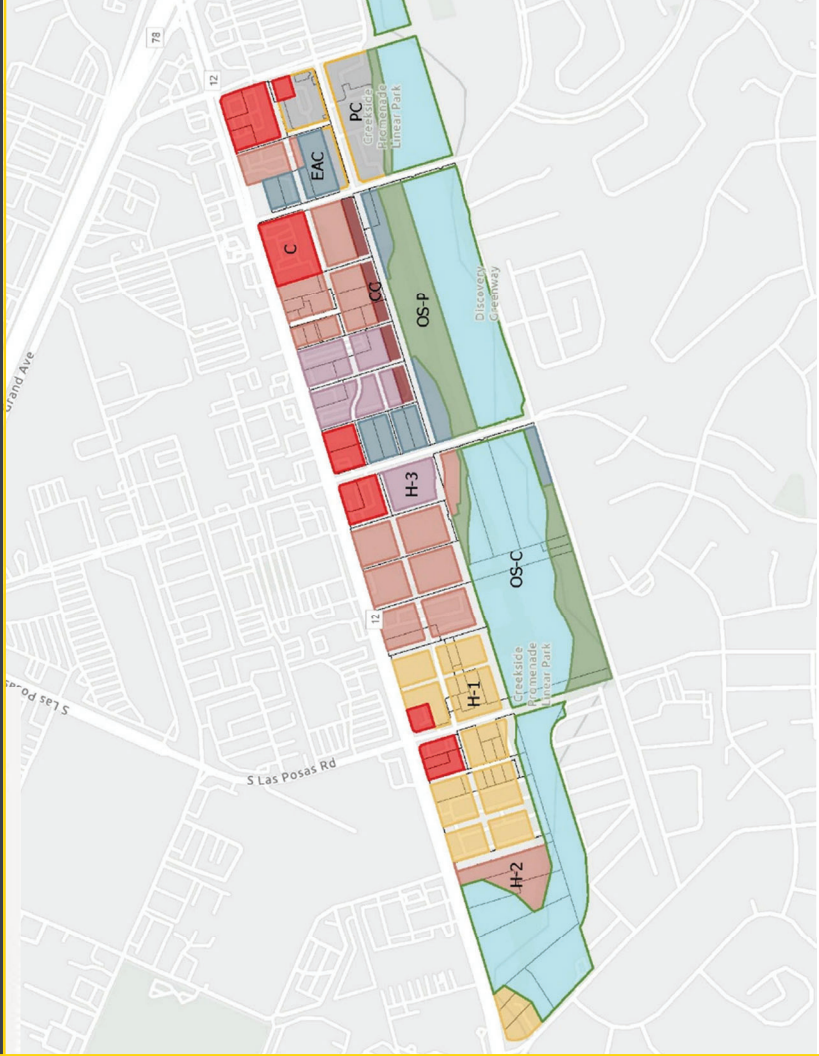
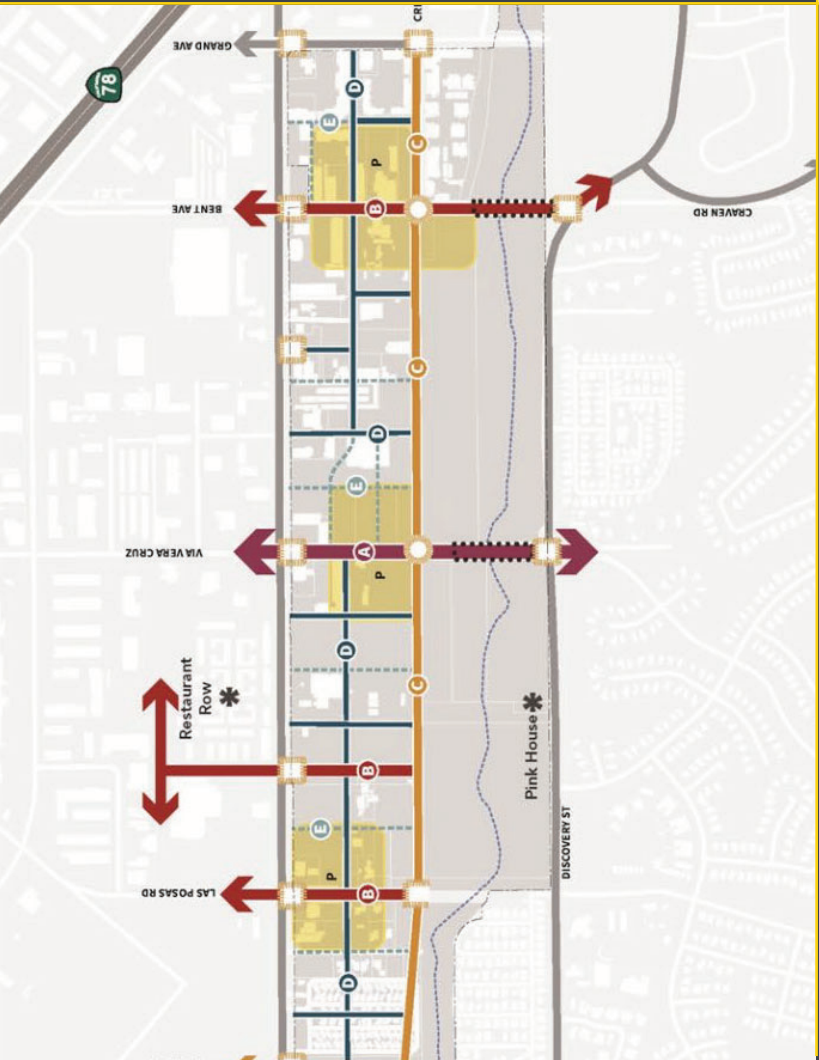
Transportation Impact Study

San Marcos Creek Specific Plan Update

May 31, 2026





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Appendix A SANDAG Model - Future Year 2050 Land Use Inputs
Appendix B Residential VMT Reductions

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1.0 Introduction

The purpose of this Transportation Impact Study (TIS) is to identify and document any significant transportation related impacts that may be associated with the proposed San Marcos Creek Specific Plan Update (Proposed Project), and to recommend mitigation measures for any identified impacts, as necessary.

1.1 Project Description

The Proposed Project is a specific plan that provides for the planning framework via specific planning policies and development standards within the San Marcos Creek area. The specific plan area is approximately 214 acres and bound by San Marcos Boulevard to the north, Discovery Street to west and south, and Grand Avenue to the east. The specific plan area is currently developed with industrial uses, a mobile home park, commercial uses, and shopping centers.

The current San Marcos Creek Specific Plan was originally adopted in 2007 and proposed the following land use intensities:

- 2,300 housing units
- 1,265,000 square feet of retail space
- 589,000 square feet of office space

However, since 2007, changes have occurred which impact the feasibility of the planned development within the San Marcos Creek area. Therefore, the goal of this effort is to update the San Marcos Creek Specific Plan to better reflect current conditions and opportunities. The specific plan now includes the following land use intensities:

- 360,868 square feet of commercial retail space
- 2,296 mixed-used residential units
- 89,385 square feet of mixed-used commercial retail
- 205,603 square feet of residential and commercial uses in Entertainment Arts and Culture
- Open space and passive open space adjacent to the creek

The Proposed Project location and site layout are displayed in **Figures 1.1 and 1.2**, respectively.

The Proposed Project also includes transportation infrastructure improvements, including the implementation of multimodal facilities and new internal roadway connections. These improvements are described below:

- *Via Vera Cruz between San Marcos Boulevard and Discovery Street* – This segment will be maintained as a Secondary Collector with four travel lanes and a center left-turn lane. However, the overall right-of-way will be expanded to improve the existing bicycle facilities from Class II Bicycle Lanes to Class IV Cycle Tracks with on-street parking. This would require widening existing curb-to-curb width from 64-feet to 90-feet.
- *Bent Avenue between San Marcos Boulevard and Creekside Drive* – This segment is planned to be widened from the existing Collector configuration with two travel lanes, to a two-lane roadway with a center left-turn lane. Class IV Cycle Tracks with on-street parking are also proposed along this segment. This would require widening existing curb-to-curb width from existing 32-feet to 80-feet.

