



TO: Johanna Crooker, Director of Entitlements; MLC Holdings

FROM: Jonathan Sanchez, PE, TE, PTOE; CR Associates

DATE: May 12, 2023

RE: Pacifica Housing Project – Vehicle Miles Traveled Analysis

The purpose of this memorandum is to document the results of the Vehicle Miles Traveled (VMT) Analysis conducted for the Pacifica Housing Project (the “Project”). The analysis is based on the City of Oceanside’s (the “City”) Transportation Impact Analysis Guidelines (TIA Guidelines).

Project Description

The Project seeks to construct 164 multi-family residential townhomes on the old Pacifica Elementary School site located adjacent to the intersection of Monica Circle and Macario Drive in Oceanside. The property is bordered by single family dwelling units on all sides. The site is currently designated for elementary school land use. **Figure 1** displays the Project’s regional location. **Figure 2** displays the project site plan.

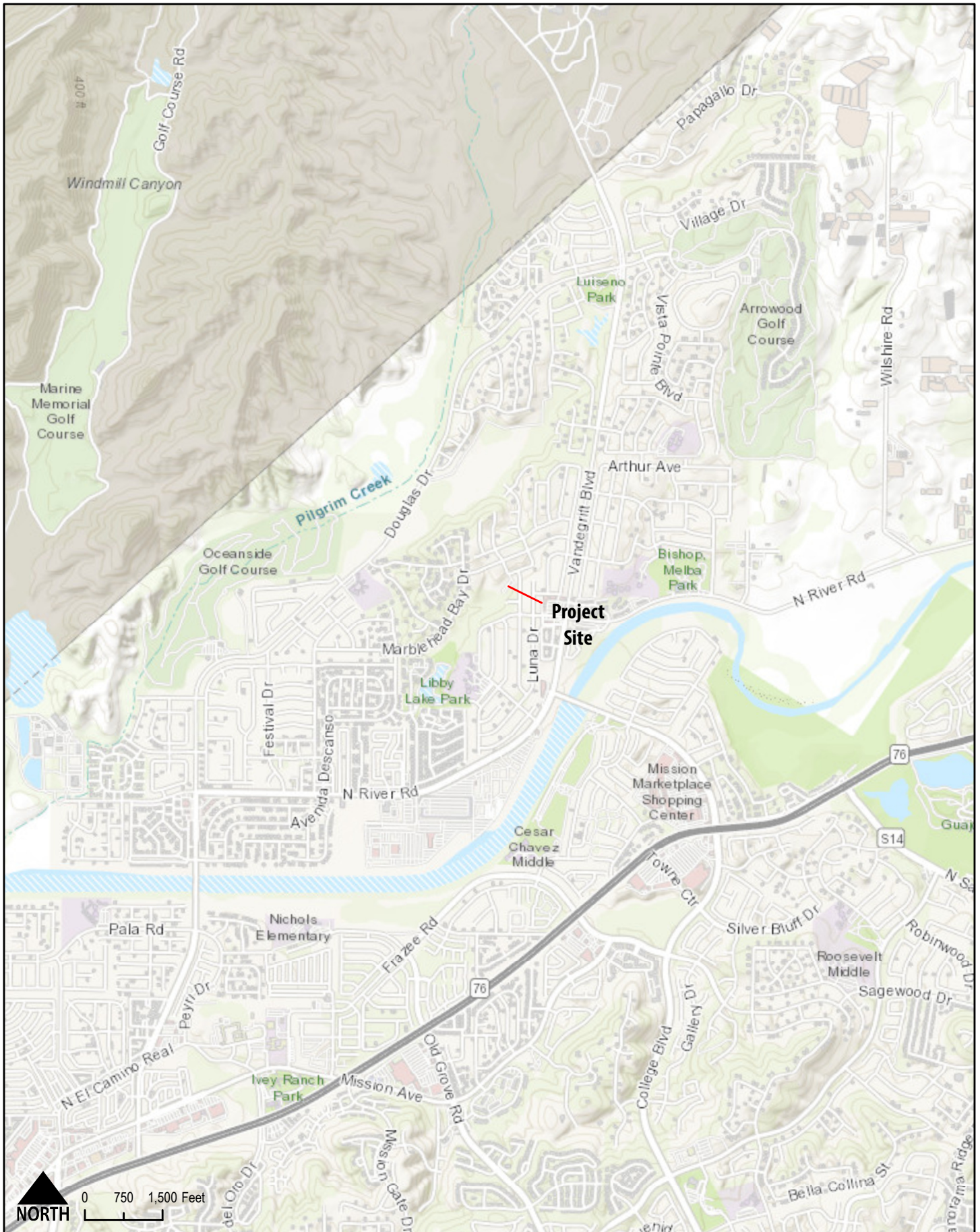
VMT Analysis Screening

VMT analysis screening criteria were obtained from Table 2 of the City’s TIA Guidelines. The following are the screening criteria relevant to the Project’s proposed land use:

