City of Los Angeles VMT Calculator

User Guide

Version 1.3

Los Angeles Department of Transportation (LADOT) and
Los Angeles Department of City Planning (DCP)

May 2020

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APPENDICES

1 User Guide Overview

This User Guide provides a step by step approach to using the City of Los Angeles Vehicle Miles Traveled Calculator (VMT Calculator). With the tool you can enter various mixes and intensities of land use; select transportation demand management (TDM) strategies and mitigations; and review the resulting vehicle trips and vehicle miles traveled (VMT) generated by the project. The VMT Calculator applies the screening criteria developed by the City and described in LADOT's *Transportation Assessment Guidelines* (TAG) to determine whether a VMT analysis is required and displays the relationship of the project's estimated household and work VMT to local significance criteria.

Images of the VMT Calculator Screening dashboard and the Main dashboard are included in **Appendix A**. **Section 2** of this guide explains how to enter details of your project's location and land use characteristics. **Section 3** documents how to include TDM strategies as part of your project or as mitigation. **Section 4** and **Appendix B** provide examples of the tool's reporting capabilities. These reports can be submitted to the Los Angeles Department of Transportation (LADOT) as part of the transportation analysis for your project. The User Agreement, which should be printed, signed, and submitted to LADOT along with the Transportation Assessment Memorandum of Understanding (MOU) for the project, is presented in **Section 5** and **Appendix C**.

The VMT Calculator can be accessed/downloaded at the following link:

https://ladot.lacity.org/businesses/development-review#transportation-assessment

1.1 Purpose

The VMT Calculator tool is specifically designed and intended to be used to develop project-specific daily household VMT per capita and daily work VMT per employee metrics for residential and office land use development projects in the City of Los Angeles. It implements the methodologies, screening criteria, and impact significance thresholds described in Section 2.2 of LADOT's *Transportation Assessment Guidelines* for residential and employment projects. A proposed project's daily trips should be estimated using the VMT Calculator tool or the most

recent version of the ITE Trip Generation Manual as described in the Section 2.2.4 of the TAG. TDM strategies should not be considered for the purpose of screening.

The VMT Calculator tool allows the user to choose from the following commonly-occurring land uses:

- Single-Family Residential
- Multi-Family Residential
- Townhouse
- Affordable Housing-Family
- Affordable Housing-Senior
- Affordable Housing-Special Needs
- Affordable Housing-Permanent Supportive
- General Retail
- Furniture Store
- Pharmacy/Drugstore
- Supermarket
- Bank
- Health Club
- High-Turnover Sit-Down Restaurant
- Fast-Food Restaurant
- Quality Restaurant
- Auto Repair
- Home Improvement Superstore
- Free-Standing Discount Store
- General Office
- Medical Office
- Light Industrial
- Manufacturing
- Warehousing/Self-Storage
- Hotel
- Motel
- Movie Theater
- University
- High School
- Middle School
- Elementary School
- Private School (K-12)

The tool also allows for data describing a custom land use to be entered.

Although the tool may be useful for other purposes, it is <u>not</u> designed to do the following:

- Calculate peak hour or peak period vehicle trips or VMT.
- Calculate person trips.
- Calculate truck trips.
- Distribute or assign trips.
- Estimate net changes in area VMT due to implementation of a retail project.
- Evaluate VMT impacts of regional-serving retail projects, entertainment projects, or event centers.

- Evaluate VMT impacts of land use plans (e.g., general plans, community plans, and specific plans).
- Evaluate VMT impacts of transportation improvement projects.

1.2 System Requirements

The VMT Calculator tool has been tested to run in Excel 2016 in Windows 7 or Windows 10.

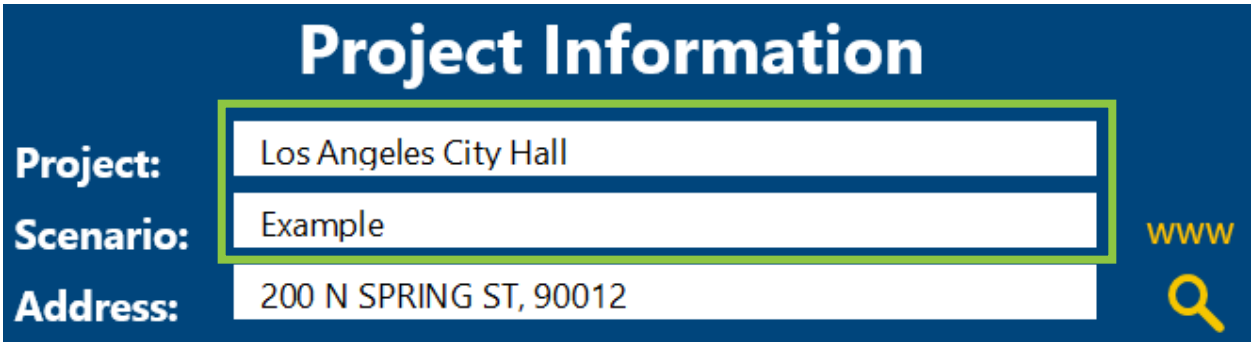
2 Screening Tab

The screening criteria set forth in LADOT's TAG to determine whether a VMT analysis needs to be conducted for the project are applied in the Screening Tab. In order to conduct the screening, basic project information, existing land use(s) on the project site to be removed by the project, and proposed project land use(s) should be input by the analyst. This section is divided into four parts:

1. Project Description
2. Project Address
3. Fixed-Rail or Fixed-Guideway Transit Station Proximity
4. Land Use Information

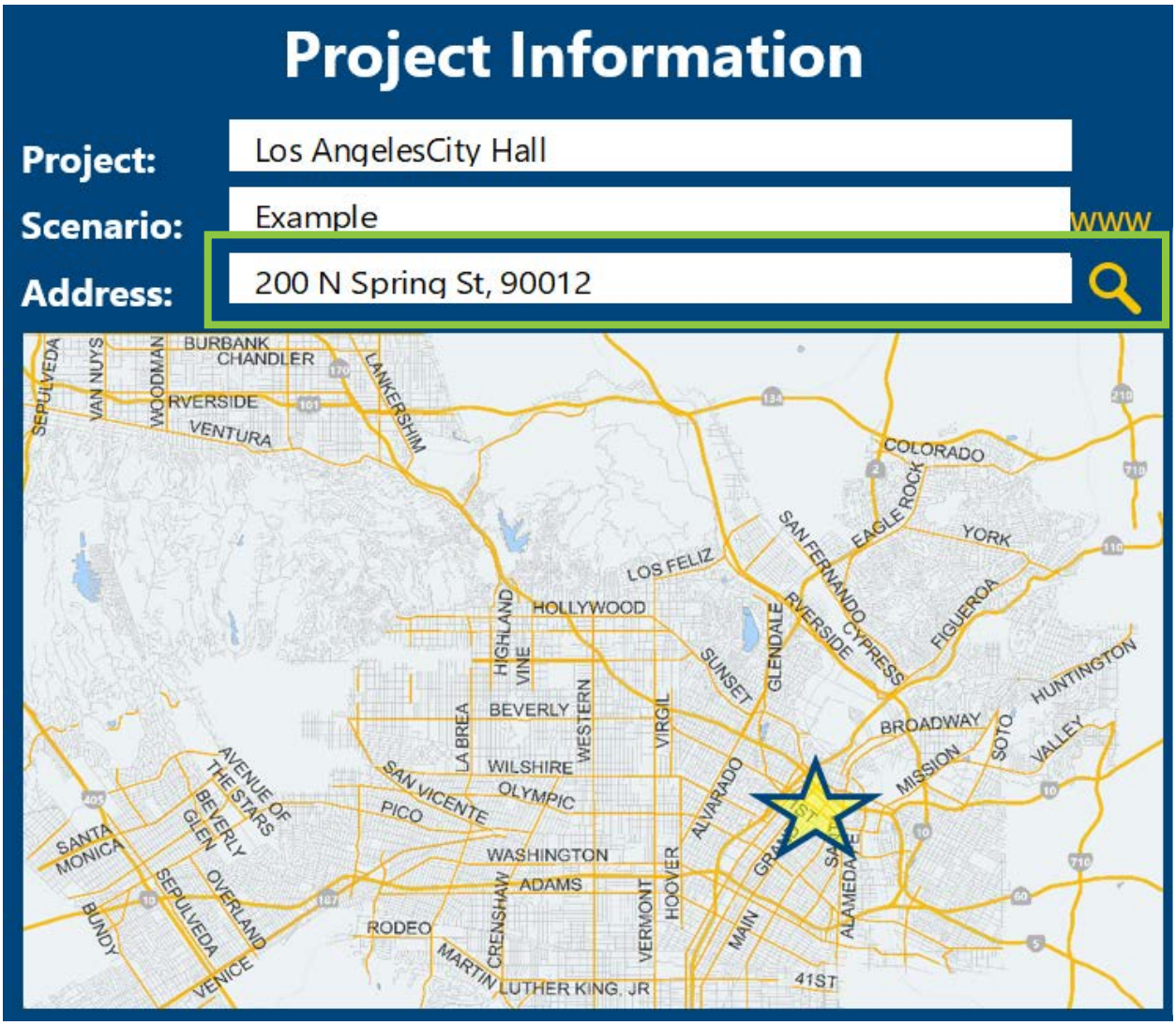
2.1 Project Description

The Project Information section begins with a description of the project name and scenario. Use the boxes outlined in green below to enter your project name and the scenario you are testing.



