

TRAFFIC IMPACT ANALYSIS  
**13<sup>TH</sup> STREET BRIDGE PROJECT**  
County of San Diego, California  
~~June 13, 2013~~ October 1, 2013

*Prepared for the County of San Diego*  
LLG Ref. 3-13-2214

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### APPENDIX

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TRAFFIC IMPACT ANALYSIS  
13<sup>TH</sup> STREET BRIDGE PROJECT

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## 1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed 13<sup>th</sup> Street Bridge project in the community of Ramona in the northeast area of San Diego County. The proposed project consists of the construction of a bridge over Santa Maria Creek to replace the existing, undersized corrugated steel culvert, and street improvements on 13<sup>th</sup> Street between Main Street and Walnut Street.

### 1.1 Purpose of the Report

The purpose of this report is to assess traffic operations without and with the proposed bridge ~~street and operational~~ improvements within the study area and provide design recommendations for the bridge. This report has been prepared in conjunction with the County of San Diego Guidelines for Determining Significance (August 2011), County of San Diego Report Format and Content Requirements (August 2011), County of San Diego General Plan Mobility Element, Caltrans Traffic Impact Study Manual guidelines (January 2001), a review of approved traffic studies in the project area, and a working knowledge of the local transportation system.

Per the County Report Format document, this report is considered a Focused Traffic Impact Study. Per Attachment B of the County Report Format document, this project entails the construction of a new bridge to improve traffic flow and operations; hence, the project is considered an “Operational Improvement” project.

This report includes the following:

- Project Description
- Existing Conditions Discussion
- Analysis Approach and Methodology
- Significance Criteria
- Existing Analysis
- Opening Day (Year 2018) Analysis
- Long-Term (Year 2035) Analysis
- 13<sup>th</sup> Street Bridge Recommendations
- Construction Detour and Traffic Management Plan

~~Figure 1-1 shows the vicinity map. Figure 1-2 shows a more detailed project area map.~~

~~The following report has been prepared in conjunction with the County of San Diego Guidelines for Determining Significance, County of San Diego General Plan Mobility Element, Caltrans Traffic~~

~~Impact Study Manual~~ guidelines, a review of approved traffic studies in the project area, and a working knowledge of the local transportation system.



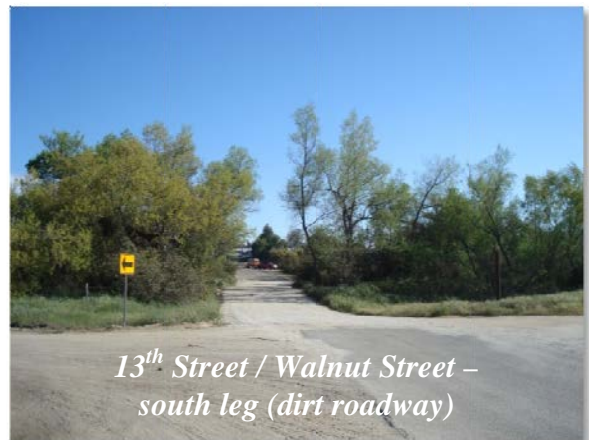
## 2.0 PROJECT LOCATION AND DESCRIPTION

The project site is located along County-maintained on 13<sup>th</sup> Street between Main Street (SR 67) and Walnut Street in the unincorporated community of Ramona in San Diego County. This segment of 13<sup>th</sup> Street is unimproved (dirt), except for gravel at the Santa Maria Creek crossing and an approximately

250-foot long segment of paved roadway north of Main Street. The 13<sup>th</sup> Street crossing at Santa Maria Creek frequently becomes impassable for motor vehicles and pedestrians due to flooding issues during the rainy season. Figure 2-1 shows the vicinity map. Figure 2-2 shows a more detailed project area map.

The objectives of the project include the construction of a bridge on 13<sup>th</sup> Street, south of Walnut Street over Santa Maria Creek to replace the existing, undersized corrugated steel culvert, and improvement of 13<sup>th</sup> Street between Main Street and Walnut Street. Replacement of the existing undersized culvert with the proposed bridge would restore the natural hydrology of Santa Maria Creek, and improve access and safety of the roadway, especially during and after heavy rains. The specific details of the bridge and road improvements including the lane and shoulder widths, potential presence of sidewalks, bike lanes

and would include widening and paving the roadway to provide standard width lanes. The project would also construct segments of planned trails adjacent to the improvement areas to connections to with other planned pedestrian / bicycle trails are currently in preliminary design.



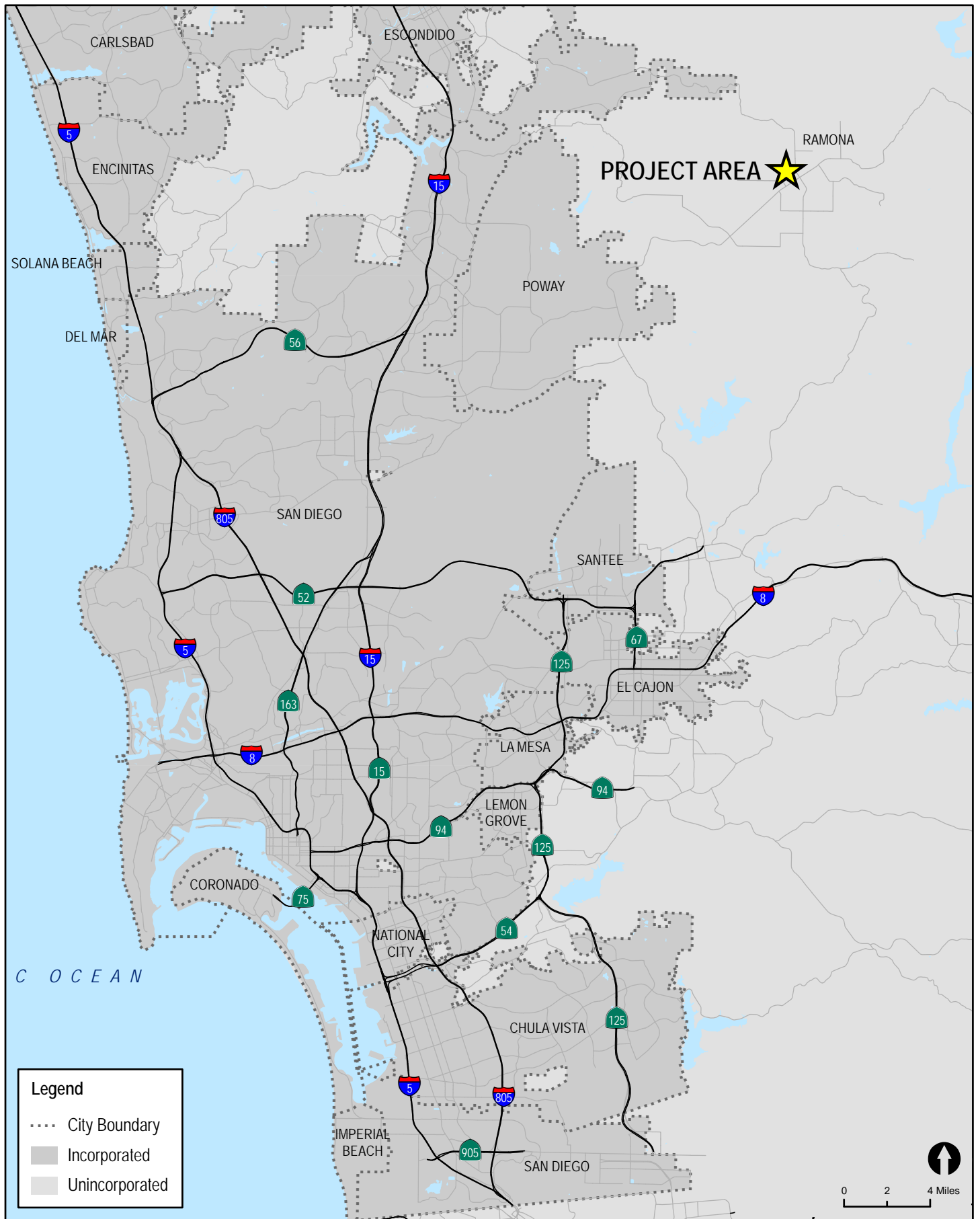
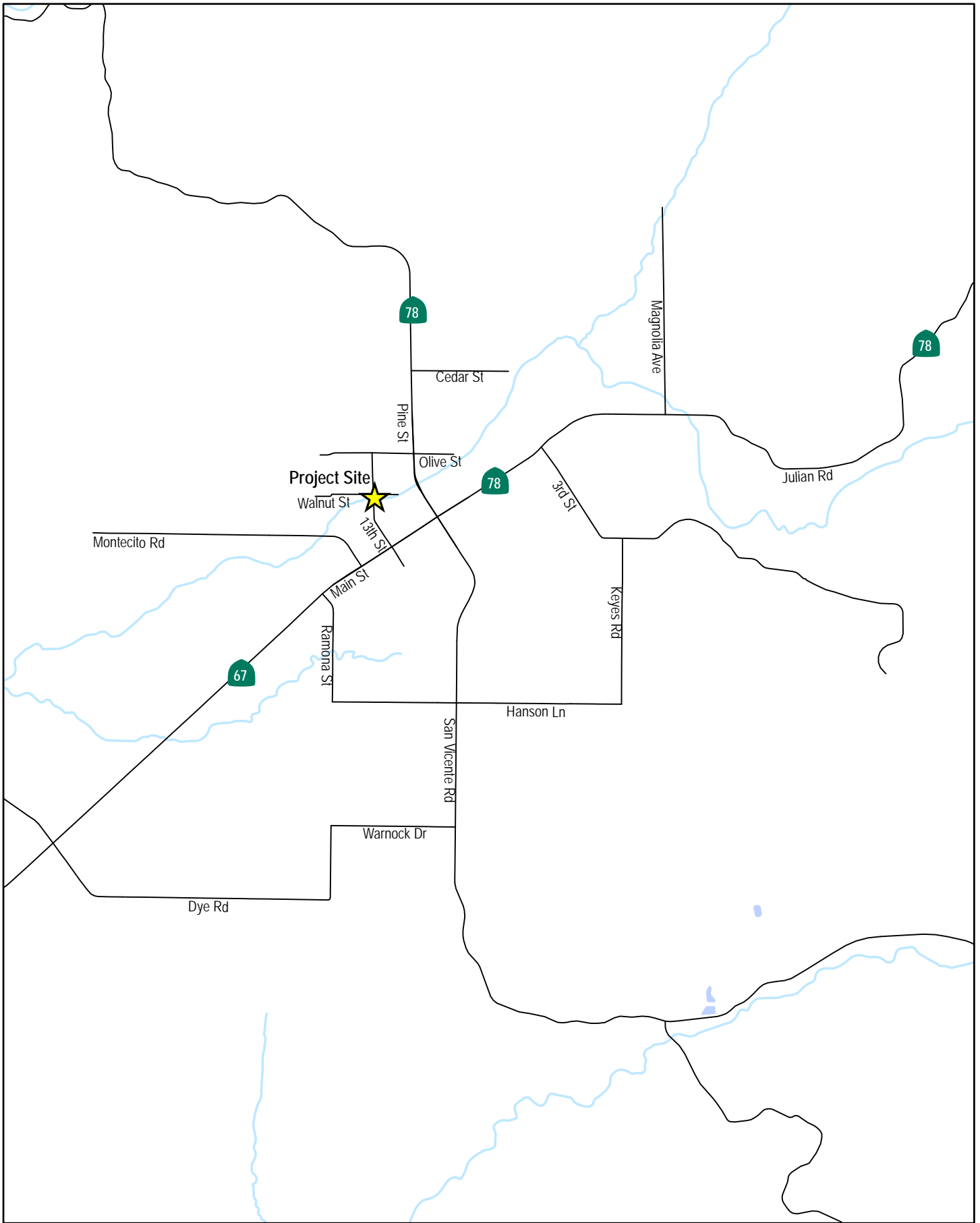


