



Empowering Southern California with Big Data Analytics

August 8, 2023



Toolbox
Tuesday

WWW.SCAG.CA.GOV

Housekeeping

1. Meeting length: 1.5 hour
2. This meeting is being recorded
3. All participant lines will be muted
4. There will be a Q&A sessions at the end
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

Introduction



Scott Johnson, AICP
Senior Regional Planner
SCAG



Andrew (Drew) Kent, PTP
Program Manager of Transportation Data & Service
Ventura County Transportation Commission

Session Goals

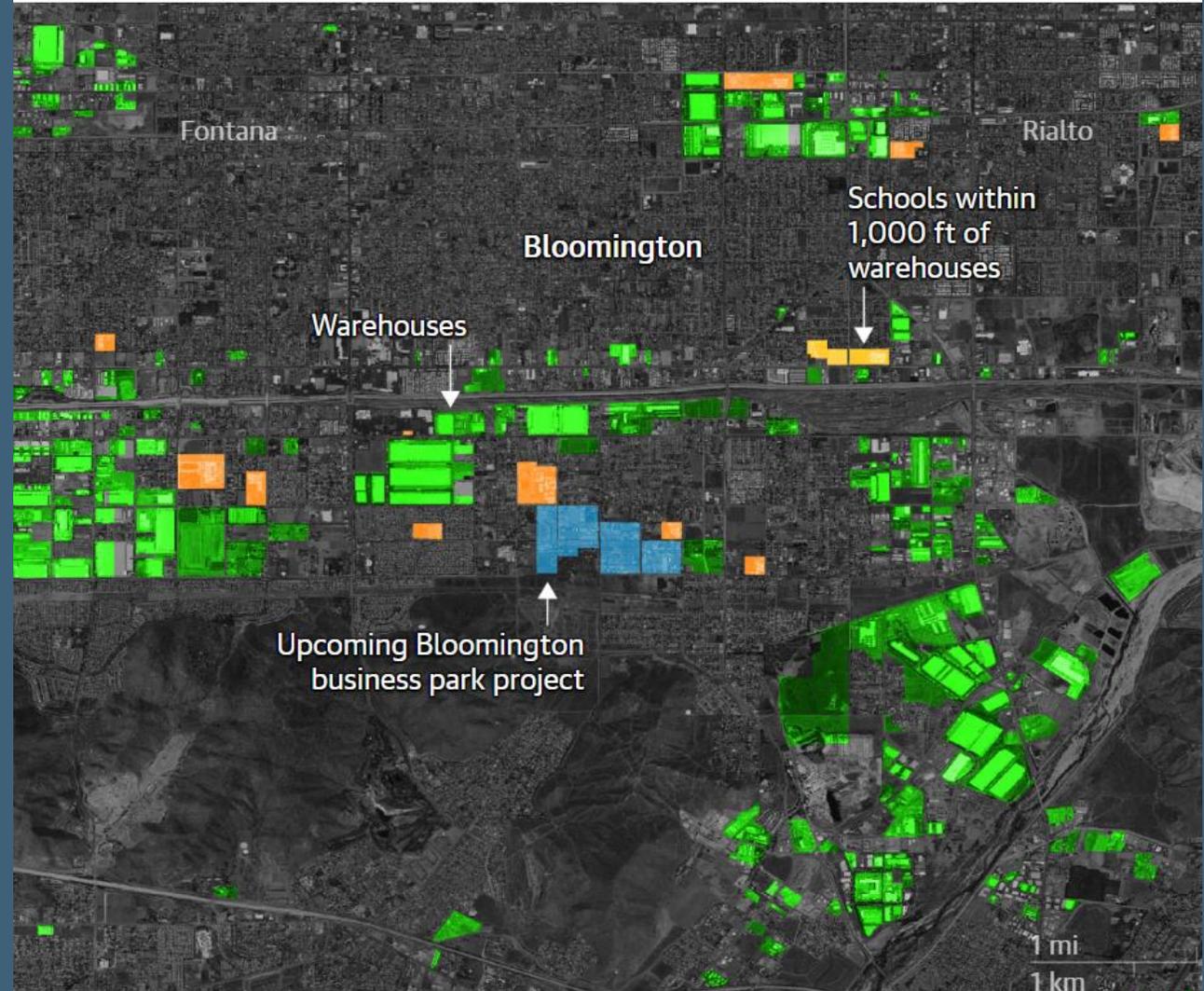
- Able to answer the question what is 'Big Data'
- Understanding of where and when it makes sense to use Big Data analytics
- Knowledge of how to obtain Big Data access and training from SCAG



Agenda

- Big Data Analytics
- Connection to Regional Early Action Planning (REAP) 2.0 Program
- StreetLight Insight
- Use Case Examples
- Access/Training/Support
- Q&A

Bloomington, and the surrounding area, is now dominated by warehouses





BIG DATA ANALYTICS

Describing Big Data

What exactly is 'Big Data'?

What is Big Data? A meme and a marketing term, for sure, but also shorthand for advancing trends in technology that open the door to a new approach to understanding the world and making decisions. There is a lot more data, all the time, growing at 50 percent a year, or more than doubling every two years, estimates IDC, a technology research firm.*

* Lohr, Steve, The age of Big Data, New York Times Feb 11, 2012

What is Big Data Analytics?

Translating large datasets into usable information

'Big data uses mathematical analysis, optimization, inductive statistics, and concepts from nonlinear system identification to infer laws (regressions, nonlinear relationships, and causal effects) from large sets of data with low information density to reveal relationships and dependencies, or to perform predictions of outcomes and behaviors.'



Unique Use Cases

China launches national big data platform for rice industry chain

By Global Times

Published: Apr 02, 2023 10:44 PM Updated: Apr 02, 2023 10:38 PM



An agronomist checks the growth of rice seedlings at an intelligent seedling plant in Southwest China's Chongqing on March 27, 2023. The plant has a greenhouse area of 4,608 square meters, capable of growing 800 hectares of rice seedlings a year. Photo: VCG

Evidence-based Decision Making

The screenshot shows a webpage from Harvard Business Review. At the top left is the Harvard Business Review logo. At the top right, it says 'Analytics And Data Science | You May Not Need Big Data After All'. Below this, the article title 'You May Not Need Big Data After All' is prominently displayed in a large, bold font. Underneath the title, the authors are listed as 'by Jeanne W. Ross, Cynthia M. Beath, and Anne Quaadgras'. A small line of text below the authors reads 'From the Magazine (December 2013)'. A 'Summary' section follows, starting with 'Reprint: R1312F Why do companies have so little to show for their investments in big data? The biggest reason is that they aren't doing a good job using the data they already have. They don't know how to manage the information embedded in their operating systems...' and ending with a 'more' link. To the left of the main text is a vertical sidebar with icons for 'Tweet', 'Post', 'Share', 'Save', 'Buy Copies', and 'Print'. In the center of the page, there is a graphic artwork consisting of several white, faceted geometric shapes (resembling crystals or data points) arranged in a cluster. To the right of this artwork is a short paragraph: 'Companies are investing like crazy in data scientists, data warehouses, and data analytics software. But many of them don't have much to show for their efforts. It's possible they never will.' Below the artwork is a small caption: 'Artwork: Chad Hagen, Graphic Composition No. 2, 2009, digital'. The main body of the article continues with a paragraph: 'What's the problem? To begin with, big data has been hyped so heavily that companies are expecting it to deliver more value than it actually can. In addition, analytics-generated insights can be easy to replicate: A financial services company we studied built a model based on an analysis of big data that identified the best place to locate an ATM, only to learn that consultants had already built similar models for several other banks. Moreover, turning insights from data analytics into competitive advantage requires changes that businesses may be incapable of making. One retailer, for example, learned that it could increase profits substantially by extending the time items were on the floor before and after discounting. But implementing that change would have required a complete redesign of the supply chain, which the retailer was reluctant to undertake.' The article concludes with a paragraph: 'The biggest reason that investments in big data fail to pay off, though, is that most companies don't do a good job with the information they already have. They don't know how to manage it, analyze it in ways that enhance their understanding, and then make changes in response to...'

Privacy

The screenshot shows the top navigation bar of The Guardian website with links for 'Print subscriptions', 'Sign in', 'Search jobs', 'Search', and 'US edition'. Below this is a 'Support the Guardian' banner with a 'Support us' button. The main navigation menu includes 'News', 'Opinion', 'Sport', 'Culture', 'Lifestyle', and 'More'. The article title is 'Smart cities: are you willing to trade privacy for efficiency?' by Siraj Dato, dated Fri 4 Apr 2014 10.07 EDT. The article text discusses the challenges of smart cities and the need for privacy. An advertisement for 'superiorglove' is visible on the right side of the page.

Print subscriptions Sign in Search jobs Search US edition

Support the Guardian
Fund independent journalism with \$5 per month
Support us →

The Guardian

News Opinion Sport Culture Lifestyle More

The data store: on big data
Big data

Smart cities: are you willing to trade privacy for efficiency?

Data science may be helping cities get 'smarter', but questions remain over how long urban populations will tolerate an increasingly invasive level of data collection

Siraj Dato
Fri 4 Apr 2014 10.07 EDT

2

Photograph: Alamy Photograph: Alamy

Privacy must play an instrumental role in any smart city strategy otherwise citizens might fear the introduction of other innovative technology, according to an executive at one of the world's largest infrastructure companies.

Wim Elfrink, executive vice president of industry solutions and chief globalisation officer of Cisco, heads up the company's smart cities team and warned that if cities did not give citizens the choice of whether or not to allow the government to use their data, they might opt-out of future initiatives.

Advertisement

superiorglove
The New Standard for Dexterity
FREE SAMPLES
ANSI A9 CUT

Many Different Platform Providers

The logo for INRIX, featuring the word "INRIX" in a white, serif font with horizontal lines above and below the letters, set against a dark blue rectangular background.The logo for CUBIC, featuring a stylized globe icon inside a 3D wireframe cube, followed by the word "CUBIC" in a bold, sans-serif font with a registered trademark symbol, all on a white background.The logo for STREETLIGHT DATA, featuring a stylized sunburst icon on the left and the text "STREETLIGHT DATA" in a bold, sans-serif font above "Big Data for Mobility" in a smaller, sans-serif font, all on a black background.The logo for wejo, featuring the word "wejo" in a bold, lowercase, sans-serif font on a white background.The logo for tomtom, featuring a red location pin icon on the left and the word "tomtom" in a bold, lowercase, sans-serif font on a white background.The logo for GEOTAB, featuring the word "GEOTAB" in a blue, uppercase, sans-serif font with a registered trademark symbol, on a white background.

What are SCAG's Goals for Big Data?

