

## DRAFT TECHNICAL MEMORANDUM

**To:** Hugh Riley, Ventura County Council of Governments  
Amanda Fagan, Ventura County Transportation Commission

**From:** Sean Daly, Iteris, Inc.

**Date:** April 26, 2022

**RE: Task 1E: Summarize VMT Adaptive Mitigation Program “Choices”**

### 1 INTRODUCTION

The project team has identified, reviewed, and assessed frequently used VMT reduction strategies to determine their applicability to the Ventura County VMT Adaptive Mitigation program. The purpose of compiling these strategies is to help streamline CEQA for potential significant transportation impacts related to VMT. The intent is to support local CEQA lead agencies and developers in Ventura County by providing a reference of strategies and standardized and generalized emission reduction quantification methods and procedures. Also included in this assessment are best practices for strategy implementation and discussion of factors which may significantly impact measure outcomes such as project location and scope.

The team synthesized previous reports on VMT and GHG reduction measures published by various California agencies which provide information on methodologies for quantifying their effectiveness. Literature on GHG reduction measures is relevant to this task as many transportation-related GHG reduction measures reduce emissions by way of reducing VMT. In general, VMT reduction strategies reduce single-occupancy vehicle travel by encouraging transit and alternative transportation and/or reduce the number of vehicle trips or vehicle trip miles through land use planning. The primary reports referenced for this project are:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document*.
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures*.

In particular, the CAPCOA 2021 Handbook and SANDAG 2019 VMT Reduction Calculator Tool were both written with consideration toward SB 743-related CEQA compliance.

This synthesis of reduction methods is only meant to serve as a reference and should not be used to quantify actual project related VMT reductions. Project-specific considerations, such as location and quality of strategy implementation, need to be taken into account when estimating reductions. This report takes into account the most up-to-date regional-, state-, and national-level data and may not be appropriate for all projects.

This memorandum summarizes VMT reduction strategies and identifies methodologies for quantifying the effectiveness of VMT reduction of the mitigation project choices.

## 2 VMT REDUCTION STRATEGIES

### Category

VMT reduction strategies are grouped into six categories (consistent with the CAPCOA 2021 Handbook):

1. Land Use
2. Trip Reduction Programs
3. Parking or Road Pricing/Management
4. Neighborhood Design
5. Transit
6. Clean Vehicles and Fuels.

Implementing multiple strategies within a category is likely to have diminishing returns on VMT reduction, whereas implementing multiple strategies across categories may have more additive effects. That being said, there is limited research on quantifying reductions across multiple strategies. Literature comparing VMT in suburban to urban neighborhoods suggests that implementing a full array of high-quality reduction strategies across multiple categories may reduce VMT at most 70 percent.

### Location

A reduction strategy can either be applied to the project site or at the neighborhood/community-level. For example, constructing a bus stop at the development would be an example of a reduction strategy applied to the project site whereas increasing bus transit frequency for a bus route servicing the development would be an example of a reduction strategy applied to the neighborhood/community. A developer has the opportunity to include project site reduction strategies in their project design. A developer would likely work with local or regional jurisdictions or transit agencies to coordinate on a neighborhood/community-level strategy.

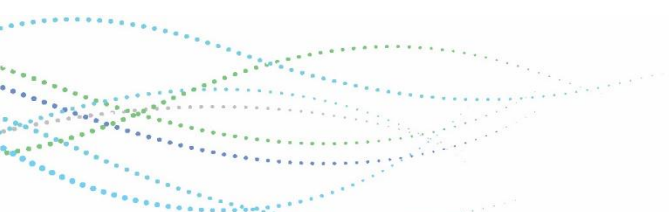
### Type

Reduction strategies are further classified as either built environment or demand management (TDM) strategies. Built environment strategies relate to physical transportation facilities and other land use features including land use intensity and type. Demand management strategies aim to maximize traveler choices. TDM increases opportunities for transit, non-motorized, and/or carpool travel.

### Targeted Trip Reduction

VMT reduction strategies can address a variety of trip types such as commute, shopping, or school trips. An employer sponsored vanpool program, for example, is a strategy which addresses reducing commute trip VMT. This analysis also identifies the targeted trip reduction type for each measure.

The complete list of mitigation measures and their corresponding category, location, and type is shown in **Table 1**.



