

## **APPENDIX G – TRAFFIC IMPACT ANALYSIS**

# **MORENO VALLEY MALL REDEVELOPMENT TRAFFIC IMPACT ANALYSIS**

**MORENO VALLEY, CA**

April 19, 2022



# Moreno Valley Mall Redevelopment Traffic Impact Analysis

## Moreno Valley, CA

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Project Number 26887

April 19, 2022



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# Section 1

## Executive Summary

# EXECUTIVE SUMMARY

This report presents the results of the Traffic Impact Analysis (TIA) and vehicle miles traveled (VMT) analysis for the proposed Moreno Valley Mall (MVM) Redevelopment (project) located immediately south of State Route 60 and between Day Street and Frederick Street, just east of Interstate 215.

## PROJECT OVERVIEW

The project includes new development on the east and north side of the MVM, and redevelopment of some existing spaces. A detailed project description is included in *Section 2, Introduction*. For the purpose of estimating project trips, key project elements include:

- Two hotels totaling 270 rooms.
- Four residential buildings with a total of 1,627 apartment units.
- A 60,000 square foot office building.
- Plaza level retail in three of the residential buildings for a total of 40,000 square feet.
- Removal of the existing 16,344 square foot auto center.

The Project is expected to generate net 9,968 weekday daily vehicle trips, 820 weekday AM peak hour vehicle trips, and 863 weekday PM peak hour vehicle trips. During a Saturday, the project is expected to generate 9,770 daily trips and 868 midday peak hour trips.

The project will be served by Town Circle, which provides access to the surrounding transportation network via Campus Parkway, Memorial Parkway, Heritage Way, and Centerpoint Drive. As shown in the site plan in Figure 2, a fourth leg will be added to the existing three-legged intersections on Town Circle at Heritage Way and Centerpoint Drive to serve trips to and from the site. In addition, existing access points along Town Circle will be condensed into a few key locations to serve the site.

## FINDINGS

### CEQA VMT IMPACT ANALYSIS

Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. Auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion are no longer a basis for determining significant impacts under CEQA. With SB743, VMT became the metric to evaluate a project's significant transportation impacts.

A VMT analysis was prepared for the project based on the metrics, thresholds, and criteria outlined in the City's transportation analysis guidelines to evaluate land use and transportation projects from a VMT standpoint. As part of its VMT guidelines, the City has adopted screening criteria, which can be used to quickly identify when a project or a portion of a mixed-use project should be expected to cause a less-than-significant impact related to VMT and would not require a detailed VMT analysis. Based on a review of the City's VMT screening criteria, this mixed-use project's retail and hotel portions can be screened out of a VMT analysis under the City's project type screening. The retail portion is less than 50,000 square feet and would primarily serve local residential uses; the hotel portion is intended to be a local-serving (non-destination) hotel. The remaining components of this mixed-use project (residential and office) would not be screened out and would require a VMT analysis using their respective impact thresholds of significance. Given that the mixed-use project's residential and office components do not screen out, they must undergo a VMT impact assessment under City guidelines. Potential project VMT impacts were assessed

using the RIVTAM model. The following summarizes the results of the VMT analysis for the residential and office components of the project:

- **Residential Component:** According to the RIVTAM model's interpolated data, the existing average citywide VMT per capita is 15.60 VMT per capita; the proposed project is expected to generate 9.41 VMT per capita. Given that the VMT per capita for the project's residential component does not exceed the citywide VMT per capita, then the project's residential component is expected to result in **less-than-significant VMT impacts**.
- **Office Component:** According to the RIVTAM model's interpolated data, the existing average citywide VMT per employee is 4.54 VMT per employee; the proposed project is expected to generate 3.05 VMT per employee. Given that the VMT per employee for the project's office component does not exceed the citywide VMT per employee, then the project's office component is expected to result in **less-than-significant VMT impacts**. (Note, the RIVTAM model did not exhibit sensitivity to home-based work trips in the project's office component TAZ. Therefore, the work VMT per employee for the area bound by Towngate Boulevard, Day Street, Frederick Street, and SR-60 was used instead).

A cumulative impact consists of an impact which is created as a result of the combination of the project with other projects causing related impacts. A project has cumulatively considerable environmental effects (i.e., is significant) when the incremental effects of the project are significant when viewed in connection with the effects of other projects, including probable future projects. Potential cumulative VMT impacts were assessed under horizon year 2040 conditions per City's guidelines. All project components, including the residential and office portions are anticipated to result in **less-than-significant cumulative VMT impacts**.

Given that the project's retail and hotel components were screened out of a VMT analysis and the residential and office components resulted in less-than-significant VMT impacts and less-than-significant cumulative VMT impacts, **no mitigation measures are needed**.

## NON-CEQA OPERATIONAL ANALYSIS

An operational analysis was conducted to review roadway operations and needed improvements. Per SB743, roadway capacity such as intersection and roadway LOS is no longer a criteria to identify potential transportation impacts under CEQA. The following was not prepared as part of the environmental review under CEQA; the improvements identified below are meant to meet target LOS for roadways and intersections to reduce traffic congestion, rather than mitigation measures to reduce a potential significant environmental impacts. The TIA studied operations at twenty existing intersection, five future access points, seven roadways, and four freeway mainline segments under the following scenarios:

- Existing conditions, based on counts conducted in 2021 and 2022
- Year 2026 background conditions, which accounts for cumulative projects and an annual growth of 1.5% across all study intersections, roadways, and freeway segments
- Year 2026 total traffic conditions, which adds trips generated by the proposed project to the background volumes
- Year 2040 background conditions, which accounts for expected growth in traffic volumes based on the RIVTAM model and cumulative projects
- Year 2040 total traffic conditions, which adds trips generated by the proposed project to the background volumes

The findings of the operational assessment are described below for the study intersections, roadways, and freeway segments.

## Intersection Operations

Table 1 presents the ten intersections not meeting LOS standards in one or more analysis scenarios, including the time periods the standards are not met. The intersections in the table meet the criteria set by the City of Moreno Valley and Riverside for when a project should identify improvements. These criteria are described in *Section 3: Methodology and Evaluation Criteria*.

**Table 1. Intersections not Meeting Standards**

Intersection	Jurisdiction	Traffic Control	LOS Std	Peak Hours not Meeting Standards (LOS)				
				Existing	2026 Back-ground	2026 Total Traffic	2040 Back-ground	2040 Total Traffic
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	-	-	PM (F)	-	-
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	-	PM (F), Sat Mid (F)	PM (F), Sat Mid (F)	AM (E), PM (F), Sat Mid (F)	AM (E), PM (F), Sat Mid (F)
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	Sat Mid (E)	Sat Mid (F)	PM (E), Sat Mid (F)	PM (E), Sat Mid (F)	PM (F), Sat Mid (F)
6. Day St/ Campus Pkwy	Riverside	Signal	D	-	Sat Mid (E)	Sat Mid (E)	PM (E), Sat Mid (F)	PM (E), Sat Mid (F)
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	-	-	-	AM (F), PM (F), Sat Mid (F)	AM (F), PM (F), Sat Mid (F)
9. Memorial Way/Town Cir	MV	AWSC	D	-	-	Sat Mid (E)	Sat Mid (E)	Sat Mid (E)
12. Heritage Way/Town Circ	MV	AWSC	D	-	-	Sat Mid (E)	-	Sat Mid (E)
16. Frederick St/ SR- 60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	-	-	-	Sat Mid (F)	Sat Mid (F)
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	-	-	-	-	PM (E)
E. Access E/Town Circ	MV	TWSC	D	-	-	Sat Mid (F)	-	Sat Mid (F)

## Roadway Segment Operations

All roadway segments studied meet LOS standards under existing conditions. Under both background and total traffic conditions in 2026, one of the segments on Day Street is projected to not meet standards on either a weekday or Saturday. In 2040, segments on both Day Street and Frederick Street are projected to not meet standards under either background or total traffic conditions.

One segment meets the City of Moreno Valley's threshold for when a project should identify improvements on a roadway segment, which is when the project adds traffic more than 5% of the roadway capacity. This is the segment on Frederick Street between Towngate Boulevard and Eucalyptus Avenue. Frederick Street is four lanes with a median and turn lanes. Given the lack of right-of-way for widening Frederick Street, the project could contribute to ITS (intelligent transport system) improvements on Frederick Street, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.

## Freeway Operations

All freeway segments of SR-60 and I-215 analyzed are forecasted to operate at a LOS D or better during all peak periods in all scenarios.

# RECOMMENDED IMPROVEMENTS

Table 2 lists potential improvements, by location, for the intersections and roadway segment where the project meets the City of Riverside or Moreno Valley thresholds for identifying improvements to offset the increase in delay (for intersections) or volume-to-capacity ratio (for roadways) with the project. This initial list of improvements will be discussed with the appropriate agencies and refined accordingly.

**Table 2. Recommended Improvements**

Location	Potential Improvement
1. I-215 Ramps/ Eucalyptus Ave	Signal retiming.
2. Valley Springs Pkwy/ Eucalyptus Ave	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the southbound right turn movement and restriping to provide a second northbound left turn lane.
5. Day St/ Canyon Springs Pkwy	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the westbound right turn movement. Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
6. Day St/ Campus Pkwy	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the westbound right turn movement. Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
7. Day St/ Eucalyptus Ave	Contribute to improvements identified in the Canyon Springs TIA, including restriping to provide a northbound right turn lane and modifications to provide overlap phasing for the northbound right movement.
9. Memorial Way/Town Cir	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
12. Heritage Way/Town Circ	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Contribute a proportionate share of construction of an eastbound right turn lane or ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
19. Frederick St/ Eucalyptus Ave	Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
E. Access E/Town Circ	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
Roadway segment: Frederick Street between Towngate Boulevard and Eucalyptus Avenue	Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.



## Section 2 Introduction

# INTRODUCTION

This report presents the methodology, development plans, operations analysis findings, and recommended mitigation measures for the Moreno Valley Mall Redevelopment.

## PURPOSE

This report satisfies the requirements for a traffic impact analysis (TIA) as outlined in the City of Moreno Valley Transportation Engineering Division Transportation Impact Analysis Preparation Guide (Reference 1), including both a level of service (LOS) assessment and a vehicle miles traveled (VMT) assessment. It fulfills the requirements per the California Environmental Quality Act (CEQA), which includes identifying whether the project may significantly increase VMT, and identifies whether the project is consistent with programs, plans, ordinances, and policies related to pedestrian, bicyclist, and transit facilities. The scope of the TIA was developed through conversations with City of Moreno Valley Staff, as well as information provided by the City of Riverside and Caltrans. The approved Scoping Memo for the project is included in Appendix A.

## PROPOSED PROJECT

### LOCATION

The Project consists of revitalization and redevelopment of a portion of the existing Moreno Valley Mall (MVM), located at 22500 Town Circle in the City of Moreno Valley. The revitalization and redevelopment project excludes the existing JC Penny and Macy's parcels.

The MVM is bounded by a loop road (Town Circle), located just south of the SR-60 and east of the I-215. Regional access is from Frederick Street from the east, Day Street from the west, and Eucalyptus Avenue/Towngate Boulevard to the south. The site vicinity is shown in Figure 1.

**Figure 1. Site Vicinity**



## PROJECT DESCRIPTION

The project includes new development on the east and northwest side of the MVM, and redevelopment of some existing spaces. Key project elements include:

- Mall Revitalization – the existing mall will be re-modeled with enhanced interiors elements and certain facade improvements, in addition to repurposing the existing Gottschalks building as new retail, and repurposing the existing Sears building for multi-tenant retail and related uses (see below).
- Multifamily Units – approximately 1,627 multi-family (MF) dwelling units, including four MF communities in the southeastern mall area totaling 1,377 DU and a MF community in the northwest mall area totaling 250 DU). The buildings in the southeastern mall area would include approximately 40,000 square foot of first floor retail.
- Hospitality District – two hotel operations (Hotel A and Hotel B) within a single hotel building totaling 270 hotel rooms and a restaurant and conference center in the eastern mall entrance area.
- Office – to define the primary entry from Centerpoint Drive, one office building consisting of 60,000 square feet of 3 levels or more is proposed to allow for the expansion of employment opportunities within the City of Moreno Valley. The office space provides the potential for medical offices, educational, or professional services development.
- Food Market – the existing “Food Court” will be redeveloped into a new interior and exterior “pavilion” style Food Market, in conjunction with redesigning the existing Sears building to allow for multi-tenant retail and related uses.
- Theater and Dining District – the existing interior and exterior area between the existing cinema and the former Gottschalks building will be redesigned to include outdoor dining on a patio.
- New Parking Structures – a new parking structure is proposed adjacent to the existing Gottschalks building as well as adjacent to proposed residential buildings. The existing single level podium parking east of the theater will remain.
- Open Space Improvements – A central plaza and public open space will be developed to provide for a community gathering place and connect pedestrian access to the Moreno Valley Mall and surrounding proposed buildings.
- Infrastructure Updates – multiple transit stations are proposed to be dispersed and relocated to the north perimeter of the property to serve and connect various user destinations. Type and number may be adjusted with the intent to maintain ring road transfer stops and pedestrian connections.

Access to the site is provided via Town Circle, which is connected to the broader roadway network via Campus Parkway on the west, Centerpoint Drive to the east, and Memorial Way and Heritage Way to the south.

Construction is expected to be initiated in mid-2023, with individual uses completed between early 2024 and 2026. The site plan is provided in Figure 2.



**Figure 2. Site Plan**

## LAND USE AND ZONING

The existing zoning is Commercial, which includes a range of commercial uses. As shown in the City of Moreno Valley's Zoning Map<sup>1</sup> (Reference 2), the project site future zoning is Center Mixed Use and Mixed-Use and is envisioned to be integrated, pedestrian oriented places with a mix of uses including retail, dining, entertainment, offices, lodging, high density residential, recreational, and cultural facilities that cater to both motorists passing through and residents of surrounding neighborhoods. The SPA, upon adoption by the City Council, would become the zoning for the property and would define the allowable uses within its boundaries.

MVM has evolved over several decades, from the original shopping center to the present mall of approximately 83 acres with approximately 1.03-million square feet of existing commercial uses. MVM makes up Planning Area 2 (PA2) within the Towngate 200 Specific Plan (SP-200), which was originally approved by the City Council on October 27, 1987, and subsequently amended. Amendment 3, approved in 1991, re-targeted PA2 land use to more commercial retail uses.

This Specific Plan Amendment (SPA) is a modification to SP-200, creating PA 2A that will consist of approximately 61.4-acres, with private internal driveways, parking facilities, private and public infrastructure. The SPA will establish the standards and guideline for further development and redevelopment of PA 2A.

The SPA designation further defines the Center Mixed Use as Regional/Mixed-use Commercial, described as providing the commercial needs of the region, as well as the neighborhood and community and serves as the focal point of the community – connecting the Civic Center, Town Center and residential uses. Alternative uses permitted other than a commercial can be uses specified under Highway, Mixed Use, and Community Commercial and Office within the Towngate 200 Specific Plan.

The General Plan allows the Floor Area Ratio (FAR) to be calculated on a site. The General Plan's Center Mixed Use designation would allow up to 3.34-million square feet of mixed uses, inclusive of 2,150 residential uses, based on the maximum FAR of 1.25 and maximum of 30 units per acre over 61.4-acres of PA2. As proposed, the PA2 redevelopment falls within the maximum allowed in the General Plan. No General Plan Amendment is required or proposed.

## STUDY AREA

The study area includes intersections and roadways within the City of Riverside and Moreno Valley, identified through the scoping process with Moreno Valley and included in the Scoping Agreement in Appendix A. Study intersections are listed below, with the jurisdiction shown in parentheses, where Moreno Valley is abbreviated as "MV".

1. I-215 Freeway Ramps/Eucalyptus Avenue (Caltrans)
2. Valley Springs/Eucalyptus Avenue (Riverside)
3. Day Street/SR-60 WB Ramps (Caltrans)
4. Day Street/SR-60 EB Ramps (Caltrans)
5. Day Street/Canyon Springs Parkway (Riverside)
6. Day Street/Campus Parkway (Riverside)
7. Day Street/Eucalyptus Avenue (Riverside)
8. Town Circle/Campus Parkway (Moreno Valley)
9. Memorial Way/Town Circle (MV)
10. Memorial Way-Eucalyptus Avenue/ Towngate Boulevard (MV)\_
11. Heritage Way/Town Circle (MV)
12. Heritage Way/Towngate Boulevard (MV)
13. Pigeon Pass Road/Hemlock Avenue (MV)
14. Frederick Street/SR-60 EB On-Ramp (Caltrans)
15. Frederick Street/SR-60 EB Off-Ramp– Sunnymead Boulevard (Caltrans)
16. Frederick Street/Centerpoint Drive (MV)
17. Frederick Street/Towngate Boulevard (MV)
18. Frederick Street/Eucalyptus Avenue (MV\_
19. SR-60 WB Off Ramp/Hemlock Avenue (Caltrans)

<sup>1</sup> Available at [https://moval.gov/city\\_hall/general-plan2040/NewZoning.pdf](https://moval.gov/city_hall/general-plan2040/NewZoning.pdf)

## 11. Town Circle/Centerpoint Drive (MV)

Study roadways are:

- A. Day Street, with segments analyzed between the SR-60 WB Ramp and Eucalyptus Avenue (Riverside)
- B. Eucalyptus Avenue, with segments analyzed from the I-215 Ramps to Towngate Boulevard (Riverside/MV)
- C. Town Circle from Campus Parkway to Centerpoint Drive (MV)
- D. Centerpoint Drive between Town Circle and Frederick Street (MV)
- E. Towngate Boulevard between Eucalyptus Avenue and Frederick Street (MV)
- F. Pigeon Pass Road between Hemlock Avenue and Sunnymead Boulevard (MV)
- G. Frederick Street, with segments analyzed between Sunnymead Boulevard and Eucalyptus Avenue (MV)

Study freeway mainline segments are:

- a) SR-60 between the Day Street Ramp (Caltrans)
- b) SR-60 east of the Frederick Street Ramps (Caltrans)
- c) I-215 from SR-60 to Eucalyptus Avenue Ramps (Caltrans)
- d) I-215 south of the Eucalyptus Avenue Ramps (Caltrans)

The freeway mainline segments were selected based on where volume data is available from the Caltrans Performance Measurement System (PeMS) and where the site adds the most significant number of vehicle trips.

## ANALYSIS SCENARIOS

The TIA includes an assessment of study intersection and roadway operations during the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour under the following analysis scenarios:

- Existing Conditions
- 2026 Conditions without Project (Opening Year)
- 2026 Conditions with Project (Opening Year)
- 2040 Conditions without Project (General Plan Build-Out)
- 2040 Conditions with Project (General Plan Build-Out)



# Section 3

## Roadway Capacity Analyses

### Methodologies

# METHODOLOGY AND EVALUATION CRITERIA

This section provides an overview of the methodology for the transportation analysis related to roadway capacity. The following discusses the analysis software and approach as well as the performance standards and evaluation criteria for the level of service analyses. The vehicle miles traveled impact analyses are discussed in *Section 13: Vehicle Miles Traveled (VMT) Analysis*.

## ANALYSIS SOFTWARE AND APPROACH

All intersection operations analyses described in this report were performed in accordance with the procedures stated in the 6<sup>th</sup> Edition Highway Capacity Manual (HCM, Reference 3) using Synchro 10 software, with the exception of the SR-60 WB Off Ramp/Hemlock Avenue intersection. Synchro is unable to analyze shared left and through lanes using the 6<sup>th</sup> Edition of the HCM, so this intersection was assessed using the 2000 Edition of the HCM.

Peak 15-minute flow rates were used in the evaluation of all intersection levels of service to provide analyses based on a reasonable worst-case scenario. The peak hours were identified as the worse four consecutive 15-minute periods between 7 and 9 AM and between 4 and 6 PM on weekdays, and between 1 to 3 PM on Saturdays. These represent the critical time periods for evaluation based on peak demand on the surrounding transportation system and the peak demand associated with the project. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. During all other periods, the transportation system likely will operate under conditions better than the conditions described in this report.

Per the City of Moreno Valley Transportation Impact Analysis Preparation Guide (Reference 1), the following were used in the analysis:

- Saturation flow rate HCM default of 1,900 passenger cars per hour lane per lane.
- Heavy vehicle factor HCM default of 3%.
- Lane width HCM default of 12 feet.
- Grade based on estimate from Google Earth, based on HCM default values for flat (0%), moderate (3%) and steep (6%).
- Speeds based on posted speed limits.
- Turn bay lengths based on striped storage length measured from Google Earth.
- Existing signal timing based on current plans, included in Appendix B. Cycle lengths and split times were optimized for the year 2040 analysis, with an upper limit of 120 seconds for the cycle length.
- Intersection peak hour factors based on count data for existing conditions and set to 0.95 for future conditions where existing peak hour factors are less than 0.95.
- Pedestrian and bicycle crossing volumes based on count data.
- No adjustments made for on-street parking or buses.

The freeway mainline segments were assessed using Highway Capacity Software (HCS) 7, which implements the 6<sup>th</sup> Edition of the HCM.

# INTERSECTION ANALYSIS

## INTERSECTION LEVEL OF SERVICE

Operations at the study intersections were assessed to determine both level-of-service (LOS) and volume-to-capacity ratio. Both Riverside and Moreno Valley use performance standards based on LOS. LOS describes the operating conditions experienced by users of a facility. Level of service (LOS) is a qualitative measure of the effect of several factors, including speed, travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated "A" through "F," from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity while LOS F represents over capacity or forced flow conditions. In general, LOS D or better is considered acceptable while LOS E and LOS F are not. These conditions are generally described in Table 3.

**Table 3. General Level of Service Definitions**

LOS	Description
A	<b>Free Flow or Insignificant Delays:</b> Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	<b>Stable Operation or Minimal Delays:</b> The ability to maneuver within the traffic stream is only slightly restricted, and control delay at signalized intersections are not significant.
C	<b>Stable Operation or Acceptable Delays:</b> The ability to maneuver and change lanes is somewhat restricted, and average travel speeds may be about 5 percent of the free flow speed.
D	<b>Approaching Unstable or Tolerable Delays:</b> Small increases in flow may cause substantial increases in delay and decreases in travel speed.
E	<b>Unstable Operation or Significant Delays:</b> Significant delays may occur, and average travel speeds may be 33 percent or less of the free flow speed.
F	<b>Forced Flow or Excessive Delays:</b> Congestion, high delays, and extensive queuing occur at critical signalized intersections with urban street flow at extremely low speeds.

Source: *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2016

Intersection analysis was conducted using the operational methodology outlined in the HCM at all intersections, as operationalized by the Synchro version 10 software tool. The HCM procedure calculates a weighted average stop delay in seconds per vehicle at a signalized and all-way stop-controlled intersections and assigns a level of service designation based on the delay. At two-way stop-controlled intersections, LOS is defined for each minor-street movement and the major-street left turns, as opposed to the intersection as a whole (given that major-street through vehicles are assumed to experience zero delay). Table 4 presents the relationship of average delay to level of service for signalized intersections, two-way stop-controlled (TWSC) intersections, and all-way stop-controlled (AWSC) intersections. As shown, the thresholds are different at TWSC and AWSC intersections compared to signals, because user perceptions differ among transportation facility types and "unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable than they are at signals" (Reference 3).

**Table 4. Intersection Level of Service Definitions**

LOS	Average Delay Per Vehicle (Seconds)	
	Signal	TWSC/AWSC
A	≤10.0	≤10.0
B	>10.0 and ≤20.0	>10.0 and ≤15.0
C	>20.0 and ≤35.0	>15.0 and ≤25.0
D	>35.0 and ≤55.0	>25.0 and ≤35.0
E	>55.0 and ≤80.0	>35.0 and ≤50.0

LOS	Average Delay Per Vehicle (Seconds)	
	Signal	TWSC/AWSC
F	>80.0	>50.0

Source: Highway Capacity Manual 6<sup>th</sup> Edition (Reference 3)

## INTERSECTION QUEUES

Expected intersection queues and how they compare to intersection geometry and available queue storage influences traffic operations. The 95<sup>th</sup> percentile queues, as reported by Synchro 10, were used to assess queuing at all study intersections. The 95<sup>th</sup> percentile queue lengths represent the maximum back of queue that are statistically not exceeded in 95% of intersection operating cycles. The queue storage was estimated based on the striped queue storage shown in Google Earth.

## ROADWAY SEGMENT ANALYSIS

Moreno Valley and Riverside each define roadway level of service based on daily volume thresholds and the type of roadway, as shown in Table 5 and Table 6.

**Table 5. Moreno Valley Roadway Segment Capacity**

Type of Roadway	Level of Service*				
	A	B	C	D	E
6 Lane Divided Arterial	33,900	39,400	45,000	50,600	56,300
4 Lane Divided Arterial	22,500	26,300	30,000	33,800	37,500
4 Lane Undivided Arterial	15,000	17,500	20,000	22,500	25,000
2 Lane Industrial Collector	7,500	8,800	10,000	11,300	12,500
2 Lane Undivided Residential	N/A	N/A	N/A	N/A	2,000

\* - Maximum Average Daily Traffic (ADT)

NOTE: These roadway capacities are "rule of thumb" estimates for planning purposes. The LOS "E" service volumes are estimated maximum daily capacity for respective classifications. Capacity is affected by such factors as intersections (spacing, configuration, and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic), and pedestrian and bicycle traffic. Source: City of Moreno Valley TIA Preparation Guide (Reference 1)

**Table 6. City of Riverside Roadway Segment Capacity (1)**

Roadway Classification	Number of Lanes	Two-Way Traffic Volumes (ADT) <sup>(2)</sup>		
		Service Level C	Service Level D	Service Level E
Local	2	2,500-2,799	2,800-3,099	3,100+
Collector (66' or 80')	2	9,900-11,199	11,200-12,499	12,500+
Arterial <sup>(3)</sup>	2	14,400-16,199	16,200-17,999	18,000+
Arterial (88')	4	16,800-19,399	19,400-21,199	22,000+
Arterial (100')	4	26,200-29,599	29,600-32,999	33,000+
Arterial (120')	6	38,700-44,099	44,100-49,499	49,500+
Arterial (144')	8	50,600-57,799	57,800-64,999	65,000+

(1) All capacity figures are based on optimum condition and are intended as guidelines for planning purposes only

(2) Maximum two-way ADT values are based on the 1999 Modified Highway Capacity Manual Level of Service Tables

(3) Two-lane roadways designated as future arterials that conform to arterial design standards for vertical and horizontal alignments are analyzed as arterials

Source: City of Riverside TIA Guidelines (Reference 4)

## FREEWAY MAINLINE ANALYSIS

The freeway analysis was conducted using the software HCS 7 to implement the HCM 6<sup>th</sup> Edition methodology for basic freeway segments. This methodology analyzes a uniform section of roadway by direction (e.g. northbound, southbound, eastbound, or westbound).

For the freeway segments, the HCM defines LOS based on density, expressed in vehicles per mile per lane (pc/mi/ln). As stated in the HCM, “density describes a motorist’s proximity to other vehicles and is related to a motorist’s freedom to maneuver within the traffic stream.” While LOS A describes free-flow operations, LOS F describes unstable flow. Table 7 provides the LOS criteria for basic freeway segments.

**Table 7: Level of Service Criteria for Basic Freeway Segments**

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	Demand exceeds capacity OR density >45

Notes: LOS = level of service, pc/mi/ln = passenger cars per mile per lane  
 Source: Highway Capacity Manual 6<sup>th</sup> Edition (Reference 3)

## PERFORMANCE STANDARDS AND EVALUATION CRITERIA

The following refers to the roadway capacity analyses performance standards and evaluation criteria. The analyses performed to evaluate vehicle miles traveled is included in *Section 13: Vehicle Miles Traveled (VMT) Analysis*.

### MORENO VALLEY

Per the City of Moreno Valley *Transportation Impact Analysis Preparation Guide*, the City of Moreno Valley General Plan has established minimum Level of Service standards for its roadway network. As stated in the TIA Preparation Guide, “LOS D is applicable to intersections that are adjacent to freeway on/off ramps, and adjacent to employment generating land uses. LOS C is applicable to all other intersections. For boundary intersections, LOS D is assumed to be acceptable.”

The guide also provides guidance for when projects shall identify improvements to intersections and roadways, noted below.

#### **Signalized Intersections**

- “Any signalized study intersection operating at acceptable LOS without project traffic in which the addition of project traffic causes the intersection to degrade to unacceptable LOS shall identify improvements to provide acceptable LOS.
- Any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.”



## Unsignalized Intersections

At unsignalized intersections, the guide states that “an operational improvement would be required if the study determines that either section a) or both sections b) and c) occur:

a) The addition of project related traffic causes the intersection to degrade from an acceptable LOS to unacceptable LOS.

OR

b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at unacceptable LOS,

AND

c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

If the conditions above are satisfied, improvements should be identified that achieve “LOS D or better for case a) above or to pre-project LOS and delay for case b) above.”

## Roadway Segments

The guide provides the following for roadway segments:

- “Any study roadway segment operating at acceptable LOS without project traffic in which the addition of project traffic causes the segment to degrade to unacceptable LOS should identify improvements to achieve acceptable LOS.
- Any roadway segment that operates at unacceptable LOS in the no project scenario where the project adds traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05) should identify improvements to add capacity to the segment.”

## RIVERSIDE

The following criteria applies for study intersections and roadways within City of Riverside jurisdiction, which are listed in Table 6. The City of Riverside provides performance criteria in the Riverside General Plan 2025 (Reference 5). It states that “The City will strive to maintain LOS D or better on arterial streets wherever possible. At some key locations, such as City arterial roadways which are used as a freeway bypass by regional through traffic and at heavily traveled freeway interchanges, LOS E may be acceptable as determined on a case-by-case basis. Locations that may warrant the LOS E standard include portions of Arlington Avenue/Alessandro Boulevard, Van Buren Boulevard throughout the City, portions of La Sierra Avenue and selected freeway interchanges.”

As stated in the City’s Traffic impact Analysis Guidelines (Reference 4), “operational improvements are required when the addition of project related trips causes either peak hour LOS to degrade from acceptable (A through D) to unacceptable levels (E or F) or the peak hour delay to increase as follows:

- LOS A/B By 10 seconds
- LOS C By 8 seconds
- LOS D By 5 seconds
- LOS E By 2 seconds
- LOS F By 1 seconds”

For roadway segments, the guide states that “the following roadway segments should be considered and improvements recommended if the project exceeds the noted operation goals:

- Any study roadway segment operating at a LOS D or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS E or F should identify improvements to achieve LOS D.
- Any roadway segment that operates unacceptably in the no project scenario where the project adds traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05) should identify operation improvements (such as fiber optic interconnect, CCTV, traffic signal controller improvements) to improve operations."

## CALTRANS

Freeway segments and intersections associated with freeway on- and off-ramps fall under Caltrans jurisdiction. Caltrans updated its guidance in 2020 to include metrics to evaluate transportation impacts based on vehicle miles traveled (VMT) and no longer sets a minimum acceptable LOS for its facilities. Based on the Caltrans *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (Reference 6), Caltrans is transitioning away from LOS performance standards and instead focused on VMT to identify significant impacts.

"For land use projects and plans, automobile delay is no longer considered a significant impact on the environment under CEQA (SB 743, 2013). Caltrans review of land use projects and plans is focused on a VMT metric, consistent with changes to the CEQA Guidelines (California Code of Regulations Section 15064.3(b)(1)). This VMT-focused TISG provides a foundation for review of how lead agencies apply the VMT metric to CEQA project analysis.

Beyond or in addition to the use of the VMT metric, determining how the State Highway System may otherwise be affected by a land use project may still be necessary at times, particularly as it relates to the safety of the traveling public. Additional future guidance will include the basis for requesting transportation impact analysis that is not based on VMT. This guidance will include a simplified safety analysis approach that reduces risks to all road users and focuses on multi-modal conflict analysis as well as access management issues. With this guidance the Department will transition away from requesting LOS or other vehicle operations analyses of land use projects."

In the absence of a LOS standard from Caltrans, at the ramp intersections the LOS standards for Riverside County from the Riverside County Long Range Transportation Study (Reference 7) were used. The study states:

"Most local agencies in Riverside County and Caltrans have adopted Level of Service (LOS) standards of "C" or "D" to maintain a desired LOS for the local circulation system. To address CMP requirements, RCTC approved a minimum traffic LOS standard of "E.""

