



A Guide to Navigating Existing and Emerging Sources of Local VMT and Travel Data

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Housekeeping

1. Meeting length: 1.5 hour
2. This meeting is being recorded
3. All participant lines will be muted
4. At the end, there will be a Q&A session
5. If you have a question during the presentation, please type it into the chat box or press the "raise hand" function
6. We will log all questions and then voice a selection at the end of the presentation
7. A recording of this webinar and the PowerPoint slides will be available on the SCAG website. We will send a link to everyone who has registered after the event

Agenda

- Connect SoCal Introduction
- A Guide to Navigating Local VMT and Travel Data Introduction
 - Research findings: what we learned from the current practice of transportation data use in local governments.
 - Survey and interview findings
 - Recommendations
 - Data guide
 - Transportation Data Utilization by Local Capacity: readily available transportation data sources
 - VMT Tools by Geography: summary and classification of VMT tools developed by state, regional, and local governments

What is Connect SoCal?



A Regional
Transportation
Plan/Sustainable
Communities Strategy
(RTP/SCS)



A plan to meet federal
and state requirements,
which is critical for
projects in the region to
receive transportation
funding or approval



A 20+ year plan with
over \$750 billion in
transportation
investments, a
**regional development
pattern** and many
supportive programs
and strategies

The Plan is Critical for Ensuring Funding

Meets federal and state requirements to ensure transportation project funding and approvals

FEDERAL TRANSPORTATION CONFORMITY

Necessary for advancing projects regardless of funding sources

STATE GHG EMISSION REDUCTION TARGET

Required for **Solutions for Congested Corridors Program** and the **Trade Corridor Enhancement Program** requirements

\$1.5 billion in projects since the adoption of Connect SoCal 2020

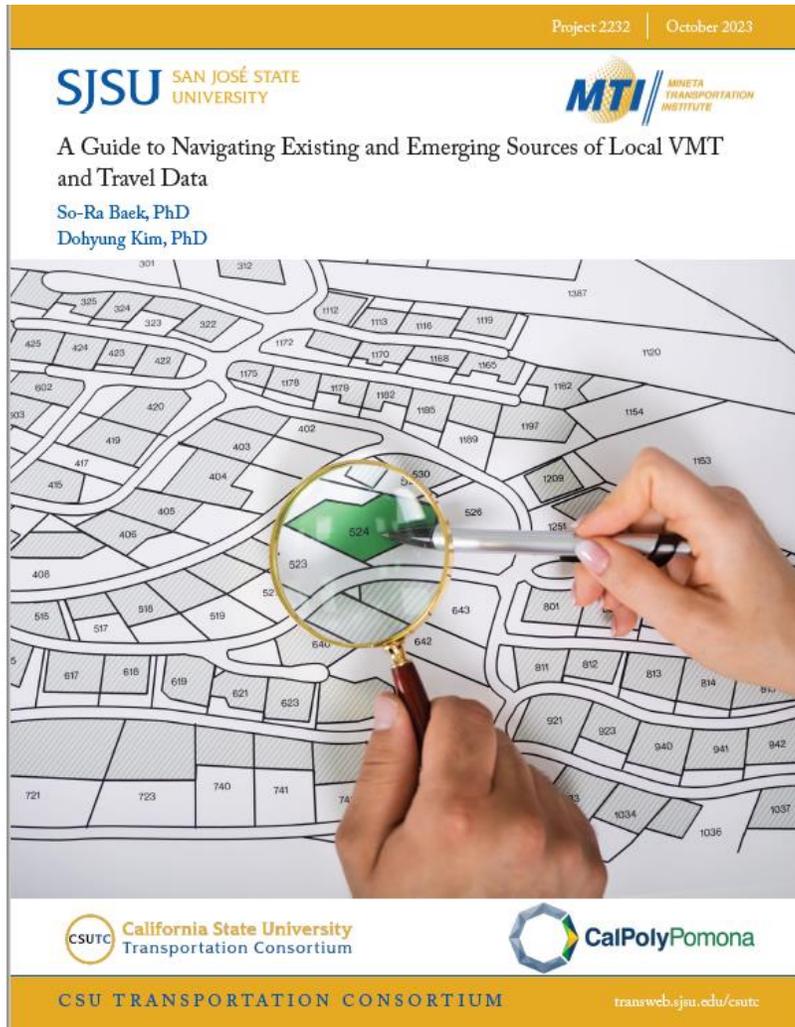
...Is A Compass for the Region



- ✓ Meets federal and state requirements
- ✓ Ensures the region receives critical transportation funding and approvals
- ✓ Creates the foundation and framework for collaboration

Continued collaboration can close the gap between local actions and achievement of our regional goals

A Guide to Navigating Existing and Emerging Sources of Local VMT and Travel Data

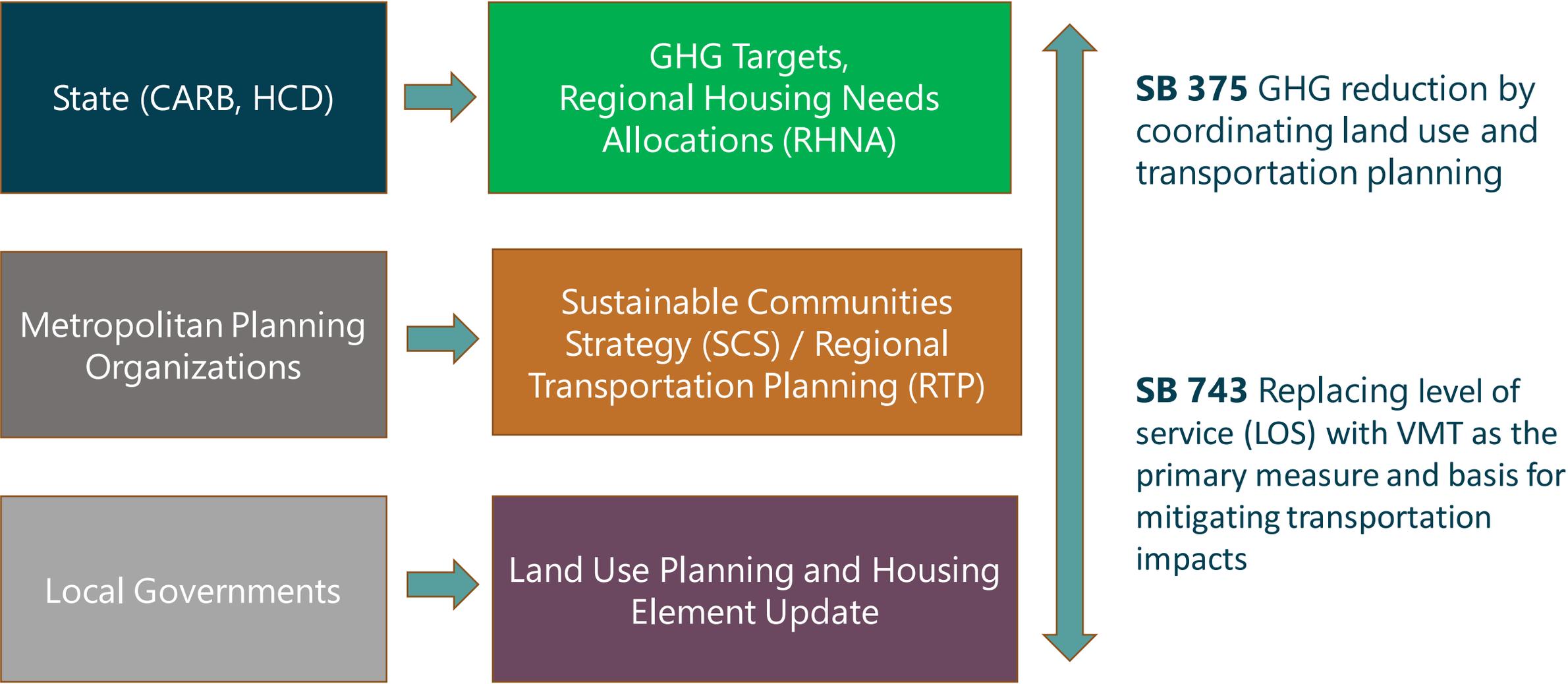


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<https://transweb.sjsu.edu/research/2232-Land-Use-Planning-Environmental-Impact-Analysis>

Background in California



Research Question

01

Local governments now have a greater need for VMT and other travel data.

02

These tasks are not in the local governments' conventional domain, and local governments' experience with transportation data is limited.

03

How have local governments dealt with local transportation data needs so far and what are the challenges experienced in doing so?

