Madone Collection Residential Project
Vehicle Miles Travelled Mitigation Calculator

VMT Calculated With Project: 13.10 Percent Change: 9.00%
VMT Calculated Base: 12.18

Item												
T-14	Electric Vehicle Charging Stations	-3.90%	=	Percent GHG emissions reduction.								
	B Number of Charging Stations Installed at Site	30		*All spaces will in garages*								
	C Total Vehicles Accessing the Site Per Day	324										
	D Avg Number of PHEVs Served Per Day Per Charger Installed	1										
	E Percent PHEV Miles in Electric Mode Without Measure	10										
	F Percent PHEV Miles in Electric Mode With Measure	80										
	G Avg Emission Factor in Gasoline Mode	205.1										
	H Energy Efficiency of PHEV in Electric Mode	0.327			Year:	2022	2023	2024	2025	2026	2027	2028
	I Carbon Intensity of Local Electricity Provider	351		(See Table E-4.3 and E-4.4)		351	351	351	351	348	348	348
	J Avg Emission Factor of Non-Electric Vehicles Accessing the Site	307.5										
	K Conversion from lb to g	454										
	L Conversion from Kw to MWh	0.001										
T-18	Sidewalks and Pedestrian Improvements	-0.16%	=	Percent Reduction in GHG emissions from household vehicle travel in plan/community.								
	B Existing sidewalk length in the study area (miles)	2.30										
	C Sidewalk length in the study area with measure (miles)	2.25										
	D Elasticity of household VMT with respect to the ratio of sidewalk-to-streets	-0.05										
T-19A	Construct or Improve Bike Facilities	0.00%		Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility.								
					City Factors							
	B Percent of plan/community VMT on parallel roadway	100	0									
	C Active transportation adjustment factor	0.0038		(See Table T-19.1)	0.0038							
	D Credits for key destinations near project	0.002		(See Table T-19.2)	0.002							
	E Growth factor adjustment for facility type	1		(See Table T-19.3)	1 1.54 - Class 1; 1.0 - Class II; 0.54 - Conversion from Class II to Class IV							
	F Annual days of use of new facility	337		(See Table T-19.4)	337							
	G Existing regional average one-way bicycle trip length	2.2		(See Table T-10.1)	2.2							
	H Existing regional average one-way vehicle trip length	11.7		(See Table T-10.1)	11.7							
	I Days per year	365										
T-19B	Construct or Improve Bicycle Boulevard											
	Requirements: Single lane in each direction; Design Speed <= 25 miles per hour; Design Volume <=5, 000 ADT; Intersection safety treatments present.											
T-20	Expand Bikeway Network	0.00%		Percent reduction in GHG emissions from employee commute vehicle travelin plan/community								
					City Factors							
	B Existing bikeway miles in the plan/community (miles)	1			1 : if no bikeways in plan area							
	C Bikeway miles in the plan/community with measure (miles)	0			1000 : if no bikeways in plan area							
	D Bicycle mode share in plan/community	0.06		(See Table T-20.1)	0.06							
	E Vehicle mode share in plan/community	96.88		(See Table T-3.1)	96.88							
	F Average one-way bicycle trip length in plan/community	2.2		(See Table T-10.1)	(miles per trip)	2.2						
	G Average one-way vehicle trip length in plan/community	11.7		(See Table T-10.1)	(miles per trip)	11.7						
	H Elasticity of bike commuters with respect to bikeway miles per 10K population	0.25										
T-31A	Locate Project in Area With High Destination Accessibility	-1.00%										
T-34	Provide Bicycle Parking	0.00%										
T-35	Provide Traffic Calming Measures	-17.50%		3.5% per high Visibility X-walk								
T-46	Improve Transit First Mile / Last Mile Access, Safety, and Comfort - Bus Shelters	-1.00%		1% per improved stop								

Summary

	-23.56%
Remove Bikeway Mitigation (T-19A and T-20):	0.00%
Mitigation Total:	-23.56%

23.55% Target

Table T-19.1. Active Transportation Adjustment Factors

Average Daily Traffic (vehicle trips per day)	One-way Facility Length[1]	Adjustment Factor for a Population > 250,000 or a Non-university Town with Population < 250,000	Adjustment Factor for a University Town with Population <250,000
≤1		0.0019	0.0104
1 to 12,000	1.02 to 2	0.0029	0.0155
	>2	0.0038	0.0207
≤1		0.0014	0.0073
12,001 to 24,000	1.02 to 2	0.0020	0.0109
	>2	0.0027	0.0145
≤1		0.0010	0.0052
24,001 to 30,000	1.02 to 2	0.0014	0.0078
	>2	0.0019	0.0104