- Provide free access to transportation 'Big Data' platforms
- Foster data driven decision-making
- Provide support and training to help answer regional and local transportation questions





CONNECTION TO REAP 2.0 PROGRAM

Big Data's Connection to the REAP 2.0 Program

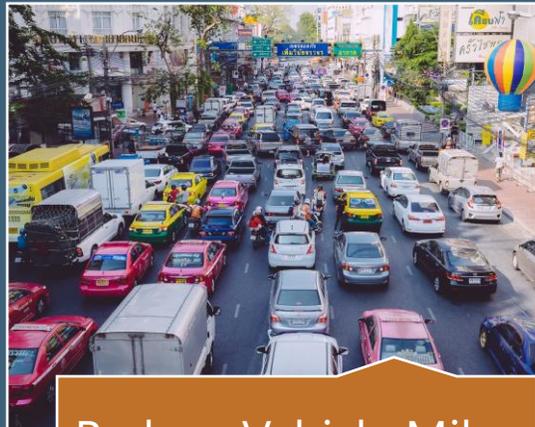
REAP 2.0 Objectives

Transformative planning and implementation activities which implement the regional Sustainable Communities Strategy (SCS)

REAP 2.0 Objectives



Promote infill housing development AND

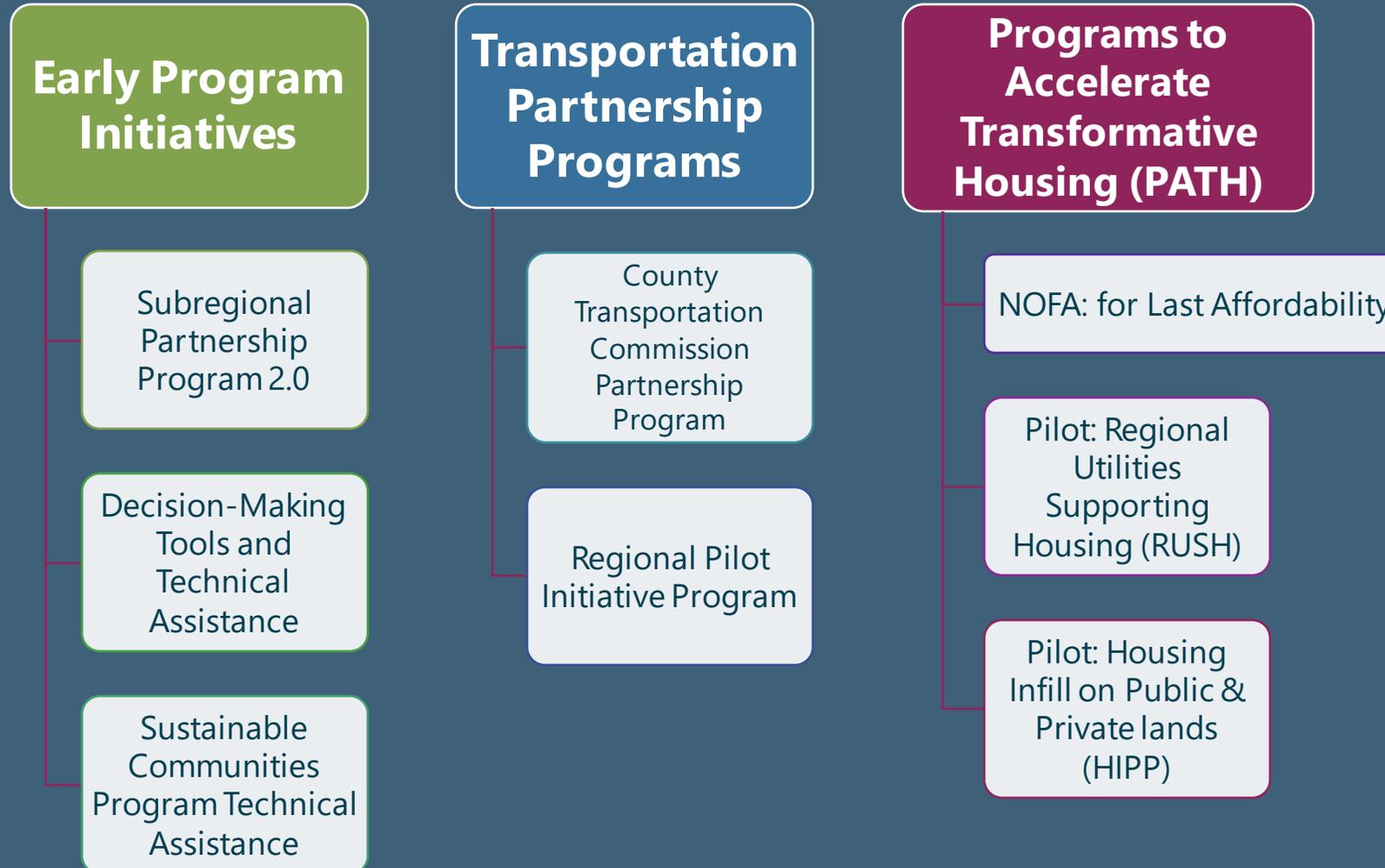


Reduce Vehicle Miles Travelled AND



Affirmatively Further Fair Housing

SCAG's REAP 2.0 Program Areas



Program Development

- Coordination with State to meet REAP 2.0 objectives
- Convened discussion group of experts to inform RFP and data needs
- Awarded 'Big Data' platform contract to 2026

StreetLight Insight

Streetlight's Insight Web App platform provides users access to anonymized, and aggregated travel and safety information, sourced from mobile data and sensors.

- **transportation information** for vehicle, truck, transit, rideshare (Uber & Lyft), bike and pedestrian travel modes,
- **trip origin, destination**, purpose, distance, route, and travel time,
- **vehicle speeds**,
- **transportation safety**, and
- **linked origin and destination trip information** with relevant built environment, demographics and socio-economics information.



Data Foundation

- Connected vehicle data
- Location-based service

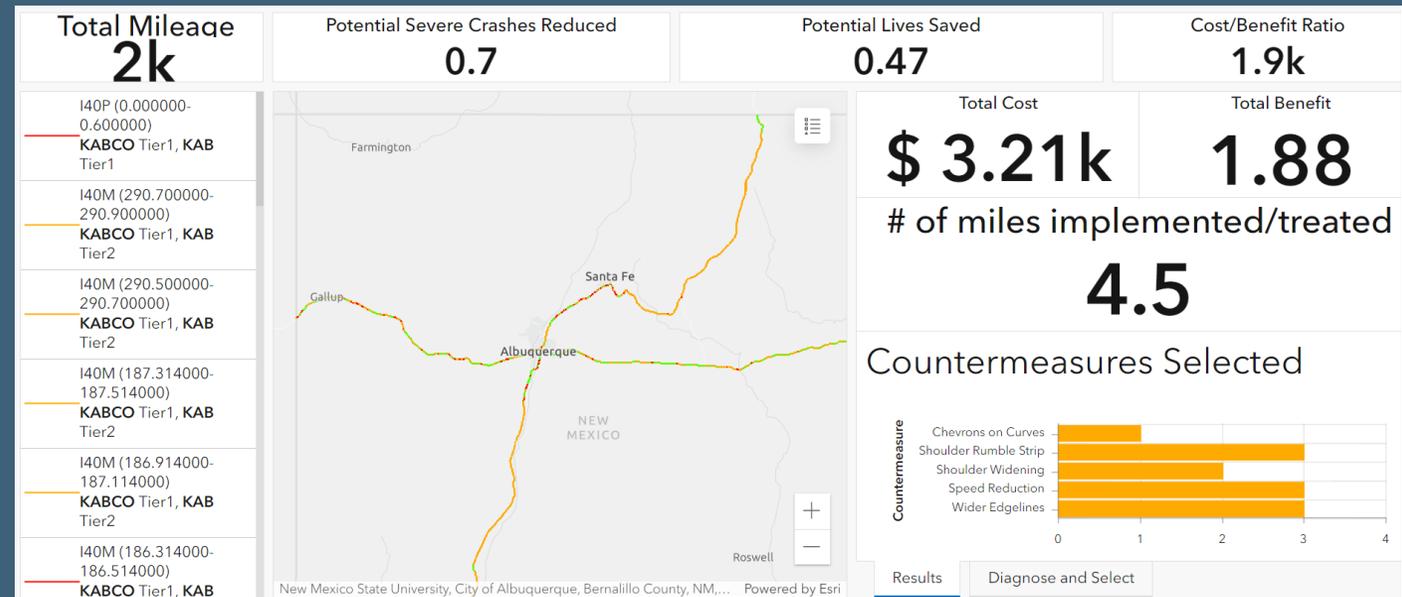
Validation

- Permanent counters for AADT, bike, & pedestrian

SCAG plans to continuously collect feedback from users and monitor

Additional Future Feature Integration

- Safety data with near-miss information
- Advanced truck data
- Corridor speed analysis





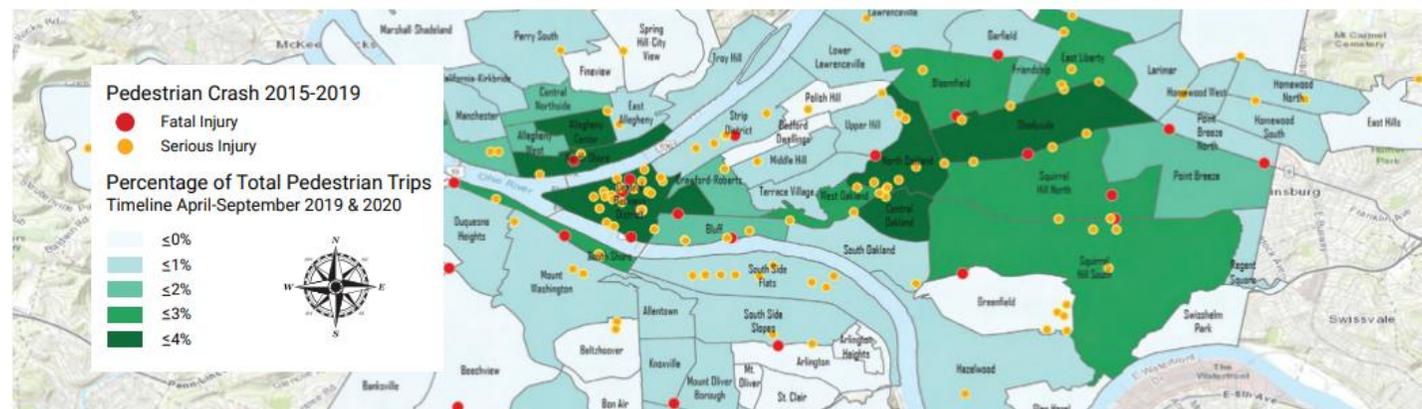
USE CASE EXAMPLES

Project examples using StreetLight Insight data

Safety – Evaluating Bike/Ped Ridership and Crash Data

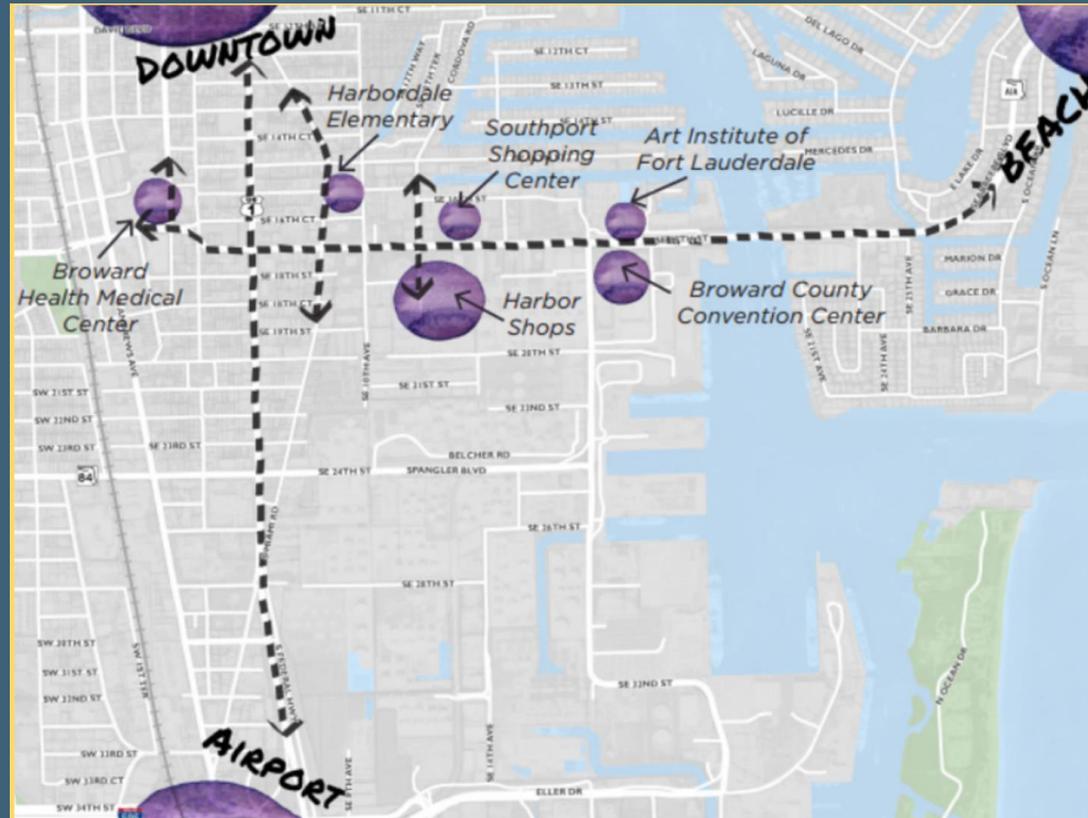


Pittsburgh divided into zones by relative bicycle activity, and overlaid with bicycle crash data.