Caltrans no longer uses a LOS standard to evaluate impacts for its facilities under CEQA, and as previously stated the City of Riverside allows LOS E at certain freeway interchanges intersections. Therefore for the purpose of this analysis, and consistent with the LOS E standard historically used in RCTC's CMP, LOS E is acceptable for freeway intersections under Caltrans jurisdiction.

## PERFORMANCE STANDARDS TABLE

The jurisdiction, traffic control or classification, and performance standard for each study intersection and segment are provided in Table 8.

**Table 8. Study Intersection and Segment Performance Standards**

Study Intersection/Segment	Jurisdiction	Traffic Control/Classification	Performance Standard
1. I-215 Freeway Ramps/Eucalyptus Avenue	Caltrans	Signalized	E
2. Valley Springs/Eucalyptus Avenue	Riverside	Signalized	D
3. Day Street/SR-60 WB Ramps	Caltrans	Signalized	E
4. Day Street/SR-60 EB Ramps	Caltrans	Signalized	E
5. Day Street/Canyon Springs Parkway	Riverside	Signalized	D
6. Day Street/Campus Parkway	Riverside	Signalized	D
7. Day Street/Eucalyptus Avenue	Riverside	Signalized	D
8. Town Circle/Campus Parkway	Moreno Valley	All-way-stop-control	D
9. Memorial Way/Town Circle	Moreno Valley	All-way-stop-control	D
10. Memorial Way-Eucalyptus Avenue/Towngate Boulevard	Moreno Valley	Signalized	D
11. Town Circle/Centerpoint Drive	Moreno Valley	Signalized	D
12. Heritage Way/Town Circle	Moreno Valley	All-way-stop-control	D
13. Heritage Way/Towngate Boulevard	Moreno Valley	Signalized	D
14. Pigeon Pass Road/Hemlock Road	Moreno Valley	Signalized	D
15. Frederick Street/SR-60 EB On-Ramp	Caltrans	Signalized	E
16. Frederick Street/ SR-60 EB Off-Ramp – Sunnymead Boulevard	Caltrans	Signalized	E
17. Frederick Street/Centerpoint Drive	Moreno Valley	Signalized	D
18. Frederick Street/Towngate Boulevard	Moreno Valley	Signalized	D
19. Frederick Street/Eucalyptus Avenue	Moreno Valley	Signalized	D
20. SR-60 WB Off Ramp/Hemlock Avenue	Caltrans	Signalized	E
A. Day Street between the SR-60 WB Ramp and Eucalyptus Avenue	Riverside	Arterial 120'	D
B1. Eucalyptus Avenue from I-215 Ramps to Day Street	Riverside	Arterial 120'	D
B2. Eucalyptus Avenue from Day Street to Towngate Boulevard	Moreno Valley	4 Lane Divided Arterial	D
C. Town Circle from Campus Parkway to Centerpoint Drive	Moreno Valley	Not shown (4 Lane Undivided Arterial) <sup>1</sup>	D
D. Centerpoint Drive between Town Circle and Frederick Street	Moreno Valley	Not shown (6 Lane Divided Arterial) <sup>1</sup>	D
E. Towngate Boulevard between Eucalyptus Avenue and Frederick Street	Moreno Valley	4 Lane Divided Arterial	D
F. Pigeon Pass Road between Hemlock Avenue and Sunnymead Boulevard	Moreno Valley	6 Lane Divided Arterial <sup>2</sup>	D
G1. Frederick Street between Sunnymead Boulevard and Centerpoint Drive	Moreno Valley	6 Lane Divided Arterial <sup>2</sup>	D

Study Intersection/Segment	Jurisdiction	Traffic Control/ Classification	Performance Standard
G2. Frederick Street between Centerpoint Drive and Eucalyptus Avenue	Moreno Valley	4 Lane Divided Arterial	D
(a) SR-60 between the Day Street Ramps	Caltrans	Freeway/ Expressway	N/A
(b) SR-60 east of the Frederick Street Ramps	Caltrans	Freeway/ Expressway	N/A
(c) I-215 from SR-60 to Eucalyptus Avenue Ramps	Caltrans	Interstate	N/A
(d) I-215 south of the Eucalyptus Avenue Ramps	Caltrans	Interstate	N/A

N/A – not applicable, as Caltrans has moved away from LOS criteria

<sup>1</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>2</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

### Queuing Evaluation Criteria

Queuing conditions are considered substantial if trips generated by the Project cause the 95<sup>th</sup> percentile queue lengths at nearby intersections to exceed the available capacity.



## Section 4 Existing Roadway Network and Traffic Conditions

# EXISTING ROADWAY NETWORK AND TRAFFIC CONDITIONS

This section provides a summary of the existing roadway network, including operations at the study intersections, roadway segments, and freeway mainline segments.

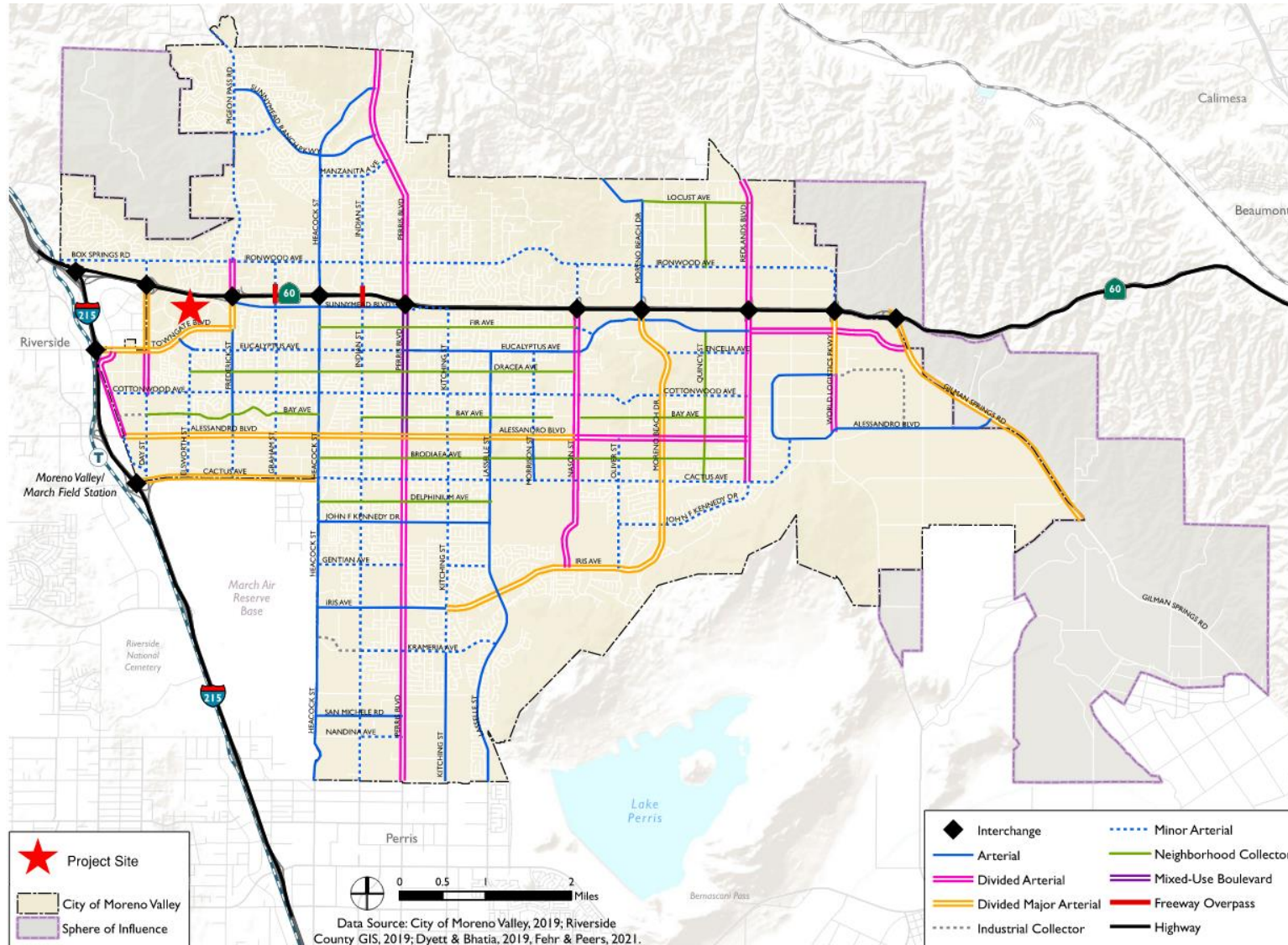
In consultation with City of Moreno Valley staff as detailed in the scoping agreement, a total of 20 intersections, six roadway segments, and four freeway segments were selected for the purposes of this analysis, as discussed in Section 2. Introduction.

The roadway system in the study area consists of several roadway functional classification categories as categorized in the City of Moreno Valley General Plan Circulation Element (Reference 8) and illustrated in Figure 3. A description of the roadway functional classifications, as defined in the General Plan Circulation Element, and corresponding study roadways are listed below:

- **Freeways** generally provide high-speed, high-capacity inter-regional access, and are controlled by the California Department of Transportation (Caltrans); improvements in Riverside County are programmed through the Riverside County Transportation Commission (RCTC). Within the study area, State Route 60 (SR-60) has three to four travel lanes in each direction as well as auxiliary weaving lanes. There are SR-60 on- and off-ramps at Day Street and at Pigeon Pass Road/Frederick Street. Within the study area, Interstate 215 (I-215) has three travel lanes in the northbound direction and three to four travel lanes in the southbound direction. There are I-215 ramps at Eastridge Avenue/Eucalyptus Avenue.
- **Divided major arterials** generally consist of up to 134 feet of right-of-way; in the study area, they have two to three travel lanes in each direction with a two-way left-turn lane or a raised median. Within the study area, divided major arterials consist of Day Street (between SR-60 and Eucalyptus Avenue), Eucalyptus Avenue, Towngate Boulevard, and Frederick Street (between SR-60 and Towngate Boulevard).
- **Divided arterials** generally consist of up to 110 feet of right-of-way; in the study area, they have one to two lanes in each direction and can include a two-way left-turn lane. Within the study area, divided arterials consist of Pigeon Pass Road (between Ironwood Avenue and SR-60), Day Street (between Eucalyptus Avenue and Cottonwood Avenue), and Old 215 Frontage Road (south of Eucalyptus Avenue).
- **Arterials** generally consist of up to 100 feet of right-of-way; in the study area, they have two lanes in each direction with a two-way left-turn lane. Within the study area, arterials consist of Eucalyptus Avenue (between Towngate Boulevard and Elsworth Street) and Frederick Street (south of Eucalyptus Avenue).
- **Minor arterials** generally consist of up to 88 feet of right-of-way; in the study area, they have one to two lanes in each direction and can include a two-way left-turn lane. Within the study area, minor arterials consist of Day Street (north of SR-60), Elsworth Street (south of Eucalyptus Avenue), and Eucalyptus Avenue (east of Elsworth Street).
- **Neighborhood collectors** are residential streets that prioritize low vehicle speeds and low-stress bicycle and pedestrian use on parallel route to arterials. Within the study area, Dracaea Street (east of Elsworth Street) is a neighborhood collector with one travel lane in each direction without a raised median or two-way left-turn lane.

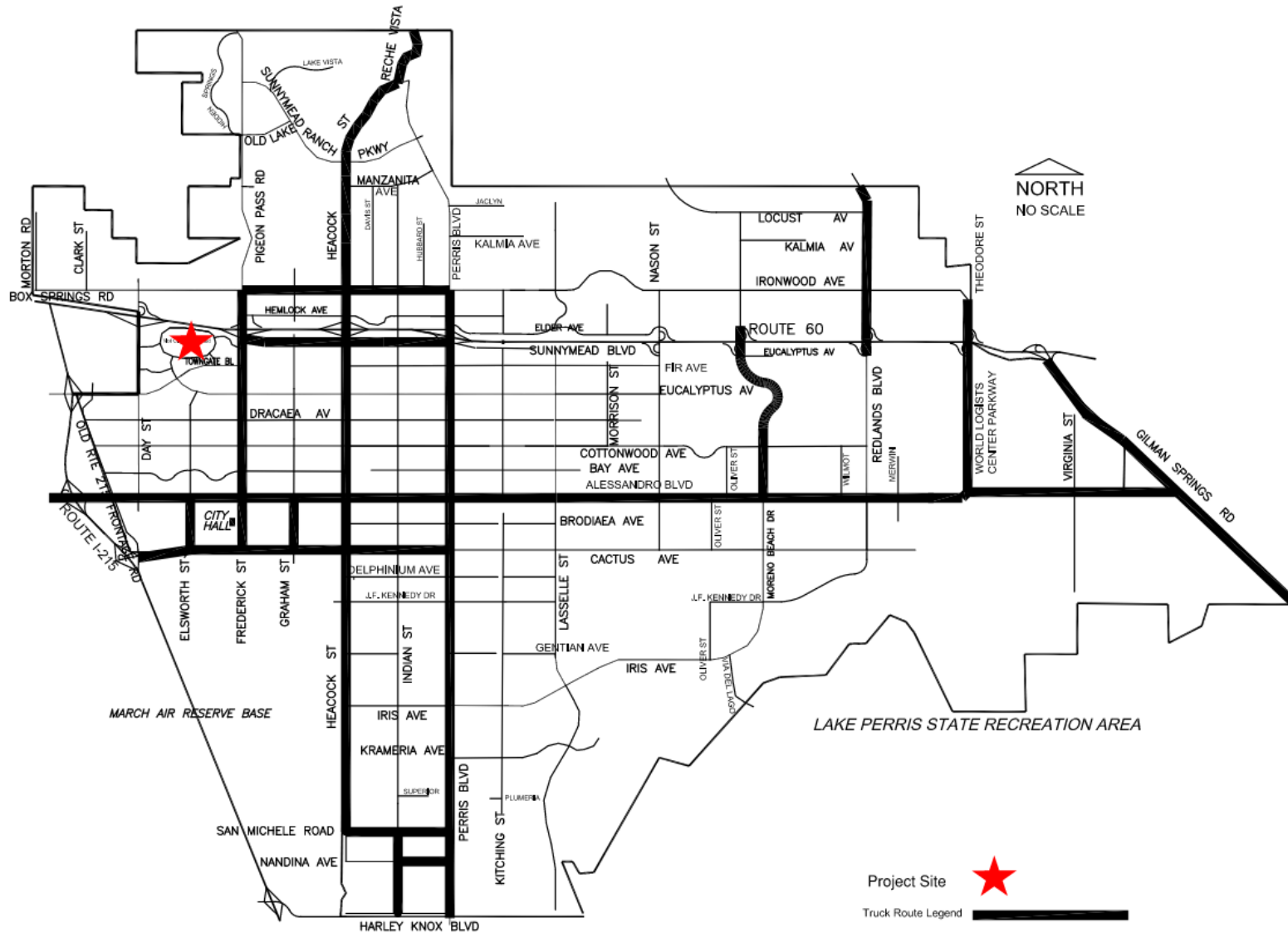
The City of Moreno Valley designates truck routes along several arterials throughout the city. Trucks over three tons are restricted to these specific routes that help facilitate goods movement throughout the city and connecting to SR-60 and I-215. In the study area, City-designated truck routes consist of Frederick Street (south of Ironwood Avenue) and Sunnymead Boulevard (east of Frederick Street), as shown in Figure 4.

Figure 3. City of Moreno Valley General Plan Circulation Diagram



Source: City of Moreno Valley General Plan 20240 (Reference 8)

Figure 4. City-Designated Truck Routes



Source: City of Moreno Valley General Plan 20240 (Reference 8)



Each of the study roadways is listed in Table 9, along with the jurisdiction, number of lanes, classification, posted speed limit, and multimodal facilities. The classifications are based on the Master Plan of Roadways in the Riverside General Plan 2025 (Reference 5) and the Circulation Element of the Moreno Valley General Plan 2040 (Reference 8).

**Table 9. Study Roadway Characteristics**

Roadway	Jurisdiction	Number of Lanes	Classification	Posted Speed Limit (mph)	Side-walks	Bike lanes
Interstate 215	Caltrans	6	Interstate	70	No	No
Eucalyptus Avenue	Riverside/ Moreno Valley <sup>1</sup>	4-5	Arterial (120')/Divided Major Arterial/Arterial	35-40	Partial	Partial
Old 215 Frontage Road	Moreno Valley	4	Divided Arterial	50	No	No
Valley Springs Parkway	Riverside	6	Not Listed	35	Yes	No
Day Street	Riverside/ Moreno Valley <sup>2</sup>	5-6	Arterial (120')	40	Yes	No
State Route 60	Caltrans	6	Freeway/Expressway	65	No	No
Canyon Springs Parkway	Riverside	6	Not Listed	35	Yes	No
Campus Parkway	Moreno Valley	4-6	Not Listed	Not Posted	Yes	Partial
Town Circle	Moreno Valley	4-5	Not Listed	30	Partial	Partial
Memorial Parkway	Moreno Valley	4	Not Listed	Not Posted	Yes	Yes
Towngate Boulevard	Moreno Valley	4	Divided Major Arterial	40	Yes	Yes
Centerpoint Drive	Moreno Valley	6	Not Listed	30	Yes	No
Heritage Way	Moreno Valley	5	Not Listed	Not Posted	Yes	No
Pigeon Pass Road	Moreno Valley	5	Divided Arterial	40	Yes	Partial
Hemlock Avenue	Moreno Valley	2-4	Not Listed	35	Yes	No
Frederick Street	Moreno Valley	4-5	Divided Major Arterial/Arterial	40	Yes	Yes
Sunnymead Boulevard	Moreno Valley	4	Arterial	35	Yes	Yes

<sup>1</sup>Eucalyptus Avenue is within Riverside's jurisdiction west of Day Street

<sup>2</sup>Day Street is within Riverside's jurisdiction north of Eucalyptus Avenue

## EXISTING TRAFFIC CONDITIONS

The existing intersection and roadway segment analyses are based on traffic counts collected in December 2021 and February 2022. Data was collected on Wednesday, December 8, 2021, Saturday, December 11, 2021. Subsequently, the City requested to expand the study area and therefore additional traffic counts were taken at one intersection (#13) and a few roadway segments on Tuesday, March 1, 2022, Saturday, February 26, 2022. At the study intersections, data was collected on weekdays from 7 AM to 9 AM and from 4 PM to 6 PM, and on Saturday from 11 AM to 1 PM. Because the traffic counts were requested before approval of the scoping agreement, manual adjustments were made to adjust volumes to peak hour conditions, as described in the following page. The peak hour intersection counts include total vehicle volumes by movement, vehicles turning right-on-red and pedestrian and bicycle crossing volumes, all recorded in 15-minute intervals. The intersection turn movement count data is provided in Appendix C.

Roadway segment counts were also collected in the study area on weekdays and Saturdays for the following roadway segments:

- Day Street just north of Canyon Springs Parkway
- Centerpoint Drive just west of Frederick Street
- Towngate Boulevard just west of Frederick Street
- Frederick Street just north of Centerpoint Drive
- Frederick Street just north of Eucalyptus Avenue

The roadways segment count data is provided in Appendix D.

Given the timing of the count data near the holidays, as well as the commercial uses in the study area, the counts are expected to be represent higher than typical traffic conditions. When compared to the City of Moreno Valley traffic counts from 2017, available on the City's website, the 24-hour segment counts collected were significantly higher (considering a typical 1-2% annual growth rate), as shown in Table 10. The traffic counts taken in December 2021 and February/March of 2022 represent a conservative estimate of existing (baseline) traffic conditions.

**Table 10. Daily Count Comparison**

Roadway Segment	2017 Traffic Count	December 2021 Weekday Traffic Count	Percent Difference <sup>1</sup>
Day Street between Canyon Springs Parkway and US 60 EB Ramps	38,000	44,887	18%
Towngate Boulevard between Eucalyptus Avenue and Frederick Street	8,500	10,722	26%
Frederick Street between Centerpoint Drive and Sunnymead Boulevard	24,600	36,822	50%

<sup>1</sup>Percent Difference calculated by subtracting 2017 count from 2021 count and dividing by 2017 count

## INTERSECTION OPERATIONS

### Traffic Control and Intersection Geometrics

The majority of the study intersections are signalized, with the exception of three all-way stop-controlled intersections on Town Circle. Figure 5 illustrates existing traffic control devices and lane configurations at the study intersections.

### Traffic Volumes and Intersection Levels of Service

The existing traffic volumes were developed from the intersection counts as previously described.

The Saturday intersection counts were collected from 11 AM to 1 PM, with the majority of the intersections showing a peak hour from 12 PM to 1 PM. At the four locations where a full day of count data was collected on Saturday, the overall peak hour occurred after 1 PM. The overall Saturday midday peak hour at the segment counts on Day Street, Towngate Boulevard, and Frederick Street were, on average, 7% higher than the peak volume between 11 AM and 1 PM. Therefore, the Saturday intersection counts were uniformly increased by 7% across the board, acknowledging that the intersection counts did not capture the highest hour of the day. The segment count on Centerpoint Drive was not considered for the adjustment, given a holiday event occurred at the mall starting at 2 PM on the day the count was collected.

Figure 6, Figure 7 and Figure 8 summarize the traffic volumes for the study intersections under existing weekday AM, weekday PM, and Saturday midday peak hour traffic conditions, respectively.

**Figure 5. Existing Traffic Control Devices and Lane Configurations**

**Figure 6. Existing Intersection Volumes – Weekday AM Peak Hour**

**Figure 7. Existing Intersection Volumes – Weekday PM Peak Hour**

**Figure 8. Existing Intersection Volumes – Saturday Midday Peak Hour**

Table 11 summarizes the operations at the study intersections.

**Table 11. Existing Intersection Operations**

Study Intersection	Jurisdiction	Traffic Control	LOS Std	Weekday AM		Weekday PM		Saturday Mid	
				Delay	LOS	Delay	LOS	Delay	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	33.0	C	36.5	D	21.0	C
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	20.7	C	26.6	C	35.5	D
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	20.6	C	20.9	C	28.2	C
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	13.4	B	21.8	C	23.7	C
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	17.6	B	36.1	D	<b>61.1</b>	<b>E</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	14.4	B	26.8	C	42.9	D
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	21.0	C	24.7	C	29.4	C
8. Town Cir/ Campus Pkwy	MV	AWSC	D	7.9	A	11.6	B	18.0	C
9. Memorial Way/Town Cir	MV	AWSC	D	7.8	A	12.9	B	23.8	C
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	15.6	B	20.9	C	23.4	C
11. Town Cir/ Centerpoint Drive	MV	Signal	D	9.0	A	10.1	B	11.0	B
12. Heritage Way/Town Circ	MV	AWSC	D	7.4	A	10.0	A	13.1	B
13. Heritage Way/ Towngate Blvd	MV	Signal	D	12.5	B	14.1	B	14.5	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	38.4	D	40.7	D	47.9	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	7.2	A	2.9	A	2.9	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	21.6	C	29.2	C	31.0	C
17. Frederick St/ Centerpoint Dr	MV	Signal	D	8.0	A	12.3	B	15.1	B
18. Frederick St/ Towngate Blvd	MV	Signal	D	9.6	A	15.9	B	18.5	B
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	20.6	C	26.5	C	24.8	C
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	12.5	B	14.6	B	16.4	B

LOS = Level of Service, s = seconds MV = Moreno Valley, AWSC = All-way stop-control  
**Bold text** indicates operations do not meet LOS Standard

As shown in the table, there is one location that does not meet standards under existing conditions:

- 5. Day Street/Canyon Springs Parkway: this signalized intersection is under Riverside's jurisdiction, which has a LOS D standard. The average delay during the Saturday midday peak hour is 61.1 seconds, resulting in a LOS E.

Appendix E includes the existing conditions intersection operations worksheets.

### Intersection Turn Lane Queues

The 95<sup>th</sup> percentile queue lengths for each study intersection are shown in Table 12. The table also shows the following:

**Storage Length** (feet): measured as striped storage, excluding taper.

**Distance to Adjacent Side Street** (feet): measured from stop bar for movement to access point for nearest intersection roadway of local classification or higher, or major business access.

**Distance to Adjacent Signal** (feet): measured from stop bar for movement to near side of nearest signalized intersection.

Table 12. Existing 95<sup>th</sup> Percentile Queue Lengths at Study Intersections

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	70	109	49
	EBR	50	650	650	5	47	14
	WBL	275	770	770	159	230	272
	NBL <sup>1</sup>	1,200	N/A	N/A	157	63	75
	NBR <sup>1</sup>	1,200	N/A	N/A	18	31	20
	SBL <sup>1</sup>	1,400	N/A	N/A	86	214	157
	SBR <sup>1</sup>	1,400	N/A	N/A	0	53	14
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	112	217	#404
	EBR	360	530	830	0	48	0
	WBL	100	200	950	47	70	56
	WBR	30	200	950	6	27	50
	NBL	150	1,600	>2,000	166	135	87
	SBL	160	390	960	29	109	128
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	131	221	#398
	WBR <sup>1</sup>	1,580	N/A	N/A	47	119	127
	NBR	180	820	820	0	0	0
	SBL <sup>2</sup>	200	380	950	78	79	79
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	162	#324	#343
	WBR <sup>1</sup>	1,280	N/A	N/A	26	264	87
	SBL	500	840	840	75	m97	m68
5. Day St/Canyon Springs Pkwy	EBL <sup>3</sup>	170	240	490	144	#451	#513
	WBL	140	140	300	63	75	135
	NBL	180	580	580	122	275	#470
	SBL	145	370	370	207	295	#410



Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
6. Day St/Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	30	132	140
	WBL	190	440	440	43	130	175
	NBL	140	360	880	67	<b>165</b>	<b>230</b>
	SBL	180	170	580	54	<b>198</b>	<b>#362</b>
7. Day St/Eucalyptus Ave	EBL	100	340	2,000	<b>155</b>	<b>306</b>	<b>#511</b>
	WBL	170	100	1,000	89	145	142
	WBR	200	100	1,000	39	58	69
	NBL	150	510	1,210	<b>#250</b>	78	106
	SBL	180	300	1,100	93	<b>205</b>	<b>186</b>
8. Town Cir/Campus Pkwy	EBL <sup>3</sup>	200	460	460	3	18	48
	EBR	450	460	460	3	15	30
	NBL	125	150	>2,000	10	38	88
9. Memorial Way/Town Cir	WBL <sup>2</sup>	100	310	>2,000	5	28	65
	NBL <sup>3</sup>	100	200	450	8	28	60
	NBR	450	200	450	5	23	78
10. Memorial Way-Eucalyptus Ave/Towngate Blvd	EBL	160	450	930	51	122	<b>194</b>
	EBR	70	450	930	42	<b>103</b>	<b>78</b>
	WBL	150	970	1,950	39	53	54
	WBR	70	970	1,950	11	51	<b>102</b>
	NBL	200	430	920	<b>233</b>	187	<b>217</b>
	SBL	190	640	640	49	109	128
11. Town Cir/Centerpoint Drive	NBR	65	110	>2,000	5	17	27
	SBL <sup>3</sup>	50	80	>2,000	12	<b>96</b>	<b>74</b>
12. Heritage Way/Town Circ	WBL	100	250	740	3	10	20
	NBL	100	130	630	3	13	30
	NBR	650	130	630	3	5	8
13. Heritage Way/Towngate Blvd	EBL	320	900	1,930	29	59	69
	EBR	100	900	1,930	0	0	0
	WBL	140	460	1,260	24	33	32
	WBR	100	460	1,260	0	32	54
	SBL <sup>2</sup>	200	120	N/A	33	105	118
	SBR	650	120	N/A	1	2	18
14. Pigeon Pass Rd/Hemlock Rd	WBL <sup>3</sup>	260	160	400	233	228	<b>291</b>
	NBL	240	700	700	106	133	175
	NBR	90	700	700	83	<b>288</b>	<b>219</b>
	SBL <sup>2</sup>	200	200	1,340	144	131	143
15. Frederick St/SR-60 EB On-Ramp	SBL	340	700	700	236	176	189

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
16. Frederick St/SR-60 EB Off-Ramp – Sunnymead Boulevard	EBL <sup>1</sup>	1,700	N/A	N/A	144	258	232
	EBR <sup>1</sup>	1,700	N/A	N/A	206	362	#559
	WBL <sup>3</sup>	140	150	>2,000	<b>163</b>	<b>179</b>	<b>#301</b>
	NBR	75	210	460	64	<b>214</b>	<b>250</b>
	SBL	60	120	120	<b>141</b>	<b>157</b>	<b>232</b>
17. Frederick St/Centerpoint Dr	NBL	130	320	320	42	64	71
18. Frederick St/Towngate Blvd	EBR	100	340	1,260	28	63	63
	NBL	330	660	1,200	133	254	<b>#352</b>
	SBR	100	220	420	14	29	60
19. Frederick St/Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	109	107	101
	WBL	150	360	>2,000	109	82	60
	NBL <sup>2</sup>	190	1,200	1,200	115	175	<b>192</b>
	NBR	190	1,200	1,200	40	12	0
	SBL	130	260	1,200	127	<b>230</b>	<b>196</b>
	SBR	190	260	1,200	34	35	31
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	97	115	137
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	1

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

**Bold text** indicates 95<sup>th</sup> percentile queue exceeds striped storage

#: 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer.

m: Volume for 95<sup>th</sup> percentile queue is metered by upstream signal.

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right

As shown in the table, ten of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under existing conditions. None of the highway off-ramps have 95<sup>th</sup> percentile queue lengths that exceed the ramp storage under existing conditions. Intersections where the 95<sup>th</sup> percentile queue is longer than the distance to the adjacent signalized intersection for one or more movement include:

- 5. Day St/Canyon Springs Pkwy: 95<sup>th</sup> percentile queues for the eastbound and northbound left turns exceed the distance to the nearest signalized intersections (Shopping Access/Canyon Springs Pkwy and Day St/Campus Pkwy) during the Saturday midday peak hour
- 16. Frederick St/SR-60 EB Off-Ramp – Sunnymead Boulevard: the 95<sup>th</sup> percentile queue for the southbound left turn exceeds the distance to the nearest signalized intersection (Frederick St/SR-60 EB On-Ramp) during all three time periods

It should be noted that the 95<sup>th</sup> percentile queue is defined as the queue length that has only a five percent probability of being exceeded during the peak period, and is therefore not typical of the average drive experience.

Appendix F includes the existing conditions intersection queueing worksheets.

## ROADWAY SEGMENT OPERATIONS

Weekday and Saturday 24-hour counts were collected on Day Street, Centerpoint Drive, Towngate Boulevard, and Frederick Street in December 2021. For the segments on Eucalyptus Avenue and Town Circle, daily volumes were extrapolated from the peak hour counts by applying a factor developed from the intersection counts and segment counts at Towngate Boulevard and Centerpoint Drive, respectively. Factors were developed by direction and for each peak period. The factors to convert weekday PM peak hour counts to daily counts ranged from 12.08 to 13.26 and the factors to convert Saturday midday peak hour counts to daily counts ranged from 12.30 to 13.81. This indicates that the weekday PM peak hour and Saturday midday peak hour counts are both about seven to eight percent of the total daily volume.

The roadway segment analysis is based on daily volumes and LOS thresholds developed by Moreno Valley and Riverside. The volume-to-capacity ratios are calculated based on the capacity corresponding to a LOS E. The roadway segment operations are summarized in Table 13.

**Table 13. Existing Roadway Segment Operations**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Weekday			Saturday		
						ADT	LOS	v/c	ADT	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	36,202	C	0.73	35,383	C	0.71
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	44,887	D	0.91	48,733	D	0.98
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	30,642	C	0.62	34,166	C	0.69
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	28,918	C	0.58	31,378	C	0.63
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	23,707	C	0.48	21,593	C	0.44
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	18,182	C	0.37	17,303	C	0.35
	Day St to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	16,390	A	0.44	14,681	A	0.39
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>1</sup>	D	25,000	6,539	A	0.26	9,645	A	0.39
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>1</sup>	D	56,300	16,397	A	0.29	21,186	A	0.38
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	10,722	A	0.29	11,490	A	0.31
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>2</sup>	D	56,300	38,861	B	0.69	37,191	B	0.66
G. Frederick St	Sunnymead Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>2</sup>	D	56,300	36,822	B	0.65	39,047	B	0.69
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	28,668	C	0.76	24,678	B	0.66
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	27,150	C	0.72	24,242	B	0.65

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided, N/A= not classified

**Bold text** indicates not meeting standards

<sup>1</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>2</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

As shown in the table, all roadway segments operate within the target LOS.

