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	15.0	8.2	8.2	16.6	3.4
Incr Delay (d2), s/veh	2.6	1.6	1.0	1.0	4.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.6	2.3	2.4	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.9	16.6	9.2	9.2	20.6	3.5
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	217		1056			1029
Approach Delay, s/veh	17.4		9.2			4.7
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.1	20.7			27.8	9.0
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	22.9			32.9	18.1
Max Q Clear Time (g_c+I1), s	3.4	10.6			7.0	4.5
Green Ext Time (p_c), s	0.0	5.5			7.7	0.5
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	105	20	34	113	32	17	19	84	30	11	15
Future Vol, veh/h	13	105	20	34	113	32	17	19	84	30	11	15
Peak Hour Factor	0.78	0.78	0.78	0.83	0.83	0.83	0.68	0.68	0.68	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	135	26	41	136	39	25	28	124	33	12	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9.5	8.9	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	9%	19%	54%
Vol Thru, %	16%	76%	63%	20%
Vol Right, %	70%	14%	18%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	138	179	56
LT Vol	17	13	34	30
Through Vol	19	105	113	11
RT Vol	84	20	32	15
Lane Flow Rate	176	177	216	61
Geometry Grp	1	1	1	1
Degree of Util (X)	0.222	0.23	0.278	0.085
Departure Headway (Hd)	4.536	4.679	4.633	5.019
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	787	764	772	710
Service Time	2.585	2.728	2.68	3.079
HCM Lane V/C Ratio	0.224	0.232	0.28	0.086
HCM Control Delay	8.9	9.1	9.5	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.9	1.1	0.3

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Near Term PM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	147	60	21	106	135	72	701	18	109	892	106
Future Volume (veh/h)	135	147	60	21	106	135	72	701	18	109	892	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	173	188	77	22	112	142	79	770	20	125	1025	122
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	513	510	43	134	169	96	1167	30	159	1263	480
Arrive On Green	0.14	0.32	0.32	0.02	0.21	0.21	0.06	0.33	0.33	0.09	0.36	0.36
Sat Flow, veh/h	1519	1595	1320	1781	636	807	1519	3538	92	1781	3554	1350
Grp Volume(v), veh/h	173	188	77	22	0	254	79	387	403	125	1025	122
Grp Sat Flow(s),veh/h/ln	1519	1595	1320	1781	0	1443	1519	1777	1853	1781	1777	1350
Q Serve(g_s), s	8.5	6.9	2.9	0.9	0.0	12.9	3.9	14.3	14.3	5.3	20.0	4.9
Cycle Q Clear(g_c), s	8.5	6.9	2.9	0.9	0.0	12.9	3.9	14.3	14.3	5.3	20.0	4.9
Prop In Lane	1.00		1.00	1.00		0.56	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	206	513	510	43	0	303	96	586	611	159	1263	480
V/C Ratio(X)	0.84	0.37	0.15	0.51	0.00	0.84	0.82	0.66	0.66	0.79	0.81	0.25
Avail Cap(c_a), veh/h	288	565	553	126	0	339	153	692	722	226	1477	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	20.0	15.4	36.9	0.0	29.0	35.4	22.0	22.0	34.1	22.3	17.5
Incr Delay (d2), s/veh	14.2	0.4	0.1	8.8	0.0	15.4	17.2	1.8	1.7	11.3	3.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	2.5	0.8	0.5	0.0	5.6	1.9	5.9	6.1	2.7	8.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.5	20.4	15.5	45.7	0.0	44.3	52.6	23.8	23.7	45.5	25.4	17.7
LnGrp LOS	D	C	B	D	A	D	D	C	C	D	C	B
Approach Vol, veh/h		438			276			869			1272	
Approach Delay, s/veh		29.8			44.4			26.4			26.6	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	29.7	6.4	29.1	9.3	31.7	14.9	20.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.7	29.8	5.4	27.1	7.7	31.8	14.5	18.0				
Max Q Clear Time (g_c+I1), s	7.3	16.3	2.9	8.9	5.9	22.0	10.5	14.9				
Green Ext Time (p_c), s	0.1	4.2	0.0	1.2	0.0	5.2	0.2	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			28.8									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	11	294	102	17	206	14	68	21	14	17	42	27
Future Vol, veh/h	11	294	102	17	206	14	68	21	14	17	42	27
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.79	0.79	0.79	0.74	0.74	0.74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	334	116	18	224	15	86	27	18	23	57	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.1	11.6	10.8	10.3
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	66%	3%	7%	20%
Vol Thru, %	20%	72%	87%	49%
Vol Right, %	14%	25%	6%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	407	237	86
LT Vol	68	11	17	17
Through Vol	21	294	206	42
RT Vol	14	102	14	27
Lane Flow Rate	130	462	258	116
Geometry Grp	1	1	1	1
Degree of Util (X)	0.219	0.632	0.38	0.19
Departure Headway (Hd)	6.038	4.923	5.307	5.876
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	731	678	609
Service Time	4.09	2.96	3.35	3.93
HCM Lane V/C Ratio	0.219	0.632	0.381	0.19
HCM Control Delay	10.8	16.1	11.6	10.3
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	0.8	4.5	1.8	0.7

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM WITH PROJECT

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Near Term + Project AM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	832	2	124	19	9	44	191	329	5	17	246	524
Future Volume (veh/h)	832	2	124	19	9	44	191	329	5	17	246	524
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	968	0	144	21	10	48	215	370	5	18	262	557
Peak Hour Factor	0.86	0.92	0.86	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1196	0	532	101	16	76	313	597	8	38	476	692
Arrive On Green	0.34	0.00	0.34	0.06	0.06	0.06	0.09	0.32	0.32	0.02	0.25	0.25
Sat Flow, veh/h	3563	0	1585	1781	281	1347	3456	1841	25	1781	1870	2718
Grp Volume(v), veh/h	968	0	144	21	0	58	215	0	375	18	262	557
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1628	1728	0	1866	1781	1870	1359
Q Serve(g_s), s	17.0	0.0	4.6	0.8	0.0	2.4	4.1	0.0	11.7	0.7	8.3	13.2
Cycle Q Clear(g_c), s	17.0	0.0	4.6	0.8	0.0	2.4	4.1	0.0	11.7	0.7	8.3	13.2
Prop In Lane	1.00		1.00	1.00		0.83	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	1196	0	532	101	0	92	313	0	605	38	476	692
V/C Ratio(X)	0.81	0.00	0.27	0.21	0.00	0.63	0.69	0.00	0.62	0.48	0.55	0.80
Avail Cap(c_a), veh/h	1749	0	778	467	0	427	443	0	685	132	586	852
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	0.0	16.7	30.9	0.0	31.7	30.3	0.0	19.6	33.2	22.2	24.0
Incr Delay (d2), s/veh	1.9	0.0	0.3	1.0	0.0	6.8	2.7	0.0	1.4	9.1	1.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	1.6	0.3	0.0	1.1	1.8	0.0	4.9	0.4	3.6	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	16.9	31.9	0.0	38.5	32.9	0.0	21.0	42.3	23.2	28.6
LnGrp LOS	C	A	B	C	A	D	C	A	C	D	C	C
Approach Vol, veh/h	1112					79	590			837		
Approach Delay, s/veh	21.9					36.8	25.4			27.2		
Approach LOS	C					D	C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	6.0	26.7	27.5		10.7	22.0	8.4					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	5.1	25.2	33.7		8.8	21.5	18.0					
Max Q Clear Time (g_c+I1), s	2.7	13.7	19.0		6.1	15.2	4.4					
Green Ext Time (p_c), s	0.0	1.7	4.0		0.2	2.2	0.2					
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Near Term + Project AM
02/18/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	72	957	72	67	666
Future Volume (veh/h)	70	72	957	72	67	666
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	88	1167	88	76	757
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	192	171	1603	121	128	2361
Arrive On Green	0.11	0.11	0.48	0.48	0.07	0.66
Sat Flow, veh/h	1781	1585	3443	252	1781	3647
Grp Volume(v), veh/h	85	88	619	636	76	757
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1825	1781	1777
Q Serve(g_s), s	1.8	2.1	11.0	11.0	1.6	3.6
Cycle Q Clear(g_c), s	1.8	2.1	11.0	11.0	1.6	3.6
Prop In Lane	1.00	1.00		0.14	1.00	
Lane Grp Cap(c), veh/h	192	171	851	874	128	2361
V/C Ratio(X)	0.44	0.52	0.73	0.73	0.60	0.32
Avail Cap(c_a), veh/h	817	727	1049	1077	230	2962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	16.6	8.2	8.2	17.8	2.8
Incr Delay (d2), s/veh	1.6	2.4	2.0	2.0	4.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	3.1	3.2	0.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.1	19.0	10.2	10.2	22.2	2.9
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	173		1255			833
Approach Delay, s/veh	18.6		10.2			4.7
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.3	23.4			30.7	8.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.1	23.3			32.9	18.1
Max Q Clear Time (g_c+I1), s	3.6	13.0			5.6	4.1
Green Ext Time (p_c), s	0.0	5.9			5.8	0.4
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	53	54	57	56	29	51	2	30	11	15	5
Future Vol, veh/h	7	53	54	57	56	29	51	2	30	11	15	5
Peak Hour Factor	0.89	0.89	0.89	0.66	0.66	0.66	0.60	0.60	0.60	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	60	61	86	85	44	85	3	50	15	20	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	9.1	8.7	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	6%	40%	35%
Vol Thru, %	2%	46%	39%	48%
Vol Right, %	36%	47%	20%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	114	142	31
LT Vol	51	7	57	11
Through Vol	2	53	56	15
RT Vol	30	54	29	5
Lane Flow Rate	138	128	215	41
Geometry Grp	1	1	1	1
Degree of Util (X)	0.179	0.154	0.267	0.056
Departure Headway (Hd)	4.661	4.335	4.462	4.853
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	769	826	805	736
Service Time	2.695	2.366	2.491	2.894
HCM Lane V/C Ratio	0.179	0.155	0.267	0.056
HCM Control Delay	8.7	8.2	9.1	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.5	1.1	0.2

