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

Tom Vo, Principal Regional Planner, Planning Strategy Department, SCAG
So-Ra Baek, Ph.D., Associate Professor & Dohyung Kim, Ph.D., Professor
Department of Urban and Regional Planning, Cal Poly Pomona | 3/26/2024

Toolbox Tuesday

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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

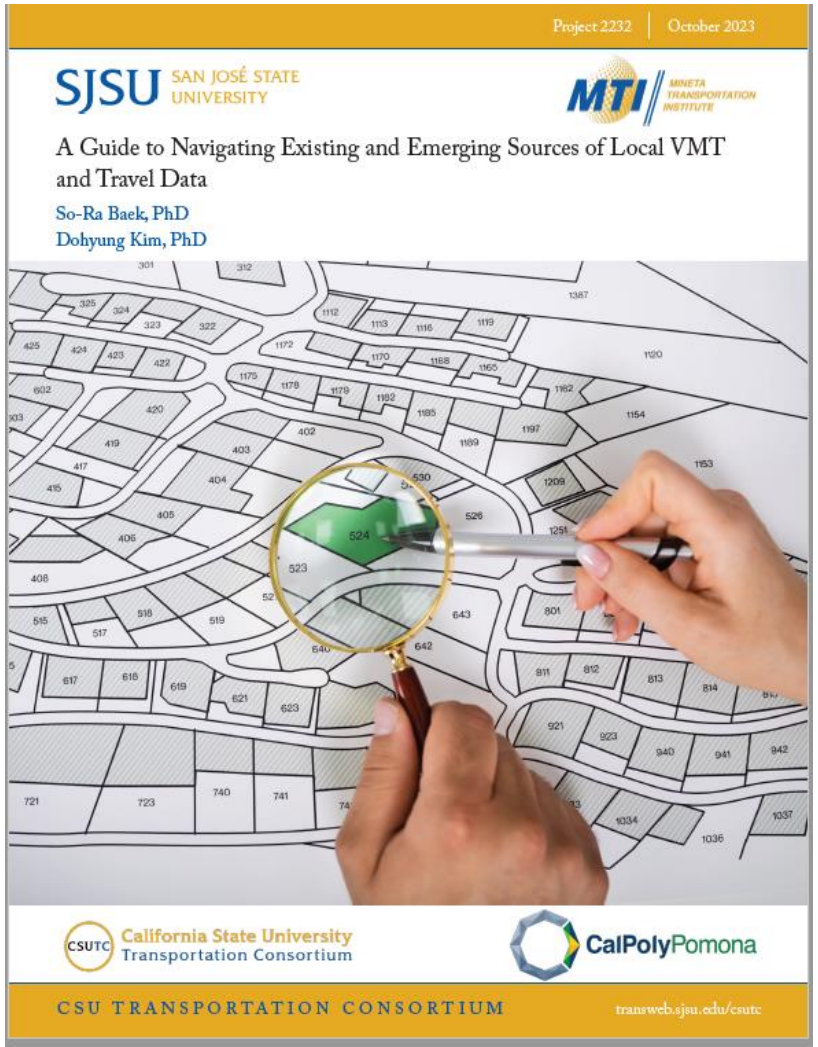
$1.5 billion in projects since the adoption of Connect SoCal 2020

…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

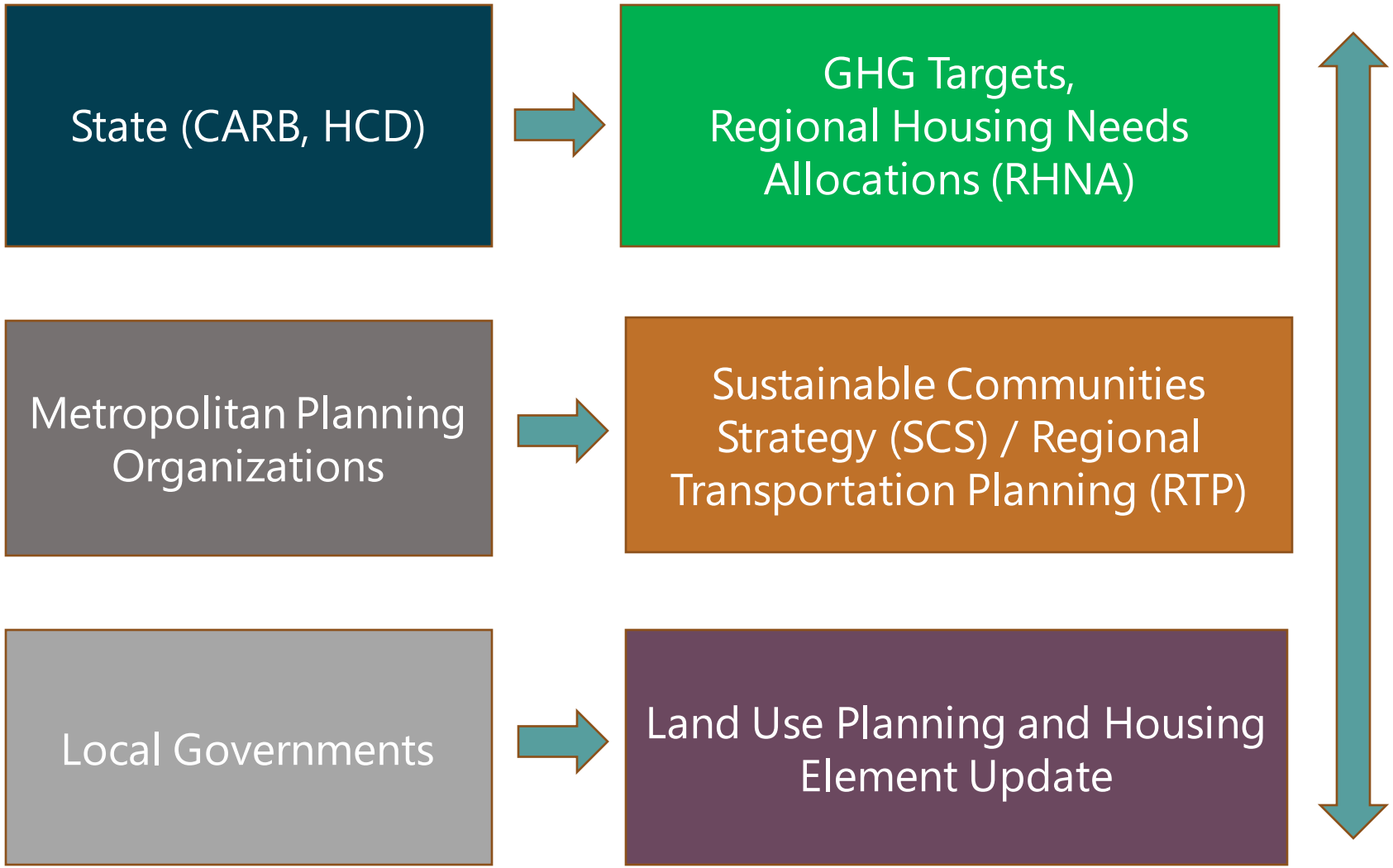


California State Polytechnic University, Pomona
Dept. of Urban & Regional Planning
College of Environmental Design

Dr. So-Ra Baek
Associate Professor, sbaek@cpp.edu
Dr. Do Kim
Professor, dohyungkim@cpp.edu

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

Background in California



SB 375 GHG reduction by coordinating land use and transportation planning

SB 743 Replacing level of service (LOS) with VMT as the primary measure and basis for mitigating transportation impacts