## FREEWAY OPERATIONS

### Freeway Mainline Segments

The freeway mainline analysis is based on data from the Caltrans Performance Measurement System (PeMS). Data was downloaded from PeMS by direction for Wednesday, December 8, 2021 and Saturday, December 11, 2021 to match the days intersection and segment counts were collected. Data was downloaded for Wednesday between 7 AM to 9 AM and 4 PM to 6 PM and for Saturday between 11 AM to 3 PM. Data was downloaded in 5-minute intervals and the peak hour volumes identified by the highest consecutive hour-long period. The Caltrans 2020 Annual Average Daily Truck Traffic data summarized by Caltrans (Reference 9) was used to identify the percentage of trucks on the roadway segments. The data shows a truck percentage of approximately 10.5 percent on SR-60 and 14.5 percent on I-215.

The volumes and LOS based on the HCS analysis are shown in Table 14.

**Table 14. Existing Freeway Mainline Segment Operations**

Roadway	Segment	Direction	Weekday AM		Weekday PM		Saturday Mid	
			Volume	LOS	Volume	LOS	Volume	LOS
SR-60	Between the Day Street Ramps	EB	3,994	B	5,929	C	5,621	C
		WB	3,717	C	4,137	C	4,200	C
	East of the Frederick Street Ramps	EB	3,459	C	3,734	C	3,962	C
		WB	2,882	B	3,517	B	3,754	C
I-215	SR-60 to Eucalyptus Avenue Ramps	NB	2,368	B	2,838	B	3,207	B
		SB	3,696	B	2,846	B	3,095	B
	South of the Eucalyptus Avenue Ramps	NB	2,737	B	3,616	B	4,089	B
		SB	3,430	C	3,380	C	3,939	C

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

As shown, all segments of SR-60 and I-215 analyzed operate at a LOS C or better during all peak periods.

Appendix G includes the HCS output sheets for the existing conditions freeway mainline analysis.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Figure 9 illustrates the existing and planned bicycle network from Moreno Valley's 2040 General Plan. The pedestrian and bicycle facilities in the study area are described below.

### **Pedestrian Facilities**

The study area offers several types of facilities and amenities that support walking. The availability and quality of pedestrian facilities can be analyzed using seven key factors as detailed below:

- **Sidewalk Availability:** Sidewalks are provided in the study area with the exception of the north side of the southern half of the Town Circle loop, both sides of the street of the north half of the Town Circle Loop, the south side of Eucalyptus Avenue west of Old 215 Frontage Road, the west side of Day Street crossing I-215, and the west side of Pigeon Pass Road crossing SR-60.
- **Sidewalk Conditions:** Where sidewalks exist, based on a review of aerial photography it appears they are generally in good condition without visible damage.
- **Crosswalk Availability and Type:** Within the study area, marked crosswalks are consistently provided at signalized intersections. Some crosswalks in the study area have recently been upgraded to high-visibility continental crosswalks. While crosswalks are consistently provided, pedestrians must still navigate uncontrolled free right turns at the SR-60 westbound on-ramp at Pigeon Pass Road.
- **Flat Grade:** The study area is generally flat with the exception of mild inclines/declines at freeway underpasses and overpasses.
- **Buffer:** Pedestrian buffers are provided on many of the roadways throughout the study area in the form of parked cars, landscaping, and bike lanes.
- **Pedestrian Amenities:** Pedestrian amenities such as street furniture are lacking along roadways in the study area, with the exception of some bus stops that include benches and trash cans.

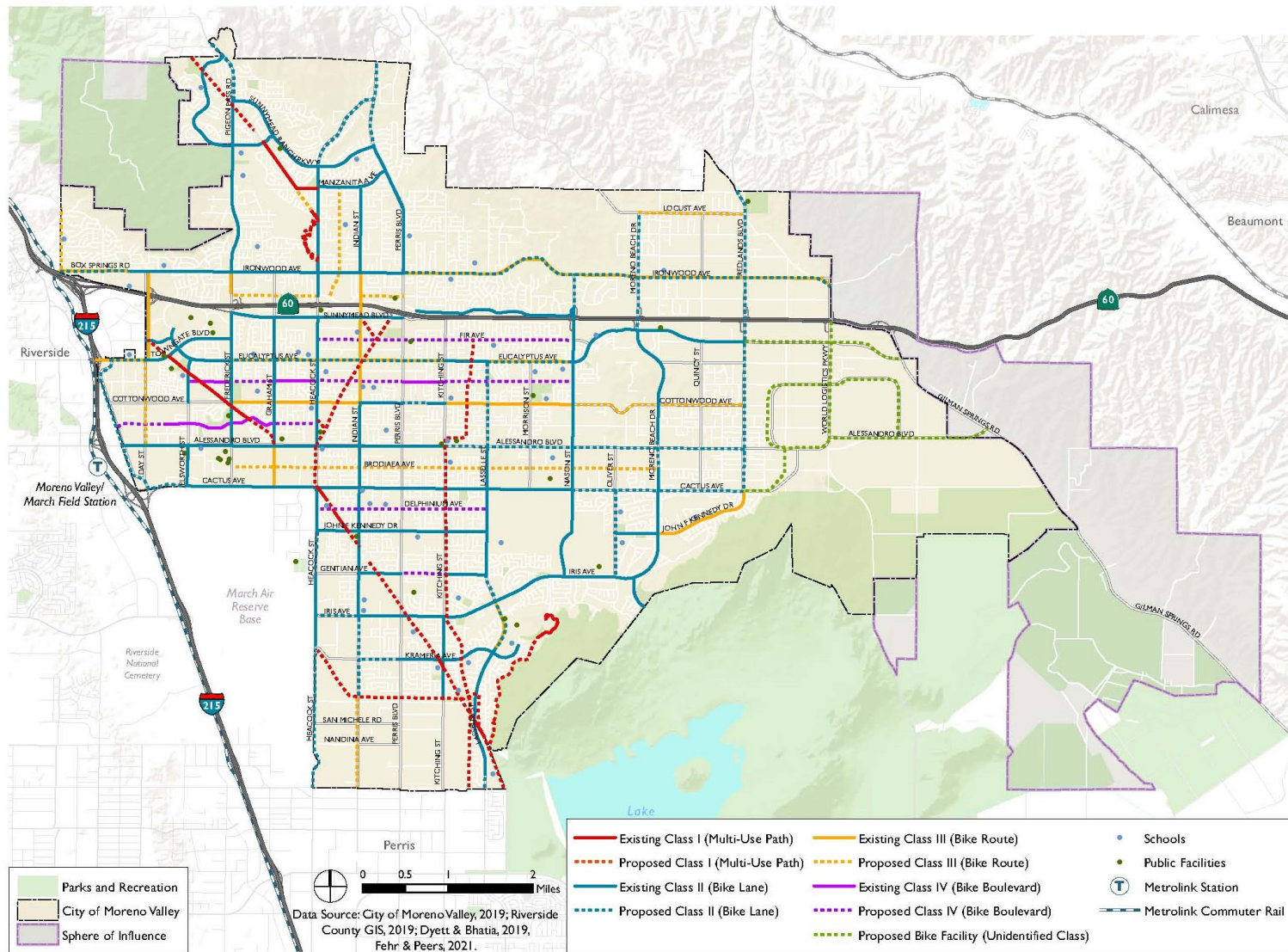
Table 9 at the beginning of this section summarizes the availability of sidewalks on the study roadways. The arterial roadways surrounding the Moreno Valley Mall (Day Street, Eucalyptus Avenue, Towngate Boulevard, Frederick Street) and connecting Town Circle to the arterial network (Campus Parkway, Memorial Way, Heritage Way, Centerpoint Drive) provide sidewalks. There is a sidewalk on Town Circle between Campus Parkway and Centerpoint Drive (on the south side of the mall).

### **Bicycle Facilities**

Bicycle facilities are categorized into four types, as described below:

- **Class I Bikeway (Bike Path):** Also known as a shared path or multi-use path, a bike path is a paved right-of-way for bicycle travel that is completely separated from any street or highway.
- **Class II Bikeway (Bike Lane):** A striped and stenciled lane for one-way bicycle travel on a street or highway. This facility could include a buffered space between the bike lane and vehicle lane and the bike lane could be adjacent to on-street parking.
- **Class III Bikeway (Bike Route):** A signed route along a street where the bicyclist shares the right-of-way with motor vehicles. This facility can also be designated using a shared-lane marking (sharrow).
- **Class IV Bikeway (Separated Bike Lane):** A bikeway for the exclusive use of bicycles including a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Figure 9. Existing and Planned Bicycle and Pedestrian Network



Source: Map C-2 from MoVal 2040 General Plan

As shown in Figure 9, existing bicycle facilities in the study area consist of the following:

- Bike route along Day Street north of Towngate Boulevard
- Buffered bike lanes along Eucalyptus Avenue between Day Street and Towngate Boulevard and along Towngate Boulevard between Eucalyptus Avenue and Frederick Street
- Bike route along Eucalyptus Avenue between Day Street and I-215
- Bike lanes along Gateway Drive between Day Street and Memorial Way
- Bike lanes along Memorial Way and along Eucalyptus Avenue between Towngate Boulevard and Frederick Street
- Parking-adjacent bike lanes along Elsworth Street
- Multi-use path from Eucalyptus Avenue southeast to Graham Street, via Towngate Memorial Park
- Bike boulevard with greenback sharrows along Dracaea Avenue
- Southbound bike route with greenback sharrows and northbound bike lane with green conflict zone paint treatments along Pigeon Pass Road between Sunnymead Boulevard and Ironwood Avenue
- Bike lanes along Fredrick Street south of Sunnymead Boulevard, with buffers south of Brabham Street and green conflict zone pain treatments between Sunnymead Boulevard and Towngate Boulevard
- Bike lanes along Sunnymead Boulevard
- Bike route along Box Springs Road
- Bike lanes along Ironwood Avenue

## EXISTING TRANSIT SERVICE

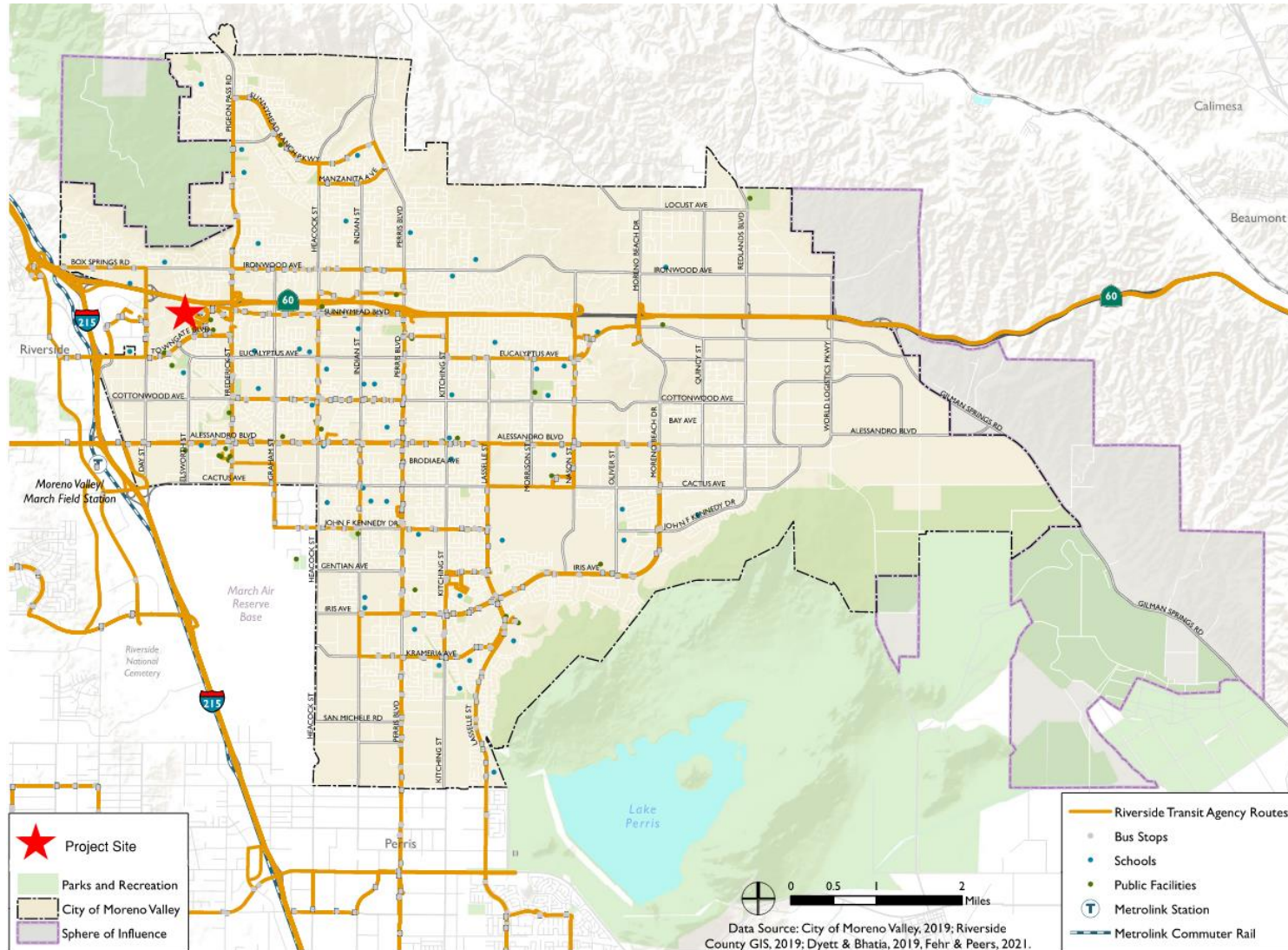
The transit system in the study area consists of local bus and regional rail service, as shown in Figure 10a and Figure 10b.

The Riverside Transit Authority (RTA) provides bus service in the study area. RTA bus routes in the study area consist of routes 11, 16, 18, 19, 31. All five routes stop at Moreno Valley Mall, which is a transit point. The bus station at Moreno Valley Mall amenities such as trash cans, benches, and shelters. Bus stops along roads in the study area generally provide benches, although some stops do not have any amenities and only consist of a bus stop signpost. Several bus stops along Sunnymead Boulevard include benches and shaded shelters.

The Moreno Valley/March Field Station is located to the southwest of the study area on Alessandro Boulevard. In addition to RTA bus route 20, the station services the Metrolink 91/Perris Valley Line, which runs between the City of Perris and Union Station in Downtown Los Angeles.

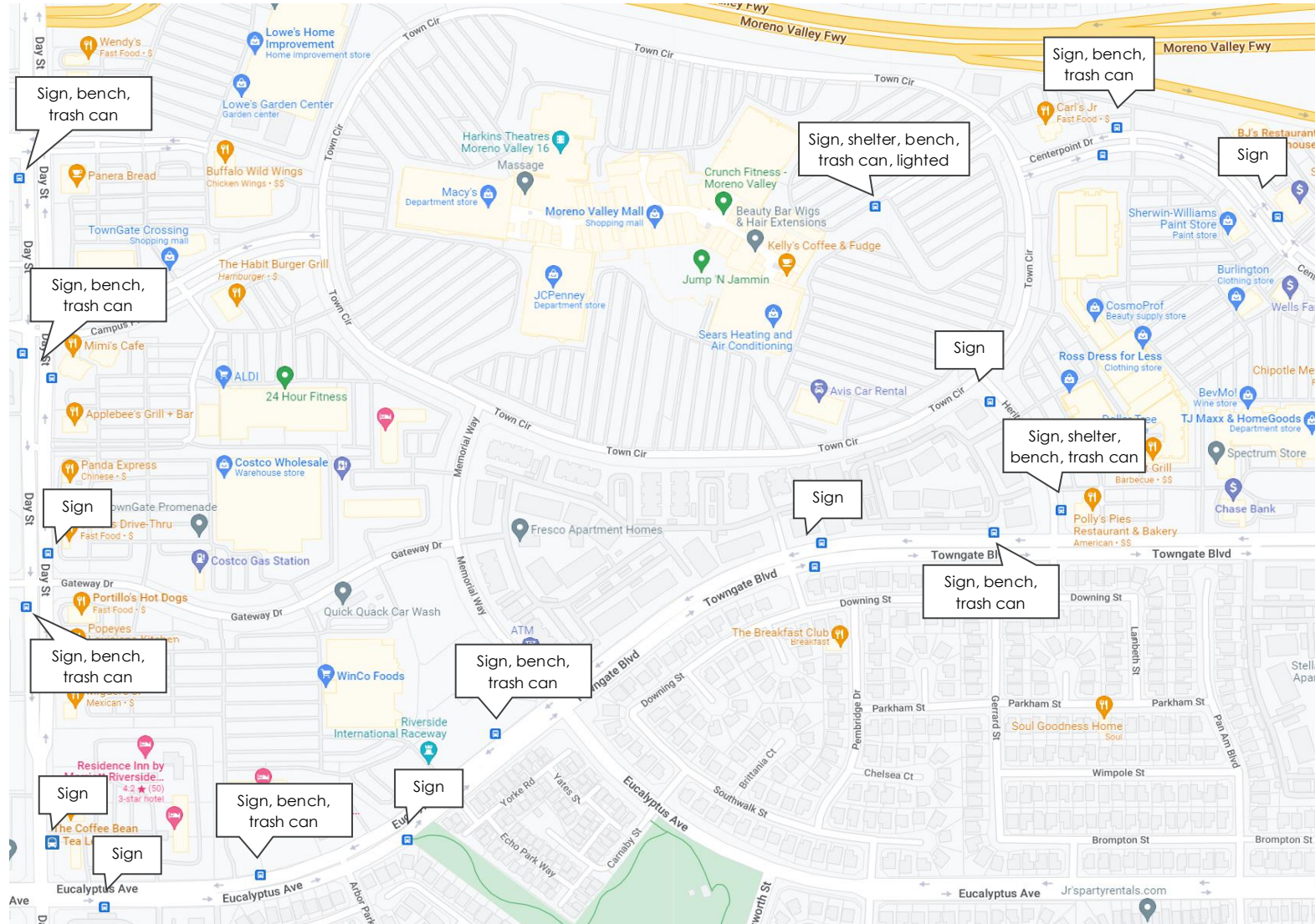


Figure 10a. Existing Transit Service



Source: Map C-3 from MoVal 2040 General Plan

Figure 10b. Existing Transit Service – Site Vicinity



Source: Google Maps



## Section 5 Project Traffic

# PROJECT TRAFFIC

## PROPOSED DEVELOPMENT PLAN

The project includes new development on the east and north side of the MVM, and redevelopment of some existing spaces. A detailed project description is included in Section 2, Introduction. For the purpose of estimating project trips, key project elements include:

- Two hotels totaling 270 rooms.
- Four residential buildings with a total of 1,627 apartment units.
- A 60,000 square foot office building.
- Plaza level retail in three of the residential buildings for a total of 40,000 square feet.
- Removal of the existing 16,344 square foot auto center.

## TRIP GENERATION

Trips for the proposed development were estimated using trip rates obtained from the *Trip Generation Manual, 11<sup>th</sup> Edition* (Reference 10). The trip generation rates are presented in Table 1 of the scoping agreement in Appendix A. No reduction for pass-by trips were assumed, although a portion of trips to the retail portion of the site are likely to be trips already on the system. A portion of trips are expected to be internal to the site, meaning they are between the proposed uses and existing MVM site. Based on information provided in the National Cooperative Highway Research Program (NCHRP) Report 684 (Reference 11), 2 percent of the weekday AM trips and 10 percent of trips during all other periods were assumed to be internal trips. It should be noted that the methodology in the NCHRP 684 provides higher internalization rates (Appendix U), this analysis conservatively limited the capture rates to no more than 10%.

As shown in Table 15, the Project is expected to generate net 9,968 weekday daily vehicle trips, 820 weekday AM peak hour vehicle trips, and 863 weekday PM peak hour vehicle trips. During a Saturday, the project is expected to generate 9,770 daily trips and 868 midday peak hour trips.

**Table 15. Project Trip Generation**

Land Use	Size <sup>1</sup>	Weekday							Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
Hotel (ITE Code 310) <sup>2</sup>	270 Rooms	2,158	69	55	124	81	78	159	2,180	109	85	194
Residential (ITE Code 221) <sup>3</sup>	1,627 DU	7,390	138	465	603	387	247	634	7,440	323	311	634
Retail (ITE Code 820) <sup>4</sup>	24 TSF	876	12	8	20	38	42	80	1,102	54	50	104
Office (ITE Code 710)	60 TSF	652	80	11	91	15	71	86	134	17	15	32
<b>Total New Trips</b>		<b>11,076</b>	<b>299</b>	<b>539</b>	<b>838</b>	<b>521</b>	<b>438</b>	<b>959</b>	<b>10,856</b>	<b>503</b>	<b>461</b>	<b>964</b>
<i>Internal Capture (2% AM, 10% all other periods)</i>		<i>-1,108</i>	<i>-7</i>	<i>-11</i>	<i>-18</i>	<i>-52</i>	<i>-44</i>	<i>-96</i>	<i>-1,086</i>	<i>-50</i>	<i>-46</i>	<i>-96</i>
<b>Total External Project Trips</b>		<b>9,968</b>	<b>292</b>	<b>528</b>	<b>820</b>	<b>469</b>	<b>394</b>	<b>863</b>	<b>9,770</b>	<b>453</b>	<b>415</b>	<b>868</b>

<sup>1</sup> TSF = Thousand Square Feet of GLA (gross leasable area), DU = Dwelling Units

<sup>2</sup> Hotel A=150 rooms, Hotel B = 120 rooms

<sup>3</sup> Residential District includes four multifamily buildings, with a total of 1,627 dwelling units

<sup>4</sup> Retail includes 40,000 square feet of new plaza level retail minus the existing 16,344 square foot Sears Auto Center, which will be removed with the project

## TRIP DISTRIBUTION AND ASSIGNMENT

The site-generated trips shown in Table 15 were distributed to the study area roadways. The project trip distribution is based on the model's distribution of trips in and out of the traffic analysis zone (TAZ) representing the project site, as well as adjustments to reflect local travel patterns and circulation conditions. The trip distribution pattern considers surrounding land uses and travel patterns. The trip distribution patterns were confirmed with the City through the scoping process. The assignment of site-generated traffic volumes to the study intersections is shown in Figure 11a, Figure 12a, and Figure 13a for the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively. The assignment of site-generated traffic volumes at the site access points along Town Circle are showed in Figure 11b, Figure 12b, and Figure 13b for the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

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**Figure 11a. Trip Distribution and Assignment – Weekday AM Peak Hour**

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**Figure 11b. Trip Assignment at Site Accesses – Weekday AM Peak Hour**

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**Figure 12a. Trip Distribution and Assignment – Weekday PM Peak Hour**



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**Figure 12b. Trip Assignment at Site Accesses – Weekday PM Peak Hour**

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**Figure 13a. Trip Distribution and Assignment – Saturday Midday Peak Hour**

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**Figure 13b. Trip Assignment at Site Accesses – Saturday Midday Peak Hour**



## Section 6 Year 2026 Analysis

# YEAR 2026 ANALYSIS

## YEAR 2026 BACKGROUND CONDITIONS (WITHOUT PROJECT)

The year 2026 background conditions analyze expected conditions around the project site in the year 2026, without the proposed project. The following describes the assumptions to assess 2026 background conditions.

### COMMITTED ROADWAY IMPROVEMENTS

There are no committed roadway improvements at the study intersections or segments expected to be in place by 2026. Therefore, the lane configurations and traffic control devices assumed for the year 2026 analysis are consistent with those shown previously in Figure 5.

The Riverside County 2019 Long Range Transportation Study (Reference 7) includes widening Eucalyptus Avenue between I-215 and Towngate Boulevard from four to six lanes, with a completion year of 2028. This project is also included in the Transportation Uniform Mitigation Fee (TUMF) Program, as well as improvements at the SR-60 interchange at Day Street. The TUMF Program was initiated in Western Riverside County and uses development fees to fund local and regional projects that are needed to support growth. It is administered by the Western Riverside Council of Government (WRCOG) and implemented in all jurisdictions in Western Riverside County, including Moreno Valley.

The widening on Eucalyptus Avenue and Day Street/SR-60 Interchange improvements are also included in the City of Moreno Valley's Capital Improvement Plan (Reference 12). The priority for widening on Eucalyptus Avenue is noted as "deferrable," indicating it will start within five to ten years. The priority for interchange improvements at the SR-60 interchange at Day Street is noted as "desirable," indicating a start within three to five years. The project description states that the project will involve "design and construction of a new SR-60 freeway westbound on-ramp on the west side of Day Street. It includes a WB auxiliary lane, HOV bypass lanes on both WB on-ramps, bridge widening for the WB loop on-ramp HOV bypass lane, and associated walls and traffic channelization devices. The project includes constructing the missing sidewalk gap along the west side of Day Street."

Given that a specific timeline for the widening on Eucalyptus Avenue and SR-60/Day Street interchange improvements is not identified, these improvements were not assumed to be in place in the year 2026 analysis.

### CUMULATIVE PROJECTS

Trips associated with approved, unbuilt projects were included in the year 2026 background conditions analysis. Projects for inclusion were identified based on discussions with City of Moreno Valley and City of Riverside staff, as well as a review of Moreno Valley's Development Map (Reference 13) and Centerpoint Industrial Area Active Development Projects Map (Reference 14). Projects were included that are either located within a mile of the site or are expected to add a significant number of trips (over 20) to any study intersection. Identified projects include:

1. Alessandro Corporate Center: single building with 115,526 square feet of manufacturing use, located north of Alessandro Boulevard and west of the Old 215 Frontage Road
2. Old 215 Business Park: three warehouse buildings totaling approximately 118,580 square feet located north of Cottonwood Avenue and west of the Old 215 Frontage Road

3. Two multi-family developments with 51 and 18 units located north of Dracaea Avenue and between the Old 215 Frontage Road and Edgemont Street
4. Canyon Springs Healthcare Campus & Senior Living: hospital land use with approximately 280 beds, approximately 370,000 square feet of medical office, approximately 234 senior adult-housing attached dwelling units, and an assisted living facility with approximately 267 beds, located north of Eucalyptus Avenue between Valley Springs Parkway and Day Street
5. Valley Springs Parkway Car wash: 4,340 square foot car wash at 6291 Valley Springs Parkway
6. Multi-family development with 197 units located north of Cottonwood Avenue and east of Elsworth Street
7. Variety of commercial and industrial uses in the Centerpoint Industrial Area, bound by the Old 215 Frontage Road, Alessandro Boulevard, Heacock Street, and Cactus Avenue.

These projects are shown in the map in Figure 14. Potential trips from projects beyond those on the list below are accounted for by applying a 1.5% annual growth rate to existing volumes to account for ambient, area-wide growth.

### Trip Generation

Trips associated with the cumulative projects listed above were identified based on available traffic studies or using trip rates from the *Trip Generation Manual, 11<sup>th</sup> Edition* (Reference 10). Table 16 identifies the trips associated with each of the projects.

**Table 16. Cumulative Projects Trip Generation**

Project	Weekday							Saturday			
	Daily	AM Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Alessandro Corporate Center <sup>1</sup>	528	62	18	80	26	60	86	172	11	10	21
Old 215 Business Park <sup>1,2</sup>	400	55	11	66	14	50	64	330	18	39	57
Dracaea Avenue Multi-Family (69 units total) <sup>3</sup>	314	6	20	26	16	10	26	316	14	13	27
Canyon Springs Healthcare Campus & Senior Living <sup>1</sup>	18,528	1,013	335	1,348	572	1,282	1,854	10,310	967	845	1,812
Valley Springs Car Wash <sup>4</sup>	620	0	0	0	31	31	62	1,320	66	66	132
Cottonwood Avenue Multi-Family (197 units) <sup>3</sup>	894	17	56	73	47	30	77	900	39	38	77
Centerpoint Industrial Area Approved Projects <sup>2</sup>	3,202	141	49	190	118	203	321	2,064	101	94	195
<b>Total</b>	<b>24,486</b>	<b>1,294</b>	<b>489</b>	<b>1,783</b>	<b>824</b>	<b>1,666</b>	<b>2,490</b>	<b>15,412</b>	<b>1,216</b>	<b>1,105</b>	<b>2,321</b>

<sup>1</sup> Weekday trip generation from project traffic study. Weekend trip generation based on ITE rates.

<sup>2</sup> ITE does not provide Saturday data for light industrial, the use assumed in the traffic study. Therefore industrial park (ITE code 130) data was used.

<sup>3</sup> Trip generation based on project size and ITE rates.

<sup>4</sup> ITE does not provide weekday AM peak hour data, weekday daily data, or Saturday daily data. The car wash was assumed to be closed in the weekday AM peak hour and the number of daily trips was assumed to be ten times the trips in the peak period.

**Figure 14. Cumulative Projects**

### ***Trip Assignment and Distribution***

Trips associated with the cumulative projects were assigned to the study intersections based on the trip distribution in the traffic study for the project, where available. For the multi-family projects, the same distribution was used as for the Moreno Valley Mall Redevelopment Project trips. The cumulative project trips at the study intersections are shown in Figure 15, Figure 16 and Figure 17.

## **INTERSECTION OPERATIONS**

### ***Traffic Volumes and Intersection Levels of Service***

Traffic volumes for the year 2026 background conditions analysis were developed by applying a 1.5% annual growth rate to existing traffic volumes to account for ambient, area-wide growth and adding trips associated with the cumulative projects (resulting in a total growth rate of 7.5%, assuming 1.5% per year over 5 years). Figure 18, Figure 19 and Figure 20 summarize the traffic volumes for the study intersections under year 2026 background conditions for the weekday AM, weekday PM, and Saturday midday peak hour traffic conditions, respectively.



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**Figure 15. Cumulative Projects Trip Assignment – Weekday AM Peak Hour**

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**Figure 16. Cumulative Projects Trip Assignment – Weekday PM Peak Hour**

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**Figure 17. Cumulative Projects Trip Assignment – Saturday Midday Peak Hour**

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**Figure 18. Year 2026 Background Intersection Volumes – Weekday AM Peak Hour**

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**Figure 19. Year 2026 Background Intersection Volumes – Weekday PM Peak Hour**

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**Figure 20. Year 2026 Background Intersection Volumes – Saturday Midday Peak Hour**

Table 17 summarizes the operations at the study intersections.

**Table 17. Year 2026 Background Conditions (without project) Intersection Operations**

Study Intersection	Jurisdiction	Traffic Control	LOS Std	Weekday AM		Weekday PM		Saturday Mid	
				Delay	LOS	Delay	LOS	Delay	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	35.8	D	73.6	E	39.1	D
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	36.5	D	<b>116.4</b>	<b>F</b>	<b>137.8</b>	<b>F</b>
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	23.1	C	23.3	C	53.9	D
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	15.8	B	27.8	C	30.8	C
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	18.9	B	53.9	D	<b>97.0</b>	<b>F</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	15.0	B	34.4	C	<b>57.5</b>	<b>E</b>
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	26.8	C	31.2	C	45.3	D
8. Town Cir/ Campus Pkwy	MV	AWSC	D	8.0	A	12.3	B	20.9	C
9. Memorial Way/Town Cir	MV	AWSC	D	7.9	A	14.3	B	32.1	D
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	17.0	B	24.9	C	27.3	C
11. Town Cir/ Centerpoint Drive	MV	Signal	D	9.0	A	10.4	B	11.5	B
12. Heritage Way/Town Circ	MV	AWSC	D	7.5	A	10.5	B	14.3	B
13. Heritage Way/Towngate Blvd	MV	Signal	D	12.5	B	14.5	B	14.8	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	39.8	D	39.0	D	47.8	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	7.6	A	2.8	A	2.7	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	21.5	C	30.2	C	34.0	C
17. Frederick St/ Centerpoint Dr	MV	Signal	D	8.2	A	13.4	B	16.7	B
18. Frederick St/ Towngate Blvd	MV	Signal	D	10.0	B	17.8	B	21.7	C
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	22.6	C	30.2	C	28.6	C
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	13.1	B	15.3	B	17.3	B

LOS = Level of Service, s = seconds MV = Moreno Valley, AWSC = All-way stop-control  
**Bold text** indicates operations do not meet LOS Standard

As shown in the table, there are three intersections that do not meet standards under year 2026 background conditions:

- 2. Valley Springs Pkwy/ Eucalyptus Ave: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 116.4 seconds, resulting in a LOS F, and during the Saturday midday peak hour the average delay is 137.8 seconds, resulting in a LOS F. The intersection meets standards under existing conditions.
- 5. Day Street/Canyon Springs Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 97.0 seconds, resulting in a LOS F. The intersection operates at a LOS E under existing conditions.
- 6. Day Street/ Campus Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 57.5 seconds, resulting in a LOS E. The intersection operates at a LOS D under Saturday midday existing conditions.