Figure 2-1

Vicinity Map

13TH STREET BRIDGE



### 3.0 EXISTING CONDITIONS

The intersections and segments included in the study area are listed below and shown on *Figure 3-1*. These locations were chosen since they are locations likely to be affected by the project.

#### *Intersections*

1. Maple Street / Olive Street
2. Pine Street / Olive Street
3. Maple Street / 13<sup>th</sup> Street / Walnut Street
4. 13<sup>th</sup> Street / Main Street (SR 67)
5. 10<sup>th</sup> Street (SR 78) / Main Street (SR 67)

#### *Street Segments*

##### *Olive Street*

- Maple Street to Pine Street

##### *Main Street (SR 67)*

- 14<sup>th</sup> Street to 13<sup>th</sup> Street
- 13<sup>th</sup> Street to 10<sup>th</sup> Street

##### *Maple Street*

- Olive Street to Walnut Street

##### *13<sup>th</sup> Street*

- South of Walnut Street
- North of Main Street (SR 67)

##### *Pine Street / 10<sup>th</sup> Street (SR 78)*

- Olive Street to Main Street (SR 67)

### 3.1 Existing Transportation Conditions

The following is a description of the nearby roadway network:

**13<sup>th</sup> Street** is a County maintained roadway that is unclassified in the County of San Diego General Plan – Ramona Mobility Element Network. Within the study area, 13<sup>th</sup> Street is generally constructed as a two-lane undivided roadway. 13<sup>th</sup> Street between Walnut Street and Main Street is paved for only about 500 feet and the remaining portion (about 1,300 feet) is currently unpaved. The curb-to-curb width on 13<sup>th</sup> Street is between 20 feet and 40 feet. The land uses on 13<sup>th</sup> Street currently include civic, commercial and industrial uses. There is no posted speed limit. Bus



stops and bike lanes are not provided.

**Olive Street** is unclassified in the County of San Diego General Plan – Ramona Mobility Element Network. Within the study area, Olive Street is generally constructed as a two-lane undivided roadway. There is no posted speed limit. Curbside parking, bus stops, sidewalks and bike lanes are not provided.

**Main Street (SR 67)** is classified as a *4.1B Major Road (with intermittent turn lanes)* in the County of San Diego General Plan – Ramona Mobility Element Network. Main Street (SR 67) falls under the jurisdiction of Caltrans as a State Highway. Within the study area, Main Street is constructed as a four-lane undivided roadway with a two-way left-turn lane (TWLTL). The posted speed limit is 35 mph. Curbside parking is prohibited. Sidewalks are provided on both sides of the roadway. Bus stops are provided for bus route 371.

**Maple Street** is unclassified in the County of San Diego General Plan – Ramona Mobility Element Network. Within the study area, Maple Street is constructed as a two-lane undivided roadway. The curb-to-curb width on Maple Street is between 32 feet and 48 feet.

There is no posted speed limit. Curbside parking is permitted on both sides of the roadway. Bus stops and bike lanes are not provided. Sidewalks are provided on both sides of the roadway.



**Pine Street / 10<sup>th</sup> Street (SR 78)** is classified as a *2.3C Minor Collector (no median)* in the County of San Diego General Plan – Ramona Mobility Element Network. Pine Street / 10<sup>th</sup> Street (SR 78) falls under the jurisdiction of Caltrans as a State Highway. Within the study area, Pine Street / 10<sup>th</sup> Street is constructed as a two-lane undivided roadway. The posted speed limit is 40 mph. Bike lanes, bus stops and sidewalks are not provided. Shoulders are provided on both sides of the roadway.

*Figure 3–1* depicts the existing traffic conditions and the study area intersections and segments graphically.

### 3.2 Existing Traffic Volumes

Weekday AM/PM peak hour intersection turning movement and bi-directional daily (24-hour) traffic counts were conducted at study area intersections and on street segments on Tuesday, April 9, 2013. During the time of counts, area schools were in session. The peak hour counts were conducted between the commuter peak hours of 7:00-9:00 AM and 4:00-6:00 PM. **Table 3–1** is a summary of the average daily traffic volumes (ADTs). A review of the counts indicate that the unimproved section of 13<sup>th</sup> Street between Walnut Street and Main Street carries about 510 ADT. **Appendix A** contains the manual count sheets.

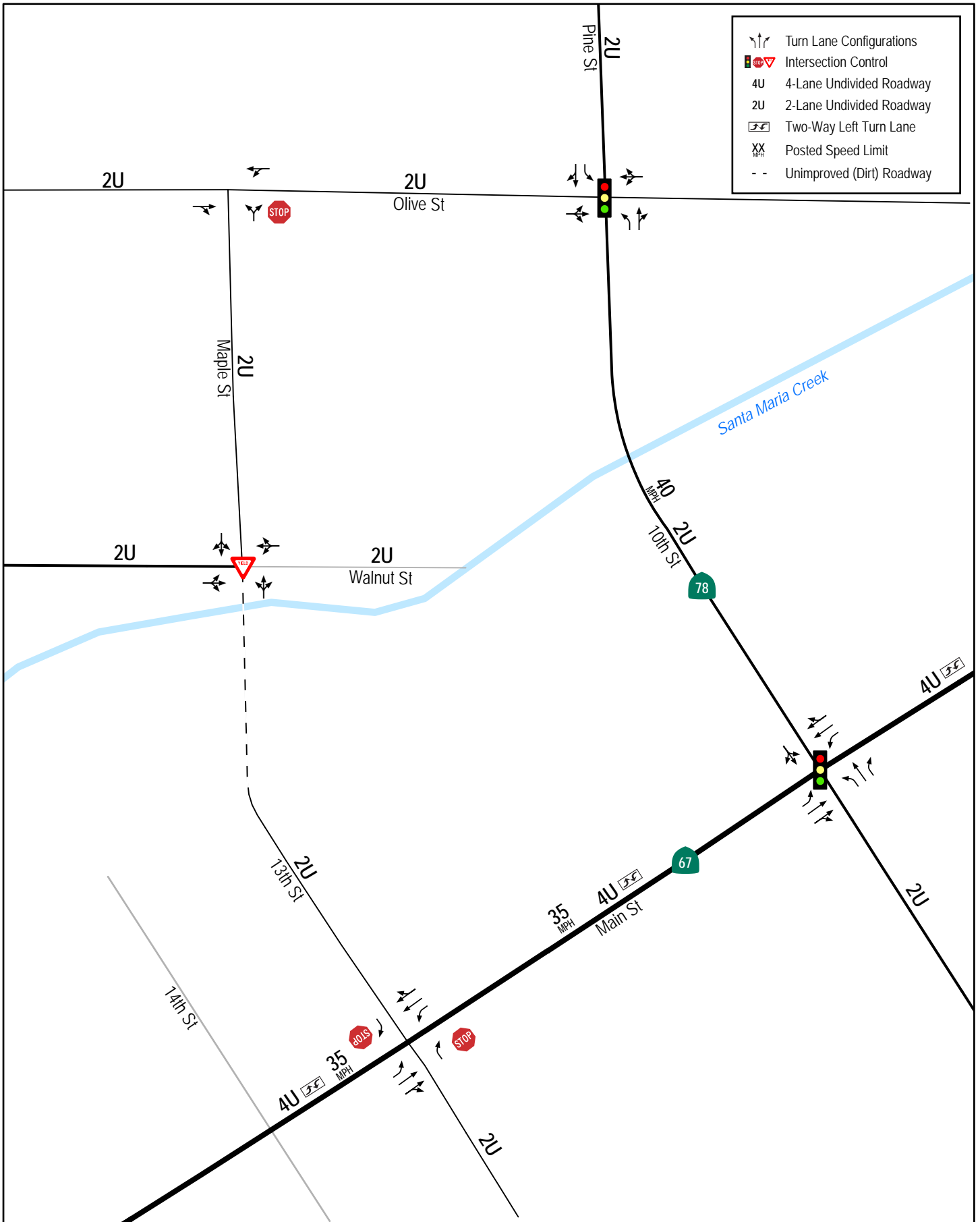
**TABLE 3-1  
EXISTING TRAFFIC VOLUMES**