Mixed-Method Approach (Survey + Interview)

Local government survey

- Overall experiences with GHG reduction by the implementation of SB 375 and SB 743
- Transportation data use and demands for SB 375 and SB 743

MPO survey

- MPOs' view on their member jurisdictions' regional GHG reduction efforts
- MPOs' roles in providing transportation/VMT data and resources for SB 375 and 743 implementations

Survey Recruitment (September-December 2022)

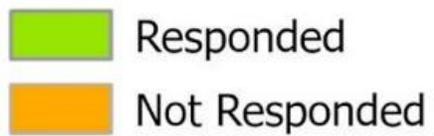
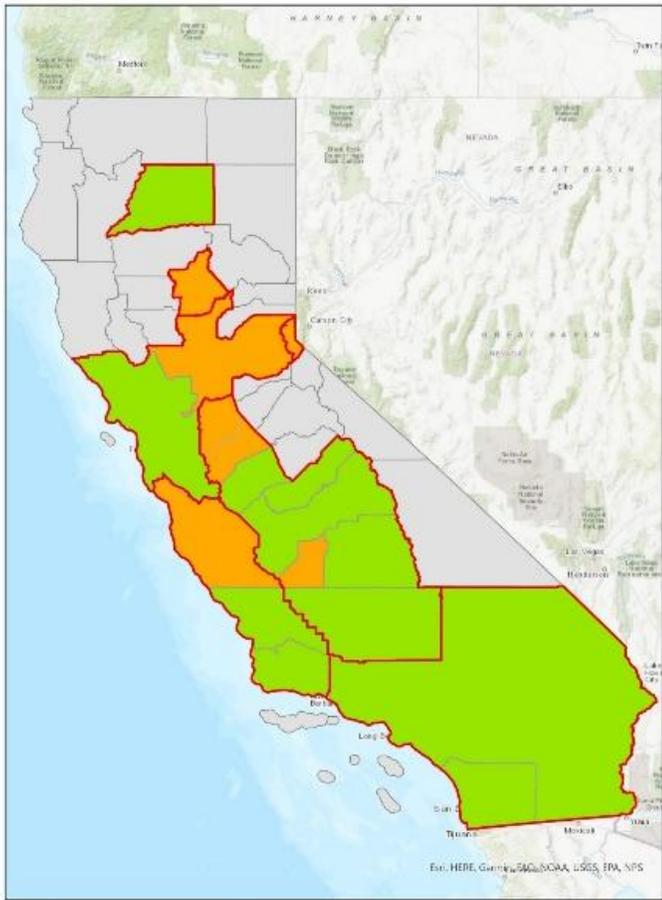
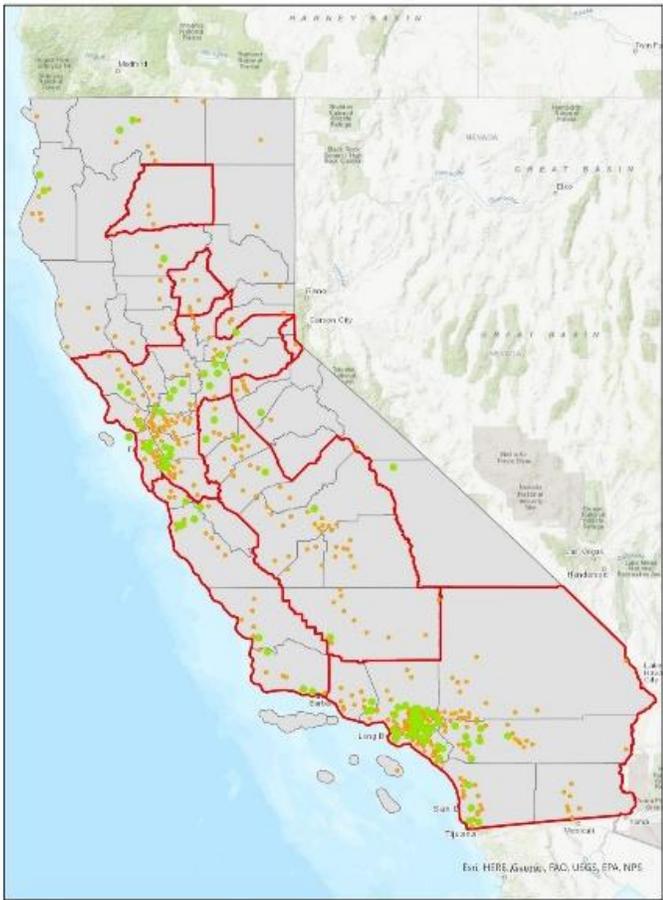
- OPR's Directory of Planning Agencies published in 2021 (58 counties, 482 cities/towns).
- MPOs' staff who work on travel demand modeling was obtained from CARB.
- Recruitment via emails, phone calls, and personal contacts

Survey Responses (Rate)

96 Cities/Towns (20 %)

14 Counties (24 %)

11 MPOs (61 %)

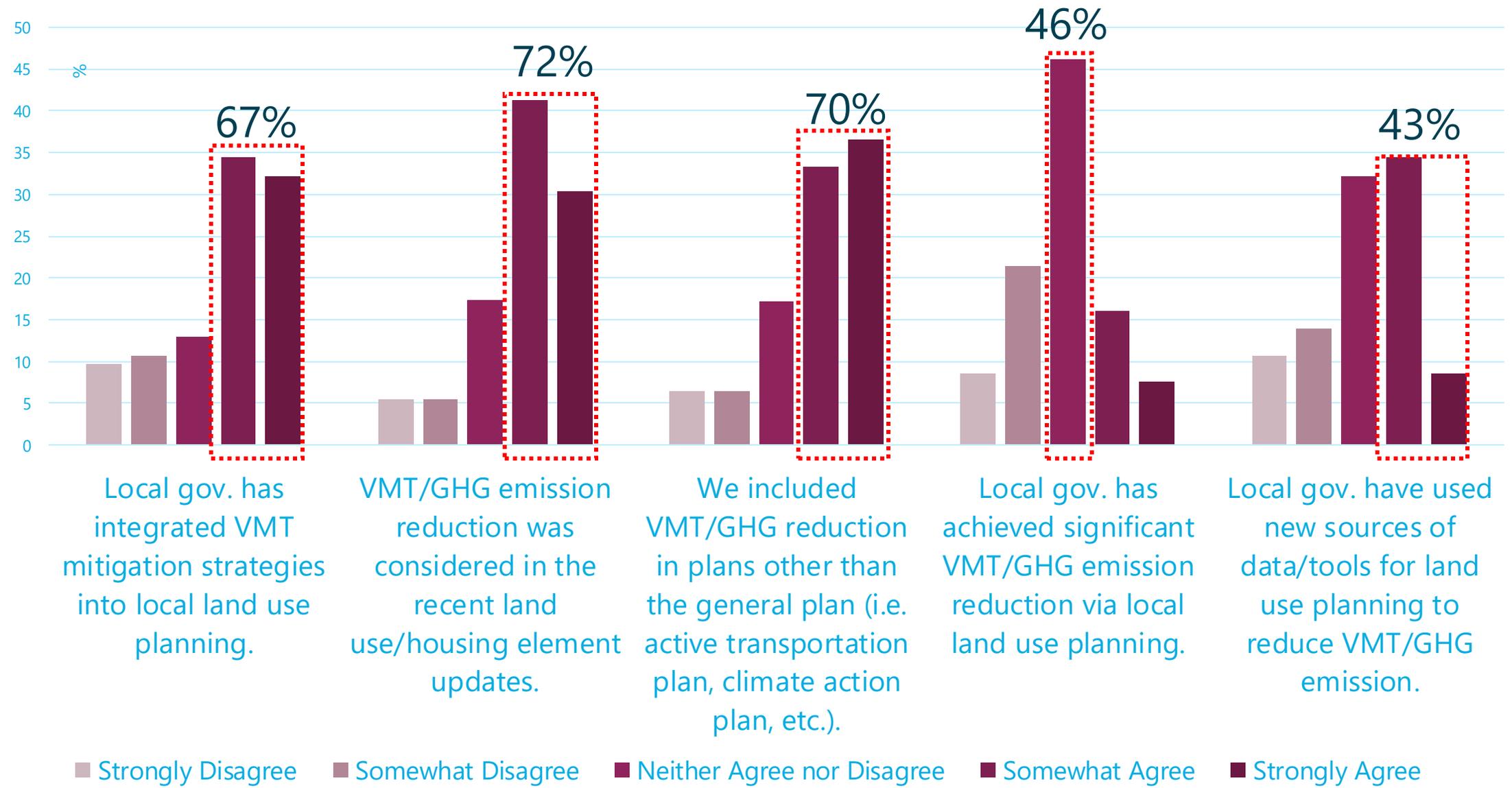


Semi-structured Interviews

- A few agencies provided survey responses that would need to be further examined.
- A few other best practices identified from desk research.
- Zoom interview for an hour in February – June 2023.