The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), identified overlap westbound right-turns to improve operations at the two Day Street intersections.

Appendix H includes the year 2026 background conditions intersection operations worksheets.

### Intersection Turn Lane Queues

The 95<sup>th</sup> percentile queue lengths, available storage at turn lanes, and distance to adjacent side streets and signalized intersections for each study intersection under year 2026 background conditions are shown in Table 18.

**Table 18. Year 2026 Background Conditions (without project) 95<sup>th</sup> Percentile Queue Lengths at Study Intersections**

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	75	116	55
	EBR	50	650	650	7	<b>53</b>	16
	WBL	275	770	770	202	<b>#500</b>	<b>#487</b>
	NBL <sup>1</sup>	1,200	N/A	N/A	164	67	86
	NBR <sup>1</sup>	1,200	N/A	N/A	25	104	127
	SBL <sup>1</sup>	1,400	N/A	N/A	176	#334	#286
	SBR <sup>1</sup>	1,400	N/A	N/A	3	55	17
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	<b>#437</b>	<b>#491</b>	<b>#840</b>
	EBR	360	530	830	10	54	3
	WBL	100	200	950	64	84	69
	WBR	30	200	950	<b>58</b>	<b>76</b>	<b>134</b>
	NBL	150	1,600	>2,000	<b>225</b>	<b>175</b>	132
	SBL	160	390	960	75	<b>221</b>	<b>228</b>
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	202	#310	#559
	WBR <sup>1</sup>	1,580	N/A	N/A	54	132	149
	NBR	180	820	820	0	m0	m0
	SBL <sup>2</sup>	200	380	950	82	83	83



Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	215	#404	#454
	WBR <sup>1</sup>	1,280	N/A	N/A	27	304	100
	SBL	500	840	840	m74	m94	m62
5. Day St/Canyon Springs Pkwy	EBL <sup>3</sup>	170	240	490	57	<b>#517</b>	<b>#592</b>
	WBL	140	140	300	68	78	<b>141</b>
	NBL	180	580	580	132	<b>#306</b>	<b>#521</b>
	SBL	145	370	370	<b>227</b>	<b>318</b>	<b>#455</b>
6. Day St/Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	41	148	153
	WBL	190	440	440	53	140	187
	NBL	140	360	880	82	<b>184</b>	<b>#281</b>
	SBL	180	170	580	64	<b>217</b>	<b>#403</b>
7. Day St/Eucalyptus Ave	EBL	100	340	2,000	<b>259</b>	<b>#440</b>	<b>#721</b>
	WBL	170	100	1,000	113	156	152
	WBR	200	100	1,000	60	63	76
	NBL	150	510	1,210	#424	101	144
	SBL	180	300	1,100	126	<b>#307</b>	<b>#234</b>
8. Town Cir/Campus Pkwy	EBL <sup>3</sup>	200	460	460	3	20	55
	EBR	450	460	460	3	18	35
	NBL	125	150	>2,000	10	43	108
9. Memorial Way/Town Cir	WBL <sup>2</sup>	100	310	>2,000	8	33	78
	NBL <sup>3</sup>	100	200	450	8	30	73
	NBR	450	200	450	5	25	98
	EBL	160	450	930	55	142	<b>231</b>
10. Memorial Way-Eucalyptus Ave/Towngate Blvd	EBR	70	450	930	50	<b>185</b>	<b>133</b>
	WBL	150	970	1,950	43	60	64
	WBR	70	970	1,950	13	66	<b>134</b>
	NBL	200	430	920	<b>312</b>	<b>252</b>	<b>335</b>
11. Town Cir/Centerpoint Drive	SBL	190	640	640	53	126	149
	NBR	65	110	>2,000	8	18	39
12. Heritage Way/Town Circ	SBL <sup>3</sup>	50	80	>2,000	13	<b>102</b>	<b>79</b>
	WBL	100	250	740	5	13	35
	NBL	100	130	630	3	15	35
13. Heritage Way/ Towngate Blvd	NBR	650	130	630	3	5	15
	EBL	325	900	1,930	48	#107	98
	EBR	100	900	1,930	0	0	0
	WBL	150	460	1,260	38	46	45
	WBR	85	460	1,260	0	22	85
14. Pigeon Pass Rd/Hemlock Rd	SBL <sup>2</sup>	200	120	N/A	43	127	153
	SBR	650	120	N/A	0	0	21
	WBL <sup>3</sup>	260	200	1,340	252	247	<b>#375</b>
	NBL	240	700	700	111	139	185

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
15. Frederick St/SR-60 EB On-Ramp	NBR	90	700	700	<b>95</b>	<b>337</b>	<b>261</b>
	SBL <sup>2</sup>	200	200	1,340	152	138	151
	SBL	340	700	700	253	187	198
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Boulevard	EBL <sup>1</sup>	1,700	N/A	N/A	154	278	250
	EBR <sup>1</sup>	1,700	N/A	N/A	231	402	#633
	WBL <sup>3</sup>	140	150	>2,000	<b>174</b>	<b>191</b>	<b>#334</b>
	NBR	75	210	460	74	<b>245</b>	<b>288</b>
	SBL	60	120	120	<b>150</b>	<b>167</b>	<b>#254</b>
17. Frederick St/ Centerpoint Dr	NBL	130	320	320	46	72	78
18. Frederick St/ Towngate Blvd	EBR	100	340	1,260	30	65	66
	NBL	330	660	1,200	146	<b>287</b>	<b>#466</b>
	SBR	100	220	420	16	38	87
19. Frederick St/ Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	123	114	111
	WBL	150	360	>2,000	123	90	65
	NBL <sup>2</sup>	190	1,200	1,200	150	<b>202</b>	<b>238</b>
	NBR	190	1,200	1,200	49	17	0
	SBL	130	260	1,200	<b>145</b>	<b>246</b>	<b>218</b>
	SBR	190	260	1,200	40	41	37
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	107	129	155
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	3

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

**Bold text** indicates 95<sup>th</sup> percentile queue exceeds striped storage  
 #: 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer.

m: Volume for 95<sup>th</sup> percentile queue is metered by upstream signal.

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right

As shown in the table, eleven of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2026 background conditions. None of the highway off-ramps have 95<sup>th</sup> percentile queue lengths that exceed the ramp storage under year 2026 background conditions. Intersections where the 95<sup>th</sup> percentile queue is longer than the distance to the adjacent signalized intersection for one or more movement include:

- 2. Valley Springs Pkwy/Eucalyptus Ave: 95<sup>th</sup> percentile queues for the eastbound left turn exceeds the distance to the nearest signalized intersection (I-215 Ramps/ Eucalyptus Ave) during the Saturday midday peak hour
- 5. Day St/Canyon Springs Pkwy: As under existing conditions, 95<sup>th</sup> percentile queues for the eastbound and northbound left turns exceed the distance to the nearest signalized intersections (Shopping Access/Canyon Springs Pkwy and Day St/Campus Pkwy) during the Saturday midday peak hour. Under year 2026 background conditions, the 95<sup>th</sup> percentile queues for the eastbound left turn also exceeds the distance to the nearest signalized intersection during the weekday PM peak hour.

- 16. Frederick St/SR-60 EB Off-Ramp – Sunnymead Boulevard: As under existing conditions, the 95<sup>th</sup> percentile queue for the southbound left turn exceeds the distance to the nearest signalized intersection (Frederick St/SR-60 EB On-Ramp) during all three time periods

It should be noted that the 95<sup>th</sup> percentile queue is defined as the queue length that has only a five percent probability of being exceeded during the peak period, and is therefore not typical of the average drive experience.

*Appendix I includes the year 2026 background conditions intersection queueing worksheets.*

## ROADWAY SEGMENT OPERATIONS

Segment volumes on the study roadways for the year 2026 background conditions analysis were developed by applying a 1.5% growth rate to existing daily volumes (resulting in a total growth rate of 7.5%, assuming 1.5% per year over 5 years) and adding trips associated with the cumulative projects. The same cumulative project distribution and assignment used for the intersection analysis was applied, but with daily volumes instead of peak hour volumes. The segment volumes and operations are reported in Table 19.

**Table 19. Year 2026 Background Conditions (without project) Roadway Segment Operations**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Weekday			Saturday		
						ADT	LOS	v/c	ADT	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	41,645	C	0.84	41,949	C	0.85
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	53,629	<b>E</b>	1.08	59,329	<b>E</b>	1.20
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	38,135	C	0.77	43,322	C	0.88
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	36,192	C	0.73	40,145	C	0.81
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	28,252	C	0.57	26,736	C	0.54
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	22,247	C	0.45	22,206	C	0.45
	Day St to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	19,228	A	0.51	17,918	A	0.48
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>1</sup>	D	25,000	7,030	A	0.28	10,368	A	0.41
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>1</sup>	D	56,300	17,627	A	0.31	22,775	A	0.40
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	12,096	A	0.32	13,087	A	0.35
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>2</sup>	D	56,300	42,568	C	0.76	40,911	C	0.73
G. Frederick St	Sunnymead Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>2</sup>	D	56,300	40,564	C	0.72	43,066	C	0.76
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	31,798	D	0.85	27,619	C	0.74
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	29,596	C	0.79	26,415	C	0.70

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided

**Bold text** indicates not meeting standards

<sup>1</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>2</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

As shown in the table, all roadway segments operate within the target LOS, except for the segment of Day Street between the SR 60 EB Ramps and Canyon Springs Parkway, which operates at a LOS E and over capacity on both a weekday and Saturday. The roadway LOS and volume-to-capacity shown in the table are based on the City of Riverside thresholds, that consider the number of through lanes on a roadway. In addition to six through lanes, this section of roadway also has two southbound right-turn lanes for its full length, providing additional capacity. The cumulative projects add a notable amount of traffic to this segment of roadway, especially the Canyon Springs Healthcare Campus & Senior Living project, which is projected to add about 5,100 daily trips. The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), projected this segment of Day Street to operate just under capacity in the General Plan Buildout with Project Conditions, but used a higher threshold for LOS E (54,900). Since that study was completed in 2017, the City's thresholds have changed.

## FREEWAY OPERATIONS

The freeway mainline volumes for year 2026 background conditions were developed by applying a 1.5% annual growth rate to existing volumes (resulting in a total growth rate of 7.5%, assuming 1.5% per year over 5 years) and adding trips associated with cumulative projects. The freeway volumes and operations, based on the HCS analysis, are shown in Table 20.

**Table 20. Year 2026 Background Conditions (without project) Freeway Mainline Segment Operations**

Roadway	Segment	Direction	Weekday AM		Weekday PM		Saturday Mid	
			Volume	LOS	Volume	LOS	Volume	LOS
SR-60	Between the Day Street Ramps	EB	4,294	B	6,374	D	6,043	C
		WB	3,996	C	4,014	C	4,259	C
	East of the Frederick Street Ramps	EB	3,734	C	4,465	C	4,529	C
		WB	3,109	B	3,799	C	4,051	C
I-215	SR-60 to Eucalyptus Avenue Ramps	NB	2,628	B	3,294	C	3,625	C
		SB	4,171	B	4,004	B	4,572	B
	South of the Eucalyptus Avenue Ramps	NB	3,157	B	3,180	B	3,530	C
		SB	3,760	C	3,905	C	4,413	D

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

As shown in the table, all segments of SR-60 and I-215 are forecasted to operate at a LOS D or better during all peak periods under year 2026 background conditions.

Appendix J includes the HCS output sheets for the year 2026 background conditions freeway mainline analysis.

## YEAR 2026 TOTAL TRAFFIC CONDITIONS (WITH PROJECT)

The year 2026 total traffic conditions analyzes operations in the expected buildout year of the site with the proposed project in place. The lane configurations and traffic control devices assumed for the future site accesses are shown in Figure 21.

**Figure 21. Total Traffic Lane Configurations and Traffic Control Devices – Site Accesses**

## INTERSECTION OPERATIONS

### ***Traffic Volumes and Intersection Levels of Service***

Traffic volumes for the year 2026 total traffic conditions analysis were developed by adding the site generated trips to the year 2026 background volumes. Figure 22a, Figure 23a, and Figure 24a summarize the traffic volumes for the study intersections under year 2026 total traffic conditions for the weekday AM, weekday PM, and Saturday midday peak hour traffic conditions, respectively. Figure 22b, Figure 23b, and Figure 24b summarize the traffic volumes at the site accesses.

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**Figure 22a. Year 2026 Total Traffic Intersection Volumes – Weekday AM Peak Hour**



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**Figure 22b. Year 2026 Total Traffic Intersection Volumes at Site Access – Weekday AM Peak Hour**

**Figure 23a. Year 2026 Total Traffic Intersection Volumes – Weekday PM Peak Hour**

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**Figure 23b. Year 2026 Total Traffic Intersection Volumes at Site Access – Weekday PM Peak Hour**

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**Figure 24a. Year 2026 Total Traffic Intersection Volumes – Saturday Midday Peak Hour**

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**Figure 24b. Year 2026 Total Traffic Intersection Volumes at Site Access – Saturday Midday Peak Hour**

Table 23 summarizes the operations at the study intersections.

**Table 21. Year 2026 Total Traffic Conditions (with project) Intersection Operations**

Study Intersection	Jurisdiction	Traffic Control	LOS Std	Weekday AM		Weekday PM		Saturday Mid	
				Delay	LOS	Delay	LOS	Delay	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	36.1	D	<b>82.5</b>	<b>F</b>	45.1	D
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	39.5	D	<b>120.1</b>	<b>F</b>	<b>143.1</b>	<b>F</b>
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	22.8	C	23.3	C	53.7	D
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	16.2	B	30.0	C	33.7	C
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	19.0	B	<b>56.0</b>	<b>E</b>	<b>102.5</b>	<b>F</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	16.5	B	38.9	D	<b>64.4</b>	<b>E</b>
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	28.8	C	34.2	C	48.4	D
8. Town Cir/ Campus Pkwy	MV	AWSC	D	8.5	A	13.6	B	25.2	D
9. Memorial Way/Town Cir	MV	AWSC	D	8.0	A	15.2	C	<b>35.3</b>	<b>E</b>
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	17.5	B	25.2	C	28.4	C
11. Town Cir/ Centerpoint Drive	MV	Signal	D	16.3	B	22.1	C	45.9	D
12. Heritage Way/Town Circ	MV	AWSC	D	10.8	B	17.2	C	<b>36.5</b>	<b>E</b>
13. Heritage Way/Towngate Blvd	MV	Signal	D	15.6	B	17.3	B	18.5	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	40.7	D	41.9	D	51.0	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	7.3	A	2.6	A	2.5	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	22.5	C	34.4	C	45.0	D
17. Frederick St/ Centerpoint Dr	MV	Signal	D	11.5	B	16.4	B	23.5	C
18. Frederick St/ Towngate Blvd	MV	Signal	D	13.0	B	25.1	C	32.2	C
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	24.7	C	34.3	C	31.9	C
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	14.3	B	16.8	B	18.8	B
A. Access A/Town Circ	MV	TWSC	D	9.1	A	10.9	B	12.9	B
B. Access B/Town Circ	MV	TWSC	D	8.9	A	10.6	B	11.8	B
C. Access C/Town Circ	MV	TWSC	D	8.6	A	9.4	A	9.7	A
D. Access D/Town Circ	MV	TWSC	D	11.7	B	16.0	C	23.7	C
E. Access E/Town Circ	MV	TWSC	D	12.0	B	21.1	C	<b>97.3</b>	<b>F</b>

LOS = Level of Service, s = seconds MV = Moreno Valley, AWSC = All-way stop-control, TWSC = Two-way stop-control

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

As shown in the table, there are seven intersections that do not meet standards under year 2026 total traffic conditions, three of which also do not meet standards under background conditions:

- 1. I-215 Ramps/Eucalyptus Avenue: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS E. The average delay during the weekday PM peak hour is 82.5 seconds, resulting in a LOS F. The intersection meets standards under existing and background conditions.
- 2. Valley Springs Pkwy/ Eucalyptus Ave: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 120.1 seconds, resulting in a LOS F, and during the Saturday midday peak hour the average delay is 143.1 seconds, resulting in a LOS F. The intersection does not meet standards under background conditions.
- 5. Day Street/Canyon Springs Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 56.0 seconds, resulting in a LOS E, and the average delay during the Saturday midday peak hour is 102.5 seconds, resulting in a LOS F. The intersection does not meet standards under existing or background conditions. The intersection operates at a LOS E under existing conditions.
- 6. Day Street/ Campus Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 64.4 seconds, resulting in a LOS E. The intersection operates at a LOS D under Saturday midday existing conditions.
- 9. Memorial Way/Town Circle: this all-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 35.3 seconds, resulting in a LOS E. The intersection meets standards under existing and background conditions.
- 12. Heritage Way/Town Circle: this all-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 36.5 seconds, resulting in a LOS E. The intersection meets standards under existing and background conditions.
- E. Access E/Town Circle: this two-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay for the southbound left-turn during the Saturday midday peak hour is 97.3 seconds, resulting in a LOS E. Options for new access points proposed with the development are discussed later in this report in *Section 9: Site Access Analysis*.

Potential improvements at these intersections are discussed in *Section 12: Findings and Recommendations*. In addition, the section includes Table 35, which lists intersection operations under all scenarios.

*Appendix K includes the year 2026 total traffic conditions intersection operations worksheets.*

### Intersection Turn Lane Queues

The 95<sup>th</sup> percentile queue lengths, available storage at turn lanes, and distance to adjacent side streets and signalized intersections for each study intersection under year 2026 total traffic conditions are shown in Table 22.

**Table 22. Year 2026 Total Traffic Conditions (with project) 95<sup>th</sup> Percentile Queue Lengths at Study Intersections**

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	75	116	55
	EBR	50	650	650	7	<b>53</b>	16
	WBL	275	770	770	228	<b>#535</b>	<b>#524</b>
	NBL <sup>1</sup>	1,200	N/A	N/A	164	67	87
	NBR <sup>1</sup>	1,200	N/A	N/A	26	130	160
	SBL <sup>1</sup>	1,400	N/A	N/A	176	<b>#334</b>	<b>#291</b>
	SBR <sup>1</sup>	1,400	N/A	N/A	3	55	17
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	<b>#454</b>	<b>#491</b>	<b>#840</b>
	EBR	360	530	830	10	54	3
	WBL	100	200	950	65	84	69
	WBR	30	200	950	<b>58</b>	<b>76</b>	<b>134</b>
	NBL	150	1,600	>2,000	<b>232</b>	<b>175</b>	132
	SBL	160	390	960	77	<b>221</b>	<b>228</b>
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	202	#312	#561
	WBR <sup>1</sup>	1,580	N/A	N/A	57	132	150
	NBR	180	820	820	0	m0	m2
	SBL <sup>2</sup>	200	380	950	82	83	83
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	226	#433	#481
	WBR <sup>1</sup>	1,280	N/A	N/A	27	305	101
	SBL	500	840	840	m74	m94	m62
5. Day St/Canyon Springs Pkwy	EBL <sup>3</sup>	170	240	490	165	<b>#517</b>	<b>#592</b>
	WBL	140	140	300	69	78	<b>141</b>
	NBL	180	580	580	135	<b>#306</b>	<b>#521</b>
	SBL	145	370	370	<b>232</b>	<b>318</b>	<b>#455</b>
6. Day St/Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	41	148	153
	WBL	190	440	440	73	151	<b>204</b>
	NBL	140	360	880	82	<b>184</b>	<b>#281</b>
	SBL	180	170	580	80	<b>#270</b>	<b>#460</b>
7. Day St/Eucalyptus Ave	EBL	100	340	2,000	<b>269</b>	<b>#459</b>	<b>#742</b>
	WBL	170	100	1,000	139	<b>176</b>	<b>173</b>
	WBR	200	100	1,000	73	63	99
	NBL	150	510	1,210	#433	101	144
	SBL	180	300	1,100	128	<b>#307</b>	<b>#234</b>
8. Town Cir/Campus Pkwy	EBL <sup>3</sup>	200	460	460	5	28	70
	EBR	450	460	460	3	23	45



Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
9. Memorial Way/ Town Cir	NBL	125	150	>2,000	15	50	<b>130</b>
	WBL <sup>2</sup>	100	310	>2,000	8	35	78
	NBL <sup>3</sup>	100	200	450	8	33	73
	NBR	450	200	450	5	28	100
10. Memorial Way-Eucalyptus Ave/ Towngate Blvd	EBL	160	450	930	55	150	<b>239</b>
	EBR	70	450	930	60	<b>219</b>	<b>158</b>
	WBL	150	970	1,950	43	64	65
	WBR	70	970	1,950	13	<b>74</b>	<b>148</b>
	NBL	200	430	920	<b>313</b>	<b>268</b>	<b>#355</b>
	SBL	190	640	640	53	132	154
11. Town Cir/ Centerpoint Drive	EBL	50	350	N/A	7	9	8
	NBL	75	110	>2,000	39	33	33
	NBR	65	110	>2,000	19	<b>81</b>	<b>138</b>
	SBL <sup>3</sup>	50	80	>2,000	29	<b>118</b>	<b>#123</b>
12. Heritage Way/ Town Circ	EBL	50	650	>2,000	23	0	3
	WBL	100	250	740	20	45	<b>153</b>
	NBL	100	130	630	10	43	<b>108</b>
	NBR	650	130	630	18	30	40
13. Heritage Way/ Towngate Blvd	EBL	325	900	1,930	107	173	196
	EBR	100	900	1,930	0	0	0
	WBL	150	460	1,260	39	49	48
	WBR	85	460	1,260	37	64	<b>131</b>
	SBL <sup>2</sup>	200	120	N/A	141	<b>229</b>	<b>268</b>
	SBR	650	120	N/A	47	46	55
14. Pigeon Pass Rd/ Hemlock Rd	WBL <sup>3</sup>	260	160	400	<b>292</b>	<b>#314</b>	<b>#469</b>
	NBL	240	700	700	111	139	185
	NBR	90	700	700	<b>105</b>	<b>346</b>	<b>271</b>
	SBL <sup>2</sup>	200	200	1,340	152	138	151
15. Frederick St/SR-60 EB On- Ramp	SBL	340	700	700	253	187	198
16. Frederick St/ SR-60 EB Off- Ramp – Sunnymead Blvd	EBL <sup>1</sup>	1,700	N/A	N/A	154	278	250
	EBR <sup>1</sup>	1,700	N/A	N/A	315	#624	#835
	WBL <sup>3</sup>	140	150	>2,000	<b>179</b>	<b>201</b>	<b>#350</b>
	NBR	75	210	460	<b>100</b>	<b>267</b>	<b>318</b>
	SBL	60	120	120	<b>150</b>	<b>167</b>	<b>#254</b>
17. Frederick St/ Centerpoint Dr	NBL	130	320	320	51	77	85
18. Frederick St/ Towngate Blvd	EBR	100	340	1,260	45	75	76
	NBL	330	660	1,200	199	<b>#417</b>	<b>#616</b>
	SBR	100	220	420	19	42	<b>105</b>
19. Frederick St/ Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	131	117	114
	WBL	150	360	>2,000	131	92	66

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
	NBL <sup>2</sup>	190	1,200	1,200	160	<b>208</b>	<b>242</b>
	NBR	190	1,200	1,200	54	17	0
	SBL	130	260	1,200	<b>205</b>	<b>291</b>	<b>263</b>
	SBR	190	260	1,200	41	40	36
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	118	154	180
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	3
A. Access A/Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	8	5	8
B. Access B/Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	0	3	3
C. Access C/Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	3	3	3
D. Access D/Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	23	23	45
	NBL <sup>2</sup>	75	140	>2,000	3	5	5
E. Access E/Town Circ	EBL <sup>2</sup>	75	25	>2,000	3	13	23
	SBL	N/A <sup>4</sup>	N/A	N/A	25	90	340
	SBR	N/A <sup>4</sup>	N/A	N/A	3	15	40

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

<sup>4</sup> Site access, storage length not defined

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right, N/A = Not Applicable

**Bold text** indicates 95<sup>th</sup> percentile queue exceeds striped storage

**Bold italics text** indicates that 95<sup>th</sup> percentile queue length exceeds striped storage under total traffic conditions and not in background conditions.

As shown in the table, thirteen of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2026 total traffic conditions. All of these intersections also have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2026 background conditions, except for the intersections of Town Circle/Campus Parkway and Heritage Way/Towngate Boulevard. None of the highway off-ramps have 95<sup>th</sup> percentile queue lengths that exceed the ramp storage under year 2026 total traffic conditions.

Intersections where the 95<sup>th</sup> percentile queue is longer than the distance to the adjacent signalized intersection for one or more movement include the three noted under background conditions, as well as:

- 14. Pigeon Pass Rd/ Hemlock Rd: 95<sup>th</sup> percentile queues for the westbound left turn exceeds the distance to the nearest signalized intersection (SR-60 WB Off Ramp/Hemlock Ave) during the Saturday midday peak hour.

It should be noted that the 95<sup>th</sup> percentile queue is defined as the queue length that has only a five percent probability of being exceeded during the peak period, and is therefore not typical of the average drive experience.

Appendix L includes the year 2026 total traffic conditions intersection queueing worksheets.

## ROADWAY SEGMENT OPERATIONS

Segment volumes on the study roadways for the year 2026 total traffic conditions analysis were developed by adding the site generated trips to the year 2026 background conditions volumes. The segment volumes and operations are reported in Table 23.

**Table 23. Year 2026 Total Traffic Conditions (with project) Roadway Segment Operations**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Weekday			Saturday		
						ADT	LOS	v/c	ADT	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	42,257	C	0.85	42,588	C	0.86
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	54,727	<b>E</b>	1.11	60,436	<b>E</b>	1.22
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	39,217	C	0.79	44,430	D	0.90
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	36,321	C	0.73	40,300	C	0.81
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	28,554	C	0.58	27,059	C	0.55
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	23,786	C	0.48	23,761	C	0.48
	Day St to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	20,979	A	0.56	19,669	A	0.52
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>1</sup>	D	25,000	11,373	A	0.45	14,664	A	0.59
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>1</sup>	D	56,300	22,863	A	0.41	28,095	A	0.50
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	13,922	A	0.37	14,899	A	0.40
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>2</sup>	D	56,300	45,287	D	0.80	43,663	C	0.78
G. Frederick St	Sunnymeade Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>2</sup>	D	56,300	45,624	D	0.81	48,177	D	0.86
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	31,974	D	0.85	27,829	C	0.74
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	31,598	D	0.84	28,437	C	0.76

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided

**Bold text** indicates not meeting standards

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

<sup>1</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>2</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

As shown in the table, all roadway segments operate within the target LOS, except for the segment of Day Street between the SR 60 EB Ramps and Canyon Springs Parkway, which operates at a LOS E and over capacity on both a weekday and Saturday. This segment also operates at a LOS E and over capacity under year 2026 background conditions. The volume-to-capacity ratio is expected to increase with the project 0.03 on a weekday and 0.02 on a Saturday, which is below the City of Riverside's threshold<sup>2</sup> for identifying improvements to add capacity.

## FREEWAY OPERATIONS

The freeway mainline volumes for year 2026 total traffic conditions were developed by adding the site generated trips to the year 2026 background conditions volumes. The freeway volumes and LOS for year 2026 total traffic conditions, based on the HCS analysis, are shown in Table 24.

**Table 24. Year 2026 Total Traffic Conditions (with project) Freeway Mainline Segment Operations**

Roadway	Segment	Direction	Weekday AM		Weekday PM		Saturday Mid	
			Volume	LOS	Volume	LOS	Volume	LOS
SR-60	Between the Day Street Ramps	EB	4,294	B	6,374	D	6,043	C
		WB	3,996	C	4,014	C	4,259	C
	East of the Frederick Street Ramps	EB	3,826	C	4,534	C	4,602	C
		WB	3,161	B	3,881	C	4,131	C
I-215	SR-60 to Eucalyptus Avenue Ramps	NB	2,628	B	3,294	C	3,625	C
		SB	4,171	B	4,004	B	4,572	B
	South of the Eucalyptus Avenue Ramps	NB	3,186	B	3,227	B	3,575	C
		SB	3,813	C	3,944	C	4,455	D

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

As shown in the table, all segments of SR-60 and I-215 are forecasted to operate at a LOS D or better during all peak periods under year 2026 total traffic conditions.

Appendix M includes the HCS output sheets for the year 2026 total traffic conditions freeway mainline analysis.

<sup>2</sup> As stated in the City of Riverside guide, "Any roadway segment that operates unacceptably in the no project scenario where the project adds traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05) should identify operation improvements (such as fiber optic interconnect, CCTV, traffic signal controller improvements) to improve operations."



## Section 7 Year 2040 Analysis

# YEAR 2040 ANALYSIS

## YEAR 2040 BACKGROUND CONDITIONS (WITHOUT PROJECT)

### COMMITTED ROADWAY IMPROVEMENTS

As described under the Year 2026 Analysis, the Riverside County 2019 Long Range Transportation Study (Reference 7) includes widening Eucalyptus Avenue between I-215 and Towngate Boulevard from four to six lanes, with a completion year of 2028. This project is also included in the Transportation Uniform Mitigation Fee (TUMF) Program, as well as improvements at the SR-60 interchange at Day Street. The TUMF Program was initiated in Western Riverside County and uses development fees to fund local and regional projects that are needed to support growth. It is administered by the Western Riverside Council of Government (WRCOG) and implemented in all jurisdictions in Western Riverside County, including Moreno Valley.

The widening on Eucalyptus Avenue and Day Street/SR-60 Interchange improvements are also included in the City of Moreno Valley's Capital Improvement Plan (Reference 12). The priority for widening on Eucalyptus Avenue is noted as "deferrable," indicating it will start within five to ten years. The priority for interchange improvements at the SR-60 interchange at Day Street is noted as "desirable," indicating a start within three to five years. The project description states that the project will involve "design and construction of a new SR-60 freeway westbound on-ramp on the west side of Day Street. It includes a WB auxiliary lane, HOV bypass lanes on both WB on-ramps, bridge widening for the WB loop on-ramp HOV bypass lane, and associated walls and traffic channelization devices. The project includes constructing the missing sidewalk gap along the west side of Day Street." The interchange improvements will be designed based on future volumes, and were not included in this analysis given that the specific scope of the improvements is not yet known.

The lane configurations and traffic control devices assumed for the year 2040 analysis reflect the widening on Eucalyptus Avenue, and are shown in Figure 25.

**Figure 25. Year 2040 Traffic Control Devices and Lane Configurations**



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## INTERSECTION OPERATIONS

### ***Traffic Volumes and Intersection Levels of Service***

Traffic volumes for the year 2040 background conditions analysis were developed using the RIVTAM 2012 and 2040 models. The 2040 model was modified to account for the proposed development. Link volumes from the 2012 and 2040 models were used alongside existing intersection counts to develop 2040 intersection counts, using the post-processing approach from NCHRP 255 (Reference 16). The intersection volumes were reviewed and adjusted considering corridor balancing (so there are not dramatic changes in volumes between adjacent intersections) and the growth rate reflected in the model volumes. Where the model showed a decrease in volumes, existing intersection volumes were grown by 10 percent. Because the model volumes include trips associated with the project, intersection volumes for the year 2040 background conditions were developed by subtracting out project trips and adding trips associated with the cumulative projects.