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

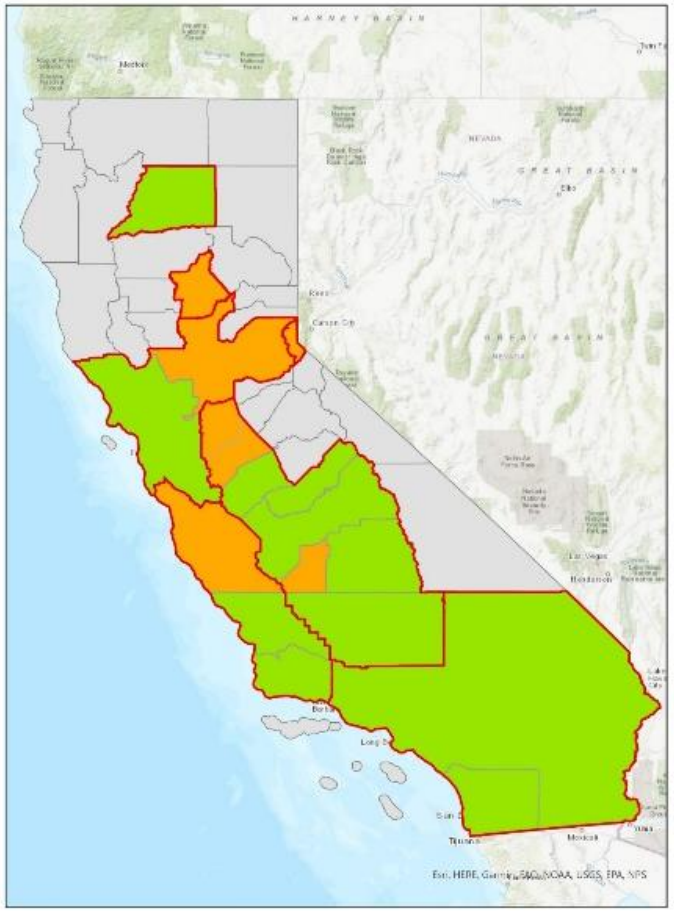
Survey Recruitment (September-December 2022)
- OPR's Directory of Planning Agencies published in 2021 (58 counties, 482 cities/towns).
- MPOs' staff who work on travel demand modeling was obtained from CARB.
- Recruitment via emails, phone calls, and personal contacts

Survey Responses (Rate)

96 Cities/Towns (20 %)

14 Counties (24 %)

11 MPOs (61 %)



Responded

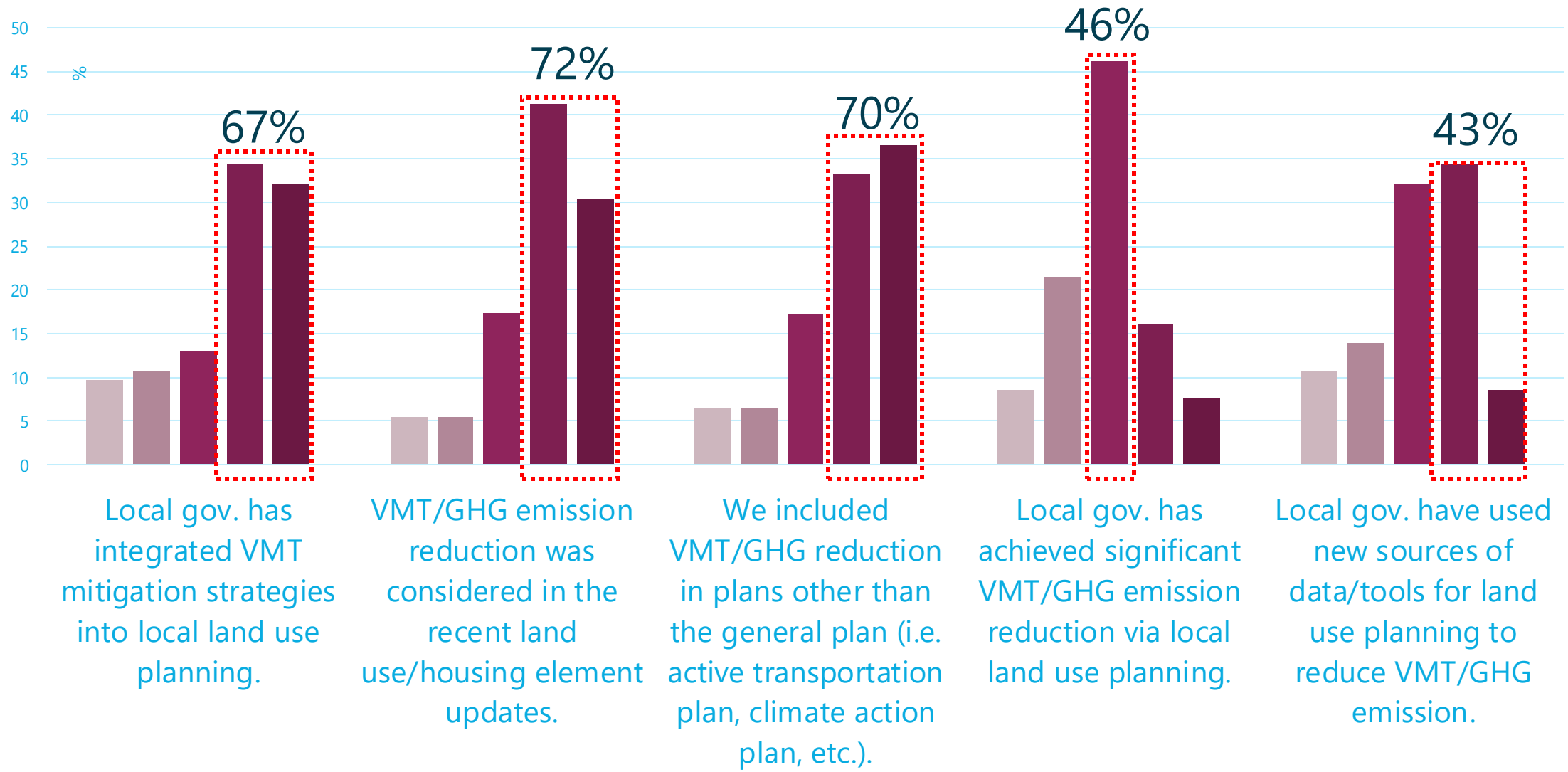
Not Responded

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?



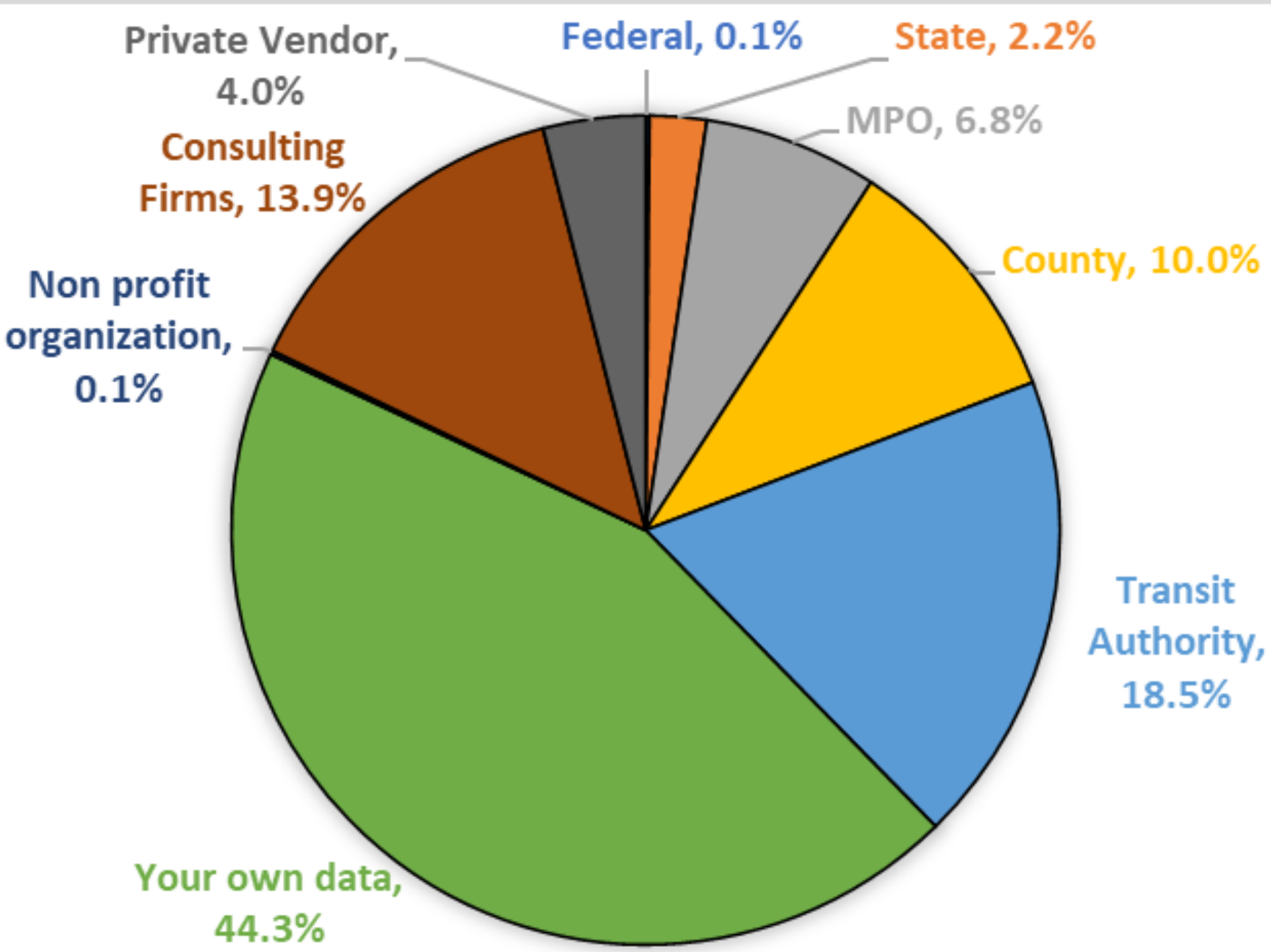
Transportation Data and Policy Implementation