- Projects located in a Transit Priority Area (TPA) or Smart Growth Opportunity Area as identified in the most recent SANDAG San Diego Forward Regional Plan and is consistent with the General Plan at the time of project application.
- Projects located in a low-VMT generating area identified on the most recent SANDAG SB 743 VMT Screening map.
- Affordable housing projects.
- Projects generating less than 500 daily vehicle trips (if inconsistent with adopted General Plan)

Based upon the criterion provided above, the Project would not be screened out from conducting a VMT analysis based on the City’s TIA Guidelines because of the following reasons:

- Although the Project is located within a ½ mile walking distance, without discontinuity of sidewalk or obstructions to the route, of the San Luis Rey Transit Center, the Project is inconsistent with the City’s General Plan. **Figure 3** displays the walking distance from the Project to the San Luis Rey Transit Center.
- The Project is not located in a low-VMT generating area per the most recent SANDAG SB 743 VMT screening maps. **Figure 4** displays the Project’s VMT screening map location and associated VMT.
- The Project is not an affordable housing project.
- The Project generates more than 500 daily trips.



**Pacifica Housing Project
VMT Analysis**



*Figure 1
Project Regional Location*

Primary Community Entry

- Utilizes existing driveway
- No gate
- To be enhanced with decorative paving, landscaping and community signage

Existing Slope

- Provides approximately 30 feet of elevation difference between existing homes and new homes below.

Typical Three-Story Townhome Building

- 4 building types
- 2 elevation styles
- 3 floor plan variation
- Maximum height of 38.0 feet
- Oriented to provide front doors along streetscapes and paseos

Amenity Area A

- 10,126 SF
- Minimum dimension of 20 feet
- See Amenity Plan for details

Amenity Area B

- 21,143 SF
- Dog park and fire pits for community gathering (Please see Amenity Plan)

Central Paseo

- 6,121 SF
- Provides a central spine trail that connects amenity areas to promote walkability
- Enhanced with landscaping and special paving at crosswalks

Basin and Habitat Setback

- Stormwater basin for hydromodification and water quality treatment
- Habitat and planning setbacks to protect adjacent existing wetlands

Amenity Area C

- 10,502 SF
- Pickle Ball Courts, Barbecue area, open lawn for games and unstructured play (Please see Amenity Plan)

Secondary Access

- Emergency Vehicle Access Only
- Gated at the existing terminus of Malaga Drive



Project Summary

Property Size (Gross): 14.55 Acres
 Developable Area (Net)¹: 12.82 Acres
 Development Pad Area: 10.23 Acres
 No. of Units: 164 Three-Story Townhomes²

- (16) Plan 2532: 1210 SF, 2 bed., 2.5 baths, 2-car gar.
- (75) Plan 1633: 1497 SF, 3 bed., 2.5 baths, 2-car gar.
- (73) Plan 1636: 1791 SF, 4 bed., 2.5 baths, 2-car gar.

Density³: 12.8 du/ac

Proposed Setbacks:

- Front (To Monica/Macario Dr): 15' to building / 12' to patio
- Side (N and S Bndy): 74' Minimum
- Rear (E Bndy): 65' Minimum

Parking Required:

- Resident: 2 Spaces per Unit (1 covered)
- Guest Spaces⁴: 1 + 20% of total units (34 spaces)

Parking Provided:

- Resident: Private 2-car garage per unit
- Guest Spaces⁵: 56 spaces

Open Space Required:

- Total: 300 SF per Unit x 164 = 49,200 SF
- Private Open Space minimum dimension of 5 feet
- At least 50% shall be Common = 24,600 SF
- At least two common area shall be 4,000 SF Min (or one at 8,000 SF Min); Minimum dimension of 20 feet

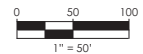
Open Space Provided:

- Total: 78,412 SF (478 SF per unit)
- Private OS (5' min): 24,500 SF
- Common Open Space (20' min; 8000 SF Min): 53,712 SF

Bldg Coverage: 3.21 AC. (22.1%)

Notes:

1. Excludes slopes surrounding the site in accordance with Section 3039 of the City of Oceanside Zoning Ordinance.
2. Type VB construction with NFPA 13D automatic sprinkler system.
3. Density based on Development Area.
4. Inclusionary housing requirement to be met through payment of in-lieu fee.
5. Existing General Plan/Zoning: CI/PS
6. Proposed General Plan: Medium Density B (10-15 du/ac)
7. Proposed Zoning: Planned Development
8. Coastal Zone: No
9. Assessor's Parcel Numbers: 157-070-42-00, 122-190-19-00, and 122-190-22-00
10. Guest Parking Spaces are 16' x 8.5' with 2' overhang; Includes 3 ADA Spaces that are 18' x 9'



Conceptual Site Plan

GPA22-00001/LA22-00003/T22-00005/D22-00013



Pacifica Elementary
 Oceanside, Ca

03.29.2023
 P-1

Figure 3 - Walking Distance to Transit Station

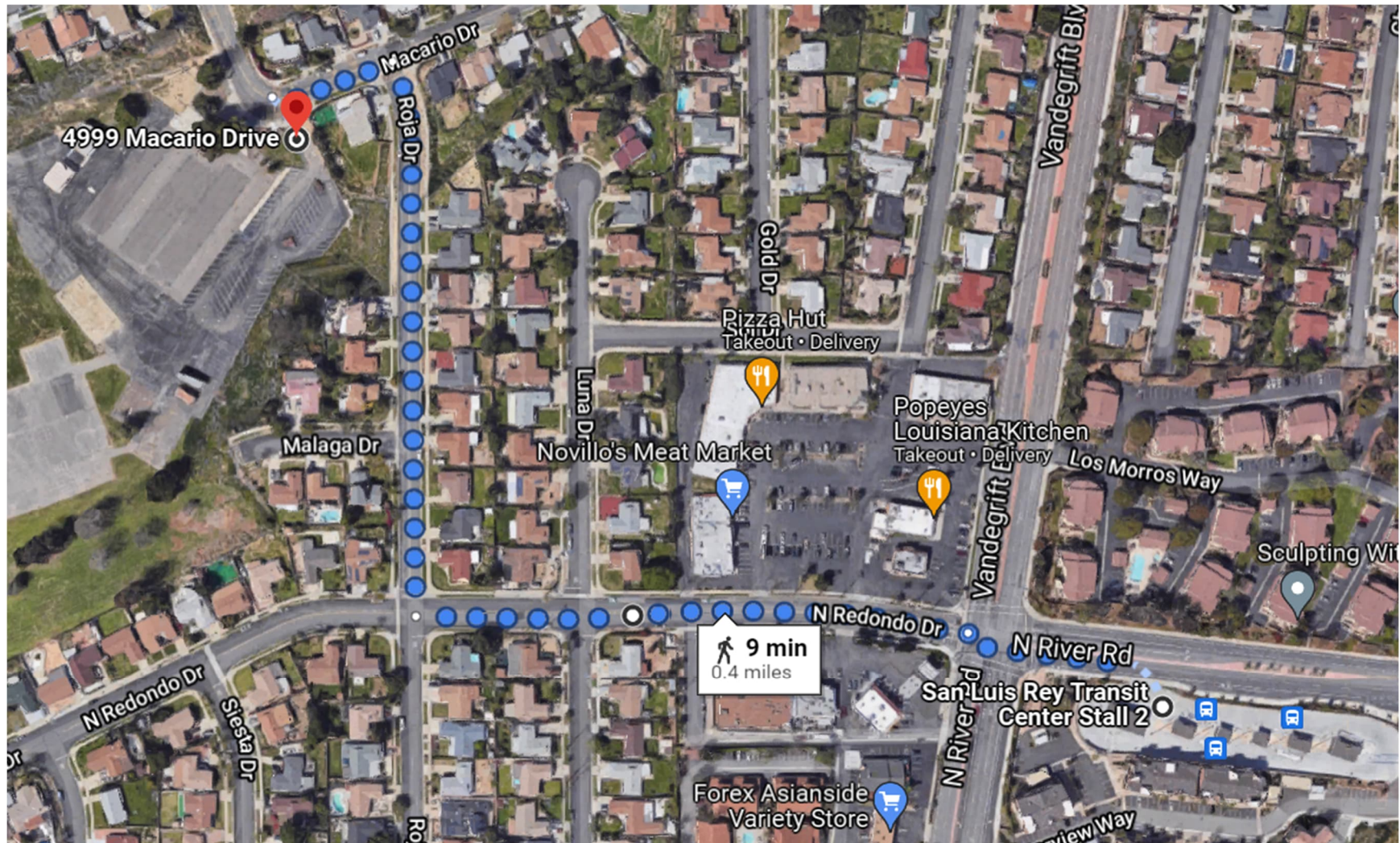
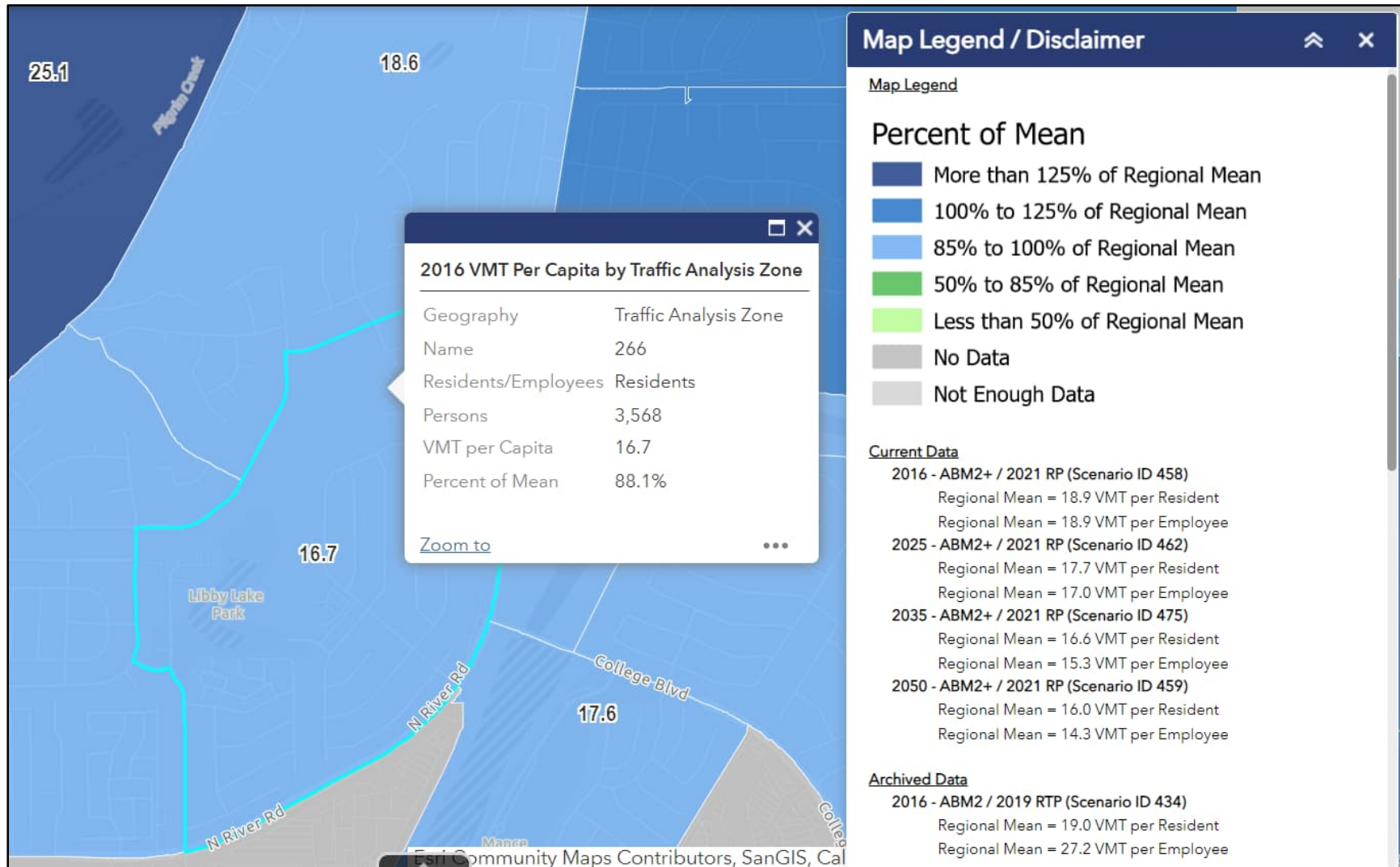


Figure 4 - VMT Screening Map



VMT Analysis

As mentioned previously, the Project's VMT per Capita was obtained from the most recent SANDAG VMT screening maps. Per the City's TIA Guidelines, a residential project is determined to have a significant impact if the project generates VMT per Capita greater than 85 percent of the regional average. As seen in Figure 4, the Project site is located in a TAZ that generates 16.7 VMT per Capita, which is over the significant impact threshold.