Figure 26, Figure 27, and Figure 28 summarize the traffic volumes for the study intersections under year 2040 background conditions for the weekday AM, weekday PM, and Saturday midday peak hour traffic conditions, respectively.

**Figure 26. Year 2040 Background Intersection Volumes – Weekday AM Peak Hour**

**Figure 27. Year 2040 Background Intersection Volumes – Weekday PM Peak Hour**

**Figure 28. Year 2040 Background Intersection Volumes – Saturday Midday Peak Hour**

Table 25 summarizes the operations at the study intersections.

**Table 25. Year 2040 Background Conditions (without project) Intersection Operations**

Study Intersection	Jurisdiction	Traffic Control	LOS Std	Weekday AM		Weekday PM		Saturday Mid	
				Delay	LOS	Delay	LOS	Delay	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	42.4	D	69.7	E	69.7	E
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	<b>59.1</b>	<b>E</b>	<b>110.6</b>	<b>F</b>	<b>115.1</b>	<b>F</b>
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	24.9	C	25.3	C	30.5	C
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	17.4	B	28.2	C	33.2	C
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	24.0	C	<b>79.2</b>	<b>E</b>	<b>142.1</b>	<b>F</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	16.4	B	<b>62.8</b>	<b>E</b>	<b>134.9</b>	<b>F</b>
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	<b>114.2</b>	<b>F</b>	<b>109.1</b>	<b>F</b>	<b>147.3</b>	<b>F</b>
8. Town Cir/ Campus Pkwy	MV	AWSC	D	7.9	A	12.6	B	22.2	C
9. Memorial Way/Town Cir	MV	AWSC	D	7.8	A	14.6	B	<b>35.6</b>	<b>E</b>
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	20.1	C	46.0	D	39.4	D
11. Town Cir/ Centerpoint Drive	MV	Signal	D	9.0	A	10.4	B	11.7	B
12. Heritage Way/Town Circ	MV	AWSC	D	7.3	A	10.5	B	14.9	B
13. Heritage Way/Towngate Blvd	MV	Signal	D	12.5	B	16.1	B	15.1	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	40.1	D	29.8	C	42.5	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	4.3	A	2.6	A	2.7	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	25.4	C	69.9	E	<b>91.1</b>	<b>F</b>
17. Frederick St/ Centerpoint Dr	MV	Signal	D	8.5	A	13.9	B	17.1	B
18. Frederick St/ Towngate Blvd	MV	Signal	D	15.2	B	29.4	C	34.0	C
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	33.9	C	51.2	D	43.8	D
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	12.2	B	14.5	B	16.6	B

LOS = Level of Service, s = seconds MV = Moreno Valley, AWSC = All-way stop-control  
**Bold text** indicates operations do not meet LOS Standard

As shown in the table, there are six intersections that do not meet standards under year 2040 background conditions. In addition to the three intersections that do not meet standards under year 2026 background conditions (Valley Springs Parkway/Eucalyptus Avenue, Day Street/Canyon Springs Parkway, and Day

Street/Campus Parkway), the following intersections do not meet standards under 2040 background conditions:

- 7. Day Street/Eucalyptus Avenue: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The intersection is projected to operate at a LOS F during the weekday AM, weekday PM, and Saturday midday peak hours.
- 9. Memorial Way/Town Circle: this all-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 35.6 seconds, resulting in a LOS E.
- 16. Frederick Street/SR-60 EB Off-Ramp – Sunnymead Boulevard: this signalized intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 91.1 seconds, resulting in a LOS F.

Appendix N includes the year 2040 background conditions intersection operations worksheets.

### Intersection Turn Lane Queues

The 95<sup>th</sup> percentile queue lengths, available storage at turn lanes, and distance to adjacent side streets and signalized intersections for each study intersection under year 2040 background conditions are shown in Table 26.

**Table 26. Year 2040 Background Conditions (without project) 95<sup>th</sup> Percentile Queue Lengths at Study Intersections**

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	#221	<b>#347</b>	132
	EBR	50	650	650	8	152	41
	WBL	275	770	770	<b>#280</b>	<b>#444</b>	<b>#546</b>
	NBL <sup>1</sup>	1,200	N/A	N/A	#364	127	212
	NBR <sup>1</sup>	1,200	N/A	N/A	84	236	#695
	SBL <sup>1</sup>	1,400	N/A	N/A	212	#492	#512
	SBR <sup>1</sup>	1,400	N/A	N/A	0	70	33
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	<b>#396</b>	<b>#468</b>	<b>#815</b>
	EBR	360	530	830	49	67	41
	WBL	100	200	950	<b>142</b>	<b>#140</b>	<b>102</b>
	WBR	30	200	950	<b>38</b>	<b>74</b>	<b>142</b>
	NBL	150	1,600	>2,000	<b>#532</b>	<b>#436</b>	<b>#307</b>
	SBL	160	390	960	77	<b>#249</b>	<b>#369</b>
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	342	#423	#604
	WBR <sup>1</sup>	1,580	N/A	N/A	293	199	206
	NBR	180	820	820	0	m5	m0
	SBL <sup>2</sup>	200	380	950	103	#121	#122
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	216	#423	#464
	WBR <sup>1</sup>	1,280	N/A	N/A	46	352	117
	SBL	500	840	840	m86	m#155	m#111
5. Day St/Canyon	EBL <sup>3</sup>	170	240	490	<b>#209</b>	<b>#570</b>	<b>#663</b>

Study Intersection	Move- ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
Springs Pkwy	WBL	140	140	300	75	78	137
	NBL	180	580	580	#178	<b>#412</b>	<b>#593</b>
	SBL	145	370	370	<b>#302</b>	<b>#453</b>	<b>#591</b>
6. Day St/Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	47	<b>#192</b>	<b>#212</b>
	WBL	190	440	440	62	#163	<b>#276</b>
	NBL	140	360	880	#108	<b>#229</b>	<b>#347</b>
	SBL	180	170	580	75	<b>#273</b>	<b>#435</b>
7. Day St/Eucalyptus Ave	EBL	100	340	2,000	<b>#666</b>	<b>#988</b>	<b>#1,441</b>
	WBL	170	100	1,000	<b>#206</b>	<b>#290</b>	<b>246</b>
	WBR	200	100	1,000	89	64	<b>211</b>
	NBL	150	510	1,210	<b>#829</b>	<b>#262</b>	<b>#390</b>
	SBL	180	300	1,100	<b>#377</b>	<b>#589</b>	<b>#546</b>
8. Town Cir/Campus Pkwy	EBL <sup>3</sup>	200	460	460	3	20	58
	EBR	450	460	460	3	20	38
	NBL	125	150	>2,000	10	45	115
9. Memorial Way/Town Cir	WBL <sup>2</sup>	100	310	>2,000	5	33	85
	NBL <sup>3</sup>	100	200	450	8	33	75
	NBR	450	200	450	5	28	105
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	EBL	160	450	930	69	<b>180</b>	<b>261</b>
	EBR	70	450	930	<b>77</b>	<b>480</b>	<b>365</b>
	WBL	150	970	1,950	72	<b>#245</b>	<b>206</b>
	WBR	70	970	1,950	0	52	<b>118</b>
	NBL	200	430	920	<b>487</b>	<b>#385</b>	<b>422</b>
	SBL	190	640	640	66	158	170
11. Town Cir/ Centerpoint Drive	NBR	65	110	>2,000	6	25	43
	SBL <sup>3</sup>	50	80	>2,000	13	<b>102</b>	<b>81</b>
12. Heritage Way/ Town Circ	WBL	100	250	740	5	13	38
	NBL	100	130	630	3	15	35
	NBR	650	130	630	0	8	15
13. Heritage Way/ Towngate Blvd	EBL	325	900	1,930	53	#110	118
	EBR	100	900	1,930	0	0	0
	WBL	150	460	1,260	43	46	51
	WBR	85	460	1,260	0	23	66
	SBL <sup>2</sup>	200	120	N/A	52	129	193
	SBR	650	120	N/A	0	0	0
14. Pigeon Pass Rd/ Hemlock Rd	WBL <sup>3</sup>	260	160	400	<b>282</b>	<b>#333</b>	<b>376</b>
	NBL	240	700	700	114	145	192
	NBR	90	700	700	<b>106</b>	<b>295</b>	<b>246</b>
	SBL	200	200	1,340	154	#177	#169
15. Frederick St/SR- 60 EB On-Ramp	SBL	340	700	700	276	193	208
16. Frederick St/SR-	EBL <sup>1</sup>	1,700	N/A	N/A	156	274	257

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
60 EB Off-Ramp – Sunnymead Boulevard	EBR <sup>1</sup>	1,700	N/A	N/A	235	401	#658
	WBL <sup>3</sup>	140	150	>2,000	<b>291</b>	<b>259</b>	<b>#447</b>
	NBR	75	210	460	<b>157</b>	<b>#814</b>	<b>#914</b>
	SBL	60	120	120	<b>#320</b>	<b>#503</b>	<b>#691</b>
17. Frederick St/ Centerpoint Dr	NBL	130	320	320	53	80	92
18. Frederick St/ Towngate Blvd	EBR	100	340	1,260	39	<b>220</b>	<b>260</b>
	NBL	330	660	1,200	311	316	<b>#412</b>
	SBR	100	220	420	50	50	<b>142</b>
19. Frederick St/ Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	<b>257</b>	#189	#197
	WBL	150	360	>2,000	<b>160</b>	#95	75
	NBL <sup>2</sup>	190	1,200	1,200	<b>196</b>	<b>#208</b>	<b>275</b>
	NBR	190	1,200	1,200	60	0	0
	SBL	130	260	1,200	<b>192</b>	<b>#437</b>	<b>#446</b>
	SBR	190	260	1,200	70	37	41
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	109	122	138
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	3

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

**Bold text** indicates 95<sup>th</sup> percentile queue exceeds striped storage

#: 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer.

m: Volume for 95<sup>th</sup> percentile queue is metered by upstream signal.

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right

As shown in the table, eleven of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2040 background conditions. These are the same intersections as identified under year 2026 background conditions. None of the highway off-ramps have 95<sup>th</sup> percentile queue lengths that exceed the ramp storage under year 2040 background conditions. Intersections where the 95<sup>th</sup> percentile queue is longer than the distance to the adjacent signalized intersection for one or more movement include:

- 5. Day St/Canyon Springs Pkwy: As under existing conditions, 95<sup>th</sup> percentile queues for the eastbound and southbound left turns exceed the distance to the nearest signalized intersections (Shopping Access/Canyon Springs Pkwy and Day St/SR-60 EB Ramps) during the weekday PM peak hour and Saturday midday peak hour. In addition, 95<sup>th</sup> percentile queues for the northbound left turn exceed the distance to the nearest signalized intersection (Day St/Campus Pkwy) during the Saturday midday peak hour.
- 16. Frederick St/SR-60 EB Off-Ramp – Sunnymead Boulevard: the 95<sup>th</sup> percentile queue for the southbound left turn exceeds the distance to the nearest signalized intersection (Frederick St/SR-60 EB On-Ramp) during all three time periods. In addition, 95<sup>th</sup> percentile queues for the northbound right turn exceed the distance to the nearest signalized intersection (Frederick St/ Centerpoint Dr) during the weekday PM peak hour and Saturday midday peak hour.



It should be noted that the 95<sup>th</sup> percentile queue is defined as the queue length that has only a five percent probability of being exceeded during the peak period, and is therefore not typical of the average drive experience.

*Appendix O includes the year 2040 background conditions intersection queueing worksheets.*

## **ROADWAY SEGMENT OPERATIONS**

Segment volumes on the study roadways for the year 2040 background conditions analysis were developed by extrapolating the segment volumes from the intersection counts and applying a factor to convert from peak hour to daily volumes, based on the relationship between peak hour and daily volumes in the existing segment counts. The 2040 background conditions segment volumes include trips associated with the cumulative projects. The segment volumes and operations are reported in Table 27.

**Table 27. Year 2040 Background Conditions (without project) Roadway Segment Operations**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Weekday			Saturday		
						ADT	LOS	v/c	ADT	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	51,841	<b>E</b>	1.05	55,531	<b>E</b>	1.12
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	67,549	<b>E</b>	1.36	77,890	<b>E</b>	1.57
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	54,363	<b>E</b>	1.10	64,480	<b>E</b>	1.30
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	54,368	<b>E</b>	1.10	62,924	<b>E</b>	1.27
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	49,856	<b>E</b>	1.01	48,495	D	0.98
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	31,805	C	0.64	35,264	C	0.71
	Day St to Towngate Blvd	MV	Major Arterial (6D) <sup>1</sup>	D	56,300	26,758	A	0.48	26,714	A	0.47
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>2</sup>	D	25,000	7,193	A	0.29	11,050	A	0.44
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>2</sup>	D	56,300	18,048	A	0.32	24,895	A	0.44
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	17,522	A	0.47	20,927	A	0.56
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>3</sup>	D	56,300	47,093	D	0.84	48,068	D	0.85
G. Frederick St	Sunnymeade Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>3</sup>	D	56,300	45,000	C	0.80	48,960	D	0.87
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	35,962	<b>E</b>	0.96	34,178	<b>E</b>	0.91
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	33,871	<b>E</b>	0.90	32,094	D	0.86

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided

**Bold text** indicates not meeting standards

<sup>1</sup> Eucalyptus Avenue is planned to be widened to 6 lanes before 2040, as reflected in the classification.

<sup>2</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>3</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

As shown in the table, the following roadway segments do not operate within the target LOS:

- All segments on Day Street operate at a LOS E on a weekday. On a Saturday, all segments on Day Street operate at a LOS E except for the segment between Gateway Drive and Eucalyptus Avenue.
- The segments on Frederick Street between Centerpoint Drive and Eucalyptus Avenue operate at a LOS E on a weekday. On a Saturday, the segment on Frederick Street between Centerpoint Drive and Towngate Boulevard operates at a LOS E.

## FREEWAY OPERATIONS

The freeway mainline volumes and LOS for year 2040 background conditions, based on the HCS analysis, are shown in Table 28

**Table 28. Year 2040 Background Traffic Conditions (without project) Freeway Mainline Segment Operations**

Roadway	Segment	Direction	Weekday AM		Weekday PM		Saturday Mid	
			Volume	LOS	Volume	LOS	Volume	LOS
SR-60	Between the Day Street Ramps	EB	5,247	C	6,945	D	6,584	D
		WB	4,042	C	4,541	C	4,818	D
	East of the Frederick Street Ramps	EB	4,697	D	4,791	D	4,860	D
		WB	3,485	C	4,462	C	4,759	C
I-215	SR-60 to Eucalyptus Avenue Ramps	NB	2,687	B	3,496	C	3,853	C
		SB	5,639	C	4,095	B	4,674	B
	South of the Eucalyptus Avenue Ramps	NB	3,226	B	3,812	C	4,217	C
		SB	4,952	D	3,989	C	4,512	D

EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

As shown in the table, all segments of SR-60 and I-215 are forecasted to operate at a LOS D or better during all peak periods under year 2040 background conditions.

Appendix P includes the HCS output sheets for the year 2040 background conditions freeway mainline analysis.

## YEAR 2040 TOTAL TRAFFIC CONDITIONS (WITH PROJECT)

The year 2040 total traffic conditions analyzes operations in 2040 with the proposed project in place.

### INTERSECTION OPERATIONS

#### Traffic Volumes and Intersection Levels of Service

Traffic volumes for the year 2040 total traffic conditions analysis were developed by adding the site generated trips to the year 2040 background volumes. Figure 29a, Figure 30a, and Figure 31a summarize the traffic volumes for the study intersections under year 2040 total traffic conditions for the weekday AM, weekday PM, and Saturday midday peak hour traffic conditions, respectively. Figure 29b, Figure 30b, and Figure 31b summarize the traffic volumes at the site accesses.

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**Figure 29a. Year 2040 Total Traffic Intersection Volumes – Weekday AM Peak Hour**

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**Figure 29b. Year 2040 Total Traffic Intersection Volumes at Site Access – Weekday AM Peak Hour**

**Figure 30a. Year 2040 Total Traffic Intersection Volumes – Weekday PM Peak Hour**

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**Figure 30b. Year 2040 Total Traffic Intersection Volumes at Site Access – Weekday PM Peak Hour**

**Figure 31a. Year 2040 Total Traffic Intersection Volumes – Saturday Midday Peak Hour**



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**Figure 31b. Year 2040 Total Traffic Intersection Volumes at Site Access – Saturday Midday Peak Hour**

Table 29 summarizes the operations at the study intersections.

**Table 29. Year 2040 Total Traffic Conditions (with project) Intersection Operations**

Study Intersection	Jurisdiction	Traffic Control	LOS Std	Weekday AM		Weekday PM		Saturday Mid	
				Delay	LOS	Delay	LOS	Delay	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	43.2	D	75.6	E	76.2	E
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	<b>63.1</b>	<b>E</b>	<b>113.8</b>	<b>F</b>	<b>117.0</b>	<b>F</b>
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	24.8	C	25.4	C	30.6	C
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	17.9	B	30.3	C	38.4	D
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	24.5	C	<b>82.2</b>	<b>F</b>	<b>160.5</b>	<b>F</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	18.9	B	<b>69.5</b>	<b>E</b>	<b>139.9</b>	<b>F</b>
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	<b>119.0</b>	<b>F</b>	<b>121.6</b>	<b>F</b>	<b>150.4</b>	<b>F</b>
8. Town Cir/ Campus Pkwy	MV	AWSC	D	8.3	A	14.0	B	26.9	D
9. Memorial Way/Town Cir	MV	AWSC	D	7.9	A	15.4	C	<b>39.1</b>	<b>E</b>
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	20.9	C	45.8	D	40.0	D
11. Town Cir/ Centerpoint Drive	MV	Signal	D	14.6	B	21.9	C	46.4	D
12. Heritage Way/Town Circ	MV	AWSC	D	10.1	B	16.9	C	<b>39.4</b>	<b>E</b>
13. Heritage Way/Towngate Blvd	MV	Signal	D	16.4	B	19.1	B	19.1	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	41.1	D	33.3	C	44.0	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	4.3	A	2.5	A	2.7	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	26.6	C	74.0	E	<b>100.9</b>	<b>F</b>
17. Frederick St/ Centerpoint Dr	MV	Signal	D	12.7	B	17.2	B	22.2	C
18. Frederick St/ Towngate Blvd	MV	Signal	D	17.7	B	42.9	D	50.6	D
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	38.5	D	<b>59.8</b>	<b>E</b>	52.3	D
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	13.2	B	15.7	B	17.7	B
A. Access A/Town Circ	MV	TWSC	D	38.5	D	10.8	B	13.0	B
B. Access B/Town Circ	MV	TWSC	D	13.2	B	10.6	B	11.6	B
C. Access C/Town Circ	MV	TWSC	D	16.4	B	9.4	A	9.7	A
D. Access D/Town Circ	MV	TWSC	D	9.1	A	16.2	C	24.3	C
E. Access E/Town Circ	MV	TWSC	D	12.0	B	22.0	C	<b>109.0</b>	<b>F</b>

LOS = Level of Service, s = seconds MV = Moreno Valley, AWSC = All-way stop-control, TWSC = Two-way stop-control

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

As shown in the table, there are nine intersections that do not meet standards under year 2040 total traffic conditions, six of which also do not meet standards under year 2026 total traffic conditions. In addition to the six intersections which do not meet standards under year 2026 total traffic conditions, the following do not meet standards under year 2040 total traffic conditions:

- 7. Day Street/ Eucalyptus Avenue: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. As in year 2040 background conditions, the intersection is projected to operate at a LOS F during the weekday AM, weekday PM, and Saturday midday peak hours.
- 16. Frederick Street/SR-60 EB Off-Ramp – Sunnymead Boulevard: this signalized intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. As in year 2040 background conditions, the intersection operates at a LOS F during the Saturday midday peak hour.
- 19. Frederick Street/Eucalyptus Avenue: this signalized intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 59.8 seconds, resulting in a LOS E.

The following six intersections do not meet standards under either year 2026 or year 2040 total traffic conditions:

- 2. Valley Springs Pkwy/ Eucalyptus Ave: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday AM peak hour is 63.1 seconds (LOS E), during the weekday PM peak hour 113.8 seconds (LOS F), and during the Saturday midday peak hour 117.0 seconds (F). The intersection does not meet standards under year 2040 background conditions.
- 5. Day Street/Canyon Springs Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 82.2 seconds, resulting in a LOS F, and the average delay during the Saturday midday peak hour is 160.5 seconds, resulting in a LOS F. The intersection does not meet standards under year 2040 background conditions.
- 6. Day Street/ Campus Parkway: this signalized intersection is under Riverside's jurisdiction; the applicable standard is LOS D. The average delay during the weekday PM peak hour is 69.5 seconds, resulting in a LOS E, and the average delay during the Saturday midday peak hour is 139.9 seconds, resulting in a LOS F. The intersection does not meet standards under year 2040 background conditions.
- 9. Memorial Way/Town Circle: this all-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 39.1 seconds, resulting in a LOS E. The intersection does not meet standards under year 2040 background conditions.
- 12. Heritage Way/Town Circle: this all-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay during the Saturday midday peak hour is 39.4 seconds, resulting in a LOS E. The intersection meets standards under existing and background conditions.
- E. Access E/Town Circle: this two-way stop-control intersection is under Moreno Valley's jurisdiction; the applicable standard is LOS D. The average delay for the southbound left-turn during the Saturday midday peak hour is 109.0 seconds, resulting in a LOS E. Options for new access points proposed with the development are discussed later in this report in *Section 9: Site Access Analysis*.

Potential improvements at these intersections are discussed in *Section 12: Findings and Recommendations*. In addition, the section includes Table 35, which lists intersection operations under all scenarios.

Appendix Q includes the year 2040 total traffic conditions intersection operations worksheets.

### Intersection Turn Lane Queues

The 95<sup>th</sup> percentile queue lengths, available storage at turn lanes, and distance to adjacent side streets and signalized intersections for each study intersection under year 2040 total traffic conditions are shown in Table 30.

**Table 30. Year 2040 Total Traffic Conditions (with project) 95<sup>th</sup> Percentile Queue Lengths at Study Intersections**

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	#221	<b>#347</b>	134
	EBR	50	650	650	8	153	41
	WBL	275	770	770	<b>#300</b>	<b>#470</b>	<b>#579</b>
	NBL <sup>1</sup>	1,200	N/A	N/A	#374	127	212
	NBR <sup>1</sup>	1,200	N/A	N/A	96	254	#739
	SBL <sup>1</sup>	1,400	N/A	N/A	215	#492	#512
	SBR <sup>1</sup>	1,400	N/A	N/A	0	70	33
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	<b>#420</b>	<b>#468</b>	<b>#815</b>
	EBR	360	530	830	48	68	41
	WBL	100	200	950	<b>142</b>	<b>#140</b>	<b>102</b>
	WBR	30	200	950	<b>36</b>	<b>71</b>	<b>142</b>
	NBL	150	1,600	>2,000	<b>#544</b>	<b>#424</b>	<b>#307</b>
	SBL	160	390	960	77	<b>#249</b>	<b>#369</b>
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	342	#423	#605
	WBR <sup>1</sup>	1,580	N/A	N/A	294	200	207
	NBR	180	820	820	0	m5	m0
	SBL <sup>2</sup>	200	380	950	103	#122	#122
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	225	#445	#485
	WBR <sup>1</sup>	1,280	N/A	N/A	49	351	116
	SBL	500	840	840	m86	m#156	m#111
5. Day St/Canyon Springs Pkwy	EBL <sup>3</sup>	170	240	490	<b>#209</b>	<b>#570</b>	<b>#628</b>
	WBL	140	140	300	75	78	122
	NBL	180	580	580	<b>#190</b>	<b>#424</b>	<b>#565</b>
	SBL	145	370	370	<b>#314</b>	<b>#453</b>	<b>#562</b>
6. Day St/Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	47	<b>#200</b>	<b>#224</b>
	WBL	190	440	440	#93	<b>#200</b>	<b>#302</b>
	NBL	140	360	880	#108	<b>#239</b>	<b>#347</b>
	SBL	180	170	580	#109	<b>#326</b>	<b>#484</b>
7. Day St/ Eucalyptus Ave	EBL	100	340	2,000	<b>#666</b>	<b>#1011</b>	<b>#1460</b>
	WBL	170	100	1,000	<b>#234</b>	<b>#349</b>	<b>#305</b>
	WBR	200	100	1,000	104	64	<b>212</b>
	NBL	150	510	1,210	#829	#262	#390
	SBL	180	300	1,100	#388	#589	#558

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
8. Town Cir/Campus Pkwy	EBL <sup>3</sup>	200	460	460	3	28	73
	EBR	450	460	460	3	23	45
	NBL	125	150	>2,000	13	53	<b>140</b>
9. Memorial Way/Town Cir	WBL <sup>2</sup>	100	310	>2,000	8	35	83
	NBL <sup>3</sup>	100	200	450	8	33	75
	NBR	450	200	450	5	28	108
10. Memorial Way-Eucalyptus Ave/Towngate Blvd	EBL	160	450	930	71	<b>180</b>	<b>261</b>
	EBR	70	450	930	<b>95</b>	<b>503</b>	<b>375</b>
	WBL	150	970	1,950	75	<b>#245</b>	<b>206</b>
	WBR	70	970	1,950	0	52	<b>117</b>
	NBL	200	430	920	<b>516</b>	<b>#385</b>	<b>422</b>
SBL	190	640	640	69	158	170	
11. Town Cir/Centerpoint Drive	EBL	50	350	N/A	6	9	7
	NBL	75	110	>2,000	39	33	32
	NBR	65	110	>2,000	35	<b>79</b>	<b>107</b>
	SBL <sup>3</sup>	50	80	>2,000	38	<b>118</b>	<b>#150</b>
12. Heritage Way/Town Circ	EBL	50	650	>2,000	0	0	3
	WBL	100	250	740	15	43	60
	NBL	100	130	630	8	43	<b>113</b>
	NBR	650	130	630	13	30	43
13. Heritage Way/Towngate Blvd	EBL	325	900	1,930	121	212	215
	EBR	100	900	1,930	0	0	0
	WBL	150	460	1,260	46	59	52
	WBR	85	460	1,260	17	<b>95</b>	<b>162</b>
	SBL <sup>2</sup>	200	120	N/A	166	<b>290</b>	<b>295</b>
SBR	650	120	N/A	121	53	58	
14. Pigeon Pass Rd/Hemlock Rd	WBL <sup>3</sup>	260	160	400	<b>313</b>	<b>#405</b>	<b>#439</b>
	NBL	240	700	700	114	145	192
	NBR	90	700	700	<b>119</b>	<b>309</b>	<b>260</b>
	SBL <sup>2</sup>	200	200	1,340	154	#188	#181
15. Frederick St/SR-60 EB On-Ramp	SBL	340	700	700	276	193	211
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Boulevard	EBL <sup>1</sup>	1,700	N/A	N/A	156	277	255
	EBR <sup>1</sup>	1,700	N/A	N/A	320	#621	#857
	WBL <sup>3</sup>	140	150	>2,000	<b>#301</b>	<b>268</b>	<b>#471</b>
	NBR	75	210	460	<b>213</b>	<b>#819</b>	<b>#935</b>
SBL	60	120	120	<b>#323</b>	<b>#515</b>	<b>#703</b>	
17. Frederick St/Centerpoint Dr	NBL	130	320	320	58	90	#109
18. Frederick St/Towngate Blvd	EBR	100	340	1,260	55	<b>268</b>	<b>#355</b>
	NBL	330	660	1,200	<b>360</b>	<b>#434</b>	<b>#531</b>
	SBR	100	220	420	64	72	<b>171</b>

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)		
					Weekday AM	Weekday PM	Saturday Mid
19. Frederick St/ Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	<b>262</b>	#193	<b>#209</b>
	WBL	150	360	>2,000	<b>160</b>	#98	75
	NBL <sup>2</sup>	190	1,200	1,200	<b>197</b>	<b>#208</b>	<b>277</b>
	NBR	190	1,200	1,200	37	0	0
	SBL	130	260	1,200	<b>253</b>	<b>#486</b>	<b>#515</b>
	SBR	190	260	1,200	75	37	40
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	125	146	163
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	3
A. Access A/Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	5	5	8
B. Access B/Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	0	3	3
C. Access C/Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	3	3	3
D. Access D/Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	23	23	48
	NBL	75	140	>2,000	3	5	5
E. Access E/Town Circ	EBL	75	25	>2,000	3	13	25
	SBL	N/A <sup>4</sup>	N/A	N/A	28	95	363
	SBR	N/A <sup>4</sup>	N/A	N/A	5	15	43

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

<sup>4</sup> Site access, storage length not defined

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right, N/A = Not Applicable

**Bold text** indicates 95<sup>th</sup> percentile queue exceeds striped storage

**Bold italics text** indicates that 95<sup>th</sup> percentile queue length exceeds striped storage under total traffic conditions and not in background conditions.

As shown in the table, fourteen of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2040 total traffic conditions. All these intersections also have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2040 background conditions, except for the intersections of Town Circle/Campus Parkway, Heritage Way/Town Circle, and Heritage Way/Towngate Boulevard. None of the highway off-ramps have 95<sup>th</sup> percentile queue lengths that exceed the ramp storage under year 2040 total traffic conditions. Intersections where the 95<sup>th</sup> percentile queue is longer than the distance to the adjacent signalized intersection for one or more movement include the three noted under background conditions, as well as:

- 14. Pigeon Pass Rd/ Hemlock Rd: 95<sup>th</sup> percentile queues for the westbound left turn exceeds the distance to the nearest signalized intersection (SR-60 WB Off Ramp/Hemlock Ave) during the weekday PM peak hour and Saturday midday peak hour.

It should be noted that the 95<sup>th</sup> percentile queue is defined as the queue length that has only a five percent probability of being exceeded during the peak period, and is therefore not typical of the average drive experience.

Appendix R includes the year 2040 total traffic conditions intersection queueing worksheets.

## ROADWAY SEGMENT OPERATIONS

Segment volumes on the study roadways for the year 2040 total traffic conditions analysis were developed by adding the site generated trips to the year 2026 background conditions volumes. The segment volumes and operations are reported in Table 31.

**Table 31. Year 2040 Total Traffic Conditions (with project) Roadway Segment Operations**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Weekday			Saturday		
						ADT	LOS	v/c	ADT	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	52,453	<b>E</b>	1.06	56,167	<b>E</b>	1.13
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	68,647	<b>E</b>	1.39	78,998	<b>E</b>	1.60
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	55,445	<b>E</b>	1.12	65,571	<b>E</b>	1.32
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	54,498	<b>E</b>	1.10	63,078	<b>E</b>	1.27
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	50,158	<b>E</b>	1.01	48,817	D	0.99
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	33,345	C	0.67	36,819	C	0.74
	Day St to Towngate Blvd	MV	Major Arterial (6D) <sup>1</sup>	D	56,300	28,509	A	0.51	28,464	A	0.51
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>2</sup>	D	25,000	11,528	A	0.46	15,342	B	0.61
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>2</sup>	D	56,300	23,284	A	0.41	30,216	A	0.54
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	19,348	A	0.52	22,739	B	0.61
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>3</sup>	D	56,300	49,812	D	0.88	50,820	D	0.90
G. Frederick St	Sunnymead Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>3</sup>	D	56,300	50,060	D	0.89	54,071	D	0.96
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	36,137	<b>E</b>	0.96	34,388	<b>E</b>	0.92
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	35,872	<b>E</b>	0.96	34,115	<b>E</b>	0.91

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided

**Bold text** indicates not meeting standards

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

<sup>1</sup> Eucalyptus Avenue is planned to be widened to 6 lanes before 2040, as reflected in the classification.

<sup>2</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>3</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.



As shown in the table, the following roadway segments do not operate within the target LOS:

- Consistent with year 2040 background conditions, all segments on Day Street operate at a LOS E on a weekday. On a Saturday, all segments on Day Street operate at a LOS E except for the segment between Gateway Drive and Eucalyptus Avenue.
- Consistent with year 2040 background conditions, the segments on Frederick Street between Centerpoint Drive and Eucalyptus Avenue operate at a LOS E on a weekday. On a Saturday, both the segment on Frederick Street between Centerpoint Drive and Towngate Boulevard and the segment between Towngate Boulevard and Eucalyptus Avenue operate at a LOS E, while under year 2040 background conditions the segment between Towngate Boulevard and Eucalyptus Avenue operates at a LOS D.