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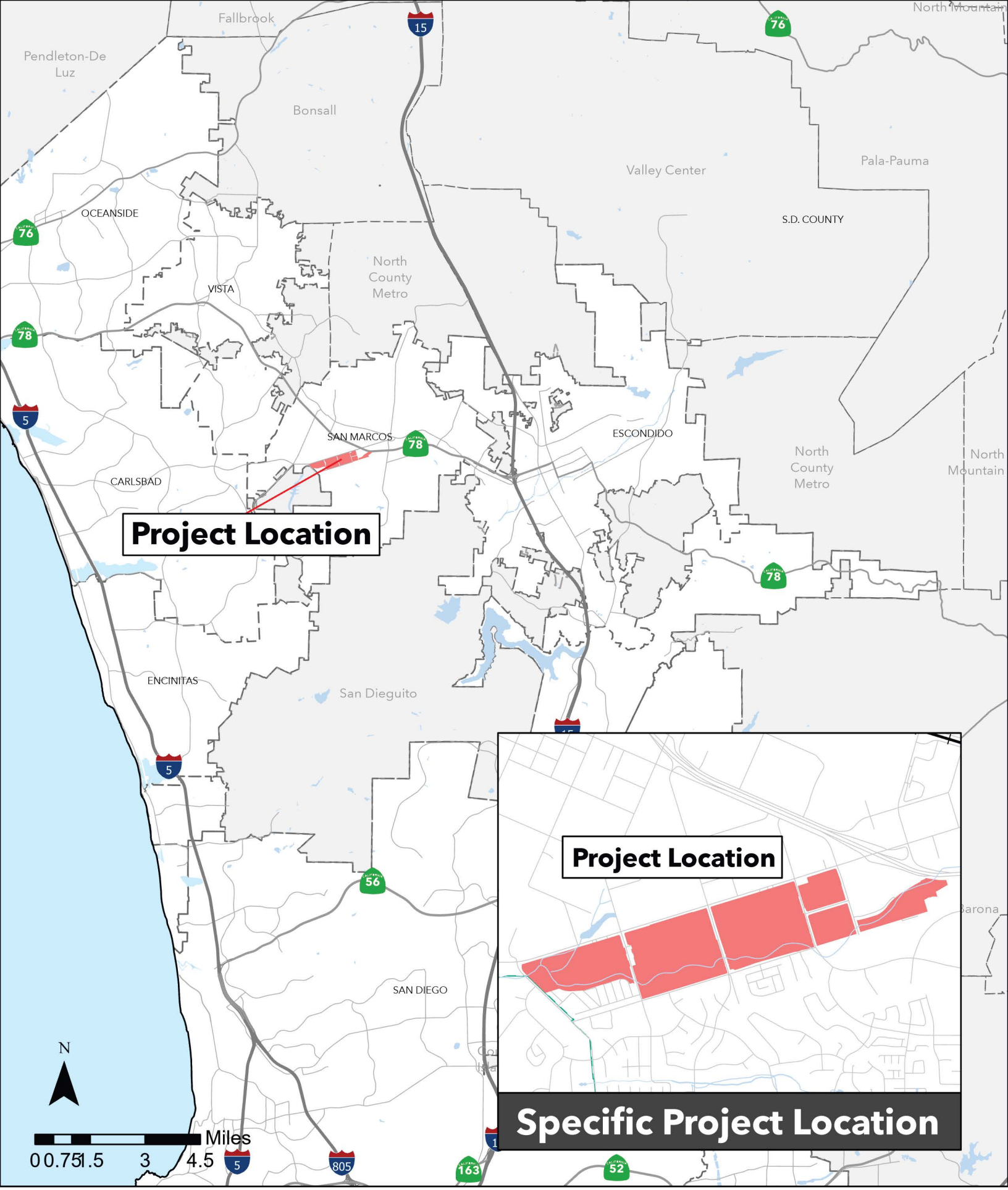

Intersecting Metrics

San Marcos Creek Specific Plan

Figure 1.1
Project Location

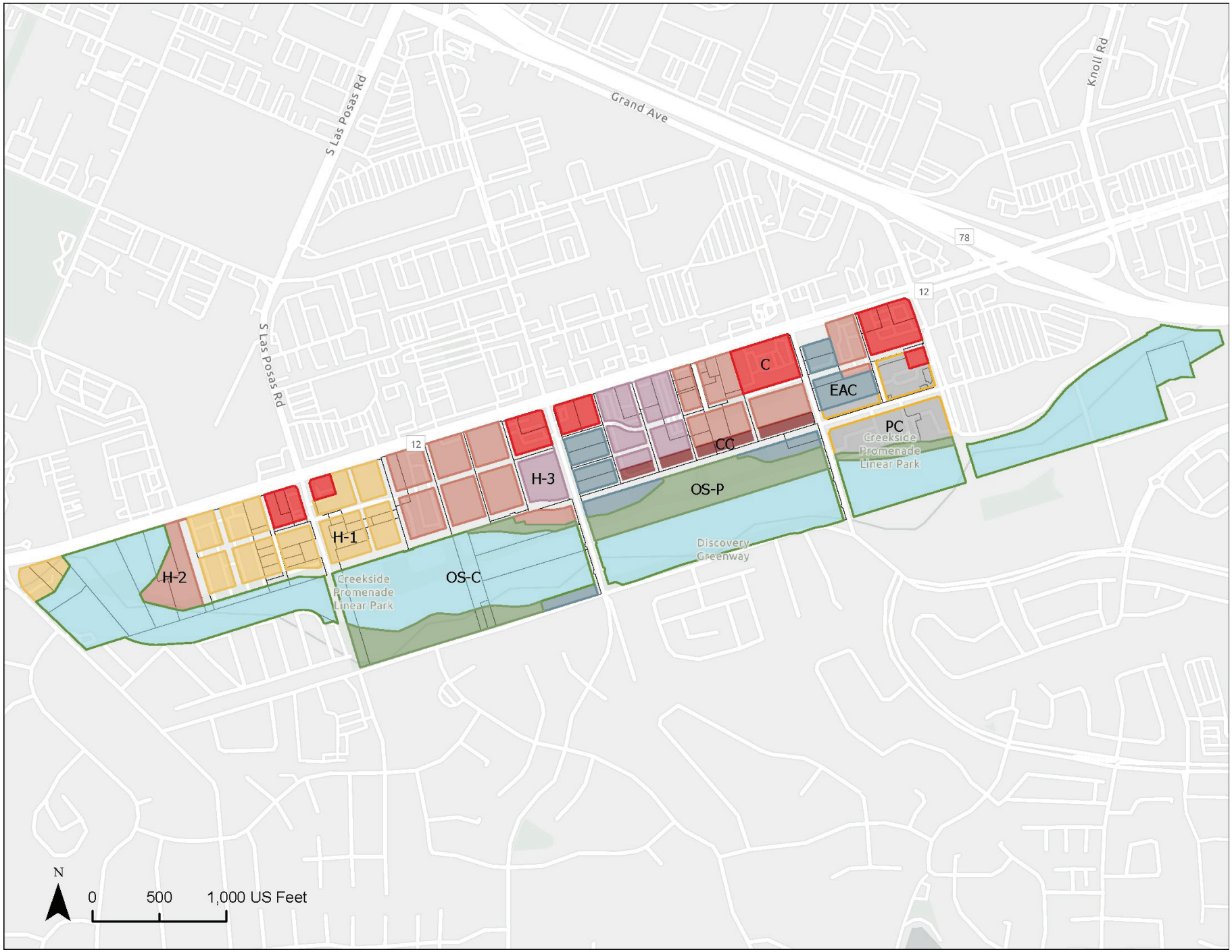

Figure 1.2

Proposed Project Site Layout

- *Creekside Drive extension between Bent Avenue and Pacific Street* – Creekside Drive is currently a Two-Lane Collector with fronting multi-family development. As part of the Proposed Project, Creekside Drive will be extended westward from Bent Avenue to Pacific Street with two travel lanes and on-street parking. This will require a curb-to-curb width of 70-feet.
- *McMahr Road between San Marcos Boulevard and Creekside Drive* – McMahr Road is the southern leg of the Las Posas Road and San Marcos Boulevard intersection with the roadway terminating in a residential area. As part of the specific plan, McMahr Road will be extended to connect to the Creekside Drive extension as a Two-Lane Collector roadway with a center left-turn lane. Class IV Cycle Tracks with on-street parking is proposed along this segment. This would require a curb-to-curb width of 80-feet.
- *Pacific Street between San Marcos Boulevard and Creekside Drive* – Pacific Street south of San Marcos Boulevard is currently closed to vehicular traffic. As part of the Proposed Project, Pacific Street will be extended from San Marcos Boulevard to the Creekside Drive extension with two travel lanes and on-street parking, which will require a curb-to-curb width of 70-feet.
- *San Marcos Boulevard between Discovery Street and Bent Avenue* – This segment is located outside of the specific plan area. However, the City's General Plan identified this segment to be improved from its existing Major Arterial configuration with four travel lanes and a raised median to a Multi-Way Boulevard. The City's San Marcos Boulevard Multi-Way Complete Streets project plans to transform the roadway to provide complete streets elements, including a multiway path on both sides of the roadway to provide a safe space for pedestrians, bicyclists, and vehicles accessing the commercial and residential uses. The existing curb to curb width along this segment varies between 80' and 94'. Implementation of the Multi-Way Boulevard would require a width of up to 158'.

The Proposed Project's mobility network for the roadway and multimodal networks are shown in **Figure 1.3 and 1.4**, respectively.

