



# RICAPS

Regionally Integrated Climate Action Planning Suite

Multi-city Working Group  
June 23, 2020

RICAPS technical assistance is available through the San Mateo County Energy Watch program, which is funded by California utility customers, administered by Pacific Gas and Electric Company (PG&E) under the auspices of the California Public Utilities Commission and with matching funds provided by C/CAG.

# Agenda

- Teleworking: Now and Post COVID-19
- Employee Commute Surveys
- Community GHG Inventories Transportation Data
- VMT Modeling
- Streetlight Data
- Google Transportation Data
- Final Announcements

# Commute.org



Where commuters get rewarded.



## Commute.org Mission

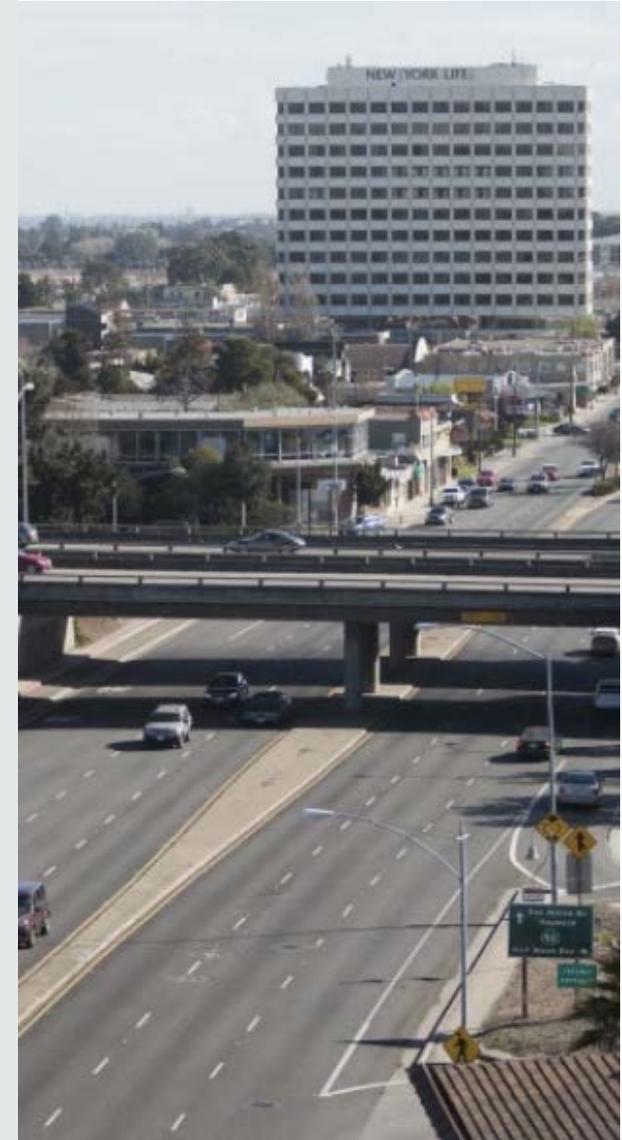


Commute.org

**Reduce SOVs traveling to, from or through San Mateo County**

# Telework Considerations During COVID-19

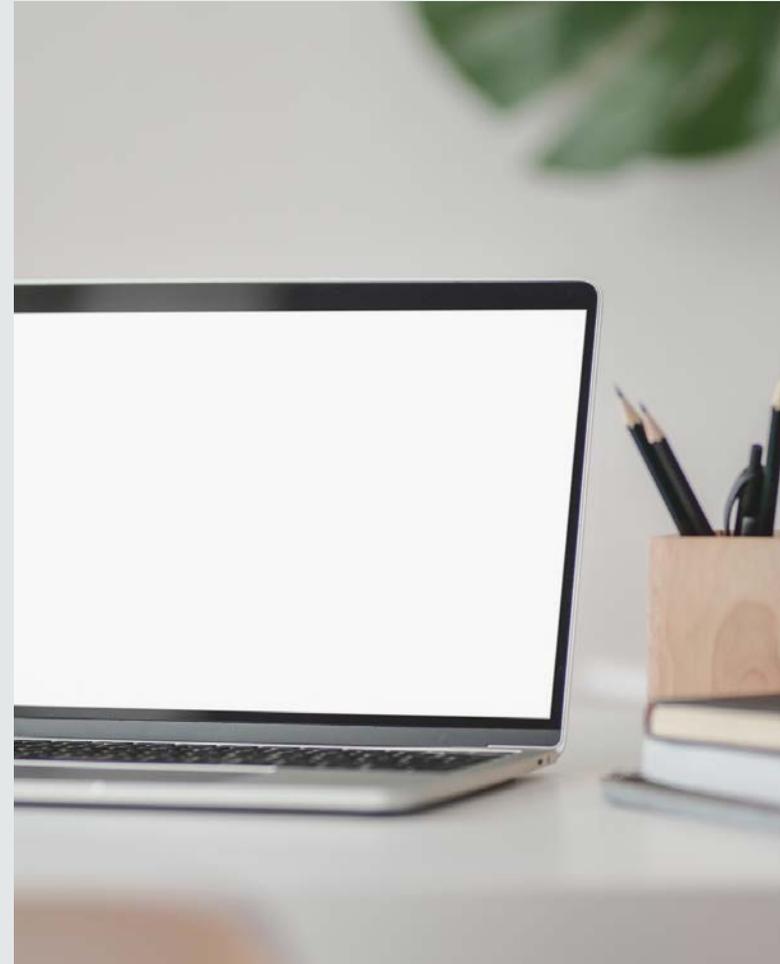
What is the long-term fate of telework?



# Applicable to some

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Not all roles and workplaces are able or suited for telework and in varying degrees.  
Reminder to support all modes of commuting.



# Organizational Strategy vs. COVID mitigation

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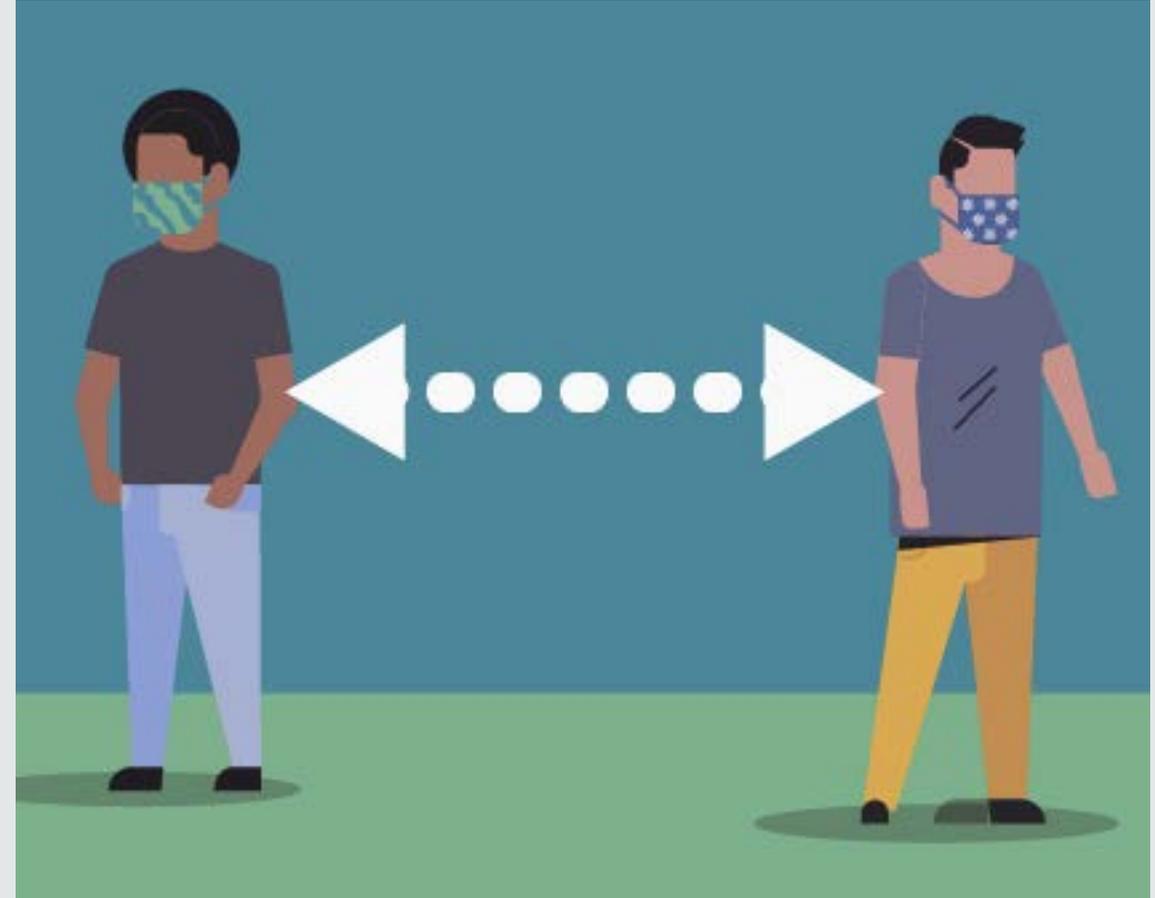
Those experiencing telework for the first time are doing so through a pandemic lens rather than a scenario driven by internal policy.



# Current Conditions

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Some factors that won't apply post-pandemic:  
kids at home, distancing, viral transmission,  
sanitation, government guidelines.



# About half

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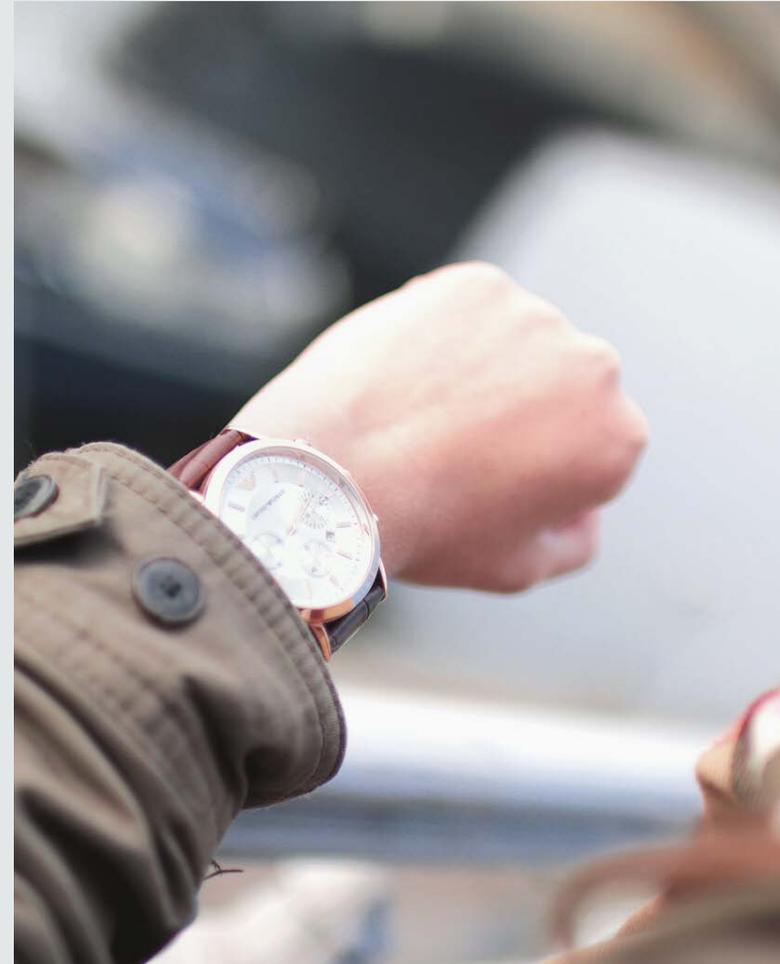
Employees returning to work onsite  
Bay Area traffic levels  
US CFOs surveyed whose companies will  
telework long-term.



# Too soon to tell

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How much employers will "stick" to telework when no longer bound to public health.  
Impacts on workplace culture and recruitment.  
Adding to Bay Area flight  
Post-vaccine and economic recovery



## Note observations, learnings, experiences

Gather data with a grain of salt. Shifts in performance, cost-benefit analysis, employee morale, management's preconceptions, resistance, or embrace of telework.

## Get grounded in your own organization's stance

Telework as an operational strategy, as workplace culture, as an environmental principle of your workplace.

## Cities and telework initiatives (along with other commute modes)

How to incentivize, partner, or plan in ways financial or otherwise.





virada@commute.org  
rebecca@commute.org

# Connect with us Getting Back to Work Safe

Telework  
Bike to Work

[Commute.org](https://www.commute.org)



Matthew Petrofsky, County of San Mateo

**How are cities thinking about tracking employee commute emissions this year?**



**Breaking Down Community  
GHG Emission Inventories**  
**Part 2: Transportation**

# Process

General Calculation: Usage x Emissions Factor = Emissions



# Determine Sources

## Emission sources include:

- On-Road
  - Passenger vehicles
  - Commercial transport
  - Public Transportation
- Off-Road
  - Farm equipment
  - Airport ground support (does not include planes)
  - Small-engine equipment
    - Lawnmowers
    - Leafblowers
    - Boats



# Determine Methodology

- Origin-Destination Method Vs. In-Boundary Method

Origin-Destination	In-Boundary
Localized model	Data readily available for all jurisdictions
Removes non-local “pass-through” trips	More likely to include trips that only pass through jurisdiction

- Different jurisdictions in San Mateo County use different methodologies
- Results can vary drastically and are not comparable (consistent methodology should be used)
- Both are commonly used outside of San Mateo County

# Gather Usage Data

- Usage data is generally measured in VMT
  - In-Boundary VMT is calculated using the annual Caltrans Highway Performance Monitoring System Report
  - Origin-Destination VMT data is requested from MTC
- Usage data for trains is estimated based on National Transit Database and State Rail Plan
  - Includes Caltrain and freight trains
- Off-road emissions are estimated using the CARB Offroad 2007 model
  - Pieces of this model are currently being updated for 2021



The screenshot shows the 'Vehicle Miles Traveled Dataportal' interface. At the top, there are navigation links for 'Home', 'Data', 'Feedback', 'About', and 'API'. Below the navigation, there are input fields for the year '2020' and the location 'San Mateo', along with buttons for 'Get Data', 'Map', and 'Download Data'. The main content area displays 'Climate Action Plan VMT Data' for 'Place Name: San Mateo' with a 'Simulation ID: 2020\_06\_694'. The data is presented in a table titled 'Non-commercial Passenger Vehicle Miles Traveled'.

					Total	VMT/PP.
Live in area/ Works in area	13.0k	46.2%	49.7%	4.1%	124.9k	9.57
Live in area/ Works out of area	45.9k	5.9%	78.1%	16.0%	1.1M	23.49
Live in area/ Non-worker	52.0k	25.1%	67.8%	7.0%	432.0k	8.30
Live out of area/ Works in area	50.2k	1.7%	76.3%	22.0%	1.6M	31.17
Live out of area/ Works out of area	4.0M	0.0%	0.7%	99.3%	86.0M	21.33
Live out of area/ Non-worker	3.7M	0.0%	1.4%	98.5%	29.7M	8.04
Total					118,910,937	15.07

# Emissions Factors

- The multiplier that gets us from usage to CO<sub>2</sub>e
- Transportation
  - On-road emissions are modeled using the CARB EMFAC 2017 Model
    - Estimates MPG and vehicle mix
    - MTC provides a daily VMT to Annual VMT conversion factor
  - Off-road emissions are modeled using the CARB Offroad 2007 Model
    - Provides emissions directly from the model

### EMFAC2017 Web Database

(v1.0.2)

EMFAC Web Platform is available! Please visit <https://arb.ca.gov/emfac/>.

Data Type:  Emissions  
 Emission Rates

Region: County  
SAN MATEO

Calendar Year: 2014  
2015  
2016  
2017  
2018  
2019  
2020

Season: Annual

Vehicle Category: EMFAC2011 Categories  
All

Model Year: Aggregated

Speed: Aggregated

Fuel: All

Please contact [the EMFAC team](#) if you have any ques

# Data Considerations

- HPMS VMT Corrections
  - In 2014, it was found that a Linear Referencing System was overestimating mileage.
  - As a result maintained mileage reported in past years has fluctuated significantly but is mostly resolved as of 2018.
- Model Maintenance
  - Models are built at a point in time and must be maintained as new information is available.
  - Older models that are updated may have outdated assumptions (ie. CARB Offroad 2007)
- Timing of data availability
  - Emission factors need to be verified and are not immediately available
  - VMT Estimates from Caltrans typically run 2 years behind





Next Month:

Part 3: Waste, Wastewater and Water Emissions

QUESTIONS?