Both the City of Riverside and Moreno Valley indicate that any roadway segment that operates unacceptably without the project where the project adds traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05) should identify operation improvements. The project is expected to increase the volume-to-capacity ratio on the segment of Frederick Street between Towngate Boulevard and Eucalyptus Avenue by 0.06 on a weekday and 0.05 on a Saturday. Potential improvements on this segment are discussed in *Section 12: Findings and Recommendations*. In addition, the section includes Table 43, which lists roadway segment operations under all scenarios.

## FREEWAY OPERATIONS

The freeway mainline volumes and LOS for year 2040 total traffic conditions, based on the HCS analysis, are shown in

**Table 32. Year 2040 Total Traffic Conditions (with project) Freeway Mainline Segment Operations**

Roadway	Segment	Direction	Weekday AM		Weekday PM		Saturday Mid	
			Volume	LOS	Volume	LOS	Volume	LOS
SR-60	Between the Day Street Ramps	EB	5,247	C	6,945	D	6,584	D
		WB	4,042	C	4,541	C	4,818	D
	East of the Frederick Street Ramps	EB	4,789	D	4,860	D	4,933	D
		WB	3,537	C	4,544	C	4,839	D
I-215	SR-60 to Eucalyptus Avenue Ramps	NB	2,687	B	3,496	C	3,853	C
		SB	5,639	C	4,095	B	4,674	B
	South of the Eucalyptus Avenue Ramps	NB	3,255	C	3,859	C	4,262	C
		SB	5,005	D	4,028	C	4,554	D

EB = Eastbound, WB = Wesbound, NB = Northbound, SB = Southbound

As shown in the table, all segments of SR-60 and I-215 are forecasted to operate at a LOS D or better during all peak periods under year 2040 total traffic conditions.

*Appendix S* includes the HCS output sheets for the year 2040 total traffic conditions freeway mainline analysis.



## Section 8 Traffic Signal Warrant Analysis

# TRAFFIC SIGNAL WARRANT ANALYSIS

This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. Signal warrants are a set of criteria used to evaluate the potential need for a traffic signal at an unsignalized or stop-controlled intersection. The methodology for the signal warrant analysis is included in the 2014 California Manual on Uniform Traffic Control Devices (MUTCD, Reference 17). The manual states that if one or more of the criteria for signal warrants is met, an engineering study is required to evaluate other factors to determine if an intersection must be signalized.

The analysis presented below uses the Warrant 3: Peak Hour Warrant criteria, which is based on traffic volumes entering the intersection during the peak hour. Warrant 3 includes criteria a and b. Criteria a is based on delay for the minor street approach and traffic volumes, while Criteria b is based on total volumes on the major street approaches and the volume on the higher minor street approach. Table 33 provides the signal warrant analysis for the three existing all-way stop-controlled intersections on Town Circle, as well as the five proposed two-way stop-controlled site access locations on Town Circle. *The signal warrant worksheets are provided in Appendix T.*

**Table 33. Peak Hour Signal Warrants**

Intersection	Existing			Year 2026 Background			Year 2026 Total Traffic			Year 2040 Background			Year 2040 Total Traffic		
	AM	PM	Mid	AM	PM	Mid	AM	PM	Mid	AM	PM	Mid	AM	PM	Mid
8. Town Cir/ Campus Pkwy	No	No	<b>Yes</b>	No	No	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>	No	No	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>
9. Town Cir/ Memorial Pkwy	No	No	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>
12. Town Cir/ Heritage Way	No	No	No	No	No	No	No	No	<b>Yes</b>	No	No	No	No	No	<b>Yes</b>
A. Town Cir/ Site Access A	-	-	-	-	-	-	No	No	No	-	-	-	No	No	No
B. Town Cir/ Site Access B	-	-	-	-	-	-	No	No	No	-	-	-	No	No	No
C. Town Cir/ Site Access C	-	-	-	-	-	-	No	No	No	-	-	-	No	No	No
D. Town Cir/ Site Access D	-	-	-	-	-	-	No	No	No	-	-	-	No	No	No
E. Town Cir/ Site Access E	-	-	-	-	-	-	No	No	<b>Yes</b>	-	-	-	No	No	<b>Yes</b>

Note: AM = Weekday AM Peak Hour, PM = Weekday PM Peak Hour, Mid = Saturday Midday Peak Hour  
**Bold text** indicates that Peak Hour Signal Warrant is met

The three existing all-way stop-controlled intersections on Town Circle and proposed site access E meet signal warrants during one or more peak periods. The satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic control signal. The need for a traffic control signal is based on an engineering study, that considers additional factors such as "traffic conditions, pedestrian characteristics, and physical characteristics of the location" (California MUTCD, Reference 17). The intersection of Town Circle/Campus Parkway operates at a LOS D or better under all analysis scenarios, while the intersections of Town Circle/Memorial Parkway and Town Circle/Heritage Way operate at a LOS E under Year 2040 total traffic conditions during the Saturday midday peak hour, and the intersection of Town Circle/Site Access E operates at a LOS F under the same scenario. Potential improvements at these locations are discussed in *Section 12: Findings and Recommendations.*

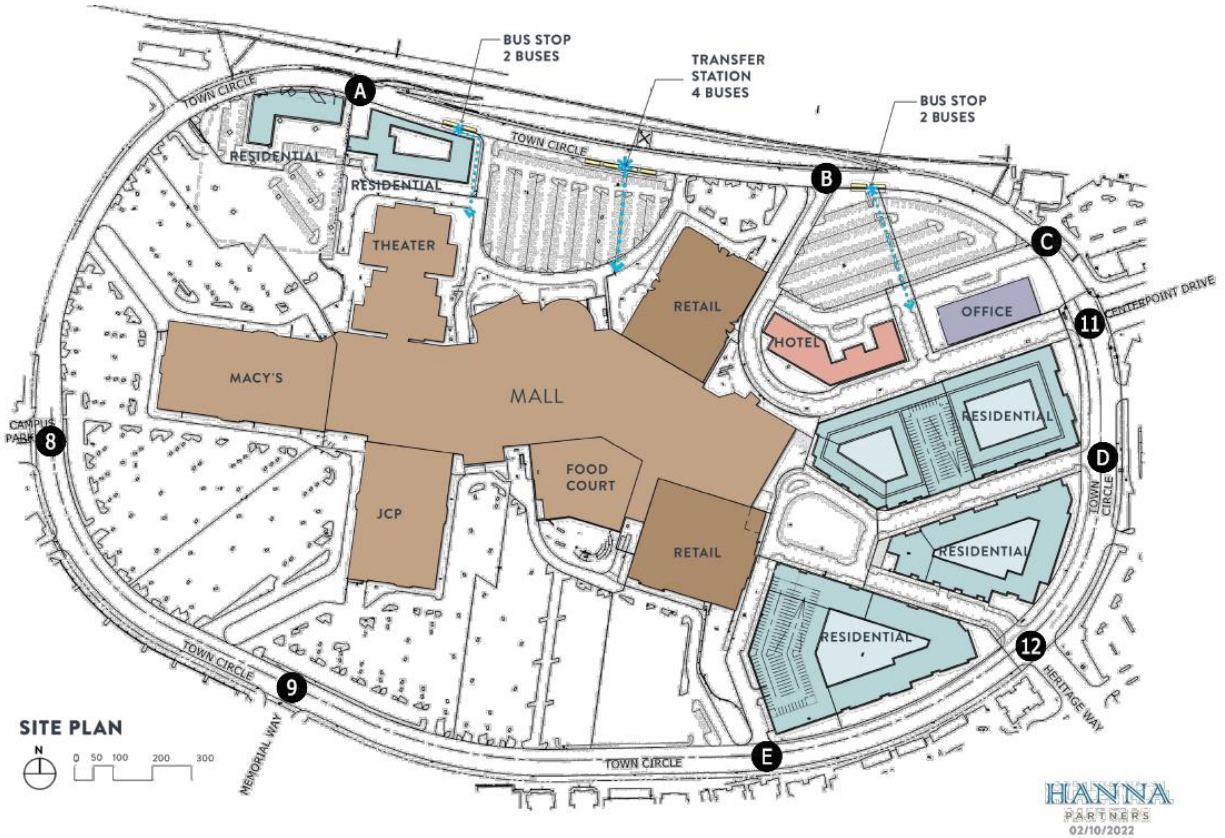


## Section 9 Site Access Analysis

# SITE ACCESS ANALYSIS

The proposed vehicular access locations to the site are shown in the site plan in Figure 32 and analyzed throughout the previous sections of this report.

**Figure 32. Site Access Locations**



The site is served by Town Circle, which provides broader connections to the roadway network via Campus Parkway, Memorial Way, Heritage Way, and Centerpoint Drive. Between Campus Parkway and Centerpoint Drive on the south side of the site Town Circle includes five vehicle travel lanes (two vehicle travel lanes in each direction and a center two-way left-turn lane), and a landscape buffer and sidewalks on the south side of the roadway. Town Circle include four vehicle travel lanes on the north side of the site (two vehicle travel lanes in each direction).

Options at each of the site accesses is described in Table 34.

**Table 34. Site Access Locations**

Intersection	Traffic Control	Meets Standards?		Meets Signal Warrants?	Improvement Options
		2026 Total Traffic Conditions	2040 Total Traffic Conditions		
8. Town Cir/ Campus Pkwy	AWSC	Yes	Yes	Yes (Sat Mid in all scenarios, PM in total traffic conditions)	-
9. Town Cir/ Memorial Pkwy	AWSC	No (LOS E in Sat Mid)	No (LOS E in Sat Mid)	Yes (Sat Mid in all scenarios, PM in background and total traffic conditions)	Signal or roundabout
11. Town Cir/	Signal	Yes	Yes	NA	-

Intersection	Traffic Control	Meets Standards?		Meets Signal Warrants?	Improvement Options
		2026 Total Traffic Conditions	2040 Total Traffic Conditions		
Centerpoint Dr					
12. Town Cir/ Heritage Way	AWSC	No (LOS E in Sat Mid)	No (LOS E in Sat Mid)	Yes (Sat Mid in total traffic conditions)	Signal or roundabout
A. Town Cir/ Site Access A	TWSC	Yes	Yes	No	-
B. Town Cir/ Site Access A	TWSC	Yes	Yes	No	-
C. Town Cir/ Site Access A	TWSC	Yes	Yes	No	-
D. Town Cir/ Site Access A	TWSC	Yes	Yes	No	-
E. Town Cir/ Site Access A	TWSC	No (Southbound left operates at a LOS F in Sat Mid)	No (Southbound left operates at a LOS F in Sat Mid)	Yes (Sat Mid in total traffic conditions)	Signal or roundabout

Note: AM = Weekday AM Peak Hour, PM = Weekday PM Peak Hour, Mid = Saturday Midday Peak Hour  
 AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control

If roundabouts are installed at the access locations on Town Circle not meeting standards, roundabout could also be considered at other intersections along Town Circle to provide consistency. If signals are identified as the preferred improvement at intersections along Town Circle not meeting standards and/or meeting signal warrants, operations and volumes should be monitored to identify when a signal should be installed, considering queueing, delays, and volume-based signal warrants in the MUTCD.

Section 11: Active Transportation and Transit Analysis discusses pedestrian, bicycle and transit access to the project site.



Section 10  
Safety and Operation Improvement  
Analysis

# SAFETY AND OPERATION IMPROVEMENT ANALYSIS

As part of the traffic impact analysis, existing roadway conditions were assessed to determine if safety and/or operational improvements are necessary due to an increase in traffic from the project or cumulative conditions.

The method for determining geometric design impact involves examining the existing interactions on roadways around the project site between vehicles to vehicles, vehicles to bikes, and vehicles to pedestrians, and determining how those interactions may change with the proposed project. The project would not alter the alignment of Town Circle, it would modify driveway access within the eastern portion of Town Circle. The design of roadways and access driveways must provide adequate sight distance and traffic control measures. As a condition of approval for individual development permits processed in the future under the Specific Plan, the City will require that all access driveways would be designed according to applicable state and City of Moreno Valley standards. Construction of new driveways will be reviewed and approved to the City's Public Work's prior to construction. New access driveways would consider landscaping, building placement, signage and other factors to access stopping sign distance. Adherence to applicable City requirements would ensure the proposed project would not include dangerous intersections.

This analysis also reviewed potential queues at freeway off-ramps for the potential for queues to extend to the freeway mainline, which could result in hazardous conditions due to speed differentials. A review of the queues indicate that no off-ramps queues would exceed the available storage.





Section 11  
Active Transportation and Public Transit  
Analysis

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# ACTIVE TRANSPORTATION AND TRANSIT ANALYSIS

This section describes future bicycle, pedestrian, and transit facilities that serve the site.

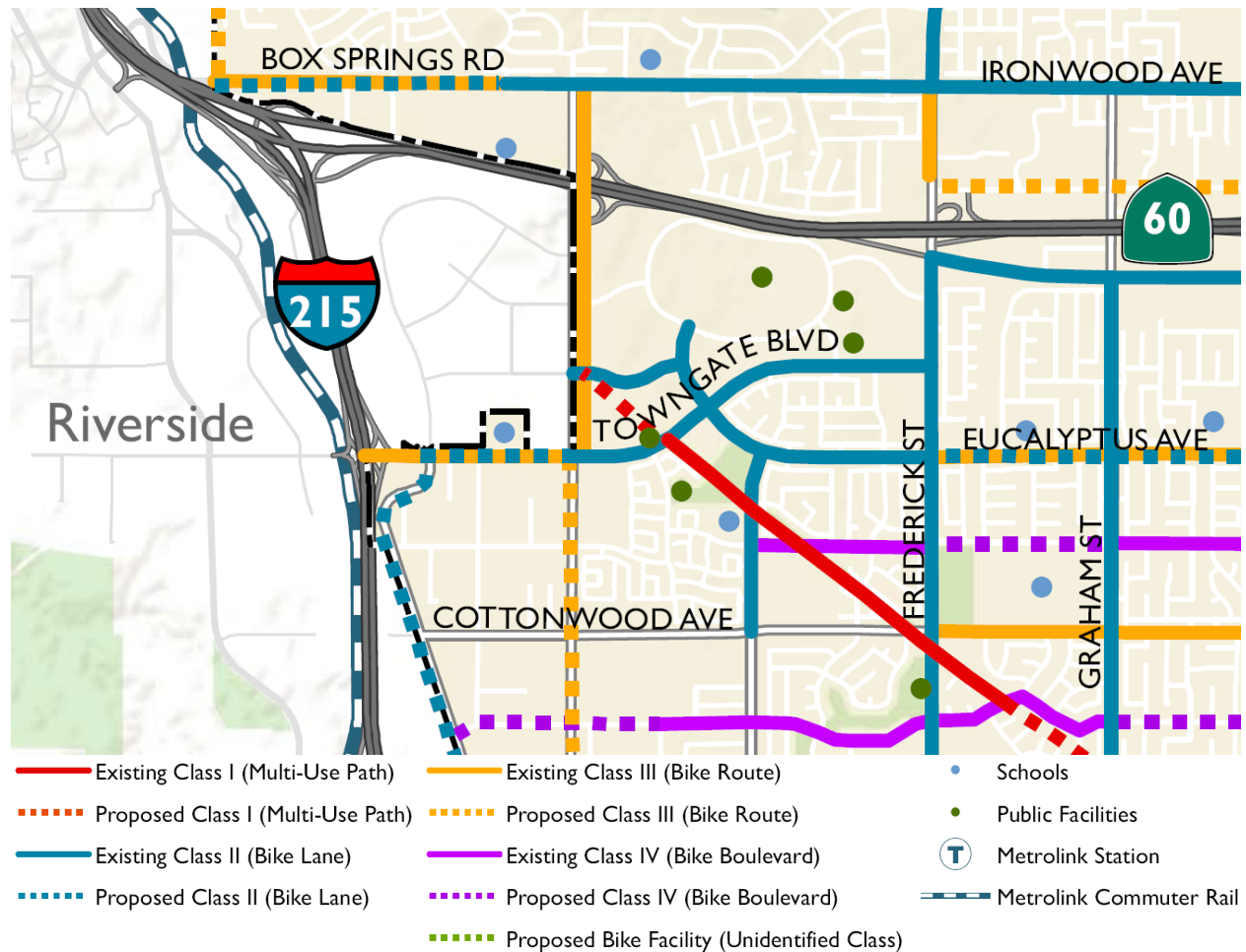
## FUTURE BICYCLE AND PEDESTRIAN FACILITIES

The planned bicycle and pedestrian networks in the vicinity of the site are shown in Figure 33. The City's Bicycle Master Plan does not include new bicycle facilities adjacent to the project site or by Town Circle.

Development of the project site would provide a pedestrian-friendly environment, with strong connectivity to adjacent commercial and office areas, and would offer a strong sense of community, connectivity, and livability. The project's pedestrian circulation components would be designed and installed with all safety and accessibility requirements in mind, including Title 24 of the California Code of Regulations, and in a manner that would avoid conflicts with vehicles. These pedestrian connections to the surrounding area and the public street system shorten the walking distance to nearby destinations, including the nearest bus stops; and enhance the opportunity to walk or take transit, rather than drive. Walkways between buildings create a pedestrian-oriented environment by breaking up large blocks and providing more convenient connectivity throughout the project site.

The existing multi-use path that stops at Towngate Boulevard is planned to connect to Day Street, as shown in the dashed red line. The bicycle and pedestrian network on the arterials surrounding the site (Day Street, Eucalyptus Avenue, Towngate Boulevard, and Frederick Street) is complete.

Figure 33. Planned Bicycle and Pedestrian Networks



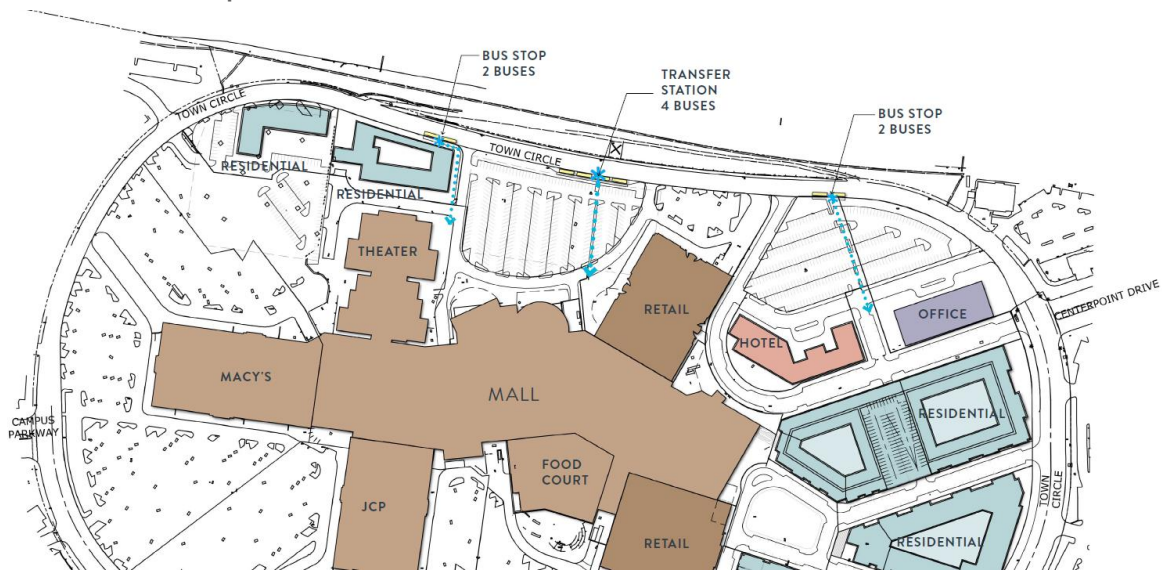
Source: Map C-2 from MoVal 2040 General Plan

As part of the redevelopment project, sidewalks and crosswalks will be developed internal to the Moreno Valley Mall site to connect the proposed uses to the existing pedestrian network. Residential buildings A, B and C include ground-level retail and pedestrian-oriented plaza.

## TRANSIT CENTER

As part of the project, the existing Transit Center will be relocated to the north side of the property, with two bus stops each serving two buses via the curb lane and a transfer station serving four buses. The current transit center serves five bus lines and MVM is an important part of the existing and future transit network. Figure 34 shows a conceptual plan for the bus stops and transfer station locations.

Figure 34. Future Bus Stops and Transfer Station





## Section 12 Improvements and Recommendations

# FINDINGS AND RECOMMENDATIONS

This section presents the results of the operational analysis conducted for the TIA and recommendations for operational improvements. Per SB743, roadway capacity such as intersection and roadway LOS is no longer a criteria to identify potential transportation impacts under CEQA. The following was not prepared as part of the environmental review under CEQA; the improvements identified below are meant to meet target LOS for roadways and intersections to reduce traffic congestion, rather than mitigation measures to reduce a potential significant environmental impacts.

## FINDINGS

### INTERSECTION OPERATIONS

#### *Intersection Level of Service*

Table 35 summarizes operations at all study intersections during the scenarios studied. Table 36 presents the ten intersections not meeting LOS standards in one or more analysis scenarios, including the time periods the standards are not met. The intersections in the table meet the criteria set by the City of Moreno Valley and Riverside for when a project should identify improvements. These criteria are described in *Section 3: Methodology and Evaluation Criteria* and include:

For Moreno Valley,

- “Any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.”
- At unsignalized intersections, the guide states that “an operational improvement would be required if the study determines that either section a) or both sections b) and c) occur:
  - a) The addition of project related traffic causes the intersection to degrade from an acceptable LOS to unacceptable LOS.OR
  - b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at unacceptable LOS,AND
  - c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

If the conditions above are satisfied, improvements should be identified that achieve “LOS D or better for case a) above or to pre-project LOS and delay for case b) above.”

For the City of Riverside:

- “operational improvements are required when the addition of project related trips causes either peak hour LOS to degrade from acceptable (A through D) to unacceptable levels (E or F) or the peak hour delay to increase as follows:
  - LOS A/B           By 10 seconds
  - LOS C             By 8 seconds
  - LOS D             By 5 seconds
  - LOS E             By 2 seconds
  - LOS F             By 1 seconds”



**Table 35. Intersection Operations in All Scenarios**

Study Intersection	Jurisdiction	Traffic Cont.	LOS Std	Existing Conditions						2026 Background Conditions (without project)						2026 Total Traffic Conditions (with project)						2040 Background Conditions (without project)						2040 Total Traffic Conditions (with project)					
				Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid	
				Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	33.0	C	36.5	D	21.0	C	35.8	D	73.6	E	39.1	D	36.1	D	<b>82.5</b>	<b>F</b>	45.1	D	42.4	D	69.7	E	69.7	E	43.2	D	75.6	E	76.2	E
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	20.7	C	26.6	C	35.5	D	36.5	D	<b>116.4</b>	<b>F</b>	<b>137.8</b>	<b>F</b>	39.5	D	<b>120.1</b>	<b>F</b>	<b>143.1</b>	<b>F</b>	<b>59.1</b>	<b>E</b>	<b>110.6</b>	<b>F</b>	<b>115.1</b>	<b>F</b>	<b>63.1</b>	<b>E</b>	<b>113.8</b>	<b>F</b>	<b>117.0</b>	<b>F</b>
3. Day St/ SR-60 WB Ramps	Caltrans	Signal	E	20.6	C	20.9	C	28.2	C	23.1	C	23.3	C	53.9	D	22.8	C	23.3	C	53.7	D	24.9	C	25.3	C	30.5	C	24.8	C	25.4	C	30.6	C
4. Day St/ SR-60 EB Ramps	Caltrans	Signal	E	13.4	B	21.8	C	23.7	C	15.8	B	27.8	C	30.8	C	16.2	B	30.0	C	33.7	C	17.4	B	28.2	C	33.2	C	17.9	B	30.3	C	38.4	D
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	17.6	B	36.1	D	<b>61.1</b>	<b>E</b>	18.9	B	53.9	D	<b>97.0</b>	<b>F</b>	19.0	B	<b>56.0</b>	<b>E</b>	<b>102.5</b>	<b>F</b>	24.0	C	<b>79.2</b>	<b>E</b>	<b>142.1</b>	<b>F</b>	24.5	C	<b>82.2</b>	<b>F</b>	<b>160.5</b>	<b>F</b>
6. Day St/ Campus Pkwy	Riverside	Signal	D	14.4	B	26.8	C	42.9	D	15.0	B	34.4	C	<b>57.5</b>	<b>E</b>	16.5	B	38.9	D	<b>64.4</b>	<b>E</b>	16.4	B	<b>62.8</b>	<b>E</b>	<b>134.9</b>	<b>F</b>	18.9	B	<b>69.5</b>	<b>E</b>	<b>139.9</b>	<b>F</b>
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	21.0	C	24.7	C	29.4	C	26.8	C	31.2	C	45.3	D	28.8	C	34.2	C	48.4	D	<b>114.2</b>	<b>F</b>	<b>109.1</b>	<b>F</b>	<b>147.3</b>	<b>F</b>	<b>119.0</b>	<b>F</b>	<b>121.6</b>	<b>F</b>	<b>150.4</b>	<b>F</b>
8. Town Cir/ Campus Pkwy	MV	AWSC	D	7.9	A	11.6	B	18.0	C	8.0	A	12.3	B	20.9	C	8.5	A	13.6	B	25.2	D	7.9	A	12.6	B	22.2	C	8.3	A	14.0	B	26.9	D
9. Memorial Way/Town Cir	MV	AWSC	D	7.8	A	12.9	B	23.8	C	7.9	A	14.3	B	32.1	D	8.0	A	15.2	C	<b>35.3</b>	<b>E</b>	7.8	A	14.6	B	<b>35.6</b>	<b>E</b>	7.9	A	15.4	C	<b>39.1</b>	<b>E</b>
10. Memorial Way- Eucalyptus Ave/ Towngate Blvd	MV	Signal	D	15.6	B	20.9	C	23.4	C	17.0	B	24.9	C	27.3	C	17.5	B	25.2	C	28.4	C	20.1	C	46.0	D	39.4	D	20.9	C	45.8	D	40.0	D
11. Town Cir/ Centerpoint Drive	MV	Signal	D	9.0	A	10.1	B	11.0	B	9.0	A	10.4	B	11.5	B	16.3	B	22.1	C	45.9	D	9.0	A	10.4	B	11.7	B	14.6	B	21.9	C	46.4	D
12. Heritage Way/Town Circ	MV	AWSC	D	7.4	A	10.0	A	13.1	B	7.5	A	10.5	B	14.3	B	10.8	B	17.2	C	<b>36.5</b>	<b>E</b>	7.3	A	10.5	B	14.9	B	10.1	B	16.9	C	<b>39.4</b>	<b>E</b>
13. Heritage Way/Towngate Blvd	MV	Signal	D	12.5	B	14.1	B	14.5	B	12.5	B	14.5	B	14.8	B	15.6	B	17.3	B	18.5	B	12.5	B	16.1	B	15.1	B	16.4	B	19.1	B	19.1	B
14. Pigeon Pass Rd/ Hemlock Rd	MV	Signal	D	38.4	D	40.7	D	47.9	D	39.8	D	39.0	D	47.8	D	40.7	D	41.9	D	51.0	D	40.1	D	29.8	C	42.5	D	41.1	D	33.3	C	44.0	D
15. Frederick St/ SR-60 EB Ramps	Caltrans	Signal	E	7.2	A	2.9	A	2.9	A	7.6	A	2.8	A	2.7	A	7.3	A	2.6	A	2.5	A	4.3	A	2.6	A	2.7	A	4.3	A	2.5	A	2.7	A
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	21.6	C	29.2	C	31.0	C	21.5	C	30.2	C	34.0	C	22.5	C	34.4	C	45.0	D	25.4	C	69.9	E	<b>91.1</b>	<b>F</b>	26.6	C	74.0	E	<b>100.9</b>	<b>F</b>
17. Frederick St/ Centerpoint Dr	MV	Signal	D	8.0	A	12.3	B	15.1	B	8.2	A	13.4	B	16.7	B	11.5	B	16.4	B	23.5	C	8.5	A	13.9	B	17.1	B	12.7	B	17.2	B	22.2	C
18. Frederick St/ Towngate Blvd	MV	Signal	D	9.6	A	15.9	B	18.5	B	10.0	B	17.8	B	21.7	C	13.0	B	25.1	C	32.2	C	15.2	B	29.4	C	34.0	C	17.7	B	42.9	D	50.6	D
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	20.6	C	26.5	C	24.8	C	22.6	C	30.2	C	28.6	C	24.7	C	34.3	C	31.9	C	33.9	C	51.2	D	43.8	D	38.5	D	<b>59.8</b>	<b>E</b>	52.3	D
20. SR-60 WB Off Ramp/ Hemlock Ave	Caltrans	Signal	E	12.5	B	14.6	B	16.4	B	13.1	B	15.3	B	17.3	B	14.3	B	16.8	B	18.8	B	12.2	B	14.5	B	16.6	B	13.2	B	15.7	B	17.7	B



Study Intersection	Jurisd- iction	Traffic Cont.	LOS Std	Existing Conditions						2026 Background Conditions (without project)						2026 Total Traffic Conditions (with project)						2040 Background Conditions (without project)						2040 Total Traffic Conditions (with project)							
				Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid		Wkday AM		Wkday PM		Sat Mid			
				Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS	Del	LOS		
A. Access A/Town Circ	MV	TWSC	D													9.1	A	10.9	B	12.9	B									38.5	D	10.8	B	13.0	B
B. Access B/Town Circ	MV	TWSC	D													8.9	A	10.6	B	11.8	B									13.2	B	10.6	B	11.6	B
C. Access C/Town Circ	MV	TWSC	D													8.6	A	9.4	A	9.7	A									16.4	B	9.4	A	9.7	A
D. Access D/Town Circ	MV	TWSC	D													11.7	B	16.0	C	23.7	C									9.1	A	16.2	C	24.3	C
E. Access E/Town Circ	MV	TWSC	D													12.0	B	21.1	C	<b>97.3</b>	<b>F</b>									12.0	B	22.0	C	<b>109.0</b>	<b>F</b>

Cont. = Control, LOS = Level of Service, Wkday = Weekday, Sat Mid = Saturday MIDDAY, Del = delay in seconds, MV = Moreno Valley, AWSC = All-way stop-control, TWSC = Two-way stop-control,

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

**Table 36. Intersections not Meeting Standards**

Intersection	Jurisdiction	Traffic Control	LOS Std	Peak Hours <i>not</i> Meeting Standards (LOS)				
				Existing	2026 Back-ground	2026 Total Traffic	2040 Back-ground	2040 Total Traffic
1. I-215 Ramps/ Eucalyptus Ave	Caltrans	Signal	E	-	-	PM (F)	-	-
2. Valley Springs Pkwy/ Eucalyptus Ave	Riverside	Signal	D	-	PM (F), Sat Mid (F)	PM (F), Sat Mid (F)	AM (E), PM (F), Sat Mid (F)	AM (E), PM (F), Sat Mid (F)
5. Day St/ Canyon Springs Pkwy	Riverside	Signal	D	Sat Mid (E)	Sat Mid (F)	PM (E), Sat Mid (F)	PM (E), Sat Mid (F)	PM (F), Sat Mid (F)
6. Day St/ Campus Pkwy	Riverside	Signal	D	-	Sat Mid (E)	Sat Mid (E)	PM (E), Sat Mid (F)	PM (E), Sat Mid (F)
7. Day St/ Eucalyptus Ave	Riverside	Signal	D	-	-	-	AM (F), PM (F), Sat Mid (F)	AM (F), PM (F), Sat Mid (F)
9. Memorial Way/Town Cir	MV	AWSC	D	-	-	Sat Mid (E)	Sat Mid (E)	Sat Mid (E)
12. Heritage Way/Town Circ	MV	AWSC	D	-	-	Sat Mid (E)	-	Sat Mid (E)
16. Frederick St/ SR- 60 EB Off-Ramp – Sunnymead Blvd	Caltrans	Signal	E	-	-	-	Sat Mid (F)	Sat Mid (F)
19. Frederick St/ Eucalyptus Ave	MV	Signal	D	-	-	-	-	PM (E)
E. Access E/Town Circ	MV	TWSC	D	-	-	Sat Mid (F)	-	Sat Mid (F)

Notes: AM = Weekday AM Peak Hour, PM = Weekday PM Peak Hour, Mid = Saturday Midday Peak Hour  
LOS = Level of Service, MV = Moreno Valley, AWSC = All-Way Stop-Control, TWSC = Two-Way Stop-Control

Each of these intersections is discussed below.