Relative pedestrian activity combined with pedestrian crash data for Pittsburgh.

Congestion Analysis – Building the Case for Transit



Insights from the analysis led planners to study transit options connecting top origins and destinations.

Transportation Demand Management - Trip Reduction Potential

Measuring Congestion Relief Options in Northern Virginia

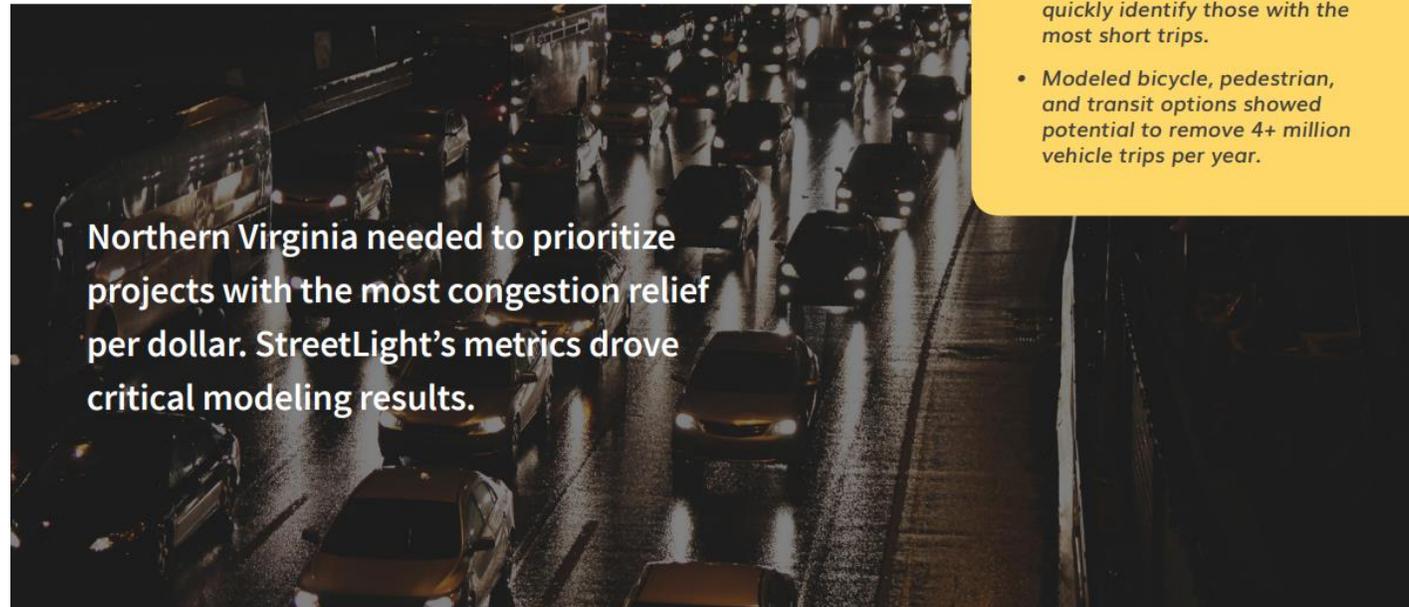
Link Description & Direction	Flow (000)	Top O-D Pair (%)	Trips < 5 mi (%)	Trips < 2 mi (%)	Trips < 1 mi (%)
Neabsco Mills Rd (US 1 - Optiz Blvd) SB	67.5	10.7	2.9	0.7	0.2
VA-28 (1-66 to Westfields Blvd) SB	60.3	1.4	3.4	1.1	0.3
I-66 (US-29 to VA-120) WB	55.7	2.0	0.0	0.0	0.0
US-50 (VA-286 to I-66) EB	51.3	1.4	3.3	1.4	0.4
VA-123 (George Wash. Pkwy to Chain Bridge)	47.8	10.6	0.5	0.1	0.0
US-50 (Stringfellow Rd to VA-286) EB	47.6	1.5	5.5	1.5	0.4
US-50 (VA-28 to Lees Corner Rd) EB	45.0	1.6	10.2	4.4	2.0
US-50 (Stringfellow Rd to VA-286) WB	43.2	1.4	3.8	1.4	0.3
I-66 (I-495 to VA-7) WB	41.0	0.9	0.4	0.1	0.0
US-50 (VA-609 to VA-28) WB	40.7	2.0	10.2	3.6	1.1
VA-7 (VA-123 to I-495) EB	37.5	2.9	15.3	11.1	4.4

Congested segments ranked to identify the links that would be impacted most by transit options. The orange shading indicates factors that make that link a good candidate for a multimodal project.

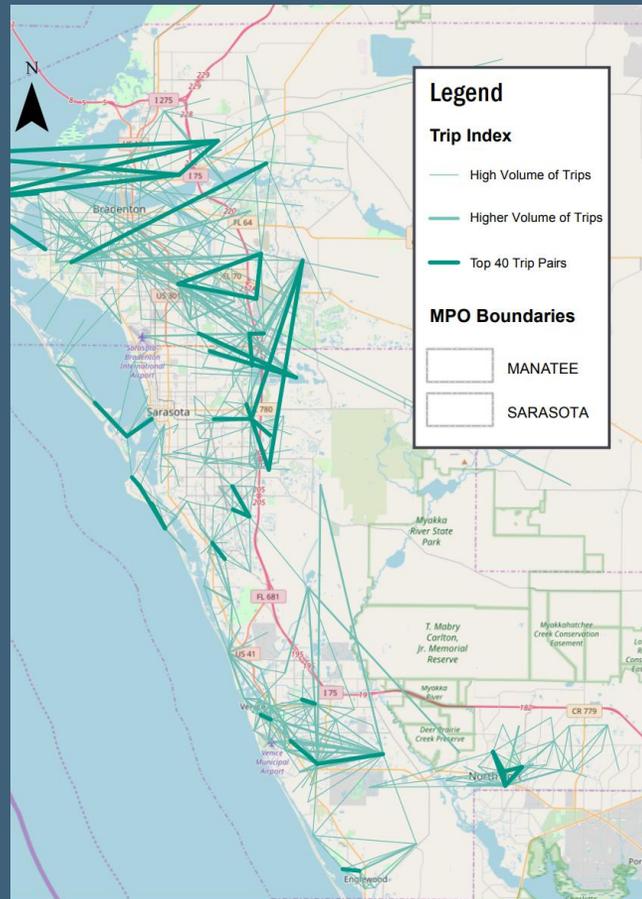
EXECUTIVE SUMMARY

- In a high-demand area, planners needed alternatives to roadway expansion.
- StreetLight scanned hundreds of congested segments to quickly identify those with the most short trips.
- Modeled bicycle, pedestrian, and transit options showed potential to remove 4+ million vehicle trips per year.

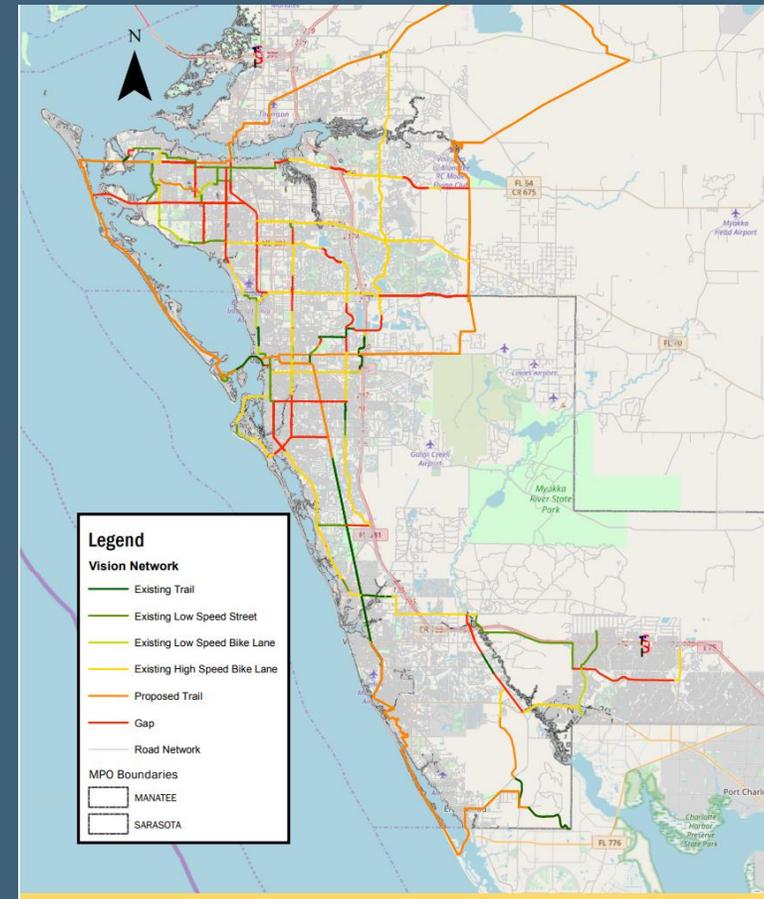
Northern Virginia needed to prioritize projects with the most congestion relief per dollar. StreetLight's metrics drove critical modeling results.



Planning – Active Transportation



Granular analysis of O-D pair volume by season, day, hour, and income level revealed the top 40 overall.



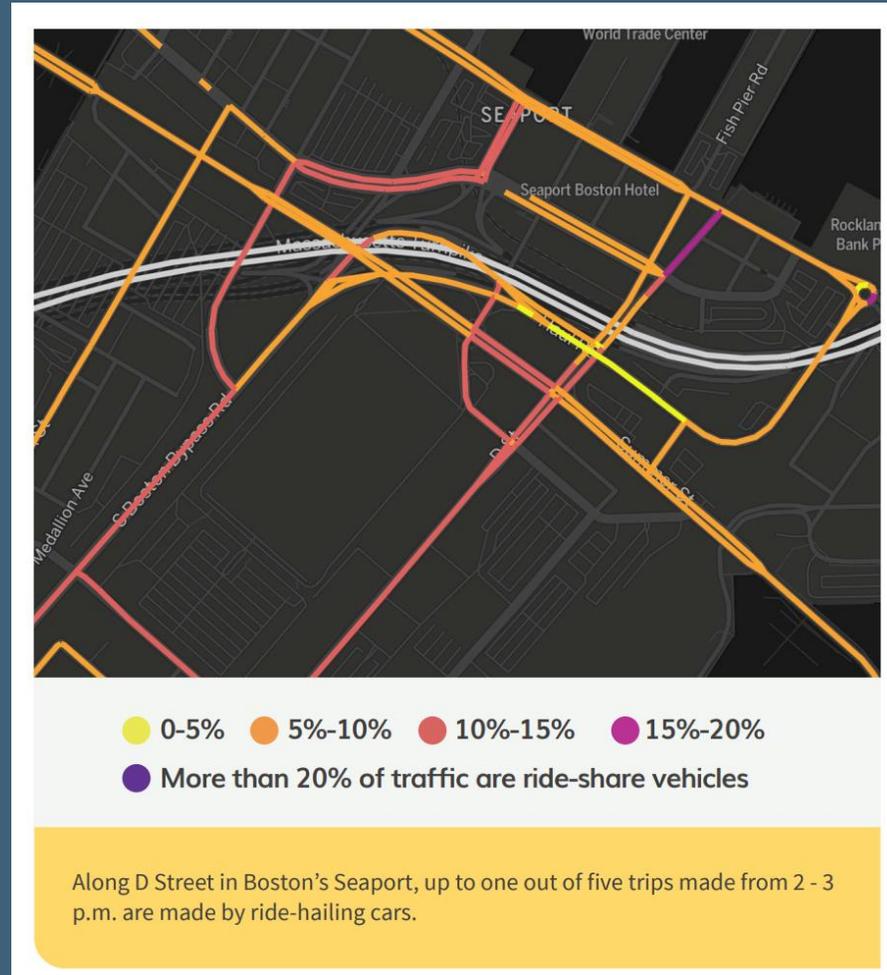
The final Active Transportation Plan vision network prioritizes bike routes that exist today and smaller gaps that can be filled to improve route directness.