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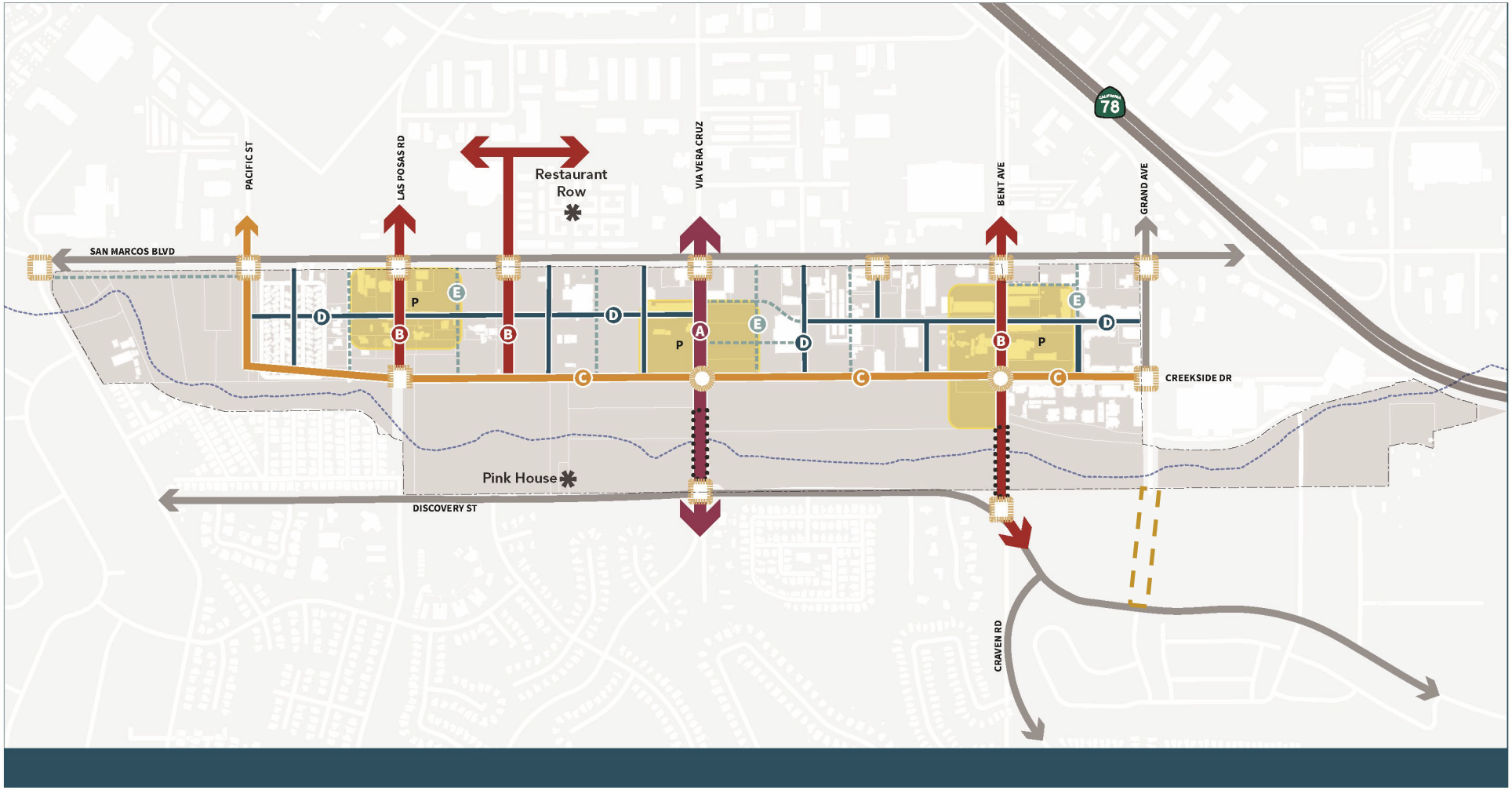

Plan Area Boundary

Creek

Roadway Outside Specific Plan Area

A — 4 travel lanes, bike lanes, center/on-street parking (90')

B — 2 travel lanes, P bike lanes, center/on-street parking (80')

C — 2 travel lanes, on-street parking (70')

D — Curbless/Rolled Curb Pedestrian Street (55')

E — Pedestrian Paseo/Promenade w/ Emergency Access (40')

Crosswalk (vehicle signal/crossing)

Potential Roundabout

Via Vera Cruz Bridge & Bent Avenue Bridge*

P — Potential Public Parking Areas

Future Grand Ave Bridge

0 300 600 Feet

*Roadway configuration over bridges to remain as existing

Figure 1.3

Planned Roadway Network Classifications

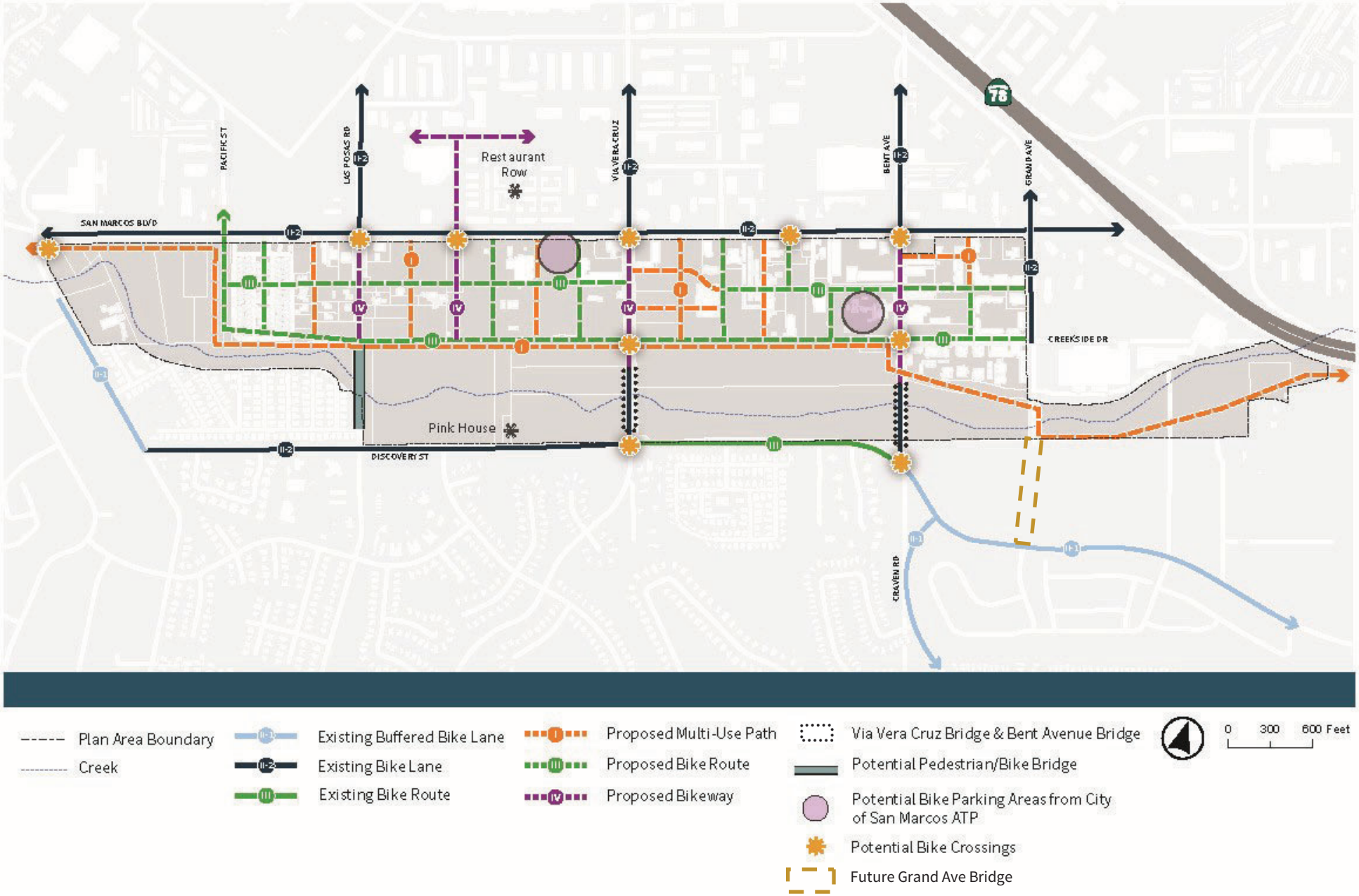

Figure 1.4

Planned Bicycle Network Classifications

1.2 Proposed Project Trip Generation

Table 1.2 displays the Proposed Project's anticipated trip generation. Trip generation rates were derived from *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates in the San Diego Region, April 2002*.

Table 1.2 Proposed Project Trip Generation

Land Use	Units	Trip Rate	ADT	AM			PM		
				Trips	In	Out	Trips	In	Out
Mixed-Use: Commercial[1]	566,471 SF	110 / KSF	62,312	1,870	1,122	748	5,609	2,805	2,804
Mixed-Use: Residential Only	2,296 DU	5 / DU	11,480	1,034	310	724	1,493	896	597
Specialty Retail / Strip Commercial	89,385 SF	40 / KSF	3,576	108	65	43	322	161	161
Total			**77,368**	**3,012**	**1,497**	**1,515**	**7,424**	**3,862**	**3,562**

Notes:
[1] Includes 205,603 square feet commercial from the Entertainment Arts and Culture area.
SF = Square Feet
KSF = 1,000 SF
DU = Dwelling Unit

As shown, the Proposed Project is anticipated to generate a total of 77,368 daily trips, with 3,012 trips (1,497-in & 1,515-out) generated during the AM peak hour and 7,424 trips (3,862-in & 3,562-out) during the PM peak hour.

Table 1.3 displays a comparison of the estimated trip generation between the Adopted 2007 Specific Plan and the Proposed Project.