# Using Activity-based Travel Models to Aid Climate Action Plan Development

Harold Brazil

Metropolitan Transportation Commission

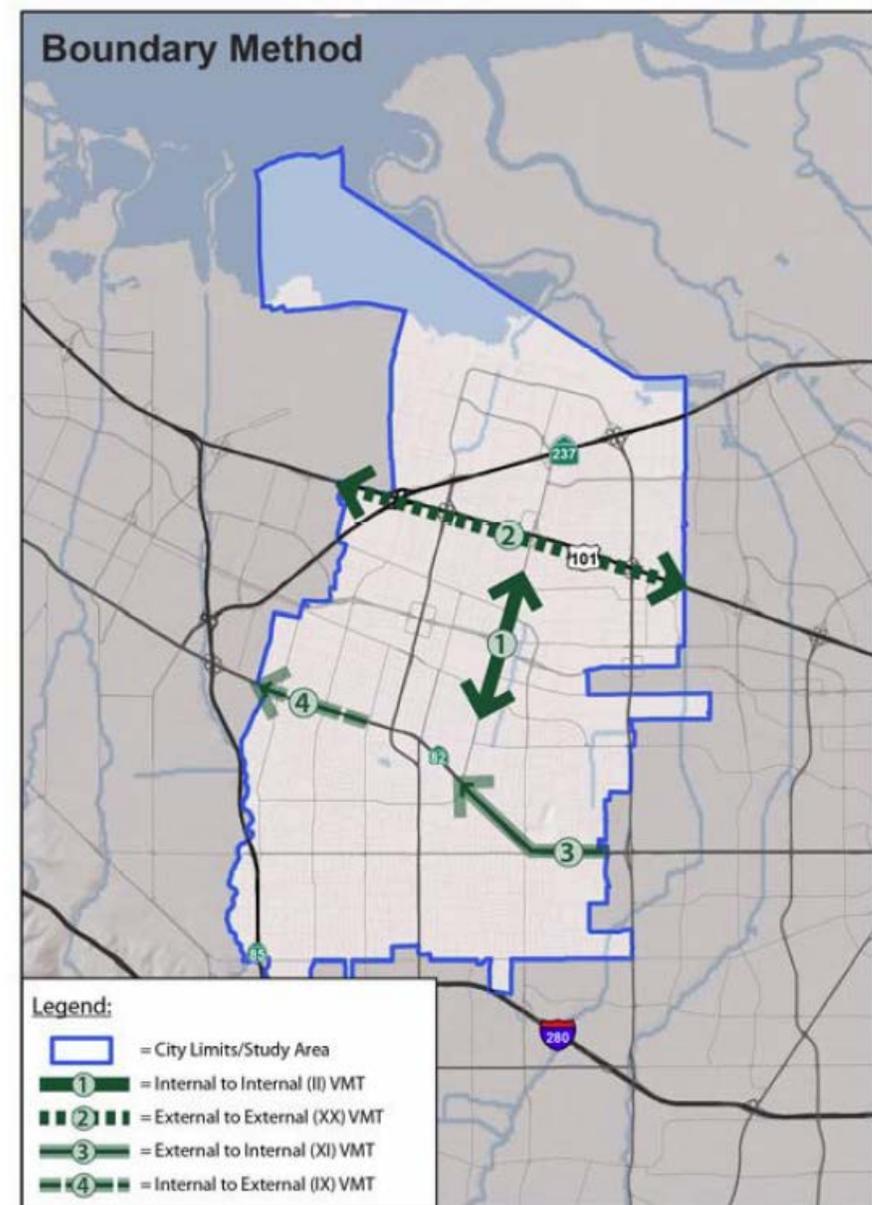
RICAPS Webinar June 23, 2020

# Local Community GHG Emission Requirements

- *Local governments in California are being asked to reduce GHG emissions 15% from current levels by 2020 (with an ultimate state-wide goal of 80% reductions by 2050)*
- *15% reduction from this level would actually constitute a 30% reduction by 2020*  
*(as an example, a community's GHG emissions could continue to grow 20% plus over that time period if unchecked)*
- *Local governments have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations*

Geographical Boundary Method: A geographical boundary–based estimate captures all daily VMT on a roadway network within a specified geographic area. This geographical boundary–based estimate includes local trips within the specified area plus interregional travel that does not have an origin or destination within the geographic area.

Local Communities Need To Estimate The VMT That They Are Responsible For - Not “Passing Through” VMT



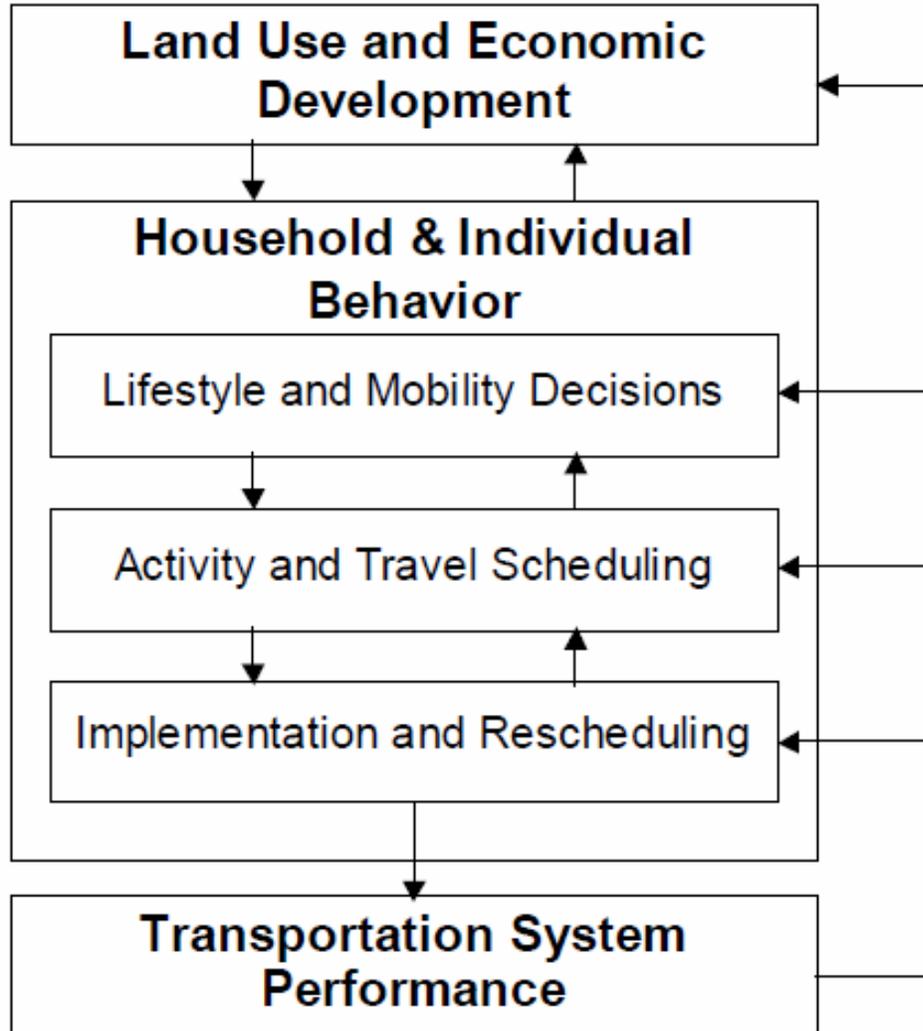
# Activity Based Travel Demand Modeling Approach

*Travel Model One operates on a synthetic population that includes representative households and person for each individual household and person in each county of the Bay Area region – both in the base year and in forecast years*

*A series of travel-related choices are simulated for each household and per within each household; these choices are include:*

- Usual workplace and school location
- Household automobile ownership
- Daily activity pattern
- Work/school tour frequency and scheduling
- Joint non-mandatory tour frequency, party size, participation, destination and scheduling
- Non-mandatory tour frequency, destination and scheduling
- Tour travel mode
- Stop frequency and location
- Trip travel mode
- Parking location choice
- Vehicle Trip Assignment

# Modeling Framework



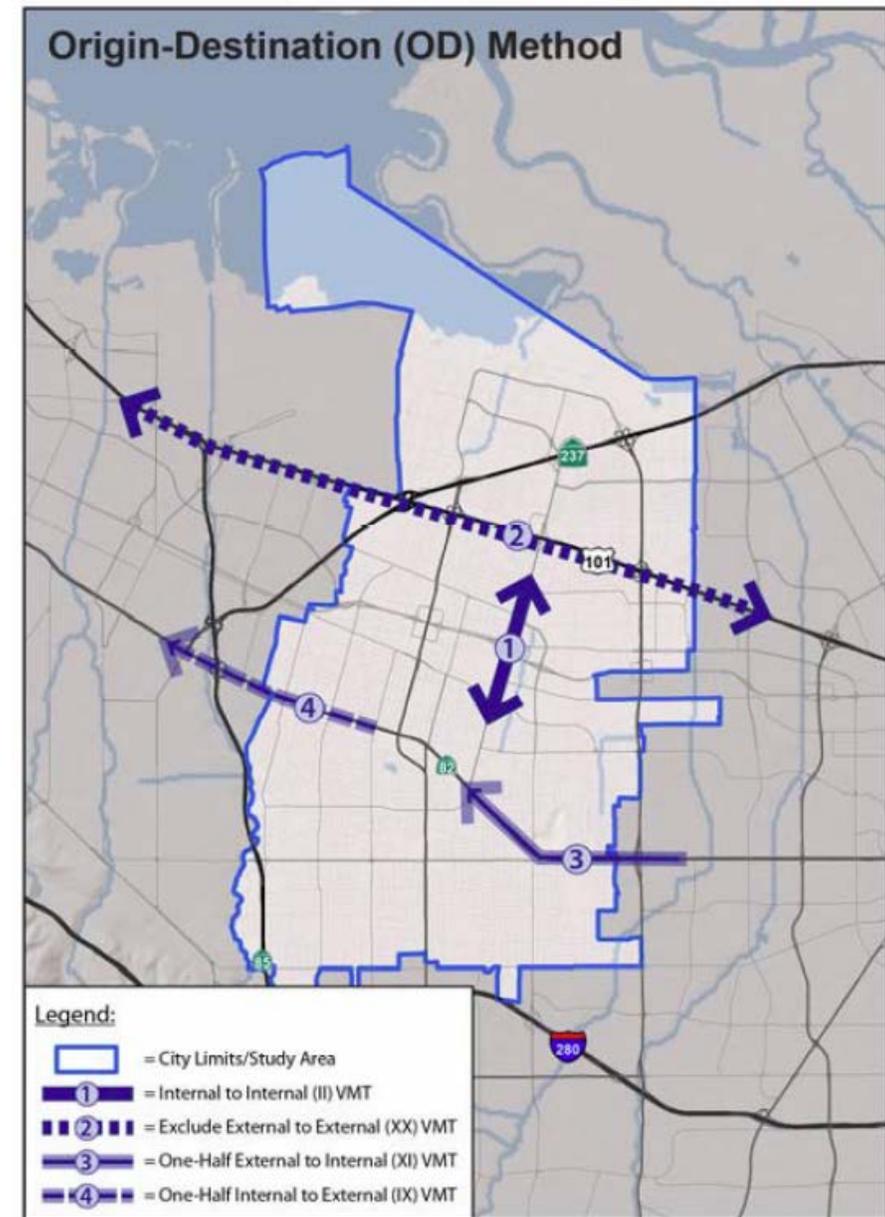
Long Term



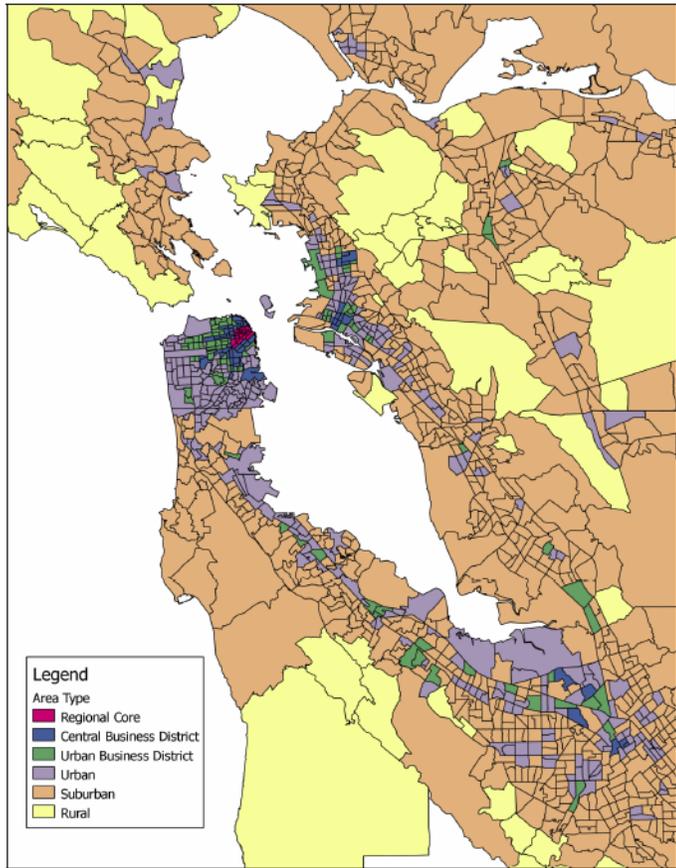
Short Term

Origin-destination (OD) Method: Tracks all the vehicle trips generated within a geographic area across the entire network to their ultimate destinations and isolates the daily VMT as follows:

1. Internal-internal (II): All daily trips made entirely within the study jurisdiction.
2. One-half of internal-external (IX): One-half of daily trips with an origin within the study jurisdiction and a destination outside of this jurisdiction.
3. One-half of external-internal (XI): One-half of daily trips with an origin outside the study jurisdiction and a destination within this jurisdiction.
4. External-external (XX): Trips through the study jurisdiction are not included because the study jurisdiction cannot implement policies that influence the trip-making behavior.



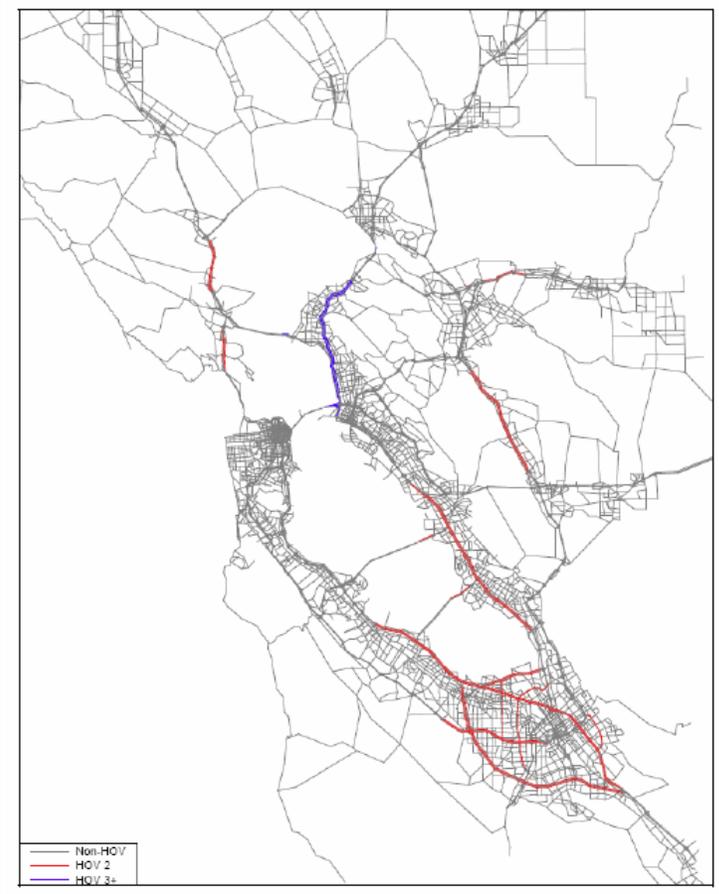
# Demand: Triptable with Origins and Destinations



Travel Assignment



# Supply: Highway Network Defines Trip Paths



# Travel Segmentation Approach

## *Person categories:*

- Live in the jurisdiction/work in the jurisdictions;*
- Live in the jurisdiction / work outside the jurisdiction;*
- Live in the jurisdiction / non-worker;*
- Live outside the jurisdiction / work in the jurisdiction*
- Live outside the jurisdiction / work outside the jurisdiction; and*
- Live outside the jurisdiction / non-worker;*

## *Travel categories:*

- Trips that both begin and end within the jurisdiction;*
- Trips that either begin or end within the jurisdiction;*
- Trips that neither begin nor end within the jurisdiction.*