Economic Impact – Active Transportation

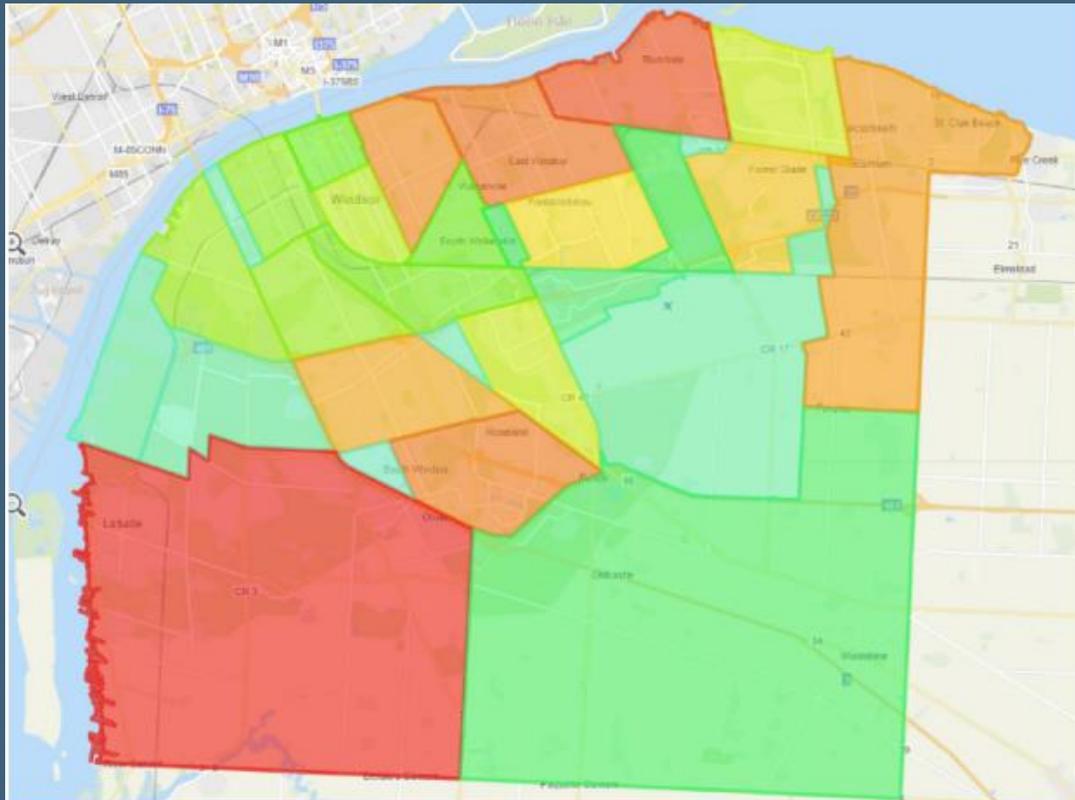


Trail Visitor Data Visualization

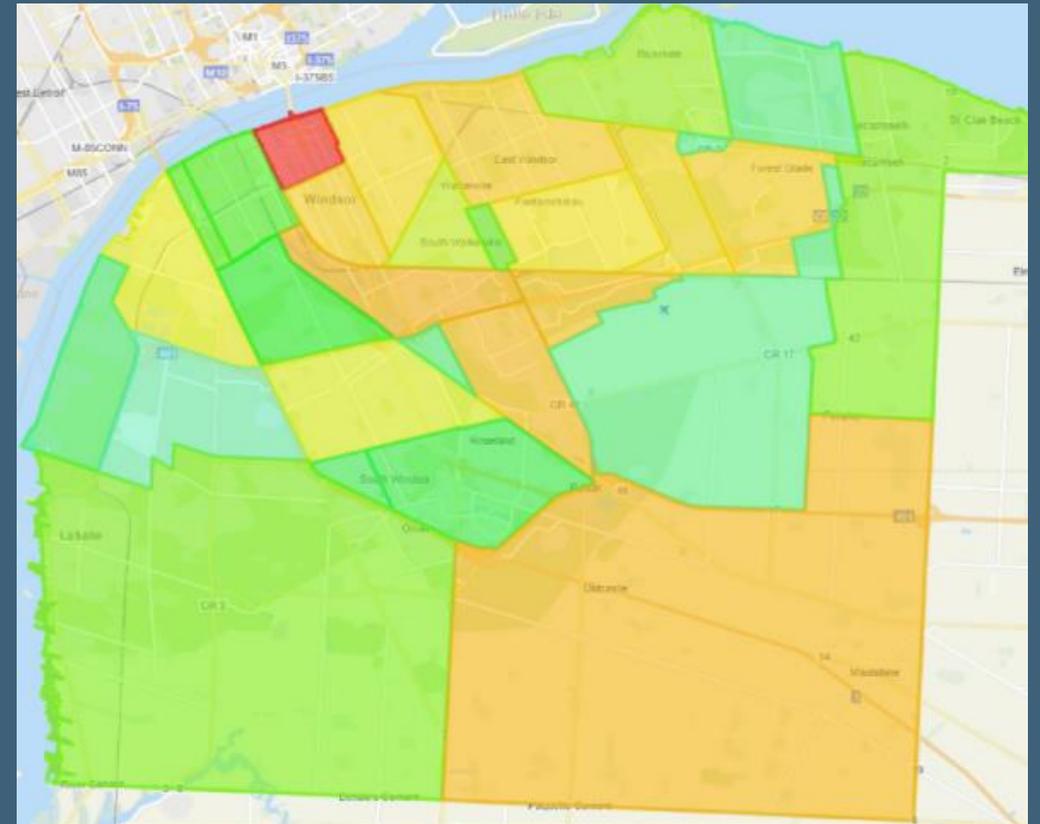
Evaluating Ride-hailing



Transit Planning – Revamping Legacy Routes



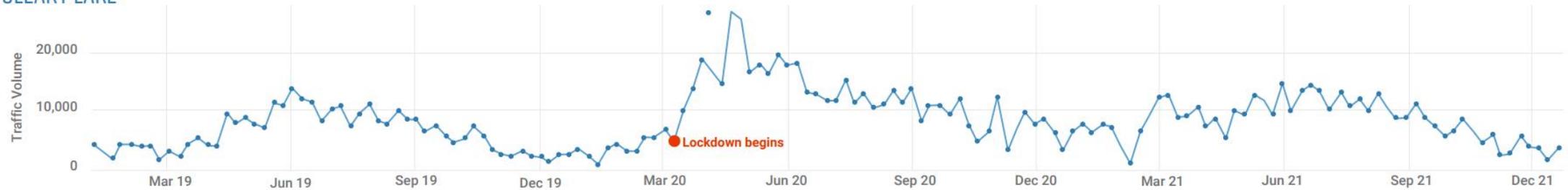
Distribution of Windsor's morning peak trip origins.



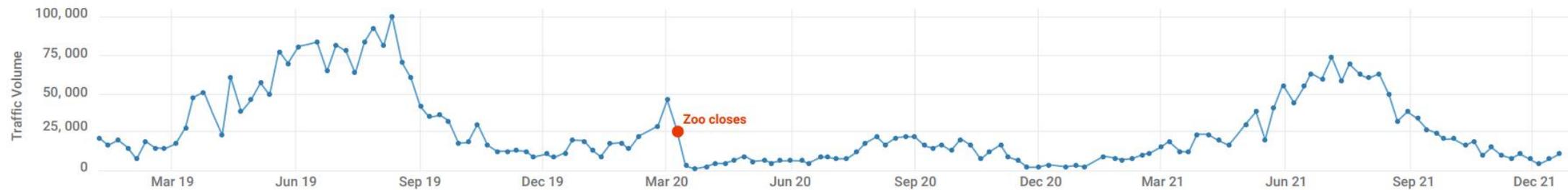
Distribution of morning peak trip destinations.