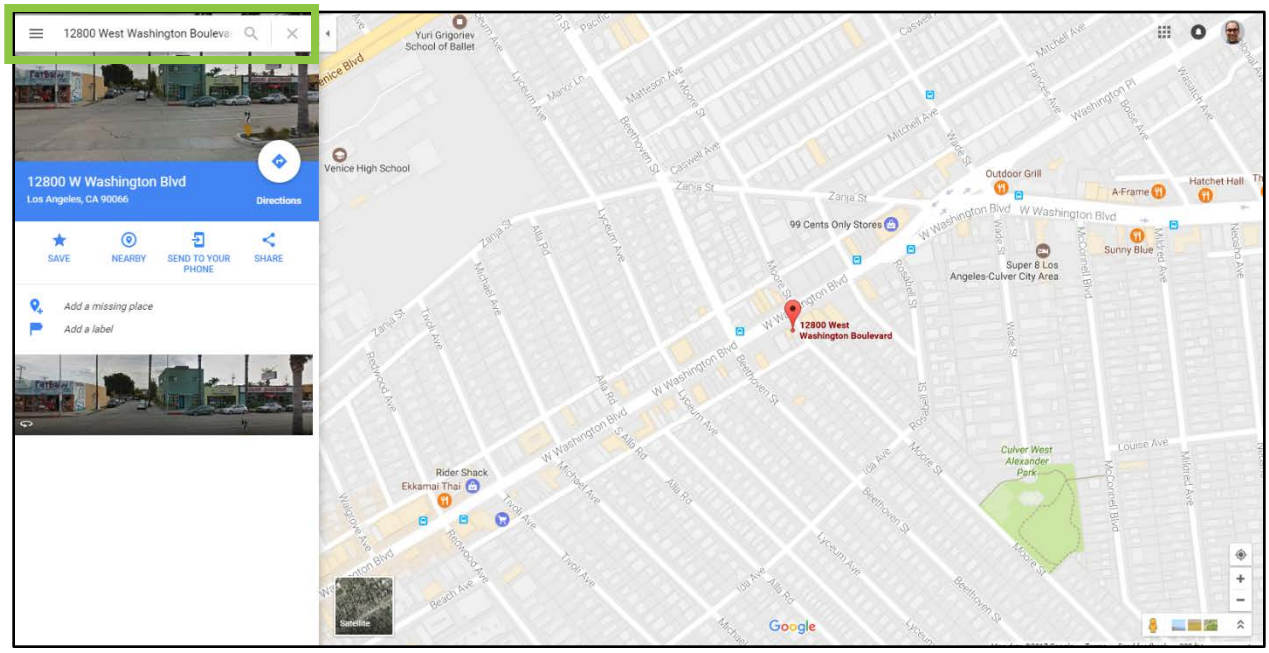
2.2 Project Address

Enter project address and click on the search icon in the box outlined in green below. The City, State, and Zip are not needed, since this tool is intended for projects solely within the City of Los Angeles boundaries. If the location is not found, try adding or removing geographic designations. For example, if your address is 12101 W Olympic Boulevard, but the search returns nothing, try removing 'W' and enter 12101 Olympic Boulevard. Note, the street type is required (i.e. Boulevard or Blvd, Avenue or Ave, Road or Rd).

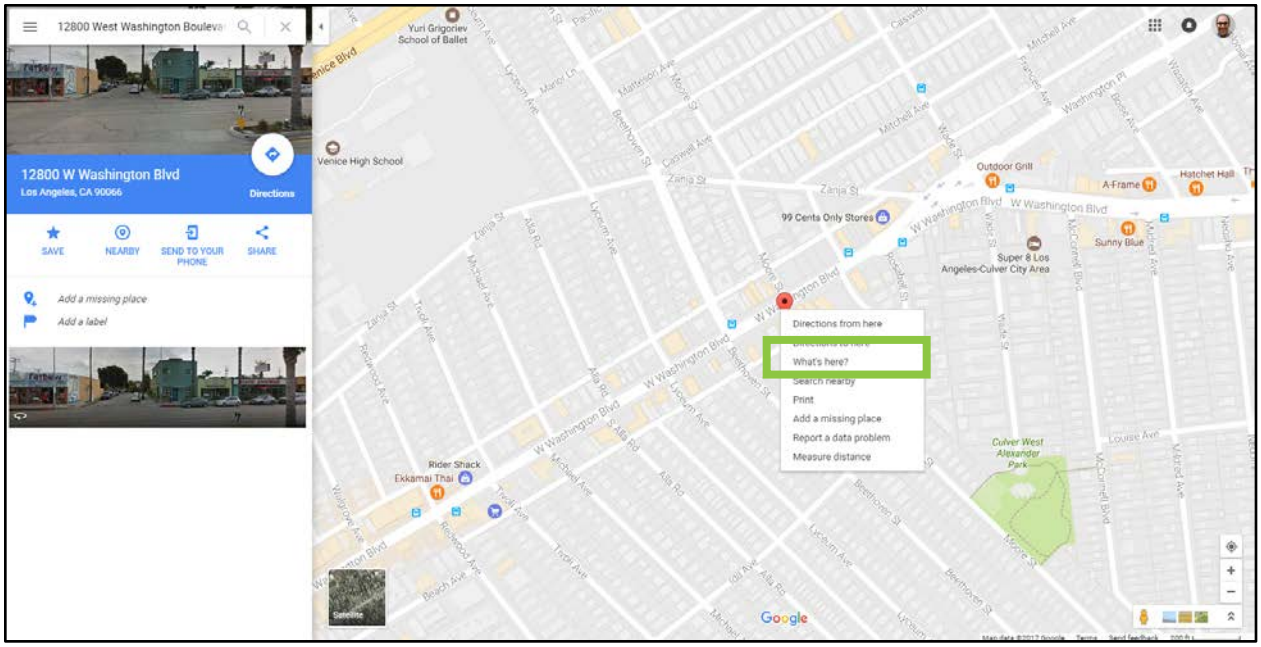


You may also use latitude and longitude if the address is not found or the pinned location is different from your development parcel. You can find these coordinates and enter them into the VMT calculator by following these three steps.

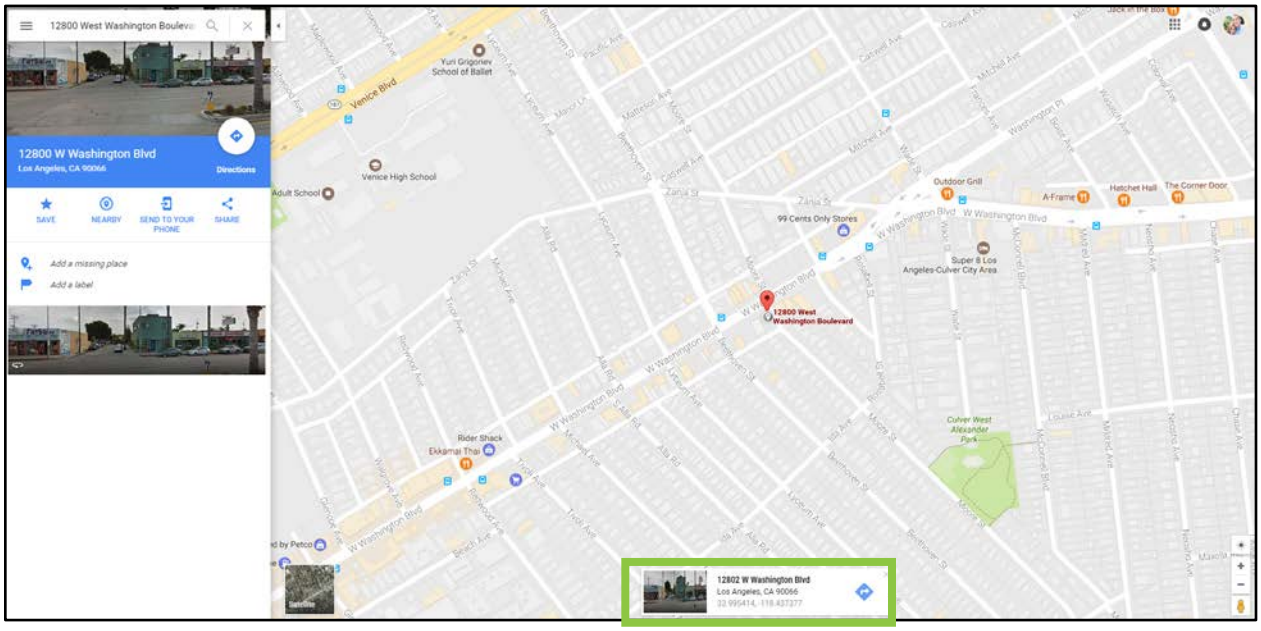
1. Navigate to Google maps and enter the address you would like to find as shown in the green box below.