Level	Region	Name of the Affiliated Government
City	Big 4	City of Elk Grove
City	Central Coast	City of Monterey
County	Central Coast	Santa Barbara County
County	Central Valley	Stanislaus County
County	Big 4	Placer County
County	Non-MPO Rural	Del Norte County
COG	Big 4	San Gabriel Valley COG
MPO	Big 4	SANDAG
MPO	Big 4	SCAG
MPO	Northern	SRTA
MPO	Central Valley	Kern COG
MPO	Central Valley	Fresno COG
MPO	Central Coast	SLOCOG
MPO	Big 4	MTC/ABAG
MPO	Big 4	SACOG

Where are they with implementation?



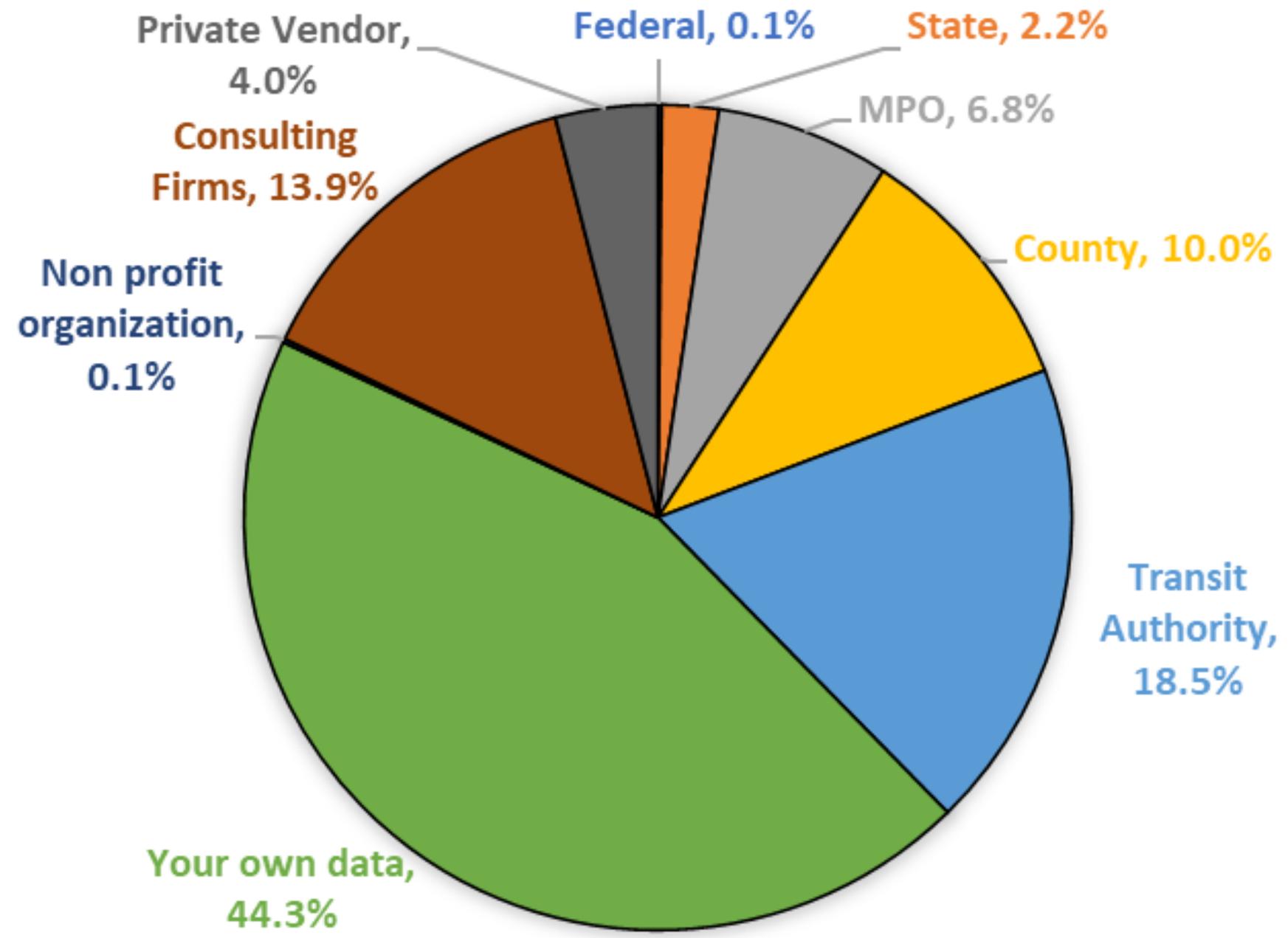
Transportation Data and Policy Implementation

Local governments that used new sources of data/tools for implementation are more likely agree with the statement...	Gamma	
	Value	Sig.
Integration of VMT mitigation strategies into land use planning in the general plan update.	0.445	≈0.000
The consideration of VMT/GHG emission reduction in the recent housing element update.	0.524	≈0.000
Significant reduction of VMT/GHG emissions could be achieved by the approaches required by SB 743.	0.310	0.013

*“We are just so very early, and we have maybe only received 3 projects where they had to do VMT analysis. So, it’s still very new to us.”
(interviewee)*

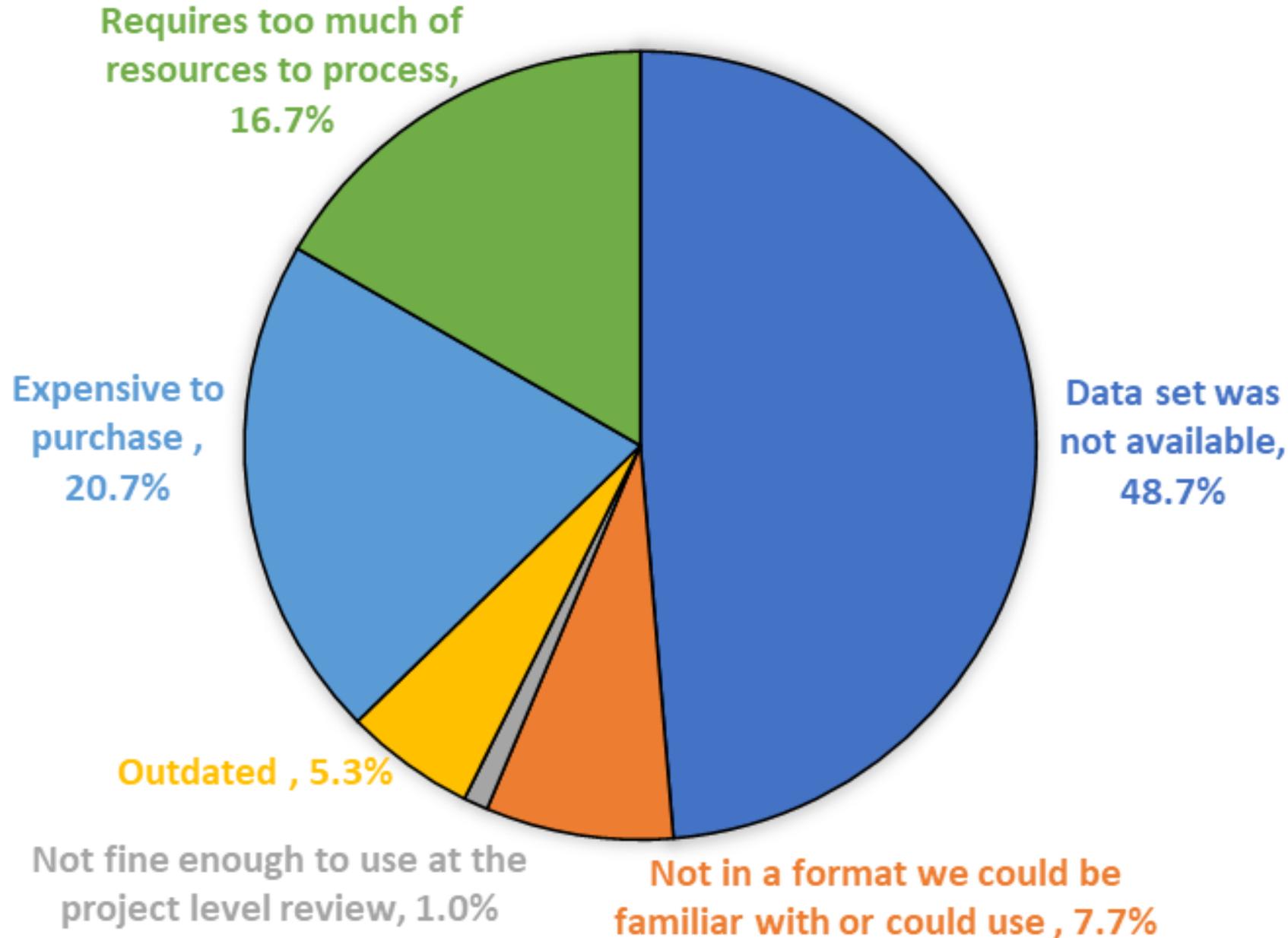
Transportation Data Used by Local Governments