Transport to Regional Amenities – Who is Accessing and When

CLEARY LAKE



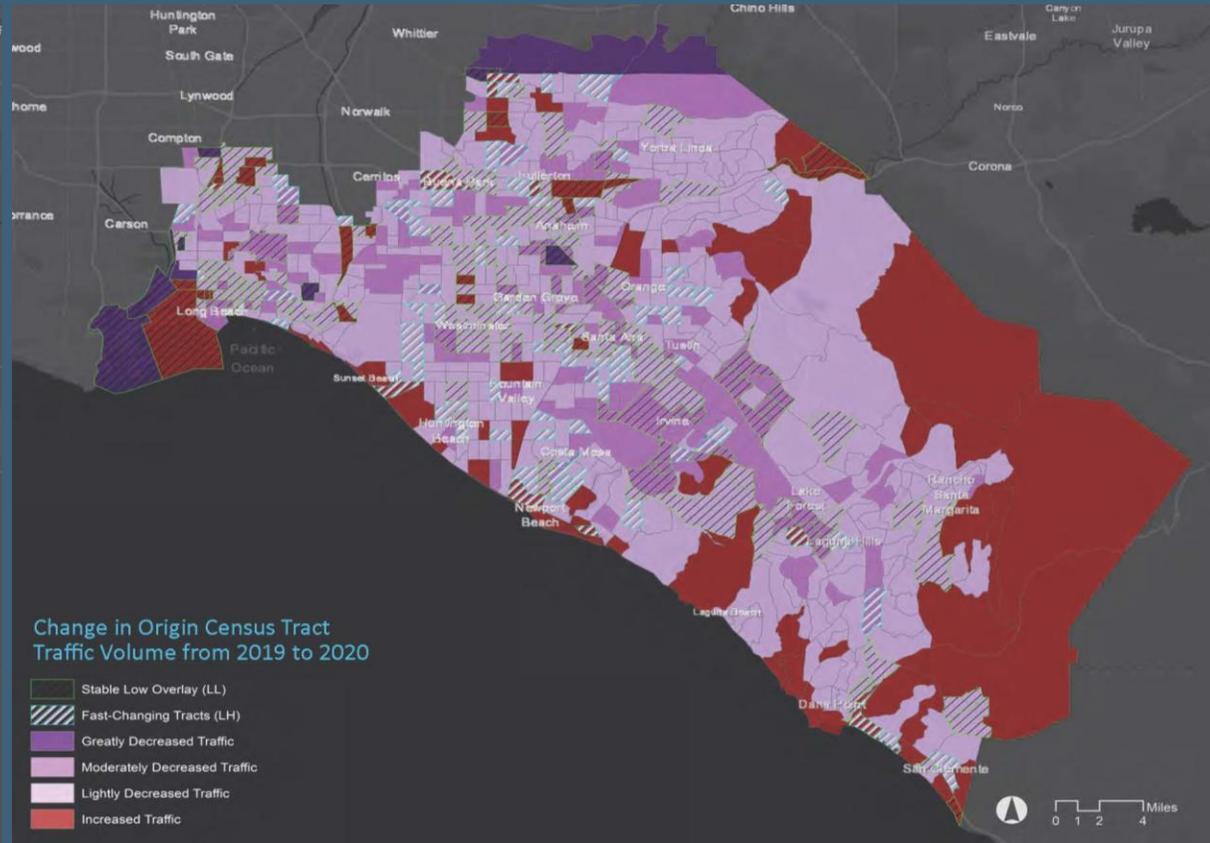
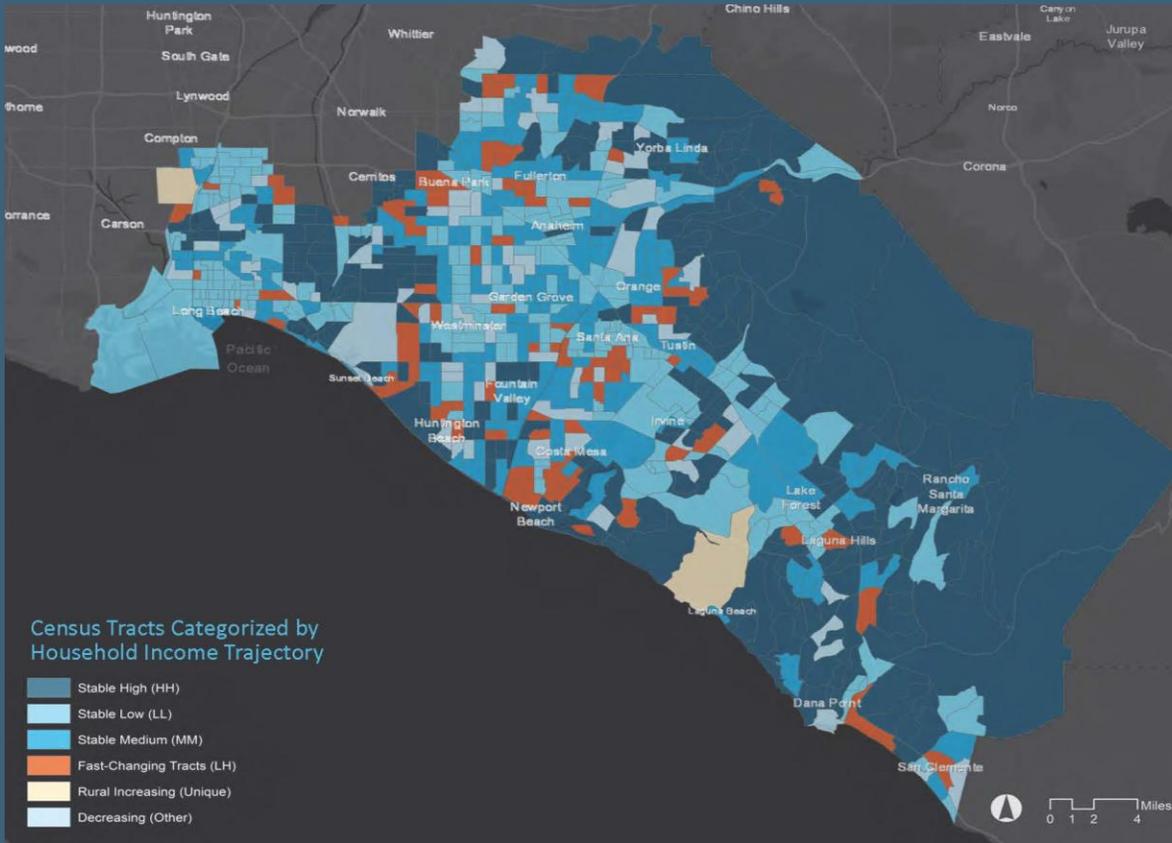
COMO ZOO AND CONSERVATORY



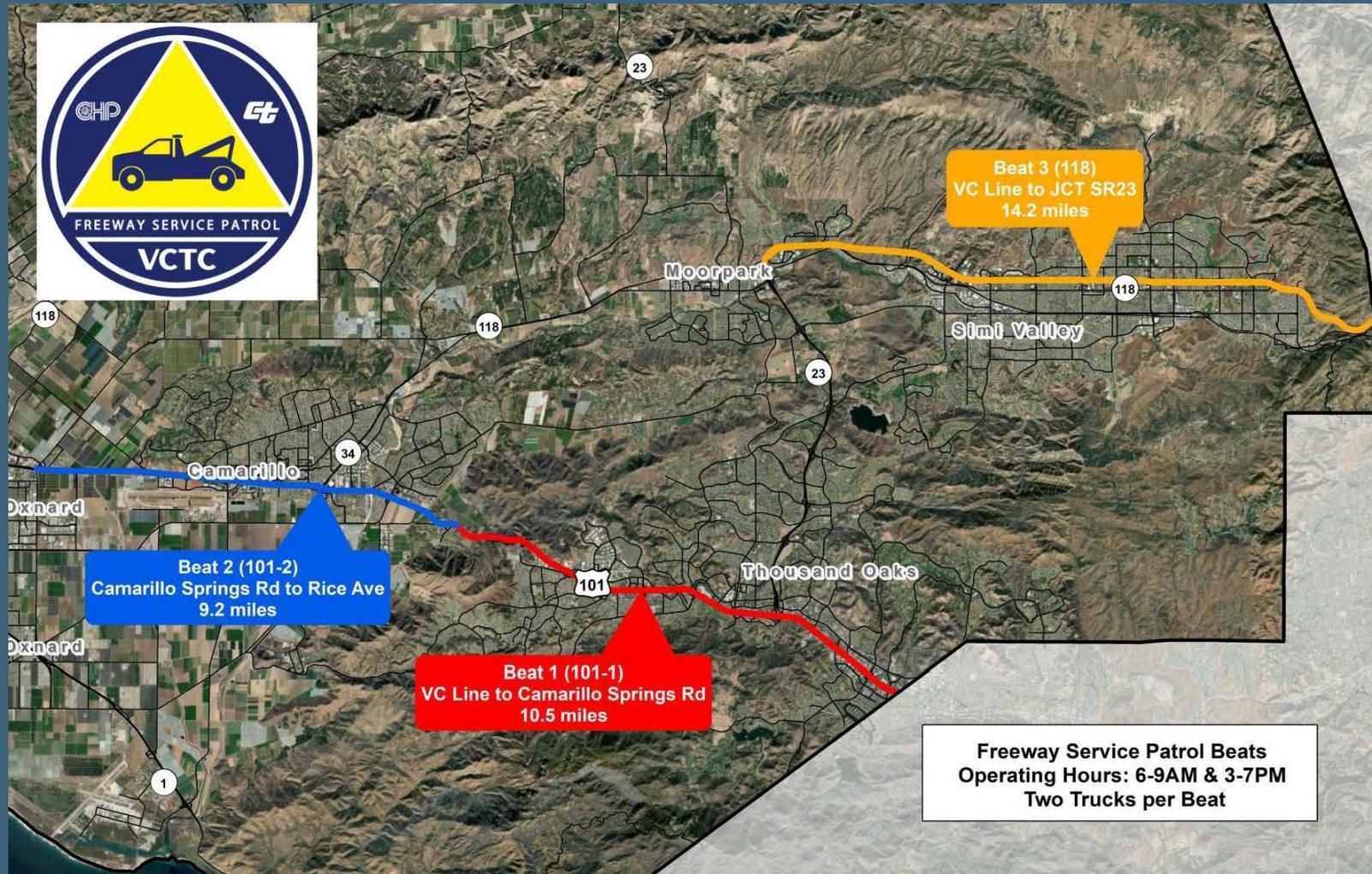
Analyses show disrupted park visitation patterns after COVID lockdowns, validating StreetLight counts against known visitor variation.

COVID Impacts – SCAG Using StreetLight Data

How Did COVID-19 Disrupt Travel Behaviors of Residents in the 'Fast-Changing' Neighborhoods in Southern California?
2023 Transportation Research Board Poster Session #3198: Census Data Fusion: Using Data to Understand Equity and Travel Behavior Disruptions
Tom Vo (vo@scag.ca.gov), Jonah Pellecchia, John Cho, Kevin Kane, Jung Seo, Frank Wen, and Hsi-Hwa Hu



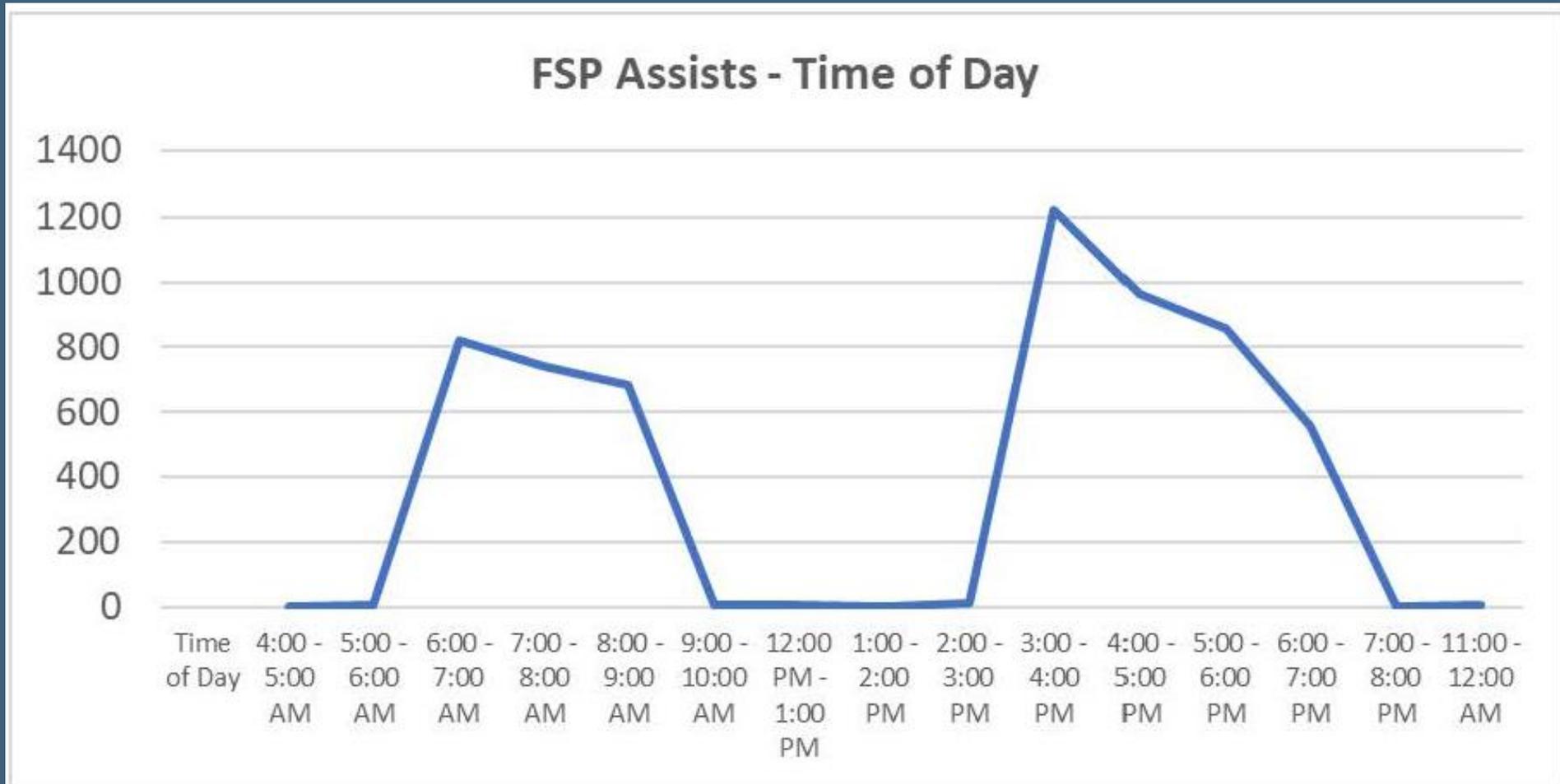
Ventura County Transportation Commission