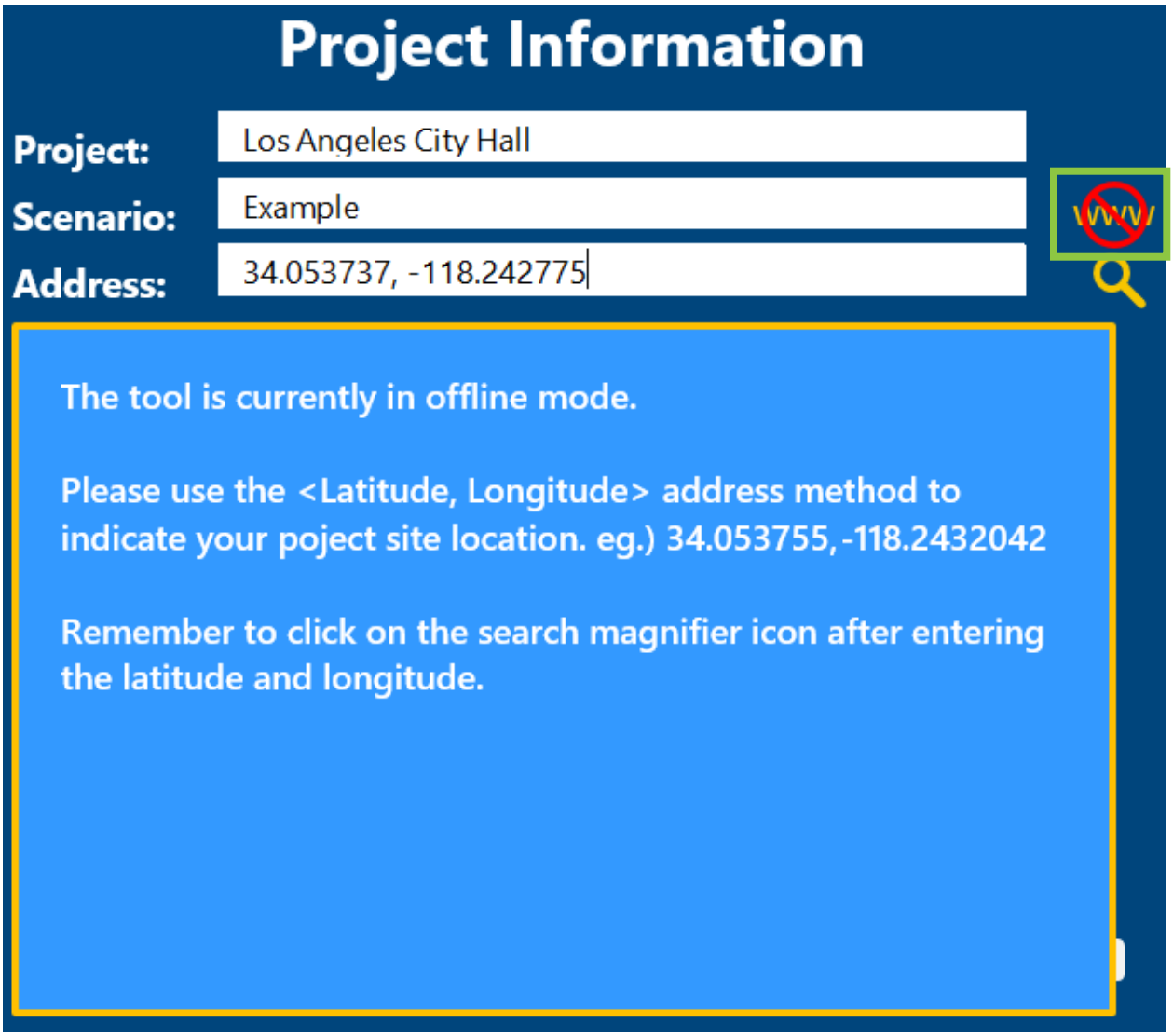
2. Right click on the red pin and select ‘What’s here?’ as shown in the green box below.



3. You will see an information box appear at the bottom of the screen, with the address and an image (if street view is available). Under the address will be approximate latitude and longitude coordinates. The first is latitude, the second is longitude. Enter these coordinates as <Latitude, Longitude> into the location dialog in the VMT project evaluation model.

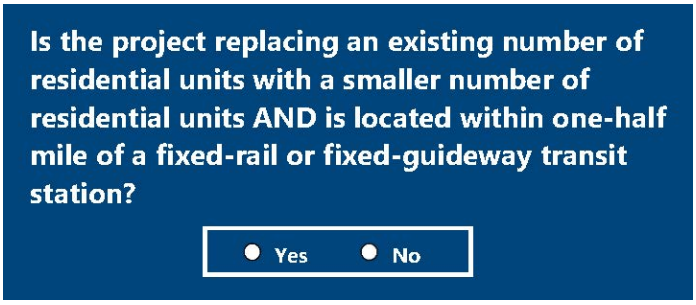


The VMT Calculator requires internet access to display the mapped location. If internet access is unavailable, you can still use the calculator in offline mode and use the latitude, longitude method for analysis. To access the offline mode, click on the 'www' icon located in the green box below.



2.3 Fixed-Rail or Fixed-Guideway Transit Station Proximity

If the project is replacing existing housing units, the question regarding whether the project is located within a one-half mile of a fixed-rail or fixed-guideway transit station must be answered.

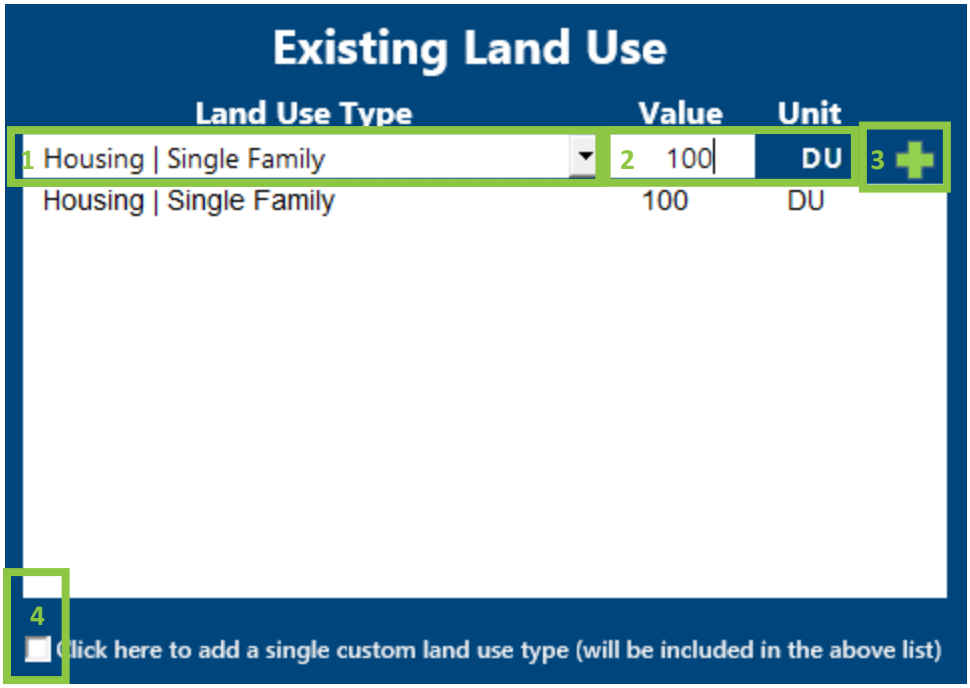


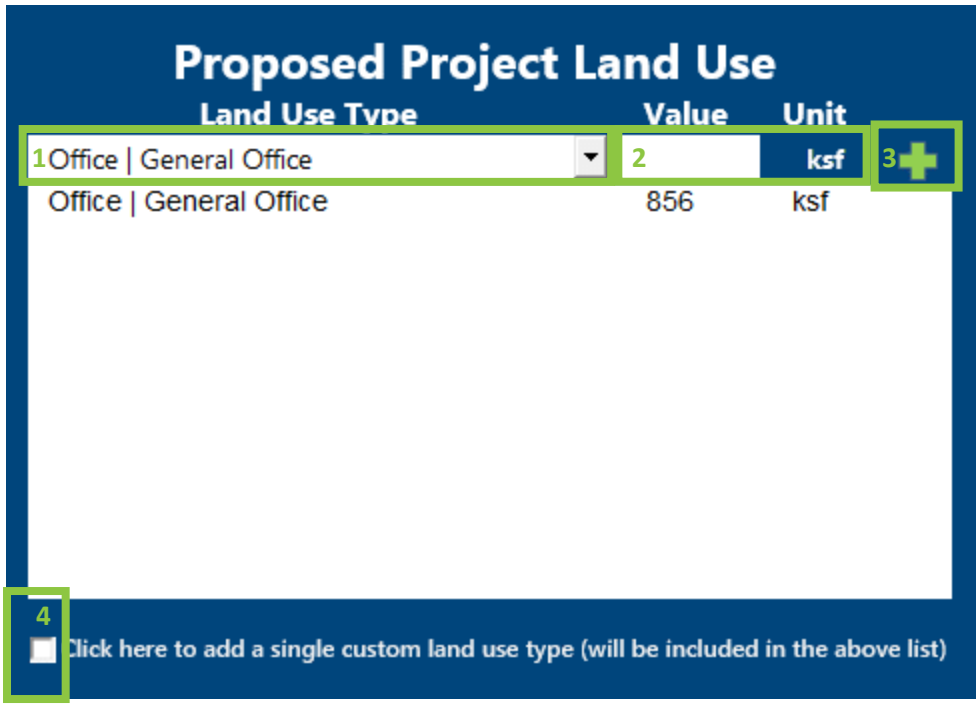
2.4 Land Use Information

The Screening Tab allows the user to enter information regarding both the existing land use(s) on the project site that will be removed by the project and the proposed land use(s).