Source: California Air Resources Board. 2020. Quantification Methodology for the Strategic Growth Council's Affordable Housing and Sustainable Communities Program. September. Available: https://ww2.arb.ca.gov/sites/default/files/classic//cc/capandtrade/auctionproceeds/draft_sgc_ahsc_qm_091620.pdf. Accessed: January 2021.
< = less than; > = greater than; ≤ = less than or equal to
[1]Measurements of bike facilities should not include the length of crosswalks.

Table T-19.2. Key Destination Credits[1,2]

Number of Key Destinations[3]	Credit within ½ Mile of Facility	Credit Within ½ Mile of Facility
0 to 2	0.0000	0.000
3	0.0005	0.001
4 to 6	0.0010	0.002
≥ 7	0.0015	0.003

Source: California Air Resources Board. 2020. Quantification Methodology for the California Natural Resource Agency's Urban Greening Grant Program. March. Available: https://ww2.arb.ca.gov/sites/default/files/classic//cc/capandtrade/auctionproceeds/cnra_ug_finalqm.pdf. Accessed: January 2021.
≥ = greater than or equal to
[1] The largest value from either credit column that matches the project activities should be used. For example, if there are 2 activity centers within ½ mile of the facility and 7 activity centers within ½ mile of the facility, the correct value to use is 0.003.
[2] These metrics should be evaluated for the project location site and surrounding area which can extend a distance not to exceed a ½ mile. If a shopping center has multiple activity centers, each of those activity centers would count individually. For example, if a bank, grocery store, and post office are all located in a shopping center, they would be input as three activity centers for the purposes of this quantification methodology.
[3] Key destination examples: banks, post offices, grocery stores, medical centers, pharmacies, office parks, places of worship, public libraries, schools, universities, colleges, and light rail stations (park & ride).

Table T-20.1. Bicycle Mode Share of All Trips by California Core-Based Statistical Area

Core-Based Statistical Area	Bicycle Mode Share
Los Angeles-Long Beach-Anaheim	0.18%
Riverside-San Bernardino-Ontario	0.06%
Sacramento-Roseville-Arden-Arcade	0.56%
San Diego-Carlsbad	0.23%
San Francisco-Oakland-Hayward	0.47%
San Jose-Sunnyvale-Santa Clara	0.79%

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Table T-10.1. Average One-Way Bicycle and Vehicle Trip Length of All Trips by California Core-Based Statistical Area

	Trip Length (miles)	
Core-Based Statistical Area	Bicycle	Vehicle
Los Angeles-Long Beach-Anaheim	1.7	9.7
Riverside-San Bernardino-Ontario	2.2	11.7
Sacramento-Roseville-Arden-Arcade	2.9	10.9
San Diego-Carlsbad	2.0	19.1
San Francisco-Oakland-Hayward	2.1	12.4
San Jose-Sunnyvale-Santa Clara	2.8	11.5

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Table T-10.2. Average Bicycle and Vehicle Mode Share of Work Trips by California Core-Based Statistical Area

	Mode Share	
Core-Based Statistical Area	Bicycle	Vehicle
Los Angeles-Long Beach-Anaheim	1.0%	90.7%
Riverside-San Bernardino-Ontario	0.4%	95.3%
Sacramento-Roseville-Arden-Arcade	2.2%	89.5%
San Diego-Carlsbad	1.3%	91.8%
San Francisco-Oakland-Hayward	2.8%	67.1%
San Jose-Sunnyvale-Santa Clara	4.1%	86.6%

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Workers by WRKTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Table T-3.1. Average Transit and Vehicle Mode Share of All Trips by California Core-Based Statistical Area

	Mode Share	
Core-Based Statistical Area	Transit	Vehicle
Los Angeles-Long Beach-Anaheim	4.23%	94.19%
Riverside-San Bernardino-Ontario	1.37%	96.88%
Sacramento-Roseville-Arden-Arcade	2.90%	95.04%
San Diego-Carlsbad	2.40%	94.85%
San Francisco-Oakland-Hayward	11.38%	86.96%
San Jose-Sunnyvale-Santa Clara	6.69%	91.32%

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.