# Sample Output source: <http://capvmt.us-west-2.elasticbeanstalk.com/data>

Vehicle Miles Traveled Dataportal

Home Data Feedback About API

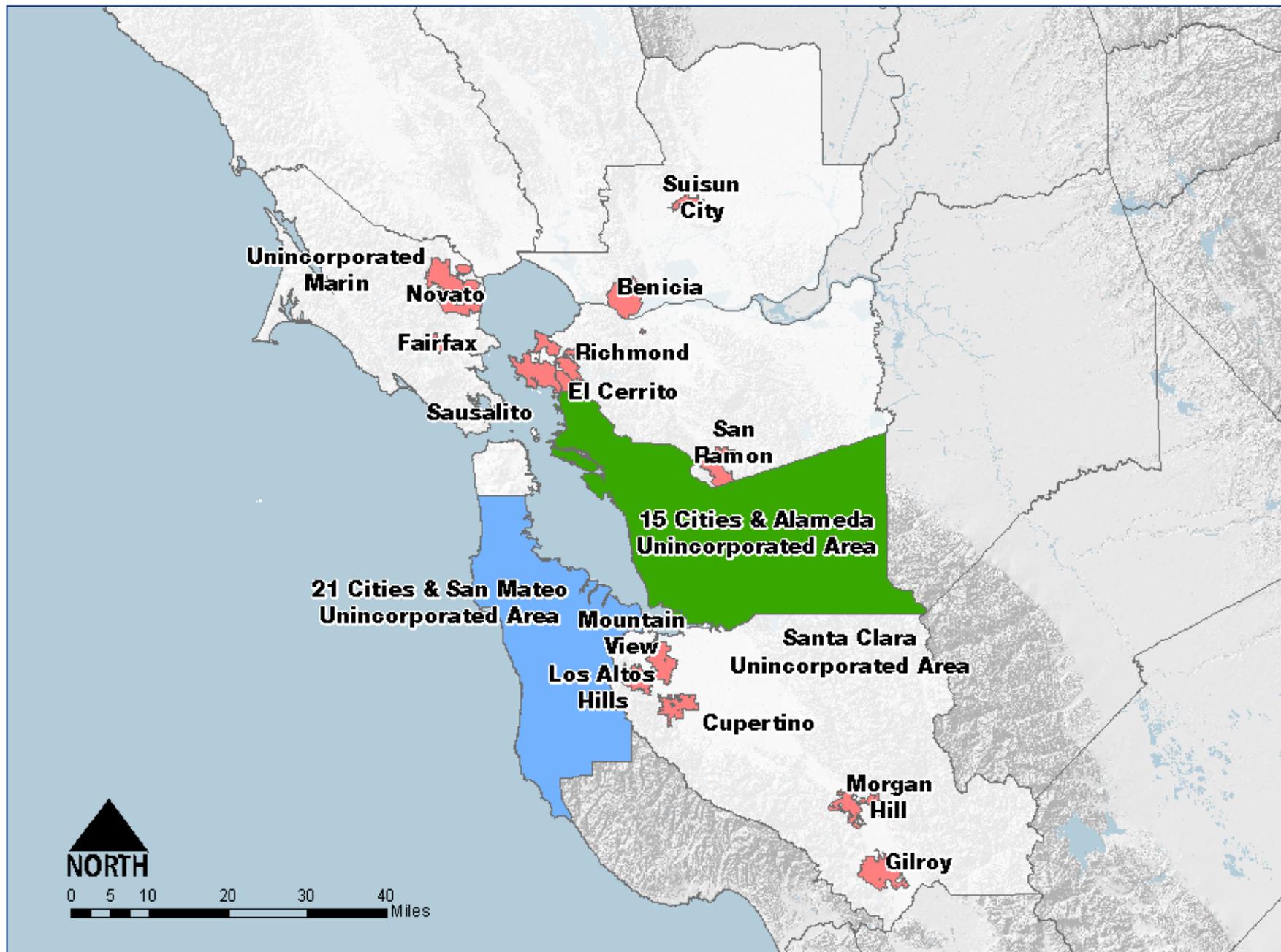
2020 San Mateo [Get Data](#) [Map](#) [Download Data](#)

Climate Action Plan VMT Data

Place Name: San Mateo Simulation ID: 2020\_06\_694

Population Segment	Persons	Non-commercial Passenger Vehicle Miles Traveled						Total	Vehicle miles traveled per capita	
		Entirely within		Partially in		Entirely outside				
Live in area/ Works in area	13,048	57,696	46.2%	62,110	49.7%	5,073	4.1%	124,880	100%	9.57
Live in area/ Works out of area	45,856	63,535	5.9%	841,562	78.1%	172,029	16.0%	1,077,126	100%	23.49
Live in area/ Non-worker	52,046	108,560	25.1%	293,072	67.8%	30,388	7.0%	432,020	100%	8.30
Live out of area/ Works in area	50,242	27,168	1.7%	1,194,425	76.3%	344,205	22.0%	1,565,797	100%	31.17
Live out of area/ Works out of area	4,030,630	10,962	0.0%	599,839	0.7%	85,378,816	99.3%	85,989,616	100%	21.33
Live out of area/ Non-worker	3,698,248	14,056	0.0%	425,415	1.4%	29,282,028	98.5%	29,721,498	100%	8.04
<b>Total</b>	<b>7,890,070</b>	<b>281,977</b>		<b>3,416,423</b>		<b>115,212,539</b>		<b>118,910,937</b>		<b>15.07</b>

Selected Transportation Analysis Zones:  
253, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 274, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 290, 291



# Supplemental Calculations

- Commercial Vehicle (Truck) Emission Estimates
  - EMFAC generated County Level Commercial Vehicle Inventory
  - Longitudinal Employment Household Dynamics (LEHD)
- Daily to Annual Estimate Conversions
  - Caltrans Performance Measurement System (PeMS) Data
- Speed Adjusted – County Specific Emission Rates
  - Model One Vehicle Activity Data
  - EMFAC Emission Rate Calculation

Source - <https://onthemap.ces.census.gov/>

**Work Area Profile Analysis**  
enter your own subtitle

Display Settings  
Characteristic Filter: Total  
Year: 2014

Map Controls  
Color Key:   
Thermal Overlay:   
Point Overlay:   
Selection Outline:   
Identify:   
Zoom to Selection:   
Clear Overlays:   
Animate Overlays:

Report/Map Outputs  
Detailed Report:   
Export Geography:   
Print Chart/Map:

Change Settings

**Total All Jobs** 2014

	Count	Share
Total All Jobs	198,066	100.0%

**Worker Age** 2014

	Count	Share
Age 29 or younger	33,677	17.0%
Age 30 to 54	115,708	58.4%
Age 55 or older	48,681	24.6%

**Earnings**

Privacy Policy | 2010 Census | Data Tools | Information Quality | Product Catalog | Contact Us | Home  
Source: U.S. Census Bureau, Center for Economic Studies | e-mail: [CES.OnTheMap.Feedback@cesus.gov](mailto:CES.OnTheMap.Feedback@cesus.gov)



Source - <http://pems.dot.ca.gov>

Caltrans PeMS > District 4: Bay Area

[pems.dot.ca.gov/report\\_form=1&idnode=District&content=loops&tab=det\\_dow&export=1&district\\_id=4&time\\_id=1262304000&time\\_id\\_f=01](http://pems.dot.ca.gov/report_form=1&idnode=District&content=loops&tab=det_dow&export=1&district_id=4&time_id=1262304000&time_id_f=01)

PeMS 17.0

District 4: Bay Area

Current Location:  Dashboard | Facilities & Devices | Performance | Data Quality | Events

Performance > Aggregates > Day of Week

From: 01/01/2010 To: 12/31/2010  
Time of Day: All  
Min Range: 0 to Max Range: 9 years

Quantity: Vehicle Miles Traveled (VMT) Statistics: Mean, Min, Max; Mean, Mean+σ, Mean-σ; Median, 25 %, 75 %

View Full | View Table | Export Text | Export to All | Export to PDF

126707 14210 0

Vehicle Miles Traveled (VMT) (Veh-Miles)  
396,442,488 Lane Points (50% Observed)  
District 4: Bay Area  
Fri 01/01/2010 00:00:00 to Fri 12/31/2010 23:59:59

9e+07  
8e+07  
7e+07  
6e+07  
5e+07  
4e+07  
3e+07  
2e+07  
1e+07

Featured Sections

Start | 2:13 AM 6/8/2017

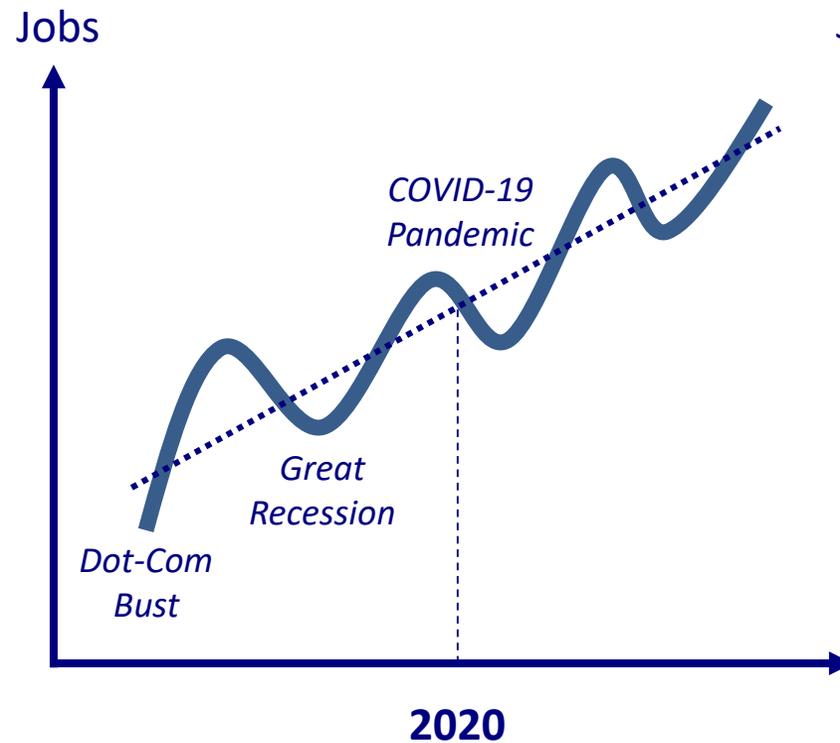
# COVID-19 Pandemic + Likely Recession: Near-Term versus Longer-Term Impacts on Plan Bay Area 2050

- **Regional Growth Forecast:** significant economic impacts are being integrated into forecast years 2020-2029, even as the region's long-term potential likely remains strong.
- **Revenue Estimates:** revenue assumptions from early years of planning cycle are being adjusted downward to reflect likely year 2020 recession; assumed years of potential revenue measures can be shifted back based upon board direction.
- **External Forces:** staff are proposing an accelerated growth rate of telecommuting to the California Air Resources Board, which has a regulatory role in *Plan Bay Area 2050*.
- **Public Engagement:** in addition to more webinars, staff will present a refreshed approach for summer 2020 public engagement activities, including "virtual" public workshops.
- **Implementation Plan:** the short-range Implementation Plan will be able to identify actions MTC/ABAG can take to tackle shared challenges in partnership with local jurisdictions, non-profits, and the private sector.

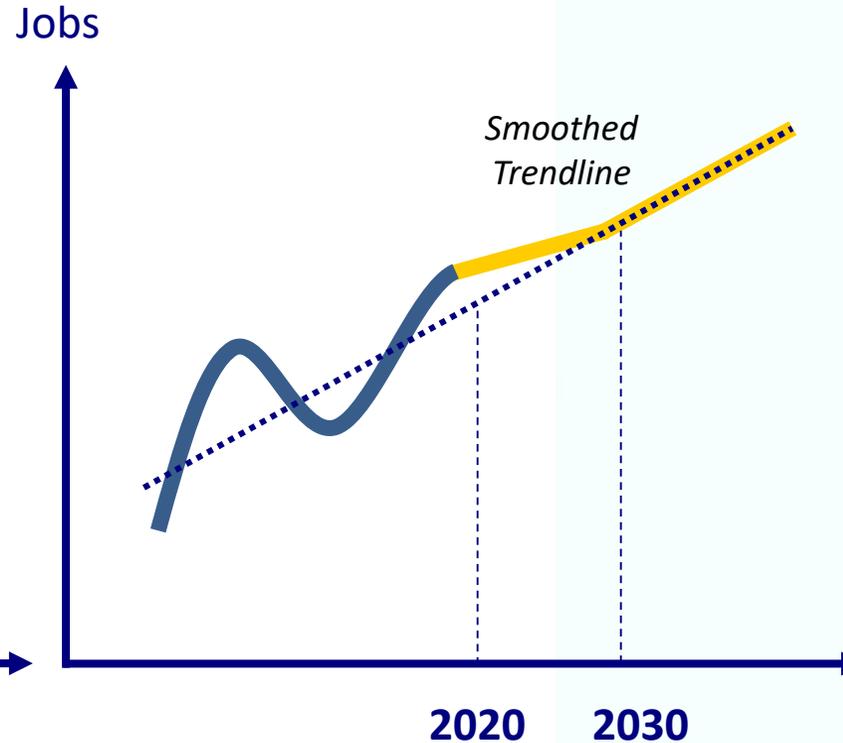
**Final Blueprint:** with regards to longer-range strategies, the public, stakeholders, and elected officials will also be able to provide further input and direction via the Final Blueprint phase this summer.

# What specific modifications are being made to the first decade of the Regional Growth Forecast?

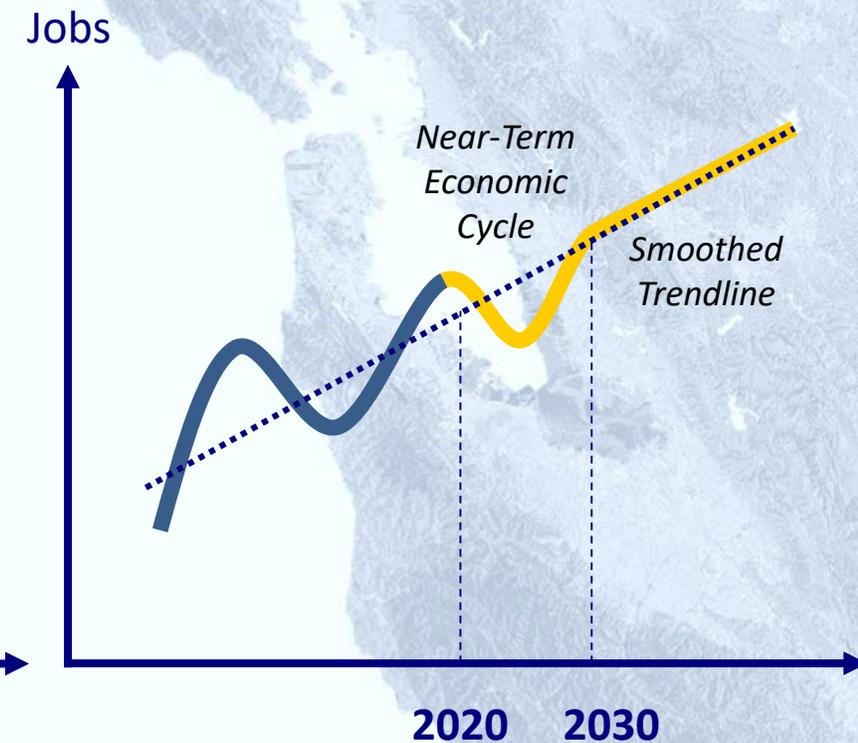
HISTORICAL TRENDLINE



PRE-COVID FORECAST



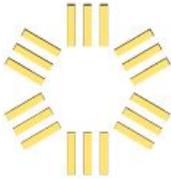
ADJUSTED FORECAST



Consistent with our overall approach, we are **integrating data in the early years of the planning period on economic peaks and troughs**, while recognizing uncertainty with regards to timing of future peaks and troughs in the decades beyond (e.g., smoothed trendline).

# Thank You!

- Speaker Contact:  
Harold Brazil, Air Quality Planner/Analyst  
Metropolitan Transportation Commission  
(415) 778-6747; [hbrazil@bayareametro.gov](mailto:hbrazil@bayareametro.gov)

—  STREETLIGHT  InSight —

An aerial photograph of a city, likely San Mateo County, showing a complex highway interchange, a river, and dense urban development. The image is overlaid with a semi-transparent dark blue rectangle containing white text.

## WHO IS C/CAG?

- Congestion Management Agency for San Mateo County
- Active Transportation, Stormwater, Airport, Travel Demand Management, and much more
- 21 Member Agencies make up the Joint Powers Authority
- Focus on improving quality of life for residents

# WHAT IS STREETLIGHT DATA?

- Big Data for Mobility
- Make it easy, affordable and intuitive to incorporate transportation and mobility behavior into important decisions throughout the world.