The VMT Calculator has several predefined land uses that can be used to create your existing and project land use scenarios. To add a land use to either the 'Existing Land Use' or 'Proposed Project Land Use' boxes, follow these steps:

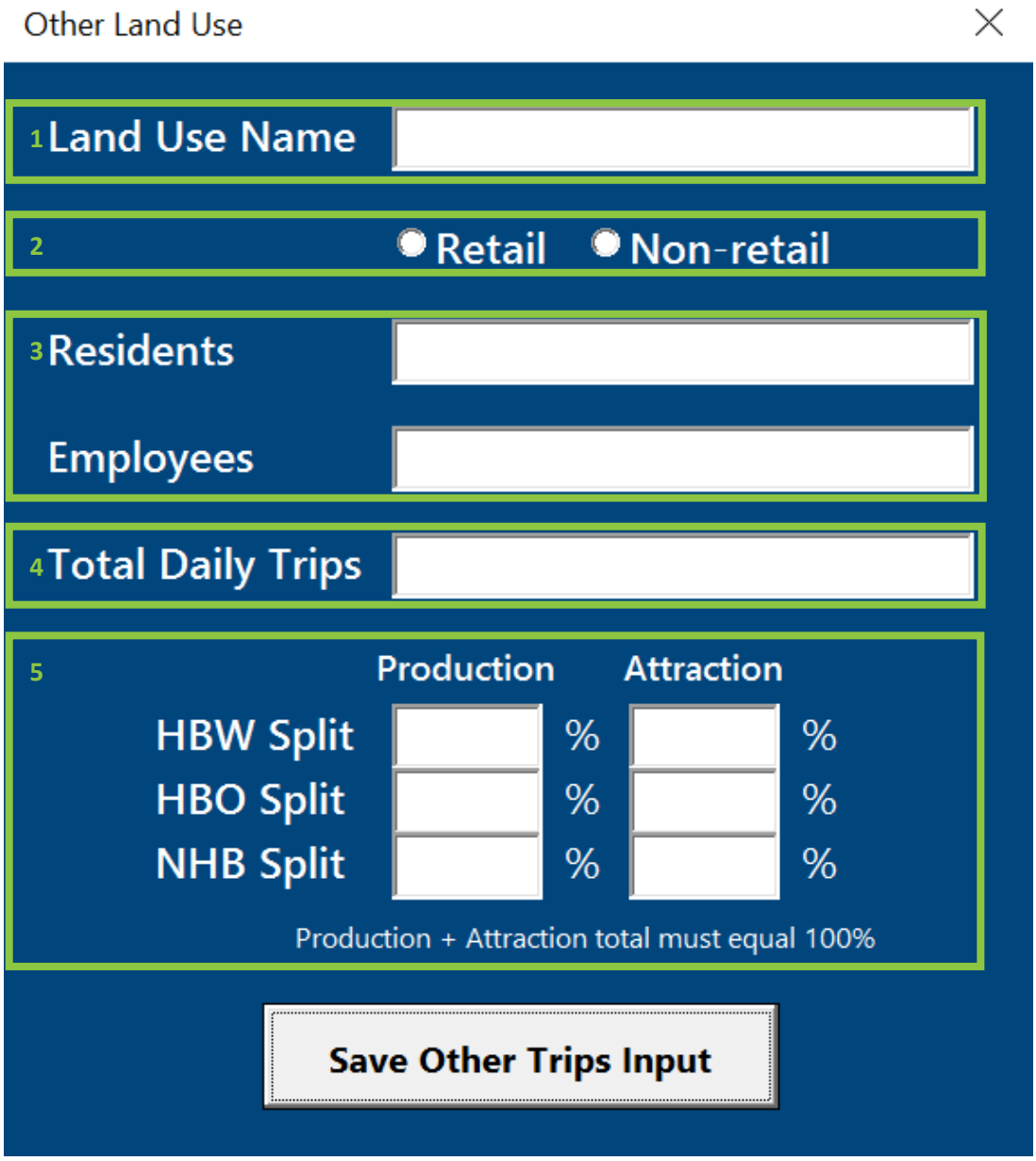
1. Select the land use type from the 'Land Use Type' drop down menu.
2. Enter the land use quantity in the 'Value Box' using the units that appear to the right of the drop down menu.
3. Click the + button to add the land use to your project.
4. If a land use in your project is not predefined in the tool, you may select the box at the bottom to enter a custom land use.
5. If the project site includes multiple existing land uses, enter data for all existing land uses on the site whether they will remain or be removed.
6. If the project includes multiple proposed land uses, enter data for all future land uses on the site when the project is complete.



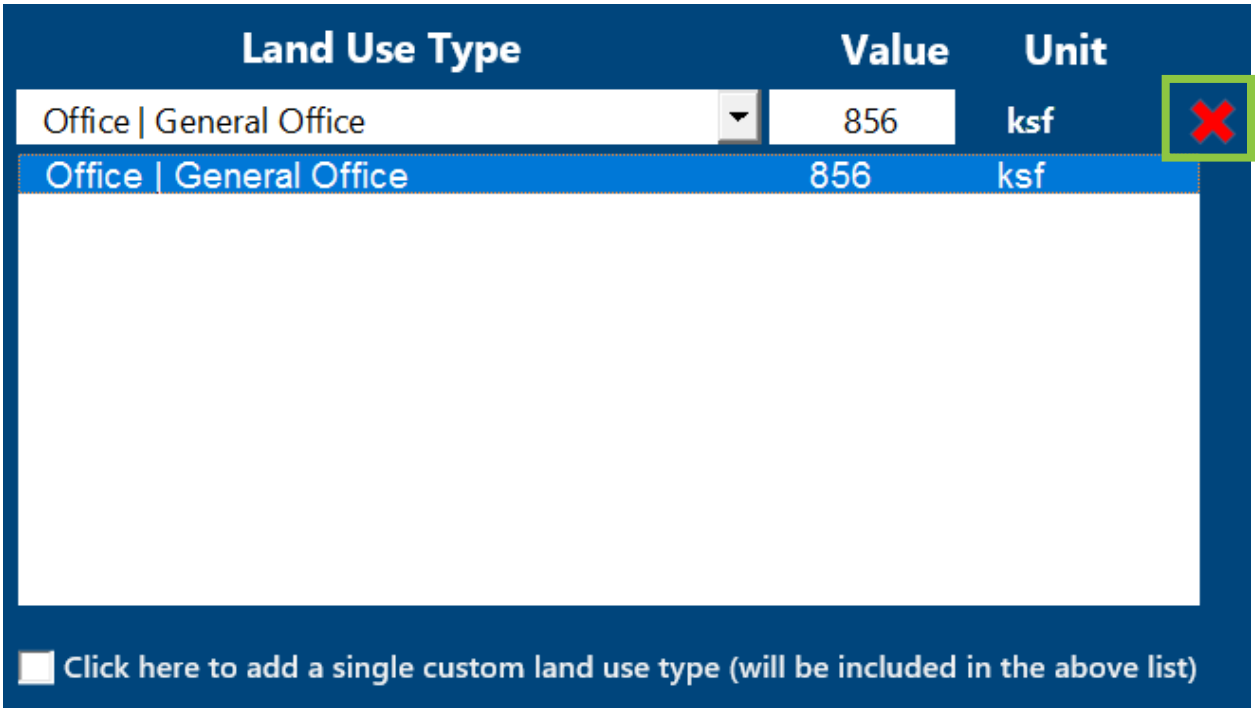


You may enter a custom land use by checking the box outlined in green, numbered 4 above. Once selected, the pop-up below should appear. To include a custom land use, follow the steps below and outlined in the image below.