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)

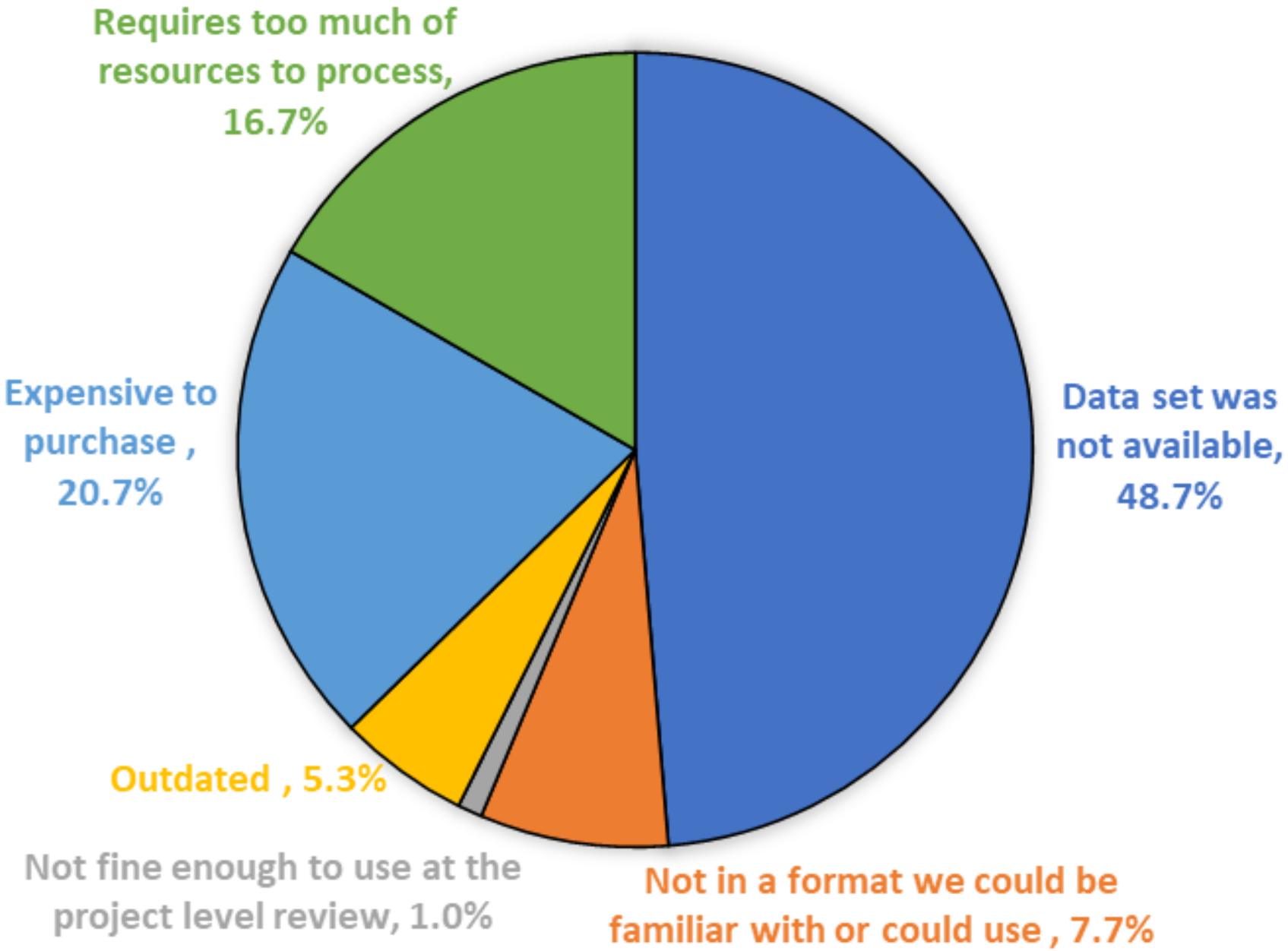
Transportation Data Used by Local Governments

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
				Automobile traffic counts	4
				Origin/Destination (O/D) Matrix	4
		Transit	9	Transit ridership by route	4
				Transit ridership by station/stop	5
		Active	10	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

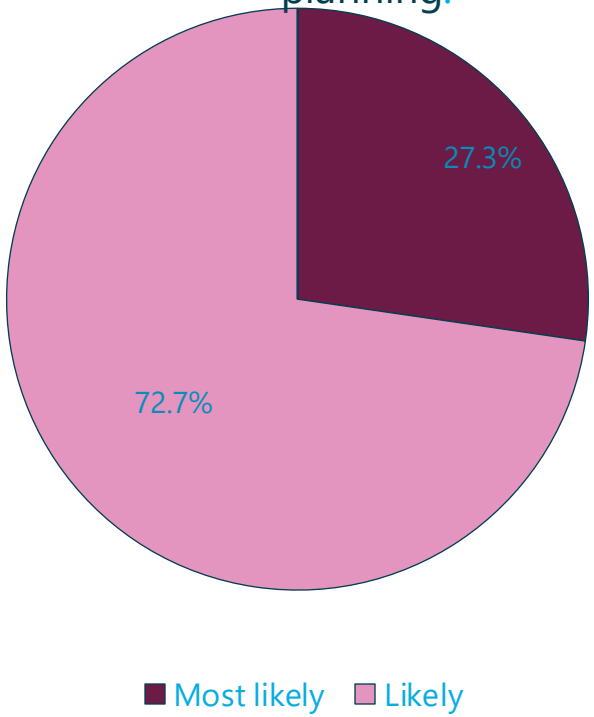
Note: Weighted Score = (Strongly agree × 2) + (Somewhat agree × 1) + (Neutral × 0) + (Somewhat disagree × -1) + (Strongly disagree × -2)

"…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)

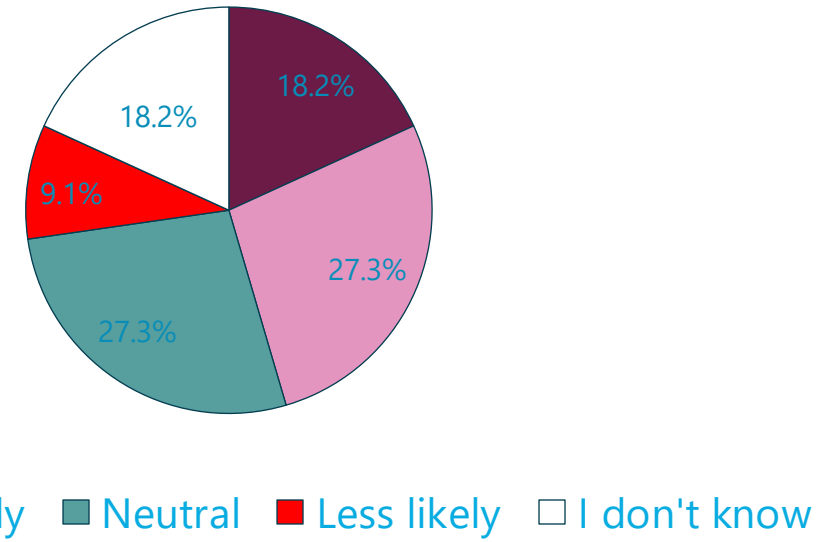
MPO Perspective on Local Practices

- 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.