WHY C/CAG  
WANTED  
STREETLIGHT  
DATA

Local Interest	Received requests from Local Jurisdictions regarding procurement possibilities
Data Set	Provide robust and thorough data and analysis tools
Run Analyses	Ability to run traffic analyses multi-modally in house
Increase Efficiency	Such powerful tools can help save time and money
Opportunity	Utilize the technology available acting as a leader for innovation

# WHAT MAKES UP STREETLIGHT DATA?



Location-Based Services data  
from smartphone apps



Navigation-GPS data from  
connected cars and trucks



Road network, census, parcel,  
and other contextual data

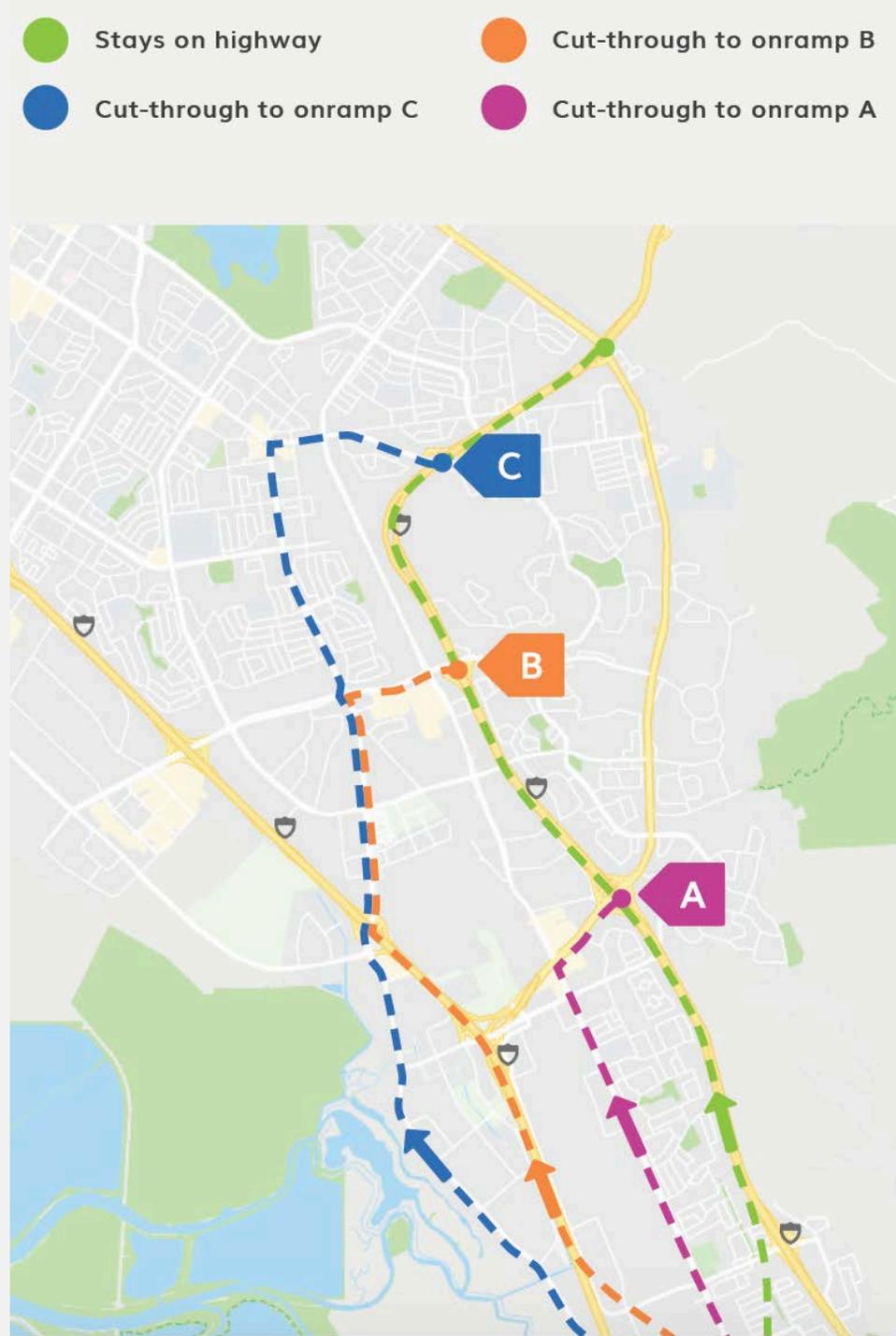
# STREETLIGHT'S PRIVACY POLICY

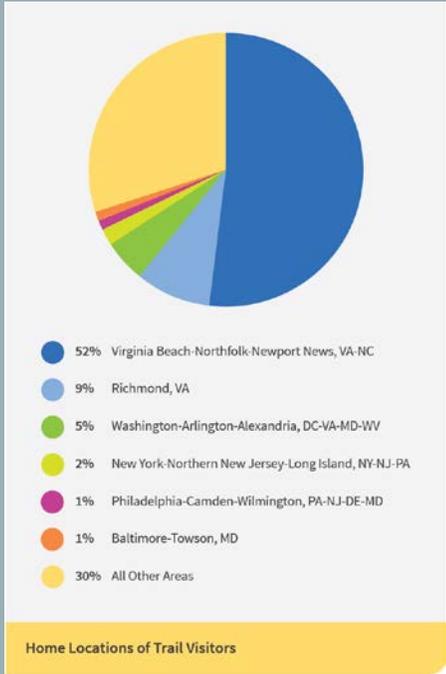
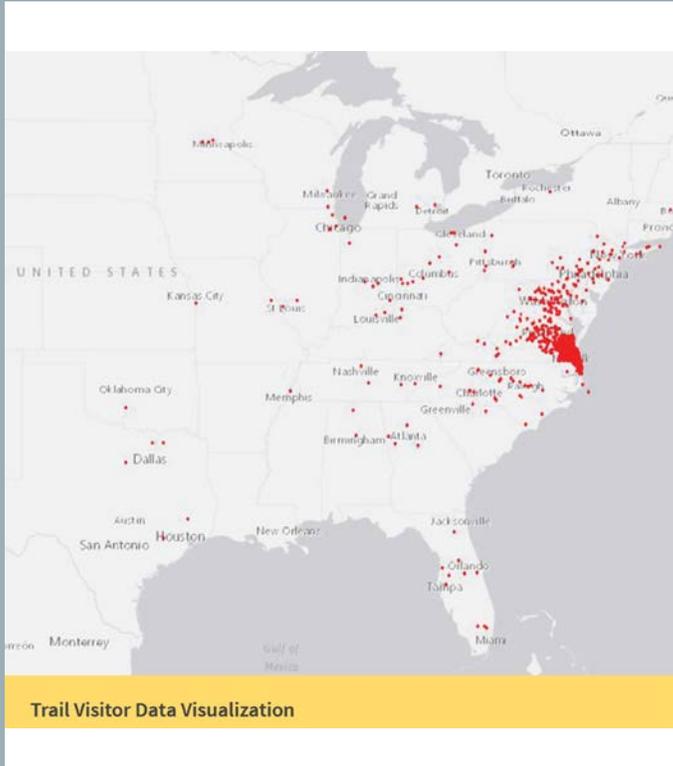
- Collects anonymized information
  - Requires suppliers to de-identify devices
- All data is archival
- Layered on top of publicly available U.S. Census Data



## CASE STUDY: CUT THROUGH TRAFFIC MITIGATION ANALYSIS

- Problem with driver cut through traffic with GPS apps
- City implemented turn restrictions and ramp meters
- Goal: Evaluate effectiveness
- StreetLight was able to create before and after analysis using origin and destination data
- City discovered the results were effective





# CASE STUDY: MEASURING CYCLING'S ECONOMIC IMPACT

- High rate of bicycle tourism, but needed accurate data to improve facilities
- Committee Goal: measure economic impact
- Analyzed what percent of cyclists were visitors
- StreetLight used origin and destination methods to determine visitor activity and spending
- Committee was able to show justification for facilities

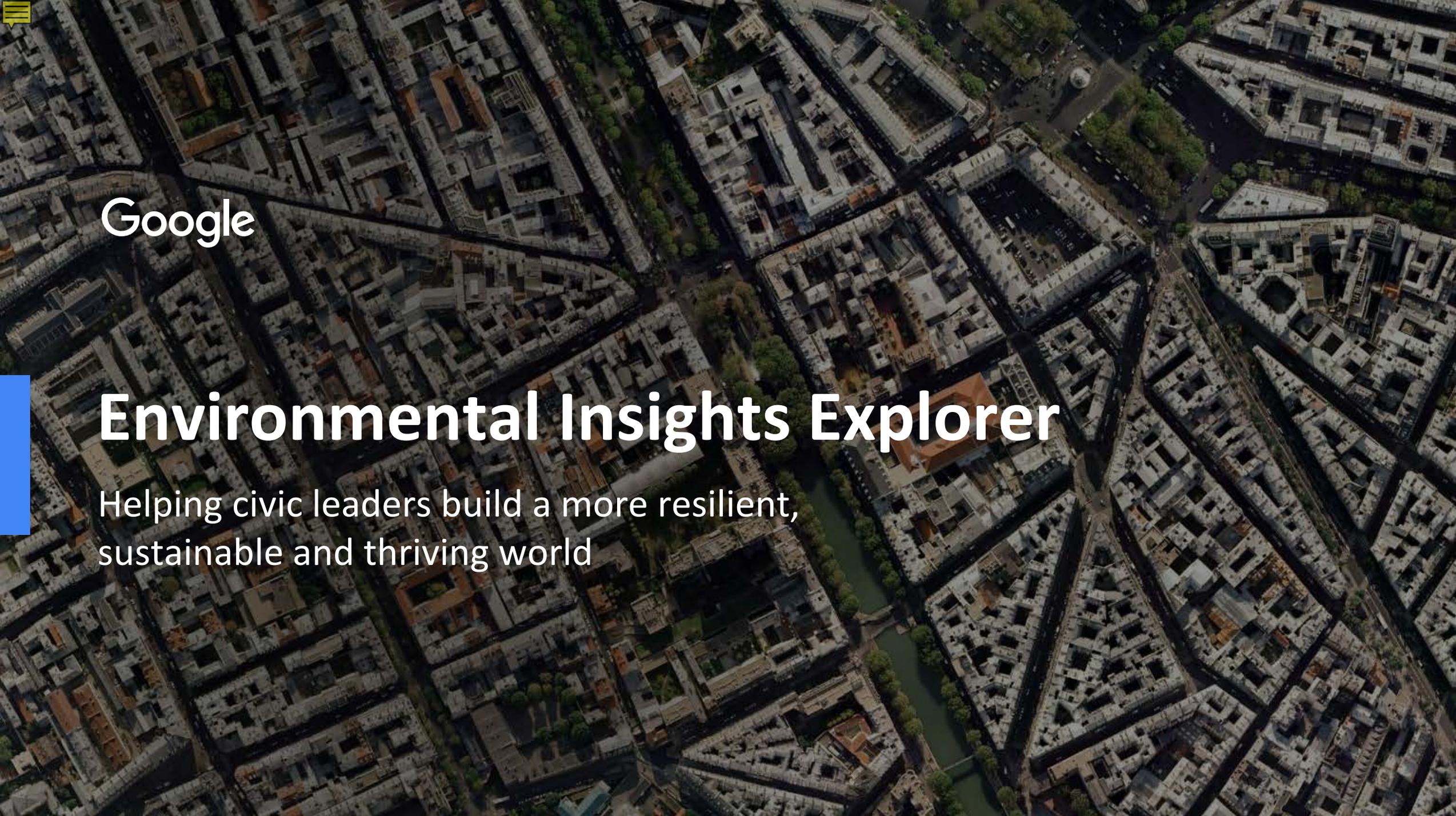
## HOW CAN WE USE THIS LOCALLY?

- Use data to develop plans
  - Bicycle and Pedestrian Network for Active Transportation Plan
- Travel Demand Model
- Traffic count analysis
- Guide funding decisions
  - Layering of Census and in house data to guide community level investment

DISCUSSION QUESTION:  
HOW DO YOU THINK YOU COULD USE  
STREETLIGHT DATA?

# THANK YOU! QUESTIONS?

Mikaela Hiatt  
[mhiatt@smcgov.org](mailto:mhiatt@smcgov.org)

An aerial, high-angle photograph of a dense urban area, likely a city center. The image shows a complex grid of buildings, streets, and a river winding through the center. The buildings are mostly multi-story structures with flat roofs. There are patches of greenery, including trees and small parks, interspersed among the buildings. The overall color palette is dominated by greys, browns, and greens.

Google

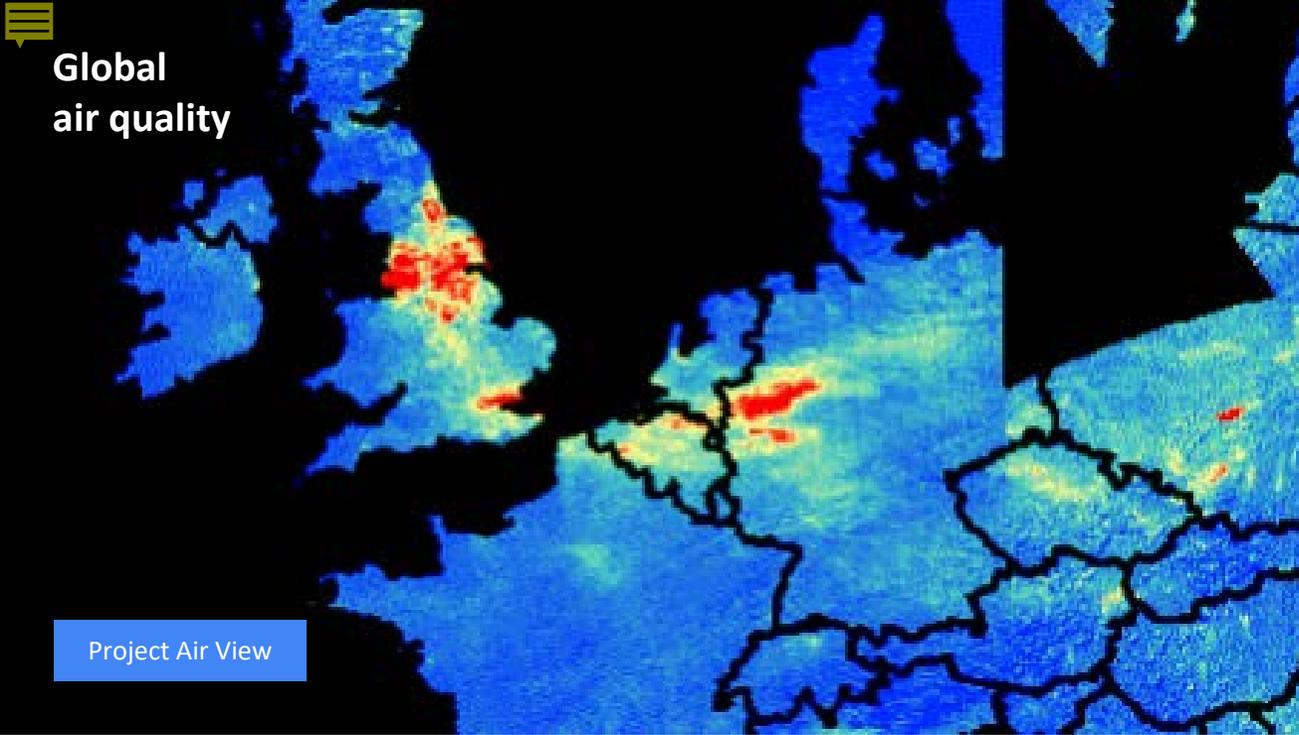
# Environmental Insights Explorer

Helping civic leaders build a more resilient,  
sustainable and thriving world



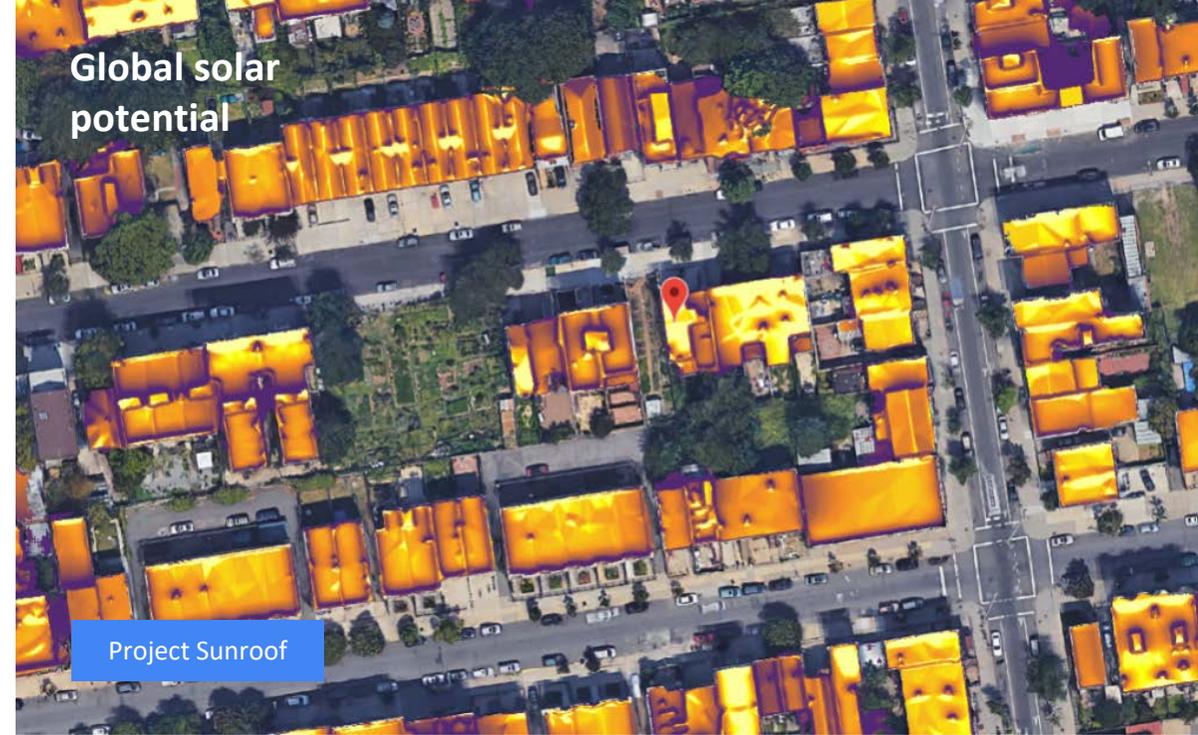
At Google, we strive to build sustainability  
into **everything** we do