Level		Mode		Data		
Type	Response	Type	Response	Type	Response	
Basic	410	Auto	126	Roadway network	76	
				Truck routes	50	
		Transit	134	Transit route network	67	
				Transit station/stop location	67	
		Active	150		Bicycle network	69
					Bicycle parking facilities	25
					Sidewalks and other pedestrian facilities	56
Inter-mediate	342	Auto	236	Roadway level of service (LOS)	68	
				Automobile traffic volume	75	
				Automobile traffic counts	71	
				Origin/Destination (O/D) Matrix	22	
		Transit	79		Transit ridership by route	42
					Transit ridership by station/stop	37
		Active	27		Bicycle/pedestrian counts	27
Advanced	22	Auto	14	Real-time automobile traffic volume data	14	
		Transit	8	General transit feed specification (GTFS)	8	



The Source of the Transportation Data

The Reasons for Not Adopting Transportation Data



Q. "What dataset did you consider using, but did not use?"

	LEVEL		MODE		DATA	
	Type	Response	Type	Response	Type	Response
Basic		33	Auto	9	Roadway network	2
					Truck routes	7
			Transit	5	Transit route network	3
					Transit station/stop location	2
			Active	19	Bicycle network	5
					Bicycle parking facilities	10
					Sidewalks and other pedestrian facilities	4
Inter-mediate		33	Auto	14	Roadway level of service (LOS)	3
					Automobile traffic volume	3
			Transit	9	Automobile traffic counts	4
					Origin/Destination (O/D) Matrix	4
					Transit ridership by route	4
			Active	10	Transit ridership by station/stop	5
					Bicycle/pedestrian counts	10
Advanced		22	Auto	14	Real-time automobile traffic volume data	14
			Transit	8	General transit feed specification (GTFS)	8

Perspective on Data Adoption/Utilization

The perspective about transportation data utilization for land use planning	Weighted Score
We do not need data due to our local knowledge which is good enough to understand local transportation issues and impacts.	-57
We are okay with the current datasets we use.	18
We need more data to make better decisions for VMT/GHG emission reduction goals.	51
We are interested in and willing to use more VMT data if the data are publicly available.	93
We are willing to purchase data to use.	-27

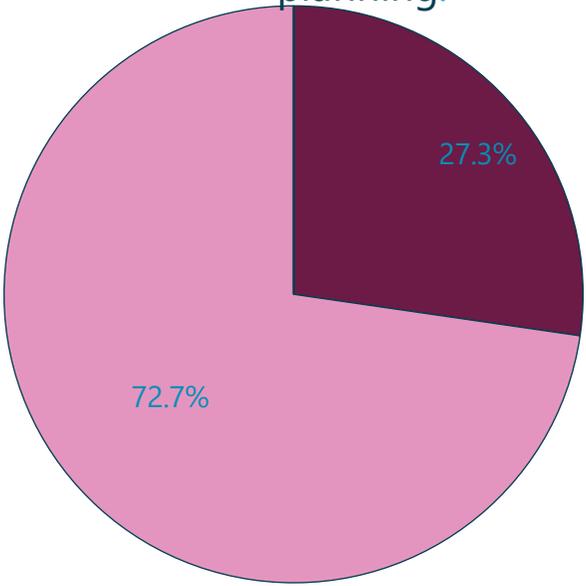
Note: Weighted Score = (Strongly agree × 2) + (Somewhat agree × 1) + (Neutral × 0) + (Somewhat disagree × -1) + (Strongly disagree × -2)

“...take SB 743, for example, there’s no way we could have implemented [it] without a third-party consultant. So that instantly puts us in a difficult position because we need to hire somebody to help us implement something. And it just seems like that’ll continue to be the trend moving forward especially as we get shift to even more data-driven metrics like VMT and GHG. The metrics are getting clearer, but the support on the agency-side isn’t...I don’t know any agencies actively ramping up their data analysis aside from the big players, so the divide between private and public seems to be widening in my opinion.” (interviewee)

MPO Perspective on Local Practices

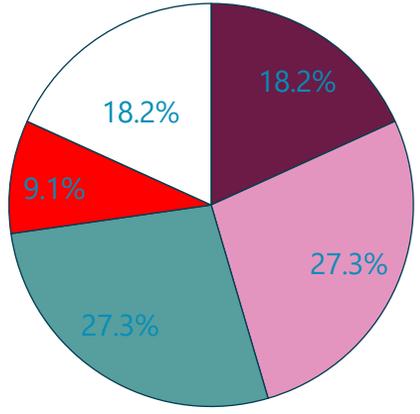
- Positive perspective on local policy implementation but not sure of adequate data use by local governments.

Local governments consider VMT/GHG emission reduction in local land use/circulation planning.



■ Most likely ■ Likely

Local governments adequately employ appropriate public/private VMT-related data to help the state achieve its VMT/GHG emission reduction goals.



■ Most likely ■ Likely ■ Neutral ■ Less likely □ I don't know

MPO Data Support in Detail

Level	Mode	Data	Most Frequently Requested Data Weighted Score	Helpful Data for Local Government Weighted Score
Basic	Auto	Roadway network	12	21
		Truck routes	0	14
	Transit	Transit route network	2	23
		Transit station/stop location	9	22
		Bicycle network	0	23
	Active	Bicycle parking facilities	0	17
		Sidewalks and other pedestrian facilities	0	21
Inter- mediate	Auto	Roadway LOS	8	21
		Base VMT/AADT	41	31
		Forecasted VMT/AADT	31	31
		O/D Matrix	17	26
	Transit	Transit ridership by route	3	24
		Transit ridership by station/stop	0	19
	Active	Bicycle/pedestrian counts	4	22
	Others	Socio-economic characteristics	7	25
		Travel time matrix	0	22
		Mode share scheme	1	25

Barriers to the Go-to Source of Transportation Data: Regional Travel Demand Models

- In most cases, VMT data for a project comes from regional travel models.
- The outputs “as is” do not necessarily work for a specific subarea application unless the models have subregional models in them. This mismatch of spatial scales of interest made MPO staff very careful in sharing such data.
- Many local government planners are not modelers by training.
- Transitions from the traditional four-step models to activity-based models (ABM) makes the situation even worse.
- “It is hard to extract meaningful VMT data in a small geography and compare it against the local’s own thresholds.”

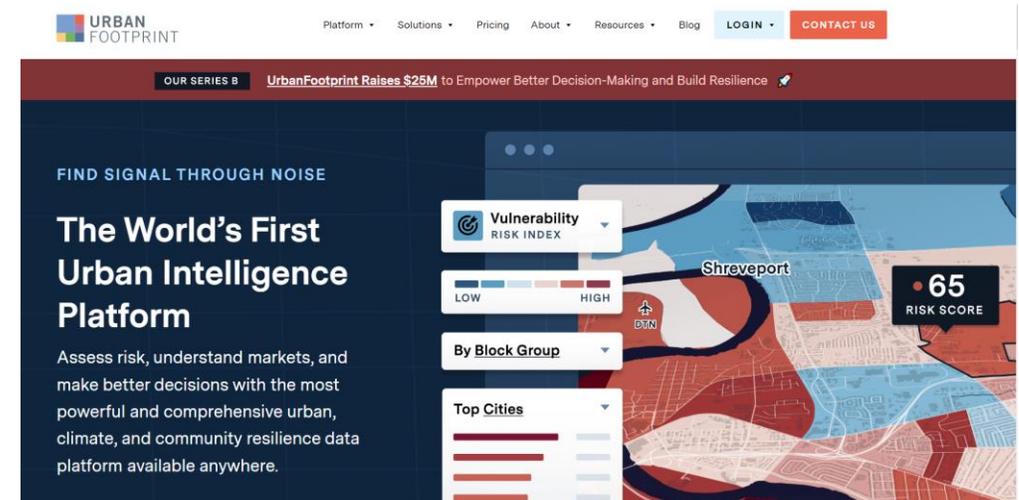
TRANSPORTATION MODELS

SCAG develops and maintains state-of-the-art transportation models to support SCAG’s

Trip Based Model	• Meets the Needs Through 2016
Activity-Based Model	• 2016 RTP/SCS Analysis
Subregional Modeling Tool	• Tool for Local Analysis
Heavy-Duty Truck Model	• Trucks & Goods Movement
Air Quality Model	• Conformity Determination

Rare Use of VMT Analysis for Land Use Plans Yet

- Too much emphasis on VMT analysis for a land use project.
- Found two case studies that performed VMT analysis at the plan level (both cases were general plan updates).
- Plan-level analysis will be a trend from now on, either using one of the sketch models that are out there that allow “apples-to-apples” comparison to their thresholds or using regional or local travel models if they can.