Table 3.3 Project Trip Generation Comparison

Land Use	ADT	AM			PM		
		Trips	In	Out	Trips	In	Out
2007 Specific Plan	114,102	6,121	3,721	2,400	11,604	5,613	5,991
Proposed Project	77,368	3,012	1,497	1,515	7,424	3,862	3,562
Net[1]	**-36,734**	**-3,109**	**-2,224**	**-885**	**-4,180**	**-1,751**	**-2,429**

Notes:
[1] Net = Proposed Project – 2007 Specific Plan

As shown, the Proposed Project is anticipated to generate fewer trips than the 2007 Specific Plan with a net difference of 36,734 daily trips, with 3,109 fewer trips (-2,224-in & -885-out) during the AM peak hour and 4,180 trips fewer trips (-1,751-in & -2,429-out) during the PM peak hour. This is consistent with the overall difference in land use intensity with the 2007 Specific Plan assuming much more community commercial and additional mixed-used office land use.

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1.3 Project Setting

The specific plan area is currently developed with industrial uses, a mobile home park, commercial uses, and shopping centers. Access to the Proposed Project from the transportation network is provided via Las Posas Road, Via Vera Cruz, Bent Avenue, Grand Avenue, Linda Vista Drive, or San Marcos Boulevard. These roadways will either provide a direct connection to Proposed Project site or provide a critical link between the Proposed Project and the regional transportation network, including SR-78. Descriptions of these transportation network facilities are provided below:

Las Posas Road – Within the project study area, Las Posas Road is a six-lane north-south roadway north of SR-78 westbound ramps, a five-lane roadway between SR-78 westbound ramps and La Mirada Drive which is separated by a raised median, and a four-lane roadway between La Mirada Drive and San Marcos Boulevard separated by a center left-turn lane. The roadway is bordered by commercial and industrial land uses with a posted speed limit of 40 miles per hour (mph). Pedestrian sidewalks and Class II Bike Lanes are present on both sides of the roadway. North County Transit District (NCTD) bus routes 347 and 445 travel along Las Posas Road within the study area with transit stops at San Marcos Boulevard, Linda Vista Drive, La Mirada Drive, Grand Avenue, and Descanso Avenue. The *City of San Marcos Mobility Element, February 2012* classifies Las Posas Road north of SR-78 as a Six-Lane Arterial Roadway and a Four-Lane Arterial Roadway south of SR-78.

Via Vera Cruz – Between Grand Avenue and Discovery Street, Via Vera Cruz is a four-lane north-south roadway separated by a center left-turn lane with a posted speed limit of 40 mph. The roadway is bordered primarily by commercial land uses with some industrial land use on the northern side of the project study area. Pedestrian sidewalks and Class II Bike Lanes are present on both sides of the roadway except along the east side of the roadway between Linda Vista Drive and 240-feet sound of Commerce Street. There are no existing transit services that travel along Via Vera Cruz within the project study area. The *City of San Marcos Mobility Element, February 2012* classifies Via Vera Cruz as a Four-Lane Arterial Roadway.

Bent Avenue – Between Grand Avenue and San Marcos Boulevard, Bent Avenue is a two-lane north-south roadway separated by a center left-turn lane and transitions to a two-lane undivided roadway south of San Marcos Boulevard. The roadway is bordered by commercial and industrial lane uses with a posted speed limit of 35 mph. Pedestrian sidewalks and Class II Bike Lanes are present on both sides of the roadway except for the east side of the roadway from 120-feet south of San Marcos Boulevard and Creekside Drive. There are no existing transit services that travel along Bent Avenue within the project study area. The roadway within the study is not identified as a circulation element within the *City of San Marcos Mobility Element, February 2012*.

Grand Avenue – Within the project study area, Grand Avenue is a four-lane east-west roadway separated by a center left-turn lane which transitions to a north-south roadway just north of San Marcos Boulevard with a raised median. The posted speed limit is 40 mph west of Las Posas Road and 45 mph between Las Posas Road and San Marcos Boulevard. The roadway is bordered primarily by the SR-78 to the north and industrial land use to the south. Between Las Posas Road and San Marcos Boulevard, pedestrian facilities are present intermittently on the south side of the roadway with no facilities provided on the northside,

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which is adjacent to SR-78. Pedestrian sidewalks and Class II Bike Lanes are present on both sides of the roadway south of San Marcos Boulevard. There are currently no transit services that travel along Grand Avenue within the project study area. The *City of San Marcos Mobility Element, February 2012* classifies Grand Avenue as a Four-Lane Arterial Roadway between Pacific Street and Via Vera Cruz, a Complete Street between Via Vera Cruz and San Marcos Boulevard, and a Four-Lane Arterial Roadway south of San Marcos Boulevard.

Linda Vista Drive – Between Las Posas Road and Via Vera Cruz, Linda Vista Drive is a four-lane east-west undivided roadway and transitions to a two-lane undivided roadway between Via Vera Cruz and Grand Avenue. The roadway is bordered by commercial and industrial lane uses with a posted speed limit of 35 mph. Pedestrian sidewalks are present intermittently on both sides of the roadway with no bicycle or transit facilities. The *City of San Marcos Mobility Element, February 2012* classifies Linda Vista Drive as a Four-Lane Arterial Roadway between Las Posas Road and Via Vera Cruz and a complete street between Via Vera Cruz and Grand Avenue.

San Marcos Boulevard – San Marcos Boulevard is a five-lane east-west roadway separated by a raised median between Knights Realm and Discovery Street, a four-lane roadway separated by a raised median between Discovery Street and Bent Avenue, a six-lane roadway with a raised median between Bent Avenue and Knoll Road, and a five-lane roadway with a raised median between Knoll Road and Travelers Way. The posted speed limit is 45 mph west of Via Vera Cruz and 40 mph between Via Vera Cruz and Travelers Way. The roadway is bordered primarily by commercial land use. Pedestrian sidewalks and Class II Bike Lanes are present on both sides of the roadway except for missing sidewalks on the south side between 230-feet east of Grand Avenue and Knoll Road. NCTD bus route 445 travels along San Marcos Boulevard within the study area with transit stops at Discovery Street and Pacific Street. Additionally, NCTD bus route 347 travels along San Marcos Boulevard within the study area with transit stops at Via Vera Cruz, Bent Avenue, and Travelers Way. The *City of San Marcos Mobility Element, February 2012* classifies San Marcos Boulevard as a Six-Lane Arterial Roadway between Knights Realm and Pacific Street, a Multi-Way Boulevard that includes a multiway path on the both sides of the roadway to provide a safe space for pedestrians, bicyclists, and vehicles accessing the commercial and residential uses between Discovery Street and Bent Avenue, and Six-Lane Arterial Roadway between Bent Avenue and Travelers Way.

Figure 1.5 displays the transportation network around the Proposed Project site.

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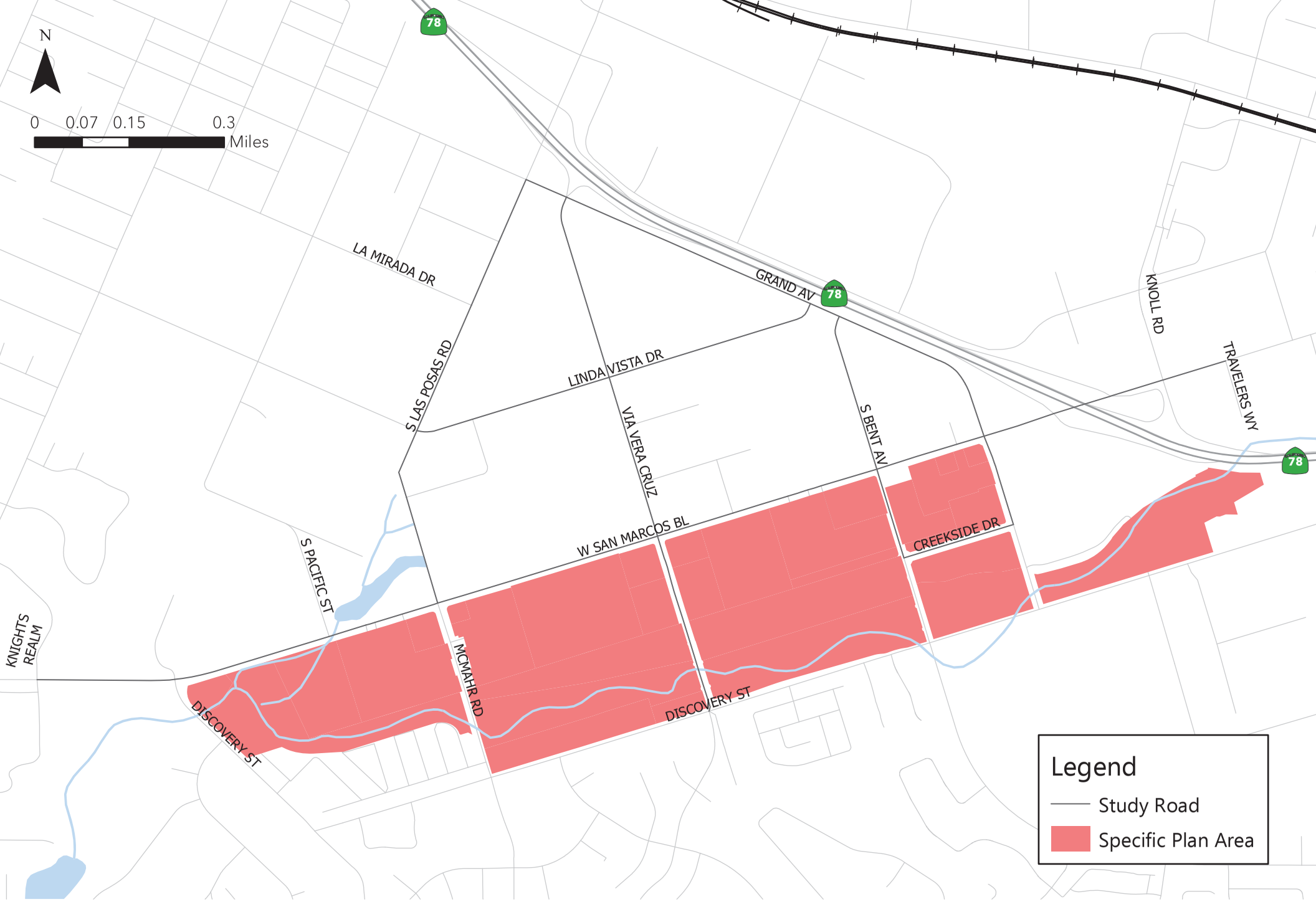

Figure 1.5
Proposed Project Study Area

1.4 Report Organization

Following this introductory chapter, this report is organized into the following sections:

2.0 *Analysis Methodology* – This chapter describes the methodologies and standards utilized to analyze and identify the transportation related impacts associated with the Proposed Project.