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Near Term + Project AM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	48	26	7	78	219	35	800	7	47	285	61
Future Volume (veh/h)	53	48	26	7	78	219	35	800	7	47	285	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	68	62	33	7	82	231	38	879	8	54	328	70
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	506	471	16	99	280	59	1200	11	87	1218	463
Arrive On Green	0.06	0.32	0.32	0.01	0.27	0.27	0.04	0.33	0.33	0.05	0.34	0.34
Sat Flow, veh/h	1519	1595	1319	1781	367	1034	1519	3608	33	1781	3554	1349
Grp Volume(v), veh/h	68	62	33	7	0	313	38	433	454	54	328	70
Grp Sat Flow(s),veh/h/ln	1519	1595	1319	1781	0	1402	1519	1777	1864	1781	1777	1349
Q Serve(g_s), s	2.7	1.7	1.0	0.2	0.0	12.9	1.5	13.2	13.2	1.8	4.1	2.2
Cycle Q Clear(g_c), s	2.7	1.7	1.0	0.2	0.0	12.9	1.5	13.2	13.2	1.8	4.1	2.2
Prop In Lane	1.00		1.00	1.00		0.74	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	85	506	471	16	0	379	59	591	620	87	1218	463
V/C Ratio(X)	0.80	0.12	0.07	0.43	0.00	0.83	0.64	0.73	0.73	0.62	0.27	0.15
Avail Cap(c_a), veh/h	234	748	672	148	0	558	180	909	953	188	1771	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	14.9	13.1	30.4	0.0	21.1	29.2	18.1	18.1	28.7	14.7	14.0
Incr Delay (d2), s/veh	15.8	0.1	0.1	16.8	0.0	6.5	11.2	1.8	1.7	7.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.6	0.3	0.2	0.0	4.6	0.7	5.2	5.4	0.9	1.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	15.1	13.2	47.1	0.0	27.6	40.4	19.9	19.8	35.7	14.8	14.2
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	B	B
Approach Vol, veh/h		163			320			925			452	
Approach Delay, s/veh		27.0			28.0			20.7			17.2	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	25.0	5.1	24.0	6.9	25.6	7.9	21.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	31.5	5.1	28.9	7.3	30.7	9.5	24.5				
Max Q Clear Time (g_c+I1), s	3.8	15.2	2.2	3.7	3.5	6.1	4.7	14.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.4	0.0	2.4	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	153	48	6	147	21	107	26	11	13	14	7
Future Vol, veh/h	14	153	48	6	147	21	107	26	11	13	14	7
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.84	0.84	0.84	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	161	51	7	167	24	127	31	13	23	25	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	9.5	9.8	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	74%	7%	3%	38%
Vol Thru, %	18%	71%	84%	41%
Vol Right, %	8%	22%	12%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	215	174	34
LT Vol	107	14	6	13
Through Vol	26	153	147	14
RT Vol	11	48	21	7
Lane Flow Rate	171	226	198	61
Geometry Grp	1	1	1	1
Degree of Util (X)	0.243	0.292	0.26	0.086
Departure Headway (Hd)	5.101	4.647	4.732	5.117
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	699	769	755	694
Service Time	3.166	2.702	2.79	3.195
HCM Lane V/C Ratio	0.245	0.294	0.262	0.088
HCM Control Delay	9.8	9.6	9.5	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	1.2	1	0.3

HCM 6th Signalized Intersection Summary

1: University Ave & Baltimore Dr

Near Term+Project PM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	689	9	224	9	4	21	271	185	19	63	485	713
Future Volume (veh/h)	689	9	224	9	4	21	271	185	19	63	485	713
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	756	0	243	10	4	23	301	206	21	68	533	784
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	894	0	397	65	9	51	391	671	68	93	638	945
Arrive On Green	0.25	0.00	0.25	0.04	0.04	0.04	0.11	0.40	0.40	0.05	0.34	0.34
Sat Flow, veh/h	3563	0	1582	1781	240	1381	3456	1670	170	1781	1870	2769
Grp Volume(v), veh/h	756	0	243	10	0	27	301	0	227	68	533	784
Grp Sat Flow(s),veh/h/ln	1781	0	1582	1781	0	1622	1728	0	1840	1781	1870	1385
Q Serve(g_s), s	14.1	0.0	9.5	0.4	0.0	1.1	5.9	0.0	5.9	2.6	18.3	18.2
Cycle Q Clear(g_c), s	14.1	0.0	9.5	0.4	0.0	1.1	5.9	0.0	5.9	2.6	18.3	18.2
Prop In Lane	1.00		1.00	1.00		0.85	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	894	0	397	65	0	59	391	0	739	93	638	945
V/C Ratio(X)	0.85	0.00	0.61	0.15	0.00	0.45	0.77	0.00	0.31	0.73	0.84	0.83
Avail Cap(c_a), veh/h	996	0	442	459	0	418	401	0	739	230	708	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	0.0	23.1	32.6	0.0	32.9	30.1	0.0	14.2	32.6	21.2	21.1
Incr Delay (d2), s/veh	6.3	0.0	2.1	1.1	0.0	5.3	8.6	0.0	0.2	10.3	7.9	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.0	3.6	0.2	0.0	0.5	2.8	0.0	2.3	1.4	8.8	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	25.2	33.6	0.0	38.2	38.7	0.0	14.5	42.8	29.1	26.4
LnGrp LOS	C	A	C	C	A	D	D	A	B	D	C	C
Approach Vol, veh/h	999			37			528			1385		
Approach Delay, s/veh	29.7			37.0			28.3			28.2		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.2	32.5	22.0		12.4	28.3	7.1					
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	4.5	4.5					
Max Green Setting (Gmax), s	9.0	25.5	19.5		8.1	26.4	18.0					
Max Q Clear Time (g_c+I1), s	4.6	7.9	16.1		7.9	20.3	3.1					
Green Ext Time (p_c), s	0.0	1.1	1.4		0.0	3.5	0.1					
Intersection Summary												
HCM 6th Ctrl Delay			28.9									
HCM 6th LOS			C									
Notes												

HCM 6th Signalized Intersection Summary

2: University Ave & Allison Ave

Near Term+Project PM

02/18/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	112	85	770	107	95	842
Future Volume (veh/h)	112	85	770	107	95	842
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	104	939	130	108	957
Peak Hour Factor	0.82	0.82	0.82	0.82	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	229	204	1360	188	158	2270
Arrive On Green	0.13	0.13	0.43	0.43	0.09	0.64
Sat Flow, veh/h	1781	1585	3228	434	1781	3647
Grp Volume(v), veh/h	137	104	532	537	108	957
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1792	1781	1777
Q Serve(g_s), s	2.8	2.4	9.4	9.4	2.3	5.2
Cycle Q Clear(g_c), s	2.8	2.4	9.4	9.4	2.3	5.2
Prop In Lane	1.00	1.00		0.24	1.00	
Lane Grp Cap(c), veh/h	229	204	771	777	158	2270
V/C Ratio(X)	0.60	0.51	0.69	0.69	0.68	0.42
Avail Cap(c_a), veh/h	833	741	1051	1060	253	3020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	15.7	8.9	8.9	17.1	3.5
Incr Delay (d2), s/veh	2.5	2.0	1.2	1.2	5.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.8	2.7	2.7	1.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.4	17.7	10.0	10.0	22.2	3.6
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	241		1069			1065
Approach Delay, s/veh	18.1		10.0			5.5
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.9	21.3			29.2	9.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	5.5	22.9			32.9	18.1
Max Q Clear Time (g_c+I1), s	4.3	11.4			7.2	4.8
Green Ext Time (p_c), s	0.0	5.4			7.7	0.6
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	105	63	37	113	32	36	19	85	30	11	15
Future Vol, veh/h	13	105	63	37	113	32	36	19	85	30	11	15
Peak Hour Factor	0.78	0.78	0.78	0.83	0.83	0.83	0.68	0.68	0.68	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	135	81	45	136	39	53	28	125	33	12	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	9.9	9.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	7%	20%	54%
Vol Thru, %	14%	58%	62%	20%
Vol Right, %	61%	35%	18%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	181	182	56
LT Vol	36	13	37	30
Through Vol	19	105	113	11
RT Vol	85	63	32	15
Lane Flow Rate	206	232	219	61
Geometry Grp	1	1	1	1
Degree of Util (X)	0.272	0.3	0.292	0.088
Departure Headway (Hd)	4.751	4.657	4.795	5.21
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	749	766	743	680
Service Time	2.821	2.723	2.862	3.3
HCM Lane V/C Ratio	0.275	0.303	0.295	0.09
HCM Control Delay	9.6	9.7	9.9	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	1.3	1.2	0.3