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

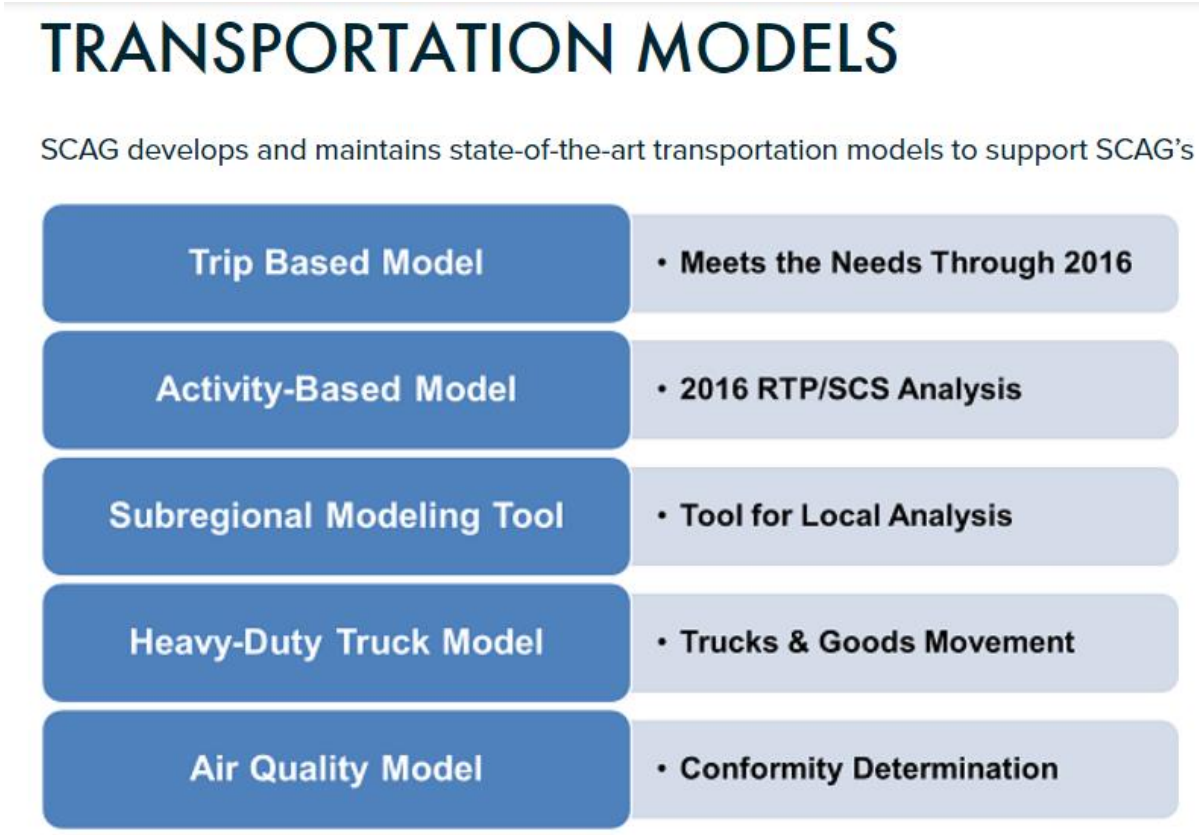


MPO Data Support in Detail

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
	Active	Bicycle network	0	23
		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

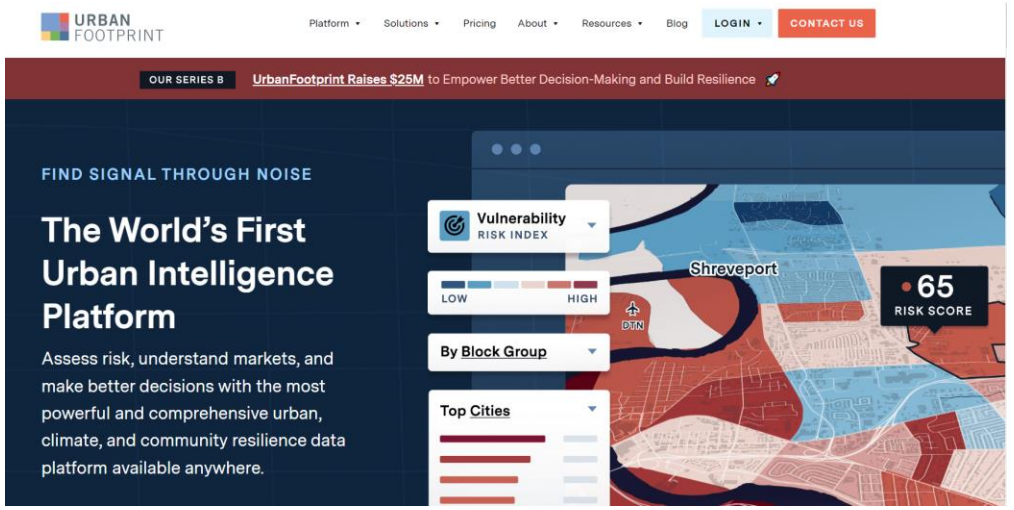
Barriers to the Go-to Source of Transportation Data: Regional Travel Demand Models

- 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."



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

"…[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)

"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)

"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)

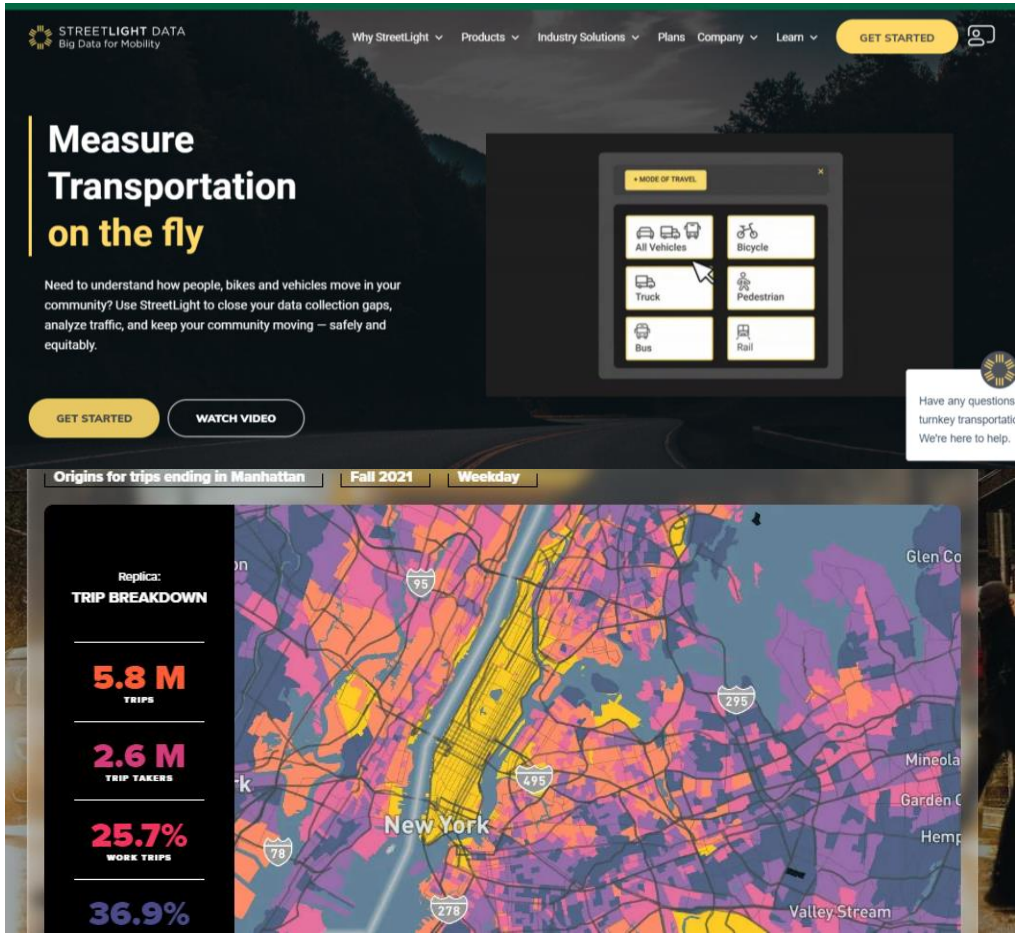
"I think part of the frustration we have is that we have really good air quality attentive to the rest of the state. We have great air quality the majority of the year and the only time it's really affected is fires. So we're trying to reduce GHG and VMT and all of that. But when you look at how many 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)