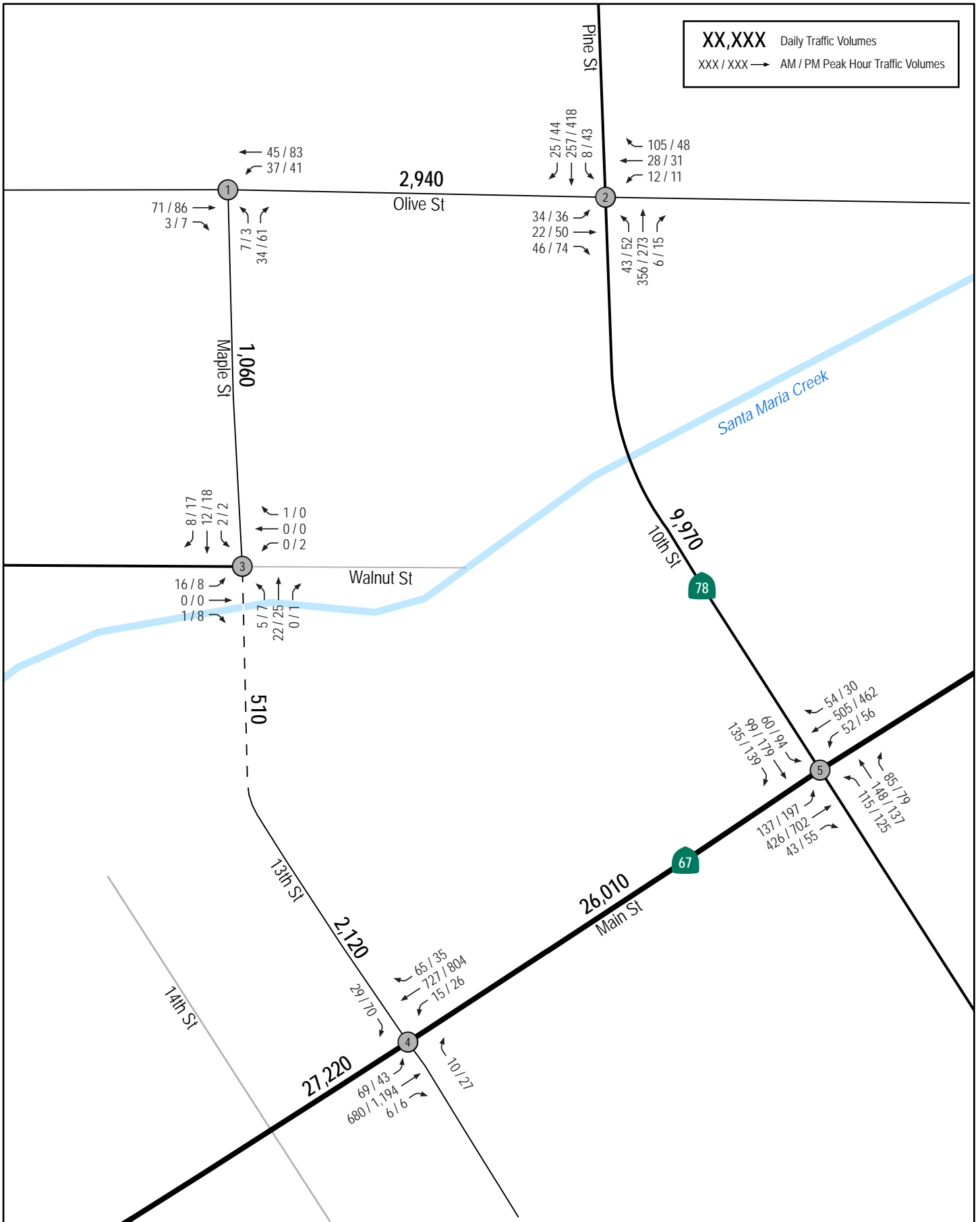
<b>Street Segment</b>	<b>ADT<sup>a</sup></b>	<b>Date</b>	<b>Source</b>
<b>Olive Street</b>			
Maple Street to Pine Street	2,940	April 2013	LLG
<b>Main Street</b>			
14 <sup>th</sup> Street to 13 <sup>th</sup> Street	27,220	April 2013	LLG
13 <sup>th</sup> Street to 10 <sup>th</sup> Street	26,010	April 2013	LLG
<b>Maple Street</b>			
Olive Street to Walnut Street	1,060	April 2013	LLG
<b>13<sup>th</sup> Street</b>			
South of Walnut Street	510	April 2013	LLG
North of Main Street	2,120	April 2013	LLG
<b>Pine Street / 10<sup>th</sup> Street (SR 78)</b>			
Olive Street to Main Street	9,970	April 2013	LLG

**Footnotes:**

- a. Average Daily Traffic Volumes.

**Figure 3-2** depicts the peak hour intersection turning movement and 24-hour segment volumes at the study area intersections and segments.







## 4.0 ANALYSIS APPROACH AND METHODOLOGY

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

### 4.1 Intersections

**Signalized intersections** were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 16 of the *2000 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 7) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS). Signalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in *Appendix B*.

**Unsignalized intersections** were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 17 of the *2000 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 7) computer software. Unsignalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in *Appendix B*.

### 4.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the County of San Diego's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The County of San Diego's *Roadway Classification, Level of Service, and ADT Table* is attached in *Appendix B*.

The project segment of 13<sup>th</sup> Street is not a Mobility Element (ME) Road. Although Level of Service (LOS) is only applicable to ME road segments, the most applicable ME roadway classification was selected and applied to assess roadway operations and performance. Based on the County of San Diego Public Road Standards (March 2010), the Minor Collector (No Median – 2.3C) classification was selected as the appropriate classification for 13<sup>th</sup> Street / Maple Street.

## 5.0 SIGNIFICANCE CRITERIA

The following criterion was utilized to evaluate potential significant impacts, based on the County's document: "Guidelines for Determining Significance – Transportation and Traffic" ~~updated on (August 24, 2011)~~. It is important to note that the County significance criteria typically apply to "land development" projects wherein significant impacts are measured based on the project's traffic contribution at an intersection or on a road segment.

The subject 13<sup>th</sup> Street project is ~~considered a~~ "Operational Improvement" ~~that includes the construction of a new bridge and roadway improvement~~ project that is expected to redistribute background traffic within the local study area ~~and but~~ not generate new traffic. This section includes a complete list of significance criteria and thresholds that are outlined in the County Guidelines. Given the type of project, certain criteria do not apply; the applicability determination for each criterion is also included.

~~Therefore, the following significance criteria were used to measure if the potential redistribution triggers any significant impacts.~~

### 5.1 Road Segments

Pursuant to the ~~thresholds of significance outlined in the County's~~ County's General Plan Mobility Element Policy M2.1, new development must provide improvements or other measures to mitigate traffic impacts to avoid:

- a. Reduction in Level of Service (LOS) below "C" for on-site Mobility Element roads;
- b. Reduction in LOS below "D" for off-site and on-site abutting Mobility Element roads; and
- c. "Significantly impacting congestion" on roads that operate at LOS "E" or "F". If impacts cannot be mitigated, the project cannot be approved unless a statement of overriding findings is made pursuant to the State CEQA Guidelines. However, the General Plan Mobility Element does not include specific guidelines for determining the amount of additional traffic that would "significantly impact congestion" on such roads. This criterion is specifically used for development projects and does not apply to the subject 13<sup>th</sup> Street project given it is an Operational Improvement project. The 13<sup>th</sup> Street bridge project does not generate any new traffic and only redistributes background traffic within the study area. This traffic study quantifies this redistribution, analyzes the pre-and post-project LOS and provides recommendations on the bridge design.

The County has created the following guidelines to evaluate likely traffic impacts of a proposed project for road segments and intersections serving that project site, for purposes of determining whether the development would "significantly impact congestion" on the referenced LOS E and F roads. The guidelines are summarized in **Table 5-1**. The thresholds in **Table 5-1** are based upon average operating conditions on County roadways. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

TABLE 5-1  
 MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON  
 MOBILITY ELEMENT ROAD SEGMENTS  
 ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

*General Notes:*

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes additional trips must mitigate a share of the cumulative impacts.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

**On-site Mobility Element Roads**—The Mobility Element states that “new development shall provide needed roadway expansion and improvements on-site to meet demand created by the development, and to maintain a Level of Service C on Mobility Element Roads during peak traffic hours”. Pursuant to this policy, a significant traffic impact would result if:

- The additional or redistributed ADT generated by the proposed land development project will cause on-site ~~Circulation-Mobility~~ Element Roads to operate below LOS C during peak traffic hours.