HCM 6th Signalized Intersection Summary

4: Spring St & Allison Ave

Near Term+Project PM

02/18/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	148	60	21	109	135	72	701	18	109	892	106
Future Volume (veh/h)	135	148	60	21	109	135	72	701	18	109	892	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1595	1595	1595	1870	1595	1870	1595	1870	1870	1870	1870	1595
Adj Flow Rate, veh/h	173	190	77	22	115	142	79	770	20	125	1025	122
Peak Hour Factor	0.78	0.78	0.78	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	514	511	43	136	168	96	1166	30	159	1262	479
Arrive On Green	0.14	0.32	0.32	0.02	0.21	0.21	0.06	0.33	0.33	0.09	0.36	0.36
Sat Flow, veh/h	1519	1595	1320	1781	646	798	1519	3538	92	1781	3554	1350
Grp Volume(v), veh/h	173	190	77	22	0	257	79	387	403	125	1025	122
Grp Sat Flow(s),veh/h/ln	1519	1595	1320	1781	0	1444	1519	1777	1853	1781	1777	1350
Q Serve(g_s), s	8.5	7.0	2.9	0.9	0.0	13.1	3.9	14.3	14.3	5.3	20.1	4.9
Cycle Q Clear(g_c), s	8.5	7.0	2.9	0.9	0.0	13.1	3.9	14.3	14.3	5.3	20.1	4.9
Prop In Lane	1.00		1.00	1.00		0.55	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	206	514	511	43	0	305	96	585	610	159	1262	479
V/C Ratio(X)	0.84	0.37	0.15	0.51	0.00	0.84	0.82	0.66	0.66	0.79	0.81	0.25
Avail Cap(c_a), veh/h	287	563	552	125	0	339	152	690	720	225	1473	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	20.0	15.4	37.0	0.0	29.0	35.5	22.0	22.0	34.2	22.4	17.5
Incr Delay (d2), s/veh	14.3	0.4	0.1	8.8	0.0	16.0	17.3	1.8	1.8	11.4	3.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	2.6	0.9	0.5	0.0	5.7	1.9	5.9	6.2	2.7	8.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	20.4	15.5	45.8	0.0	45.1	52.8	23.9	23.8	45.7	25.5	17.8
LnGrp LOS	D	C	B	D	A	D	D	C	C	D	C	B
Approach Vol, veh/h		440			279			869			1272	
Approach Delay, s/veh		29.9			45.1			26.5			26.8	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	29.8	6.4	29.2	9.4	31.7	14.9	20.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.7	29.8	5.4	27.1	7.7	31.8	14.5	18.0				
Max Q Clear Time (g_c+I1), s	7.3	16.3	2.9	9.0	5.9	22.1	10.5	15.1				
Green Ext Time (p_c), s	0.1	4.2	0.0	1.2	0.0	5.2	0.2	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			28.9									
HCM 6th LOS			C									

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

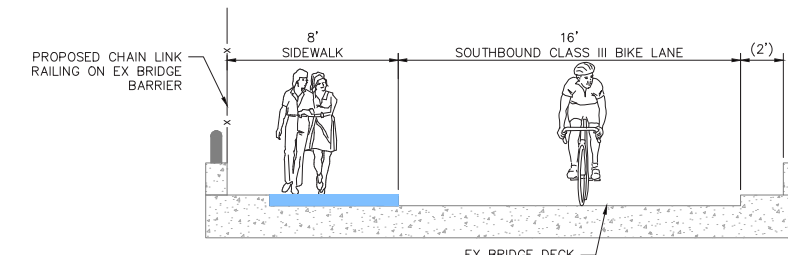
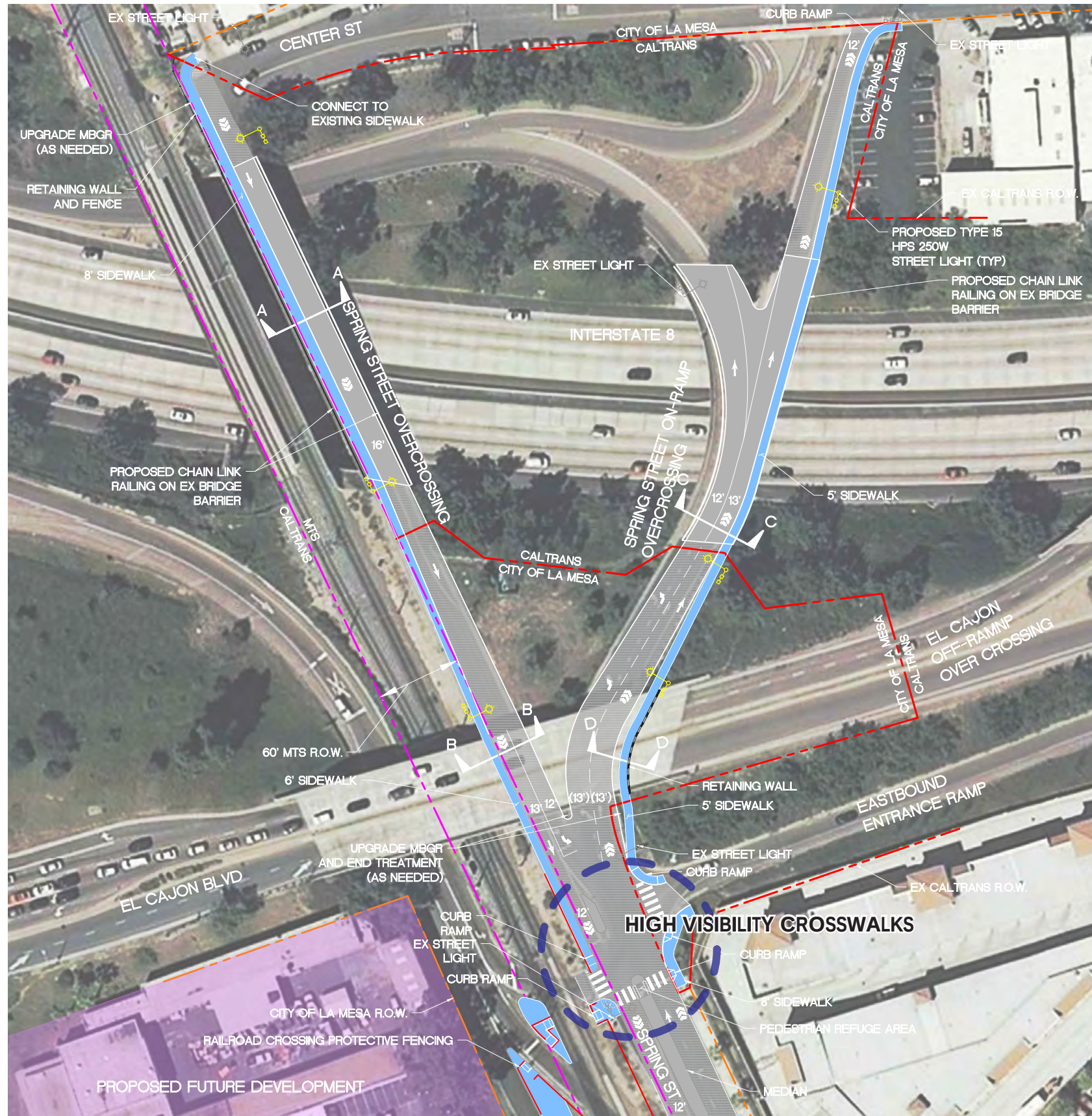
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	294	102	17	206	22	68	21	14	21	42	27
Future Vol, veh/h	11	294	102	17	206	22	68	21	14	21	42	27
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.79	0.79	0.79	0.74	0.74	0.74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	334	116	18	224	24	86	27	18	28	57	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.3	11.8	10.9	10.5
HCM LOS	C	B	B	B

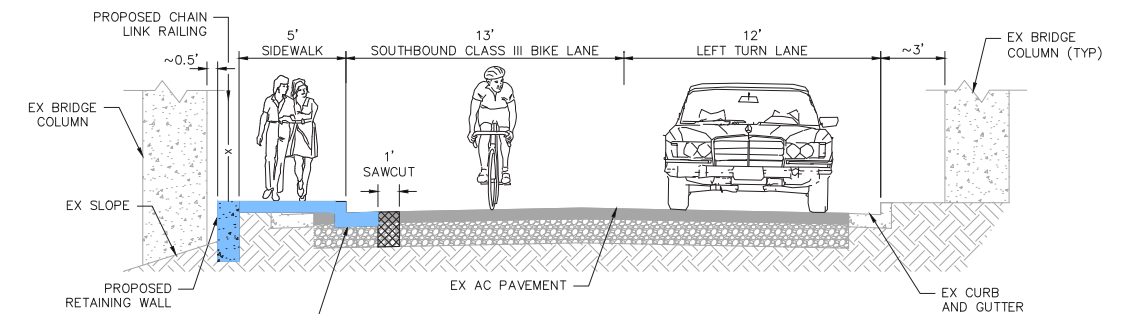
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	66%	3%	7%	23%
Vol Thru, %	20%	72%	84%	47%
Vol Right, %	14%	25%	9%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	407	245	90
LT Vol	68	11	17	21
Through Vol	21	294	206	42
RT Vol	14	102	22	27
Lane Flow Rate	130	462	266	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.22	0.637	0.393	0.2
Departure Headway (Hd)	6.082	4.961	5.318	5.925
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	726	676	603
Service Time	4.137	2.996	3.361	3.98
HCM Lane V/C Ratio	0.221	0.636	0.393	0.202
HCM Control Delay	10.9	16.3	11.8	10.5
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	0.8	4.6	1.9	0.7

APPENDIX E

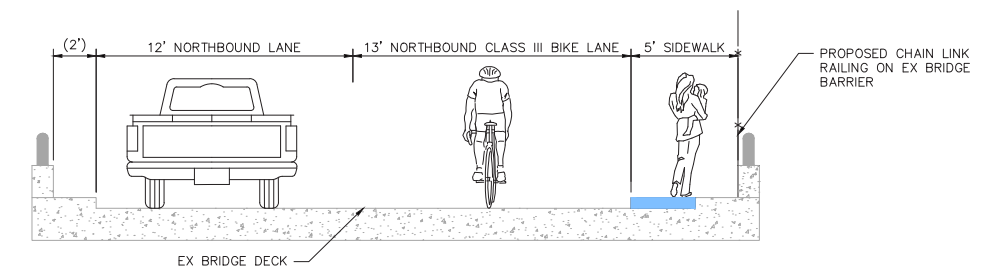
EXTRACT FROM THE SMART GROWTH – PEDESTRIAN AND BICYCLE IMPROVEMENTS, NORTH SPRING STREET AND ROUTES 1 AND 852 MAPS AND SCHEDULES