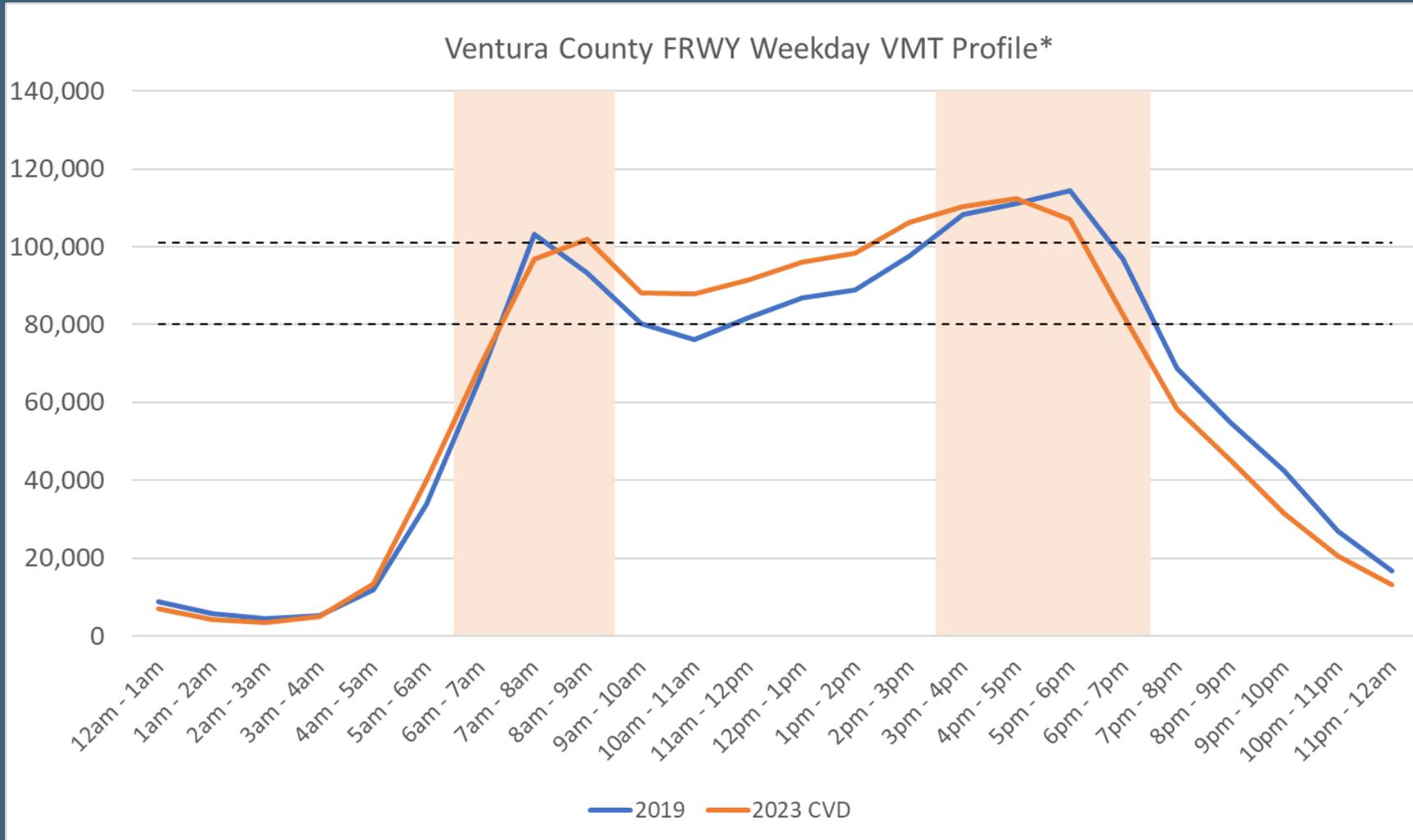
Ventura County FRWY Volumes



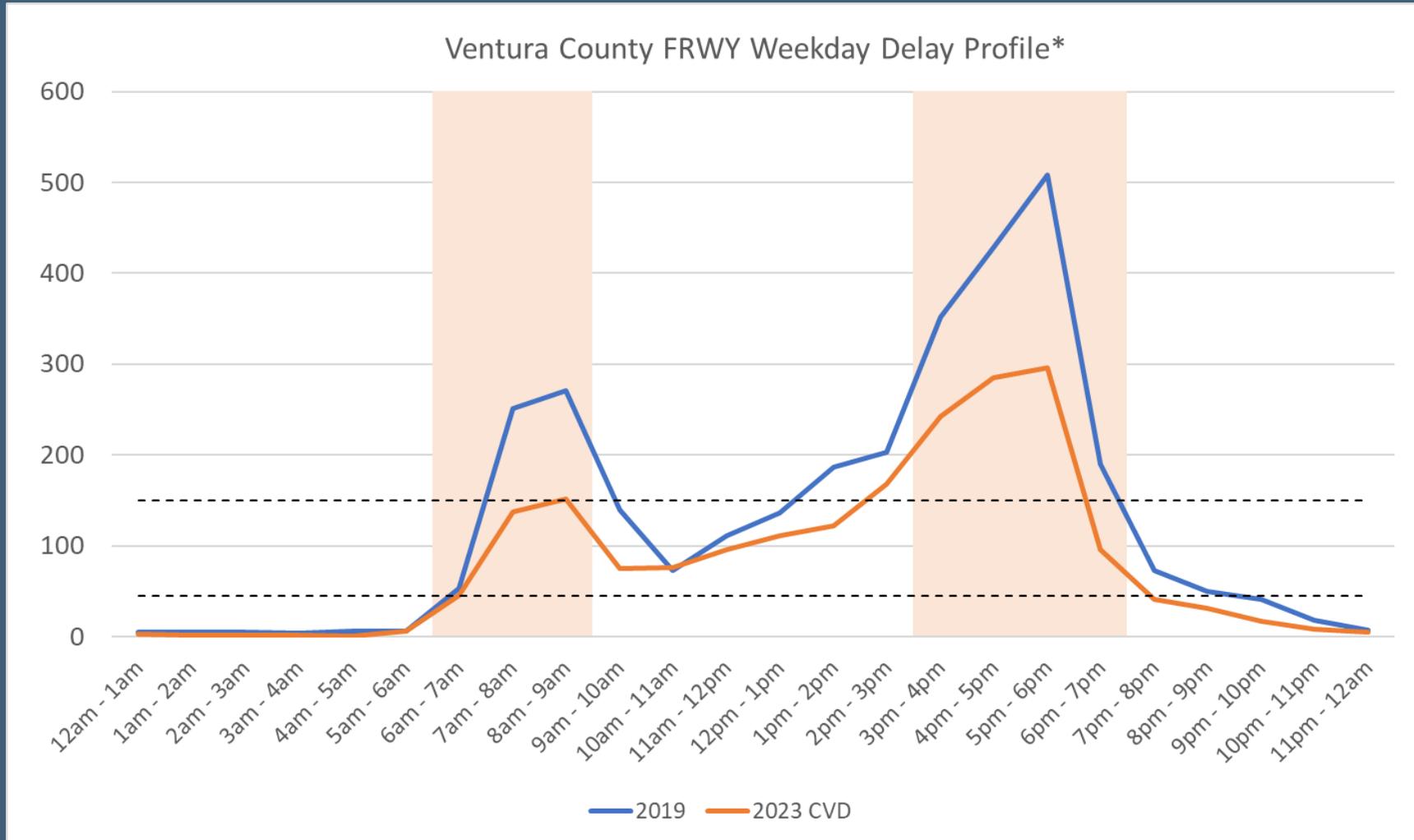
FSP Assists



FRWY VMT Profile



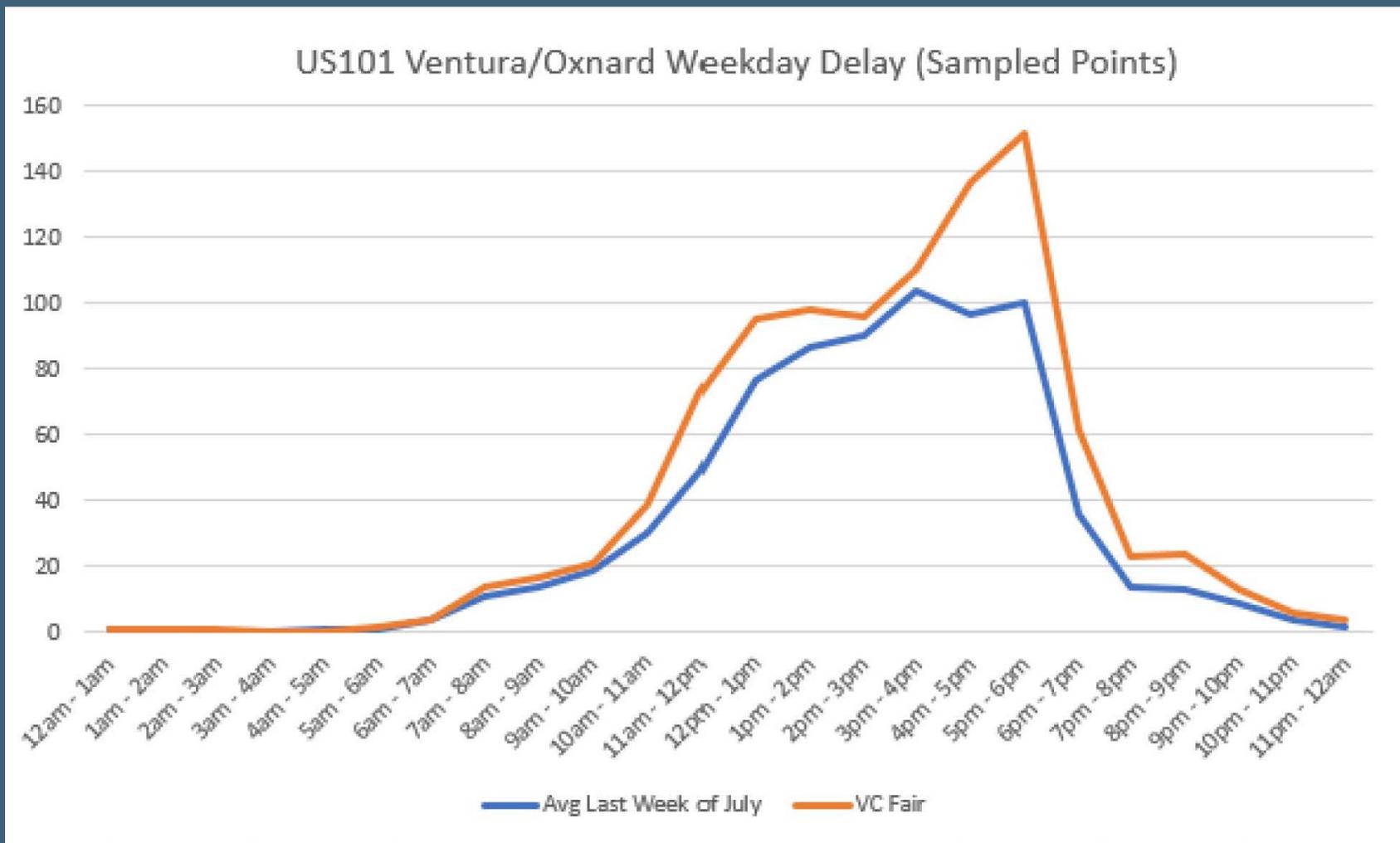
FRWY Delay Profile



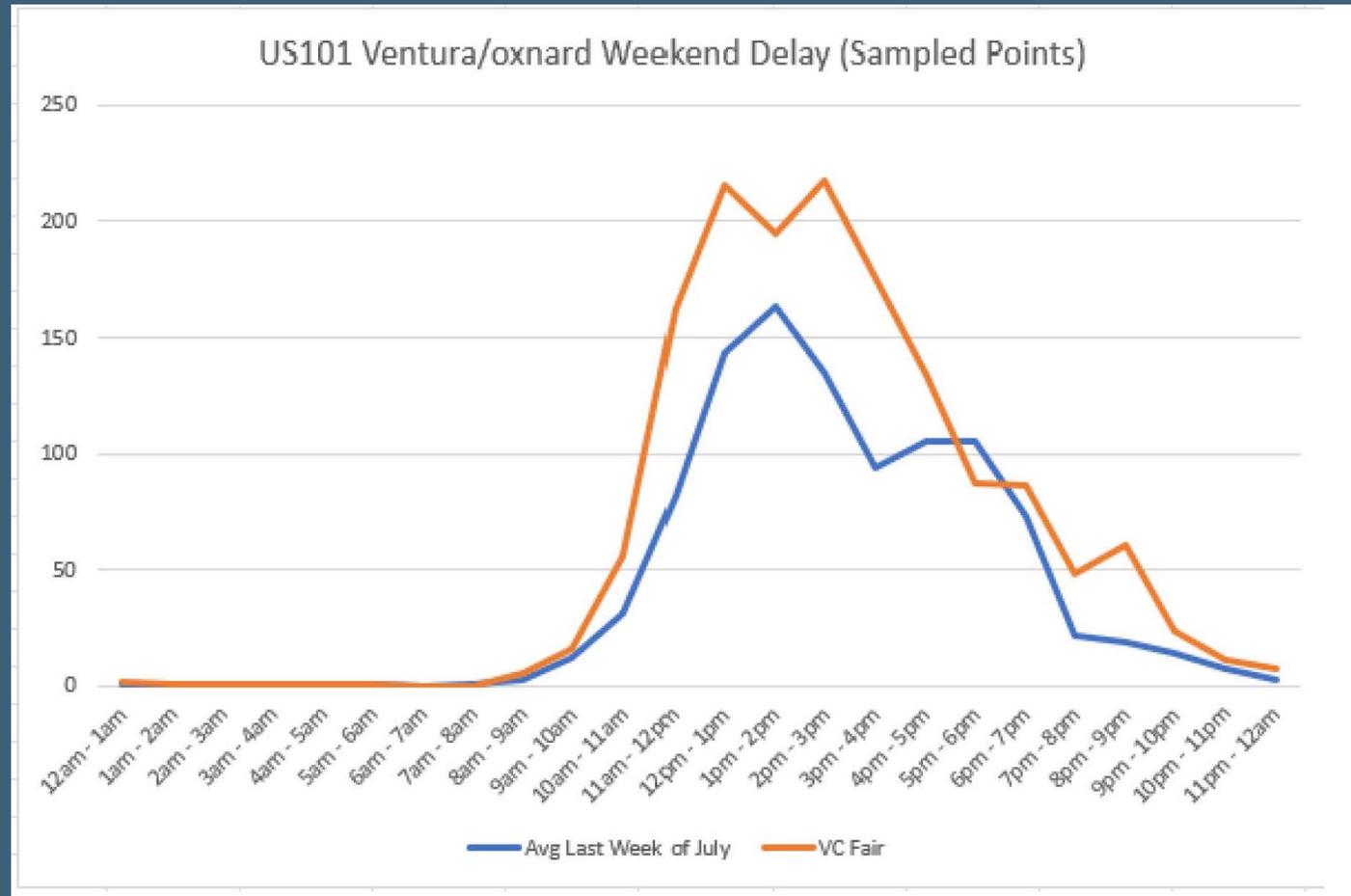
Freeway Service Patrol



Roadway Weekday Delay



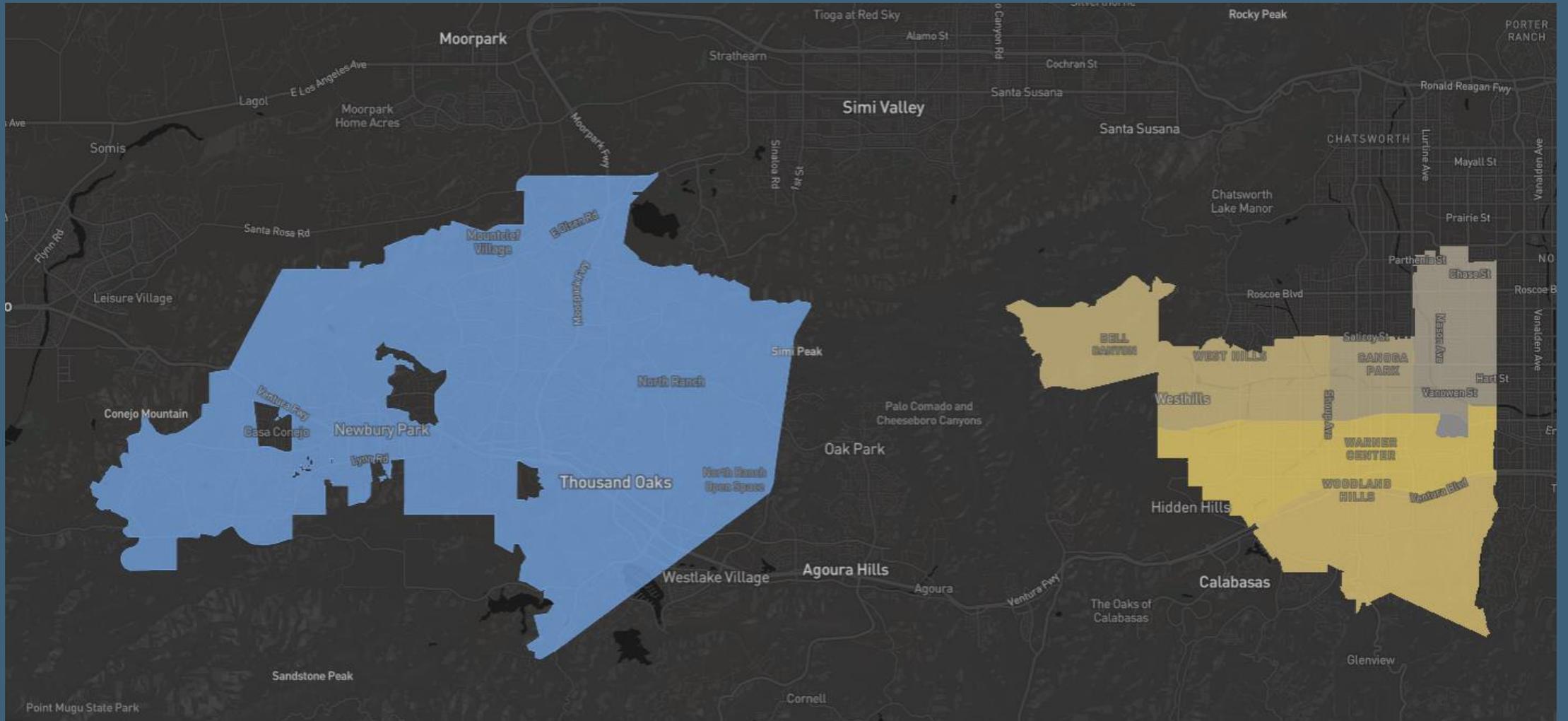
Roadway Weekend Delay



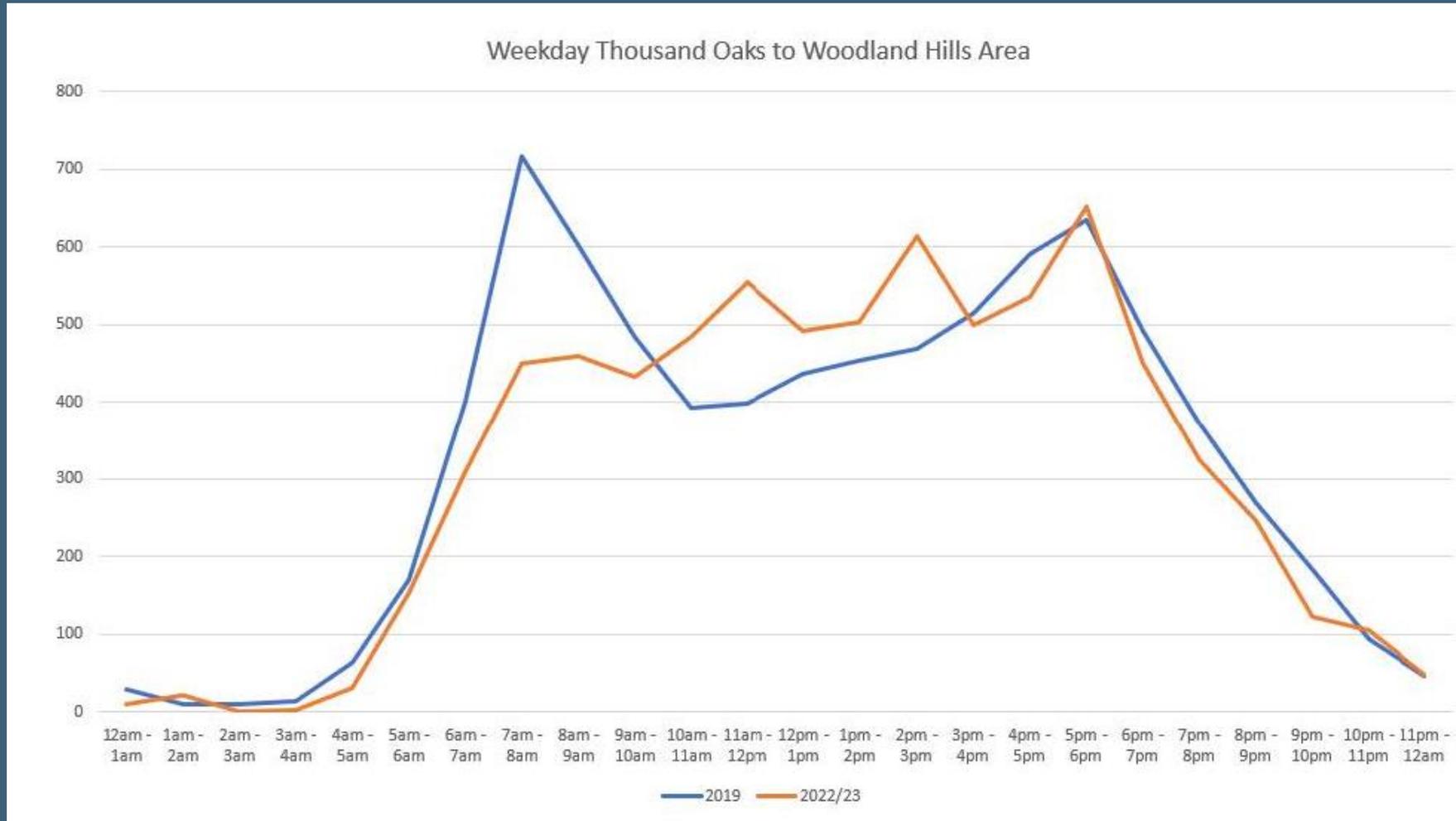
Transit Line Evaluation



Transit Line Evaluation



Transit Line Evaluation



Sample of New Anticipated Projects in SCAG Region

- **Transit Operations** - Conduct a Comprehensive Operational Transit Analysis to study the existing service to inform/make recommendations for future service changes, sustainability goals, fair housing initiatives, etc.
- **Quick-build Corridor Project** - For use on the East Pico Safety Enhancements Project in Santa Monica, which explores improvements to maximize pedestrian safety on Pico Blvd.
- **Developing Grants** - For use in developing transit + non-motorized grant applications (REAP 2.0, ATP, RAISE, MEGA, FTA, etc.) and research for project concepts.