**Off-Site Mobility Element Roads**—The Mobility Element also addresses offsite Mobility Element roads. It states that “new development shall provide off-site improvements designed to contribute to the overall achievement of a Level of Service D on Mobility Element Roads.” Implementation Measure 1.1.3 addressed projects that would significantly impact congestion on roads operating at LOS E or F. It states, “new development that would significantly impact congestion on roads operating at LOS E or F, either currently or as a result of the project, will be denied unless improvements are scheduled to attain a LOS to D or better or appropriate mitigation is provided.” The following significance guidelines define a method for evaluating whether or not increased traffic volumes generated or redistributed from a proposed project will “significantly impact congestion” on County roads, operating at LOS E or F, either currently or as a result of the project.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service impact on a road segment:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a Mobility Element Road or State Highway currently operating at LOS E or LOS F, or will cause a Mobility Element Road or State Highway to operate at a LOS E or LOS F as a result of the proposed project as identified in *Table 5-1*, or
- The additional or redistributed ADT generated by the proposed project will cause a residential street to exceed its design capacity.

## 5.2 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections. **Table 5–2** was obtained from County guidelines and summarizes the allowable increases in delay or traffic volumes at signalized and unsignalized intersections. Exceeding the thresholds in **Table 5–2** would result in a significant impact.

**TABLE 5–2**  
**MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS**  
**ALLOWABLE INCREASES ON CONGESTED INTERSECTIONS**

<b>Level of service</b>	<b>Signalized</b>	<b>Unsignalized</b>
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

**General Notes:**

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay *and* the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

**Signalized Intersections**—Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a signalized intersection:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identified in *Table 5–2*.
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

**Unsignalized Intersections**—The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an unsignalized intersection as listed in *Table 5–2* and described as text below:

- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or
- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

### 5.3 Two-Lane Highways

#### 5.3.1 Signalized Intersection Spacing Over One Mile

Two-Lane Highways with intersection spacing over one mile have minimal side friction and conform to the HCM assumptions for two-lane highways. Level of Service criteria for LOS E and LOS F are based on criteria established with the Counties of Riverside and Sacramento and concurred upon by Caltrans–District 11. These criteria are appropriate for use for most projects with the potential to affect two-lane highways, as road conditions for two-lane highways in these Counties are similar to those in the County of San Diego.

#### 5.3.2 Signalized Intersection Spacing Under One Mile

Two-Lane Highways with intersection spacing less than one mile have operate similar to urban streets as identified in the HCM. Per the HCM, level Urban Streets have lower speeds with levels of service most characterized by the operation of the intersections along the highway/street. For two-lane highways with intersection spacing less than one mile, the level of service will be determined to be that of the intersections along the highway.

SR 67 (Main Street) is the only highway in the project vicinity. This criterion applies to only two-lane highways and **does not apply** to this project as the SR 67 (Main Street) in the project vicinity is a 4-lane highway.

### 5.4 Ramps

Additional or redistributed ADT generated by the proposed project may significantly increase congestion at a freeway ramp. Caltrans’ “Guide for the Preparation of Traffic Impact Studies” states

that an operational analysis based upon Caltrans' Highway Design Manual should be used in the evaluation of ramps and that Caltrans' Ramp Metering Guidelines should be used in the preparation of the operational analysis.

This criterion does not apply to this project as there are no ramps in the project vicinity.

## 5.5 Congestion Management Program Requirements

Projects that generate over 2,400 ADT or 200 peak hour trips, must comply with the traffic study requirements of SANDAG's Congestion Management Program. Trip distributions for these projects must also use the current regional computer traffic model. Projects that must prepare a CMP analysis should also follow the CMP traffic impact analysis guidelines.

This criterion does not apply to this project as this project is an "Operational Improvement" project that would not generate any new traffic.

## 5.6 Hazards Due to an Existing Transportation Design Feature

Many roadways and intersections in the County were designed and constructed prior to the adoption of current road design standards. The design of the roadways and intersections that were able to handle lower traffic volumes, may pose an increased risk if traffic volumes substantially increase along the road segment or at the intersection as a result of the proposed project. Increased traffic generated or redistributed by a proposed project may cause a significant traffic operational impact to an existing transportation design feature. Therefore, it is necessary to evaluate potential hazards to an existing transportation design feature.

The determination of significant hazards to an existing transportation design feature shall be on a case-by-case basis, considering the following factors:

- Design features/physical configurations of access roads may adversely affect the safe movement of all users along the roadway.
- The percentage or magnitude of increased traffic on the road due to the proposed project may affect the safety of the roadway
- The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers, may result in conflicts with other users or stationary objects.
- Conformance of existing and proposed roads to the requirements of the private or public road standards, as applicable.

**PLACEHOLDER: The 13<sup>th</sup> Street bridge is currently under preliminary design. These criteria will be evaluated once the design has been finalized.**

## 5.7 Hazards to Pedestrians or Bicyclists

Many roadways and intersections in the County do not currently have pedestrian or bicycle facilities. The roadways and intersections designed prior to adoption of current road standards may have

conditions that may pose an increased risk if traffic volumes, pedestrian volumes, or bicycle volumes substantially increase along the road segment or at the intersection, as a result of the proposed project. Increased traffic generated or redistributed by a proposed project may cause a significant traffic operational impact to pedestrians or bicyclists. Therefore, it is necessary to evaluate potential hazards to pedestrians or bicyclists.

The determination of significant hazards to pedestrians or bicyclists shall be on a case-by-case basis, considering the following factors:

- Design features/physical configurations on a road segment or at an intersection that may adversely affect the visibility of pedestrians or bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists.
- The amount of pedestrian activity at the project access points that may adversely affect pedestrian safety.
- The preclusion or substantial hindrance of the provision of a planned bike lane or pedestrian facility on a roadway adjacent to the project site.
- The percentage or magnitude of increased traffic on the road due to the proposed project that may adversely affect pedestrian and bicycle safety.
- The physical conditions of the project site and surrounding area, such as curves, slopes, walls, landscaping or other barriers that may result in vehicle/pedestrian, vehicle/bicycle conflicts.
- Conformance of existing and proposed roads to the requirements of the private or public road standards, as applicable.
- The potential for a substantial increase in pedestrian or bicycle activity without the presence of adequate facilities.

**PLACEHOLDER: The 13<sup>th</sup> Street bridge is currently under preliminary design. These criteria will be evaluated once the design has been finalized.**

## 5.8 Alternative Transportation

Alternative transportation (cycling, walking, and transit use) is addressed in the County’s General Plan Public Facilities Element (PFE). The County’s stated objective for alternative transportation is addressed by the PFE, Objective 4. Objective 4 asks for a “Reduction in the demand on the road system through increased public use of alternate forms of transportation and other means.” Pursuant to Objective 4, Policies 4.1 – 4.4 establish a means for the County to meet the objective. As such, if a proposed project is not in conformance with the applicable alternative transportation policies in the PFE, a significant conflict with the County’s alternative transportation policies may occur.

**PLACEHOLDER: The 13<sup>th</sup> Street bridge is currently under preliminary design. These criteria will be evaluated once the design has been finalized.**

## 6.0 EXISTING CONDITIONS ANALYSIS

The analysis of existing conditions includes the assessment of the study area intersections and segments using the methodologies described in *Section 4.0*.

### 6.1 Intersection Operations

*Table 6-1* summarizes the existing intersection analysis. As seen in *Table 6-1*, all intersections are calculated to currently operate at LOS D or better.

*Appendix C* contains the Existing intersection analysis worksheets.

TABLE 6-1  
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay <sup>a</sup>	LOS <sup>b</sup>
1. Maple Street / Olive Street	TWSC <sup>c</sup>	AM	9.0	A
		PM	9.1	A
2. Pine Street / Olive Street	Signal	AM	16.5	B
		PM	20.6	C
3. Maple Street / 13 <sup>th</sup> Street / Walnut Street	Yield <sup>d</sup>	AM	7.1	A
		PM	7.0	A
4. 13 <sup>th</sup> Street / Main Street (SR 67) <sup>e</sup>	TWSC	AM	11.7	B
		PM	12.9	B
5. 10 <sup>th</sup> Street (SR 78) / Main Street (SR 67)	Signal	AM	30.7	C
		PM	37.0	D

**Footnotes:**

- Average delay expressed in seconds per vehicle.
- Level of Service.
- TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.
- No traffic control currently at this intersection. Hence, a “yield” control type was assumed.
- For 13<sup>th</sup> Street / Main Street (SR 67), the southbound right-turn delay is reported since the left-turn from 13<sup>th</sup> Street to Main Street is prohibited.

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



## 6.2 Street Segment Operations

**Table 6–2** summarizes the existing roadway segment operations. As seen in *Table 6–2*, all the study area segments are calculated to currently operate at LOS D or better.

**TABLE 6–2**  
**EXISTING STREET SEGMENT OPERATIONS**

Street Segment	Functional Classification	Capacity (LOS E) <sup>a</sup>	ADT <sup>b</sup>	LOS <sup>c</sup>
<b>Olive Street</b>				
Maple Street to Pine Street	Minor Collector <i>No Median (2.3C)</i>	8,000	2,940	B
<b>Main Street (SR 67)</b>				
14 <sup>th</sup> Street to 13 <sup>th</sup> Street	4-lane Major Road <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	27,220	C
13 <sup>th</sup> Street to 10 <sup>th</sup> Street	4-lane Major Road <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	26,010	C
<b>Maple Street</b>				
Olive Street to Walnut Street	Minor Collector <i>No Median (2.3C)</i>	8,000	1,060	A
<b>13<sup>th</sup> Street</b>				
South of Walnut Street	<i>Unimproved Roadway (Dirt)</i>	2,000 <sup>d</sup>	510	B
North of Main Street	Minor Collector <i>No Median (2.3C)</i>	8,000	2,120	B
<b>Pine Street / 10<sup>th</sup> Street (SR 78)</b>				
Olive Street to Main Street	2-lane Light Collector <i>No Median (2.2E)</i>	16,200	9,970	D

**Footnotes:**

- a. Capacities based on *County of San Diego Roadway Classification Table*.
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Assumed 1/4 of the Minor Collector capacity to account for existing unimproved (dirt) roadway.