3.0 *Transportation Related Impacts and Mitigation* – This chapter derives and analyzes the projected Vehicle Miles Traveled (VMT) that will be generated by the Proposed Project. This chapter also identifies if the Proposed Project related VMT would create significant project related impacts, as it relates to the standards outlined in the California Environmental Quality Act (CEQA). Finally, the chapter provides recommendations for mitigation measures to reduce the identified transportation related impacts, if necessary, and evaluates the feasibility of the proposed mitigation measures.

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2.0 Analysis Methodology and Threshold

2.1 Background (SB-743)

On September 27, 2013, Governor Edmund G. Brown, Jr. signed California Senate Bill 743 (SB-743) into law, starting a process that is expected to fundamentally change the way transportation impact analysis is conducted under CEQA. Within the State's CEQA Guidelines, these changes included the elimination of auto delay, level of service (LOS), and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts.

On December 2018, the Resources Agency certified and adopted the CEQA Guidelines update package, which included the California Natural Resources Agency Guidelines for the Implementation of the California Environmental Quality Act. As a result, the California Governor's Office of Planning and Research (OPR) updated and released the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) in December 2018[1]. Based on these updated guidelines, lead agencies had until July 1, 2020 to comply with the updated CEQA revision. On November 16, 2020, the City of San Marcos adopted its *Transportation Impact Analysis Guidelines* (TIAG) to comply with this requirement.

2.2 CEQA Guidelines Section 15064.3

Section 15064.3(b) of the CEQA Guidelines outlines how transportation related impacts should be evaluated and identified under CEQA. This section was included within December 2018 update to implement the requirements outlined within SB-743:

(1) *Land Use Projects.* Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

Per the City's TIAG, a VMT assessment includes a project screening as a first step to see if a full VMT assessment would be required; if a project cannot be screened out, a full VMT analysis is required. Screening criteria considers land use development projects that are either small trip generating projects, affordable housing, locally serving retail, and/or located within a half-mile radius of an existing major transit stop or an existing stop along a high-quality transit corridor, may be presumed to have a less-than-significant impact with substantial evidence.

Additionally, state CEQA Guidelines Section 15064.3 indicates that a VMT analysis should be conducted for transportation projects, including roadway capacity projects. The TIAG specifies that projects that result in an increase in additional motor vehicle capacity (such as constructing a new roadway or adding more vehicle travel lanes to an existing roadway) have the potential to increase vehicle travel. The City's TIAG identifies a

[1] https://opr.ca.gov/1docs/20190122-743_Technical_Advisory.pdf

list of transportation projects that "are unlikely to lead to increases in vehicular travel and are excluded from a VMT analysis." The transportation improvements screening criteria used to screen and evaluate the project is listed below.

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pocket and two-way left turn lanes
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general-purpose lanes to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel
- Addition of a new lane that is permanently restricted to use only by transit vehicles
- Reduction in number of through lanes
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)
- Addition of traffic wayfinding signage
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel
- Installation of publicly available alternative fuel/charging infrastructure

2.3 Analysis Metrics

For land use development projects, the City's TIAG requires that the following two metrics be analyzed to determine if the proposed project has a significant transportation related impact.

1. VMT/Capita: Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip, both home-based and non- homebased. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at VMT/Capita.

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2. Total VMT: is the sum of all vehicle trips generated by retail uses in the project multiplied by the NHTS retail trip length.

The guidelines also identifies VMT/Employee as a metric to be analyzed; however, the Proposed Project does not include land uses where VMT/Employee is the metric used to determine significance.

Significance Thresholds

The TIAG provides guidelines and thresholds for individual land use projects and Area Plan projects, such as specific plans. Based on the City's TIAG, the following thresholds are established for the Proposed Project:

- Residential Uses (Area Plan Threshold): If the plan generates VMT per capita in the future plus project scenario that exceeds the VMT per resident under existing conditions and future no project/previous plan scenarios.

- Retail Uses (Land Use Threshold; no threshold for Area Plan): A net increase in existing total citywide VMT.

2.4 VMT Analysis Tool

The City's TIAG states that the Proposed Project's VMT/Capita should be derived from the latest SANDAG SB-743 mapping tool. Additionally, for retail projects, the Total VMT should be calculated using the most recent version of the base year SANDAG travel demand model. However, in order to provide a conservative analysis for the retail component, it was assumed that all VMT associated with the retail would be newly generated and not re-routed from other retail uses. Therefore, the Boundary Method was applied to calculate the net Total VMT for the proposed project's commercial uses. The Boundary Method calculates Total VMT by multiplying the Average Daily Traffic (ADT) volume to the average trip length, which was obtained using SANDAG's *(Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) and 2022 National Household Travel Survey (NHTS) average trip length data for suburban shopping trips in the west coast region, respectively.

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3.0 Transportation Impact & Mitigation

This chapter derives and analyzes the projected VMT metrics that will be generated by the Proposed Project. This chapter also identifies if the VMT generated by the Proposed Project would create a significant VMT related impact, based on the thresholds outlined in Section 2.0. Finally, the chapter provides recommendations for mitigation measures that may reduce the Proposed Project's impacts to less than significant levels, if necessary.

3.1 VMT Impact Analysis

The VMT impact was analyzed for the Proposed Project's land use development and transportation infrastructure improvements and are described below.

Land Use Development Components

The Proposed Project is a specific plan comprised of mixed-use developments with residential and commercial uses. Per the City's TIAG, the VMT must be evaluated for each component of a mixed-use project independently and apply the corresponding significance threshold for each land use type separately. Therefore, the Proposed Project's residential units and commercial uses analyzes the VMT/Capita and net Total VMT, respectively. Furthermore, as described in Section 2.3, the significance threshold for residential units of an Area Plan analysis should compare the Future Year (2050) VMT/Capita against Existing Conditions and Future Year No Project/Previous Plan conditions; however, the difference between the residential units of the Proposed Project and the Previous Plan is considerably negligible (i.e., 2,277 units with the Proposed Project vs. 2,300 units with the Previous Plan) and would not affect the VMT/Capita. Therefore, the residential VMT/Capita was only analyzed against Existing/Base Year (2016) Conditions.

The VMT analysis for the Proposed Project's residential units utilized the average resident VMT/Capita for the census tract (200.29) of which the proposed project is located in, and the SANDAG's Series 14 ABM2+ Horizon Year (2050) model. The Horizon Year model was reviewed to ensure that the land uses were similar to the Proposed Project. **Appendix A** includes the model land uses for the Proposed Project. Additionally, although the impact significance threshold is based on the VMT/Capita of the Proposed Project for Future Year (2050) conditions, the Base Year VMT/Capita of the Proposed Project's census tract was also analyzed for informational purposes. The VMT/Capita obtained from the SANDAG model was then adjusted to account for the VMT reductions associated with increased housing density using methodologies outlined in the CAPCOA GHG Handbooks (Measure T-1). The VMT reduction calculations are also provided in **Appendix B**. The VMT reduction only applies to Base Year conditions as the Proposed Project would significantly increase residential density in the area, and not Future Year conditions, as that residential density is already included in the model. **Figure 3.1** displays the ABM2+ VMT output for the Proposed Project site. **Table 3.1** presents the Proposed Project's residential VMT efficiency metrics for Horizon Year (2050) Conditions compared to the regional VMT/Capita for Base Year (2016) Conditions.