Disadvantages in Rural, Small Jurisdictions to Reduce VMT/GHG

"SB 743 was targeted for certain parts of the state, but OPR applied it statewide and unfortunately, rural areas are not compatible with it." (A County)

"...[our city] doesn't have very many options. So we're also looking at putting a lot of these housing units in the outskirts, which would be very bad for VMT. Unfortunately, we don't have the land to do it in core." (a City)

"We have a lot of agriculture. That's our main industry here. And we have most of our general plan policies that are in place to protect agriculture, so it is not developed. And none of these state laws about GHG and VMT don't really come through that lens. They come through the lens of like an urban setting. (Central Valley)

"One special consideration should be considered for the region with lots of rural, because their needs are slightly different... not slightly but completely different sometimes from their urban areas. (SRTA)

"Public transportation and biking [as VMT mitigation measures] do not work to address daily needs." (A rural County)

"In our general plan, we still have local LOS criteria, ... and our general plan we still use LOS to assess neighborhood compatibility. Because we still have certain things we want to achieve in our local network. We don't want traffic to be totally stopped at an intersection, but it wouldn't be an impact under CEQA." (a City)

"One size doesn't fit all.... you need some economic development. And the VMT restriction that SB 743 is putting on these little communities is hampering them from ever being able to see the investment necessary to be able to grow, to have the amenities so reduce their overall VMT. So by telling them they can't have the VMT, you're basically cursing them to always have more VMT than the statewide average." (Central Valley)

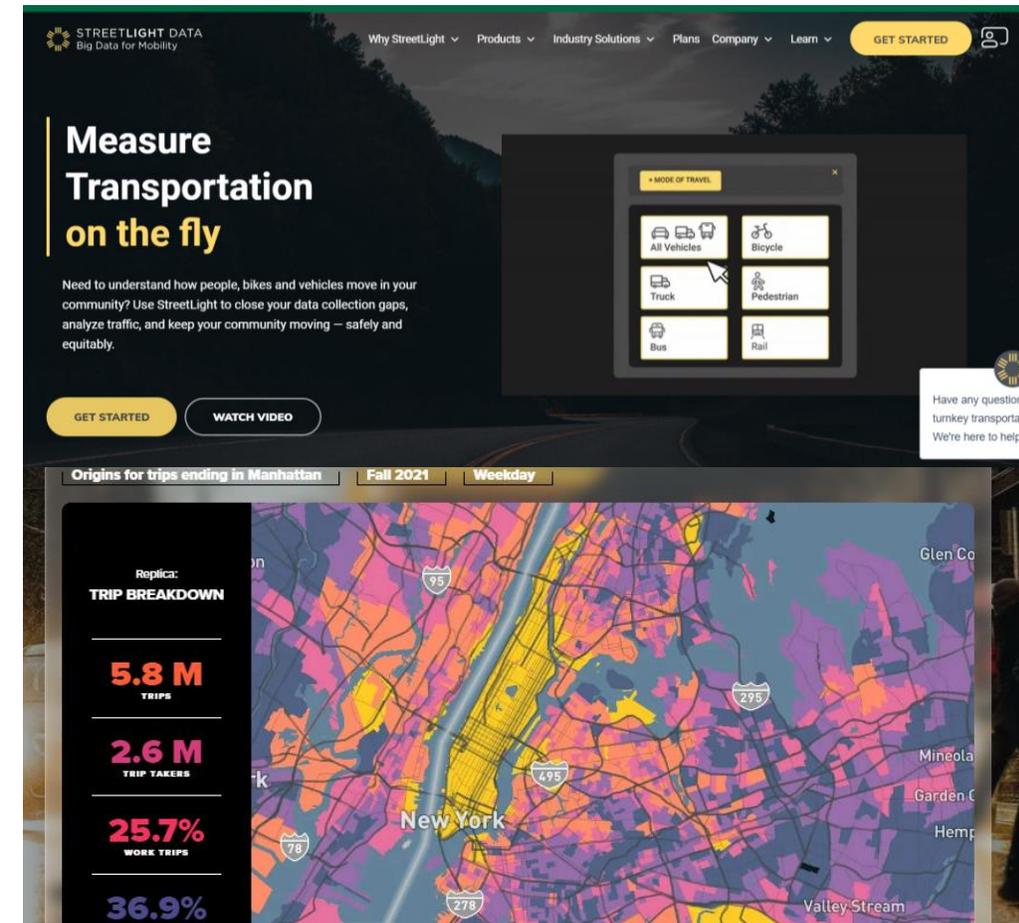
"I think part of the frustration we have is that we have really good air quality attentive to the rest of the state. We have great air quality the majority of the year and the only time it's really affected is fires. So we're trying to reduce GHG and VMT and all of that. But when you look at how many vehicle [trip]s we could possibly generate based on the land that's available, that's not owned by the government. We can't exceed 20% of the land and the county. So our countywide, we're going to be significantly less on GHG than anywhere else." (Northern)

"It will likely cost more for development and housing; it might get rejected due to budget." (Central Coast)

"We truly struggle with housing... We're struggling with the regulations such as the solar and the fire sprinkler systems that have been added in the last few years that have increased costs. And now on each house that was roll we've added the additional cost of the sidewalk improvement... [but] we don't have the incomes in our community to support the cost of housing... Are we getting the benefit for the cost? And is it reasonable what we're doing?" (a County)

Big Data Use as Dominant Trend

- Two major vendors used in California: StreetLight and Replica.
- The use of big data within the SCAG; O/D analysis, zone activity analysis, top route zones, trips for the preset geography (user-selected OD), ADT, and turning movement counts.
- LBS-based big data is not the best solution, but it is one of the alternatives that they can utilize.
- SCAG started to provide local agencies with access to StreetLight, starting from 2023.



Attempt to Integrate Land Use Model into Transportation Modeling Effort

- Developing an online land use data collection framework like “MassBuilds”
- Feeding it into an integrated land use and travel model
- Shasta Regional Transportation Agency (SRTA), the Association of Monterey Bay Area Governments (AMBAG), the Butte County Association of Governments (BCAG), the San Luis Obispo Council of Governments (SLOCOG), and the Tahoe Regional Planning Agency (TRPA).

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Widely used by planners, academics and researchers from all over the world, used in [dozens of studies](#).

View Development

208 Dudley Street
208 Dudley Street, Boston, MA 02119

Entry Created By: MAPC Staff
Last Updated: Fri Dec 20 2019 10:25:56 GMT-0800 (Pacific Standard Time)

Description
LDA regarding BRA property disposed of in 1996 to George Herbert. Stanley and Barbara Byfield will purchase property and turn into Pepper Pot Restaurant.

MEPA ID: Traffic Count URL

Key Info

Status	Completed	Height	Unknown
Year complete	2015	Number of Stories	Unknown
Cost	\$100000	Number of Parking Spaces	Unknown
Project Area	Unknown	Parking Type	Unknown

Nearest Public Transit Option: Rapid Transit: Dudley Square
Attributes: Redevelopment

Residential

Housing Units: No Housing Units

Search developments by city or address

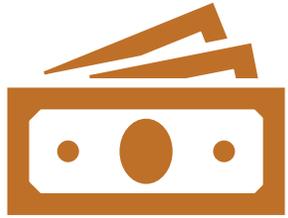
Map Legend: Completed (Green), In Construction (Yellow), Planning (Blue), Projected (Light Blue), Deselected (Grey)

Map Controls: Map, Glossary, Satellite, About

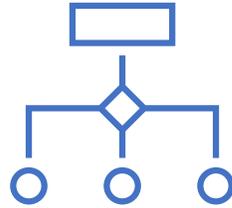
Data Exchange Platforms for Better Collaboration between MPOs and Local Agencies

- SCAG: The Regional Data Platform (RDP), <https://hub.scag.ca.gov/>, Local Data Exchange (LDX), and Local Information Services Team (LIST).
- MTC/ABAG: Bay Area Spatial Information System (BASIS), <https://basis.bayareametro.gov/>
- SANDAG: Open Data Portal, <https://sdgis-sandag.opendata.arcgis.com/>, Data Surfer, <https://datasurfer.sandag.org/>
- SACOG: VMT screening maps, [Residential VMT Screening Map](#) and [Work Tour VMT](#) , Travel Model Users Conference, <https://www.sacog.org/travel-model-users-conference>
- Fresno COG: SB 743 Regional Guidelines and Tools, <https://www.fresnocog.org/project/sb743-regional-guidelines-development/>