**Table 1: VMT Reduction Strategies**

Category	Location	Type	Strategy
Land Use	Project Site	Infrastructure	Increase Residential Density
Land Use	Project Site	Infrastructure	Increase Job Density
Land Use	Project Site	Infrastructure	Increase Density (Residential or Job)
Land Use	Project Site	Infrastructure	Provide Transit-Oriented Development
Land Use	Project Site	Infrastructure	Provide Mixed Use Development
Land Use	Project Site	Infrastructure	Increase Destination Accessibility
Land Use	Project Site	Infrastructure	Integrate Affordable and Below Market Rate Housing
Land Use	Project Site	Infrastructure	Orient Project Toward Non-Auto Corridor
Land Use	Project Site	Infrastructure	Locate Project near Bike Path/Bike Lane
Land Use	Off-Site	TDM	Improve Street Connectivity
Trip Reduction Programs	Project Site	TDM	Implement Commute Trip Reduction Program (Voluntary)
Trip Reduction Programs	Project Site	TDM	Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)
Trip Reduction Programs	Project Site	TDM	Implement Commute Trip Reduction Marketing
Trip Reduction Programs	Project Site	TDM	Provide Ridesharing Program
Trip Reduction Programs	Project Site	TDM	Implement Subsidized or Discounted Transit Program
Trip Reduction Programs	Project Site	TDM	Provide Employer-Sponsored Vanpool
Trip Reduction Programs	Project Site	TDM	Price Workplace Parking
Trip Reduction Programs	Project Site	TDM	Implement Employee Parking Cash-Out
Trip Reduction Programs	Project Site	TDM	Telework and Alternative Work Schedules
Trip Reduction Programs	Project Site	Infrastructure	Provide End of Trip Facilities (such as on-site food service, gym, shower)
Trip Reduction Programs	Off Site	TDM	Provide Community-Based Travel Planning
Trip Reduction Programs	Off Site	TDM	Implement School Pool Program
Trip Reduction Programs	Off Site	Infrastructure	Implement School Bus Program
Parking or Road Pricing/Management	Project Site	Infrastructure	Provide Electric Vehicle Charging Infrastructure
Parking or Road Pricing/Management	Project Site	Infrastructure	Limit Residential Parking Supply
Parking or Road Pricing/Management	Project Site	Infrastructure	Unbundle Residential Parking Costs from Property Cost
Parking or Road Pricing/Management	Off Site	Infrastructure	Implement Market Price Public Parking (On-Street)
Parking or Road Pricing/Management	Off Site	Infrastructure	Require Residential Area Parking Permits
Parking or Road Pricing/Management	Off Site	Infrastructure	Implement Area or Cordon Pricing
Parking or Road Pricing/Management	Off Site	Infrastructure	Improve Traffic Flow

Category	Location	Type	Strategy
Parking or Road Pricing/Management	Off Site	Infrastructure	Require Project Contributions to Transportation Infrastructure Improvement Projects
Parking or Road Pricing/Management	Off Site	Infrastructure	Install Park-and-Ride Lots
Neighborhood Design	Off Site	Infrastructure	Construct or Improve Bike Facility
Neighborhood Design	Off-Site	Infrastructure	Construct or Improve Bike Boulevard
Neighborhood Design	Off Site	Infrastructure	Expand Bikeway Network
Neighborhood Design	Off-Site	Infrastructure	Provide Pedestrian Network Improvement
Neighborhood Design	Off Site	Infrastructure	Provide Traffic Calming Measures
Neighborhood Design	Off Site	Infrastructure	Create Urban Non-Motorized Zones
Neighborhood Design	Off Site	Infrastructure	Dedicated Land for Bike Trails
Neighborhood Design	Project Site	Infrastructure	Provide Bike Parking in Non-Residential Projects
Neighborhood Design	Project Site	Infrastructure	Provide Bike Parking in Multi-Unit Residential Projects
Neighborhood Design	Off-Site	TDM	Implement Conventional Carshare Program
Neighborhood Design	Off Site	TDM	Implement Electric Carshare Program
Neighborhood Design	Off-Site	TDM	Implement Pedal (Non-Electric) Bikeshare Program
Neighborhood Design	Off Site	TDM	Implement Electric Bikeshare Program
Neighborhood Design	Off Site	TDM	Implement Scooter-share Program
Neighborhood Design	Project Site	TDM	Implement Preferential Rideshare Parking Program
Transit	Off Site	Infrastructure	Extend Transit Network Coverage or Hours
Transit	Off Site	Infrastructure	Increase Transit Service Frequency/Speed
Transit	Off Site	Infrastructure	Implement Transit-Supportive Roadway Treatments
Transit	Off Site	TDM	Reduce Transit Fares
Transit	Off Site	Infrastructure	Provide a Bus Rapid Transit System
Transit	Off Site	Infrastructure	Provide Bike Parking Near Transit
Transit	Off Site	Infrastructure	Provide Local Shuttles
Transit	Off Site	TDM	Microtransit NEV (neighborhood electric vehicles)
Cleaner Vehicles and Fuels	Off Site	TDM	Use Cleaner-Fuel Vehicles