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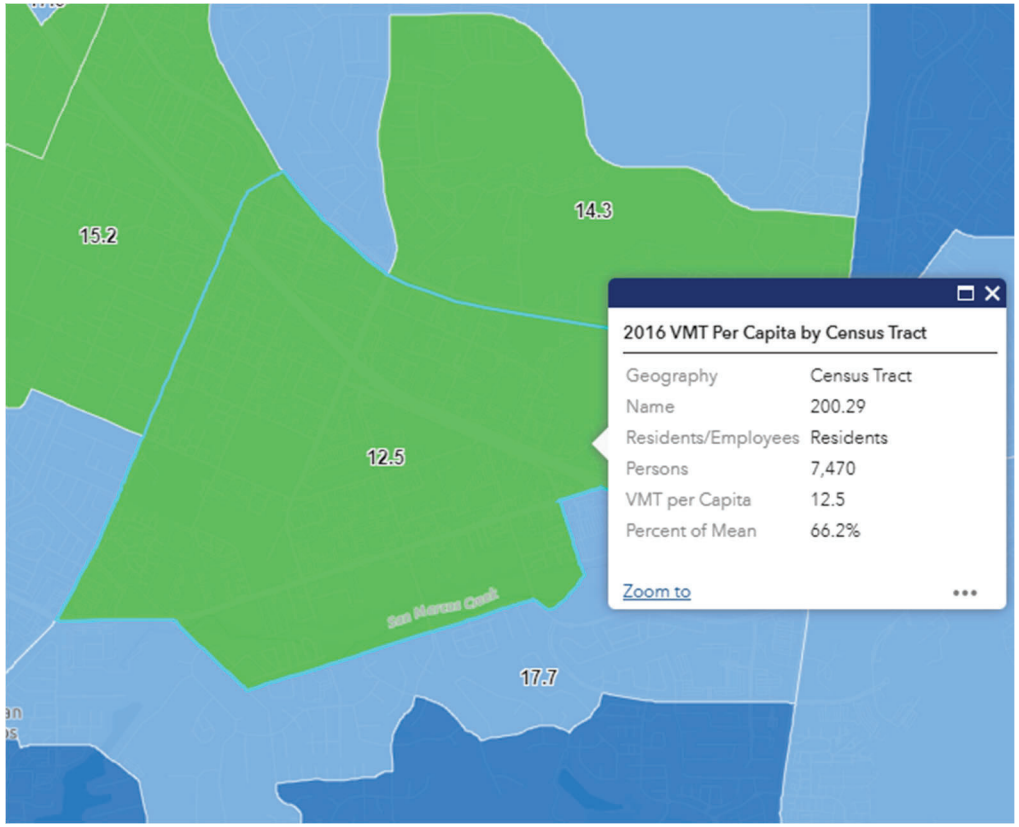

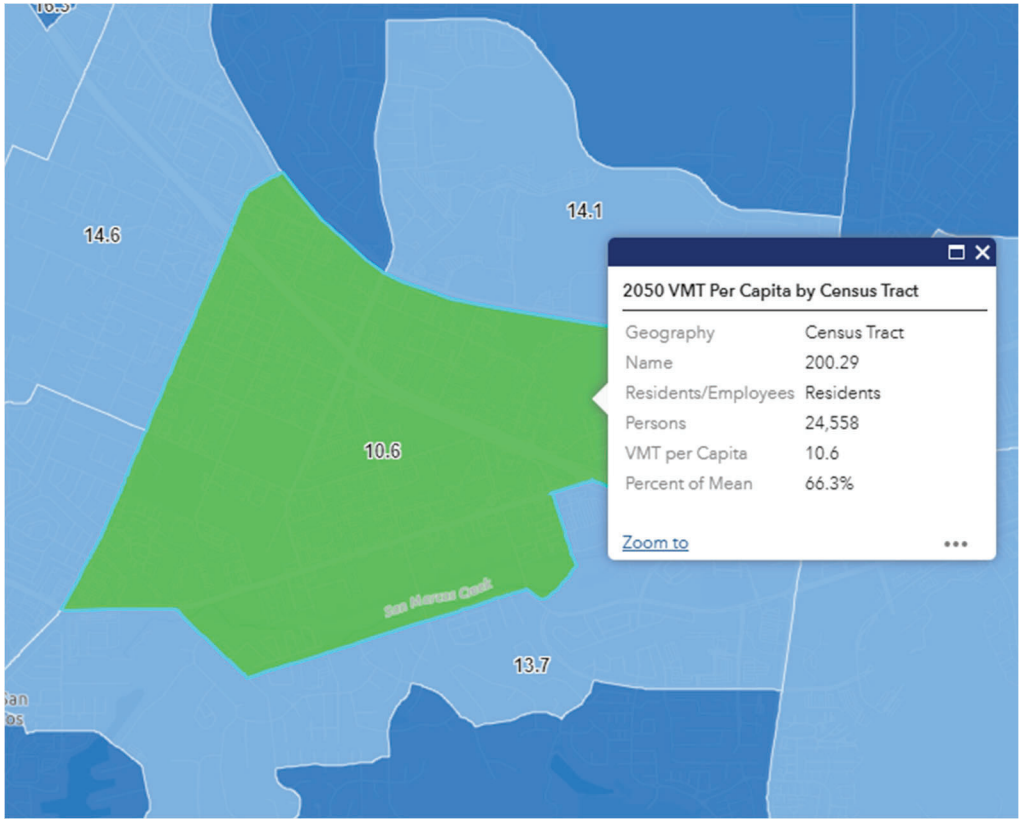

Figure 3.1

Project Site Residential VMT

Table 3.1 Resident VMT Impact Analysis

Regional Base (2016) VMT/Capita Threshold (Miles)	Scenario	Proposed Project Resident VMT/Capita			SI?
		Resident VMT / Capita (Miles)	VMT / Capita Reduction	Adjusted VMT / Capita (Miles)	
16.0	Base Year (2016)	12.5	-19.2%	10.11	No
	Future Year (2050)	10.6	0%	10.6	No

[1]Source: SANDAG San Diego Region SB-743 VMT Maps – ABM2+Scenario ID 459

As shown, the Proposed Project is anticipated to have a Future Year (2050) VMT/Capita less than the Base Year regional average. Therefore, the Proposed Project is anticipated to have a less than significant VMT related impact for its residential units.

Additionally, the Proposed Project's Base Year VMT/Capita, which is a more conservative scenario as it does not include future transit infrastructure identified in SANDAG's Regional Transportation Plan (RTP) that would help reduce VMT, is still lower than the Base Year regional average without and with CAPCOA's VMT reduction measure.

The VMT analysis for the Proposed Project's commercial uses was derived by multiplying the Proposed Project's commercial trip generation, using trip rates from SANDAG's *(Not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002), by trip lengths obtained from the 2022 National Household Travel Survey (NHTS) data for suburban shopping trips in the west coast. **Table 3.2** presents the proposed project's net Total VMT for the proposed project commercial uses.

Table 3.2 Commercial VMT Impact Analysis

Proposed Project's ADT	Trip Length	Proposed Project's Total VMT	SI?
65,888	5.7	375,562	Yes

As shown, the Proposed Project is anticipated to generate a net VMT of approximately 375,562 miles a day in the City; therefore, since the Proposed Project is above the zero net threshold for Total VMT, the Proposed Project's commercial component is anticipated to result in a significant transportation impact. It is important to note that when future commercial projects come to fruition, those projects could be considered locally serving retail and could be screened out from conducting a VMT analysis.

Transportation Components

As previously described in Section 1.1, the Proposed Project includes several transportation projects, such as adding new multi-use pathways, Class IV Cycle Tracks, and bicycle routes to existing roadways and new internal roadways within the specific plan area. The Proposed Project identifies roadway improvements along portions of existing Las Posas Road, Via Vera Cruz, Bent Avenue, and Creekside Drive that would

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contribute to the multimodal transportation network by providing new bicycle and pedestrian facilities on those roadways, which would promote non-auto use. Additionally, the proposed roadway connections along Pacific Street, McMahr Drive, and Creekside Drive would provide direct connections through the specific plan area, as well as onto major arterial roadways and would improve traffic congestion in the area, as well as add new bicycle and pedestrian facilities that would improve connectivity to the surrounding area. Per the City's TIAG, the transportation projects identified in the Proposed Project meet the screening criteria of "addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists," and/or "addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve non-motorized travel" and are presumed not to increase vehicle travel. Since the transportation projects identified in the specific plan are intended to increase pedestrian and bicycle safety and connection within the area, the proposed transportation projects would not result in an increase in VMT, and traffic impacts related to inconsistencies with CEQA Guidelines Section 15064.3 subdivision (b) <u>would be less than significant for the transportation projects identified within the Proposed Project</u>.

3.2 Mitigation

As noted in Section 3.1, the Proposed Project is anticipated to have a significant VMT related impact for its commercial uses. Applications for future commercial development under the Proposed Project shall conduct a project level VMT analysis that determines whether the proposed development would meet the screening criteria outlined in the City's *Transportation Impact Analysis Guidelines* (November 16, 2020), or any subsequent updates to these guidelines.

If the proposed development does not meet any of the screening criteria outlined in the City's *Transportation Impact Analysis Guidelines*, the applicant shall conduct a project-level VMT analysis and identify VMT impacts associated with the proposed development. The project applicant shall reduce project-induced VMT impacts through implementation of VMT-reducing infrastructure and/or strategies that would mitigate the project's VMT-related impacts that would be incorporated into the commercial development. In addition, the applicant shall also prepare and submit a Transportation Demand Management (TDM) Plan, consistent to the City's TDM Ordinance (Chapter 20.350 of the Municipal Code)[2], to the City for approval, and/or participate in a local, regional, or stateside VMT mitigation program, if available. The TDM Plan shall include a series of measures to reduce project-related VMT. Measures may include strategies such as ridesharing initiatives (e.g., carpooling), promoting alternative work schedules and telework, subsidizing employee use of public transit, and promoting bicycling, walking, and the use of public transit. The TDM Plan will be subject to the City's review and approval, and no development shall proceed until the TDM Plan is deemed acceptable by the City.