Recommendations



More Funding Support



Centralized Leadership



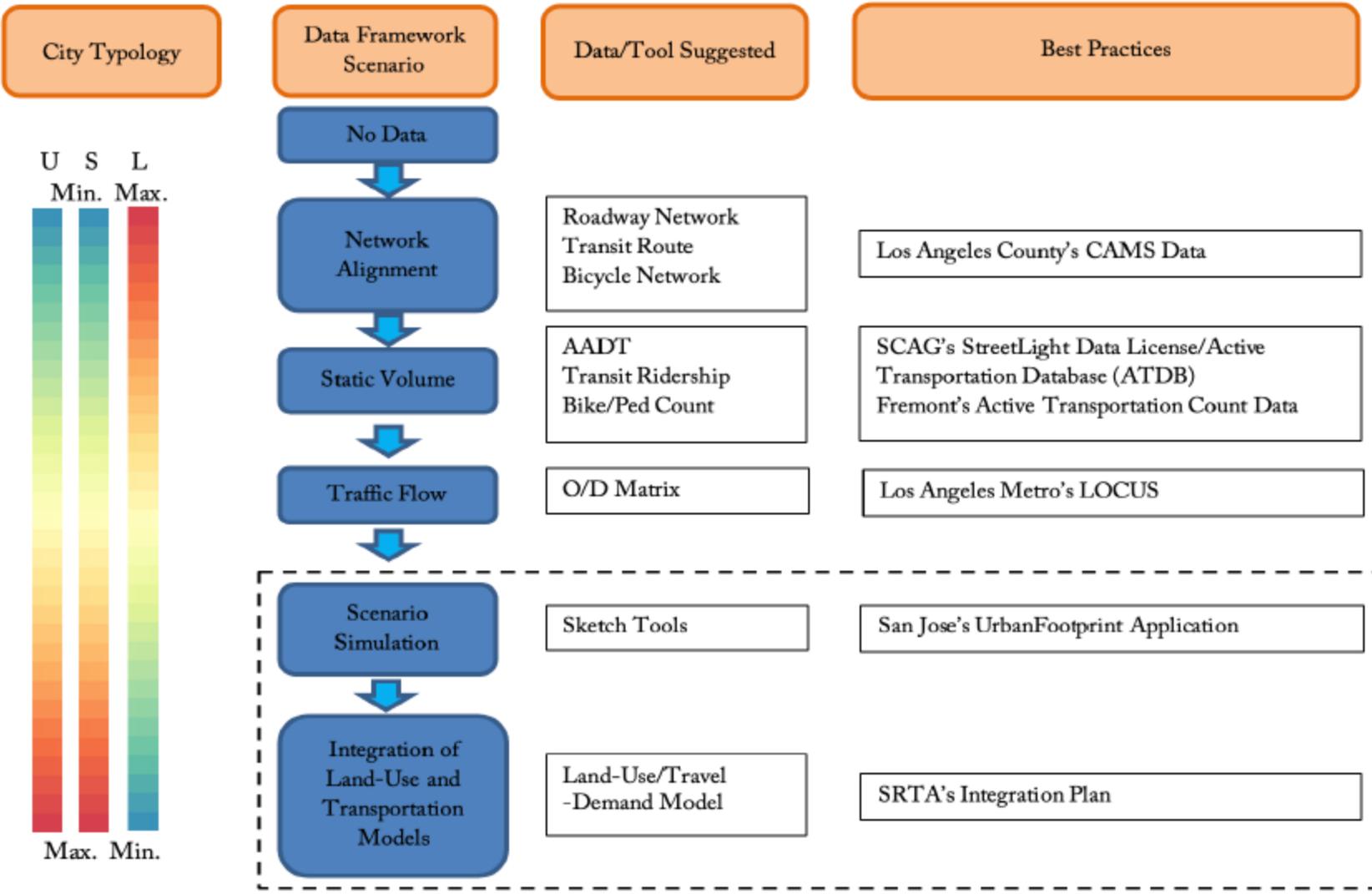
Timely Coordination across
State Departments

Data Guide

Two Guides

- Transportation Data Utilization by Local Capacity
 - Readily available transportation data sources that may be beneficial for local governments' land use decisions
- VMT Tools by Geography
 - Summary and classification of VMT tools (for SB 743 implementation) developed by state, regional, and local governments

Transportation Data Utilization by Local Capacity

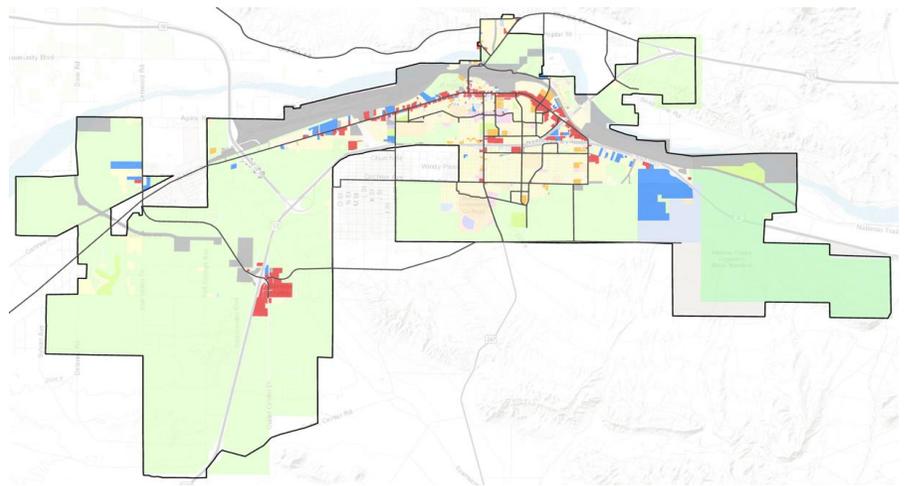
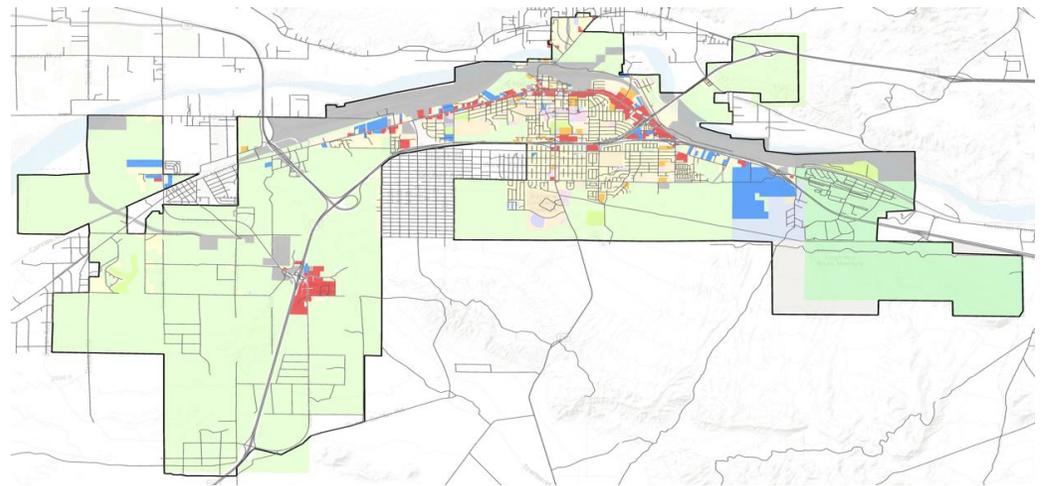


Note: U = Urbanization level; S = Size of the city; L = Local knowledge dependency level; Min. = Minimum; and Max. = Maximum.

Network Alignment

- The scenario where local governments adopt/utilize transportation network data, which simply capture and represent the physical location of transportation infrastructure.