However, the Project is in a suburban area (TAZ 266) composed mostly by single-family dwelling units (average density of 3.6 du/acre¹) which tend to have higher automobile ownership as compared to the region, hence, typically generate higher VMT per Capita. Therefore, the surrounding single-family residential land uses are used to estimate the neighborhood's trip characteristics.

Per the California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA Report), T-1 Increase Residential Density, residential projects designed with a higher density of dwelling units compared to the average residential density in the U.S., exhibit lower VMT per Capita. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. Applying the percentage reduction in VMT to the Project based on the measure described above yields a nine percent reduction in VMT per Capita.

Table 1 summarizes the anticipated reduction in VMT per Capita to the Project based on the increase in residential density. Detailed calculations associated with the percent reduction in VMT are included in **Attachment A**.

Table 1 - Reduction in VMT per Capita

VMT Per Capita (Project TAZ)	Mitigation Measure	% Reduction	VMT Per Capita (Project)
16.7 ¹	T-1 Increase Residential Density	9% ²	15.19

Source: CR Associates (2023)

Note:

¹ Source = SANDAG Series 14 ABM2+/2021 RP Year 2016 Base Model

² Source = CAPCOA Report, T-1 Increase Residential Density. See Attachment A for details.

Furthermore, it is important to note that the Project is located less than ½-mile walking distance from the San Luis Rey Transit Center. Nevertheless, since the Project is not consistent with the City's General Plan, the Project is not screened out based on this criterion. However, consistency with a general plan is not a factor that directly influences VMT.

Therefore, the Project's proximity to a high-quality transit station in concert with an increased density in residential density would suffice to presume the Project as having a less than significant VMT impact.

¹ According to SANDAG Series 14 ABM2+/2021 RP Year 2016 Base Model Socioeconomic Data (TAZ 266, MGRAs 15182 to 15196).

Table 2 summarizes the VMT analysis results. The regional average VMT was determined using the SANDAG Series 14 ABM2+/2021 RP Year 2016 Base model.

Table 2 - VMT Impact Analysis Results

Metric	VMT per Capita
Regional Average	18.90 ¹
Significant Impact Threshold (85%)	16.07 ²
Project TAZ	16.70
VMT Reduction (T-1 Increase Residential Density)	9%
Project	15.19
Significant Impact	No

Source: CR Associates (2023)

Notes:

¹ Source = SANDAG Series 14 ABM2+/2021 RP Year 2016 Base Model

² Regional Average x 85%

As shown in Table 2, the Project is anticipated to generate VMT per Capita of 15.19, which is below the significance threshold of 16.07 miles. Therefore, the Project is deemed to have a less than significant VMT impact.

Additionally, to further reduce the average VMT per Capita of the Project, the Project will implement a Transportation Demand Management (TDM) Program. A TDM program would facilitate increased opportunities for walking and bicycling, as well as provide the resources, means, and incentives for ridesharing and carpooling.

The CAPCOA Report provides mitigation measures that are considered non-quantifiable for the Project due to the implementation requirements or measure description in relation to the Project's land use (i.e., a residential project rather than an employment project). Based on discussions with the project applicant, the Project will implement the following non-quantifiable VMT reduction strategies to encourage alternative modes of transportation:

1. Creation and distribution of a "new resident" information packet addressing alternative modes of transportation (CAPCOA T-7: Implement Commute Trip Reduction Marketing).
2. Provide on-site bike parking (CAPCOA T-10: Provide End-of-Trip Bicycle Facilities).

It is important to note that the strategies described above are not applicable for residential projects. Hence, no VMT reduction credit is assumed as a result of implementing these strategies.

See **Attachment B** for details on the selected VMT mitigation measure, as well as a full list of other measures that were taken into consideration and their respective feasibility determination.