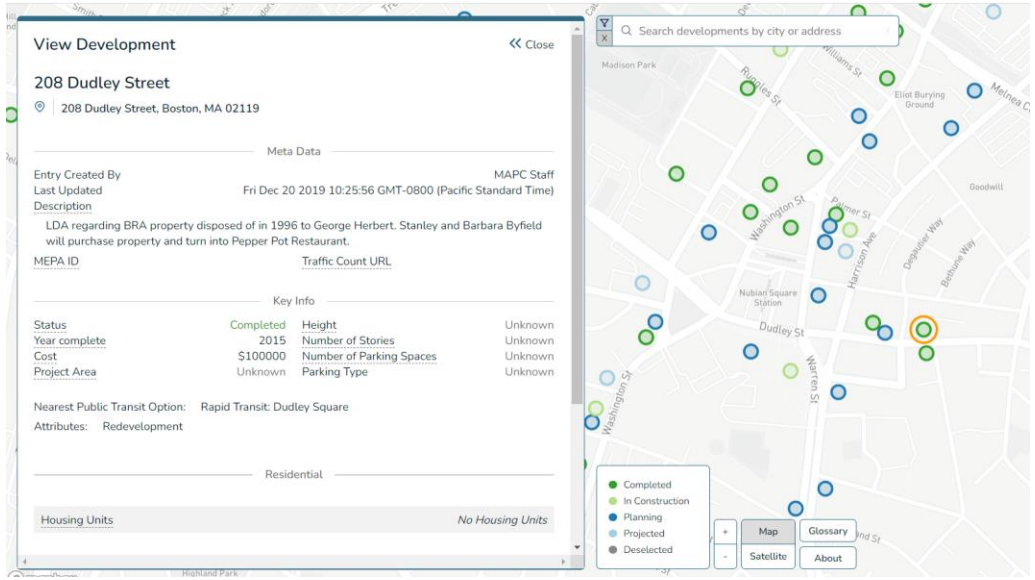
Big Data Use as Dominant Trend

- 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

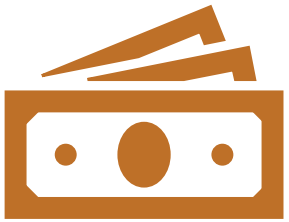
- Developing an online land use data collection framework like “MassBuilds”
- Feeding it into an integrated land use and travel model
- Shasta Regional Transportation Agency (SRTA), the Association of Monterey Bay Area Governments (AMBAG), the Butte County Association of Governments (BCAG), the San Luis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



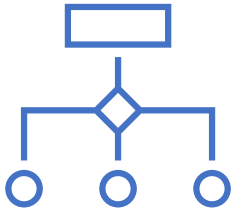
Data Exchange Platforms for Better Collaboration between MPOs and Local Agencies

- 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

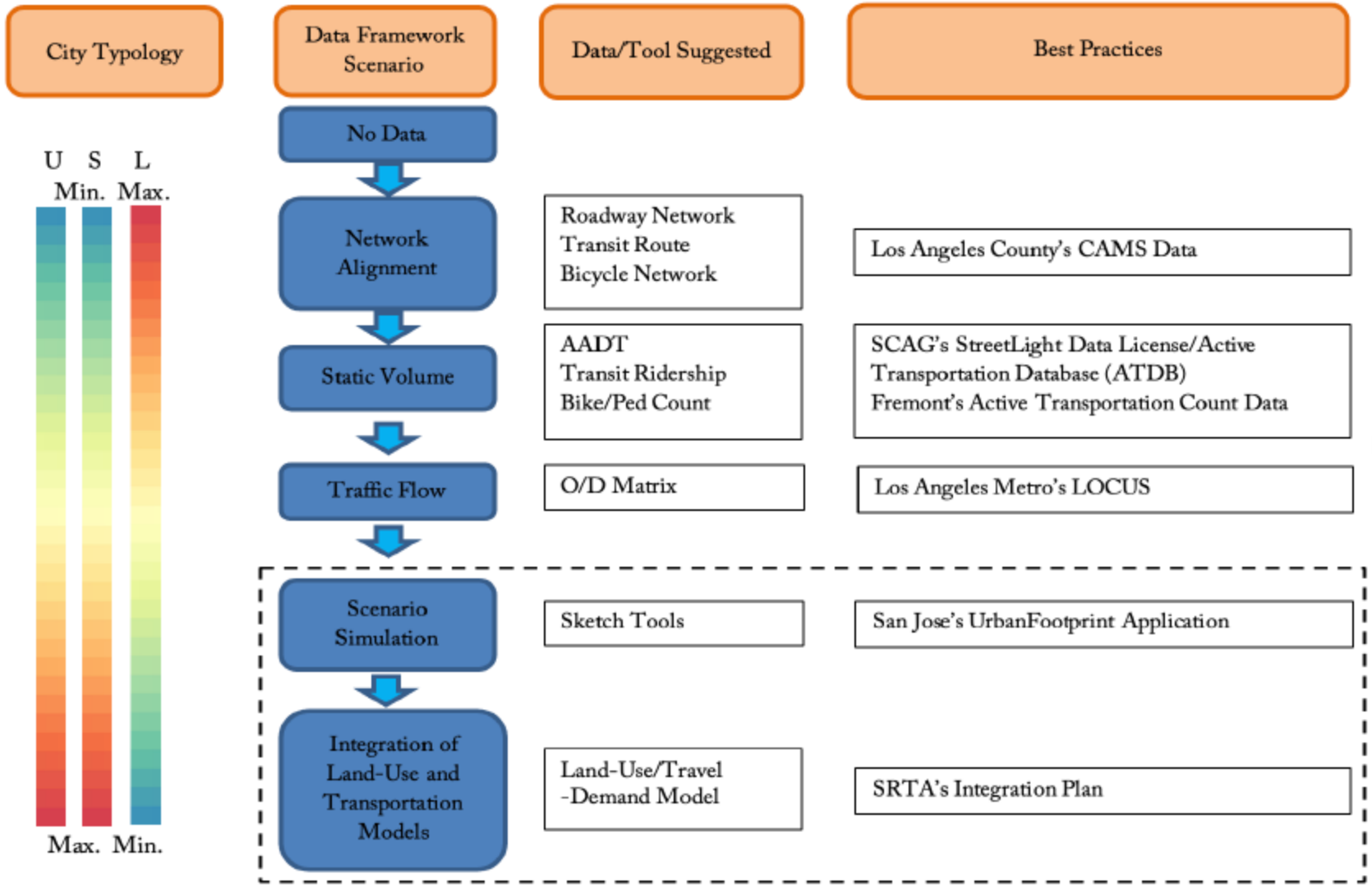
Data Guide

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

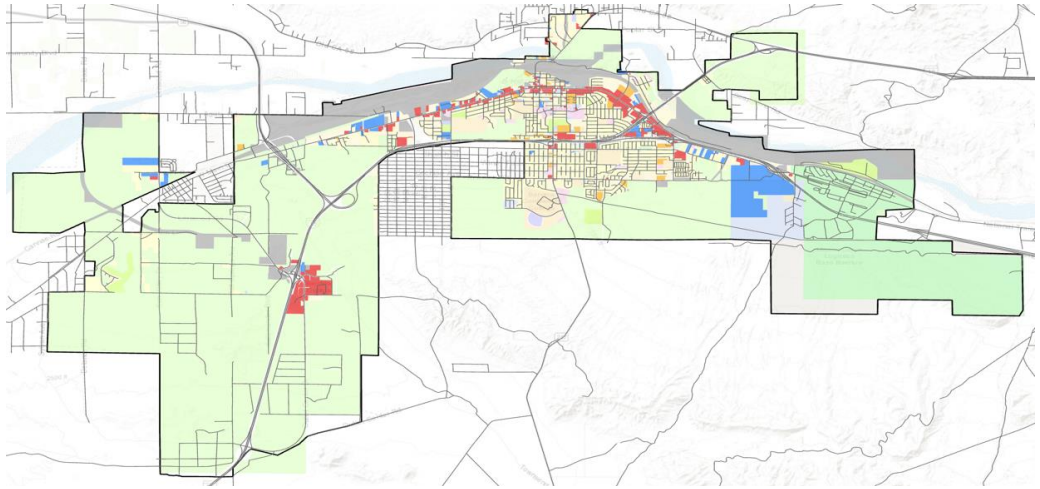


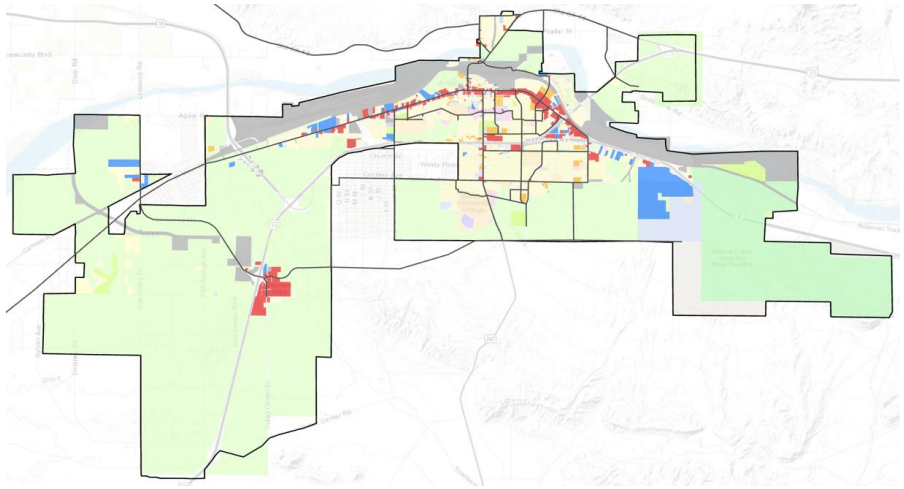
Note: U = Urbanization level; S = Size of the city; L = Local knowledge dependency level; Min. = Minimum; and Max. = Maximum.