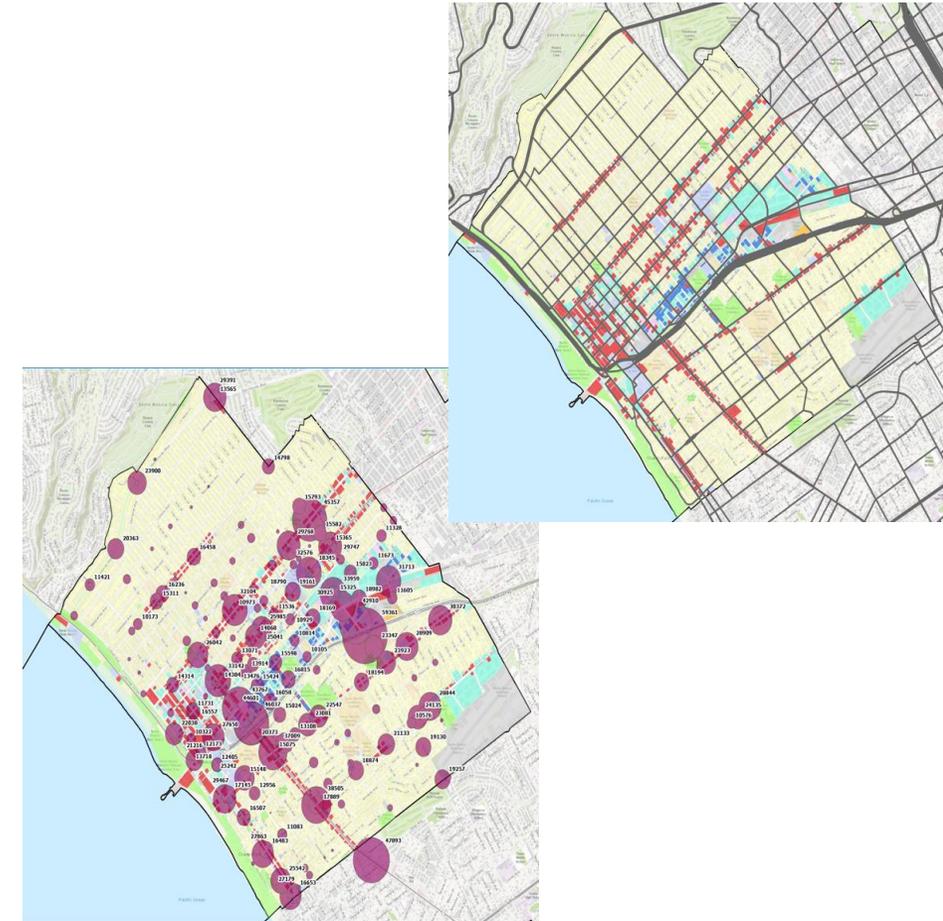
	National	State	Regional
Roadway/Highway	Census TIGER OpenStreetMap	Caltrans highways	
Transit	The National Transit Map		LA Metro
Bike route		The California Bicycle Coalition	SCAG



Static Volume

- The case that local governments adopt/utilize traffic volume data that represent a static snapshot of the traffic volume on roadway segments.

	State	Regional	Local
Automobile	Caltrans highway AADT	SCAG's TDM StreetLight	Traffic count
Transit		SCAG's TDM StreetLight	Transit agencies ridership
Active transportation		SCAG's ATDB StreetLight	



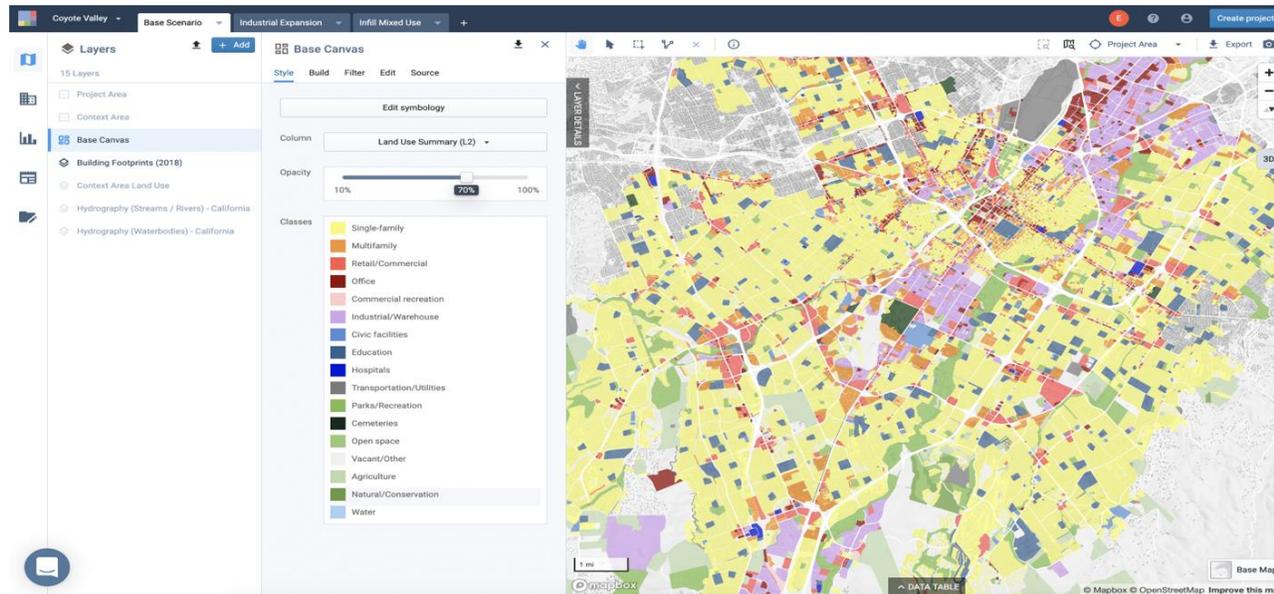
Traffic Flow

- The collection of data that can support the analysis and visualization of the flow of cars and passengers from trip origins to destinations

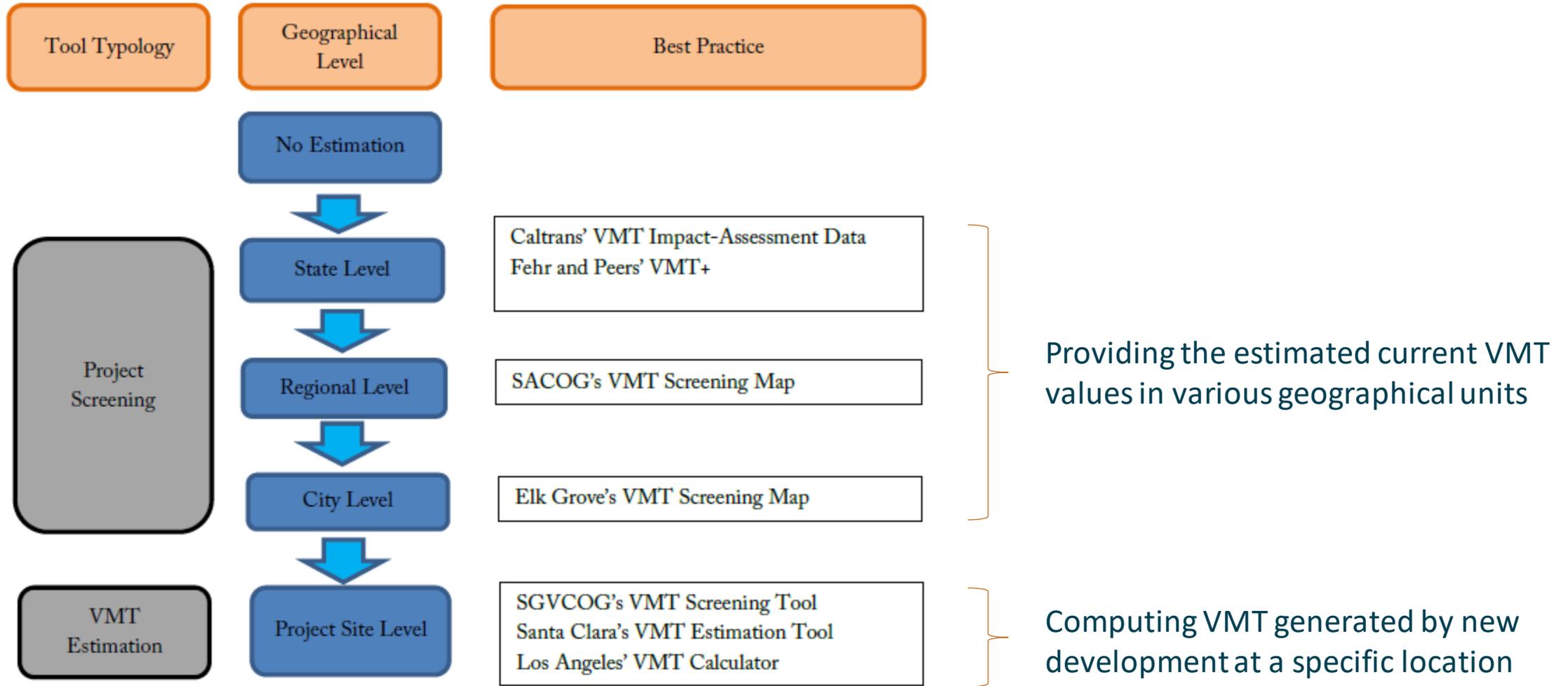
	National	Regional
Automobile	Census Origin-Destination Employment Statistics (LODES) Census for Transportation Planning Products (CTPP)	SCAG's TDM (O-D Matrix)
Transit		SCAG's TDM (O-D Matrix) LA Metro's LOCUS dashboard
Active transportation		

Scenario Simulation

- The case where local governments proactively simulate the impacts of land-use changes and housing-allocation decisions on VMT/GHG reduction, employing one of the sketch planning/modeling tools
 - Sketch tools: Urban Footprint and ArcGIS Urban