Global  
air quality



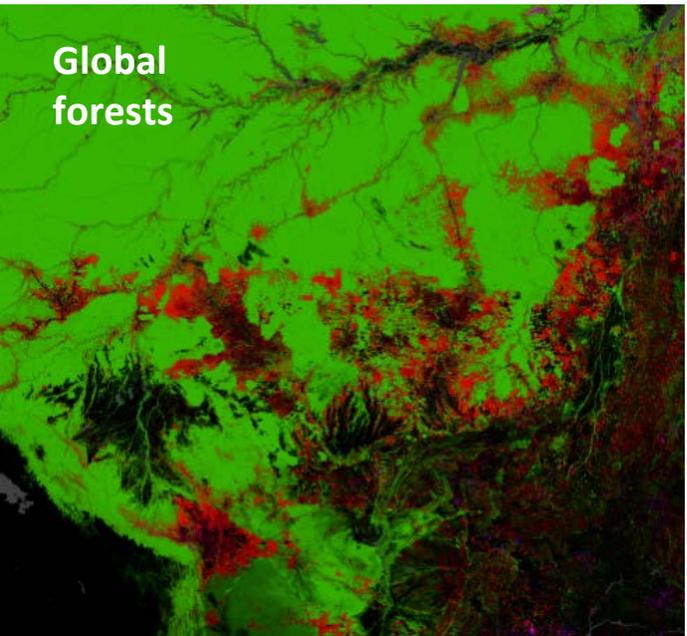
Project Air View

Global solar  
potential

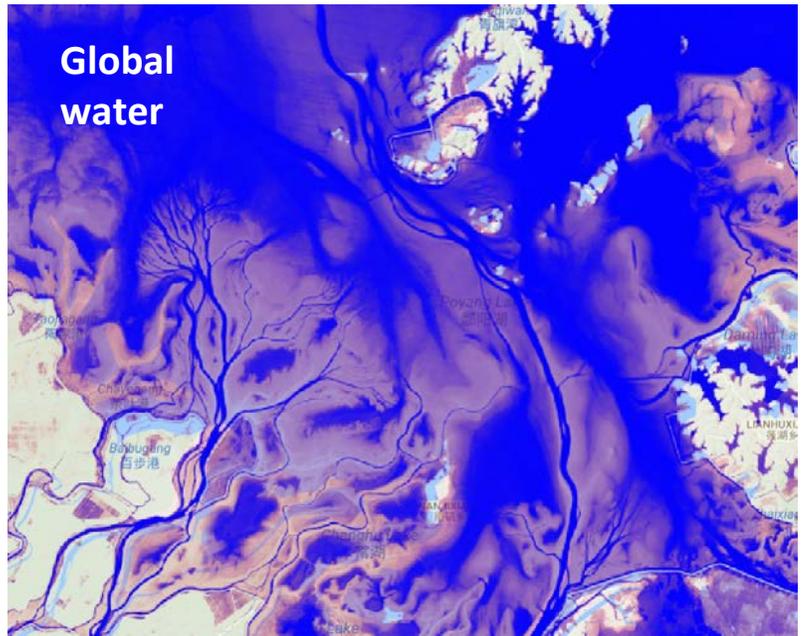


Project Sunroof

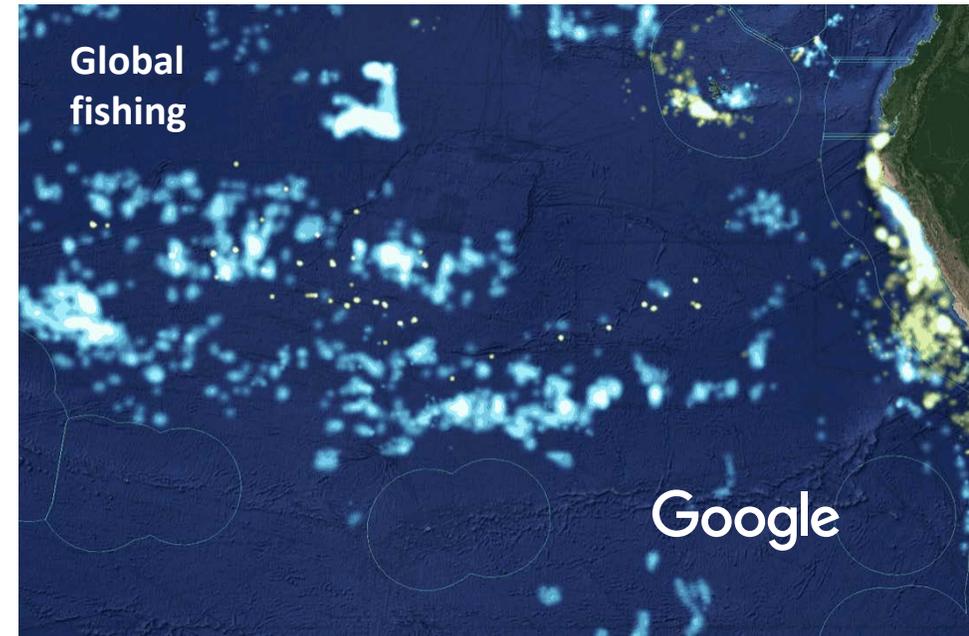
Global  
forests



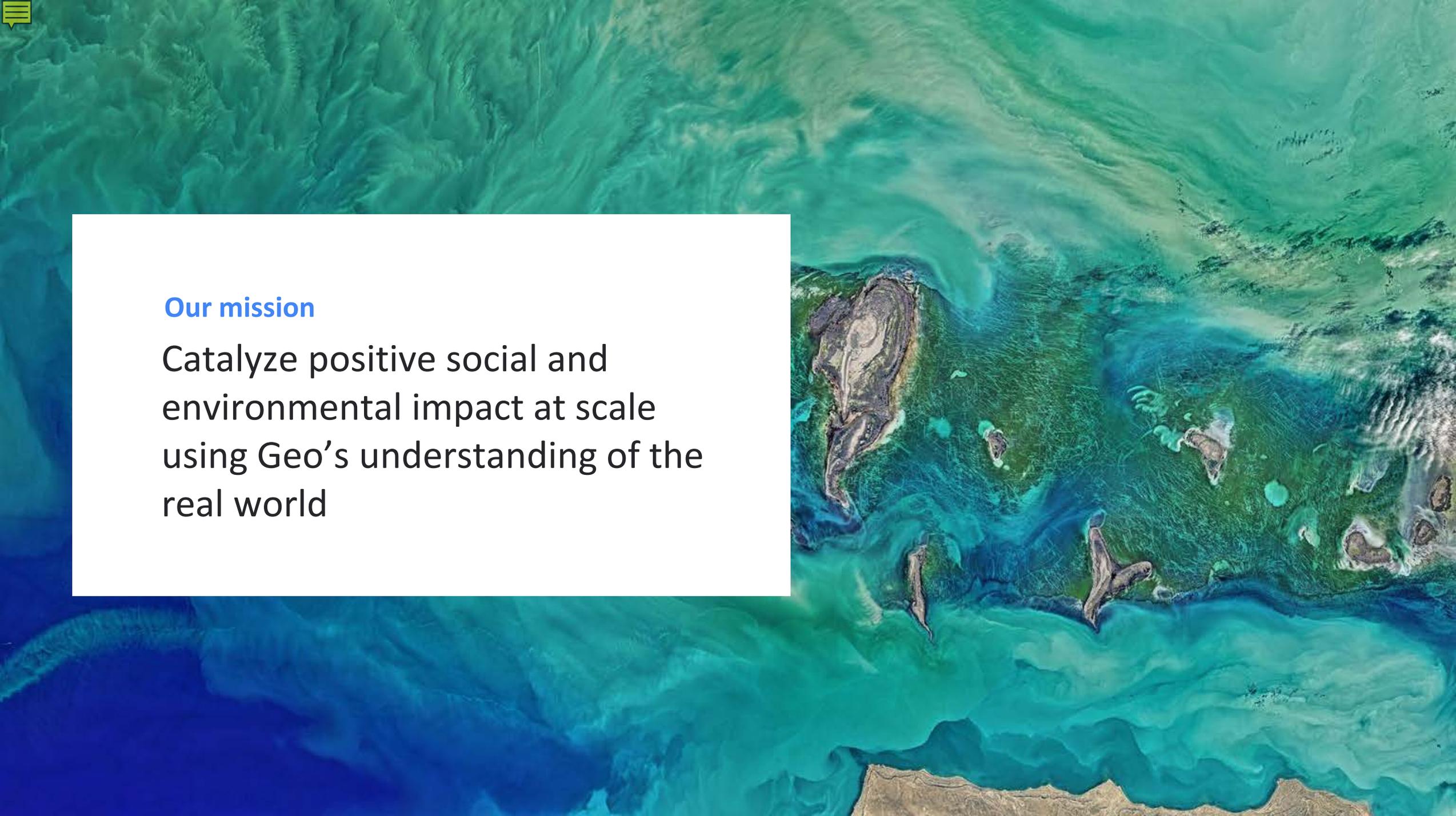
Global  
water



Global  
fishing

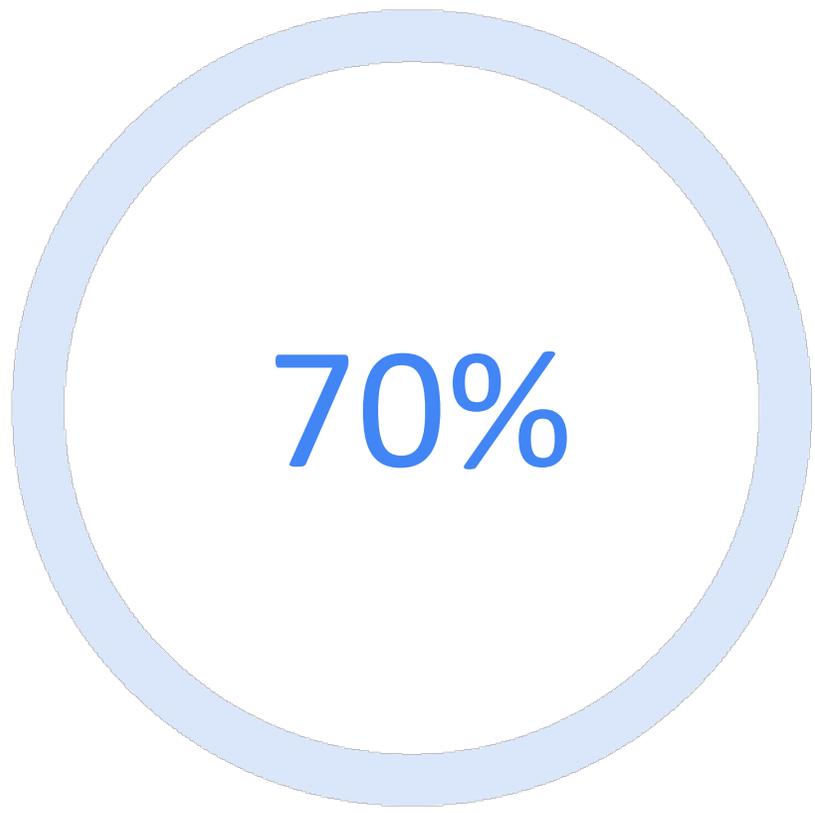


Google

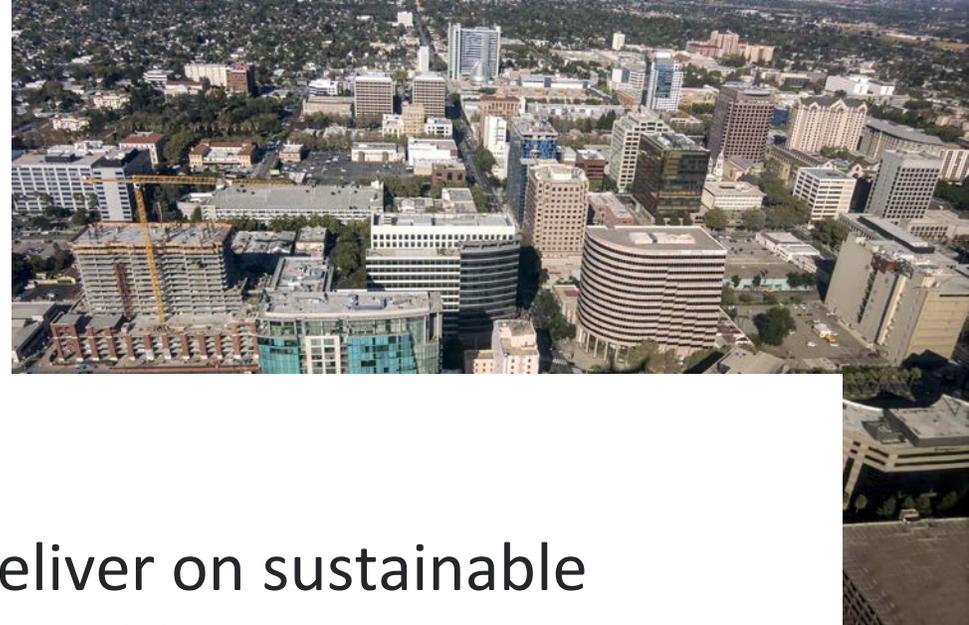
A satellite-style map of the world, showing the continents and oceans in various shades of green, blue, and brown. A white rectangular text box is overlaid on the left side of the map.