## 7.0 OPENING DAY (YEAR 2018) ANALYSIS

The following section discusses the Opening Day (Year 2018) traffic analysis. It is important to note that the subject project does not generate any new traffic. With the construction of the bridge and roadway improvements, traffic is expected to be redistributed because of the convenience of a direct route from Main Street (SR 67) to the industrial land uses on 13<sup>th</sup> Street and Maple Street. Therefore, the “with project” scenarios in this study reflect this redistribution.

### 7.1 Opening Day (Year 2018) Traffic Volumes

To develop the Opening Day (Year 2018) traffic volumes, a growth rate between existing and Long-Term (Year 2035) traffic volumes was calculated, which was approximately 2% per year. This growth rate was used to calculate the Opening Day traffic volumes without the Project. This represents a near-term existing-to-forecast growth rate. This rate is higher than the long-term growth rate as the community is anticipated to be built-out by the Year 2035. *Appendix D* contains the near-term growth factor calculations.

The redistribution of traffic due to the 13<sup>th</sup> Street bridge was developed based on roadway capacities, network characteristics and engineering judgment. It was ~~assumed~~estimated that 910 ADT would shift from 10<sup>th</sup> Street and Main Street (SR 67) to Maple Street / 13<sup>th</sup> Street.

*Figure 7-1* shows the Opening Day traffic volumes (Year 2018) without the Project and *Figure 7-2* shows the Opening Day traffic volumes (Year 2018) with the Project.

### 7.2 Opening Day (Year 2018) Operations

#### 7.2.1 Intersection Operations

*Table 7-1* summarizes the intersection levels of service without and with the project. As seen in *Table 7-1*, all study area intersections were calculated to operate at LOS D or better without the project.

With the addition of the 13<sup>th</sup> Street Bridge project, all study area intersections were calculated to continue to operate at LOS D or better. The 10<sup>th</sup> Street / Main Street intersection was calculated to show improved traffic operations due to the reduction in traffic volumes attributed to the redistribution of traffic from 10<sup>th</sup> Street and Main Street to Maple Street / 13<sup>th</sup> Street.

**Based on County of San Diego’s significance criteria, no significant intersection impacts were calculated.**

*Appendix E* contains the Opening Day intersection analysis worksheets.

#### 7.2.2 Street Segment Operations

*Table 7-2* summarizes the street segment operations without and with the project. As seen in *Table 7-2*, all street segments were calculated to operate at LOS D or better with the exception of:

- Pine Street / 10<sup>th</sup> Street (SR 78): Olive Street to Main Street (LOS E in the without project scenario)

With the addition of the 13<sup>th</sup> Street Bridge project, all street segments were calculated to operate at LOS D or better. The traffic operations on Main Street (SR 67) between 13<sup>th</sup> Street and 10<sup>th</sup> Street and on Pine Street / 10<sup>th</sup> Street (SR 78) between Olive Street and Main Street were calculated to improve (LOS E to D) due to the reduction in traffic volumes attributed to the redistribution of traffic from 10<sup>th</sup> Street and Main Street to Maple Street / 13<sup>th</sup> Street.

**Based on County of San Diego's significance criteria, no significant street segment impacts were calculated.**

**The 13<sup>th</sup> Street bridge project relieves traffic on Main Street (SR 67) and Pine Street/10<sup>th</sup> Street (SR 78). Hence, no significant intersection and street segment impacts are calculated on these Caltrans facilities.**

### **7.3 Missing Analysis**

**Do not Apply or to be addressed once design is complete**

TABLE 7-1  
OPENING DAY (YEAR 2018) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Opening Day (Year 2018) without Project		Opening Day (Year 2018) with Project			Impact Type
			Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	Δ <sup>c</sup>	
1. Maple Street / Olive Street	TWSC <sup>d</sup>	AM	9.2	A	9.4	A	N/A	None
		PM	9.4	A	9.7	A	N/A	None
2. Pine Street / Olive Street	Signal	AM	19.1	B	21.3	C	2.2	None
		PM	23.8	C	26.7	C	2.9	None
3. Maple Street / 13 <sup>th</sup> Street / Walnut Street	Yield / TWSC <sup>e</sup>	AM	7.2	A	9.4	A	N/A	None
		PM	7.1	A	9.4	A	N/A	None
4. 13 <sup>th</sup> Street / Main Street (SR 67) <sup>f</sup>	TWSC	AM	12.0	B	12.3	B	N/A	None
		PM	13.6	B	14.2	B	N/A	None
5. 10 <sup>th</sup> Street / Main Street	Signal	AM	33.8	C	31.5	C	(2.3)	None
		PM	42.2	D	38.2	D	(4.0)	None

**Footnotes:**

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “Δ” denotes the project-induced increase in delay for signalized intersections and project traffic added to the critical movement for unsignalized intersections operating at LOS E or F only.
- d. TWSC: Two-Way Stop Controlled. Minor street delay reported.
- e. *Project Recommendation:* Maple Street / 13<sup>th</sup> Street / Walnut Street was analyzed as a two-way stop controlled intersection in the Opening Day (Year 2018) with Project scenario with northbound and southbound movements operating as free-flow.
- f. For 13<sup>th</sup> Street / Main Street (SR 67), southbound right-turn delay was reported since the left-turn from 13<sup>th</sup> Street to Main Street is prohibited.

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

**General Notes:**

1. N/A – County guidelines require the reporting of the project-added peak hour trips at a critical movement at an unsignalized intersection at LOS E or F. Since these intersections are calculated at LOS C or better, no information was included.

TABLE 7-2  
OPENING DAY (YEAR 2018) STREET SEGMENT OPERATIONS

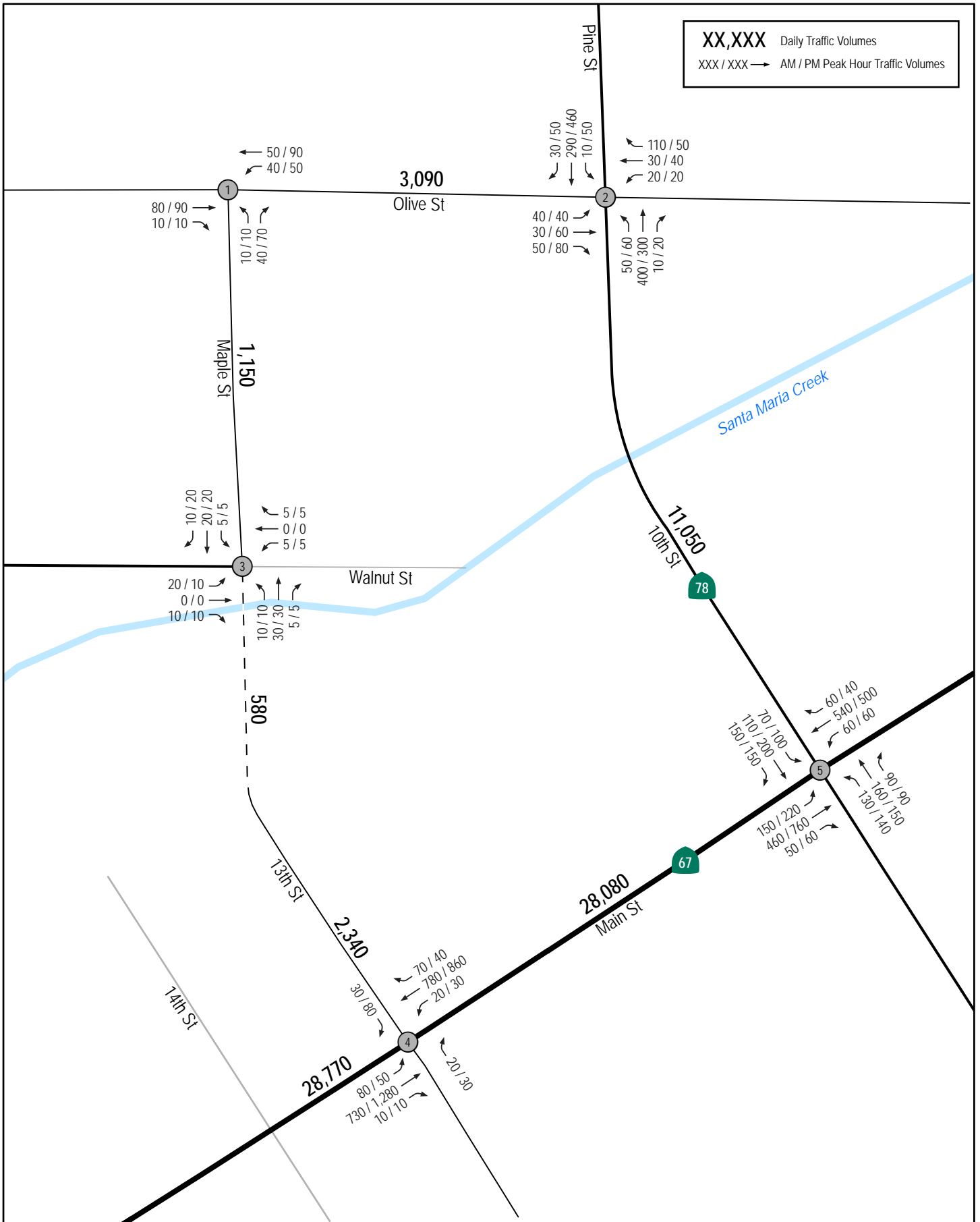
Street Segment	Functional Classification	Capacity (LOS E) <sup>a</sup>	Opening Day (Year 2018) without Project		Opening Day (Year 2018) with Project			Impact Type
			ADT <sup>b</sup>	LOS <sup>c</sup>	ADT	LOS	Δ <sup>d</sup>	
<b>Olive Street <sup>e</sup></b> Maple Street to Pine Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	3,090	B	4,000	B	910	None
<b>Main Street (SR 67)</b> 14 <sup>th</sup> Street to 13 <sup>th</sup> Street	4-lane Major Road – <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	28,770	D	28,770	D	0	None
13 <sup>th</sup> Street to 10 <sup>th</sup> Street	4-lane Major Road – <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	28,080	D	27,170	C	-910	None
<b>Maple Street <sup>e</sup></b> Olive Street to Walnut Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	1,150	A	2,060	B	910	None
<b>13<sup>th</sup> Street <sup>e</sup></b> South of Walnut Street	Unimproved (dirt road) / Minor Collector <i>No Median (2.3C)</i>	2,000 <sup>f</sup> / 8,000	580	B	1,490	A	910	None
North of Main Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	2,340	B	3,180	B	840	None
<b>Pine Street / 10<sup>th</sup> Street (SR 78)</b> Olive Street to Main Street	2-lane Light Collector – <i>No Median (2.2E)</i>	16,200	<b>11,050</b>	<b>E</b>	10,140	D	-910	None