SCAG
Regional Data Platform
Southern California's data and engagement
Hub for planners

ACCESS/TRAINING/SUPPORT

How to get StreetLight access, trainings, and support

USER SIGNUP

- Key Users: SCAG Staff, CTCs, COGs, Academic Institutions, and other public entities
- Available to consultants directly supporting public entity for duration of respective project
- Must be used in alignment with REAP 2.0 Objectives
- Interested in Access? Website hub.scag.ca.gov or Email: list@scag.ca.gov or johnsons@scag.ca.gov

Website – hub.scag.ca.gov



[Content Library](#)

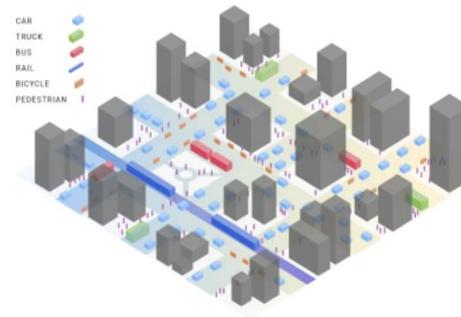
[Apps & Maps](#)

[Planner's Corner](#)

[Local Data Exchange](#)

[Request Technical Assistance](#)

[About](#)



Streetlight Insight Big Data Platform

Streetlight's Insight Web App big data platform made possible by REAP 2.0 provides users access to anonymized, and aggregated travel and safety information, sourced from mobile data and sensors. *To access this platform, users must request a license at the link below. Access will only be given based on availability and for uses that are consistent with the REAP 2.0 program objectives.

[Launch the Application](#)

[Request License](#)

[Watch Video](#)

Training Modules

STREETLIGHT INSIGHT

Analyses johnsons@scag.ca.gov

No Filters Applied - showing 807 of 807 items

Status	Analysis Name	Created By	Type	Mode of Travel	Zone Count	Confirmation Date	Date Periods	Tags	Actions
AVAILABLE	VC FRWY 2022 LBS Profiles (PSP Scag Present)	akent@goventura.org	Segment Analysis	All Vehicles LBS+	36	Jul 31, 2023	Jan 01, 2019 – May 31, 2019	VCTC	Actions
AVAILABLE	Copy of OD VC Cities 2019 (scag present)	akent@goventura.org	Origin-Destination Trip Attributes	All Vehicles LBS+	12	Jul 27, 2023	Jan 01, 2019 – May 31, 2019	VCTC	Actions
AVAILABLE	OD VC Cities CVD 2023 (scag present)	akent@goventura.org	Origin-Destination Trip Attributes	All Vehicles CVD+	12	Jul 27, 2023	Jan 01, 2023 – May 31, 2023	VCTC	Actions
AVAILABLE	VC FRWY 2019 LBS Profiles (PSP Scag Present)	akent@goventura.org	Segment Analysis	All Vehicles LBS+	36	Jul 27, 2023	Jan 01, 2019 – May 31, 2019	VCTC	Actions
AVAILABLE	VC FRWY 2023 CVD Profiles (PSP Scag Present)	akent@goventura.org	Segment Analysis	All Vehicles CVD+	36	Jul 27, 2023	Jan 01, 2023 – May 31, 2023	VCTC	Actions
AVAILABLE	Congestion Mgmt Test 7.25	emeryms@metro.net	Congestion Management	All Vehicles CVD+	661	Jul 25, 2023	Jan 01, 2022 – Dec 31, 2022		Actions
AVAILABLE	Rdwy Vol Test 7.25	emeryms@metro.net	Roadway Volume	All Vehicles LBS+	35754	Jul 25, 2023	Jan 01, 2021 – Dec 31, 2021		Actions
AVAILABLE	I-10 EB CL > Archibald Ave. > I-10EB	jhernandez@gosbcta.com	Zone Activity Trip Attributes	All Vehicles LBS+	3	Jul 24, 2023	May 01, 2021 – Apr 30, 2022	SBCTA	Actions
AVAILABLE	I-10 EB at ColLine to Archibald SB	gkoblasz@gosbcta.com	Origin-Destination	All Vehicles LBS+	2	Jul 19, 2023	May 01, 2021 – Apr 30, 2022	Archibald, I-10 EB, ONT	Actions
AVAILABLE	April 2022V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Apr 01, 2022 – Apr 30, 2022		Actions
AVAILABLE	Mar 2022V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Mar 01, 2022 – Mar 31, 2022		Actions
AVAILABLE	Feb 2022V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Feb 01, 2022 – Feb 28, 2022		Actions
AVAILABLE	Jan 2022V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Jan 01, 2022 – Jan 31, 2022		Actions
AVAILABLE	Dec 2021V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Dec 01, 2021 – Dec 31, 2021		Actions
AVAILABLE	Nov 2021V/Trip	chanchiani@scag.ca.gov	Zone Activity Trip Attributes Traveler Attributes	All Vehicles LBS+	56	Jul 19, 2023	Nov 01, 2021 – Nov 30, 2021		Actions

Page 1 of 33 ROWS 25 50 100 Next Page

102S: Fundamentals Self-Paced

5 modules attended

[Resume](#)

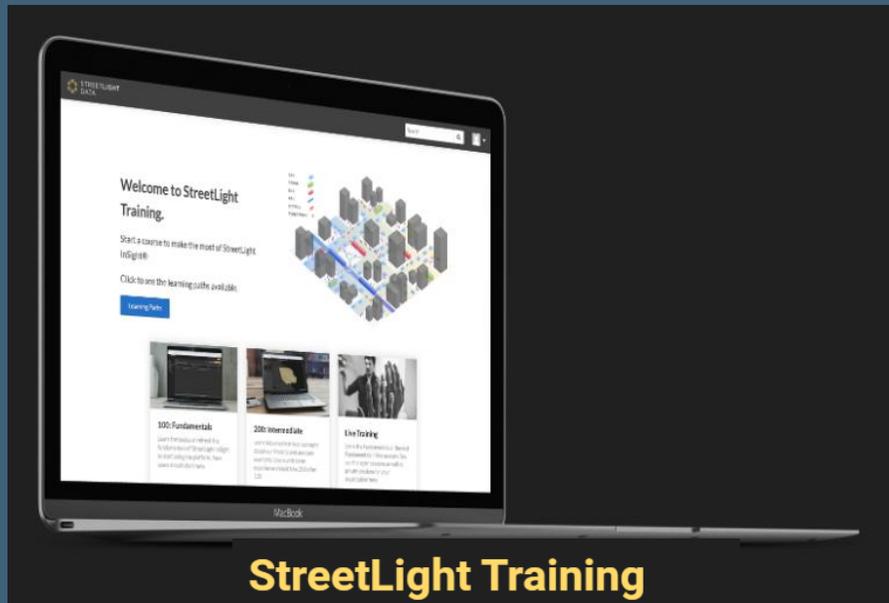
Contents About this course

Modules

- Prerequisite Quiz
- 1. Introduction
 - Lessons - StreetLight InSight® and Route Science®
 - Quiz - StreetLight InSight® and Route Science®
- 2. Fundamental Concepts
 - Lessons - Fundamental Concepts
 - Quiz - Fundamental Concepts
 - Lessons - Use Case Examples
- 4. Getting Help
 - Lessons - Getting Help
 - Feedback *optional*

Live Training Schedule

April 25, 2023	May 23, 2023	August 15, 2023	2023-2026
Intro & VMT	Transit	Active Transportation	9 Trainings



Select 'Register' to attend an event below:

0 event registration(s)



10:00 a.m. PDT

August 15, 2023 - SCAG Regional - Live! - StreetLight InSight® and Active Transportation

[Register](#)

From: Aug. 15, 2023, 10 a.m. PDT

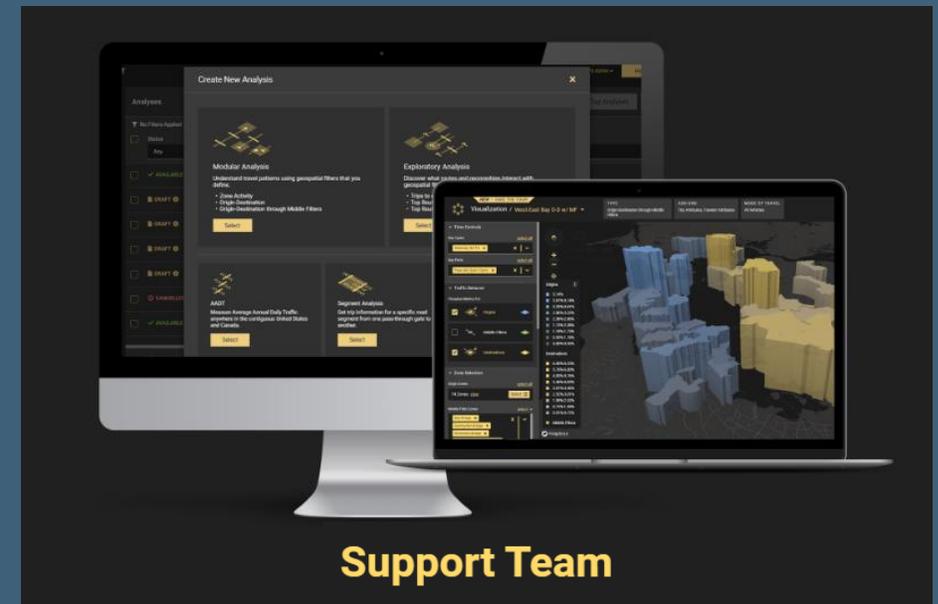
To: Aug. 15, 2023, 11:30 a.m. PDT

Instructor: STL Training

Spaces left: 64

Tech Support

- Email: support@streetlightdata.com
- Provide project scope & timeline
- User will run analysis, but StreetLight can provide guidance on setup



REAP 2.0 Regional Pilot Initiative

- Provide data analyst consultant support to public agencies
- Developing program late 2023/early 2024
- Email johnsons@scag.ca.gov for further details/discuss project ideas



Big Data Research

Big Data Research projects will work with small and underserved local jurisdictions to identify and research key transportation planning and policy questions using powerful analytical tools like the StreetLight Big Data Platform, also funded by REAP 2.0. These projects will drive usage of existing big data platform contracts, build capacity for the use of tools and data-driven decision-making, and will have the flexibility to tailor the work to specific local community needs and contexts.

Key Highlights

- StreetLight Insight Platform available for public agencies to 2026
- Information/request a license email Scott Johnson Johnsons@scag.ca.gov or list@scag.ca.gov or go to the SCAG Regional Data Platform website at hub.scag.ca.gov
- Next live training August 15, 2023
- SCAG is interested in feedback and gathering input on use in the region



Thanks!
Q&A

Tell us how we did!

Take a quick 2-minute survey to help us improve future Toolbox Tuesdays!



SCAN ME