1. Enter the custom land use name.
2. Select if the land use is retail or non-retail.
3. Enter the number of residents and employees the expected land use will contain.
4. Enter the total number of vehicle trips the land use is expected to generate.
5. Enter the trip purpose splits for the land use. The sum of all trip purpose splits must total 100%. Trip purpose splits for land uses provided in the tool can be found in the *City of Los Angeles VMT Calculator Documentation*.


Other Land Use
1 Land Use Name
2
Retail
Non-retail
3 Residents
Employees
4 Total Daily Trips
5
Production
Attraction
HBW Split
HBO Split
NHB Split
%
Production + Attraction total must equal 100%
Save Other Trips Input

To remove a land use from your project, select the land use and click the red X as shown in the green box below.



3 Main Tab

The Main Tab allows the user to enter information regarding transportation demand (TDM) strategies to be applied as part of the project or as mitigation and displays the resulting daily vehicle trips and daily VMT.

3.1 Project Information

The 'Project Information' displayed on the Main Tab (project name, scenario name, address, and proposed land uses) is carried over from the Screening Tab. If the user desires to change any of these items, the revised information should be entered in the Screening Tab.

3.2 TDM Strategies

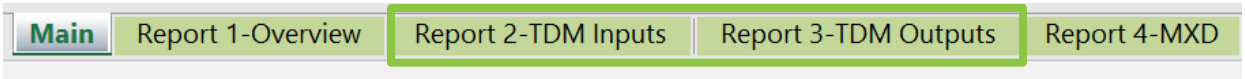
There are a variety of transportation demand management strategies included in the VMT Calculator. These strategies may be applied as part of the project or as mitigation. There are three general steps to add TDM strategies to your project as listed below.

1. The first step is to select a strategy to be part of your project. Click on the appropriate parent strategy to expand the corresponding TDM strategies that are part of the parent strategy. The parent strategies are identified as A-G as follows:
    A. Parking
    B. Transit
    C. Education & Encouragement
    D. Commute Trip Reductions
    E. Shared Mobility
    F. Bicycle Infrastructure
    G. Neighborhood Enhancement

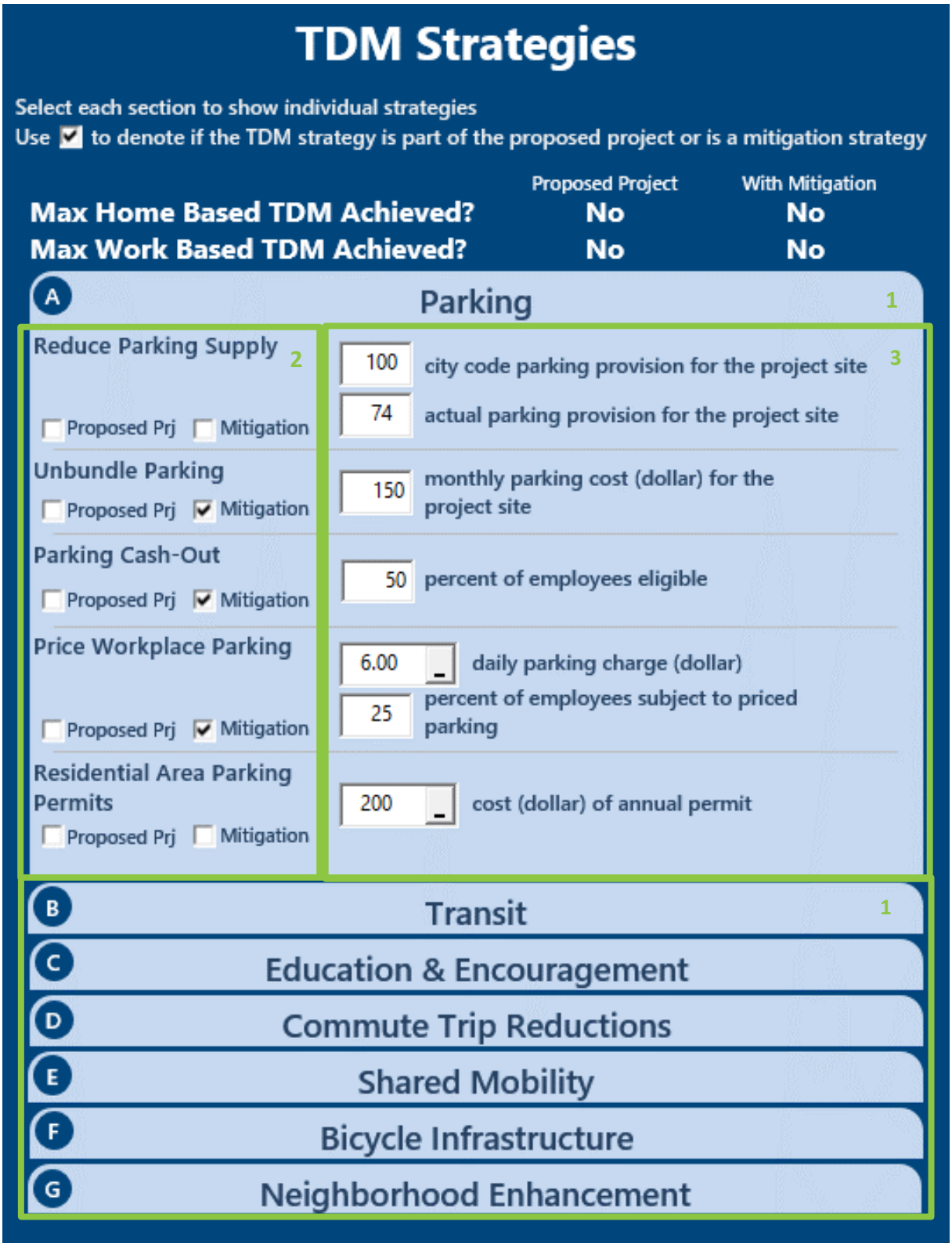
2. The second step is to select if the desired TDM strategy is part of your project or is a mitigation strategy. This can be identified by selecting the corresponding box for the TDM strategy. If the strategy is selected as part of the project, it will be carried over in the mitigation calculations and will not be able to be selected twice.

3. The third step to apply a TDM strategy is to enter the quantity and intensity of the TDM strategy. More information regarding the TDM strategies available for selection in the

VMT Calculator, including description and applicability of each strategy, methodology for estimating effectiveness of each strategy, and research sources supporting the effectiveness calculations, is provided in Attachment G to the City of Los Angeles *Transportation Assessment Guidelines*. Users may also view the report tabs at the bottom of the tool to see all of the TDM strategies selected for the project (Report 2), and to understand how VMT reductions are assigned by trip purpose to the project's TDM strategies.



As discussed in the TAG Attachment G and consistent with available research, the overall TDM effectiveness across all selected strategies is capped depending on the place type in which the project is sited. The VMT Calculator indicates if the maximum reduction has been reached for the selected residential strategies and work strategies.

