



ALAMEDA COUNTY TRANSPORTATION COMMISSION

Alameda County VMT Reduction Estimator Tool: Demonstration of Tool



A presentation to the ACTAC
Aleida Andrino-Chavez, Julie Morgan and Drew Levitt
June 10, 2021

FEHR PEERS

Presentation Overview

- Purpose of Developing an Alameda County Tool
- Summary of Previous Work
 - Review SANDAG Tool
 - Gathered Stakeholder Input
 - Approach for Development of Alameda County Tool
- Description of VMT Reduction Estimator Tool
- Tool demonstration
- Questions/comments



Purpose of VMT Reduction Estimator Tool

- Assist member agencies with implementation of SB743
- Consistent method for use throughout Alameda County
- Develop a tool to estimate the effects of VMT reduction strategies proposed for local land development projects
- Build from a tool developed for San Diego Association of Governments, and customize for Alameda County



Previous Work

- Reviewed SANDAG VMT Calculator Tool
 - Explore strengths and limitations
- Gathered Stakeholder Input
 - SB743 Working Group (3 meetings); ACTAC (2 meetings)
 - Online survey
- Confirmed Approach for Alameda VMT Reduction Estimator Tool
 - Add six strategies to those already in SANDAG tool
 - Use Alameda County model data for demographics and land use context



Project Level Strategies

Commute Programs

Voluntary Commute Program

Mandatory Commute Program

Employer Carpool

Subsidized Transit Passes

Employer Vanpool

Telecommute Program

Land Use Strategies

Transit Oriented Development

Increase Residential Density

Increase Employment Density

Parking Management

Parking Pricing

Parking Cash-Out

Limit Parking Supply

Provide Bike Parking



City/Community Level Strategies

Neighborhood Enhancement

Street Connectivity

Pedestrian Facility Improvements

Bikeway Network Expansion

Bike Facility Improvement

Traffic Calming Measures

Bikeshare

Carshare

Community Based Travel Planning

Affordable/BMR Housing

Transit Strategies

Transit Service Expansion

Transit Frequency Improvements

Transit Supportive Treatments

Transit Fare Reduction

Micro-transit/NEV Shuttle



Tool Structure and Functions

- Excel workbook
- User enters project location by TAZ
- Tool contains data on many attributes of each TAZ that affect how VMT reduction strategies will work: population and employment density, mode split, trip lengths, others
- User selects VMT reduction strategies and enters required inputs
- Tool estimates the % VMT reduction resulting from that combination of strategies in that location



Tool Fundamentals

- Main page provides context, instructions
- Tool includes FAQ page

III. Legend
Below are the different cell styles the user will see in the formulae of the strategy pages. Not all strategies use each cell style.

constant, coefficient, or default	= constant, coefficient, or default value, locked
user input	= required user input, values may be restricted, unlocked
user input, optional	= optional user input, values may be restricted, unlocked
hidden help text	= hidden help text visible if user hovers cursor over cell, locked
calculation	= intermediate calculation in formula, locked
change in VMT	= strategy output, locked
change in VMT, max de	= strategy output, max achievable reduction, may be capped, locked
change in VMT, increa	= strategy output, VMT increase, may be capped, locked
Exclude from results	= optional user input, check box to exclude a strategy output from results

ALAMEDA CTC VMT REDUCTION CALCULATOR TOOL

I. Overview
The Alameda CTC VMT Reduction Calculator Tool estimates the person-reduction-to-vehicle-mile-to-travel (PRT) resulting from the application of mobility management strategies. The Excel-based tool is available as an resource for identifying and evaluating the impacts of mobility management strategies as part of the development review and transportation analysis process. The tool supports the goals of SB 743 (Shawley, 2015) by providing landowners and developers with a method for quantifying VMT reductions resulting from implementation of a variety of mitigation strategies or values in order. The tool also supports local government planning efforts including implementation of general and community plans, transportation demand management (TDM) reductions, and transit alternatives.

The tool operates at two geographic scales: project-level and community-level. Depending on the project location and project type, users can select appropriate strategies of interest for mitigating transportation impacts. Some strategies reduce VMT and/or reduce emissions. Other strategies reduce VMT from all project-generated trips or all community trips. The type of PRT selected is shown on the Results page and on the individual strategy page. Each strategy requires that the user input values that are used to calculate the person-reduction-to-vehicle-mile-to-travel (PRT) for each strategy. The tool offers default parameters that can be revised with user-provided values if available.

The tool is based on PRT reduction calculations not developed by the Bay Area Assessment of Governance (BAAG), and has been submitted and submitted for application in Alameda County. The tool is available as a resource for local jurisdictions in Alameda County. Local jurisdictions are under no obligation to use this tool in their development approval processes or transportation analysis under SB 743. Users of the tool will be responsible for professional judgment regarding, evaluating and analyzing PRT reduction estimates made from the tool. Any written report upon the information is solely your own, and neither Alameda CTC, nor its consultants will be liable for any losses or damages in connection with use of these data and the tool.