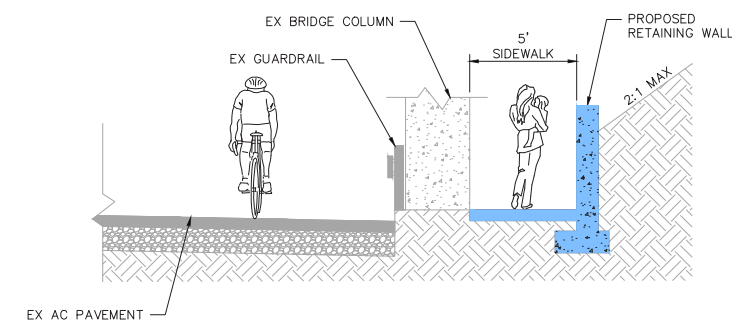
SECTION A-A
NOT TO SCALE



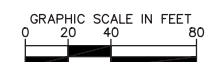
SECTION B-B
NOT TO SCALE

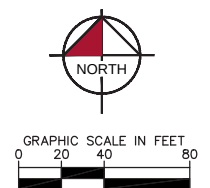
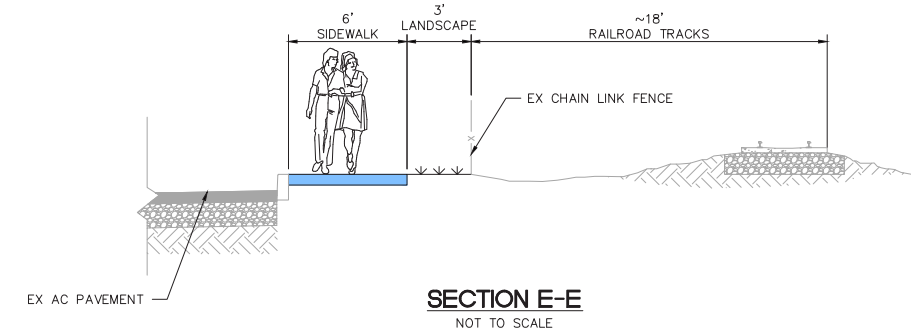
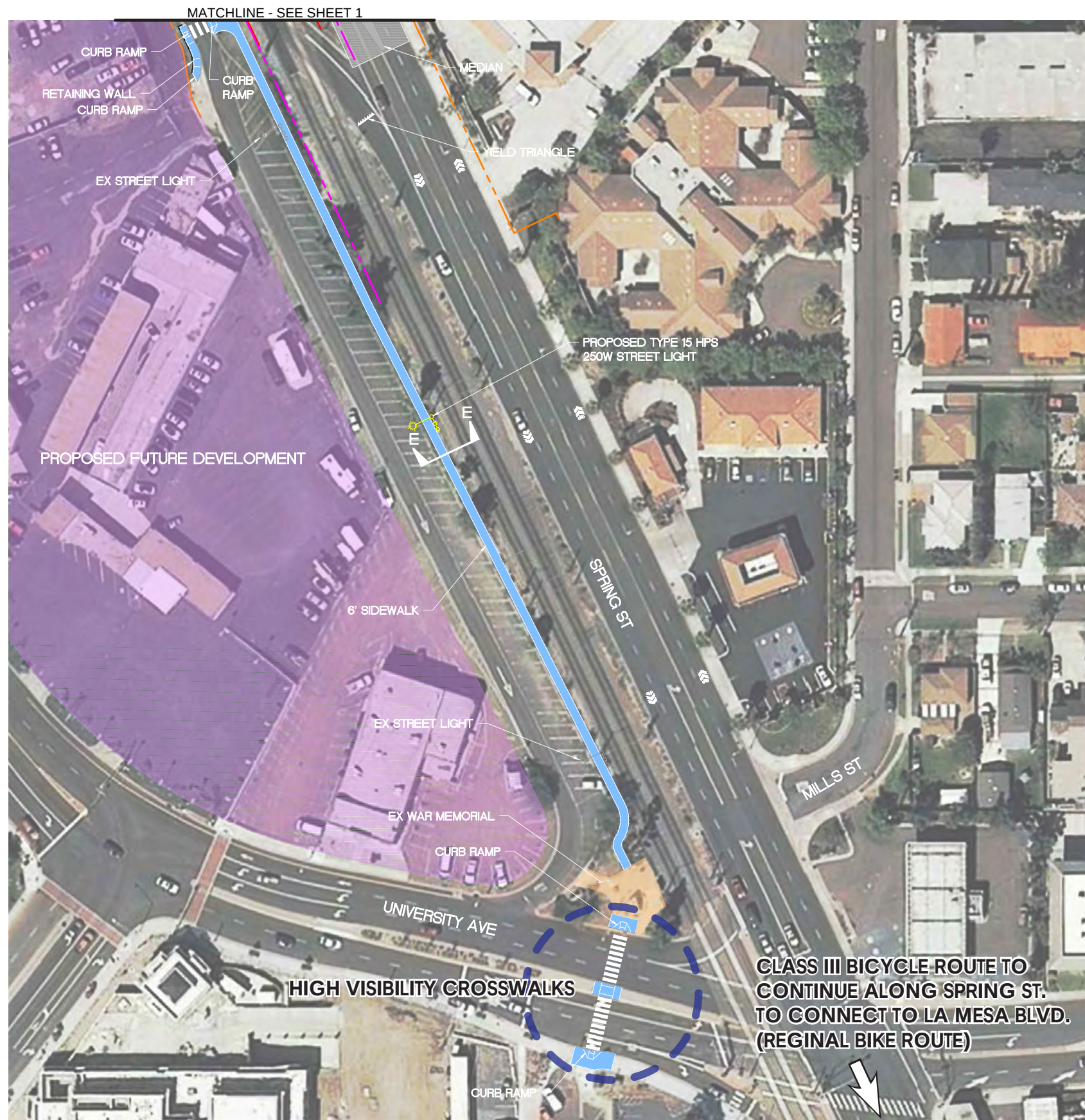


SECTION C-C
NOT TO SCALE



SECTION D-D
NOT TO SCALE





ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta	
Adult / Adulto	\$2.50
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$1.25
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$2.50

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	\$6.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$3.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$3.00

MONTHLY PASSES / Pases mensuales

Adult / Adulto	\$72.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$23.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$23.00

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Thank you for riding MTS! ¡Gracias por viajar con MTS!

Effective JANUARY 26, 2020

1

Fashion Valley Transit Ctr. – Downtown La Mesa

via El Cajon Bl.

DESTINATIONS

- Campus Plaza
- Copley-Price Family YMCA
- Hillcrest DMV
- Hoover High School
- The HUB Hillcrest Market

TROLLEY CONNECTIONS

- La Mesa Bl.
- Fashion Valley

01/20

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MTS

Alternative formats available upon request. Please call: (619) 557-4555 / Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas
Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

Route 1 – Sunday / domingo

Fashion Valley ➡ City Heights ➡ La Mesa

A	B	C	D	E	F	G	H	I
Fashion Valley Transit Ctr. DEPART	University Av. & 6th Av.	Park Bl. & University Av.	El Cajon Bl. & 30th St.	El Cajon Bl. & I-15	El Cajon Bl. & Euclid Av.	El Cajon Bl. & College Av.	El Cajon Bl. & 70th St.	La Mesa Bl. Trolley Station ARRIVE
6:16a	6:22a	6:27a	6:33a	6:39a	6:45a	6:52a	6:57a	7:06a
7:10	7:16	7:22	7:29	7:36	7:43	7:50	7:56	8:06
8:10	8:16	8:22	8:29	8:36	8:43	8:50	8:56	9:06
8:37	8:43	8:50	8:57	9:04	9:11	9:19	9:25	9:35
9:07	9:13	9:20	9:27	9:34	9:41	9:49	9:55	10:05
9:37	9:43	9:50	9:57	10:04	10:11	10:19	10:25	10:35
10:07	10:13	10:20	10:28	10:35	10:43	10:51	10:58	11:08
10:40	10:47	10:54	11:02	11:09	11:17	11:26	11:34	11:45
11:10	11:17	11:24	11:32	11:39	11:47	11:56	12:04p	12:15p
11:40	11:47	11:54	12:02p	12:09p	12:17p	12:26p	12:34	12:45
12:08p	12:16p	12:24p	12:33	12:41	12:49	12:58	1:06	1:17
12:38	12:46	12:54	1:03	1:11	1:19	1:28	1:36	1:47
1:08	1:16	1:24	1:33	1:41	1:49	1:58	2:06	2:17
1:38	1:46	1:54	2:03	2:11	2:19	2:28	2:36	2:47
2:08	2:16	2:24	2:33	2:41	2:49	2:58	3:06	3:17
2:38	2:46	2:54	3:03	3:11	3:19	3:28	3:36	3:47
3:08	3:16	3:24	3:33	3:41	3:49	3:58	4:06	4:17
3:38	3:46	3:54	4:03	4:11	4:19	4:28	4:36	4:47
4:08	4:16	4:24	4:33	4:41	4:49	4:58	5:06	5:17
4:38	4:46	4:54	5:03	5:11	5:19	5:28	5:36	5:47
5:08	5:16	5:24	5:33	5:41	5:49	5:58	6:06	6:17
5:40	5:48	5:56	6:05	6:13	6:21	6:29	6:36	6:47
6:10	6:18	6:26	6:35	6:43	6:50	6:57	7:04	7:14
6:40	6:48	6:56	7:05	7:13	7:20	7:27	7:34	7:44
7:10	7:17	7:25	7:34	7:41	7:48	7:55	8:02	8:12
8:12	8:19	8:26	8:35	8:41	8:48	8:55	9:01	9:10