## Our mission

Catalyze positive social and environmental impact at scale using Geo's understanding of the real world

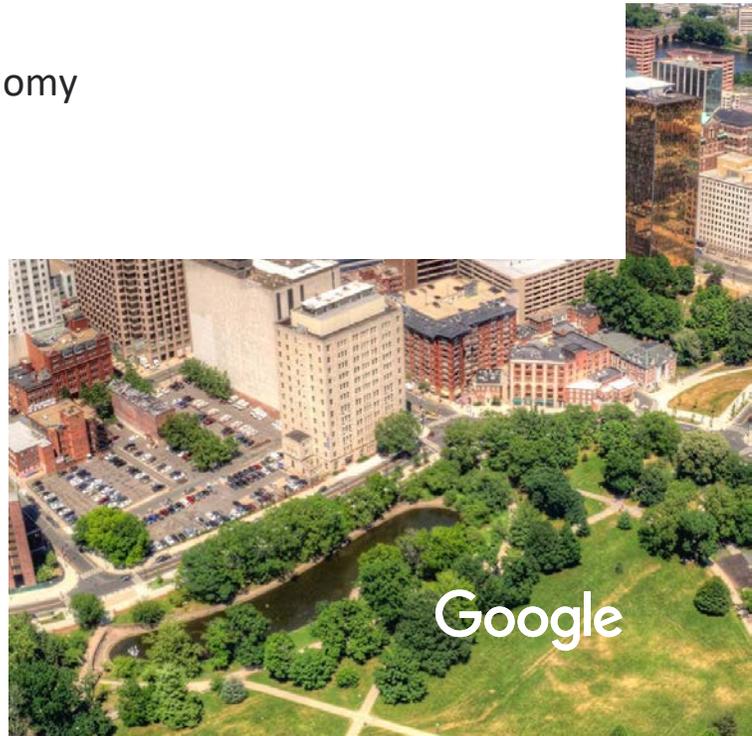


of global emissions are  
attributable to cities



# Help deliver on sustainable and equitable outcomes

Climate + Health + Economy



Google

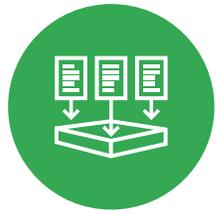


## North Star

Help cities reduce their carbon emissions by more than **1 billion tons of CO2 per year by 2025**



Data access is limited and costly



Data



Time



Expertise

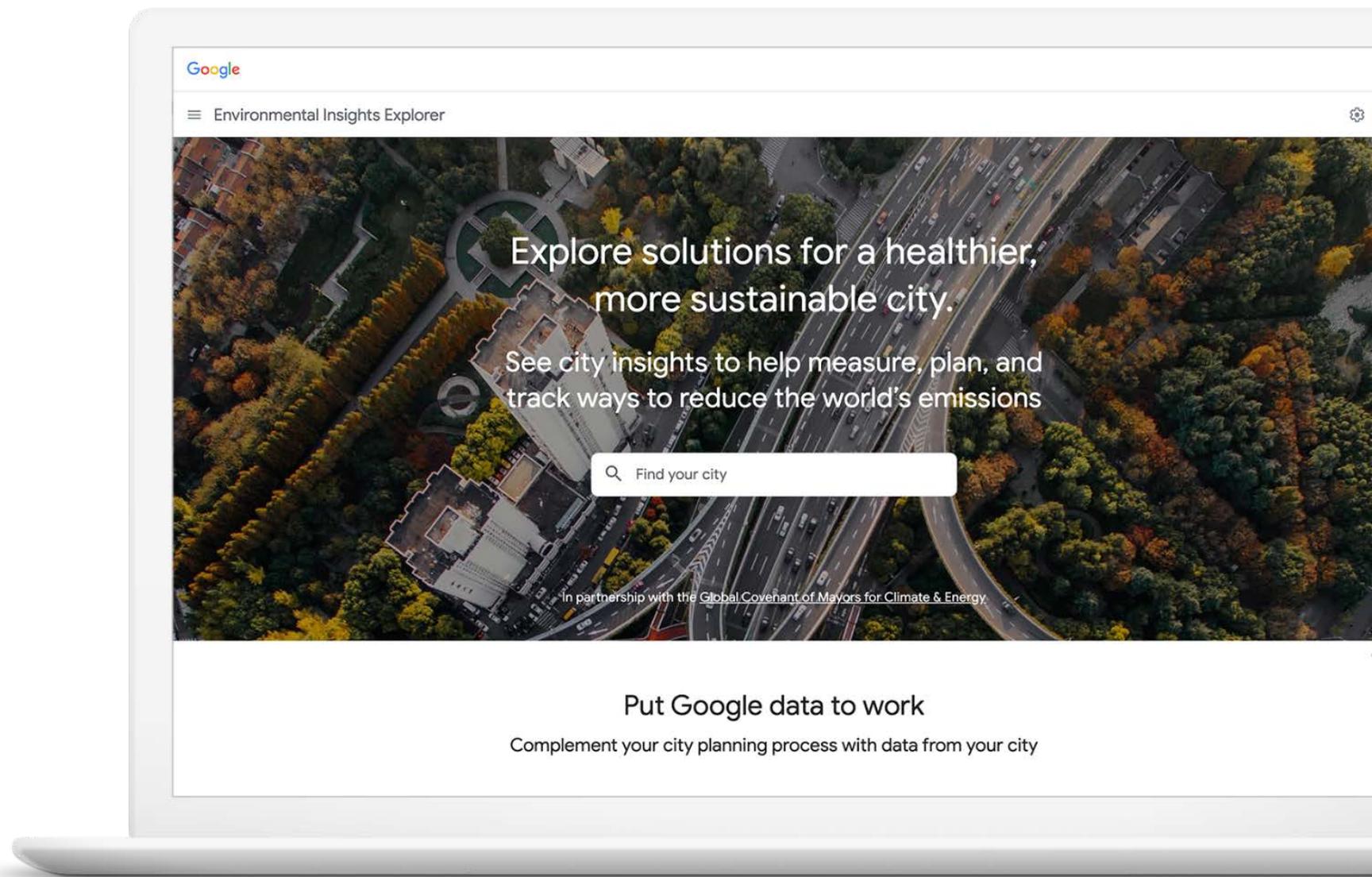


Resources



# Environmental Insights Explorer

In partnership with





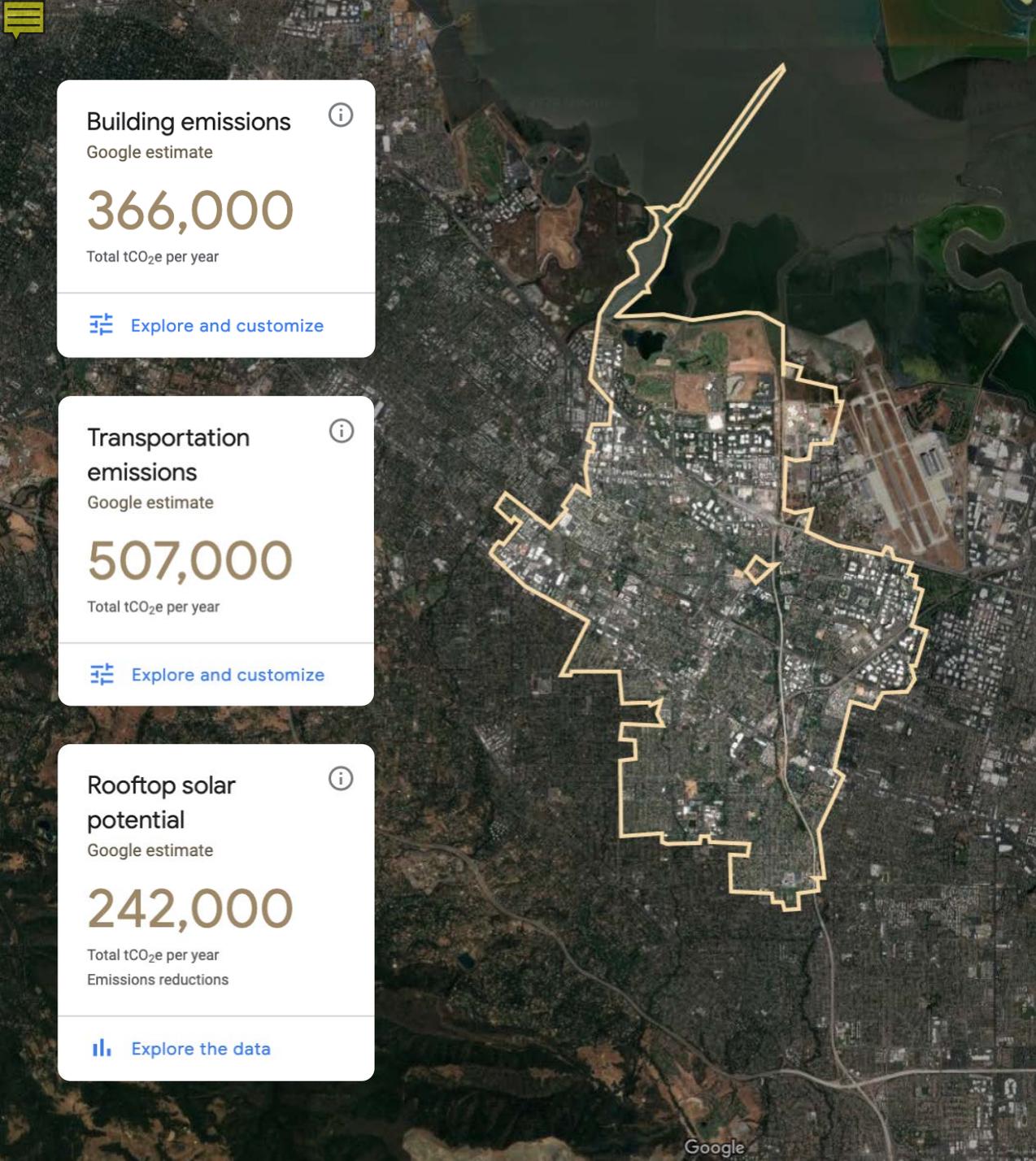
\$4.1M in grants to support city climate plan implementation projects

Google.org

Google



Granular Geo data, privacy-safe aggregation  
+ deep expertise in ML, analytics, and UX



### Building emissions

Google estimate

366,000

Total tCO<sub>2</sub>e per year

 Explore and customize

### Transportation emissions

Google estimate

507,000

Total tCO<sub>2</sub>e per year

 Explore and customize

### Rooftop solar potential

Google estimate

242,000

Total tCO<sub>2</sub>e per year  
Emissions reductions

 Explore the data

- 01 Estimate building emissions
- 02 Measure annual transit activity
- 03 Identify CO<sub>2</sub> reduction opportunities
- 04 Capture air quality measurements



## Transportation emissions

Google estimate

# 507,000

Total tCO<sub>2</sub>e per year

**Source:**  
Google Maps uses aggregated location information from user trips to infer traffic, mode of travel, busyness, and total distances driven in a city. These are combined with an estimate of the types of vehicles and average fuel consumption of each mode.

**Time period:**  
Total trips for year 2018.

**Key assumptions:**  
Regionally estimated average fuel consumption and emissions from the Climate Action for Urban Sustainability (CURB) tool applied to all trips for each mode.

### % of total transportation emissions



### % of total vehicle kilometers traveled

1,860,000,000 total kilometers



## Transportation emissions

Location data from Google Maps can be used to measure annual transit activity, infer traffic modes, and estimate emissions

While EIE algorithms are not yet designed for high temporal resolution,

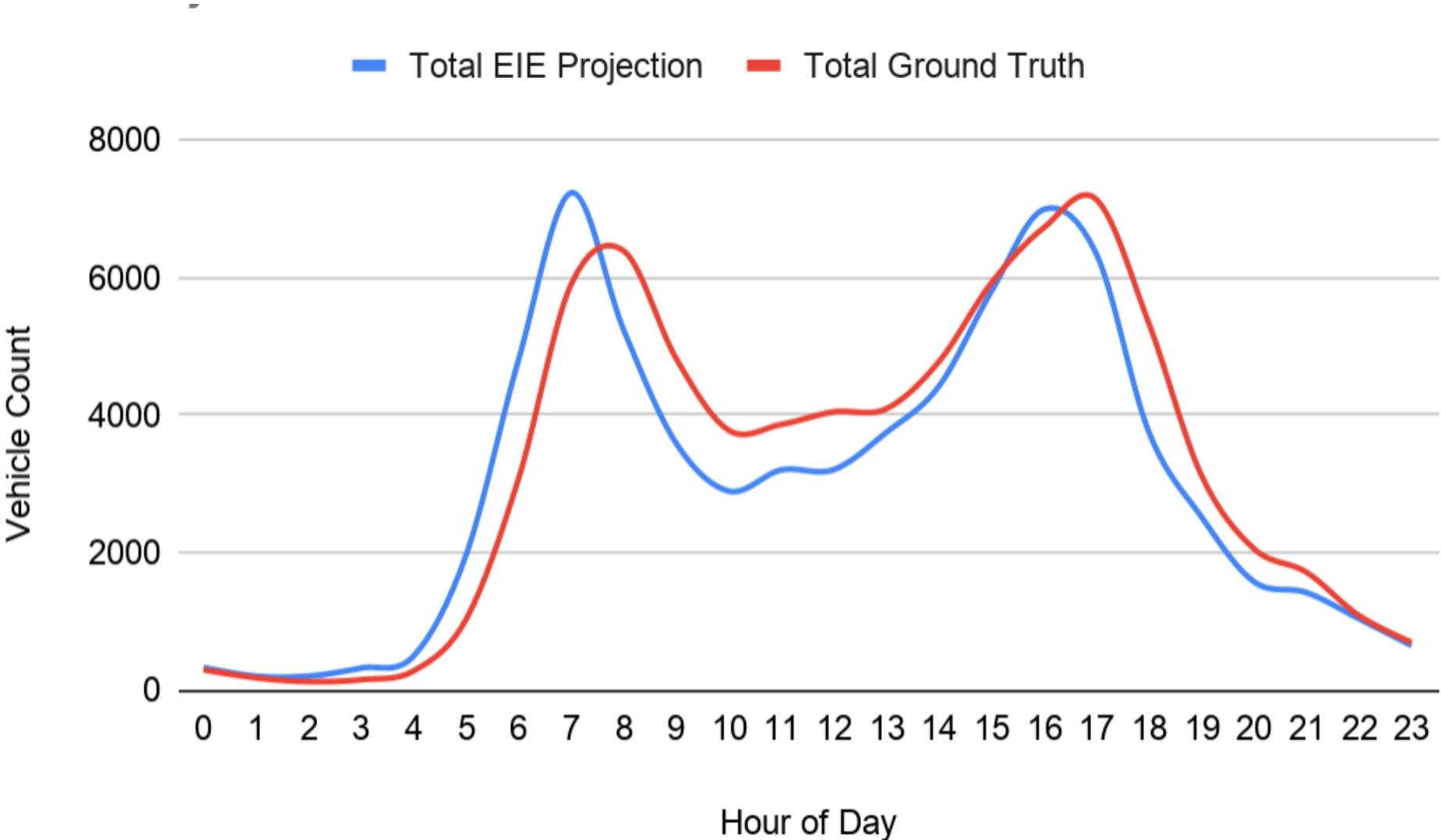
EIE has conducted validations across multiple cities, with hourly and daily intervals

In Boulder CO, hourly ground truth samples  
consisted of **76,000+** vehicles  
across a 3-day period

Correlation to ground truth  
road sensors is 93%

Demonstrating that EIE captures a **consistent  
subset of real-world** vehicle volume,  
even at hourly temporal scale

The results show the EIE model aggregate difference was ~6.1%



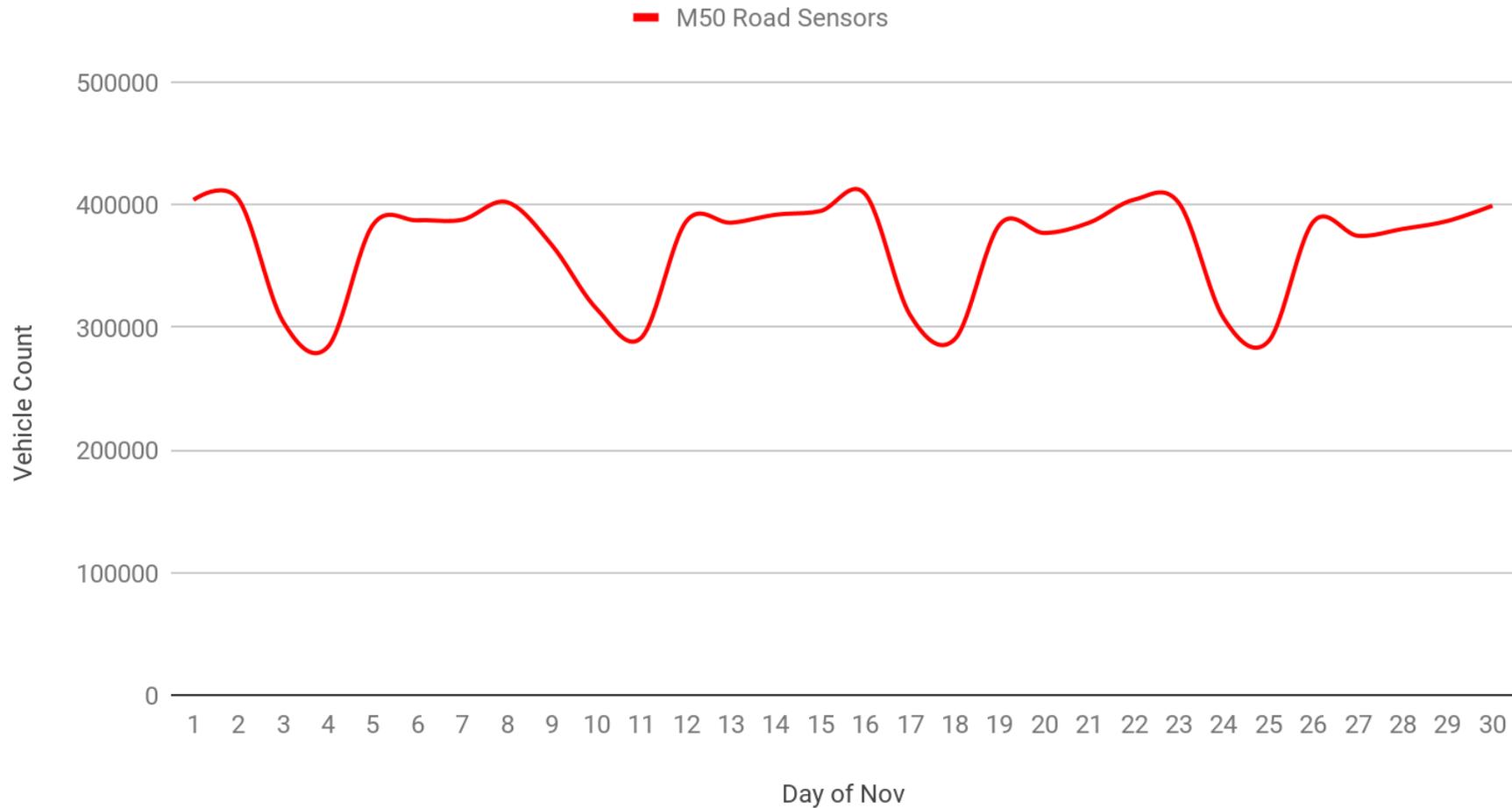
Pearson correlation: 93%  
Sample: 76,560 vehicles