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

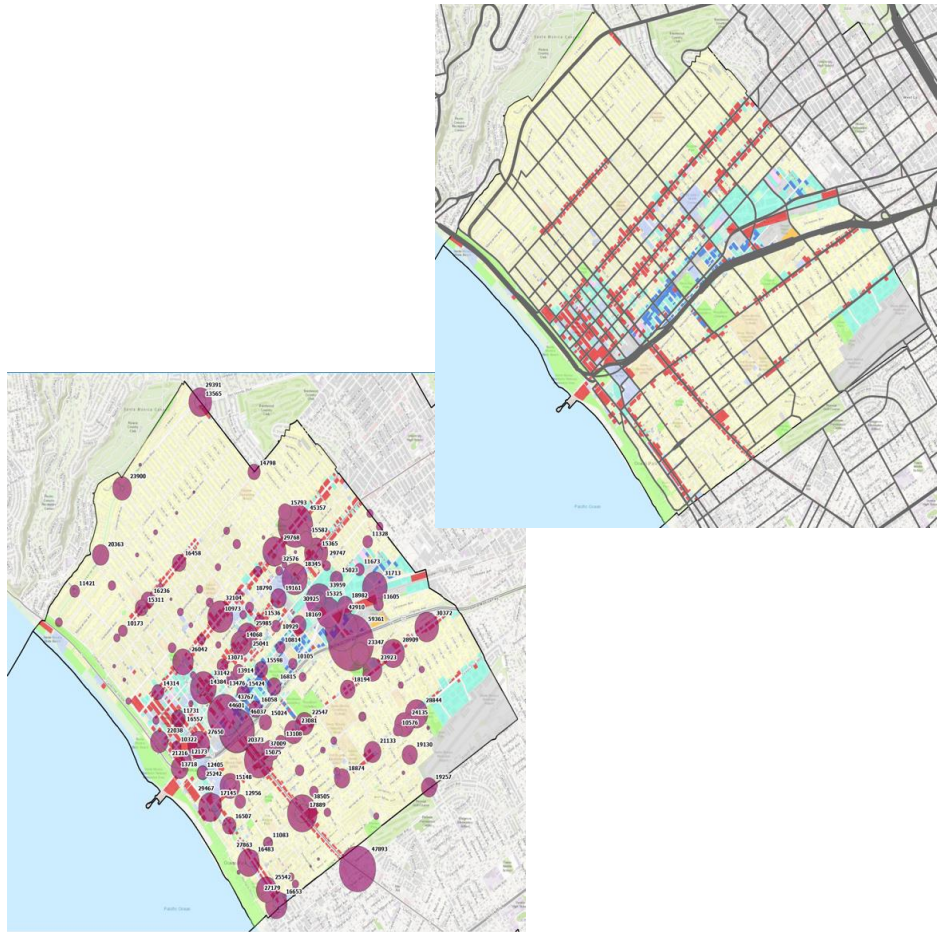




Static Volume

- 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	



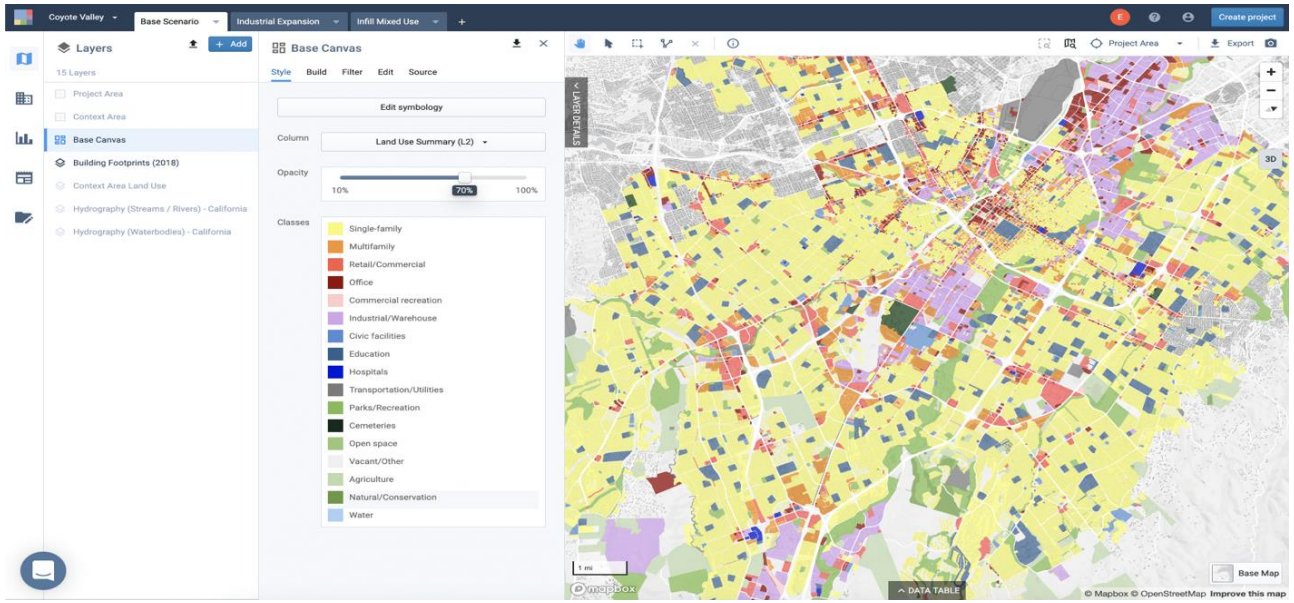
Traffic Flow

- 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		

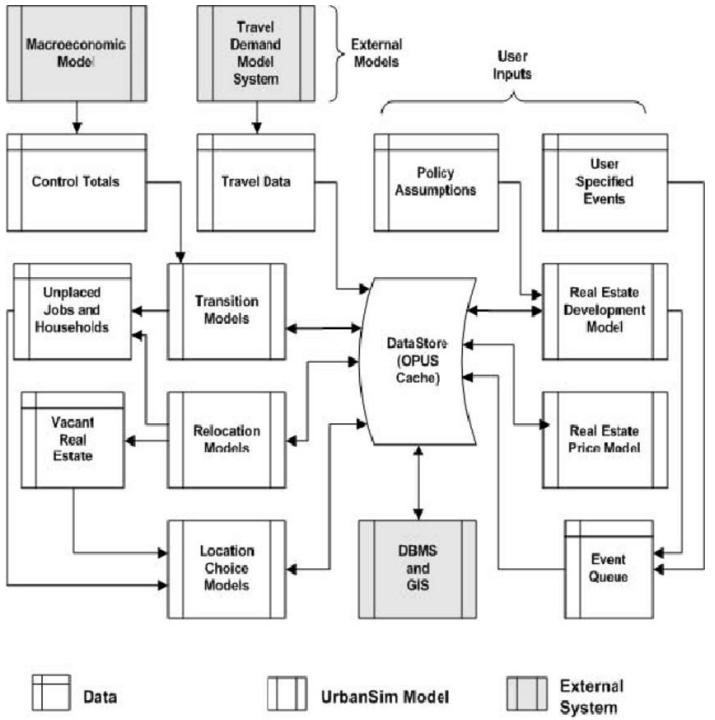
Scenario Simulation

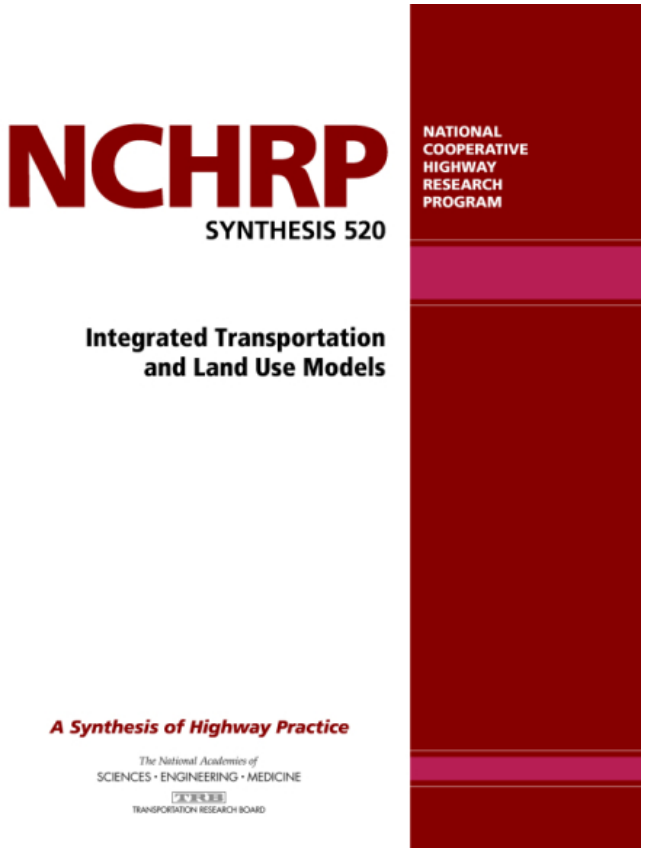
- The case where local governments proactively simulate the impacts of land-use changes and housing-allocation decisions on VMT/GHG reduction, employing one of the sketch planning/modeling tools
  - Sketch tools: Urban Footprint and ArcGIS Urban