**1. I-215 Ramps/Eucalyptus Avenue**

This signalized intersection is a SPUI (single point urban interchange) and serves both directions of I-215. The intersection is projected to operate at a LOS F during the weekday PM peak hour under 2026 total traffic conditions. Under 2040 total traffic conditions, the intersection operates at a LOS E during both the weekday PM peak hour and Saturday midday peak hour with or without the project. The improved operations in 2040 are due to signal timing changes, specifically providing more green time for the westbound left-turn movement. To address the expected deficiency under 2026 total traffic conditions, the project could contribute to signal retiming and improvements that would enable the intersection to operate at a LOS D, and therefore meet the LOS standard. For reference, the project is expected to add 129 weekday PM peak hour trips, which is approximately 3.2 percent of total intersection volumes under 2026 total traffic conditions.

Appendix X includes the intersection operations worksheets showing operations under year 2026 total traffic conditions with signal timing changes.

**2. Valley Springs Parkway/Eucalyptus Avenue**

This signalized intersection is under Riverside’s jurisdiction with a LOS standard of D. It is projected to not meet standards in 2026 and 2040 with or without the project. The City of Moreno currently has identified a

project on its Capital Improvement Plan to widen Eucalyptus Avenue to six lanes, which is included in the year 2040 analysis.

The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), also projected a LOS deficiency at this location and identified an improvement to modify the striping on the northbound approach to provide a second northbound left turn lane and to implement overlap phasing for the southbound right turn movement. The TIA estimated this improvement cost at \$15,000 and estimated the project's fair share based on the project's proportion of total new traffic (general plan buildout with project minus existing). While this improvement would not enable 2026 total traffic conditions to meet the LOS D standard, it would improve operations and more than offset the delay increase caused by the proposed project.

Operations for weekday AM, weekday PM and Saturday midday peak hour conditions are shown in Table 38, along with projected operations with the second northbound left turn lane and overlap phasing for the southbound right turn. *Appendix X includes the intersection operations worksheets showing operations with the second northbound left turn lane and overlap phasing for the southbound right turn.*

**Table 37. Operations at Vally Springs Parkway/Eucalyptus Avenue without and with Improvement**

	Delay in Seconds (LOS)														
	Existing			2026 Background			2026 Total Traffic			2040 Background			2040 Total Traffic		
	Wkday AM	Wkday PM	Sat Mid	Wkday AM	Wkday PM	Sat Mid	Wkday PM	Wkday AM	Sat Mid	Wkday PM	Wkday AM	Sat Mid	Wkday PM	Wkday AM	Sat Mid
No change	20.7 (C)	26.6 (C)	35.5 (D)	36.5 (D)	<b>116.4 (F)</b>	<b>137.8 (F)</b>	39.5 (D)	<b>120.1 (F)</b>	<b>143.1 (F)</b>	<b>59.1 (E)</b>	<b>110.6 (F)</b>	<b>115.1 (F)</b>	<b>63.1 (E)</b>	<b>113.8 (F)</b>	<b>117.0 (F)</b>
<i>Difference in delay between background and total traffic conditions</i>							+3.0	+3.7	+5.3				+4.0	+3.2	+1.9
With second NB left turn lane and overlap phasing for SB right turn	18.1 (B)	22.2 (C)	26.6 (C)	26.5 (C)	35.8 (D)	77.4 (E)	28.1 (C)	37.7 (D)	<b>80.6 (F)</b>	33.8 (C)	43.3 (D)	55.2 (E)	35.8 (D)	44.4 (D)	56.6 (E)
<i>Difference in delay with second NB left turn lane and overlap phasing for SB right turn</i>	-2.6	-4.2	-8.9	-10.0	-80.6	-60.4	-11.4	-82.4	-62.5	-25.3	-67.3	-59.9	-27.3	-69.4	-60.4

Notes: LOS = Level of Service, Wkday PM = Weekday PM Peak Hour, Sat Mid = Saturday Midday Peak Hour, NB = Northbound, SB = Southbound  
**Bold text** indicates operations do not meet LOS Standard  
**Bold italic text** indicates operations meet the City's threshold for identifying improvements

### 5. Day Street/Canyon Springs Parkway

This signalized intersection is under Riverside's jurisdiction with a LOS standard of D. It currently does not meet standards during the Saturday midday peak hour or in any future scenarios during the Saturday midday peak hour. The intersection is projected to also not meet standards during the weekday PM peak hour in 2026 total traffic conditions and in both background and total traffic conditions in 2040.

The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), also projected a LOS deficiency at this location and identified an improvement to modify the signal timing to accommodate overlap phasing for the westbound right turn. The TIA estimated this improvement cost at \$10,000 and estimated the project's fair share based on the project's proportion of total new traffic (general plan buildout with project minus existing). While not enough for the intersection to operate within standards, this would provide benefit. There does not appear to be available right-of-way for geometric changes at the intersection, such as adding an exclusive northbound right-turn lane. Therefore, the project could contribute to the overlap phasing for the westbound right-turn and contribute to ITS (intelligent transport system) improvements at the intersection, such as fiber optic interconnect, CCTV, or traffic signal controller improvements.

Operations for weekday PM and Saturday midday peak hour conditions are shown in Table 38, along with projected operations with the overlap phasing for the westbound right turn. Appendix X includes the intersection operations worksheets showing operations with overlap phasing for the westbound right turn.

**Table 38. Operations at Day Street/Canyon Springs Parkway without and with Improvement**

	Delay in Seconds (LOS)									
	Existing		2026 Background		2026 Total Traffic		2040 Background		2040 Total Traffic	
	Wkday PM	Sat Mid	Wkday PM	Sat Mid	Weekday PM	Sat Mid	Weekday PM	Sat Mid	Weekday PM	Sat Mid
No change	36.1 (D)	<b>61.1 (E)</b>	53.9 (D)	<b>97.0 (F)</b>	<b>56.0 (E)</b>	<b>102.5 (F)</b>	<b>79.2 (E)</b>	<b>142.1 (F)</b>	<b>82.2 (F)</b>	<b>160.5 (F)</b>
<i>Difference in delay between background and total traffic conditions</i>					+ 2.1	+5.5			+3.0	+18.4
With overlap phasing for WB right turn	33.1 (C)	53.4 (D)	47.5 (D)	<b>83.4 (F)</b>	49.1 (D)	<b>88.3 (F)</b>	<b>71.9 (E)</b>	<b>130.6 (F)</b>	<b>74.7 (E)</b>	<b>150.5 (F)</b>
<i>Difference in delay with overlap phasing for WB right turn</i>	-3.0	-7.7	-6.4	-13.6	-6.9	-14.2	-7.3	-11.5	-7.5	-10.0

Notes: LOS = Level of Service, Wkday PM = Weekday PM Peak Hour, Sat Mid = Saturday Midday Peak Hour, WB = Westbound

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

For reference, the project is expected to add 93 weekday PM peak hour trips to through movements at the intersection north and south, which is approximately 1.8 percent of total intersection volumes under 2026 total traffic conditions.

### 6. Day Street/Campus Parkway

This signalized intersection is under Riverside's jurisdiction with a LOS standard of D. It is projected to not meet standards during the Saturday midday peak hour in 2026 and both the weekday PM peak hour and Saturday midday peak hour in 2040, with or without the proposed project.

The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), also projected a LOS deficiency at this location and identified an improvement to modify the signal timing to

accommodate overlap phasing for the westbound right turn. The TIA estimated this improvement cost at \$10,000 and estimated the project's fair share based on the project's proportion of total new traffic (general plan buildout with project minus existing). While not enough for the intersection to operate within standards, this would provide benefit. There does not appear to be available right-of-way for geometric changes at the intersection, such as adding an exclusive eastbound right-turn lane and northbound right-turn lane. Therefore, the project could contribute to the overlap phasing for the westbound right-turn and contribute to ITS (intelligent transport system) improvements at the intersection, such as fiber optic interconnect, CCTV, or traffic signal controller improvements.

Operations for weekday PM and Saturday midday peak hour conditions are shown in Table 39, along with projected operations with the overlap phasing for the westbound right turn. Appendix X includes the intersection operations worksheets showing operations with overlap phasing for the westbound right turn.

**Table 39. Operations at Day Street/Campus Parkway without and with Improvement**

	Delay in Seconds (LOS)									
	Existing		2026 Background		2026 Total Traffic		2040 Background		2040 Total Traffic	
	Wkday PM	Sat Mid	Wkday PM	Sat Mid	Weekday PM	Sat Mid	Weekday PM	Sat Mid	Weekday PM	Sat Mid
No change	26.8 (C)	42.9 (D)	34.4 (C)	<b>57.5 (E)</b>	38.9 (D)	<b>64.4 (E)</b>	<b>62.8 (E)</b>	<b>134.9 (F)</b>	<b>69.5 (E)</b>	<b>139.9 (F)</b>
<i>Difference in delay between background and total traffic conditions</i>					+4.5	+6.9			+6.7	+5.0
With overlap phasing for WB right turn	25.2 (C)	40.6 (D)	32.5 (C)	53.5 (D)	35.1 (D)	<b>57.5 (E)</b>	<b>62.2 (E)</b>	<b>134.1 (F)</b>	<b>68.6 (E)</b>	<b>138.8 (F)</b>
<i>Difference in delay with overlap phasing for WB right turn</i>	-1.6	-2.3	-1.9	-4.0	-3.8	-6.9	-0.6	-0.8	-0.9	-1.1

Notes: LOS = Level of Service, Wkday PM = Weekday PM Peak Hour, Sat Mid = Saturday Midday Peak Hour, WB = Westbound

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

For reference, the project is expected to add 117 weekday PM peak hour trips, which is approximately 2.7 percent of total intersection volumes under 2026 total traffic conditions.

### 7. Day Street/Eucalyptus Avenue

This signalized intersection is under Riverside's jurisdiction with a LOS standard of D. It is projected to not meet standards during all three peak periods under 2040 conditions in both background and total traffic conditions. The City of Moreno currently has identified a project on its Capital Improvement Plan to widen Eucalyptus Avenue to six lanes, which is included in the year 2040 analysis.

The Canyon Springs Healthcare Campus & Senior Living Traffic Impact Analysis (Reference 15, 2017), also projected a LOS deficiency at this location and identified an improvement to modify the striping on the northbound approach to provide a separate northbound right turn lane and to modify the traffic signal to accommodate overlap phasing for the northbound right turn lane. The TIA estimated this improvement cost at \$15,000 and estimated the project's fair share based on the project's proportion of total new traffic (general plan buildout with project minus existing). While not enough for the intersection to operate within standards, this would provide benefit. Operations could be further improved by adding a second eastbound left-turn lane when Eucalyptus Avenue is widened.

The project could contribute to the northbound right-turn lane improvement at the intersection or could contribute to ITS (intelligent transport system) improvements at the intersection, such as fiber optic interconnect, CCTV, or traffic signal controller improvements.

Operations for weekday AM, weekday PM and Saturday midday peak hour conditions are shown in Table 40, along with projected operations with the addition of a northbound right turn lane with overlap phasing. Appendix X includes the intersection operations worksheets showing operations with the northbound right turn lane with overlap phasing.

**Table 40. Operations at Day Street/Eucalyptus Avenue without and with Improvement**

	Delay in Seconds (LOS)					
	2040 Background			2040 Total Traffic		
	Weekday AM	Weekday PM	Sat Mid	Weekday AM	Weekday PM	Sat Mid
No change	<b>114.2 (F)</b>	<b>109.1 (F)</b>	<b>147.3 (F)</b>	<b>119.0 (F)</b>	<b>121.6 (F)</b>	<b>150.4 (F)</b>
<i>Difference in delay between background and total traffic conditions</i>				+4.8	+12.5	+3.1
With NB right-turn lane with overlap phasing	<b>111.4 (F)</b>	<b>101.5 (F)</b>	<b>134.5 (F)</b>	<b>115.3 (F)</b>	<b>111.4 (F)</b>	<b>136.7 (F)</b>
<i>Difference in delay with overlap phasing for WB right turn</i>	-2.8	-7.6	-12.8	-3.7	-10.2	-13.7

Notes: LOS = Level of Service, Sat Mid = Saturday Midday Peak Hour, NB = Northbound

**Bold text** indicates operations do not meet LOS Standard

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

### 9. Memorial Way/Town Circle

This all-way stop-controlled intersection is a T-intersection, with Town Circle running east/west and Memorial Way connecting Town Circle to Eucalyptus Avenue. The intersection is projected to not meet standards during the Saturday midday peak hour under 2026 total traffic conditions and in either background or total traffic conditions in 2040.

As discussed in Section 8: Traffic Signal Warrant Analysis and Section 9: Site Access Analysis, the intersection currently meets the peak hour traffic signal warrants, based on the Saturday midday peak hour volume. A traffic signal or roundabout could be installed at the location to improve operations and meet the City's LOS standard. The satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic control signal and, if a signal is identified for the intersection in the long-term, operations and volumes should be monitored to identify when a signal should be installed, considering queueing, delays, and volume-based signal warrants in the MUTCD.

### 12. Heritage Way/Town Circle

This all-way stop-controlled intersection is a T-intersection, with Town Circle running east/west and Heritage Way connecting Town Circle to Towngate Boulevard. The intersection is projected to not meet standards during the Saturday midday peak hour under 2026 total traffic conditions or 2040 total traffic conditions.

As discussed in Section 8: Traffic Signal Warrant Analysis and Section 9: Site Access Analysis, the intersection is projected to meet the peak hour traffic signal warrant under 2026 and 2040 total traffic conditions, based on the Saturday midday peak hour volume. A traffic signal or roundabout could be installed at the location to improve LOS. The satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic control signal and, if a signal is identified for the intersection in the long-term, operations and volumes should be monitored to identify when a signal should be installed, considering queueing, delays, and volume-based signal warrants in the MUTCD.

### 16. Frederick Street/SR-60 EB Off-Ramp – Sunnymead Boulevard

This signalized intersection is under Caltrans’s jurisdiction with a LOS standard of E. It serves vehicles coming off eastbound SR-60, as well as Frederick Street and Sunnymead Boulevard. The intersection is projected to operate at a LOS F during the Saturday midday peak hour in both background and total traffic conditions in 2040.

The intersection would benefit from an additional right-turn lane on the eastbound, northbound, or westbound approach. It appears there may be ROW to provide an additional eastbound right-turn lane, which the project could pay a proportionate share of. As another option, the project could contribute to ITS (intelligent transport system) improvements at the intersection, such as fiber optic interconnect, CCTV, or traffic signal controller improvements.

Operations for the Saturday midday peak hour conditions are shown in Table 41, along with projected operations with an additional eastbound right turn. As shown, with this improvement the intersection is projected to operate within standards under all scenarios. Appendix X includes the intersection operations worksheets showing operations with an eastbound right-turn lane.

**Table 41. Operations at Frederick Street/SR-60 EB Off-Ramp – Sunnymead Boulevard without and with Improvement**

	Delay in Seconds (LOS)				
	Existing Sat Mid	2026 Background Sat Mid	2026 Total Traffic Sat Mid	2040 Background Sat Mid	2040 Total Traffic Sat Mid
No change	31.0 (C)	34.0 (C)	45.0 (D)	<b>91.1 (F)</b>	<b>100.9 (F)</b>
<i>Difference in delay between background and total traffic conditions</i>			+11.0		+9.8
With additional EB right-turn lane	25.8 (C)	26.3 (C)	27.2 (C)	69.9 (E)	75.8 (E)
<i>Difference in delay with EB right-turn lane</i>	-2.2	-7.7	-17.8	-21.2	-25.1

Notes: LOS = Level of Service, Sat Mid = Saturday Midday Peak Hour, EB = Eastbound  
**Bold text** indicates operations do not meet LOS Standard  
**Bold italic text** indicates operations meet the City’s threshold for identifying improvements

For reference, the project is expected to add 428 Saturday midday peak hour trips, which is approximately 6.1 percent of total intersection volumes under 2040 total traffic conditions.

### 19. Frederick Street/Eucalyptus Avenue

This signalized intersection meets standards under all scenarios except during the weekday PM peak hour under 2040 total traffic conditions. The intersection operates at a LOS E and within five seconds of the cut-off for a LOS D.

The intersection would benefit from an exclusive right-turn lane on the eastbound or westbound approach, but there does not appear to be right-of-way for this improvement. The project could contribute to ITS (intelligent transport system) improvements at the intersection, such as fiber optic interconnect, CCTV, or traffic signal controller improvements.

For reference, the project is expected to add 173 weekday PM peak hour trips, which is approximately 4.0 percent of total intersection volumes under 2040 total traffic conditions.



### **E. Access E/Town Circle**

The project proposes an access point on Town Circle west of the southernmost residential building to serve a parking garage for both retail and residential trips. As a two-way stop-controlled intersection with separate left and right turn lanes on the southbound approach, the intersection is projected to not meet standards under 2026 or 2040 total traffic conditions during the Saturday midday peak hour.

As discussed in *Section 8: Traffic Signal Warrant Analysis* and *Section 9: Site Access Analysis*, the intersection is projected to meet the peak hour traffic signal warrant under 2026 and 2040 total traffic conditions, based on the Saturday midday peak hour volume. A traffic signal or roundabout could be installed at the location to improve LOS. The satisfaction of a traffic signal warrant or warrants does not in itself require the installation of a traffic control signal and, if a signal is identified for the intersection in the long-term, operations and volumes should be monitored to identify when a signal should be installed, considering queueing, delays, and volume-based signal warrants in the MUTCD.

### **Intersection Turn Lane Queues**

The 95<sup>th</sup> percentile queue lengths, available storage at turn lanes, and distance to adjacent side streets and signalized intersections for each study intersection during the scenarios studied are provided in Table 42.

As shown in the table, fourteen of the intersections have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2040 total traffic conditions. All these intersections also have at least one movement where the 95<sup>th</sup> percentile queue length is expected to exceed the striped storage length under year 2040 background conditions, except for the intersections of Town Circle/Campus Parkway, Heritage Way/Town Circle, and Heritage Way/Towngate Boulevard. 95<sup>th</sup> percentile queues at these three intersections are not projected to back up into adjacent signalized intersections.

**Table 42. 95<sup>th</sup> Percentile Queue Lengths at Study Intersections in All Scenarios**

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)														
					Existing Conditions			2026 Background Conditions (without project)			2026 Total Traffic Conditions (with project)			2040 Background Conditions (without project)			2040 Total Traffic Conditions (with project)		
					Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
1. I-215 Ramps/ Eucalyptus Ave	EBL	250	780	780	70	109	49	75	116	55	75	116	55	#221	#347	132	#221	#347	134
	EBR	50	650	650	5	47	14	7	53	16	7	53	16	8	152	41	8	153	41
	WBL	275	770	770	159	230	272	202	#500	#487	228	#535	#524	#280	#444	#546	#300	#470	#579
	NBL <sup>1</sup>	1,200	N/A	N/A	157	63	75	164	67	86	164	67	87	#364	127	212	#374	127	212
	NBR <sup>1</sup>	1,200	N/A	N/A	18	31	20	25	104	127	26	130	160	84	236	#695	96	254	#739
	SBL <sup>1</sup>	1,400	N/A	N/A	86	214	157	176	#334	#286	176	#334	#291	212	#492	#512	215	#492	#512
	SBR <sup>1</sup>	1,400	N/A	N/A	0	53	14	3	55	17	3	55	17	0	70	33	0	70	33
2. Valley Springs Pkwy/Eucalyptus Ave	EBL	300	530	830	112	217	#404	#437	#491	#840	#454	#491	#840	#396	#468	#815	#420	#468	#815
	EBR	360	530	830	0	48	0	10	54	3	10	54	3	49	67	41	48	68	41
	WBL	100	200	950	47	70	56	64	84	69	65	84	69	142	#140	102	142	#140	102
	WBR	30	200	950	6	27	50	58	76	134	58	76	134	38	74	142	36	71	142
	NBL	150	1,600	>2,000	166	135	87	225	175	132	232	175	132	#532	#436	#307	#544	#424	#307
SBL	160	390	960	29	109	128	75	221	228	77	221	228	77	#249	#369	77	#249	#369	
3. Day St/SR-60 WB Ramps	WBL <sup>1</sup>	1,580	N/A	N/A	131	221	#398	202	#310	#559	202	#312	#561	342	#423	#604	342	#423	#605
	WBR <sup>1</sup>	1,580	N/A	N/A	47	119	127	54	132	149	57	132	150	293	199	206	294	200	207
	NBR	180	820	820	0	0	0	0	m0	m0	0	m0	m2	0	m5	m0	0	m5	m0
	SBL <sup>2</sup>	200	380	950	78	79	79	82	83	83	82	83	83	103	#121	#122	103	#122	#122
4. Day St/SR-60 EB Ramps	WBL <sup>1</sup>	1,280	N/A	N/A	162	#324	#343	215	#404	#454	226	#433	#481	216	#423	#464	225	#445	#485
	WBR <sup>1</sup>	1,280	N/A	N/A	26	264	87	27	304	100	27	305	101	46	352	117	49	351	116
	SBL	500	840	840	75	m97	m68	m74	m94	m62	m74	m94	m62	m86	m#155	m#111	m86	m#156	m#111
5. Day St/Canyon Springs Pkwy	EBL <sup>3</sup>	170	240	490	144	#451	#513	57	#517	#592	165	#517	#592	#209	#570	#663	#209	#570	#628
	WBL	140	140	300	63	75	135	68	78	141	69	78	141	75	78	137	75	78	122
	NBL	180	580	580	122	275	#470	132	#306	#521	135	#306	#521	#178	#412	#593	#190	#424	#565
	SBL	145	370	370	207	295	#410	227	318	#455	232	318	#455	#302	#453	#591	#314	#453	#562
6. Day St/ Campus Pkwy	EBL <sup>2,3</sup>	190	300	790	30	132	140	41	148	153	41	148	153	47	#192	#212	47	#200	#224
	WBL	190	440	440	43	130	175	53	140	187	73	151	204	62	#163	#276	#93	#200	#302
	NBL	140	360	880	67	165	230	82	184	#281	82	184	#281	#108	#229	#347	#108	#239	#347
	SBL	180	170	580	54	198	#362	64	217	#403	80	#270	#460	75	#273	#435	#109	#326	#484
7. Day St/ Eucalyptus Ave	EBL	100	340	2,000	155	306	#511	259	#440	#721	269	#459	#742	#666	#988	#1,441	#666	#1011	#1460
	WBL	170	100	1,000	89	145	142	113	156	152	139	176	173	#206	#290	246	#234	#349	#305
	WBR	200	100	1,000	39	58	69	60	63	76	73	63	99	89	64	211	104	64	212
	NBL	150	510	1,210	#250	78	106	#424	101	144	#433	101	144	#829	#262	#390	#829	#262	#390
	SBL	180	300	1,100	93	205	186	126	#307	#234	128	#307	#234	#377	#589	#546	#388	#589	#558
8. Town Cir/ Campus Pkwy	EBL <sup>3</sup>	200	460	460	3	18	48	3	20	55	5	28	70	3	20	58	3	28	73
	EBR	450	460	460	3	15	30	3	18	35	3	23	45	3	20	38	3	23	45
	NBL	125	150	>2,000	10	38	88	10	43	108	15	50	130	10	45	115	13	53	140

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)														
					Existing Conditions			2026 Background Conditions (without project)			2026 Total Traffic Conditions (with project)			2040 Background Conditions (without project)			2040 Total Traffic Conditions (with project)		
					Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
9. Memorial Way/ Town Cir	WBL <sup>2</sup>	100	310	>2,000	5	28	65	8	33	78	8	35	78	5	33	85	8	35	83
	NBL <sup>3</sup>	100	200	450	8	28	60	8	30	73	8	33	73	8	33	75	8	33	75
	NBR	450	200	450	5	23	78	5	25	98	5	28	100	5	28	105	5	28	108
10. Memorial Way-Eucalyptus Ave/ Towngate Blvd	EBL	160	450	930	51	122	<b>194</b>	55	142	<b>231</b>	55	150	<b>239</b>	69	<b>180</b>	<b>261</b>	71	<b>180</b>	<b>261</b>
	EBR	70	450	930	42	<b>103</b>	<b>78</b>	50	<b>185</b>	<b>133</b>	60	<b>219</b>	<b>158</b>	<b>77</b>	<b>480</b>	<b>365</b>	<b>95</b>	<b>503</b>	<b>375</b>
	WBL	150	970	1,950	39	53	54	43	60	64	43	64	65	72	<b>#245</b>	<b>206</b>	75	<b>#245</b>	<b>206</b>
	WBR	70	970	1,950	11	51	<b>102</b>	13	66	<b>134</b>	13	<b>74</b>	<b>148</b>	0	52	<b>118</b>	0	52	<b>117</b>
	NBL	200	430	920	<b>233</b>	187	<b>217</b>	<b>312</b>	<b>252</b>	<b>335</b>	<b>313</b>	<b>268</b>	<b>#355</b>	<b>487</b>	<b>#385</b>	<b>422</b>	<b>516</b>	<b>#385</b>	<b>422</b>
SBL	190	640	640	49	109	128	53	126	149	53	132	154	66	158	170	69	158	170	
11. Town Cir/ Centerpoint Drive	EBL	50	350	N/A	-	-	-	-	-	-	7	9	8	-	-	-	6	9	7
	NBL	75	110	>2,000	-	-	-	-	-	-	39	33	33	-	-	-	39	33	32
	NBR	65	110	>2,000	5	17	27	8	18	39	19	<b>81</b>	<b>138</b>	6	25	43	35	<b>79</b>	<b>107</b>
	SBL <sup>3</sup>	50	80	>2,000	12	<b>96</b>	<b>74</b>	13	<b>102</b>	<b>79</b>	29	<b>118</b>	<b>#123</b>	13	<b>102</b>	<b>81</b>	38	<b>118</b>	<b>#150</b>
12. Heritage Way/Town Circ	EBL	50	650	>2,000	-	-	-	-	-	-	23	0	3	-	-	-	0	0	3
	WBL	100	250	740	3	10	20	5	13	35	20	45	<b>153</b>	5	13	38	15	43	60
	NBL	100	130	630	3	13	30	3	15	35	10	43	<b>108</b>	3	15	35	8	43	<b>113</b>
	NBR	650	130	630	3	5	8	3	5	15	18	30	40	0	8	15	13	30	43
13. Heritage Way/Towngate Blvd	EBL	325	900	1,930	29	59	69	48	#107	98	107	173	196	53	#110	118	<b>253</b>	212	215
	EBR	100	900	1,930	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0
	WBL	150	460	1,260	24	33	32	38	46	45	39	49	48	43	46	51	<b>253</b>	59	52
	WBR	85	460	1,260	0	32	54	0	22	85	37	64	<b>131</b>	0	23	66	75	<b>95</b>	<b>162</b>
	SBL <sup>2</sup>	200	120	N/A	33	105	118	43	127	153	141	<b>229</b>	<b>268</b>	52	129	193	<b>253</b>	<b>290</b>	<b>295</b>
	SBR	650	120	N/A	1	2	18	0	0	21	47	46	55	0	0	0	75	53	58
14. Pigeon Pass Rd/Hemlock Rd	WBL <sup>3</sup>	260	160	400	233	228	<b>291</b>	252	247	<b>#375</b>	<b>292</b>	<b>#314</b>	<b>#469</b>	<b>282</b>	<b>#333</b>	<b>376</b>	<b>253</b>	<b>#405</b>	<b>#439</b>
	NBL	240	700	700	106	133	175	111	139	185	111	139	185	114	145	192	75	145	192
	NBR	90	700	700	83	<b>288</b>	<b>219</b>	<b>95</b>	<b>337</b>	<b>261</b>	<b>105</b>	<b>346</b>	<b>271</b>	<b>106</b>	<b>295</b>	<b>246</b>	<b>253</b>	<b>309</b>	<b>260</b>
	SBL <sup>2</sup>	200	200	1,340	144	131	143	152	138	151	152	138	151	154	#177	#169	75	#188	#181
15. Frederick St/ SR-60 EB On- Ramp	SBL	340	700	700	236	176	189	253	187	198	253	187	198	276	193	208	276	193	211
16. Frederick St/ SR-60 EB Off- Ramp – Sunnymead Boulevard	EBL <sup>1</sup>	1,700	N/A	N/A	144	258	232	154	278	250	154	278	250	156	274	257	156	277	255
	EBR <sup>1</sup>	1,700	N/A	N/A	206	362	#559	231	402	#633	315	#624	#835	235	401	#658	320	#621	#857
	WBL <sup>3</sup>	140	150	>2,000	<b>163</b>	<b>179</b>	<b>#301</b>	<b>174</b>	<b>191</b>	<b>#334</b>	<b>179</b>	<b>201</b>	<b>#350</b>	<b>291</b>	<b>259</b>	<b>#447</b>	<b>#301</b>	<b>268</b>	<b>#471</b>
	NBR	75	210	460	64	<b>214</b>	<b>250</b>	74	<b>245</b>	<b>288</b>	<b>100</b>	<b>267</b>	<b>318</b>	<b>157</b>	<b>#814</b>	<b>#914</b>	<b>213</b>	<b>#819</b>	<b>#935</b>
	SBL	60	120	120	<b>141</b>	<b>157</b>	<b>232</b>	<b>150</b>	<b>167</b>	<b>#254</b>	<b>150</b>	<b>167</b>	<b>#254</b>	<b>#320</b>	<b>#503</b>	<b>#691</b>	<b>#323</b>	<b>#515</b>	<b>#703</b>
17. Frederick St/ Centerpoint Dr	NBL	130	320	320	42	64	71	46	72	78	51	77	85	53	80	92	58	90	#109

Study Intersection	Move-ment	Storage Length (feet)	Distance to Adjacent Side Street (feet)	Distance to Adjacent Signal (feet)	95 <sup>th</sup> Percentile Queue Length (feet)														
					Existing Conditions			2026 Background Conditions (without project)			2026 Total Traffic Conditions (with project)			2040 Background Conditions (without project)			2040 Total Traffic Conditions (with project)		
					Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
18. Frederick St/ Towngate Blvd	EBR	100	340	1,260	28	63	63	30	65	66	45	75	76	39	<b>220</b>	<b>260</b>	55	<b>268</b>	<b>#355</b>
	NBL	330	660	1,200	133	254	<b>#352</b>	146	<b>287</b>	<b>#466</b>	199	<b>#417</b>	<b>#616</b>	311	316	<b>#412</b>	<b>360</b>	<b>#434</b>	<b>#531</b>
	SBR	100	220	420	14	29	60	16	38	87	19	42	<b>105</b>	50	50	<b>142</b>	64	72	<b>171</b>
19. Frederick St/ Eucalyptus Ave	EBL <sup>2</sup>	200	560	>2,000	109	107	101	123	114	111	131	117	114	<b>257</b>	#189	#197	<b>262</b>	#193	<b>#209</b>
	WBL	150	360	>2,000	109	82	60	123	90	65	131	92	66	<b>160</b>	#95	75	<b>160</b>	#98	75
	NBL <sup>2</sup>	190	1,200	1,200	115	175	<b>192</b>	150	<b>202</b>	<b>238</b>	160	<b>208</b>	<b>242</b>	<b>196</b>	<b>#208</b>	<b>275</b>	<b>197</b>	<b>#208</b>	<b>277</b>
	NBR	190	1,200	1,200	40	12	0	49	17	0	54	17	0	60	0	0	37	0	0
	SBL	130	260	1,200	127	<b>230</b>	<b>196</b>	<b>145</b>	<b>246</b>	<b>218</b>	<b>205</b>	<b>291</b>	<b>263</b>	<b>192</b>	<b>#437</b>	<b>#446</b>	<b>253</b>	<b>#486</b>	<b>#515</b>
SBR	190	260	1,200	34	35	31	40	41	37	41	40	36	70	37	41	75	37	40	
20. SR-60 WB Off Ramp/Hemlock Ave	NBL <sup>1</sup>	1,600	N/A	N/A	97	115	137	107	129	155	118	154	180	109	122	138	125	146	163
	NBR <sup>1</sup>	1,600	N/A	N/A	0	0	1	0	0	3	0	0	3	0	0	3	0	0	3
A. Access A/ Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	8	5	8	-	-	-	5	5	8
B. Access B/ Town Circ	NBL/R	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	0	3	3	-	-	-	0	3	3
C. Access C/ Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	3	3	3	-	-	-	3	3	3
D. Access D/ Town Circ	EBL/R	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	23	23	45	-	-	-	23	23	48
	NBL	75	140	>2,000	-	-	-	-	-	-	3	5	5	-	-	-	3	5	5
E. Access E/ Town Circ	EBL	75	25	>2,000	-	-	-	-	-	-	3	13	23	-	-	-	3	13	25
	SBL	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	25	90	340	-	-	-	28	95	363
	SBR	N/A <sup>4</sup>	N/A	N/A	-	-	-	-	-	-	3	15	40	-	-	-	5	15	43

<sup>1</sup> Ramp storage measured to gore point

<sup>2</sup> Left turn storage lane transitions to two-way left turn lane

<sup>3</sup> Second turn-lane that extends to adjacent intersection

<sup>4</sup> Site access, storage length not defined

EB = eastbound, WB = westbound, NB = northbound, SB = southbound, L = left, R = right, N/A = Not Applicable

**Bold text** indicates that 95<sup>th</sup> percentile queue length exceeds striped storage

**Bold italics text** indicates that 95<sup>th</sup> percentile queue length exceeds striped storage under total traffic conditions and not in background conditions.