Our largest analysis to date uses ground truth data  
across three M50 roadways in Dublin

Sample contained nearly 11,000,000 vehicles,  
aggregated by day across 2018 Nov

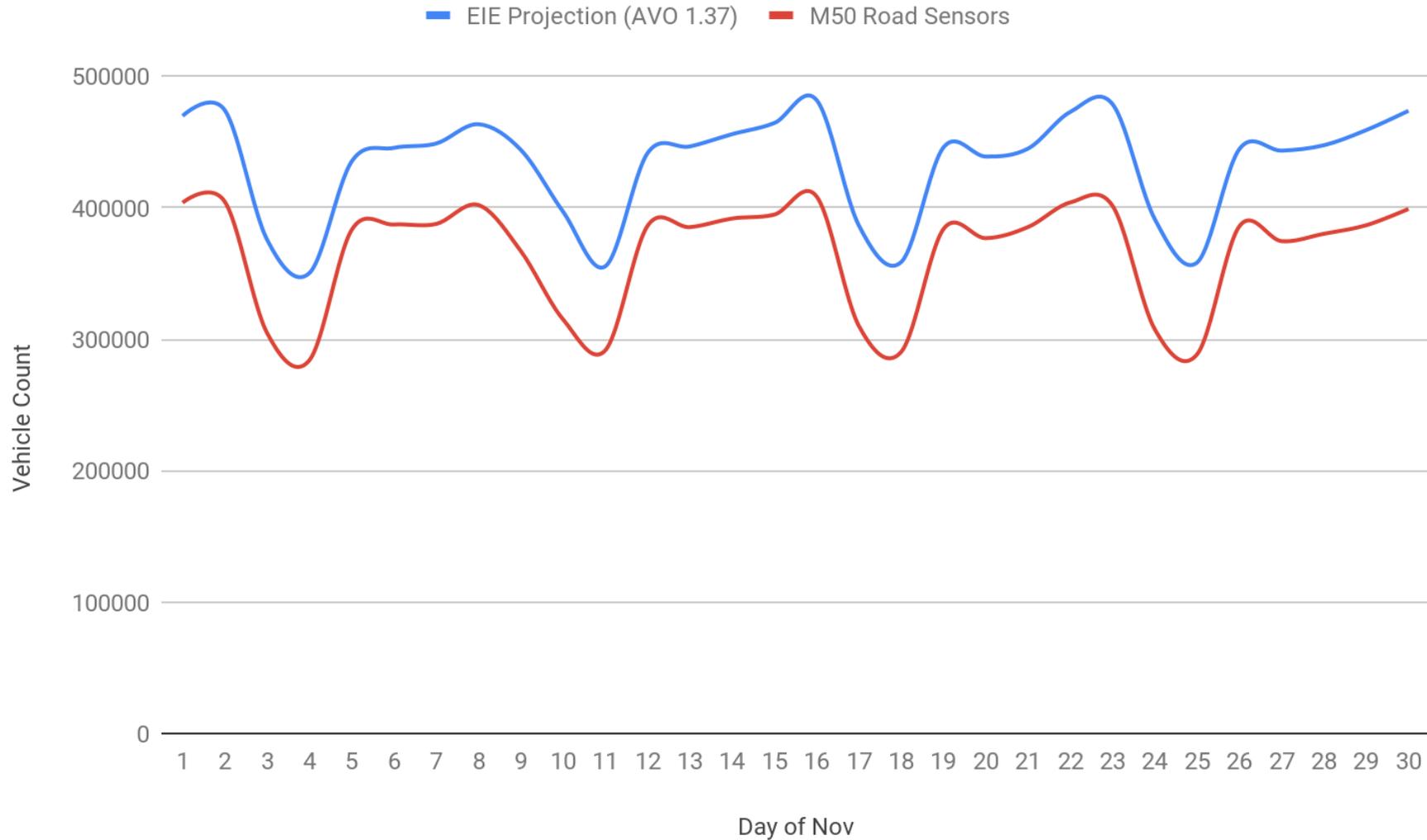
# Road sensor data from M50 in Avg Daily Traffic Volume of nearly 11M vehicles

Combined M50 ADTV, Nov 2018



Sample: 10,969,110 vehicles

We did not have AVO data for these roads; based on Dublin's Canal Cordon Report, we used an Average Vehicle Occupancy of 1.37

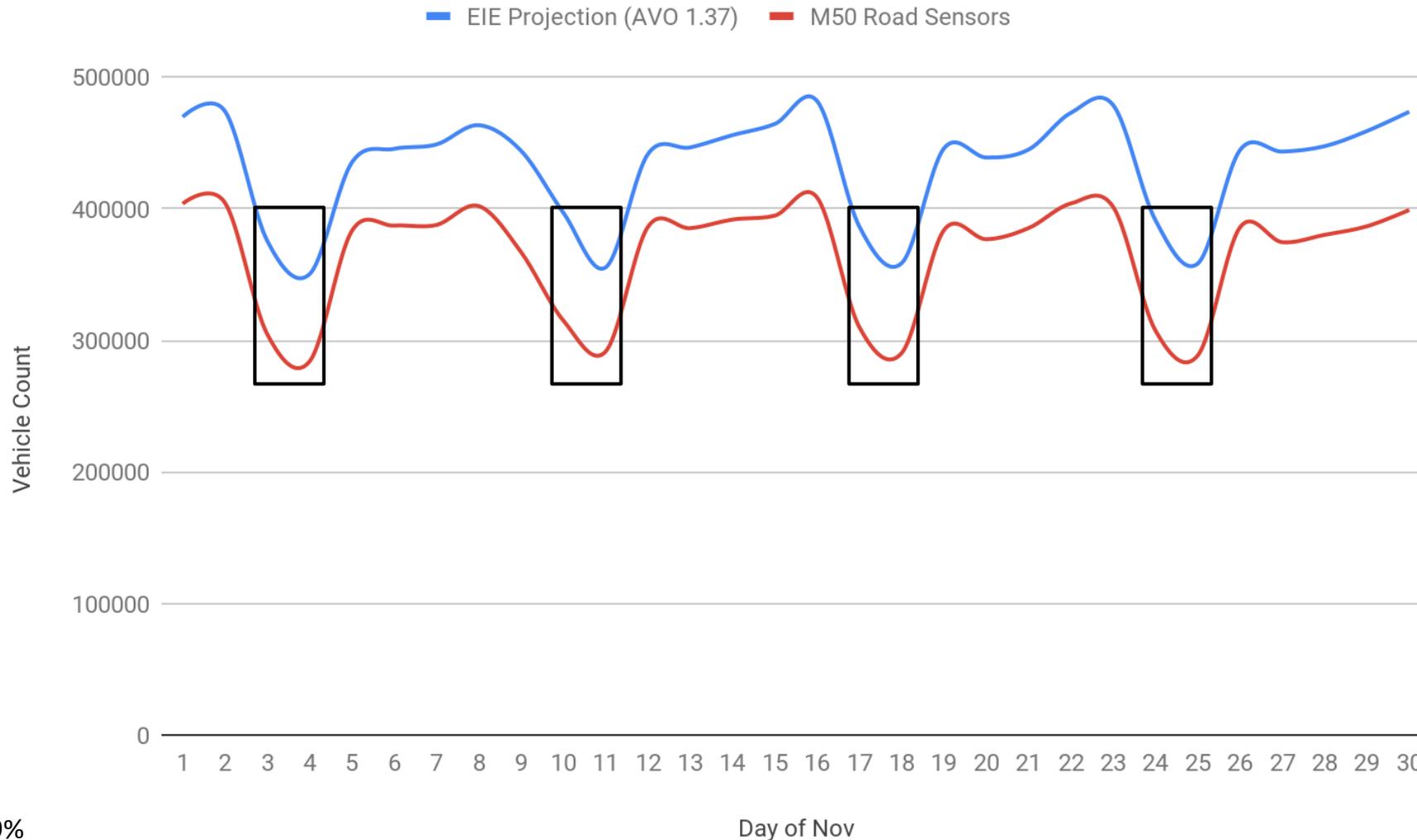


Pearson  
Correlation:  
99%

Sample: 10,969,110 vehicles

[https://www.nationaltransport.ie/wp-content/uploads/2019/04/Canal\\_Cordon\\_Report\\_2018.pdf](https://www.nationaltransport.ie/wp-content/uploads/2019/04/Canal_Cordon_Report_2018.pdf)

# The average error was biased by a constant AVO, due to weekends, when AVO tends to increase



MAPE: 17.5%

Weekday  
Error: 15.6%

Weekend  
Error: 22.8%

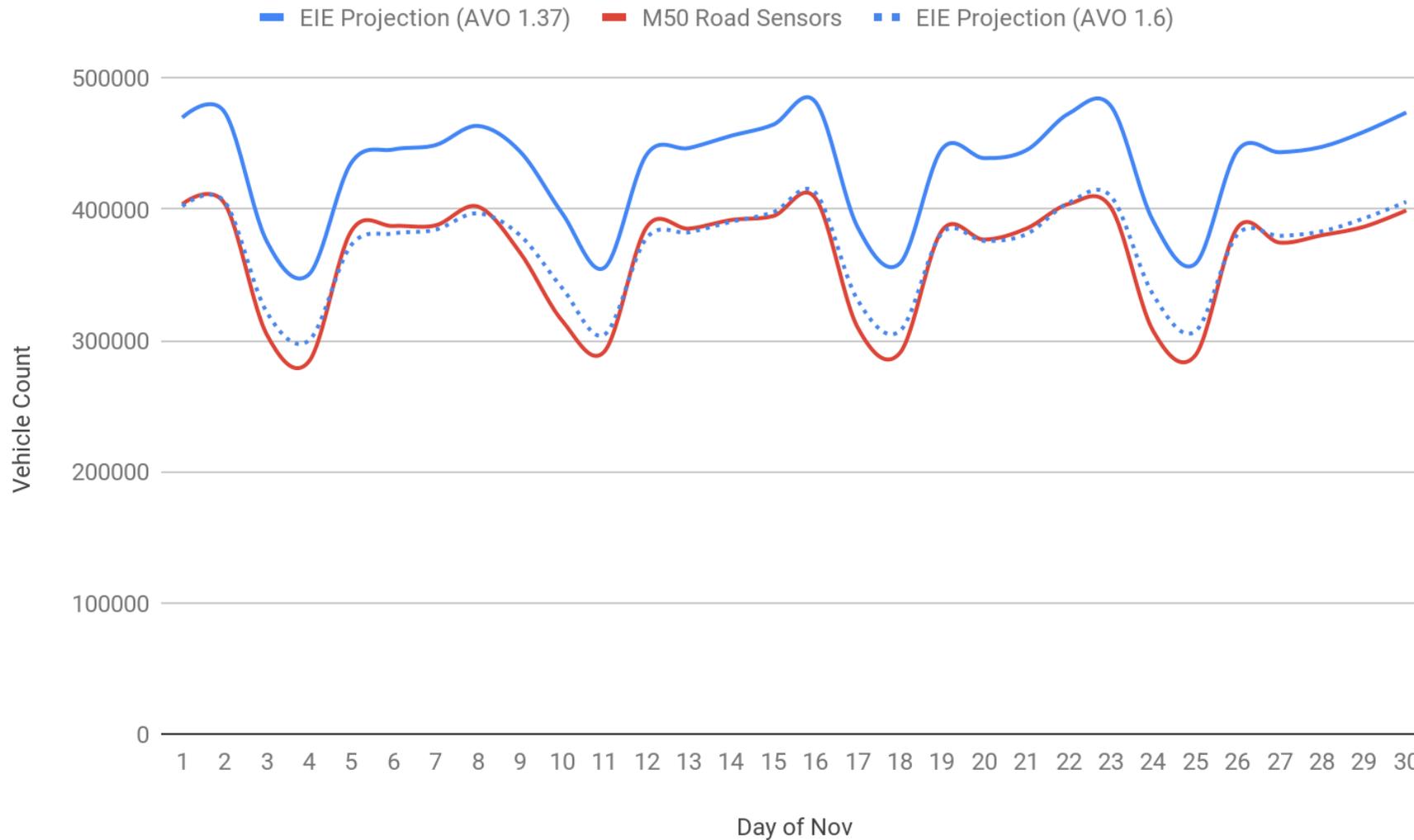
Pearson correlation: 99%

Sample: 10,969,110 vehicles

[https://www.nationaltransport.ie/wp-content/uploads/2019/04/Canal\\_Cordon\\_Report\\_2018.pdf](https://www.nationaltransport.ie/wp-content/uploads/2019/04/Canal_Cordon_Report_2018.pdf)