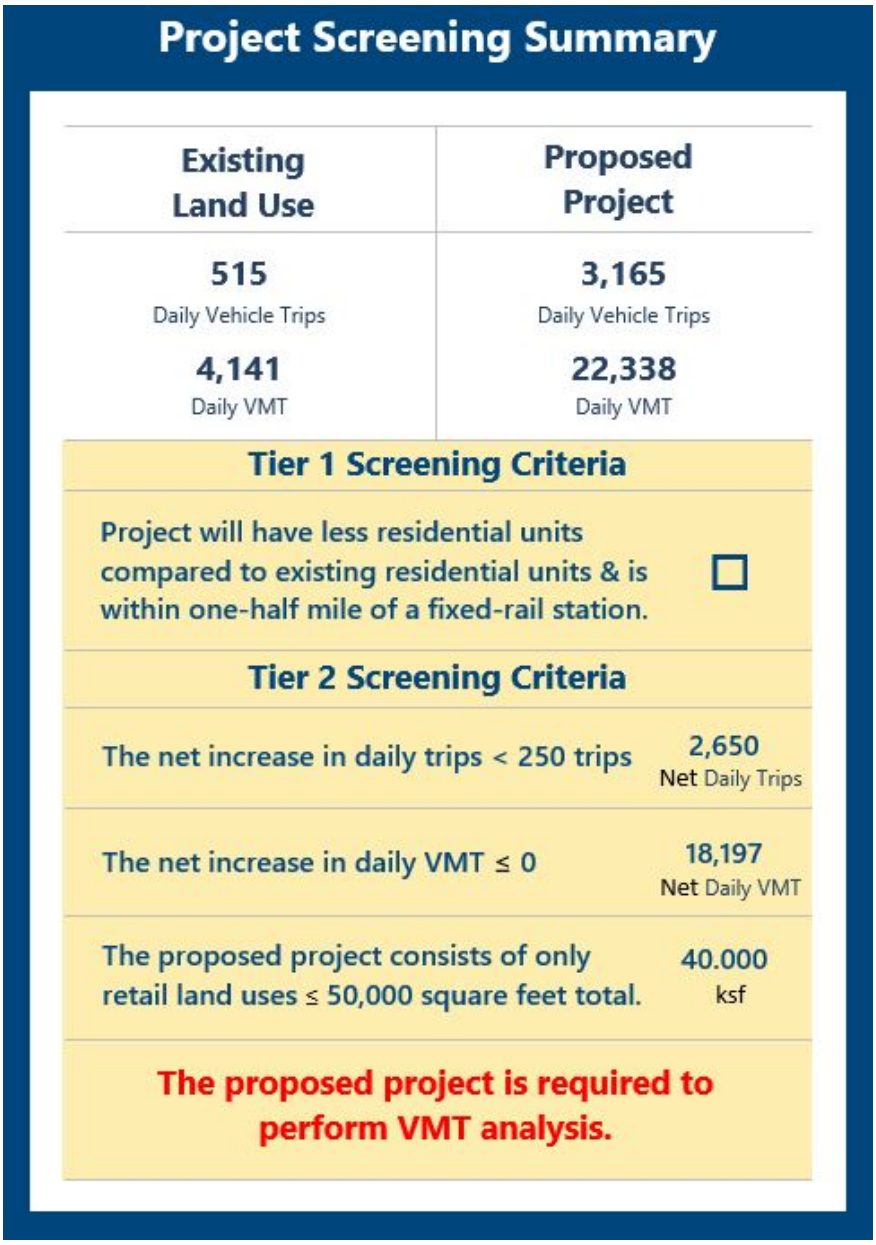

TDM Strategies
Select each section to show individual strategies
Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy
Proposed Project
With Mitigation
Max Home Based TDM Achieved?
No
No
Max Work Based TDM Achieved?
No
No
A
Parking
1
Reduce Parking Supply
2
Proposed Prj
Mitigation
100
city code parking provision for the project site
3
74
actual parking provision for the project site
Unbundle Parking
Proposed Prj
Mitigation
150
monthly parking cost (dollar) for the project site
Parking Cash-Out
Proposed Prj
Mitigation
50
percent of employees eligible
Price Workplace Parking
Proposed Prj
Mitigation
6.00
daily parking charge (dollar)
25
percent of employees subject to priced parking
Residential Area Parking Permits
Proposed Prj
Mitigation
200
cost (dollar) of annual permit
B
Transit
1
C
Education & Encouragement
D
Commute Trip Reductions
E
Shared Mobility
F
Bicycle Infrastructure
G
Neighborhood Enhancement

4 Reporting

4.1 Screening Tab Reporting Metrics

The VMT Calculator analyzes proposed projects dynamically within the tool. The following results are provided within the Screening Tab 'Project Screening Summary' based on the user inputs:

- Existing and Proposed Project Daily Vehicle Trips
- Existing and Proposed Project Daily VMT
- Screening Criteria Answers:
    - Tier 1 Screening Criteria: Checkmark if the project will replace an existing number of residential units with a lesser number of residential units and is within one-half mile of a fixed-rail or fixed-guideway station.
    - Tier 2 Screening Criteria: Indicates the net increase in daily trips and the net increase in daily VMT, and whether the proposed project consists of only retail uses less than or equal to 50,000 square feet.
- Screening Criteria Conclusion: The proposed project is required to perform a VMT analysis or is not required to perform a VMT analysis. See LADOT's TAG for further description of each criterion and how they are applied.



4.2 Main Tab Reporting Metrics

The reporting within the Main Tab provides details on the proposed project under the following two scenarios:

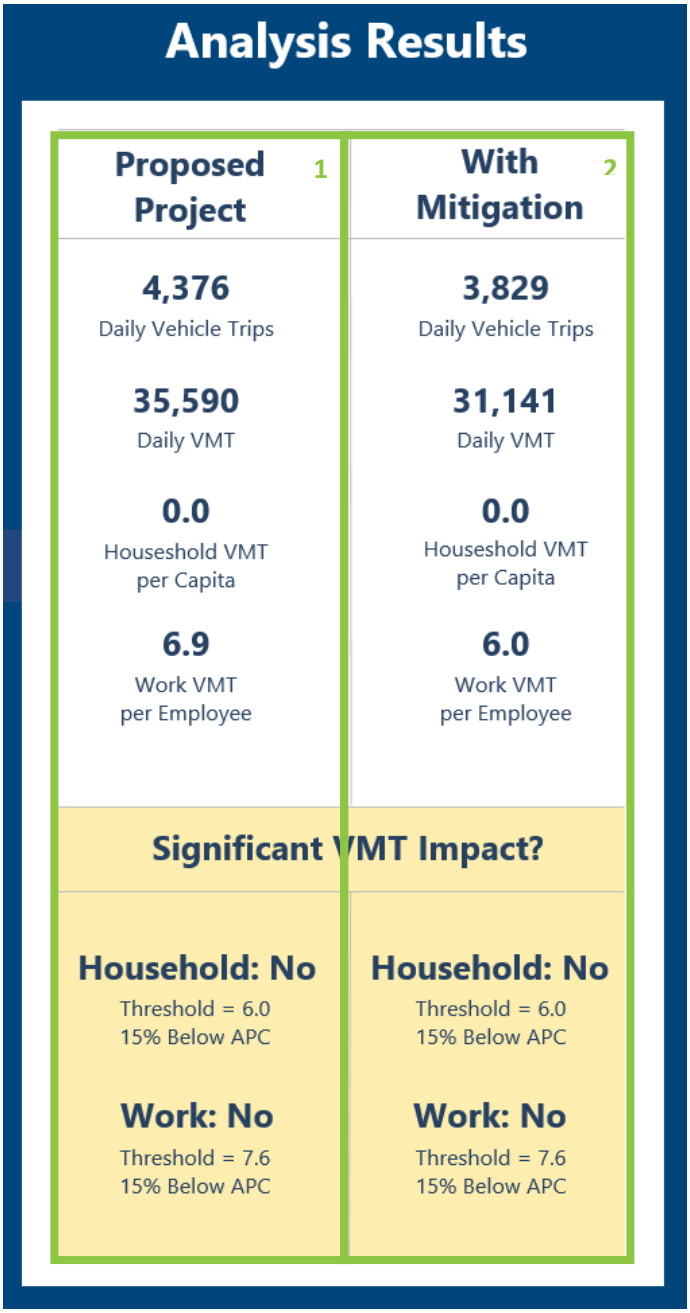
1. Proposed project **without** mitigation strategies.
2. Proposed project **with** mitigation strategies.

Key project metrics of interest to LADOT are reported for both scenarios. These metrics include the following:

- Daily Vehicle Trips.
- Daily VMT.
- Household VMT per Capita: This is the total Home-Based VMT productions divided by the population of the project.
- Work VMT per Employee: This is the total Home-Based Work Attractions divided by the employment of the project.
- Household Significance Threshold: The Household VMT per Capita is measured against threshold for the Area Planning Commission (APC) in which the project is located to determine if the project has a significant Household Impact.
- Work Significance Threshold: The Work VMT per Employee is measured against the APC threshold to determine if the project has a significant Work Impact.

Work VMT per Employee is not reported for projects in which the only commercial use is retail, since retail VMT impacts are not addressed by the VMT Calculator.

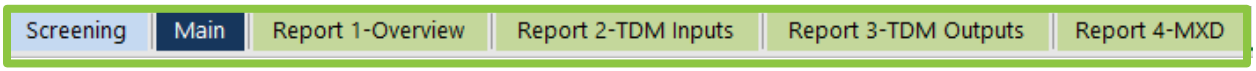
Household VMT per Capita and Work VMT per Employee are not reported when a project generates less than 250 daily trips.



4.3 Reporting Tabs

In addition to the live reporting, the VMT Calculator also provides a series of print ready reports. These reports, accessed using the tabs at the bottom of the tool window, allow the

user to review the major project inputs and outputs. Additionally, the reports provide detailed information on the TDM mitigation strategies and mixed-use (MXD) trip adjustments.



Examples of these reports are provided in **Appendix B**. The four reports are:

1. **Project & Analysis Overview:** Documents the inputs and outputs of the tool for the specified project. This includes the project land use(s), the estimated total employees and population of the project, and the summary statistics mentioned above.

2. **TDM Inputs:** Provides a detailed breakdown of the TDM strategies that were selected for the project. The user interface for the tool does not allow for the user to see all options at once. This report provides a complete summary of the TDM inputs for the project. These inputs are tabulated for both the proposed project and proposed project with mitigations.

3. **TDM Outputs:** Reports the VMT reductions associated with the TDM strategies selected. These reductions are documented for both the proposed project and proposed project with mitigations. The VMT reductions are also reported by trip purpose. The individual TDM reductions are combined and capped for the maximum TDM effect associated with the project site land use context (e.g. urban, suburban).

4. **MXD Methodology:** Reports the VMT reductions associated with the mix of land uses in the project as well as the demographics and built form of the surrounding area. The MXD tab reports the VMT reductions by trip purpose for both the proposed project and proposed project with mitigations.

5 User Agreement

The VMT Calculator User Agreement is included in a tab within the Calculator. The User Agreement should be printed, signed, and submitted to LADOT along with the draft Transportation Assessment Memorandum of Understanding (MOU) for the project. A copy of the User Agreement is included in **Appendix C**.