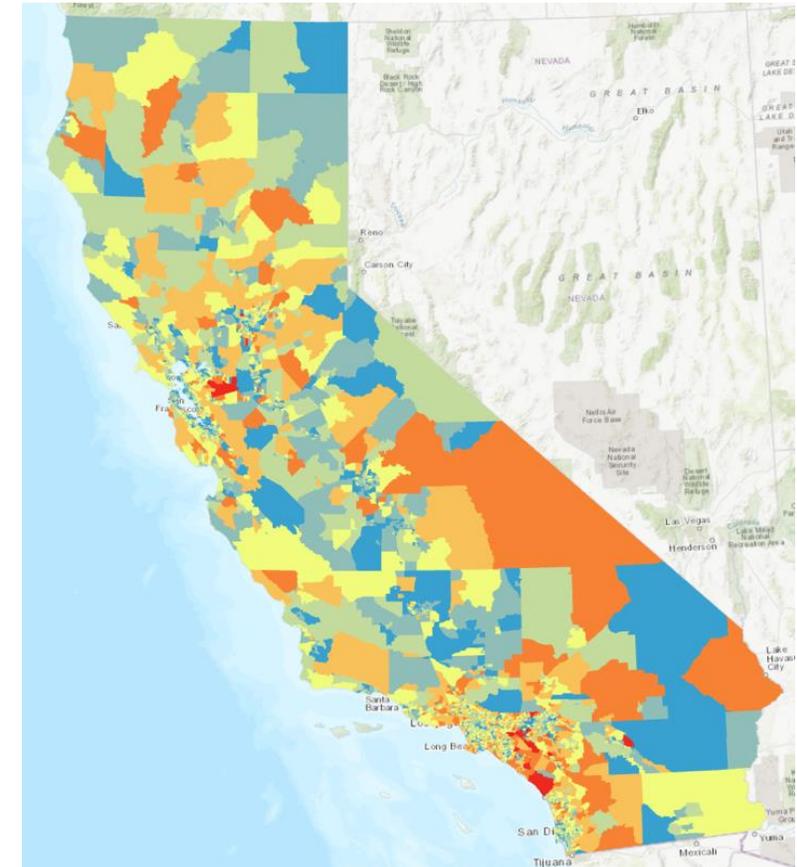


VMT Tools by Geography



VMT Screening Tools

- State-wide** Caltrans SB 743 VMT impact-assessment data
Fehr and Peers' VMT+
- Regional** SACOG's VMT Screening Map
And more
- Local** The City of Elk Grove' VMT Screening map



VMT+ | Providing VMT Per Capita Estimates Across California
Derived from 2019 StreetLight Data

Find Your VMT

On the map, use the magnifying glass or bookmark to find your area of interest -

Use the selector to select and view block group VMT values.

Regional Filters

Select a single or multiple filters to create a subset of block groups VMT below or above regional VMT averages. Regions are jurisdictionally based: City / (Unincorporated County (UC), County, or MPO.

- HBX Filter by City / Uninc County
Below or above City VMT average
- HBW Filter by City / Uninc County
Below or above City VMT average
- HBX Filter by County
Below or above County VMT average
- HBW Filter by County
Below or above County VMT average

Your Block Group Data

If unselected all block groups in the mapview will list

Block Group: 060374024041

HBX VMT: 12.5

- ≥ 15% below the City / UC VMT average
- ≥ 15% below the County VMT average
- ≥ 15% below the MPO VMT average
- ≥ 15% below the Statewide VMT average

HBW VMT: 20.2

- Higher than the City / UC VMT average
- Higher than the County VMT average
- Higher than the MPO VMT average
- Higher than the Statewide VMT average

City: Pomona
County: Los Angeles

Vehicle Miles Travelled

Jurisdiction	Vehicle Miles Travelled
BC	12.5
City	18.3
County	18.3
MPO	20.4

Jurisdiction	Vehicle Miles Travelled
BC	20.2
City	17.9
County	14.2
MPO	15

VMT Estimation Tools

State-wide CaEEMod

Regional

Within SCAG region: SGVCOG, SBCTA, WRCOG

Others: SANDAG, C/CAG, Santa Clara County, Sonoma County, and more

Local

Los Angeles

San Diego

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
450	DU
20	kaf
20	kaf
100	ksf
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.

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: 100 (city code parking provision for the project site)
- Unbundle Parking: 100 (monthly parking cost (dollar) for the project site)
- Parking Cash-Out: 25 (percent of employees eligible)
- Price Workplace Parking: 6.00 (daily parking charge (dollar))
- Residential Area Parking Permits: 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?

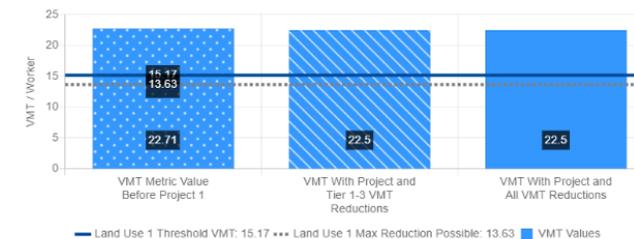
Household: No	Household: No
Threshold = 6.0 15% Below APC	Threshold = 6.0 15% Below APC
Work: Yes Threshold = 7.6 15% Below APC	Work: No Threshold = 7.6 15% Below APC

Santa Clara Countywide VMT Evaluation Tool - Version 2 - Report

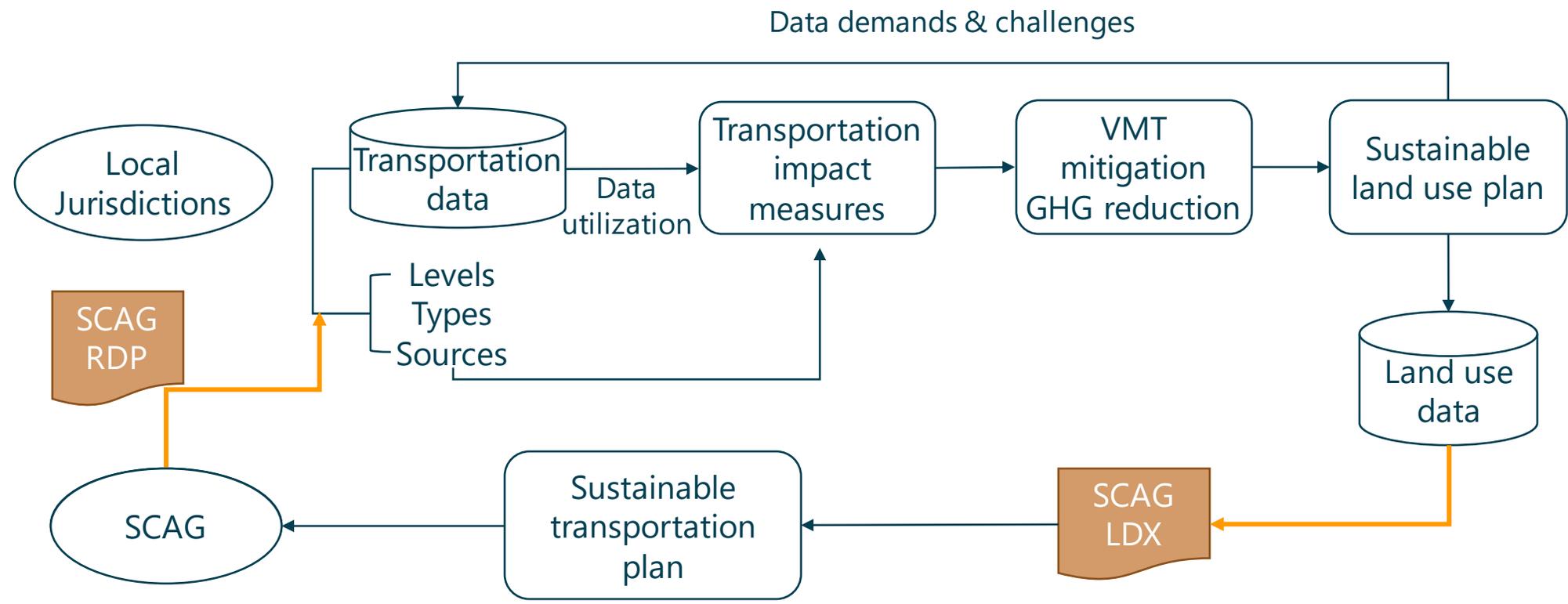
Office Vehicle Miles Traveled (VMT) Screening Results

Land Use Type 1:	Office
VMT Metric 1:	Home-based Work VMT per Worker
VMT Baseline Description 1:	City Average
VMT Baseline Value 1:	17.85
VMT Threshold Description 1 / Threshold Value 1:	-15% / 15.17
Land Use 1 has been Pre-Screened by the Local Jurisdiction:	N/A

	Without Project	With Project & Tier 1-3 VMT Reductions	With Project & All VMT Reductions
Project Generated Vehicle Miles Traveled (VMT) Rate	22.71	22.5	22.5
Low VMT Screening Analysis	No (Fail)	No (Fail)	No (Fail)



Summary and On-going Work



Acknowledgment

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Thank you.



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