La Mesa ➡ City Heights ➡ Fashion Valley

I	H	G	F	E	D	C	B	A
La Mesa Bl. Trolley Station DEPART	El Cajon Bl. & 70th St.	El Cajon Bl. & College Av.	El Cajon Bl. & Euclid Av.	El Cajon Bl. & I-15	El Cajon Bl. & 30th St.	Park Bl. & University Av.	University Av. & 7th Av.	Fashion Valley Transit Ctr. ARRIVE
5:39a	5:45a	5:52a	5:57a	6:04a	6:08a	6:14a	6:18a	6:25a
6:45	6:51	6:58	7:04	7:11	7:16	7:23	7:27	7:35
7:45	7:53	8:00	8:06	8:13	8:19	8:27	8:32	8:41
8:20	8:28	8:36	8:43	8:51	8:57	9:05	9:10	9:19
8:50	8:58	9:06	9:13	9:21	9:27	9:35	9:40	9:49
9:20	9:28	9:36	9:43	9:51	9:57	10:05	10:10	10:19
9:50	9:58	10:06	10:13	10:21	10:27	10:35	10:40	10:49
10:20	10:28	10:36	10:43	10:51	10:57	11:05	11:10	11:19
10:50	10:58	11:06	11:13	11:21	11:27	11:35	11:40	11:49
11:18	11:26	11:34	11:42	11:50	11:56	12:05p	12:10p	12:19p
11:48	11:56	12:04p	12:12p	12:20p	12:26p	12:35	12:40	12:49
12:18p	12:26p	12:34	12:42	12:50	12:56	1:05	1:10	1:19
12:48	12:56	1:04	1:12	1:20	1:26	1:35	1:40	1:49
1:18	1:26	1:34	1:42	1:50	1:56	2:05	2:10	2:19
1:48	1:56	2:04	2:12	2:20	2:26	2:35	2:40	2:49
2:18	2:26	2:34	2:42	2:50	2:56	3:05	3:10	3:19
2:48	2:56	3:04	3:12	3:20	3:26	3:35	3:40	3:49
3:18	3:26	3:34	3:42	3:50	3:56	4:05	4:10	4:19
3:48	3:56	4:04	4:12	4:20	4:26	4:35	4:40	4:49
4:18	4:26	4:34	4:42	4:50	4:56	5:05	5:10	5:19
4:48	4:56	5:04	5:12	5:20	5:26	5:35	5:40	5:49
5:20	5:28	5:36	5:43	5:50	5:56	6:05	6:10	6:19
5:50	5:58	6:06	6:13	6:20	6:26	6:35	6:40	6:49
6:20	6:28	6:36	6:43	6:50	6:56	7:05	7:10	7:19
6:50	6:58	7:06	7:13	7:20	7:26	7:35	7:40	7:49
7:50	7:57	8:05	8:11	8:18	8:24	8:32	8:37	8:45

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.

Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 1 – Monday through Friday / *lunes a viernes*

Fashion Valley ➡ City Heights ➡ La Mesa

Ⓐ FashionValley Transit Ctr. DEPART	Ⓑ University Av. & 6th Av.	Ⓒ Park Bl. & University Av.	Ⓓ El Cajon Bl. & 30th St.	Ⓔ El Cajon Bl. & I-15	Ⓕ El Cajon Bl. & Euclid Av.	Ⓖ El Cajon Bl. & College Av.	Ⓗ El Cajon Bl. & 70th St.	Ⓘ La Mesa Bl. Trolley Station ARRIVE
5:03a	5:09a	5:14a	5:20a	5:25a	5:30a	5:36a	5:41a	5:49a
5:33	5:39	5:44	5:50	5:55	6:00	6:06	6:11	6:19
6:03	6:09	6:14	6:20	6:26	6:31	6:38	6:43	6:51
6:25	6:31	6:36	6:42	6:48	6:54	7:01	7:06	7:15
6:40	6:46	6:52	6:58	7:05	7:11	7:18	7:23	7:32
6:55	7:01	7:07	7:14	7:21	7:28	7:35	7:41	7:51
7:10	7:16	7:22	7:29	7:36	7:43	7:50	7:56	8:06
7:25	7:31	7:37	7:44	7:51	7:58	8:05	8:11	8:21
7:40	7:46	7:52	7:59	8:06	8:13	8:20	8:26	8:36
7:55	8:01	8:07	8:14	8:21	8:28	8:35	8:41	8:51
8:10	8:16	8:22	8:29	8:36	8:43	8:50	8:56	9:06
8:25	8:31	8:37	8:44	8:51	8:58	9:05	9:11	9:21
8:38	8:44	8:51	8:58	9:05	9:12	9:20	9:26	9:36
8:53	8:59	9:06	9:13	9:20	9:27	9:35	9:41	9:51
9:08	9:14	9:21	9:28	9:35	9:42	9:50	9:56	10:06
9:23	9:29	9:36	9:43	9:50	9:57	10:05	10:11	10:21
9:38	9:44	9:51	9:58	10:05	10:12	10:20	10:26	10:36
9:52	9:58	10:05	10:13	10:20	10:28	10:36	10:43	10:53
10:07	10:13	10:20	10:28	10:35	10:43	10:51	10:58	11:08
10:22	10:28	10:35	10:43	10:50	10:58	11:06	11:13	11:23
10:40	10:47	10:54	11:02	11:09	11:17	11:26	11:34	11:45
10:55	11:02	11:09	11:17	11:24	11:32	11:41	11:49	12:00p
11:10	11:17	11:24	11:32	11:39	11:47	11:56	12:04p	12:15
11:25	11:32	11:39	11:47	11:54	12:02p	12:11p	12:19	12:30
11:40	11:47	11:54	12:02p	12:09p	12:17	12:26	12:34	12:45
11:55	12:02p	12:09p	12:17	12:24	12:32	12:41	12:49	1:00
12:07p	12:14	12:22	12:31	12:39	12:47	12:56	1:04	1:15
12:22	12:29	12:37	12:46	12:54	1:02	1:11	1:19	1:30
12:37	12:44	12:52	1:01	1:09	1:17	1:26	1:34	1:45
12:52	12:59	1:07	1:16	1:24	1:32	1:41	1:49	2:00
1:07	1:14	1:22	1:31	1:39	1:47	1:56	2:04	2:15
1:22	1:29	1:37	1:46	1:54	2:02	2:11	2:19	2:30
1:37	1:44	1:52	2:01	2:09	2:17	2:26	2:34	2:45
1:53	2:00	2:08	2:17	2:25	2:34	2:43	2:51	3:03
2:08	2:16	2:24	2:34	2:42	2:51	3:00	3:08	3:20
2:23	2:31	2:39	2:49	2:57	3:06	3:15	3:23	3:35
2:38	2:46	2:54	3:04	3:12	3:21	3:30	3:38	3:50
2:53	3:01	3:09	3:19	3:27	3:36	3:45	3:53	4:05
3:08	3:17	3:26	3:36	3:44	3:53	4:02	4:10	4:22
3:23	3:32	3:41	3:51	3:59	4:08	4:17	4:25	4:37
3:38	3:47	3:56	4:06	4:14	4:23	4:32	4:40	4:52
3:53	4:02	4:11	4:21	4:29	4:38	4:47	4:55	5:07
4:08	4:17	4:26	4:36	4:44	4:53	5:02	5:10	5:22
4:23	4:32	4:41	4:51	4:59	5:08	5:17	5:25	5:37
4:38	4:47	4:56	5:06	5:14	5:23	5:32	5:40	5:52
4:53	5:02	5:11	5:21	5:29	5:38	5:47	5:55	6:07
5:06	5:15	5:24	5:34	5:42	5:51	5:59	6:07	6:18
5:21	5:30	5:39	5:49	5:57	6:06	6:14	6:22	6:33
5:36	5:45	5:54	6:04	6:12	6:20	6:28	6:35	6:46
5:51	6:00	6:09	6:19	6:27	6:35	6:43	6:50	7:01
6:10	6:18	6:27	6:36	6:44	6:51	6:58	7:05	7:15
6:25	6:33	6:42	6:51	6:59	7:06	7:13	7:20	7:30
6:40	6:48	6:57	7:06	7:14	7:21	7:28	7:35	7:45
7:05	7:13	7:21	7:30	7:37	7:44	7:51	7:58	8:08
7:40	7:47	7:54	8:03	8:09	8:16	8:23	8:29	8:38
8:10	8:17	8:24	8:33	8:39	8:46	8:53	8:59	9:08
8:42	8:49	8:56	9:04	9:10	9:17	9:24	9:29	9:38
9:14	9:20	9:27	9:34	9:40	9:46	9:52	9:57	10:05
9:44	9:50	9:57	10:04	10:10	10:16	10:22	10:27	10:35
10:16	10:22	10:28	10:35	10:40	10:46	10:52	10:57	11:05
10:46	10:52	10:57	11:03	11:08	11:14	11:20	11:25	11:32
11:16	11:22	11:27	11:33	11:38	11:44	11:50	11:55	12:02a

