

THE OLD WAY (1980s to 2019)

Critical Movement Analysis (CMA) Method

- Published by the Transportation Research Board in 1980 << old...
 - Uses Intersection capacity analysis
 - Plus assigns each intersection a level of service grade
- This is the methodology used in the LAWA EIR for expansion of capacity at LAX.

Measure Peak Hours # of Cars

plus

Assign Level of Service Grades

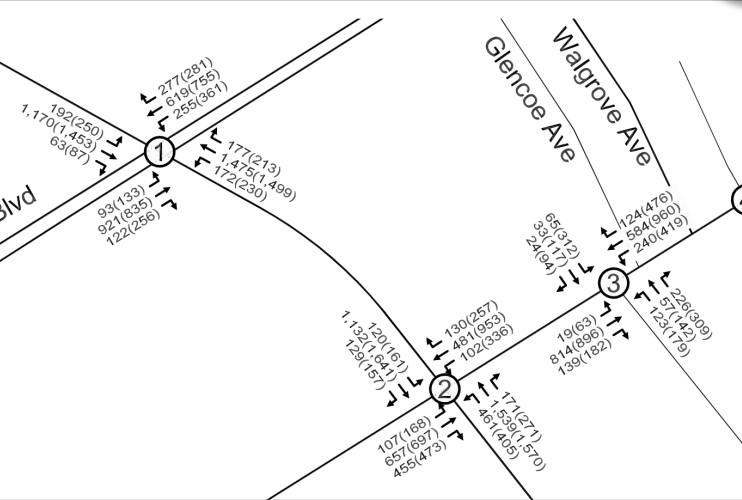


TABLE 2
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board.

A Volume-to-Capacity ratio study results in a diagram like this one. It documents how many car turn or go through an intersection at peak hours over the course of a week or more. One AM count and one PM count per day.

On this diagram the AM count is listed first and the PM count is shown in parenthesis.

Peak = measuring for 1 hour during the heaviest traffic flow time at an intersection.

LADOT has graded many arterial intersections in the Westchester / Playa area with low-quality ("E" or "F") service levels.

As indicated above, an F grade means a failure of traffic flows. LADOT does not differentiate levels of F service failures, yet the community has learned that F intersections can—indeed—degrade further.

Equals
(possibly)

Switching how Intersection Signals are Programmed

A Traffic Surveillance and Control System can monitor flows and make small timing adjustments to increase Vehicle-to-Capacity (V/C) ratios an additional 7% at peak times.

If a traffic study indicates a poor service level at an intersection, LADOT could opt to implement an Adaptive Traffic Control System, which would add an additional 3% of V/C capacity (taking the previous 7% to 10% total).

THE NEW WAY (2019 to Present) Vehicle Miles Traveled (VMT) Methodology

- Senate Bill 743 changed the rules for how a CEQA (California Environmental Quality Act) study of traffic impacts was to be conducted
- August 2019, LADOT officially changed its traffic impact methodology: dumped CMA and adopted the Vehicle Miles Traveled (VMT) approach.

Why it's the preferred methodology for traffic impact forecasting and management:

Why VMT is important, better?

Shifts the focus from measuring impacts to drivers to measuring the impact of driving.

- CAM/Level of Service describes traffic operations effects in single locations.
- VMT helps describe the environmental consequences of land use and transportation network decisions
- The goal: network-wide efficiency and planning to improve the experience of all people traveling.

Studying transit as a *network* issue...

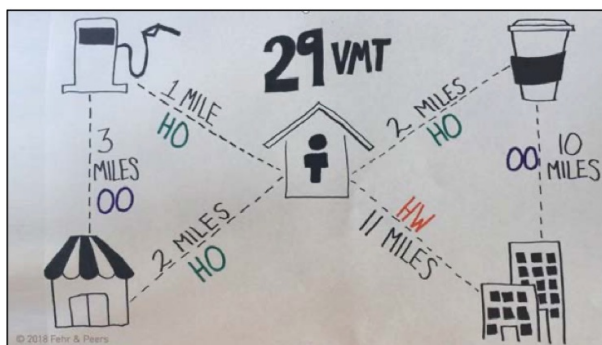
Vehicle miles traveled (VMT) measures the amount of travel for all vehicles...