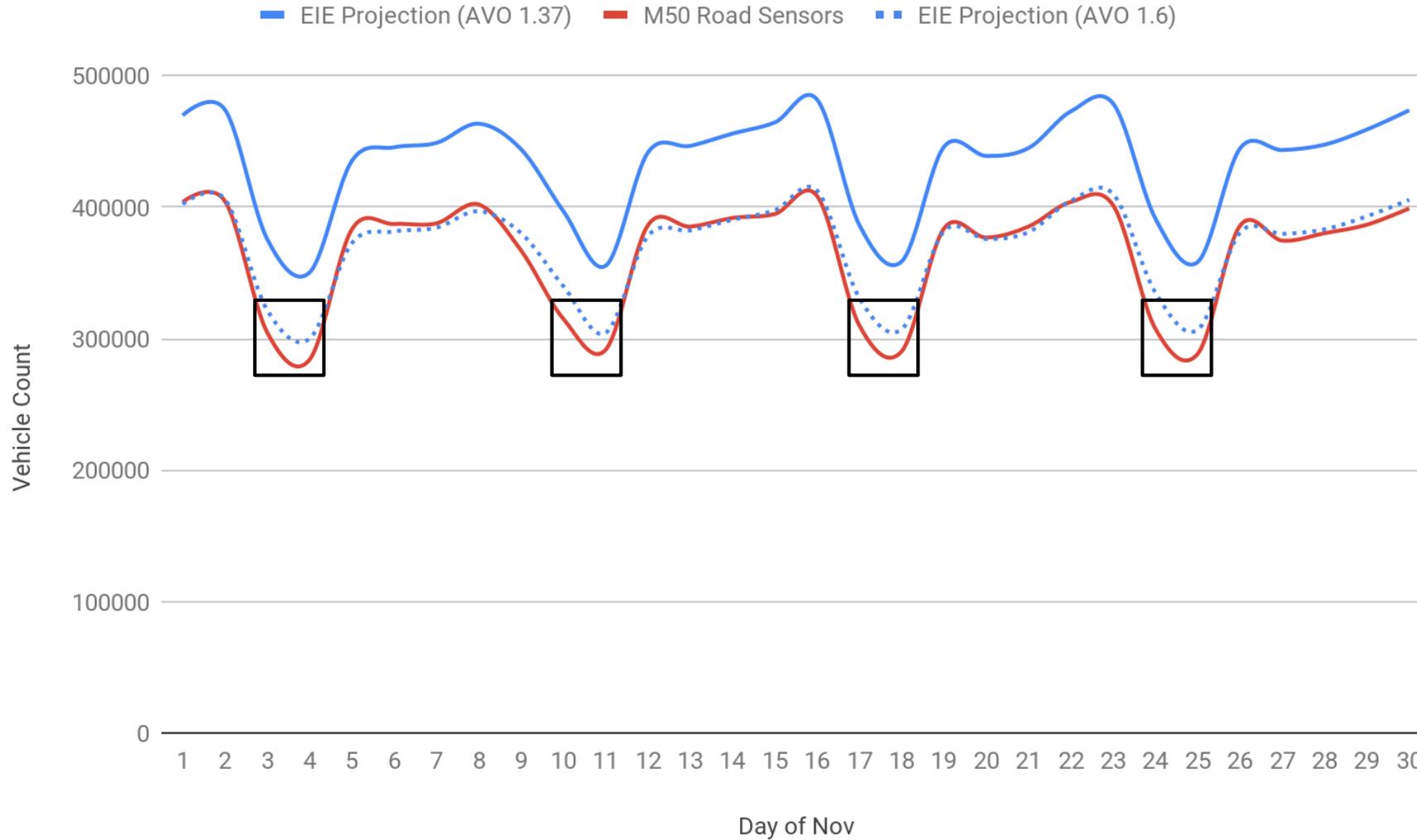


# Model is sensitive to AVO, improving it on the margins can drastically alter performance



Pearson correlation: 99%  
Sample: 10,969,110 vehicles

# When adjusting AVO to 1.6, the error is significantly reduced



MAPE: 4.4%

Weekday  
Error: 3.7%

Weekend  
Error: 6.2%

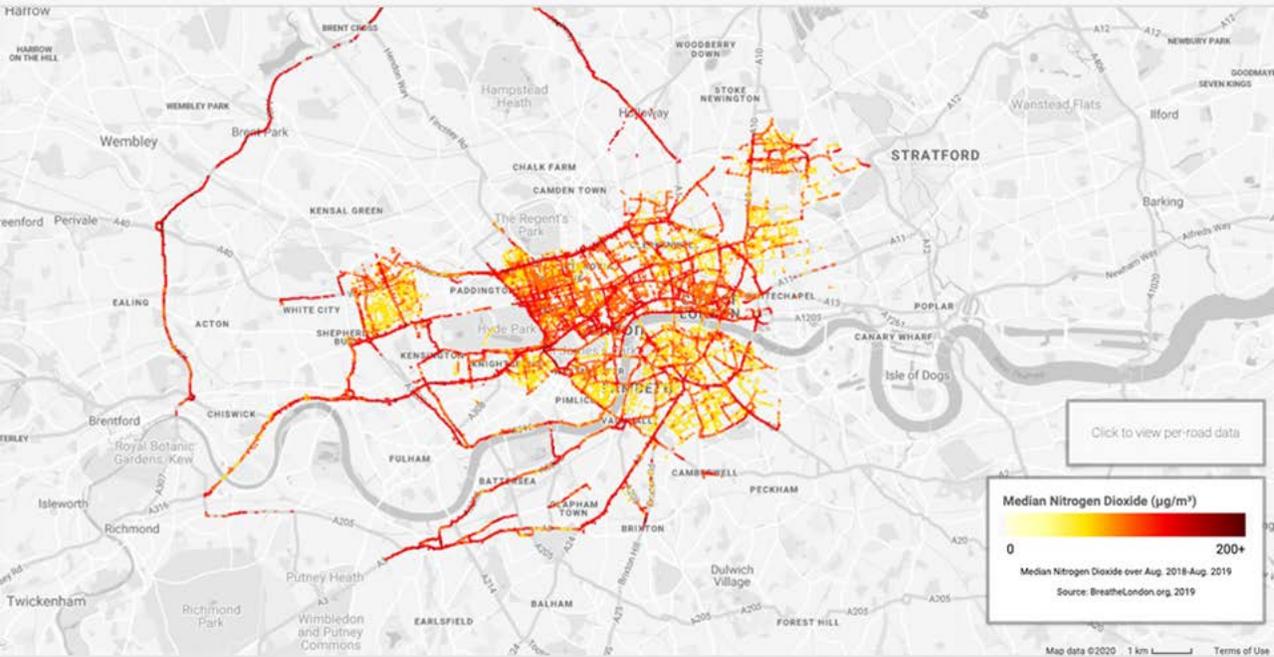
Pearson correlation: 99%  
Sample: 10,969,110 vehicles



Error exacerbated by uncertainty in Vehicle Occupancy  
and weekday/weekend cadence

Opportunities to improve AVO can result in more  
precise measurements

More improvement are coming, however in its current  
state EIE data has shown it can be a reliable indicator of  
traffic volume

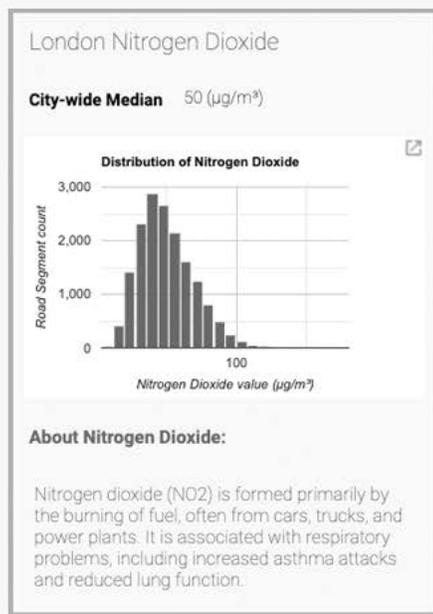


## Hyperlocal air quality

Street View cars capture hyperlocal air quality measurements on roads around the globe

## Air quality explorer

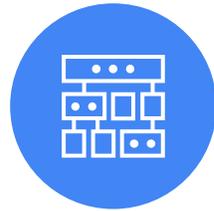
Google estimate





### Measure

Estimate your city's greenhouse gas (GHG) emissions



### Plan

Run scenarios based on granular levels of data and adjustable inputs



### Act

Inform mitigation goals and identify reduction opportunities



### Track

Monitor progress in meeting climate protection goals



Measure: GHG emissions

## Mountain View, California

Mountain View plans to create parallel GHG inventory using EIE transport data for VMT and leveraging multi-modal data for planning purposes

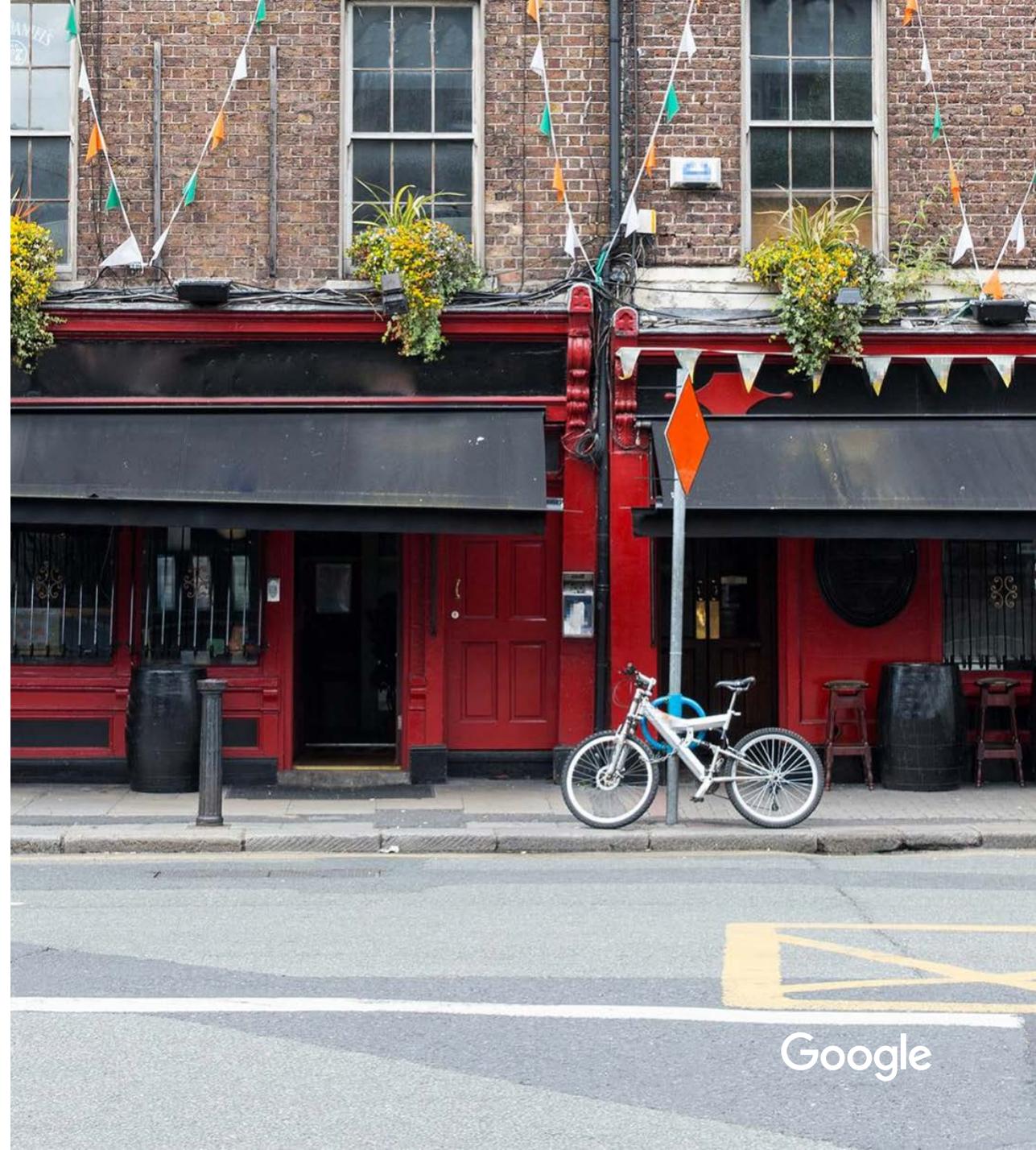




Measure + Plan + Act + Track: GHG emissions

## Dublin, Ireland

Dublin's Smart City Programme targets to increase bike trips across the city up to 20% by 2025 and track the progress year-over-year to understand the effectiveness of their policy

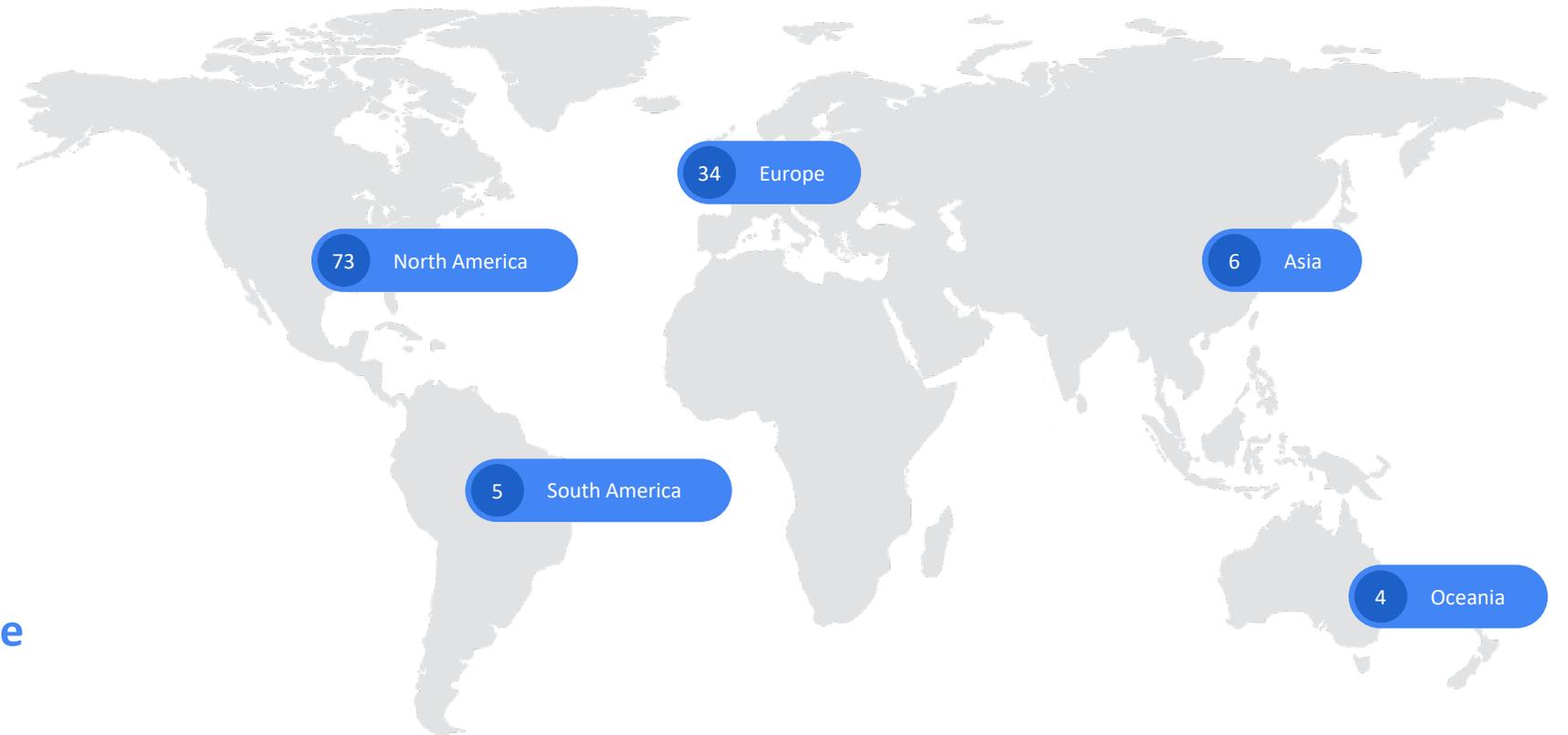




# 1,000+

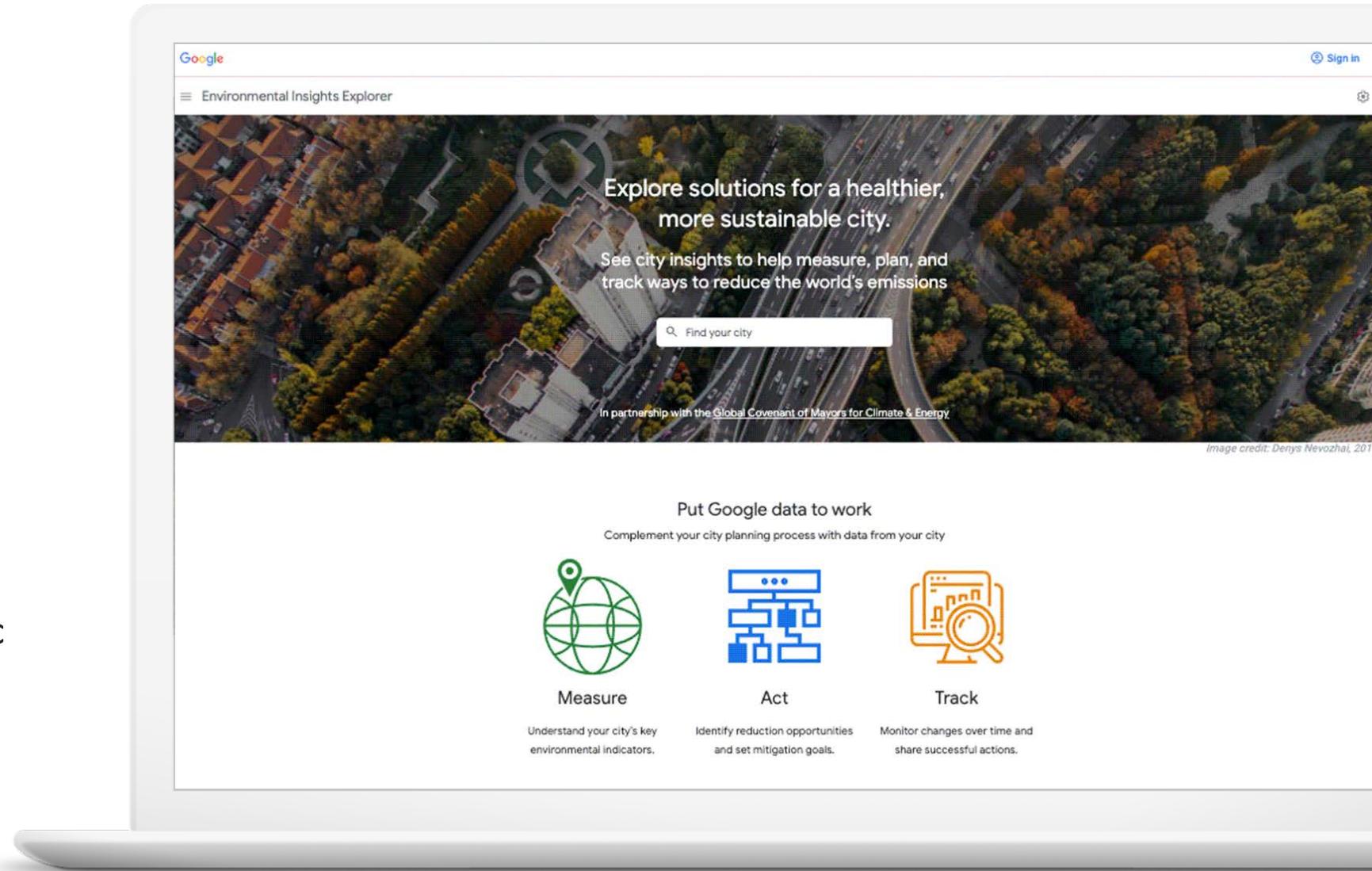
Additional cities,  
counties, states  
accessible today.

[insights.sustainability.google](https://insights.sustainability.google)



## Insights Workspace

- 01 Test drive EIE data
- 02 Incorporate data into planning efforts
- 03 Share data across departments and the public





## 2020 Transport GHG Data ~ Group Discussion

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What critical questions do you have about transportation mobility, ambient air pollution, and GHG emissions after the shelter-in-place orders over the last few months?



# Coming Up...

**Next RICAPS Webinar – Tuesday, July 28**

**RICAPS CAP Template -- “Public-friendly” version  
available by end of next week**

# THANK YOU!

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COUNTY OF SAN MATEO