La Mesa ➡ City Heights ➡ Fashion Valley

Ⓘ La Mesa Bl. Trolley Station DEPART	Ⓗ El Cajon Bl. & 70th St.	Ⓖ El Cajon Bl. & College Av.	Ⓕ El Cajon Bl. & Euclid Av.	Ⓔ El Cajon Bl. & I-15	Ⓓ El Cajon Bl. & 30th St.	Ⓒ Park Bl. & University Av.	Ⓑ University Av. & 7th Av.	Ⓐ FashionValley Transit Ctr. ARRIVE
—	—	4:46a	4:51a	4:58a	5:02a	5:08a	5:12a	5:19a
5:03a	5:09a	5:16	5:21	5:28	5:32	5:38	5:42	5:49
5:33	5:39	5:46	5:52	6:00	6:04	6:11	6:15	6:22
6:00	6:07	6:15	6:22	6:30	6:35	6:42	6:46	6:54
6:20	6:27	6:35	6:42	6:51	6:57	7:05	7:10	7:18
6:35	6:42	6:50	6:57	7:06	7:12	7:20	7:25	7:33
6:50	6:57	7:05	7:12	7:21	7:27	7:35	7:40	7:48
7:05	7:13	7:21	7:28	7:37	7:43	7:51	7:56	8:05
7:20	7:28	7:36	7:43	7:52	7:58	8:06	8:11	8:20
7:35	7:43	7:51	7:58	8:07	8:13	8:21	8:26	8:35
7:50	7:58	8:06	8:13	8:22	8:28	8:36	8:41	8:50
8:05	8:13	8:21	8:28	8:36	8:42	8:50	8:55	9:04
8:20	8:28	8:36	8:43	8:51	8:57	9:05	9:10	9:19
8:35	8:43	8:51	8:58	9:06	9:12	9:20	9:25	9:34
8:50	8:58	9:06	9:13	9:21	9:27	9:35	9:40	9:49
9:05	9:13	9:21	9:28	9:36	9:42	9:50	9:55	10:04
9:20	9:28	9:36	9:43	9:51	9:57	10:05	10:10	10:19
9:35	9:43	9:51	9:58	10:06	10:12	10:20	10:25	10:34
9:50	9:58	10:06	10:13	10:21	10:27	10:35	10:40	10:49
10:05	10:13	10:21	10:28	10:36	10:42	10:50	10:55	11:04
10:20	10:28	10:36	10:43	10:51	10:57	11:05	11:10	11:19
10:35	10:43	10:51	10:58	11:06	11:12	11:20	11:25	11:34
10:50	10:58	11:06	11:13	11:21	11:27	11:35	11:40	11:49
11:05	11:13	11:21	11:29	11:37	11:43	11:52	11:57	12:06p
11:20	11:28	11:36	11:44	11:52	11:58	12:07p	12:12p	12:21
11:35	11:43	11:51	11:59	12:07p	12:13p	12:22	12:27	12:36
11:50	11:58	12:06p	12:14p	12:22	12:28	12:37	12:42	12:51
12:05p	12:13p	12:21	12:29	12:37	12:43	12:52	12:57	1:06
12:20	12:28	12:36	12:44	12:52	12:58	1:07	1:12	1:21
12:35	12:43	12:51	12:59	1:07	1:13	1:22	1:27	1:36
12:50	12:58	1:06	1:14	1:22	1:28	1:37	1:42	1:51
1:05	1:13	1:21	1:29	1:37	1:43	1:52	1:57	2:06
1:20	1:28	1:36	1:44	1:52	1:58	2:07	2:12	2:21
1:35	1:43	1:51	1:59	2:07	2:13	2:22	2:27	2:36
1:50	1:58	2:06	2:14	2:22	2:28	2:37	2:42	2:51
2:02	2:11	2:19	2:27	2:36	2:43	2:52	2:57	3:06
2:17	2:26	2:34	2:42	2:51	2:58	3:07	3:12	3:21
2:32	2:41	2:49	2:57	3:06	3:13	3:22	3:27	3:36
2:47	2:56	3:04	3:12	3:21	3:28	3:37	3:42	3:51
3:02	3:11	3:19	3:27	3:36	3:43	3:52	3:57	4:06
3:17	3:26	3:34	3:42	3:51	3:58	4:07	4:12	4:21
3:32	3:41	3:49	3:57	4:06	4:13	4:22	4:27	4:36
3:47	3:56	4:04	4:12	4:21	4:28	4:37	4:42	4:51
4:02	4:11	4:19	4:27	4:36	4:43	4:52	4:57	5:06
4:17	4:26	4:34	4:42	4:51	4:58	5:07	5:12	5:21
4:32	4:41	4:49	4:57	5:06	5:13	5:22	5:27	5:36
4:47	4:56	5:04	5:12	5:21	5:28	5:37	5:42	5:51
5:02	5:11	5:19	5:27	5:36	5:43	5:52	5:57	6:06
5:17	5:25	5:33	5:40	5:48	5:55	6:04	6:09	6:18
5:32	5:40	5:48	5:55	6:03	6:10	6:19	6:24	6:33
5:47	5:55	6:03	6:10	6:18	6:25	6:34	6:39	6:48
6:02	6:10	6:18	6:25	6:33	6:40	6:49	6:54	7:03
6:17	6:25	6:33	6:40	6:48	6:55	7:04	7:09	7:18
6:32	6:40	6:48	6:55	7:03	7:10	7:19	7:24	7:33
7:02	7:10	7:18	7:25	7:33	7:40	7:49	7:54	8:03
7:32	7:39	7:47	7:53	8:00	8:06	8:14	8:19	8:27
8:02	8:09	8:16	8:22	8:29	8:34	8:41	8:45	8:53
8:32	8:39	8:46	8:52	8:59	9:04	9:11	9:15	9:23
9:02	9:09	9:16	9:22	9:29	9:34	9:41	9:45	9:53
9:32	9:38	9:45	9:51	9:58	10:03	10:10	10:14	10:21
10:05	10:11	10:17	10:22	10:29	10:33	10:40	10:44	10:51
10:35	10:41	10:47	10:52	10:59	11:03	11:10	11:14	11:21
11:07	11:13	11:19	11:24	11:30	11:34	11:40	11:44	11:51
11:37	11:43	11:49	11:54	12:00a	12:04a	12:10a	12:14a	—

Route 1 – Saturday / *sábado*

Fashion Valley ➡ City Heights ➡ La Mesa

Ⓐ FashionValley Transit Ctr. DEPART	Ⓑ University Av. & 6th Av.	Ⓒ Park Bl. & University Av.	Ⓓ El Cajon Bl. & 30th St.	Ⓔ El Cajon Bl. & I-15	Ⓕ El Cajon Bl. & Euclid Av.	Ⓖ El Cajon Bl. & College Av.	Ⓗ El Cajon Bl. & 70th St.	Ⓘ La Mesa Bl. Trolley Station ARRIVE
5:22a	5:28a	5:33a	5:39a	5:44a	5:49a	5:55a	6:00a	6:08a
6:03	6:09	6:14	6:20	6:26	6:32	6:39	6:44	6:53
6:40	6:46	6:51	6:57	7:03	7:09	7:16	7:21	7:30
7:10	7:16	7:22	7:29	7:36	7:43	7:50	7:56	8:06
7:40	7:46	7:52	7:59	8:06	8:13	8:20	8:26	8:36
8:10	8:16	8:22	8:29	8:36	8:43	8:50	8:56	9:06
8:37	8:43	8:50	8:57	9:04	9:11	9:19	9:25	9:35
9:07	9:13	9:20	9:27	9:34	9:41	9:49	9:55	10:05
9:37	9:43	9:50	9:57	10:04	10:11	10:19	10:25	10:35
10:07	10:13	10:20	10:28	10:35	10:43	10:51	10:58	11:08
10:40	10:47	10:54	11:02	11:09	11:17	11:26	11:34	11:45
11:10	11:17	11:24	11:32	11:39	11:47	11:56	12:04p	12:15p
11:40	11:47	11:54	12:02p	12:09p	12:17p	12:26p	12:34	12:45
12:08p	12:16p	12:24p	12:33	12:41	12:49	12:58	1:06	1:17
12:38	12:46	12:54	1:03	1:11	1:19	1:28	1:36	1:47
1:08	1:16	1:24	1:33	1:41	1:49	1:58	2:06	2:17
1:38	1:46	1:54	2:03	2:11	2:19	2:28	2:36	2:47
2:08	2:16	2:24	2:33	2:41	2:49	2:58	3:06	3:17
2:38	2:46	2:54	3:03	3:11	3:19	3:28	3:36	3:47
3:08	3:16	3:24	3:33	3:41	3:49	3:58	4:06	4:17
3:38	3:46	3:54	4:03	4:11	4:19	4:28	4:36	4:47
4:08	4:16	4:24	4:33	4:41	4:49	4:58	5:06	5:17
4:38	4:46	4:54	5:03	5:11	5:19	5:28	5:36	5:47
5:08	5:16	5:24	5:33	5:41	5:49	5:58	6:06	6:17
5:40	5:48	5:56	6:05	6:13	6:21	6:29	6:36	6:47
6:10	6:18	6:26	6:35	6:43	6:50	6:57	7:04	7:14
6:40	6:48	6:56	7:05	7:13	7:20	7:27	7:34	7:44
7:10	7:17	7:25	7:34	7:41	7:48	7:55	8:02	8:12
7:42	7:49	7:56	8:05	8:11	8:18	8:25	8:31	8:40
8:12	8:19	8:26	8:35	8:41	8:48	8:55	9:01	9:10
8:42	8:49	8:56	9:04	9:10	9:17	9:24	9:29	9:38
9:14	9:20	9:27	9:34	9:40	9:46	9:52	9:57	10:05
9:44	9:50	9:57	10:04	10:10	10:16	10:22	10:27	10:35
10:16	10:22	10:28	10:35	10:40	10:46	10:52	10:57	11:05
10:46	10:52	10:57	11:03	11:08	11:14	11:20	11:25	11:32
11:16	11:22	11:27	11:33	11:38	11:44	11:50	11:55	12:02a

ONE-WAY FARES / Tarifas Sencillas

Exact fare, please / Favor de pagar la cantidad exacta	
Adult / Adulto	\$2.50
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$1.25
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$2.50

DAY PASS (Regional) / Pase diario (Regional)

Adult / Adulto	\$6.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$3.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$3.00

MONTHLY PASSES / Pases mensuales

Adult / Adulto	\$72.00
Senior/Disabled/Medicare* Personas Mayores/con Discapacidades/Medicare*	\$23.00
Youth (ages 6-18)* Jóvenes (edades 6-18)*	\$23.00

*Proof of eligibility required. Senior Eligibility: Age 65+ or born on or before September 1, 1959.
*Se requiere verificación de elegibilidad. Elegibilidad para Personas Mayores: Edad 65+ o nacido en o antes del 1 de septiembre, 1959.

COMPASS CARDS / Tarjeta Compass

There is a \$2 charge for Compass Cards, which can be reloaded for future use.
Hay un costo de \$2 por la tarjeta Compass Card, la cual puede ser recargada para usos futuros.