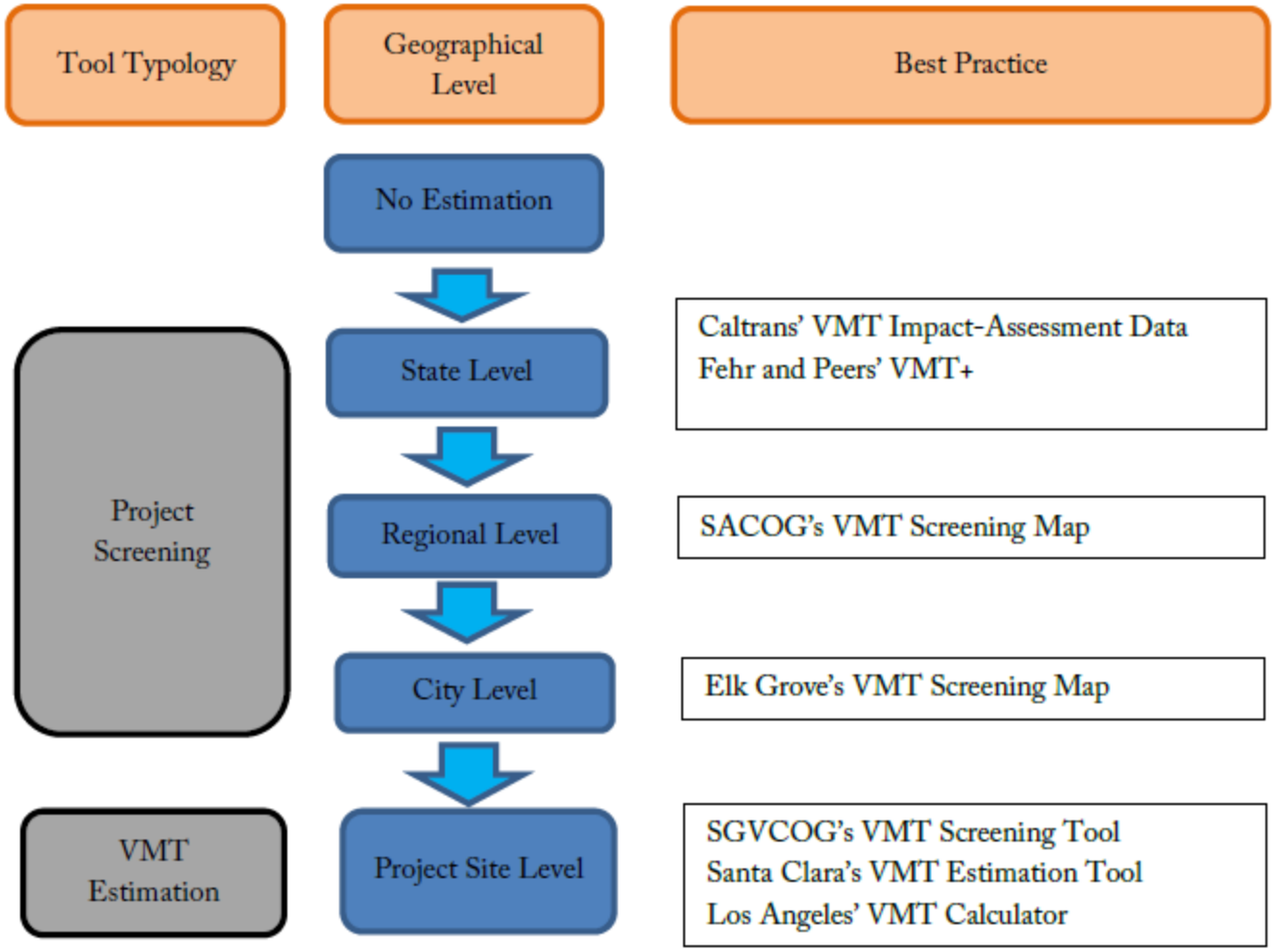
Integration of Land-Use and Transportation Models

- Not currently available option, but future direction identified in the interviews
  - 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)
- A tool that cohesively integrates a land-use model and TDM
  - E.g. UrbanSim