Conclusion

The Project's VMT per Capita is anticipated to fall under the significance threshold per the City's TIA Guidelines based on the reductions in VMT per Capita provided by the increased residential density of the project. Therefore, the **Project is deemed to have a less than significant VMT impact.**

Attachment A - VMT Reduction Calculation

Measure Description (T-1 Increase Residential Density)

T-1. Increase Residential Density



GHG Mitigation Potential



Up to 30.0% of GHG emissions from project VMT in the study area

Co-Benefits (icon key on pg. 34)



Climate Resilience

Increased density can put people closer to resources they may need to access during an extreme weather event. Increased density can also shorten commutes, decreasing the amount of time people are on the road and exposed to hazards such as extreme heat or flooding.

Health and Equity Considerations

Neighborhoods should include different types of housing to support a variety of household sizes, age ranges, and incomes.

Measure Description

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units (du) compared to the average residential density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. This measure is best quantified when applied to larger developments and developments where the density is somewhat similar to the surrounding area due to the underlying research being founded in data from the neighborhood level.

Subsector

Land Use

Locational Context

Urban, suburban

Scale of Application

Project/Site

Implementation Requirements

This measure is most accurately quantified when applied to larger developments and/or developments where the density is somewhat similar to the surrounding neighborhood.

Cost Considerations

Depending on the location, increasing residential density may increase housing and development costs. However, the costs of providing public services, such as health care, education, policing, and transit, are generally lower in more dense areas where things are closer together. Infrastructure that provides drinking water and electricity also operates more efficiently when the service and transmission area is reduced. Local governments may provide approval streamlining benefits or financial incentives for infill and high-density residential projects.

Expanded Mitigation Options

When paired with Measure T-2, *Increase Job Density*, the cumulative densification from these measures can result in a highly walkable and bikeable area, yielding increased co-benefits in VMT reductions, improved public health, and social equity.

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).

GHG Calculation Caps or Maximums

Measure Maximum

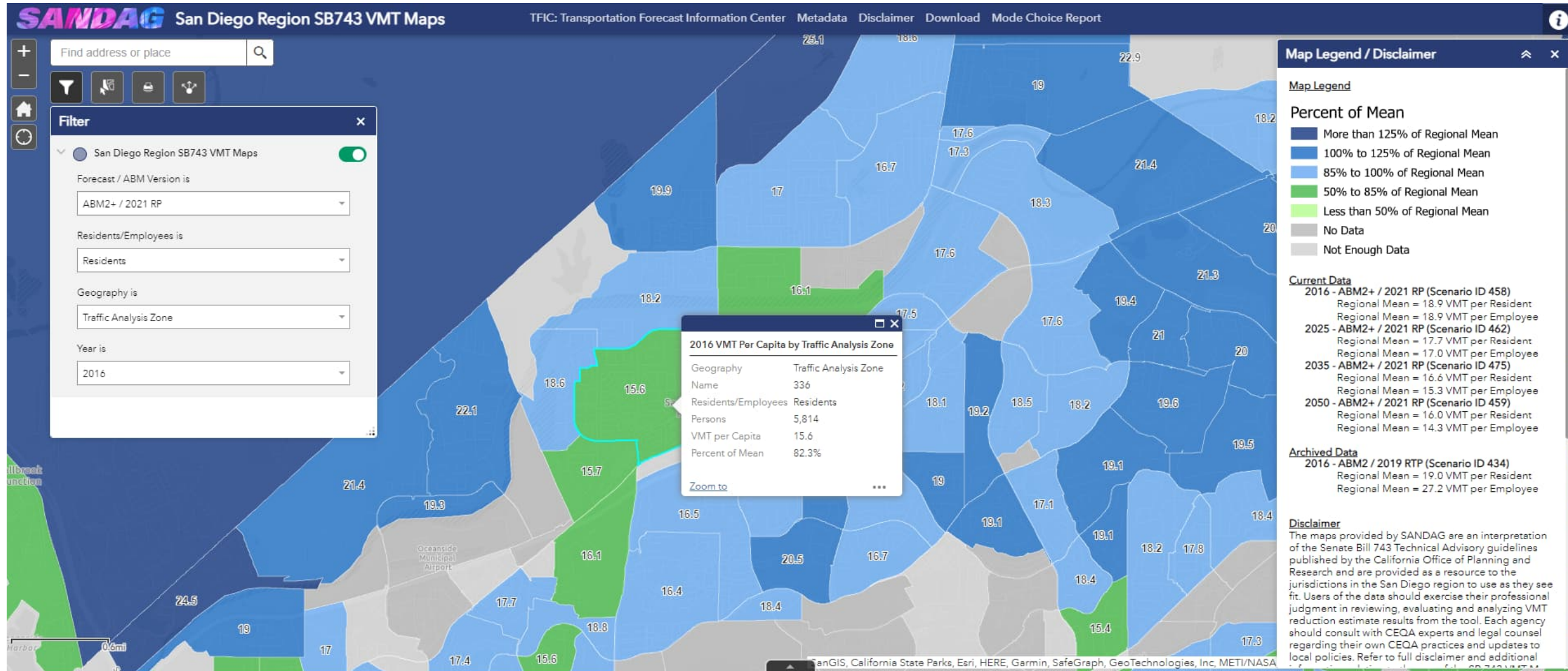
(A_{max}) The percent reduction in GHG emissions (A) is capped at 30 percent. The purpose for the 30 percent cap is to limit the influence of any single built environmental factor (such as density). Projects that implement multiple land use strategies (e.g., density, design, diversity) will show more of a reduction than relying on improvements from a single built environment factor.