## ROADWAY SEGMENT OPERATIONS

Table 43 summarizes operations at all roadway segments during the scenarios studied. Table 44 presents the roadway segments not meeting LOS standards in one or more analysis scenarios, including whether standards are not met on a weekday, Saturday, or both. As shown, Day Street and Frederick Street both have two or more segments not meeting standards.

**Table 43. Roadway Segment Operations in All Scenarios**

Roadway	Segment	Jurisdiction	Classification	LOS Std.	LOS E Capacity	Existing Conditions				2026 Background Conditions (without project)				2026 Total Traffic Conditions (with project)				2040 Background Conditions (without project)				2040 Total Traffic Conditions (with project)			
						Weekday		Saturday		Weekday		Saturday		Weekday		Saturday		Weekday		Saturday		Weekday		Saturday	
						LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
A. Day St	SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	49,500	C	0.73	C	0.71	C	0.84	C	0.85	C	0.85	C	0.86	<b>E</b>	1.05	<b>E</b>	1.12	<b>E</b>	1.06	<b>E</b>	1.13
	SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	49,500	D	0.91	D	0.98	<b>E</b>	1.08	<b>E</b>	1.20	<b>E</b>	1.11	<b>E</b>	1.22	<b>E</b>	1.36	<b>E</b>	1.57	<b>E</b>	1.39	<b>E</b>	1.60
	Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	49,500	C	0.62	C	0.69	C	0.77	C	0.88	C	0.79	D	0.90	<b>E</b>	1.10	<b>E</b>	1.30	<b>E</b>	1.12	<b>E</b>	1.32
	Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	49,500	C	0.58	C	0.63	C	0.73	C	0.81	C	0.73	C	0.81	<b>E</b>	1.10	<b>E</b>	1.27	<b>E</b>	1.10	<b>E</b>	1.27
	Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	49,500	C	0.48	C	0.44	C	0.57	C	0.54	C	0.58	C	0.55	<b>E</b>	1.01	D	0.98	<b>E</b>	1.01	D	0.99
B. Eucalyptus Ave	I-215 Ramps to Day St	Riverside	Arterial 120'	D	49,500	C	0.37	C	0.35	C	0.45	C	0.45	C	0.48	C	0.48	C	0.64	C	0.71	C	0.67	C	0.74
	Day St to Towngate Blvd	MV	Major Arterial (4D)/ Major Arterial (6D) <sup>1</sup>	D	37,500/ 56,300	A	0.44	A	0.39	A	0.51	A	0.48	A	0.56	A	0.52	A	0.48	A	0.47	A	0.51	A	0.51
C. Town Cir	Campus Pkwy to Centerpoint Dr	MV	N/A <sup>2</sup>	D	25,000	A	0.26	A	0.39	A	0.28	A	0.41	A	0.45	A	0.59	A	0.29	A	0.44	A	0.46	B	0.61
D. Centerpoint Dr	Town Cir and Frederick St	MV	N/A <sup>2</sup>	D	56,300	A	0.29	A	0.38	A	0.31	A	0.40	A	0.41	A	0.50	A	0.32	A	0.44	A	0.41	A	0.54
E. Towngate Blvd	Eucalyptus Ave and Frederick St	MV	Major Arterial (4D)	D	37,500	A	0.29	A	0.31	A	0.32	A	0.35	A	0.37	A	0.40	A	0.47	A	0.56	A	0.52	B	0.61
F. Pigeon Pass Rd	Hemlock Ave to Sunnymead Blvd	MV	Arterial (6D) <sup>3</sup>	D	56,300	B	0.69	B	0.66	C	0.76	<b>C</b>	0.73	D	0.80	C	0.78	D	0.84	D	0.85	D	0.88	D	0.90
G. Frederick St	Sunnymead Blvd to Centerpoint Dr	MV	Major Arterial (6D) <sup>3</sup>	D	56,300	B	0.65	B	0.69	C	0.72	<b>C</b>	0.76	D	0.81	D	0.86	C	0.80	D	0.87	D	0.89	D	0.96
	Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	37,500	C	0.76	B	0.66	D	0.85	<b>C</b>	0.74	D	0.85	C	0.74	<b>E</b>	0.96	<b>E</b>	0.91	<b>E</b>	0.96	<b>E</b>	0.92
	Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	37,500	C	0.72	B	0.65	C	0.79	<b>C</b>	0.70	D	0.84	C	0.76	<b>E</b>	0.90	D	0.86	<b>E</b>	0.96	<b>E</b>	0.91

ADT = Average Daily Traffic, MV = Moreno Valley, 4D = 4 Lane Divided, 4U = 4 Lane Undivided, 6D = 6 Lane Divided

**Bold text** indicates not meeting standards

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

<sup>1</sup> Eucalyptus Avenue is planned to be widened to 6 lanes before 2040, so was assessed as a 4 lane roadway in existing and 2026 conditions and a 6 lane roadway in 2040 conditions.

<sup>2</sup> These roadways are not classified on the City of Moreno Valley's Circulation Diagram. The segment LOS was determined using the classification that most closely matches the cross-section.

<sup>3</sup> Given the long turn lanes and auxiliary lanes through these sections, the segment LOS was determined using the 6 Lane Arterial classification.

**Table 44. Roadway Segments not Meeting Standards**

Roadway/ Segment	Jurisdiction	Classification	LOS Std.	Existing	Days not Meeting Standards			
					2026 Back-ground (without project)	2026 Total Traffic (with project)	2040 Back-ground (without project)	2040 Total Traffic (with project)
<b>A. Day St</b>								
SR 60 WB Ramp to SR 60 EB Ramp	Riverside	Arterial 120'	D	-	-	-	Weekday Saturday	Weekday Saturday
SR 60 EB Ramp to Canyon Springs Pkwy	Riverside	Arterial 120'	D	-	Weekday Saturday	Weekday Saturday	Weekday Saturday	Weekday Saturday
Canyon Springs Pkwy to Campus Pkwy	Riverside	Arterial 120'	D	-	-	-	Weekday Saturday	Weekday Saturday
Campus Pkwy to Gateway Dr	Riverside	Arterial 120'	D	-	-	-	Weekday Saturday	Weekday Saturday
Gateway Dr to Eucalyptus Ave	Riverside	Arterial 120'	D	-	-	-	Weekday	Weekday
<b>G. Frederick St</b>								
Centerpoint Dr to Towngate Blvd	MV	Major Arterial (4D)	D	-	-	-	Weekday Saturday	Weekday Saturday
Towngate Blvd to Eucalyptus Ave	MV	Major Arterial (4D)	D	-	-	-	Weekday	<b>Weekday Saturday</b>

Notes: LOS = Level of Service, MV = Moreno Valley

**Bold italic text** indicates operations meet the City's threshold for identifying improvements

As shown in the table, the following roadway segments do not operate within the target LOS:

- All segments on Day Street operate at a LOS E under both 2040 scenarios on a weekday, and all operate at an E on a Saturday except for the segment between Gateway Drive and Eucalyptus Avenue. Day Street is built out to its ultimate width (six lanes), except for the segment between the SR 60 WB Ramp and SR 60 EB Ramp, which is constrained to five lanes by the SR-60 overpass. The project adds traffic less than 5% of the roadway capacity, so does not meet the City's requirement to identify operational improvements.
- Both segments on Frederick Street shown in the table operate at a LOS E under both 2040 scenarios on a weekday. On a Saturday, the segment between Towngate Boulevard and Eucalyptus Avenue operates at a LOS E under total traffic conditions and at a LOS D under background conditions. Frederick Street is four lanes with a median and turn lanes. The project increases the volume-to-capacity ratio on the segment between Towngate Boulevard and Eucalyptus Avenue by 0.06 on a weekday and 0.05 on a Saturday, and therefore meets Moreno Valley's threshold for identifying improvements. Given the lack of right-of-way for widening Frederick Street, the project could contribute to ITS (intelligent transport system) improvements on Frederick Street, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.

## FREEWAY OPERATIONS

All freeway segments of SR-60 and I-215 analyzed are forecasted to operate at a LOS D or better during all peak periods in all scenarios.

## RECOMMENDED IMPROVEMENTS

Table 45 lists potential improvements, by location, for the intersections and roadway segment where the project meets the City of Riverside or Moreno Valley thresholds for identifying improvements to offset the increase in delay (for intersections) or volume-to-capacity ratio (for roadways) with the project. This initial list of improvements will be discussed with the appropriate agencies and refined accordingly.

**Table 45. Potential Improvements**

Location	Potential Improvement
1. I-215 Ramps/ Eucalyptus Ave	Signal retiming.
2. Valley Springs Pkwy/ Eucalyptus Ave	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the southbound right turn movement and restriping to provide a second northbound left turn lane.
5. Day St/ Canyon Springs Pkwy	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the westbound right turn movement. Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
6. Day St/ Campus Pkwy	Contribute to improvements identified in the Canyon Springs TIA, including overlap phasing for the westbound right turn movement. Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
7. Day St/ Eucalyptus Ave	Contribute to improvements identified in the Canyon Springs TIA, including restriping to provide a northbound right turn lane and modifications to provide overlap phasing for the northbound right movement.
9. Memorial Way/Town Cir	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
12. Heritage Way/Town Circ	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	Contribute a proportionate share of construction of an eastbound right turn lane or ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
19. Frederick St/ Eucalyptus Ave	Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.
E. Access E/Town Circ	Monitor the need for a traffic signal or roundabout based on queueing, delays, and volume-based warrants in the MUTCD.
Roadway segment: Frederick Street between Towngate Boulevard and Eucalyptus Avenue	Contribute to ITS (intelligent transport system) improvements, such as fiber optic interconnect, CCTV, or traffic signal controller improvements to improve operations.

## PROJECT FAIR-SHARE

At intersections where an operational deficiency was identified, this traffic impact analysis identified the number of project trips that would use the intersection and the ratio of project traffic to the projected traffic increase at that location. In other words, the project fair share percentage equals the project traffic divided by the difference between future traffic and existing traffic on all intersection approaches:



$$\text{Project Fair Share \%} = \frac{\text{Project Traffic}}{(\text{Future Traffic Volume} - \text{Existing Traffic Volume})}$$

Fair share contributions are an acceptable improvement when the project applicant is responsible for only a portion of a costly transportation enhancement. In other words, it is applicable when there are other proposed development projects nearby that may also contribute toward the cost or when the city has other funding sources for the improvement. Table 46 presents a summary of the project fair share percentages for intersections where weekday AM, weekday PM, and/or Saturday midday peak hour operations do not meet target LOS.

**Table 46. Project Fair Share Calculations**

Intersection	Peak Hour	Existing (2021) Traffic	Project Trips	Total Traffic Volumes (with project)		Project Fair Share (%)	
				2026	2040	2026	2040
1. I-215 Ramps/ Eucalyptus Ave	AM	2013	123	2947	4734	13.2%	4.5%
	PM	2855	129	4079	5714	<b>10.5%</b>	4.5%
	Sat Mid	3072	130	4293	5876	10.6%	4.6%
2. Valley Springs Pkwy/ Eucalyptus Ave	AM	1920	123	3023	4216	11.2%	<b>5.4%</b>
	PM	3292	129	4769	5982	<b>8.7%</b>	<b>4.8%</b>
	Sat Mid	3672	130	5188	6201	<b>8.6%</b>	5.1%
5. Day St/ Canyon Springs Pkwy	AM	2154	89	2791	4604	14.0%	3.6%
	PM	4195	93	5141	6471	<b>9.8%</b>	<b>4.1%</b>
	Sat Mid	5108	93	6124	7640	<b>9.2%</b>	<b>3.7%</b>
6. Day St/ Campus Pkwy	AM	1557	113	2189	4072	17.9%	4.5%
	PM	3403	117	4331	5791	12.6%	<b>4.9%</b>
	Sat Mid	4236	119	5215	6886	<b>12.2%</b>	<b>4.5%</b>
7. Day St/ Eucalyptus Ave	AM	1972	164	2603	5588	26.0%	<b>4.5%</b>
	PM	2791	173	3597	5986	21.5%	<b>5.4%</b>
	Sat Mid	2934	174	3772	6041	20.8%	<b>5.6%</b>
9. Memorial Way/Town Cir	AM	361	62	450	459	69.7%	63.3%
	PM	1270	64	1430	1461	40.0%	33.5%
	Sat Mid	1926	62	2132	2181	<b>30.1%</b>	<b>24.3%</b>
12. Heritage Way/Town Circ	AM	262	477	759	765	96.0%	94.8%
	PM	847	504	1415	1436	88.7%	85.6%
	Sat Mid	1298	505	1900	1933	<b>83.9%</b>	<b>79.5%</b>
16. Frederick St/ SR-60 EB Off-Ramp – Sunnymead Blvd	AM	2831	403	3517	4552	58.7%	23.4%
	PM	4335	425	5180	6405	50.3%	20.5%
	Sat Mid	4708	428	5576	6968	<b>49.3%</b>	<b>18.9%</b>
19. Frederick St/ Eucalyptus Ave	AM	2213	164	2633	3256	39.0%	15.7%
	PM	3200	173	3726	4357	32.9%	<b>15.0%</b>
	Sat Mid	2852	174	3364	3920	34.0%	16.3%
E. Access E/Town Circ	AM	200	252	531	538	76.1%	74.6%
	PM	711	270	1261	1284	49.1%	47.1%
	Sat Mid	1125	276	1850	1887	<b>38.1%</b>	<b>36.2%</b>

Notes: Project Fair Share = Project Trips divided by (Total Traffic Volumes minus Existing Traffic)  
**Bold** indicates scenarios where the project meets the City's threshold to identify improvements



## Section 13 Vehicle Miles Traveled (VMT) Analysis

# VEHICLE MILES TRAVELED (VMT) ANALYSIS

This section consists of the VMT-based transportation impact analysis, based on the CEQA metrics, thresholds, and criteria outlined in the City's transportation analysis guidelines prepared in June 2020.

## INTRODUCTION

Senate Bill 743 (SB 743) was signed into law in September 2013. Senate Bill 743 (Steinberg, 2013) requires changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. SB 743 changes included the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts and identified vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's significant transportation impacts. Since the bill has gone into effect, automobile delay, as measured by "level of service" and other similar metrics, no longer constitutes a significant environmental effect under CEQA. Auto-mobility (often expressed as "level of service") may continue to be a measure for the local agency planning purposes. In December 2018, the California Governor's Office of Planning and Research (OPR) and the State Natural Resources Agency submitted updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law approved the updated CEQA Guidelines, thus implementing SB 743 and making VMT the primary metric used to analyze transportation impacts. The final text, final statement of reasons, and related materials are posted at <http://resources.ca.gov/ceqa>. The changes have been approved by the Office of the Administrative Law and are now in effect. For land use and transportation projects, SB 743-compliant CEQA analysis became mandatory on July 1, 2020.

CEQA Guidelines Section 15064.3 describes how transportation impacts are to be analyzed under SB 743. It states that in general transportation impacts are best measured by evaluating the project's vehicle miles traveled. For land use projects, VMT exceeding an applicable threshold of significance may indicate a significant impact (OPR 2017). In June 2020, the City of Moreno Valley updated its Transportation Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment, which includes methodologies and criteria to evaluate land use and transportation projects from a VMT standpoint.

## VMT METRICS AND IMPACT THRESHOLDS

VMT provides an indication of the amount of travel in the roadway system by multiplying the number of trips by the distance travelled. For example, 10 vehicles each taking a 10-mile trip would result in a total of 100 VMT. VMT can also be analyzed through efficiency metrics (e.g., per VMT generated per capita or per employee). The City of Moreno Valley has adopted the VMT metrics and thresholds of significance listed below, which are used in this study for impact analysis purposes.

- A project would have a significant VMT impact if, in the Existing Plus Project scenario, its net VMT per capita (for residential projects) or per employee (for office and industrial projects) exceeds the per capita VMT for Moreno Valley. For all other uses, a net increase in VMT would be considered a significant impact.
- If a project is consistent with the regional RTP/SCS (Regional Transportation Plan/Sustainable Communities Strategy), then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence. If it is not consistent with the RTP/SCS, then it would have a significant VMT impact if:

- o For residential projects its net VMT per capita exceeds the average VMT per capita for Moreno Valley in the RTP/SCS horizon-year.
- o For office and industrial projects its net VMT per employee exceeds the average VMT per employee for Moreno Valley in the RTP/SCS horizon year
- o For all other land development project types, a net increase in VMT in the RTP/SCS horizon-year would be considered a significant impact.

According to the City's guidelines, the Cumulative No Project scenario shall reflect the adopted RTP/SCS; as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence.

The City's guidelines do not detail a recommended approach for analyzing uses within a mixed-use project. However, OPR recommends analyzing each use separately, or simply focusing analysis on the dominant use, and comparing each result to the appropriate threshold. Therefore, each component of the proposed project (residential, office, retail, and hotel) is analyzed separately based on their respective VMT metrics and significant impact criteria.

Per City guidelines, the Riverside County Transportation Analysis Model (RIVTAM) was used to estimate project VMT and citywide averages. The RIVTAM model is a subarea model based on the SCAG regional travel demand model. For the existing conditions analysis, VMT data shall be interpolated to reflect the Notice of Preparation (NOP) baseline year (2022).

## VMT SCREENING CRITERIA

As part of its VMT guidelines, the City has adopted screening criteria, which can be used to quickly identify when a project or a portion of a mixed-use project should be expected to cause a less-than-significant impact related to VMT and would not require a detailed VMT analysis. These screening criteria are shown in Table 47.

**Table 47: Screening Criteria for CEQA Transportation Analysis for Development Projects**

Screen Type	Screening Criteria
Transit Priority Area (TPA)	<p>Projects located within a TPA<sup>1</sup> may be presumed to have a less than significant impact absent substantial evidence to the contrary. This presumption may not be appropriate if the project:</p> <ul style="list-style-type: none"> <li>▪ Has a Floor Area Ratio (FAR) of less than 0.75;</li> <li>▪ Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);</li> <li>▪ Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or</li> <li>▪ Replaces affordable residential units with a smaller number of moderate- or high-income residential units.</li> </ul>
Low VMT Area	<p>Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area.</p> <p>To identify if the project is in a low VMT-generating area, the analyst may review the Western Riverside Council of Governments (WRCOG) screening tool and apply the appropriate threshold within the tool.</p>

Screen Type	Screening Criteria
Project Type	The following uses can also be presumed to have a less than significant impact absent substantial evidence to the contrary as their uses are local serving in nature: <ul style="list-style-type: none"> <li>▪ Local-serving retail (less than 50,000 square feet)</li> <li>▪ Local-serving K-12 schools</li> <li>▪ Local parks</li> <li>▪ Day care centers</li> <li>▪ Local-serving gas stations</li> <li>▪ Local-serving banks</li> <li>▪ Local-serving hotels (e.g. non-destination hotels)</li> <li>▪ Student housing projects</li> <li>▪ Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS</li> <li>▪ Projects generating less than 400 daily vehicle trips</li> </ul>

Source: City of Moreno Valley, 2020.

Notes:

1. A TPA is defined as a half-mile area around an existing major transit stop or an existing stop along a high quality transit corridor per the definitions below.

Pub. Resources Code, § 21064.3 - 'Major transit stop' means 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.

Pub. Resources Code, § 21155 - For purposes of this section, a 'high-quality transit corridor' means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

2. The WRCOG tool is available at: <http://gis.fehrandpeers.com/WRCOGVMT/>

Per City guidelines, projects not screened through the steps above should complete a detailed VMT analysis to determine if they have a significant VMT impact.

## PROJECT SCREENING

To be screened out of a detailed VMT analysis, a project or project component would need to satisfy at least one of the VMT screening criteria. The City's three VMT screening criteria and determinations are listed below.

### Transit Priority Area (TPA) Screening

Projects located within a TPA may be presumed to have a less than significant impact and can be screened out of a VMT analysis. According to the WRCOG screening tool, the project is not located in a TPA. Therefore, **the proposed project cannot be screened out** using the TPA screening. Attachment U includes a printout of the WRCOG screening tool accessed November 16, 2021.

### Low VMT Area Screening

Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent. According to the WRCOG screening tool, the project is not located in a low residential VMT area nor a low employee VMT area. Therefore, **the project's residential and office components cannot be screening out** using the low VMT area screening.

### Project Type Screening

According to the City's guidelines, the following uses that are included as part of the proposed project may be screened out, absent substantial evidence to the contrary as their uses are local serving in nature:

- Local-serving retail (less than 50,000 square feet)
- Local-serving hotels (e.g. non-destination hotels)

The proposed project's retail portion is less than 50,000 square feet, and would be located on the first floor of the residential buildings. The number of residential units would support the added retail uses. Therefore the proposed retail would generally serve as local serving to support the residential component of this mixed-use project. Therefore, **the project's retail portion can be screened out** of a VMT analysis using the project type screening.

The project's hotel portion is intended to be local serving, as opposed to serving as a destination hotel. While one of the proposed hotels may include space for events, destination hotels are places that attract mostly guests from far away in which the reason to stay is to visit an area because it is special or provides many services or activities. The proposed hotels can be categorized as local-serving and therefore, **the project's hotel portion can be screened out** using the project type screening.

### VMT Screening Determination

Based on a review of the City's VMT screening criteria, this mixed-use project's retail and hotel portions can be screened out of a VMT analysis under the City's project type screening. The retail portion is less than 50,000 square feet and would primarily serve local residential uses; the hotel portion is intended to be a local-serving (non-destination) hotel. The remaining components of this mixed-use project (residential and office) would not be screened out and would require a VMT analysis using their respective impact thresholds of significance.

## VMT ASSESSMENT

Given that the mixed-use project's residential and office components do not screen out, they must undergo a VMT impact assessment under City guidelines. The following describes the significance criteria to review potential project impacts and potential cumulative impacts for residential and office projects.

## PROJECT IMPACT THRESHOLDS OF SIGNIFICANCE

The respective VMT metrics and impact thresholds for each analyzed component are detailed below per the City's guidelines. For residential and office uses, the criteria is based on efficiency metrics such as VMT per capita or VMT per employee. VMT per capita or per employee provides a transportation efficiency metric that allows the City to compare the project to the remainder of the incorporated area for purposes of identifying transportation impacts. A significant transportation impact would occur if the VMT per capita or employee is greater than the VMT baseline. The VMT baseline is the City of Moreno Valley existing average VMT per capita or employee.

The following summarizes the thresholds for each analyzed project component to determine project VMT impacts:

- **Residential:** If the VMT per capita for the project's residential component (project residential TAZs<sup>3</sup> under existing plus project conditions) exceeds the City of Moreno Valley existing average VMT per capita<sup>4</sup>.
- **Office:** If the VMT per employee for the project's office component (project office TAZ<sup>5</sup> under existing plus project conditions) exceeds the City of Moreno Valley existing average VMT per employee<sup>6</sup>.

<sup>3</sup> TAZs are the traffic analysis zones in the traffic model in which the residential project components are added, with project VMT information being interpolated between the base year 2012 and cumulative year 2040 models to obtain existing 2022 project home-based VMT per capita.

<sup>4</sup> The citywide VMT/capita is obtained from the traffic model before it is updated to include the proposed project; citywide VMT information is interpolated between the base year 2012 and cumulative year 2040 models to obtain baseline 2022 citywide home-based VMT per capita.

<sup>5</sup> TAZ is the traffic analysis zone in the traffic model in which the project hotel and office components are added, with project VMT information being interpolated between the base year 2012 and cumulative year 2040 models to obtain existing 2022 project home-based work VMT per employee.

- **Retail:** Per the screening analysis, this project component is screened out of a VMT analysis.
- **Hotel:** Per the screening analysis, this project component is screened out of a VMT analysis.

## CUMULATIVE IMPACT THRESHOLDS OF SIGNIFICANCE

A cumulative impact consists of an impact which is created as a result of the combination of the project with other projects causing related impacts. A project has cumulatively considerable environmental effects (i.e., is significant) when the incremental effects of the project are significant when viewed in connection with the effects of other projects, including probable future projects.

Per the City's guidelines, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant, subject to consideration of other substantial evidence. If the project is not consistent with the RTP/SCS, the following criteria would apply for each analyzed project component to determine cumulative impacts in the RTP/SCS horizon-year (2040):

- **Residential:** If the net VMT per capita for the project's residential component exceeds the City of Moreno Valley average VMT per capita in the RTP/SCS horizon year.
- **Office:** If the net VMT per employee for the project's office component exceeds the City of Moreno Valley average VMT per employee in the RTP/SCS horizon year.
- **Retail:** Per the screening analysis, this project component is screened out of a VMT analysis.
- **Hotel:** Per the screening analysis, this project component is screened out of a VMT analysis.

While the project impact analysis requires interpolation between year 2012 and year 2040 model outputs to obtain project and citywide VMT averages, the cumulative impact analysis is based on 2040 model outputs without interpolation or extrapolation, reflecting the RTP/SCS horizon year conditions.

## PROJECT VMT IMPACT ANALYSIS

Potential project VMT impacts were assessed using the RIVTAM model, which is a subarea model based on the SCAG regional travel demand model with a greater level of land use and transportation system detail in Riverside County. The model consists of two versions: a base year 2012 model and a 2040 horizon year model reflecting the RTP/SCS horizon year. The RIVTAM model used for the City of Moreno Valley 2040 General Plan Update was obtained from the City of Moreno Valley Public Works Department. To represent the proposed project, separate TAZs were coded into the model to add socioeconomic (SED) data consisting of residents, households, and employment for the project's residential, office, retail, and hotel components. The base year and horizon year models were then both run with and without the project's SED to derive "no project" and "with project" VMT data. Attachment U includes the model's land use inputs that were assumed for the project area. Citywide VMT averages were obtained by interpolating between the "no project" versions of the 2012 and 2040 model runs to estimate the 2022 citywide VMT averages. Project VMT was obtained by interpolating between the "plus project" versions of the 2012 and 2040 model runs.

- **Residential Component:** According to the RIVTAM model's interpolated data, the existing average citywide VMT per capita is 15.60 VMT per capita; the proposed project is expected to generate 9.41 VMT per capita. Given that the VMT per capita for the project's residential component does not exceed the citywide VMT per capita, then the project's residential component is expected to result in **less-than-significant VMT impacts**.
- **Office Component:** According to the RIVTAM model's interpolated data, the existing average citywide VMT per employee is 4.54 VMT per employee; the proposed project is expected to generate 3.05 VMT per employee. Given that the VMT per employee for the project's office component does not exceed the citywide VMT per employee, then the project's office component is expected to result in **less-than-significant VMT impacts**. (Note, the RIVTAM model did not exhibit sensitivity to

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<sup>6</sup> The citywide VMT/employee is obtained from the traffic model before it is updated to include the proposed project; citywide VMT information is interpolated between the base year 2012 and cumulative year 2040 models to obtain baseline 2022 citywide home-based work VMT per capita.

home-based work trips in the project's office component TAZ. Therefore, the work VMT per employee for the area bound by Towngate Boulevard, Day Street, Frederick Street, and SR-60 was used instead).

Given that both components generate VMT below the respective citywide averages, the project is anticipated to result in **less-than-significant VMT impacts**.

## CUMULATIVE VMT IMPACT ANALYSIS

Per the City's guidelines, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant, subject to consideration of other substantial evidence. If it the project is not consistent with the RTP/SCS, a cumulative VMT impact analysis is required using the cumulative VMT impact criteria outlined earlier in this section. This project was determined to be inconsistent with the SCAG RTP/SCS; while the City's General Plan (approved in 2021) designates the site as mixed-use, the SCAG RTP/SCS (approved in 2020) was finalized before this land use designation change. Therefore, a cumulative VMT impact analysis was prepared.

Potential cumulative VMT impacts were assessed using the 2040 model outputs without interpolation or extrapolation, reflecting the RTP/SCS horizon year conditions. Citywide VMT averages were obtained by utilizing the "no project" version of the 2040 model run; project VMT was obtained by utilizing the "plus project" version of 2040 model run.

- **Residential Component:** According to the RIVTAM model, the RTP/SCS horizon year average citywide VMT per capita is 13.57 VMT per capita; the proposed project is expected to generate 9.79 VMT per capita. Given that the VMT per capita for the project's residential component does not exceed the citywide VMT per capita, then the project's residential component is expected to result in **less-than-significant cumulative VMT impacts**.
- **Office Component:** According to the RIVTAM model, the RTP/SCS horizon year average citywide VMT per employee is 5.48 VMT per employee; the proposed project is expected to generate 3.50 VMT per employee. Given that the VMT per employee for the project's office component does not exceed the citywide VMT per employee, then the project's office component is expected to result in **less-than-significant cumulative VMT impacts**. (Note, the RIVTAM model did not exhibit sensitivity to home-based work trips in the project's office component TAZ. Therefore, the work VMT per employee for the area bound by Towngate Boulevard, Day Street, Frederick Street, and SR-60 was used instead).

Given that both components generate VMT below the respective RTP/SCS horizon year citywide averages, the project is anticipated to result in **less-than-significant cumulative VMT impacts**.

## PROPOSED VMT MITIGATION MEASURES

Given that the project's retail and hotel components were screened out of a VMT analysis and the residential and office components resulted in less-than-significant VMT impacts and less-than-significant cumulative VMT impacts, no mitigation measures were identified.





## Section 14 References

# REFERENCES

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## Section 15 Appendices

# APPENDICES

- A. Moreno Valley Mall Redevelopment Scoping Memo
- B. Signal Timing Plans
- C. Intersection Traffic Count Data
- D. Roadway Segment Traffic Count Data
- E. Existing Conditions Intersection Operations Worksheets
- F. Existing Conditions Intersection Queueing Worksheets
- G. Existing Conditions Freeway Mainline Analysis HCS Output Sheets
- H. Year 2026 Background Conditions Intersection Operations Worksheets
- I. Year 2026 Background Conditions Intersection Queueing Worksheets
- J. Year 2026 Background Conditions Freeway Mainline Analysis HCS Output Sheets
- K. Year 2026 Total Traffic Conditions Intersection Operations Worksheets
- L. Year 2026 Total Traffic Conditions Intersection Queueing Worksheets
- M. Year 2026 Total Traffic Conditions Freeway Mainline Analysis HCS Output Sheets
- N. Year 2040 Background Conditions Intersection Operations Worksheets
- O. Year 2040 Background Conditions Intersection Queueing Worksheets
- P. Year 2040 Background Conditions Freeway Mainline Analysis HCS Output Sheets
- Q. Year 2040 Total Traffic Conditions Intersection Operations Worksheets
- R. Year 2040 Total Traffic Conditions Intersection Queueing Worksheets
- S. Year 2040 Total Traffic Conditions Freeway Mainline Analysis HCS Output Sheets
- T. Signal Warrant Worksheets