APPENDIX A

VMT CALCULATOR DASHBOARDS

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

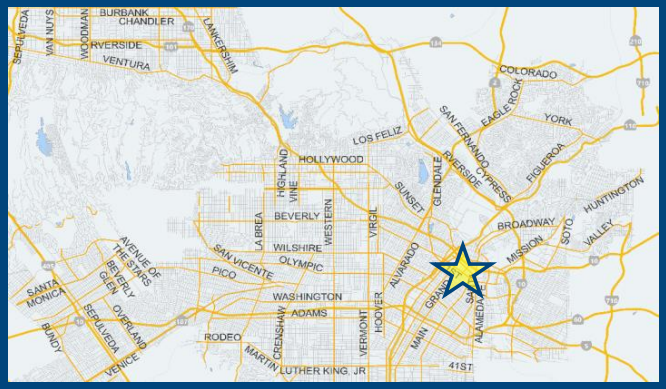
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: Sample Project

Scenario: Sample

Address: 200 N SPRING ST, 90012



Is the project replacing an existing number of residential units with a smaller number of residential units AND is located within one-half mile of a fixed-rail or fixed-guideway transit station?

○ Yes ○ No

Existing Land Use

Land Use Type	Value	Unit
Office | General Office	75	ksf
Office | General Office	75	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

Land Use Type	Value	Unit
Office | General Office	100	ksf
Housing | Multi-Family	450	DU
Retail | General Retail	20	ksf
Retail | High-Turnover Sit-Down Restaurant	20	ksf
Office | General Office	100	ksf
Housing | Affordable Housing - Family	50	DU

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed
588 Daily Vehicle Trips	3,881 Daily Vehicle Trips
4,803 Daily VMT	29,028 Daily VMT

Tier 1 Screening Criteria

Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐

Tier 2 Screening Criteria

The net increase in daily trips < 250 trips	3,293 Net Daily Trips
The net increase in daily VMT ≤ 0	24,225 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	40.000 ksf

The proposed project is required to perform VMT analysis.

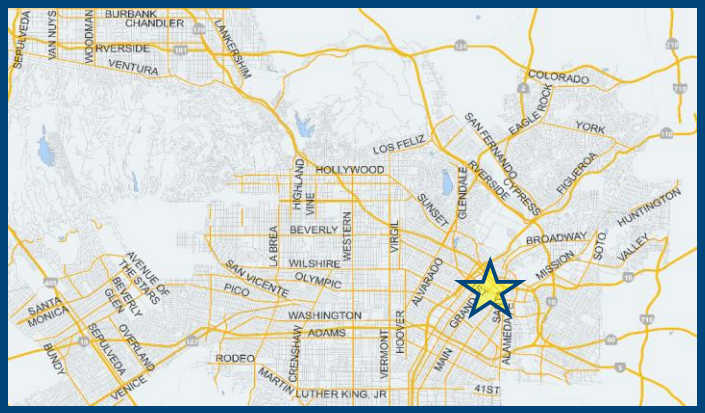
Measuring the Miles

5/18/2020

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3

Project Information

Project: Sample Project
Scenario: Sample
Address: 200 N SPRING ST, 90012



Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	450	DU
Retail | General Retail	20	ksf
Retail | High-Turnover Sit-Down Restaurant	20	ksf
Office | General Office	100	ksf
Housing | Affordable Housing - Family	50	DU

TDM Strategies

Select each section to show individual strategies
Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy

	Proposed Project	With Mitigation
Max Home Based TDM Achieved?	**No**	**No**
Max Work Based TDM Achieved?	**No**	**No**

A Parking

Reduce Parking Supply ☐ Proposed Prj ☐ Mitigation
100 city code parking provision for the project site
74 actual parking provision for the project site

Unbundle Parking ☐ Proposed Prj ☑ Mitigation
100 monthly parking cost (dollar) for the project site

Parking Cash-Out ☐ Proposed Prj ☑ Mitigation
25 percent of employees eligible

Price Workplace Parking ☐ Proposed Prj ☑ Mitigation
6.00 daily parking charge (dollar)
25 percent of employees subject to priced parking

Residential Area Parking Permits ☐ Proposed Prj ☐ Mitigation
200 cost (dollar) of annual permit

B Transit
C Education & Encouragement
D Commute Trip Reductions
E Shared Mobility
F Bicycle Infrastructure
G Neighborhood Enhancement

Analysis Results

Proposed Project	With Mitigation
3,832 Daily Vehicle Trips	**3,532** Daily Vehicle Trips
28,666 Daily VMT	**26,259** Daily VMT
4.0 Household VMT per Capita	**3.4** Household VMT per Capita
9.6 Work VMT per Employee	**7.4** Work VMT per Employee

Significant VMT Impact?

Proposed Project	With Mitigation
Household: No Threshold = 6.0 15% Below APC	**Household: No** Threshold = 6.0 15% Below APC
Work: Yes Threshold = 7.6 15% Below APC	**Work: No** Threshold = 7.6 15% Below APC

Measuring the Miles

5/18/2020

APPENDIX B

VMT CALCULATOR SAMPLE REPORTS

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: May 18, 2020
Project Name: Sample Project
Project Scenario: Sample
Project Address: 200 N SPRING ST, 90012

Version 1.3

Project Information			
Land Use Type		**Value**	**Units**
Housing	*Single Family*	*0*	*DU*
	Multi Family	450	DU
	Townhouse	*0*	*DU*
	Hotel	*0*	*Rooms*
	Motel	*0*	*Rooms*
Affordable Housing	Family	50	DU
	Senior	*0*	*DU*
	Special Needs	*0*	*DU*
	Permanent Supportive	*0*	*DU*
Retail	General Retail	20.000	ksf
	Furniture Store	*0.000*	*ksf*
	Pharmacy/Drugstore	*0.000*	*ksf*
	Supermarket	*0.000*	*ksf*
	Bank	*0.000*	*ksf*
	Health Club	*0.000*	*ksf*
	High-Turnover Sit-Down Restaurant	20.000	ksf
	Fast-Food Restaurant	*0.000*	*ksf*
	Quality Restaurant	*0.000*	*ksf*
	Auto Repair	*0.000*	*ksf*
	Home Improvement	*0.000*	*ksf*
	Free-Standing Discount	*0.000*	*ksf*
	Movie Theater	*0*	*Seats*
Office	General Office	100.000	ksf
	Medical Office	*0.000*	*ksf*
Industrial	*Light Industrial*	*0.000*	*ksf*
	Manufacturing	*0.000*	*ksf*
	Warehousing/Self-Storage	*0.000*	*ksf*
School	*University*	*0*	*Students*
	High School	*0*	*Students*
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other		*0*	*Trips*

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: May 18, 2020
Project Name: Sample Project
Project Scenario: Sample
Project Address: 200 N SPRING ST, 90012

Version 1.3

Analysis Results

Total Employees: 520
Total Population: 1,171

Proposed Project		*With Mitigation*	
3,832	**Daily Vehicle Trips**	**3,532**	**Daily Vehicle Trips**
28,666	**Daily VMT**	**26,259**	**Daily VMT**
4	**Household VMT per Capita**	**3.4**	**Household VMT per Capita**
9.6	**Work VMT per Employee**	**7.4**	**Work VMT per Employee**

Significant VMT Impact?

APC: Central

Impact Threshold: 15% Below APC Average
Household = 6.0
Work = 7.6

Proposed Project		*With Mitigation*	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 6.0	No	Household > 6.0	No
Work > 7.6	Yes	Work > 7.6	No

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	*Reduce parking supply*	*City code parking provision (spaces)*	*0*	*0*
		Actual parking provision (spaces)	*0*	*0*
	Unbundle parking	Monthly cost for parking ($)	*$0*	$100
	Parking cash-out	Employees eligible (%)	*0%*	25%
	Price workplace parking	Daily parking charge ($)	*$0.00*	$6.00
		Employees subject to priced parking (%)	*0%*	25%
	Residential area parking permits	*Cost of annual permit ($)*	*$0*	*$0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Transit	*Reduce transit headways*	*Reduction in headways (increase in frequency) (%)*	*0%*	*0%*
		Existing transit mode share (as a percent of total daily trips) (%)	*0%*	*0%*
		Lines within project site improved (<50%, >=50%)	*0*	*0*
	Implement neighborhood shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees and residents eligible (%)	*0%*	*0%*
	Transit subsidies	*Employees and residents eligible (%)*	*0%*	*0%*
		Amount of transit subsidy per passenger (daily equivalent) ($)	*$0.00*	*$0.00*
Education & Encouragement	*Voluntary travel behavior change program*	*Employees and residents participating (%)*	*0%*	*0%*
	Promotions and marketing	Employees and residents participating (%)	*0%*	50%