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DIRECTORY / Directorio

MTS Information & Trip Planning MTS Información y planeo de viaje	511 or/ó (619) 233-3004
TTY/TDD (teletype for hearing impaired) Teletipo para sordos	(619) 234-5005 or/ó (888) 722-4889
InfoExpress (24-hour info via Touch-Tone phone) Información las 24 horas (via teléfono de teclas)	(619) 685-4900
Customer Service / Suggestions Servicio al cliente / Sugerencias	(619) 557-4555
MTS Security MTS Seguridad	(619) 595-4960
Lost & Found Objetos extraviados	(619) 233-3004
Transit Store	(619) 234-1060 12th & Imperial Transit Center M–F 8am–5pm

For MTS online trip planning
Planificación de viajes por Internet

sdmts.com

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit sdmts.com.

Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a sdmts.com.

Thank you for riding MTS! ¡Gracias por viajar con MTS!

Effective SEPTEMBER 1, 2019

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University Ave. / 54th St. –
Grossmont Transit Center
via University Ave.

DESTINATIONS

- Colina Del Sol Park
- Downtown La Mesa
- Grossmont Center
- Joan Kroc Center
- Sharp Grossmont Hospital



TROLLEY CONNECTIONS

- La Mesa Bl.
- Grossmont



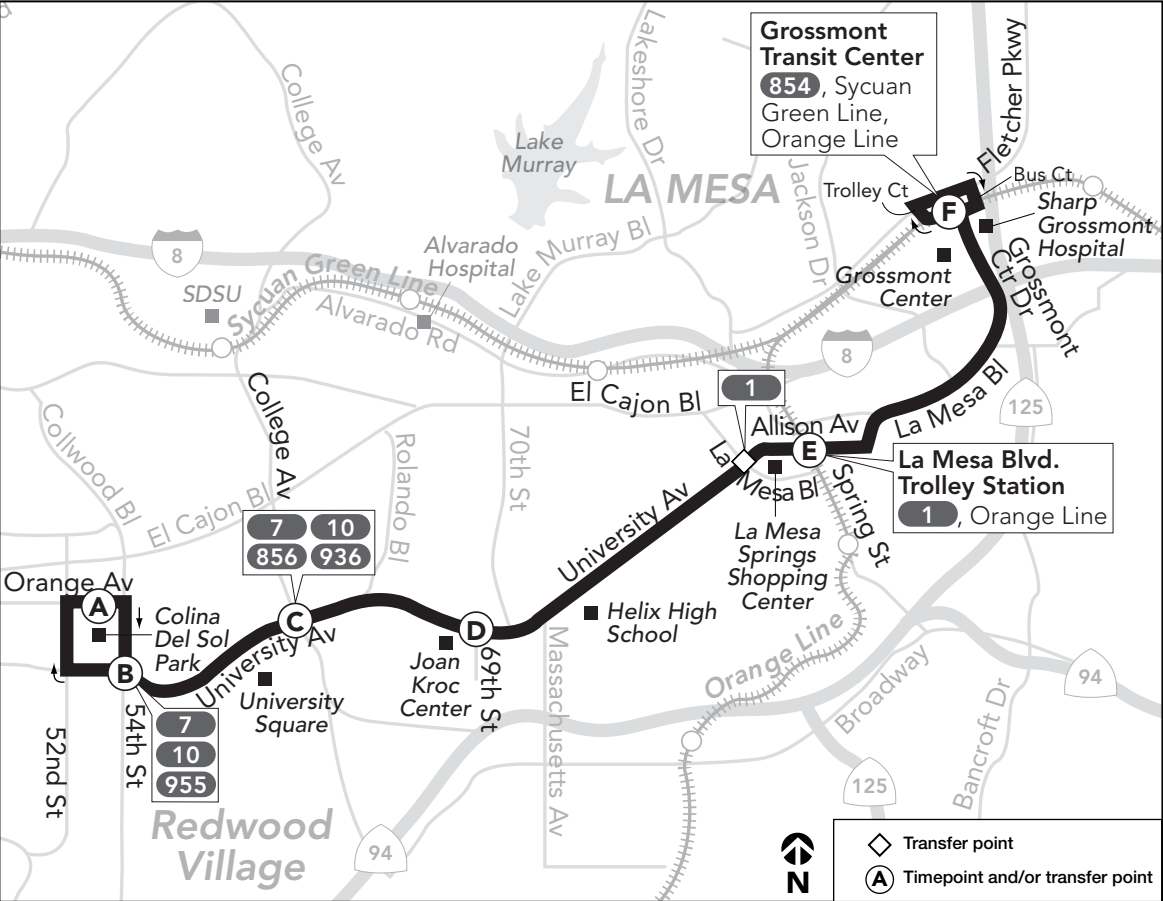
09/19

sdmts.com

Route Alerts, Updated Schedules,
Connections & More



Alternative formats available upon request. Please call: (619) 557-4555 / Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555



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Route 852 – Sunday / domingo

Redwood Village ➡ La Mesa ➡ Grossmont

(A)	(B)	(C)	(D)	(E)	(F)
Orange Av. & 54th St. DEPART	University Av. & 54th St.	University Av. & College Av.	University Av. & 69th St.	La Mesa Bl. Trolley Station	Grossmont Transit Ctr. ARRIVE
6:33a	6:35a	6:38a	6:41a	6:50a	7:00a
7:01	7:03	7:07	7:10	7:20	7:31
7:31	7:33	7:37	7:40	7:50	8:01
8:01	8:03	8:07	8:10	8:20	8:31
8:30	8:32	8:37	8:40	8:50	9:02
9:00	9:02	9:07	9:10	9:20	9:32
9:29	9:31	9:36	9:39	9:50	10:03
9:59	10:01	10:06	10:09	10:20	10:33
10:29	10:31	10:36	10:39	10:50	11:03
11:01	11:03	11:08	11:11	11:22	11:35
11:31	11:33	11:38	11:41	11:52	12:05p
12:01p	12:03p	12:08p	12:11p	12:22p	12:35
12:31	12:33	12:38	12:41	12:52	1:05
1:01	1:03	1:08	1:11	1:22	1:35
1:31	1:33	1:38	1:41	1:52	2:05
2:01	2:03	2:08	2:11	2:22	2:35
2:31	2:33	2:38	2:41	2:52	3:05
3:01	3:03	3:08	3:11	3:22	3:35
3:31	3:33	3:38	3:41	3:52	4:05
4:01	4:03	4:08	4:11	4:22	4:35
4:31	4:33	4:38	4:41	4:52	5:05
5:01	5:03	5:08	5:11	5:22	5:35
5:31	5:33	5:38	5:41	5:52	6:05
6:01	6:03	6:08	6:11	6:21	6:33
6:31	6:33	6:37	6:40	6:50	7:00
7:01	7:03	7:07	7:10	7:20	7:30
7:31	7:33	7:37	7:40	7:50	8:00
8:01	8:03	8:07	8:10	8:20	8:30
8:31	8:33	8:37	8:40	8:50	9:00
9:01	9:03	9:07	9:10	9:20	9:30

Grossmont ➡ La Mesa ➡ Redwood Village

(F)	(E)	(D)	(C)	(B)	(A)
Grossmont Transit Ctr. DEPART	La Mesa Bl. Trolley Station	University Av. & 69th St.	University Av. & College Av.	University Av. & 54th St.	Orange Av. & 54th St. ARRIVE
6:23a	6:33a	6:40a	6:43a	6:47a	6:50a
6:53	7:03	7:10	7:13	7:17	7:20
7:22	7:33	7:40	7:44	7:48	7:52
7:52	8:03	8:10	8:14	8:18	8:22
8:20	8:31	8:38	8:42	8:46	8:50
8:49	9:01	9:08	9:12	9:17	9:21
9:19	9:31	9:38	9:42	9:47	9:51
9:49	10:01	10:08	10:12	10:17	10:21
10:17	10:30	10:38	10:43	10:48	10:52
10:47	11:00	11:08	11:13	11:18	11:22
11:17	11:30	11:38	11:43	11:48	11:52
11:47	12:00p	12:08p	12:13p	12:18p	12:22p
12:17p	12:30	12:38	12:43	12:48	12:52
12:46	1:00	1:08	1:13	1:18	1:22
1:16	1:30	1:38	1:43	1:48	1:52
1:46	2:00	2:08	2:13	2:18	2:22
2:16	2:30	2:38	2:43	2:48	2:52
2:46	3:00	3:08	3:13	3:18	3:22
3:16	3:30	3:38	3:43	3:48	3:52
3:46	4:00	4:08	4:13	4:18	4:22
4:16	4:30	4:38	4:43	4:48	4:52
4:46	5:00	5:08	5:13	5:18	5:22
5:16	5:30	5:38	5:43	5:48	5:52
5:48	6:00	6:08	6:13	6:18	6:22
6:18	6:30	6:38	6:43	6:48	6:52
6:48	7:00	7:08	7:13	7:18	7:22
7:19	7:30	7:37	7:42	7:46	7:49
7:49	8:00	8:07	8:12	8:16	8:19
8:20	8:30	8:37	8:41	8:45	8:48
8:48	8:58	9:05	9:09	9:13	9:16

A Saturday or Sunday schedule will be operated on the following holidays and observed holidays
Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

>>>

New Year's Day, Presidents' Day, Memorial Day, Independence Day,
Labor Day, Thanksgiving, Christmas