- In a geographic region
- Over a given period of time, typically a one-year period.

It is calculated as the sum of the number of miles traveled by each vehicle.

Used for...

- Highlights travel demand variations regionally
- Provides data re areas of congestion (existing, emerging, or anticipated) for mitigation and infrastructure planning.
- Estimates the amount of travel by category: residents, commercial/freight, non-residents.
- **Assesses the transit impacts re forecasted population increases.**



City of LA Targets: Mobility Plan 2035

Decrease VMT per capita by 5% every five years [from 2015 baseline conditions], to 20% by 2035

- Land use that gets housing and jobs closer together
- Affordable housing near transit (TOC)
- Increase appeal of non-vehicle (multi-modal) transit
- Support pedestrians, bicyclists, etc

When is VMT Analysis Required?

New LA development triggers: if a project is...

1. Projected increase of 250 or more daily trips
2. Projected to add vehicle capacity = Increasing vehicle miles traveled
3. Requiring taking away through-lane capacity on street which exceeds 750 vehicles per hour per lane for at least 2 hours a day

LA's VMT Calculator Tool

It's found here:

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

Users don't need to know the details of the VMT method, because the parameters are built into the calculator (which was built for LA by a consulting firm.)

Calculator Scores VMT-Friendly Strategies

Put in your project location and scope. The VMT calculator shows you possible VMT-friendly features in 5 areas:

1. Parking
2. Transit
3. Education and Encouragement
4. Commute Trip Reductions
5. Shared Mobility

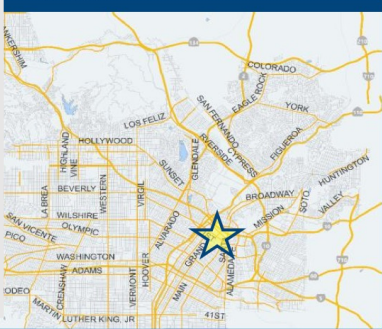
LA's VMT Calculator Outputs

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3



Project Information

Project: Sample Project
Scenario: Sample
Address: 123 SPRING ST, 90012



- VMT Calculator analyzes project impacts
1. Requires address, use and intensity inputs
 2. Estimates daily trips and VMT
 3. Reports significant impacts
 4. Allows selection of VMT-reducing mitigation measures and calculates effectiveness

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

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

Significant VMT Impact?

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



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

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

A Parking

Reduce Parking Supply city code parking provision for the project site

☐ Proposed Prj ☐ Mitigation actual parking provision for the project site

Unbundle Parking monthly parking cost (dollar) for the project site

☐ Proposed Prj ☒ Mitigation

Parking Cash-Out percent of employees eligible

☐ Proposed Prj ☒ Mitigation

Price Workplace Parking daily parking charge (dollar)

☐ Proposed Prj ☒ Mitigation percent of employees subject to priced parking

Residential Area Parking Permits cost (dollar) of annual permit

☐ Proposed Prj ☐ Mitigation

B Transit

C Education & Encouragement

D Commute Trip Reductions

E Shared Mobility

F Bicycle Infrastructure

G Neighborhood Enhancement

LA's VMT Calculator Inputs *(factors to consider in our CPU density planning exercise)*

Select

Type of project

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
	General Office	100.000	ksf
Office	Medical Office	0.000	ksf
	Light Industrial	0.000	ksf
	Manufacturing	0.000	ksf
Industrial	Warehousing/Self-Storage	0.000	ksf
	University	0	Students
School	High School	0	Students
	Middle School	0	Students
	Elementary	0	Students
	Private School (K-12)	0	Students
	Other	0	Trips

Then Add...

VMT-Friendly Parking

TDM Strategy Inputs

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

In original plan

Or added to original plan to reach acceptable transit approach

VMT-Friendly Education

Education & Encouragement	Voluntary travel behavior change program	Employees and residents participating (%)	0%	0%
	Promotions and marketing	Employees and residents participating (%)	0%	50%

VMT-Friendly Bike Infrastructure

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

VMT-Friendly Transit

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

VMT-Friendly Commute

Commute Trip Reductions	Required commute trip reduction program	Employees participating (%)	0%	0%
		Alternative Work Schedules and Telecommute	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%

VMT-Friendly Shared Mobility

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

VMT-Friendly Neighborhood Enhancement

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