**Footnotes:**

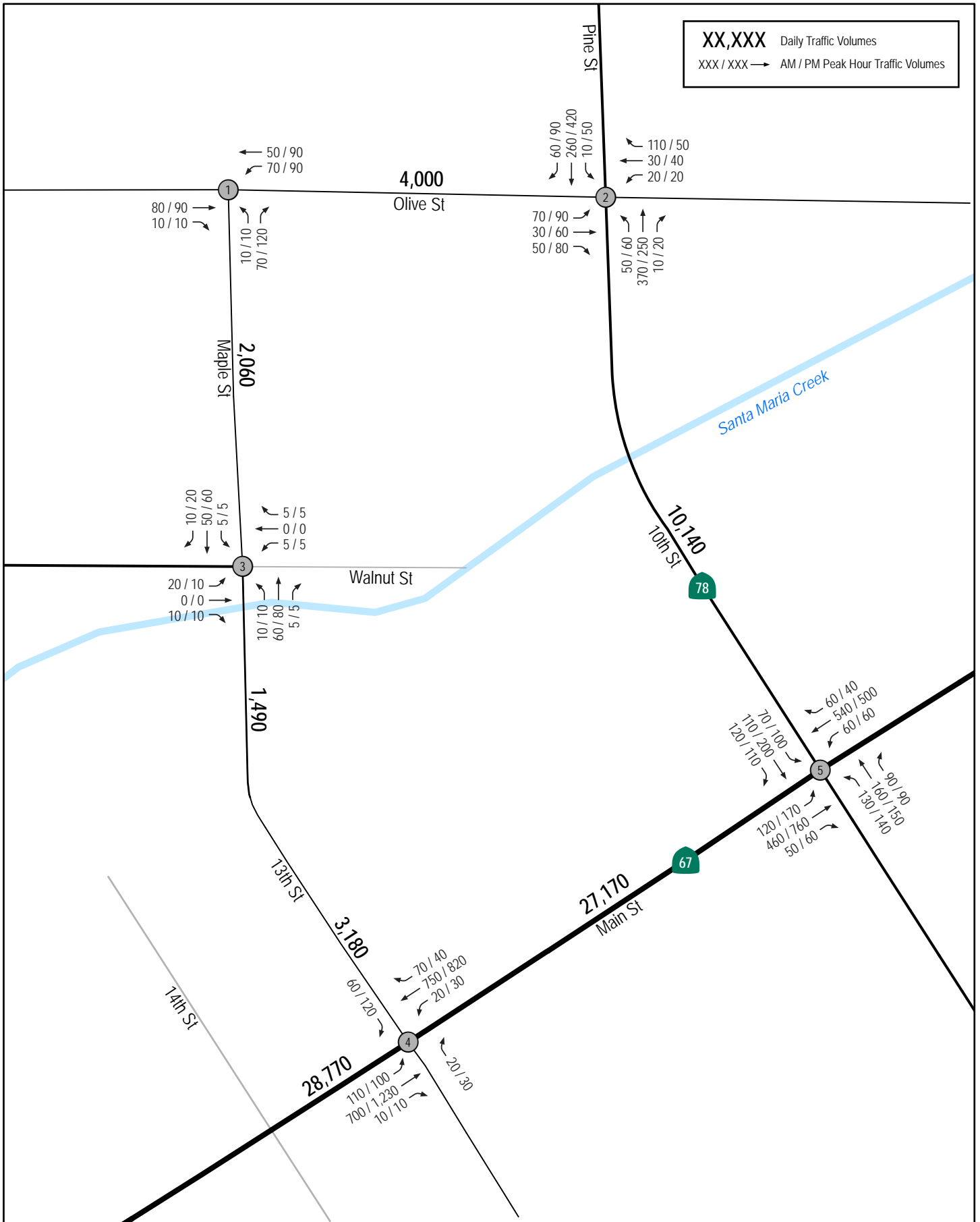
- a. Capacities based on County of San Diego Roadway Classification Table.
- b. ADT - Average Daily Traffic Volumes.
- c. LOS - Level of Service.
- d. "Δ" denotes the project-induced increase or decrease in ADT.
- e. These roads are not on the County General Plan Mobility Element for Ramona. Hence, a "Minor Collector" classification was assigned to these for analysis purposes.
- f. Assumed 1/4 of Minor Collector capacity to account for unimproved (dirt) roadway in the without project scenario.

**General Notes:**

- 1. **Bold** typeface indicates LOS E or worse.



Opening Day (Year 2018) Traffic Volumes without Project



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**Opening Day (Year 2018) Traffic Volumes with Project**

**Figure 7-2**

## 8.0 LONG-TERM (YEAR 2035) ANALYSIS

The following is a discussion of the Long-Term (Year 2035) without and with project operations.

### 8.1 Long-Term (Year 2035) Traffic Volumes

To develop Long-Term (Year 2035) traffic volumes with Project, the SANDAG Series 12 County General Plan (GP) Update Forecast Year 2050 Model was used. Based on discussions with SANDAG staff, this model was deemed appropriate to use (instead of the base SANDAG Series 12 Model) as it includes the latest County GP land uses calibrated to existing on-the-ground counts. The GP Update Model does not include 13<sup>th</sup> Street as a Mobility Element roadway. In order to forecast traffic volumes on 13<sup>th</sup> Street, minor network adjustments to include 13<sup>th</sup> Street as a two-lane roadway were made. In addition, traffic generated by adjacent land uses were loaded onto 13<sup>th</sup> Street.

It is important to note that the County GP Update Model only includes the Year 2050 traffic forecast. In order to obtain traffic volumes for the horizon Year 2035, the Year 2050 forecast model was reduced based on a growth factor. A growth factor was calculated (based on the base SANDAG Series 12 Year 2035 to Year 2050 Forecast) to be approximately 0.35% per year in the project study area. *Appendix D* contains the long-term growth factor calculations. This 0.35% per year was applied for 15 years to reduce Year 2050 volumes to Year 2035 volumes. This growth rate is lower than the near-term growth rate as the community is expected to approach build-out.

The redistribution of traffic due to the 13<sup>th</sup> Street bridge was developed based on roadway capacities, network characteristics and engineering judgment. It was ~~assumed-estimated~~ that 3,100 ADT would shift from 10<sup>th</sup> Street and Main Street (SR 67) to Maple Street / 13<sup>th</sup> Street in the Long-Term scenario.

*Figure 8-1* depicts the Long-Term (Year 2035) without Project traffic volumes. *Figure 8-2* depicts the Long-Term (Year 2035) with Project traffic volumes.

### 8.2 Long-Term (Year 2035) Operations

#### 8.2.1 Intersection Operations

*Table 8-1* summarizes the Long-Term (Year 2035) intersection levels of service without and with the project. As seen in *Table 8-1*, all study area intersections were calculated to operate at LOS D or better in the Long-Term without project scenario with the exception of:

- 10<sup>th</sup> Street / Main Street (SR 67) – LOS E during the PM peak period (in the without project scenario only).

With the addition of the 13<sup>th</sup> Street Bridge project, all study area intersections were calculated to operate at LOS D or better. The 10<sup>th</sup> Street / Main Street intersection was calculated to show improved traffic operations (LOS E to D) due to the reduction in traffic volumes attributed to the redistribution of traffic from 10<sup>th</sup> Street and Main Street to Maple Street / 13<sup>th</sup> Street.



**Based on County of San Diego’s significance criteria, no significant intersection impacts were calculated.**

*Appendix F* contains the Long-Term intersection analysis worksheets.

### 8.2.2 *Street Segment Operations*

*Table 8–2* summarizes the street segment operations without and with the project. As seen in *Table 8–2*, all street segments were calculated to operate at LOS D or better with the exception of:

- Main Street: 14<sup>th</sup> Street to 13<sup>th</sup> Street (LOS E)
- Main Street: 13<sup>th</sup> Street to 10<sup>th</sup> Street (LOS F)
- Pine Street / 10<sup>th</sup> Street (SR 78): Olive Street to Main Street (LOS E)

The street segment operations along Main Street (SR 67) between 13<sup>th</sup> Street and 10<sup>th</sup> Street and 10<sup>th</sup> Street (SR 78) between Olive Street and Main Street were calculated to improve due to the reduction in traffic volumes attributed to the redistribution of traffic from 10<sup>th</sup> Street and Main Street to Maple Street / 13<sup>th</sup> Street.