VMT Reduction Calculation

A	-0.09	%	<-- Calculated VMT Reduction
B	12.8	du/ac	<-- Obtained from Site Plan
C	9.1	du/ac	<-- Default Value provided in CAPCOA Report (See Note in the next page)
D	-0.22	unitless	<-- Default Value provided in CAPCOA Report

Note:

The calculated density for the TAZ the project is located in (3.6 du/acre) yields a VMT reduction of 56 percent, which would be capped at the maximum allowed VMT reduction for this strategy which is 30 percent. However, a 30 percent reduction would bring down the Project's VMT to 11.69 VMT per Capita, which is unlikely as the lowest VMT per Capita (TAZ) identified in the vicinity of the Project's TAZ is 15.6. Therefore, as a conservative approach, the default value for a typical development in the U.S. of 9.1 du/ac was utilized for the analysis.



Attachment B - VMT Mitigation Measures

VMT Reduction Mitigation Measures (Applicable to Residential Projects)

Mitigation Measure (from CAPCOA Report)	Feasibility
TDM-T-1-Increase Residential Density	Yes - Project has a higher density of dwelling units per acre compared to the average residential density in the U.S., and it is estimated that the VMT per Capita for the Project will be reduced by 9% that of the VMT per Capita calculated for the TAZ the project is located in.
TDM-T-7-Implement Commute Trip Reduction Marketing	No - However, trip reduction marketing ("new resident information package") will be provided to residents. It is important to note that no VMT reductions are assumed as a result of implementing this strategy.
TDM-T-9-Implement Subsidized or Discounted Transit Program	No - Not feasible for a for-sale residential project since it would have to be subsidized by the homeowners.
TDM-T-10-Provide End-of-Trip Bicycle Facilities	No - However, end-of-trip bicycle facilities (bike parking) will be provided to residents. It is important to note that no VMT reductions are assumed as a result of implementing this strategy.
TDM-T-14-Provide Electric Vehicle Charging Infrastructure	No - Although project is providing EV ready infrastructure as well as several EV charging ready visitor guest parking, these only meet the minimum requirements. Additionally, EV charging infrastructure only reduces gas emissions and does not reduce VMT.
TDM-T-15-Limit Residential Parking Supply	No - Not feasible to reduce parking for this residential project without negatively impacting existing neighborhood.
TDM-T-18-Provide Pedestrian Network Improvement	No - Although the project is providing pedestrian improvements within project site and project frontage, it is not financially feasible to provide new pedestrian network improvements beyond the project site since the surrounding neighborhood is already builtout with adequate sidewalks.
TDM-T-21-A-Implement Conventional Carshare Program	No - Not financially feasible for project to implement a carshare program.
TDM-T-21-B-Implement Electric Carshare Program	No - Not financially feasible for project to implement an electric carshare program.
TDM-T-22-A-Implement Pedal (Non-Electric) Bikeshare Program	No - Not financially feasible for project to implement a pedal bikeshare program.
TDM-T-22-B-Implement Electric Bikeshare Program	No - Not financially feasible for project to implement an electric bikeshare program.
TDM-T-22-C-Implement Scootershare Program	No - Not financially feasible for project to implement a scootershare program.