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Commute Trip Reductions	*Required commute trip reduction program*	*Employees participating (%)*	*0%*	*0%*
	Alternative Work Schedules and Telecommute	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	Employees eligible (%)	*0%*	100%
Shared Mobility	Car share	Car share project setting (Urban, Suburban, All Other)	*0*	Urban + Comprehensive Transit
	Bike share	*Within 600 feet of existing bike share station - OR- implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	Meets City Bike Parking Code (Yes/No)	Yes	Yes
	Include secure bike parking and showers	Includes indoor bike parking/lockers, showers, & repair station (Yes/No)	Yes	Yes
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: May 18, 2020
Project Name: Sample Project
Project Scenario: Sample
Project Address: 200 N SPRING ST, 90012

Version 1.3

TDM Adjustments by Trip Purpose & Strategy

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Parking	Reduce parking supply	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	*0%*	12%	*0%*	*0%*	*0%*	12%	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Parking cash-out	*0%*	*0%*	*0%*	2%	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Price workplace parking	*0%*	*0%*	*0%*	5%	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Residential area parking permits	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	
Transit	Reduce transit headways	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	TDM Strategy Appendix, Transit sections 1 - 3
	Implement neighborhood shuttle	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Transit subsidies	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
Education & Encouragement	Voluntary travel behavior change program	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	TDM Strategy Appendix, Education & Encouragement sections 1 - 2
	Promotions and marketing	*0%*	2%	*0%*	2%	*0%*	2%	*0%*	2%	*0%*	2%	*0%*	*0%*	
Commute Trip Reductions	Required commute trip reduction program	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
	Alternative Work Schedules and Telecommute Program	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Employer sponsored vanpool or shuttle	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
	Ride-share program	*0%*	*0%*	*0%*	15%	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	
Shared Mobility	Car-share	*0.0%*	1.0%	*0.0%*	1.0%	*0.0%*	1.0%	*0.0%*	1.0%	*0.0%*	1.0%	*0.0%*	1.0%	TDM Strategy Appendix, Shared Mobility sections 1 - 3
	Bike share	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	
	School carpool program	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Bicycle Infrastructure	Implement/ Improve on-street bicycle facility	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
	Include Bike parking per LAMC	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	
	Include secure bike parking and showers	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	
Neighborhood Enhancement	Traffic calming improvements	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	TDM Strategy Appendix, Neighborhood Enhancement sections 1 - 2
	Pedestrian network improvements	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	

Final Combined & Maximum TDM Effect

	Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*	
	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated
COMBINED TOTAL	*1%*	*16%*	*1%*	*24%*	*1%*	*16%*	*1%*	*4%*	*1%*	*4%*	*1%*	*2%*
MAX. TDM EFFECT	*1%*	*16%*	*1%*	*24%*	*1%*	*16%*	*1%*	*4%*	*1%*	*4%*	*1%*	*4%*

= Minimum (X%, 1-[(1-A)*(1-B)…])

where X%=

PLACE	urban	75%
TYPE	*compact infill*	*40%*
MAX:	*suburban center*	*20%*
	suburban	*15%*

Note: (1-[(1-A)*(1-B)…]) reflects the dampened combined effectiveness of TDM Strategies (e.g., A, B,…). See the TDM Strategy Appendix (*Transportation Assessment Guidelines Attachment G)* for further discussion of dampening.

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: May 18, 2020
Project Name: Sample Project
Project Scenario: Sample
Project Address: 200 N SPRING ST, 90012

Version 1.3

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	446	-27.8%	322	7.0	3,122	2,254
Home Based Other Production	1,234	-74.8%	311	8.1	9,995	2,519
Non-Home Based Other Production	1,263	-12.4%	1,106	7.9	9,978	8,737
Home-Based Work Attraction	754	-24.7%	568	8.9	6,711	5,055
Home-Based Other Attraction	2,125	-59.7%	857	5.6	11,900	4,799
Non-Home Based Other Attraction	826	-13.2%	717	7.9	6,525	5,664

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Measures*		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	-1.2%	318	2,226	-15.7%	271	1,900
Home Based Other Production	-1.2%	307	2,488	-15.7%	262	2,124
Non-Home Based Other Production	-1.2%	1,092	8,628	-4.2%	1,060	8,371
Home-Based Work Attraction	-1.2%	561	4,992	-24.1%	431	3,839
Home-Based Other Attraction	-1.2%	846	4,739	-4.2%	821	4,598
Non-Home Based Other Attraction	-1.2%	708	5,593	-4.2%	687	5,427

MXD VMT Methodology Per Capita & Per Employee

Total Population: 1,171
Total Employees: 520
APC: Central

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**4,714**	**4,024**
Total Home Based Work Attraction VMT	**4,992**	**3,839**
Total Home Based VMT Per Capita	**4.0**	**3.4**
Total Work Based VMT Per Employee	**9.6**	**7.4**

APPENDIX C

VMT CALCULATOR USER AGREEMENT

VMT Calculator User Agreement

The Los Angeles Department of Transportation (LADOT), in partnership with the Department of City Planning and Fehr & Peers, has developed the City of Los Angeles Vehicle Miles Traveled (VMT) Calculator to estimate project-specific daily household VMT per capita and daily work VMT per employee for land use development projects. This application, the VMT Calculator, has been provided to You, the User, to assess vehicle miles traveled (VMT) outcomes of land use projects within the City of Los Angeles. The term "City" as used below shall refer to the City of Los Angeles. The terms "City" and "Fehr & Peers" as used below shall include their respective affiliates, subconsultants, employees, and representatives.

The City is pleased to be able to provide this information to the public. The City believes that the public is most effectively served when they are provided access to the technical tools that inform the public review process of private and public land use investments. However, in using the VMT Calculator, You agree to be bound by this VMT Calculator User Agreement (this Agreement).

VMT Calculator Application for the City of Los Angeles. The City's consultant calibrated the VMT Calculator's parameters in 2018 to estimate travel patterns of locations in the City, and validated those outcomes against empirical data. However, this calibration process is limited to locations within the City, and practitioners applying the VMT Calculator outside of the City boundaries should not apply these estimates without further calibration and validation of travel patterns to verify the VMT Calculator's accuracy in estimating VMT in such other locations.

Limited License to Use. This Agreement gives You a limited, non-transferrable, non-assignable, and non-exclusive license to use and execute a copy of the VMT Calculator on a computer system owned, leased or otherwise controlled by You in Your own facilities, as set out below, provided You do not use the VMT Calculator in an unauthorized manner, and that You do not republish, copy, distribute, reverse-engineer, modify, decompile, disassemble, transfer, or sell any part of the VMT Calculator, and provided that You know and follow the terms of this Agreement. Your failure to follow the terms of this Agreement shall automatically terminate this license and Your right to use the VMT Calculator.

Ownership. You understand and acknowledge that the City owns the VMT Calculator, and shall continue to own it through Your use of it, and that no transfer of ownership of any kind is intended in allowing You to use the VMT Calculator.

Warranty Disclaimer. In spite of the efforts of the City and Fehr & Peers, some information on the VMT Calculator may not be accurate. The VMT Calculator, OUTPUTS AND ASSOCIATED DATA ARE PROVIDED "as is" WITHOUT WARRANTY OF ANY KIND, whether expressed, implied, statutory, or otherwise including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Limitation of Liability. It is understood that the VMT Calculator is provided without charge. Neither the City nor Fehr & Peers can be responsible or liable for any information derived from its use, or for any delays, inaccuracies, incompleteness, errors or omissions arising out of your use of the VMT Calculator or with respect to the material contained in the VMT Calculator. You understand and agree that Your sole remedy against the City or Fehr & Peers for loss or damage caused by any defect or failure of the

VMT Calculator, regardless of the form of action, whether in contract, tort, including negligence, strict liability or otherwise, shall be the repair or replacement of the VMT Calculator to the extent feasible as determined solely by the City. In no event shall the City or Fehr & Peers be responsible to You or anyone else for, or have liability for any special, indirect, incidental or consequential damages (including, without limitation, damages for loss of business profits or changes to businesses costs) or lost data or downtime, however caused, and on any theory of liability from the use of, or the inability to use, the VMT Calculator, whether the data, and/or formulas contained in the VMT Calculator are provided by the City or Fehr & Peers, or another third party, even if the City or Fehr & Peers have been advised of the possibility of such damages.

This Agreement and License shall be governed by the laws of the State of California without regard to their conflicts of law provisions, and shall be effective as of the date set forth below and, unless terminated in accordance with the above or extended by written amendment to this Agreement, shall terminate on the earlier of the date that You are not making use of the VMT Calculator or one year after the beginning of Your use of the VMT Calculator.

By using the VMT Calculator, You hereby waive and release all claims, responsibilities, liabilities, actions, damages, costs, and losses, known and unknown, against the City and Fehr & Peers for Your use of the VMT Calculator.

Before making decisions using the information provided in this application, contact City LADOT staff to confirm the validity of the data provided.

Print and sign below, and submit to LADOT along with the transportation assessment Memorandum of Understanding (MOU).

You, the User

By: _____

Print Name: _____

Title: _____

Company: _____

Address: _____

Phone: _____

Email Address: _____

Date: _____