**Based on County of San Diego’s significance criteria, no significant street segment impacts were calculated.**

**The 13<sup>th</sup> Street bridge project relieves traffic on Main Street (SR 67) and Pine Street/10<sup>th</sup> Street (SR 78). Hence, no significant intersection and street segment impacts are calculated on these Caltrans facilities.**

### **8.3 Missing Analysis**

**Do not Apply or to be addressed once design is complete**

**TABLE 8-1**  
**LONG-TERM (YEAR 2035) INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Long-Term (Year 2035) without Project		Long-Term (Year 2035) with Project			Impact Type
			Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	Δ <sup>c</sup>	
1. Maple Street / Olive Street	TWSC <sup>d</sup>	AM	10.0	A	11.0	B	N/A	None
		PM	10.6	B	13.2	B	N/A	None
2. Pine Street / Olive Street	Signal	AM	25.3	C	30.2	C	4.9	None
		PM	33.2	C	51.8	D	18.6	None
3. Maple Street / 13 <sup>th</sup> Street / Walnut Street	Yield / TWSC <sup>e</sup>	AM	7.5	A	11.4	B	N/A	None
		PM	7.5	A	12.0	B	N/A	None
4. 13 <sup>th</sup> Street / Main Street (SR 67) <sup>f</sup>	TWSC	AM	13.5	B	14.9	B	N/A	None
		PM	16.2	C	19.9	C	N/A	None
5. 10 <sup>th</sup> Street / Main Street	Signal	AM	49.4	D	36.5	D	(12.9)	None
		PM	<b>77.4</b>	<b>E</b>	54.0	D	(23.4)	None

**Footnotes:**

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “Δ” denotes the project-induced increase in delay for signalized intersections and project traffic added to the critical movement for unsignalized intersections operating at LOS E or F only.
- d. TWSC: Two-Way Stop Controlled. Minor street delay is reported.
- e. *Project Recommendation:* Maple Street / 13<sup>th</sup> Street / Walnut Street was analyzed as a two-way stop controlled intersection in the Long-Term (Year 2035) with Project scenario with northbound and southbound movements operating as free-flow.
- f. For 13<sup>th</sup> Street / Main Street (SR 67), southbound right-turn delay was reported as left-turn from 13<sup>th</sup> Street to Main Street is prohibited.

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

**General Notes:**

1. N/A – County guidelines require the reporting of the project-added peak hour trips at a critical movement at an unsignalized intersection at LOS E or F. Since these intersections are calculated at LOS C or better, no information was included.
2. **Bold** typeface indicates LOS E or worse.

TABLE 8-2  
LONG-TERM (YEAR 2035) STREET SEGMENT OPERATIONS

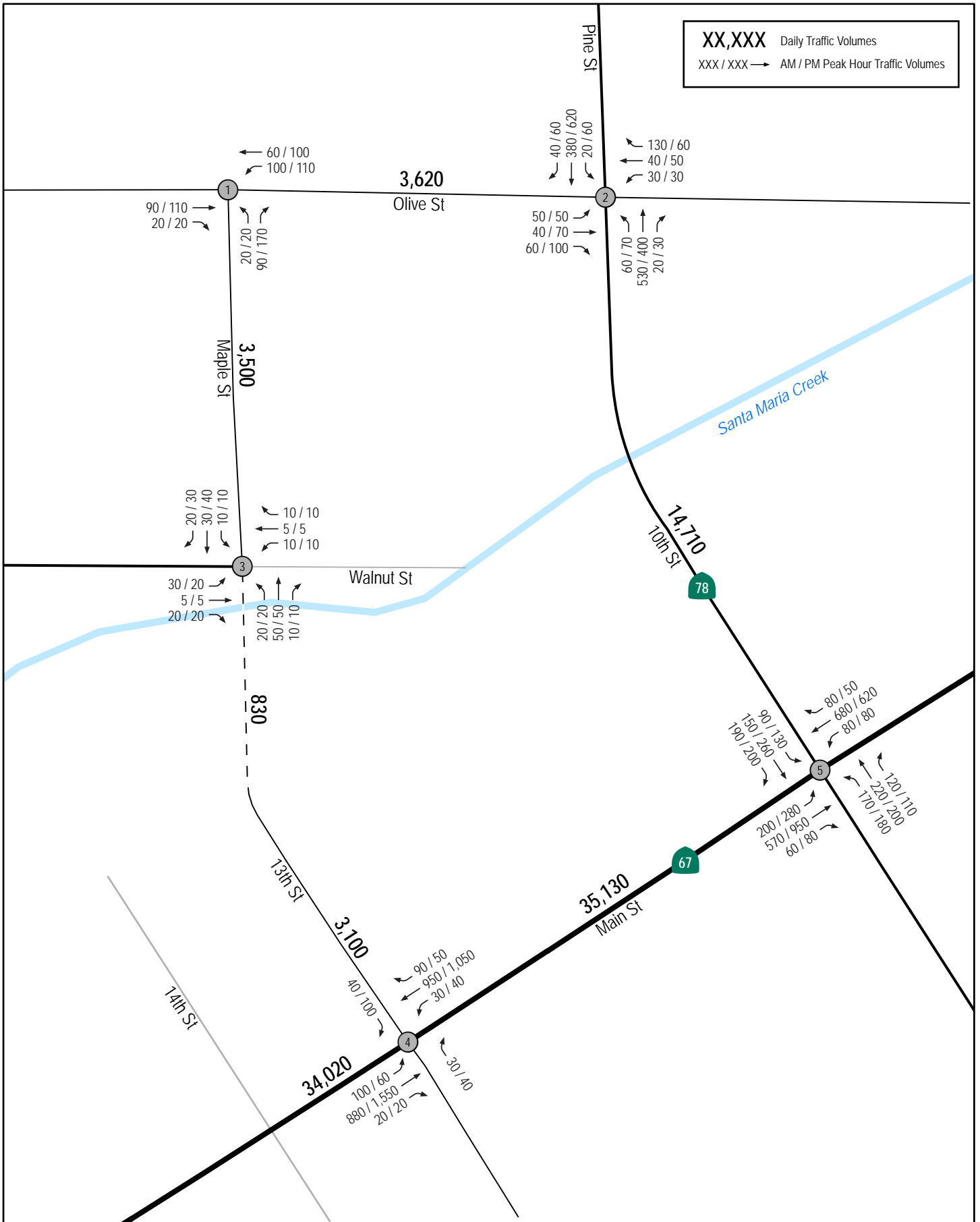
Street Segment	Proposed Classification	Capacity (LOS E) <sup>a</sup>	Long-Term (Year 2035) without Project		Long-Term (Year 2035) with Project			Impact Type
			ADT <sup>b</sup>	LOS <sup>c</sup>	ADT	LOS	Δ <sup>d</sup>	
<b>Olive Street <sup>e</sup></b> Maple Street to Pine Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	3,620	B	6,720	D	3,100	None
<b>Main Street (SR 67)</b> 14 <sup>th</sup> Street to 13 <sup>th</sup> Street	4-lane Major Road – <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	<b>34,020</b>	<b>E</b>	<b>34,020</b>	<b>E</b>	0	None
13 <sup>th</sup> Street to 10 <sup>th</sup> Street	4-lane Major Road – <i>With Intermittent Turn Lanes (4.1B)</i>	34,200	<b>35,130</b>	<b>F</b>	<b>32,030</b>	<b>E</b>	-3,100	None
<b>Maple Street <sup>e</sup></b> Olive Street to Walnut Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	3,500	B	6,600	D	3,100	None
<b>13<sup>th</sup> Street <sup>e</sup></b> South of Walnut Street	Unimproved (dirt road) / Minor Collector <i>No Median (2.3C)</i>	2,000 <sup>f</sup> / 8,000	830	B	3,930	B	3,100	None
North of Main Street	Minor Collector – <i>No Median (2.3C)</i>	8,000	3,100	B	5,970	C	2,870	None
<b>Pine Street / 10<sup>th</sup> Street (SR 78)</b> Olive Street to Main Street	2-lane Light Collector – <i>With Passing Lane (2.2D)</i>	19,000	<b>14,710</b>	<b>E</b>	11,610	D	-3,100	None