However, although implementation of this mitigation measure would require subsequent project applicants to develop a TDM Plan and implement VMT-reducing strategies, it cannot be guaranteed to what extent

[2] The TDM Ordinance and Policy shall apply to any development project that is not exempt from CEQA requirements and would result in emission of more than 500 metric tons of carbon dioxide (MT of CO2) per year. Developments that do not meet the 500 MT of CO2 threshold are encouraged to voluntarily include TDM strategies to facilitate alternative mobility options.

projects would participate in the TDM Program and choose to use alternative modes of transportation. Therefore, because it is not known to what extent subsequent project VMT may exceed the applicable threshold and how effective this mitigation measure would be at reducing impacts to below a less-than-significant level, the implementation of the Proposed Project's commercial uses could have a significant and unavoidable VMT impact.

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Appendix A: SANDAG Model - Future Year 2050 Land Use Inputs

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datasource	yr	mgra	lu	lu_name	emp_total	emp_dist	acres	hs_sf	hs_mf	hs_mh	tot_pop	hh_pop	gq_mil	gq_college	gq_other	enrollgrade	enrollgrade	collegeenr	othercolleg	adultschen	hotelroomtotal
41	2016	18581	2101	Industrial P	701	294	15.12452	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	6002	Office (Low	701	99	2.904087	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	5007	Arterial Cor	701	248	6.31929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	2105	Public Stora	701	0	3.21342	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	5003	Community	701	26	1.087575	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	4118	Road Right	701	0	4.895967	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18581	5009	Other Reta	701	34	1.029693	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18584	5003	Community	595	124	13.42963	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18584	4118	Road Right	595	0	6.14167	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18584	2101	Industrial P	595	471	11.69074	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18587	5007	Arterial Cor	378	31	2.404642	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	4118	Road Right	378	0	3.188082	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	2104	Warehousi	378	68	0.590208	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	2101	Industrial P	378	66	2.471296	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	2105	Public Stora	378	0	0.580854	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	5004	Neighborh	378	213	4.01575	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	9101	Vacant and	378	0	1.374918	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18587	9501	Residential	378	0	2.84263	0	0	0	89	89	0	0	0	0	0	0	0	0	0
41	2016	18589	101	Single Fam	208	0	2.569446	6	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	2101	Industrial P	208	26	7.852727	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	4118	Road Right	208	0	0.122172	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	9101	Vacant and	208	0	0.135857	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	5009	Other Reta	208	25	0.314228	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	5004	Neighborh	208	156	3.550737	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18589	1409	Other Grou	208	1	0.622625	0	0	0	14	14	0	0	0	0	0	0	0	0	0
41	2016	18591	4118	Road Right	183	0	2.239007	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18591	9101	Vacant and	183	0	6.591332	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18591	2105	Public Stora	183	0	1.733454	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18591	5009	Other Reta	183	76	4.071789	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18591	5007	Arterial Cor	183	107	2.344833	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18592	9501	Residential	54	0	5.158291	0	0	0	25	25	0	0	0	0	0	0	0	0	0
41	2016	18592	7603	Open Spac	54	54	8.194901	0	0	0	25	25	0	0	0	0	0	0	0	0	0
41	2016	18592	9101	Vacant and	54	0	0.802728	0	0	0	25	25	0	0	0	0	0	0	0	0	0
41	2016	18592	4118	Road Right	54	0	1.744246	0	0	0	25	25	0	0	0	0	0	0	0	0	0
41	2016	18593	2103	Light Indus	77	14	2.896193	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18593	9101	Vacant and	77	0	4.942423	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18593	7603	Open Spac	77	0	3.658144	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18593	5007	Arterial Cor	77	63	7.116503	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18595	9101	Vacant and	0	0	0.707124	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18595	7603	Open Spac	0	0	14.3092	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18597	5008	Service Sta	14	6	0.583031	0	0	0	7	7	0	0	0	0	0	0	0	0	0
41	2016	18597	2103	Light Indus	14	8	6.673461	0	0	0	7	7	0	0	0	0	0	0	0	0	0
41	2016	18597	101	Single Fam	14	0	0.238992	4	0	0	7	7	0	0	0	0	0	0	0	0	0
41	2016	18597	4118	Road Right	14	0	1.29798	0	0	0	7	7	0	0	0	0	0	0	0	0	0
41	2016	18597	9101	Vacant and	14	0	7.557993	0	0	0	7	7	0	0	0	0	0	0	0	0	0
41	2016	18598	7603	Open Spac	0	0	17.11347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2016	18602	4118	Road Right	0	0	1.777498	0	0	0	5	5	0	0	0	0	0	0	0	0	0
41	2016	18602	1000	Spaced Rur	0	0	6.567857	0	0	0	5	5	0	0	0	0	0	0	0	0	0
41	2016	18602	7603	Open Spac	0	0	22.60063	0	0	0	5	5	0	0	0	0	0	0	0	0	0
41	2050	18581	9700	Mixed Use	758	0	7.672184	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	4118	Road Right	758	0	4.895967	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	2100	Light Indus	758	90	0.942866	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	6000	Office	758	304	1.551192	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	2105	Public Stora	758	0	3.21342	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	5003	Community	758	29	1.087575	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	5009	Other Reta	758	37	1.029693	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18581	2101	Industrial P	758	298	14.18166	0	0	0	522	522	0	0	0	0	0	0	0	0	0
41	2050	18584	2101	Industrial P	641	506	5.389506	0	0	0	1144	1144	0	0	0	0	0	0	0	0	0
41	2050	18584	4118	Road Right	641	0	6.14167	0	0	0	1144	1144	0	0	0	0	0	0	0	0	0
41	2050	18584	9700	Mixed Use	641	135	13.42963	0	0	0	1144	1144	0	0	0	0	0	0	0	0	0
41	2050	18584	2100	Light Indus	641	0	6.301231	0	0	0	1144	1144	0	0	0	0	0	0	0	0	0
41	2050	18587	4118	Road Right	408	0	3.188082	0	0	0	818	818	0	0	0	0	0	0	0	0	0
41	2050	18587	9700	Mixed Use	408	408	14.2803	0	0	0	818	818	0	0	0	0	0	0	0	0	0
41	2050	18589	4118	Road Right	225	0	0.122172	0	0	0	545	545	0	0	0	0	0	0	0	0	0
41	2050	18589	1100	Single Fam	225	0	2.569446	0	0	0	545	545	0	0	0	0	0	0	0	0	0
41	2050	18589	9700	Mixed Use	225	224	11.85355	0	0	0	545	545	0	0	0	0	0	0	0	0	0
41	2050	18589	1400	Group Qua	225	1	0.622625	0	0	0	545	545	0	0	0	0	0	0	0	0	0
41	2050	18591	4118	Road Right	205	0	2.239007	0	0	0	555	555	0	0	0	0	0	0	0	0	0
41	2050	18591	9700	Mixed Use	205	205	14.74141	0	0	0	555	555	0	0	0	0	0	0	0	0	0
41	2050	18592	9700	Mixed Use	57	0	5.158291	0	0	0	93	93	0	0	0	0	0	0	0	0	0
41	2050	18592	4118	Road Right	57	0	1.744246	0	0	0	93	93	0	0	0	0	0	0	0	0	0
41	2050	18592	7606	Landscape	57	0	0.802728	0	0	0	93	93	0	0	0	0	0	0	0	0	0
41	2050	18592	7603	Open Spac	57	57	8.194901	0	0	0	93	93	0	0	0	0	0	0	0	0	0
41	2050	18593	9700	Mixed Use	96	96	18.61326	0	0	0	737	737	0	0	0	0	0	0	0	0	0
41	2050	18595	9700	Mixed Use	23	23	15.01632	0	0	0	567	567	0	0	0	0	0	0	0	0	0
41	2050	18597	1100	Single Fam	35	0	0.238992	0	0	0	534	534	0	0	0	0	0	0	0	0	0
41	2050	18597	9101	Vacant and	35	0	0.027197	0	0	0	534	534	0	0	0	0	0	0	0	0	0
41	2050	18597	7600	Parks	35	0	0.70695	0	0	0	534	534	0	0	0	0	0	0	0	0	0
41	2050	18597	9700	Mixed Use	35	35	14.08034	0	0	0	534	534	0	0	0	0	0	0	0	0	0
41	2050	18597	4118	Road Right	35	0	1.29798	0	0	0	534	534	0	0	0	0	0	0	0	0	0
41	2050	18598	7603	Open Spac	10	10	17.11347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	2050	18602	9700	Mixed Use	25	19	22.3098	0	0	0	907	907	0	0	0	0	0	0	0	0	0
41	2050	18602	1000	Spaced Rur	25	6	6.567857	0	0	0	907	907	0	0	0	0	0	0	0	0	0
41	2050	18602	4118	Road Right	25	0	1.777498	0	0	0	907	907	0	0	0	0	0	0	0	0	0
41	2050	18602	7603	Open Spac	25	0	0.290833	0	0	0	907	907	0	0	0	0	0	0	0	0	0
42	2016	18581	4118	Road Right	701	0	4.895967	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	6002	Office (Low	701	99	2.904087	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	5009	Other Reta	701	34	1.029693	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	2101	Industrial P	701	294	15.12452	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	5007	Arterial Cor	701	248	6.31929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	5003	Community	701	26	1.087575	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18581	2105	Public Stora	701	0	3.21342	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18584	5003	Community	595	124	13.42963	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18584	2101	Industrial P	595	471	11.69074	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18584	4118	Road Right	595	0	6.14167	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18587	2105	Public Stora	378	0	0.580854	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	9101	Vacant and	378	0	1.374918	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	5007	Arterial Cor	378	31	2.404642	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	2101	Industrial P	378	66	2.471296	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	2104	Warehousi	378	68	0.590208	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	4118	Road Right	378	0	3.188082	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	5004	Neighborh	378	213	4.01575	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18587	9501	Residential	378	0	2.84263	0	0	0	89	89	0	0	0	0	0	0	0	0	0
42	2016	18589	5004	Neighborh	208	156	3.550737	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	9101	Vacant and	208	0	0.135857	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	5009	Other Reta	208	25	0.314228	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	2101	Industrial P	208	26	7.852727	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	101	Single Fam	208	0	2.569446	6	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	1409	Other Grou	208	1	0.622625	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18589	4118	Road Right	208	0	0.122172	0	0	0	14	14	0	0	0	0	0	0	0	0	0
42	2016	18591	2105	Public Stora	183	0	1.733454	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18591	5007	Arterial Cor	183	107	2.344833	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18591	4118	Road Right	183	0	2.239007	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18591	9101	Vacant and	183	0	6.591332	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18591	5009	Other Reta	183	76	4.071789	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18592	7603	Open Spac	54	54	8.194901	0	0	0	25	25	0	0	0	0	0	0	0	0	0
42	2016	18592	9101	Vacant and	54	0	0.802728	0	0	0	25	25	0	0	0	0	0	0	0	0	0
42	2016	18592	9501	Residential	54	0	5.158291	0	0	0	25	25	0	0	0	0	0	0	0	0	0
42	2016	18592	4118	Road Right	54	0	1.744246	0	0	0	25	25	0	0	0	0	0	0	0	0	0
42	2016	18593	5007	Arterial Cor	77	63	7.116503	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18593	2103	Light Indus	77	14	2.896193	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18593	7603	Open Spac	77	0	3.658144	0	0	0	0	0	0	0	0	0	0	0	0	0	0