The Mobility Management Strategy Dashboard serves as a complement to this tool. The Dashboard includes summary descriptions and resources for a variety of mobility management strategies, including all strategies contained in the tool as well as others for which PRT reductions cannot be reliably estimated.
<https://www.alameda.ctc.ca.gov/mobility-management-strategies.aspx>

II. Instructions
Follow the steps below:
 1. Select a mobility management strategy to consider from the dropdown menu.
 2. Select the location of analysis by entering the number of the TAZ comprising the project.
 3. Numerical mobility management strategies are available for consideration. Click on a strategy to proceed by selecting the strategy name. The hyperlink will take the user to that strategy page.
 Each strategy page requires the user to input data to calculate the person VMT reduction. See the Legend for a list of the different cell styles present in the strategy pages.
 4. Using hyperlinks, the user can navigate to the Results page to see the individual strategy and combined results.
 5. Additional strategies can be selected, and the Results page will reflect the combined impact of multiple strategies. If the user does not wish to include a strategy with the calculation results, click "Exclude from Results" on the strategy page (see Legend).
 6. Once the user has reviewed the individual strategy and combined results on the Results page, print the Results page for a summary of project information, current PRT reduction, and the user selection for all calculations.

III. Legend
Below are the different cell styles the user will see in the formulae of the strategy pages. Not all strategies use each cell style.

constant, coefficient, or default	= constant, coefficient, or default value, locked
user input	= required user input, values may be restricted, unlocked
user input, optional	= optional user input, values may be restricted, unlocked
hidden help text	= hidden help text visible if user hovers cursor over cell, locked
calculation	= intermediate calculation in formula, locked
change in VMT	= strategy output, locked
change in VMT, max de	= strategy output, max achievable reduction, may be capped, locked
change in VMT, increa	= strategy output, VMT increase, may be capped, locked
Exclude from results	= optional user input, check box to exclude a strategy output from results

IV. Project Information
 Project Name (optional)
 Project Address (optional)
 Project Type (optional)
 E.g. residential commercial

Analysis Location (TAZ # is required)

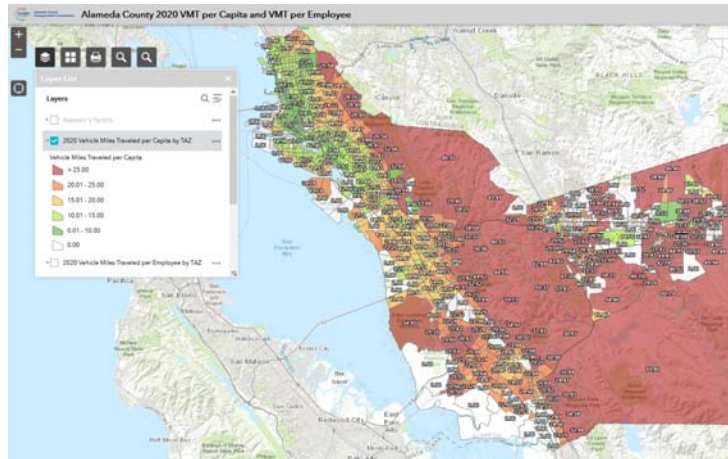
Download analysis location TAZ # between Year 1 and Year 2030 using Scenario 2 (with SB 743) (optional)

(The above spreadsheet shows the first 10 cells. If the spreadsheet is not visible, go to the second page to see the TAZ number.)



Tool Fundamentals

- User specifies project location using Alameda CTC VMT map



Tool Fundamentals

- One tab for each Strategy
- Each strategy's tab includes description, formula, citations, and explanatory notes

1D1. Implement Subsidized or Discounted Transit Program (for Employees)

Level of application: **Project/site** [Return to Main](#)
 Type of VMT affected: **Employee commute trips** [Results Summary](#)
 Max VMT reduction: **5.5%**

This strategy will provide subsidized, discounted, or free transit passes for employees. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions. When implementing transit discounts or subsidies, projects should adhere to the following guidance:

- Project should be located either within one mile of high-quality transit service (either rail, or bus with headways of less than 25 minutes), one-half mile of local or less frequent transit service, or along a designated shuttle route providing last-mile connections to rail service. As an alternative to shuttle service, if bikeshare service (Strategy 4E) is available, the site may be located up to two miles from a high-quality transit service.
- If more than one transit agency serves the site, subsidies should be provided that can be applied to each of the services available. If subsidies are applied for only one service, all variable inputs below should also pertain only to the service which is subsidized.

Transit fare unit	<input type="text"/>	user input
Average transit fare without subsidy	<input type="text"/>	user input
Subsidy amount	<input type="text"/>	user input
Percent of employees eligible for subsidy	<input type="text"/>	user input
Default transit mode share of work trips	<input type="text" value="7.8%"/>	Alameda CTC model
User override of transit mode share of work trips	<input type="text"/>	[user input, optional]
Transit mode share of work trips used for calculation	<input type="text" value="7.8%"/>	calculated
Elasticity of transit boardings with respect to transit fare price	<input type="text" value="-0.43"/>	constant, source (2, 3, 4)
Percent of transit trips that would otherwise be made in a vehicle	<input type="text" value="50%"/>	constant, source (2)
Conversion factor of vehicle trips to VMT	<input type="text" value="1"/>	standard assumption
Change in VMT	<input type="text"/>	<input type="checkbox"/> Exclude from Results <input type="checkbox"/> Not Active

See FAQs page, Question #16 for explanation of "% of employees eligible"



Tool Demonstration



Comments Received by Working Group and Next Steps

- Comments from the Working Group
- Receive comments from ACTAC today
- Complete the Design Document and User Guide
- Post tool and resources on Alameda CTC website this Summer





Thank You

For more information, contact
Aleida Andrino-Chavez at
aandrino-chavez@alamedactc.org

Alameda County Transportation Commission • 1111 Broadway, Suite 800
Oakland, CA 94607 • 510.208.7400