Route 852 – Monday through Friday / *lunes a viernes*

Redwood Village ➡ La Mesa ➡ Grossmont

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ
Orange Av. & 54th St. DEPART	University Av. & 54th St.	University Av. & College Av.	University Av. & 69th St.	La Mesa Bl. Trolley Station	Grossmont Transit Ctr. ARRIVE
5:02a	5:04a	5:08a	5:11a	5:21a	5:31a
5:34	5:36	5:40	5:43	5:53	6:03
6:03	6:05	6:09	6:12	6:23	6:34
6:31	6:33	6:38	6:41	6:52	7:04
6:57	6:59	7:04	7:07	7:18	7:30
7:25	7:27	7:32	7:35	7:47	8:00
7:55	7:57	8:02	8:05	8:17	8:30
8:25	8:27	8:32	8:35	8:47	9:00
8:55	8:57	9:02	9:05	9:17	9:30
9:25	9:27	9:32	9:35	9:47	10:00
9:55	9:57	10:02	10:05	10:17	10:30
10:25	10:27	10:33	10:36	10:48	11:01
10:55	10:57	11:03	11:06	11:18	11:31
11:25	11:27	11:33	11:36	11:48	12:01p
11:55	11:57	12:03p	12:06p	12:18p	12:31
12:25p	12:27p	12:33	12:36	12:48	1:01
12:55	12:57	1:03	1:06	1:18	1:31
1:25	1:27	1:33	1:36	1:48	2:01
1:55	1:57	2:03	2:06	2:18	2:31
2:25	2:27	2:33	2:36	2:48	3:01
2:55	2:57	3:03	3:06	3:18	3:31
3:25	3:27	3:33	3:36	3:48	4:01
3:55	3:57	4:03	4:06	4:18	4:31
4:25	4:27	4:33	4:36	4:48	5:01
4:55	4:57	5:03	5:06	5:18	5:31
5:25	5:27	5:33	5:36	5:48	6:01
6:00	6:02	6:07	6:10	6:21	6:33
6:30	6:32	6:37	6:40	6:51	7:03
7:00	7:02	7:07	7:10	7:21	7:33
7:30	7:32	7:36	7:39	7:50	8:01
8:00	8:02	8:06	8:09	8:20	8:31
8:30	8:32	8:36	8:39	8:50	9:01
9:00	9:02	9:06	9:09	9:19	9:29
9:30	9:32	9:36	9:39	9:49	9:59
10:01	10:03	10:07	10:10	10:20	10:30
10:33	10:35	10:38	10:41	10:51	11:00

Grossmont ➡ La Mesa ➡ Redwood Village

Ⓕ	Ⓔ	Ⓓ	Ⓒ	Ⓑ	Ⓐ
Grossmont Transit Ctr. DEPART	La Mesa Bl. Trolley Station	University Av. & 69th St.	University Av. & College Av.	University Av. & 54th St.	Orange Av. & 54th St. ARRIVE
5:08a	5:17a	5:24a	5:28a	5:32a	5:35a
5:41	5:51	5:58	6:03	6:07	6:10
6:12	6:22	6:29	6:34	6:38	6:41
6:42	6:54	7:02	7:07	7:12	7:15
7:12	7:25	7:34	7:39	7:44	7:48
7:42	7:55	8:04	8:09	8:14	8:18
8:09	8:22	8:31	8:36	8:41	8:45
8:39	8:52	9:01	9:06	9:11	9:15
9:09	9:22	9:31	9:36	9:41	9:45
9:39	9:52	10:01	10:06	10:11	10:15
10:09	10:22	10:31	10:36	10:41	10:45
10:39	10:52	11:01	11:06	11:11	11:15
11:09	11:24	11:33	11:38	11:43	11:47
11:39	11:54	12:03p	12:08p	12:13p	12:17p
12:09p	12:24p	12:33	12:38	12:43	12:47
12:39	12:54	1:03	1:08	1:13	1:17
1:09	1:24	1:33	1:38	1:43	1:47
1:39	1:54	2:03	2:08	2:13	2:17
2:09	2:24	2:33	2:38	2:43	2:47
2:39	2:54	3:04	3:09	3:14	3:18
3:09	3:24	3:34	3:39	3:44	3:48
3:39	3:54	4:04	4:09	4:14	4:18
4:09	4:24	4:34	4:39	4:44	4:48
4:39	4:54	5:04	5:09	5:14	5:18
5:09	5:24	5:34	5:39	5:44	5:48
5:40	5:54	6:03	6:08	6:13	6:17
6:10	6:24	6:32	6:37	6:42	6:46
6:42	6:54	7:02	7:07	7:12	7:15
7:16	7:28	7:36	7:41	7:46	7:49
7:47	7:58	8:05	8:10	8:14	8:17
8:19	8:29	8:36	8:40	8:44	8:47
8:49	8:59	9:06	9:10	9:14	9:17
9:19	9:29	9:36	9:40	9:44	9:47
9:49	9:59	10:06	10:10	10:14	10:17
10:19	10:29	10:36	10:40	10:44	10:47
10:49	10:59	11:06	11:10	11:14	11:17

Route 852 – Saturday / *sábado*

Redwood Village ➡ La Mesa ➡ Grossmont

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ
Orange Av. & 54th St. DEPART	University Av. & 54th St.	University Av. & College Av.	University Av. & 69th St.	La Mesa Bl. Trolley Station	Grossmont Transit Ctr. ARRIVE
6:33a	6:35a	6:38a	6:41a	6:50a	7:00a
7:01	7:03	7:07	7:10	7:20	7:31
7:31	7:33	7:37	7:40	7:50	8:01
8:01	8:03	8:07	8:10	8:20	8:31
8:30	8:32	8:37	8:40	8:50	9:02
9:00	9:02	9:07	9:10	9:20	9:32
9:29	9:31	9:36	9:39	9:50	10:03
9:59	10:01	10:06	10:09	10:20	10:33
10:29	10:31	10:36	10:39	10:50	11:03
11:01	11:03	11:08	11:11	11:22	11:35
11:31	11:33	11:38	11:41	11:52	12:05p
12:01p	12:03p	12:08p	12:11p	12:22p	12:35
12:31	12:33	12:38	12:41	12:52	1:05
1:01	1:03	1:08	1:11	1:22	1:35
1:31	1:33	1:38	1:41	1:52	2:05
2:01	2:03	2:08	2:11	2:22	2:35
2:31	2:33	2:38	2:41	2:52	3:05
3:01	3:03	3:08	3:11	3:22	3:35
3:31	3:33	3:38	3:41	3:52	4:05
4:01	4:03	4:08	4:11	4:22	4:35
4:31	4:33	4:38	4:41	4:52	5:05
5:01	5:03	5:08	5:11	5:22	5:35
5:31	5:33	5:38	5:41	5:52	6:05
6:01	6:03	6:08	6:11	6:21	6:33
6:31	6:33	6:37	6:40	6:50	7:00
7:01	7:03	7:07	7:10	7:20	7:30
7:31	7:33	7:37	7:40	7:50	8:00
8:01	8:03	8:07	8:10	8:20	8:30
8:31	8:33	8:37	8:40	8:50	9:00
9:01	9:03	9:07	9:10	9:20	9:30
9:31	9:33	9:36	9:39	9:48	9:57
10:01	10:03	10:06	10:09	10:18	10:27

Grossmont ➡ La Mesa ➡ Redwood Village

Ⓕ	Ⓔ	Ⓓ	Ⓒ	Ⓑ	Ⓐ
Grossmont Transit Ctr. DEPART	La Mesa Bl. Trolley Station	University Av. & 69th St.	University Av. & College Av.	University Av. & 54th St.	Orange Av. & 54th St. ARRIVE
6:23a	6:33a	6:40a	6:43a	6:47a	6:50a
6:53	7:03	7:10	7:13	7:17	7:20
7:22	7:33	7:40	7:44	7:48	7:52
7:52	8:03	8:10	8:14	8:18	8:22
8:20	8:31	8:38	8:42	8:46	8:50
8:49	9:01	9:08	9:12	9:17	9:21
9:19	9:31	9:38	9:42	9:47	9:51
9:49	10:01	10:08	10:12	10:17	10:21
10:17	10:30	10:38	10:43	10:48	10:52
10:47	11:00	11:08	11:13	11:18	11:22
11:17	11:30	11:38	11:43	11:48	11:52
11:47	12:00p	12:08p	12:13p	12:18p	12:22p
12:17p	12:30	12:38	12:43	12:48	12:52
12:46	1:00	1:08	1:13	1:18	1:22
1:16	1:30	1:38	1:43	1:48	1:52
1:46	2:00	2:08	2:13	2:18	2:22
2:16	2:30	2:38	2:43	2:48	2:52
2:46	3:00	3:08	3:13	3:18	3:22
3:16	3:30	3:38	3:43	3:48	3:52
3:46	4:00	4:08	4:13	4:18	4:22
4:16	4:30	4:38	4:43	4:48	4:52
4:46	5:00	5:08	5:13	5:18	5:22
5:16	5:30	5:38	5:43	5:48	5:52
5:48	6:00	6:08	6:13	6:18	6:22
6:18	6:30	6:38	6:43	6:48	6:52
6:48	7:00	7:08	7:13	7:18	7:22
7:19	7:30	7:37	7:42	7:46	7:49
7:49	8:00	8:07	8:12	8:16	8:19
8:20	8:30	8:37	8:41	8:45	8:48
8:48	8:58	9:05	9:09	9:13	9:16
9:18	9:28	9:35	9:39	9:43	9:46
9:48	9:58	10:05	10:09	10:13	10:16

S/D/M and Youth Compass Card

All riders using reduced fares must comply with one of the following options:

Option 1 *(Recommended by MTS)*

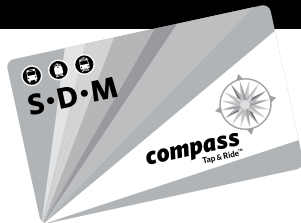
MTS offers a picture ID on a Compass Card to eliminate the need to carry multiple identifications for proof of eligibility.



compass card

Option 2

Riders using a standard S/D/M or Youth Compass Card or a one-way ticket must carry supporting identification to prove eligibility.



For additional benefits of **Option 1** and/or list of valid forms of ID for **Option 2** go to: sdmts.com/reduced-fares