42	2016	18593	9101	Vacant and	77	0	4.942423	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18595	7603	Open Spac	0	0	14.3092	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18595	9101	Vacant and	0	0	0.707124	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18597	101	Single Fam	14	0	0.238992	4	0	0	7	7	0	0	0	0	0	0	0	0
42	2016	18597	5008	Service Sta	14	6	0.583031	0	0	0	7	7	0	0	0	0	0	0	0	0
42	2016	18597	9101	Vacant and	14	0	7.557993	0	0	0	7	7	0	0	0	0	0	0	0	0
42	2016	18597	2103	Light Indus	14	8	6.673461	0	0	0	7	7	0	0	0	0	0	0	0	0
42	2016	18597	4118	Road Right	14	0	1.29798	0	0	0	7	7	0	0	0	0	0	0	0	0
42	2016	18598	7603	Open Spac	0	0	17.11347	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2016	18602	7603	Open Spac	0	0	22.60063	0	0	0	5	5	0	0	0	0	0	0	0	0
42	2016	18602	4118	Road Right	0	0	1.777498	0	0	0	5	5	0	0	0	0	0	0	0	0
42	2016	18602	1000	Spaced Rui	0	0	6.567857	0	0	0	5	5	0	0	0	0	0	0	0	0
42	2050	18581	9700	Mixed Use	734	273	10.81517	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18581	2105	Public Stora	734	0	3.21342	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18581	4118	Road Right	734	0	4.895967	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18581	2101	Industrial P	734	249	12.67765	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18581	2100	Light Indus	734	48	2.446877	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18581	5000	Commercia	734	164	0.525476	0	0	0	645	645	0	0	0	0	0	0	0	0
42	2050	18584	9700	Mixed Use	636	273	13.42963	0	0	0	1111	1111	0	0	0	0	0	0	0	0
42	2050	18584	4118	Road Right	636	0	6.14167	0	0	0	1111	1111	0	0	0	0	0	0	0	0
42	2050	18584	2100	Light Indus	636	116	5.837852	0	0	0	1111	1111	0	0	0	0	0	0	0	0
42	2050	18584	2101	Industrial P	636	247	5.852885	0	0	0	1111	1111	0	0	0	0	0	0	0	0
42	2050	18587	9700	Mixed Use	418	418	14.2803	0	0	0	910	910	0	0	0	0	0	0	0	0
42	2050	18587	4118	Road Right	418	0	3.188082	0	0	0	910	910	0	0	0	0	0	0	0	0
42	2050	18589	4118	Road Right	216	0	0.122172	0	0	0	502	502	0	0	0	0	0	0	0	0
42	2050	18589	1100	Single Fam	216	0	2.569446	0	0	0	502	502	0	0	0	0	0	0	0	0
42	2050	18589	1400	Group Qua	216	1	0.622625	0	0	0	502	502	0	0	0	0	0	0	0	0
42	2050	18589	9700	Mixed Use	216	215	11.85355	0	0	0	502	502	0	0	0	0	0	0	0	0
42	2050	18591	9700	Mixed Use	205	205	14.74141	0	0	0	523	523	0	0	0	0	0	0	0	0
42	2050	18591	4118	Road Right	205	0	2.239007	0	0	0	523	523	0	0	0	0	0	0	0	0
42	2050	18592	9700	Mixed Use	54	0	5.158291	0	0	0	44	44	0	0	0	0	0	0	0	0
42	2050	18592	4118	Road Right	54	0	1.744246	0	0	0	44	44	0	0	0	0	0	0	0	0
42	2050	18592	7603	Open Spac	54	54	8.194901	0	0	0	44	44	0	0	0	0	0	0	0	0
42	2050	18592	9101	Vacant and	54	0	0.802728	0	0	0	44	44	0	0	0	0	0	0	0	0
42	2050	18593	9700	Mixed Use	91	91	18.61326	0	0	0	755	755	0	0	0	0	0	0	0	0
42	2050	18595	9700	Mixed Use	10	10	0.707124	0	0	0	619	619	0	0	0	0	0	0	0	0
42	2050	18595	7600	Parks	10	0	14.3092	0	0	0	619	619	0	0	0	0	0	0	0	0
42	2050	18597	9700	Mixed Use	31	31	14.08034	0	0	0	618	618	0	0	0	0	0	0	0	0
42	2050	18597	4118	Road Right	31	0	1.29798	0	0	0	618	618	0	0	0	0	0	0	0	0
42	2050	18597	7600	Parks	31	0	0.70695	0	0	0	618	618	0	0	0	0	0	0	0	0
42	2050	18597	9101	Vacant and	31	0	0.027197	0	0	0	618	618	0	0	0	0	0	0	0	0
42	2050	18597	1100	Single Fam	31	0	0.238992	0	0	0	618	618	0	0	0	0	0	0	0	0
42	2050	18598	7603	Open Spac	0	0	17.11347	0	0	0	0	0	0	0	0	0	0	0	0	0
42	2050	18602	9700	Mixed Use	17	0	1.104861	0	0	0	955	955	0	0	0	0	0	0	0	0
42	2050	18602	7603	Open Spac	17	12	0.290833	0	0	0	955	955	0	0	0	0	0	0	0	0
42	2050	18602	7600	Parks	17	0	21.20494	0	0	0	955	955	0	0	0	0	0	0	0	0
42	2050	18602	1000	Spaced Rui	17	5	6.567857	0	0	0	955	955	0	0	0	0	0	0	0	0
42	2050	18602	4118	Road Right	17	0	1.777498	0	0	0	955	955	0	0	0	0	0	0	0	0

Appendix B: Residential VMT Reductions

DRAFT

GHG Reduction Formula

$$A = \frac{B - C}{C} \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project VMT in study area	0–30.0	%	calculated
User Inputs				
B	Residential density of project development	[ ]	du/acre	user input
Constants, Assumptions, and Available Defaults				
C	Residential density of typical development	9.1	du/acre	Ewing et al. 2007
D	Elasticity of VMT with respect to residential density	-0.22	unitless	Stevens 2016

Further explanation of key variables:

- (C) – The residential density of typical development is based on the blended average density of residential development in the U.S. forecasted for 2025. This estimate includes apartments, condominiums, and townhouses, as well as detached single-family housing on both small and large lots. An acre in this context is defined as an acre of developed land, not including streets, school sites, parks, and other undevelopable land. If reductions are being calculated from a specific baseline derived from a travel demand forecasting model, the residential density of the relevant transportation analysis zone should be used instead of the value for a typical development.
- (D) – A meta-regression analysis of five studies that controlled for self-selection found that a 0.22 percent decrease in VMT occurs for every 1 percent increase in residential density (Stevens 2016).

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SITE	**B**	**C**	**D**	**VMT Reduction**
C	2.0	2.0	-0.22	0.0%
H1	2.3	2.0	-0.22	-3.8%
H2	2.8	2.0	-0.22	-9.0%
H3	2.4	2.0	-0.22	-5.4%
EAC	2.0	2.0	-0.22	-0.9%
TOTAL	**3.6**	2.0	-0.22	-19.0%

Total Households in Census Tract (200.29)= 2637