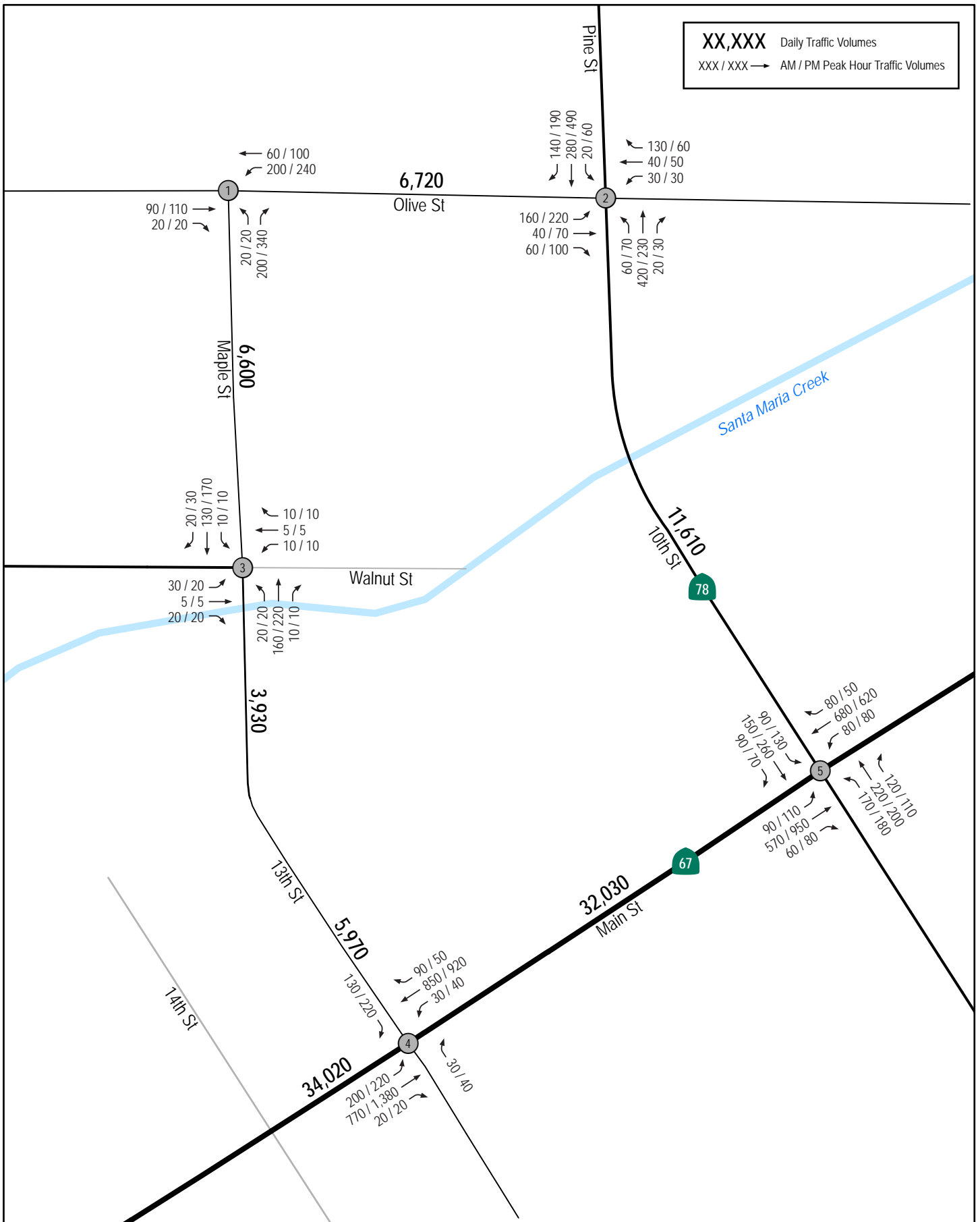
**Footnotes:**

- a. Capacities based on County of San Diego Roadway Classification Table.
- b. ADT - Average Daily Traffic Volumes.
- c. LOS - Level of Service.
- d. “Δ” denotes the project-induced increase or decrease in ADT.
- e. These roads are not on the County General Plan Mobility Element for Ramona. Hence, a "Minor Collector" classification was assigned to these for analysis purposes.
- f. Assumed 1/4 of Minor Collector capacity to account for unimproved (dirt) roadway in the without project scenario.

**General Notes:**

- 1. **Bold** typeface indicates LOS E or worse.





#### 8.38.4 Truck Analysis

There are several automotive, industrial and construction type businesses along Olive Street that generate truck traffic on Olive Street. Hence, a truck analysis was conducted to determine the percentage of potential truck diversion from Olive Street onto 13<sup>th</sup> Street with the construction of the bridge and roadway improvements.

, A vehicle classification count was conducted to determine the type and percentage of trucks along Olive Street between Maple Street and Pine Street, and along Pine Street / 10<sup>th</sup> Street (SR 78) between Olive Street and Main Street.

*Appendix A* contains a summary of the vehicle classification counts. Based on a review of the classification counts, approximately 16% and 13% of vehicles utilizing Olive Street and 10<sup>th</sup> Street are trucks, respectively.

##### 8.3.18.4.1 ~~Truck~~ Truck Diversion

In addition to truck classification counts, LLG estimated the diversion of trucks to 13<sup>th</sup> Street as a result of the project. Of the total truck traffic counted (100%), approximately 30% were counted on Olive Street and 70% were counted on Pine Street / 10<sup>th</sup> Street (SR 78). This 30/70 split is consistent with the expectations given the existing roadway network characteristics.

The project is anticipated to divert truck traffic from Olive Street to 13<sup>th</sup> Street / Maple Street only since it provides a more direct connection and less circuitous route by avoiding the busy intersection at Main Street / 10<sup>th</sup> Street. Approximately 80% of the 490 trucks (i.e. 390 ADT) counted on Olive Street (west of Maple Street) are ~~assumed~~estimated to divert to 13<sup>th</sup> Street. The remaining 20% (100 ADT) are ~~assumed~~estimated to continue to use Olive Street without diverting. The truck traffic on 10<sup>th</sup> Street is not anticipated to be affected since an alternate route using Maple Street / 13<sup>th</sup> Street would result in a slightly longer and more circuitous route requiring (more delay inducing) left-turns.

**Table 8-3** is a comparison of the truck traffic distribution percentages for the existing condition and with the proposed project.

**TABLE 8-3  
AVERAGE DAILY TRUCK TRAFFIC DIVERSION**

Street Segment	Existing Condition			Long-Term (Year 2035) with Project		
	Truck Count (ADT)	Vehicle Count (ADT)	Truck (%)	Truck Diversion ADT (Δ)	Vehicle Forecast (ADT)	Truck (%)
Olive Street – Maple Street to Pine Street	490	2,940	16%	100 (-390)	6,720	<1%
Pine Street / 10 <sup>th</sup> Street – Olive Street to Main Street	1,210	9,970	12%	820(-390)	11,610	7%
Maple Street / 13 <sup>th</sup> Street – Olive Street to Main Street	0	1,060	0%	390 (+390)	6,600	6%

**General Notes:**

1. No specific growth rate assumed for trucks for Long-Term (Year 2035) with Project scenario.

### 8.48.5 13<sup>th</sup> Street Bridge Design Recommendations

Based on the forecast volumes, the following design elements are recommended to ensure safe, efficient traffic flow along 13<sup>th</sup> Street, Maple Street and Walnut Street. *Figure 8-3* depicts a conceptual design of the below recommendations.

- *Intersection Geometry:* A shared left-through-right lane geometry for all movements at Maple Street / 13<sup>th</sup> Street / Walnut Street intersection is deemed adequate under a two-way stop control. Given the low northbound left-turn demand from 13<sup>th</sup> Street to Walnut Street, a dedicated left-turn lane is not anticipated to be necessary. ~~Given that 13<sup>th</sup> Street includes wide travel lanes (16' lanes and 10' shoulder), northbound/southbound traffic would have a defacto "sneaker" lane when waiting for a gap in oncoming traffic.~~
- *Traffic Control:* A two-way stop control is recommended at the Maple Street / 13<sup>th</sup> Street / Walnut Street intersection. The stop signs are recommended to be installed on the east-west movements (Walnut Street) to ensure the heavier north-south movements (13<sup>th</sup> Street and Maple Street) keep flowing. With a two-way stop control, the intersection would be expected to operate at LOS B under the Long-Term scenario. As an alternative, should the County chooses to install an "all-way" stop control, the intersection would be expected to operate at acceptable LOS. If a traffic signal is chosen, then dedicated left-turns is recommended.
- *Lane Geometry:* A two-lane roadway section (one lane in each direction) on 13<sup>th</sup> Street (south of Walnut Street) is deemed adequate to handle the forecast volumes under the two-way stop control scenario.
- *Lane Widths:* ~~Based on the County of San Diego Public Road Standards (March 2010) for Non-Circulation Element roadways (Industrial / Commercial, 16' travel lanes with an 10' shoulders equating to a curb to curb width of 52' (excluding sidewalks) is recommended as a minimum cross-section. The 13<sup>th</sup> Street bridge is currently under preliminary design. The specific details of lane widths, sidewalks, bike lane and other design elements will be finalized once design is complete.~~



~~Figure 8-3 Conceptual Travelway Design – Minimum Requirements~~

## 9.0 CONSTRUCTION DETOUR AND TRAFFIC MANAGEMENT PLAN

This section discusses Construction Detour and Traffic Management measures recommended to manage and control traffic on Main Street, Walnut Street, Maple Street and 13<sup>th</sup> Street during construction.

- It is recommended that formal construction traffic control plans be prepared based on the County of San Diego Standards and Guidelines.
- During construction of the 13<sup>th</sup> Street Bridge, a portion of 13<sup>th</sup> Street (south of Walnut Street) may be closed. To inform motorists of other potential routes, detour and advance warning signs should be placed on Main Street, Montecito Road, Maple Street and Walnut Street.
- During construction and closure of 13<sup>th</sup> Street, it is expected that through traffic (about 510 ADT) on Maple Street / 13<sup>th</sup> Street would shift to Main Street and 10<sup>th</sup> Street. This may cause additional delays to Main Street and Pine Street / 10<sup>th</sup> Street, especially at the Main Street / 10<sup>th</sup> Street intersection. However, these delay changes are not expected to be significant. The closure would be temporary in nature and not expected to cause impacts to other roadways.
- Construction activities may impact access to or from adjacent land uses. Therefore, businesses should be notified of potential obstructions. Blocked access to nearby properties would require advance coordination with property owners and tenants.
- Construction activities could impede pedestrian and bicyclist movements in the construction area. Therefore, alternative pedestrian access and bicycle routes should be provided and signed/marked appropriately.