VMT Tools by Geography

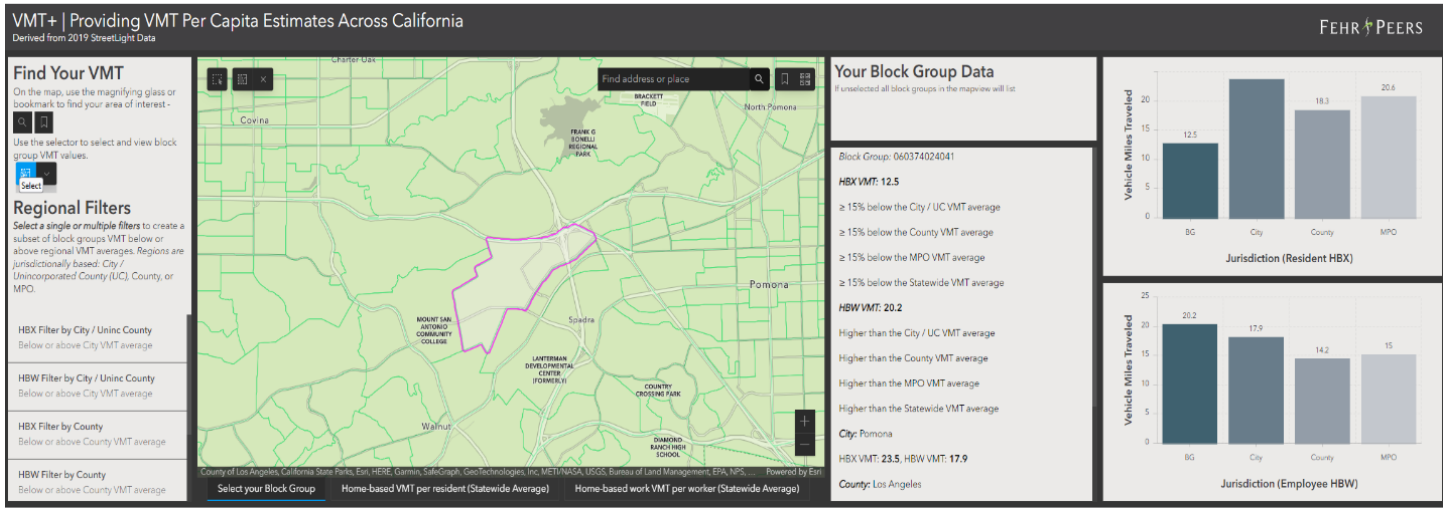


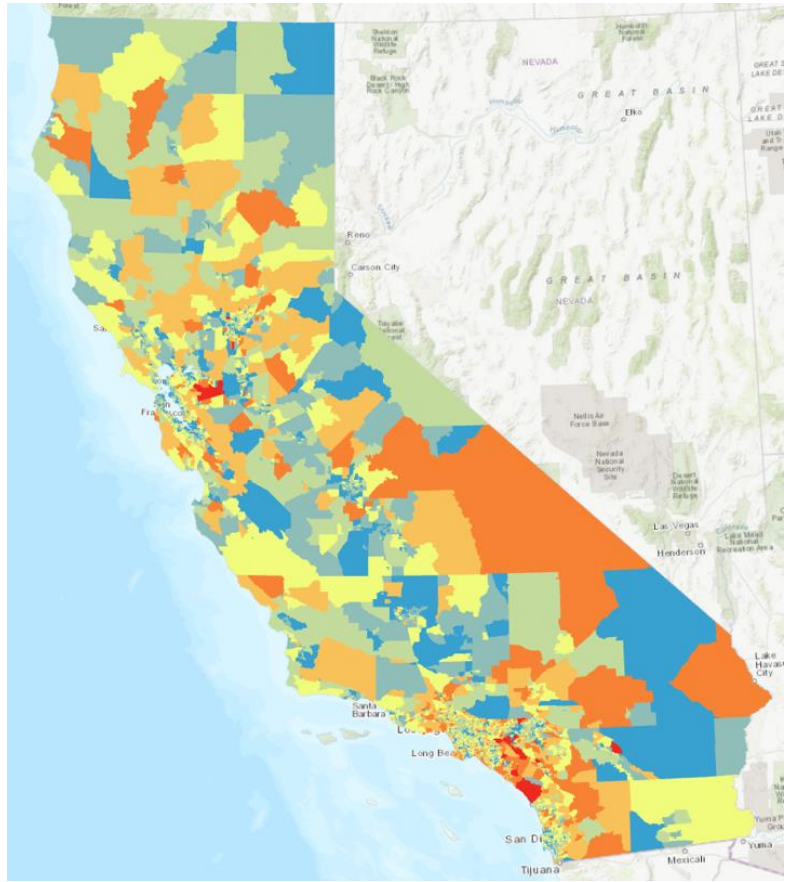
Providing the estimated current VMT values in various geographical units

Computing VMT generated by new development at a specific location

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





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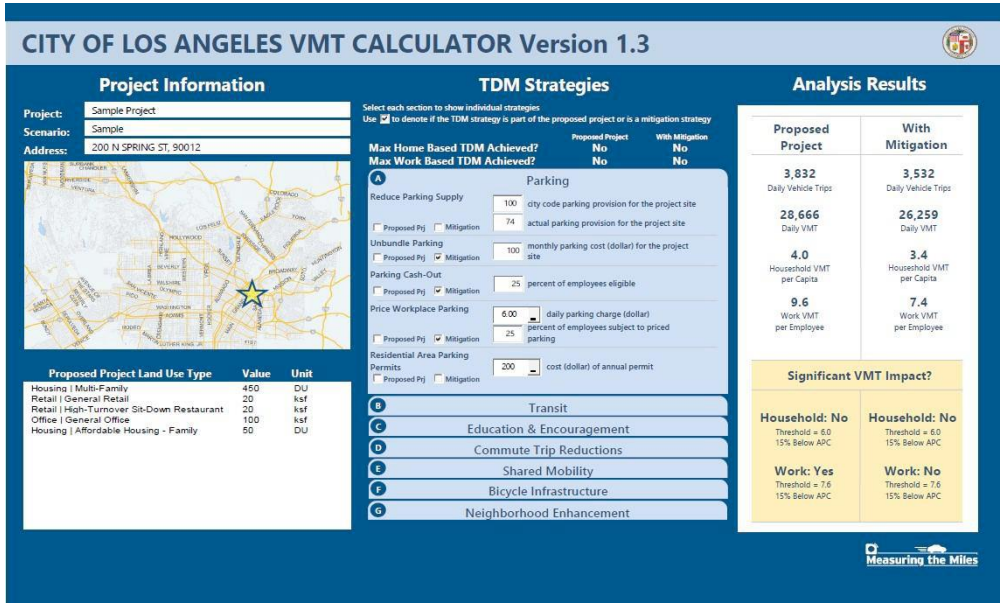
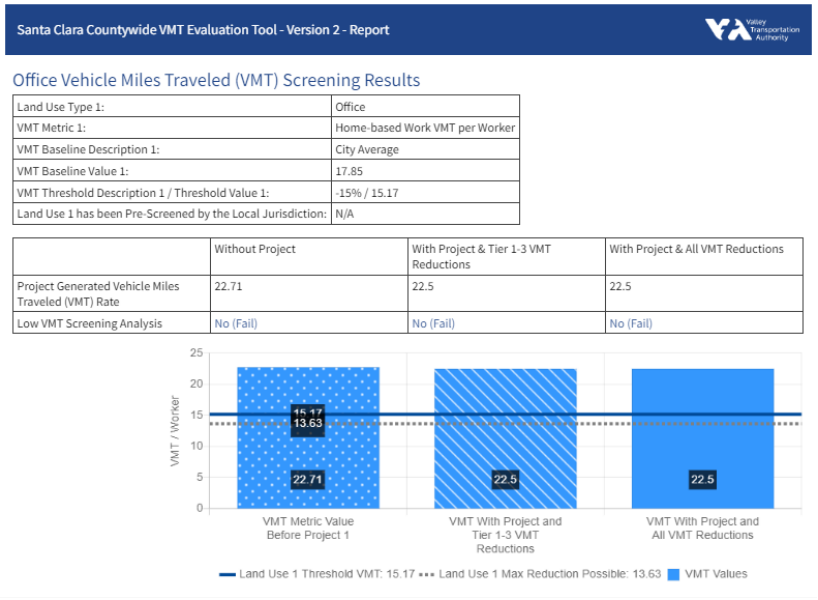
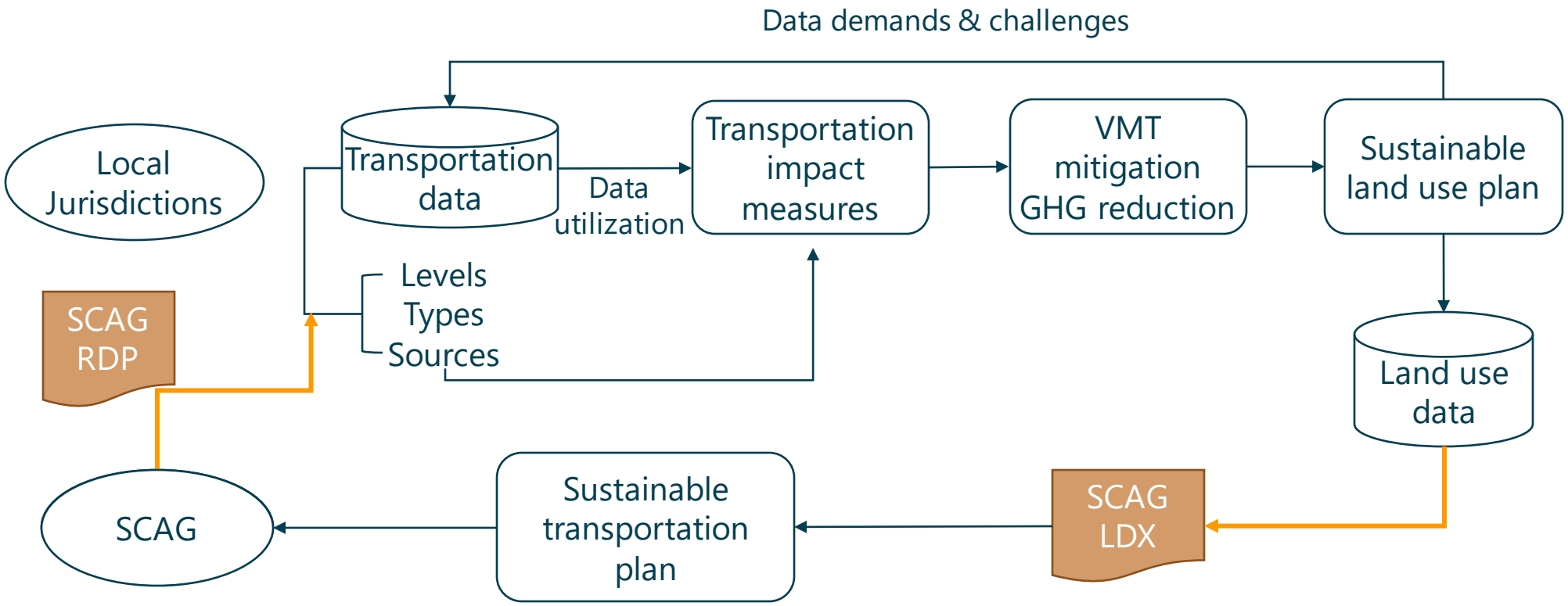
VMT Estimation Tools

State-wide	CalEEMod
Regional	Within SCAG region: SGVCOG, SBCTA, WRCOG Others: SANDAG, C/CAG, Santa Clara County, Sonoma County, and more
Local	Los Angeles San Diego





Summary and On-going Work



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Thank you.

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