

If you don't measure it..

Data processing – near real time delivery, interdependence, AI and Machine Learning



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About me..

ED PARSONS
Geospatial Technologist, Google



About me..

- Google's Geospatial Technologist since 2007
- Director of the Open Geospatial Consortium, past co-chair of W3C Geospatial Data Working Group, member of the UK Government Open Standards Board, and Visiting Professor at University College London
- Chief Technology Officer of Ordnance Survey (GB)
- EMEA Applications Manager, Autodesk
- Senior Lecturer, Kingston University

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Geospatial Technologist, Google



About Google..

Google



“organise the world’s
information and make it
universally accessible and
useful”

Google



Google

Geography

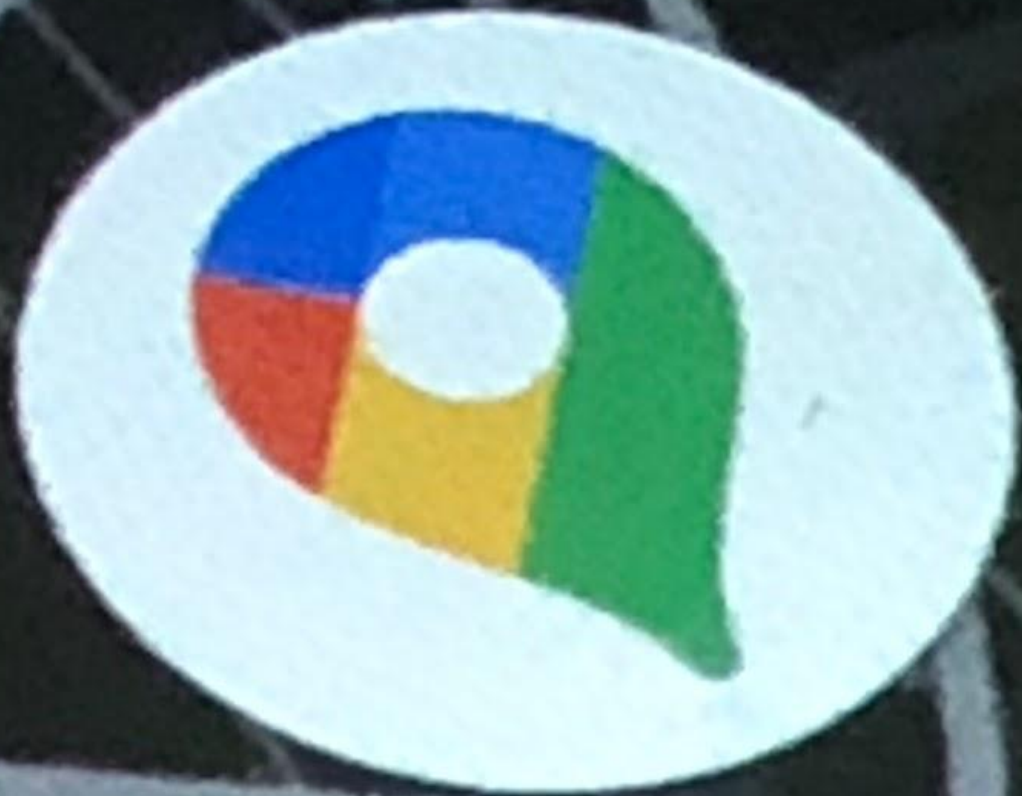


Google Search

I'm Feeling Lucky







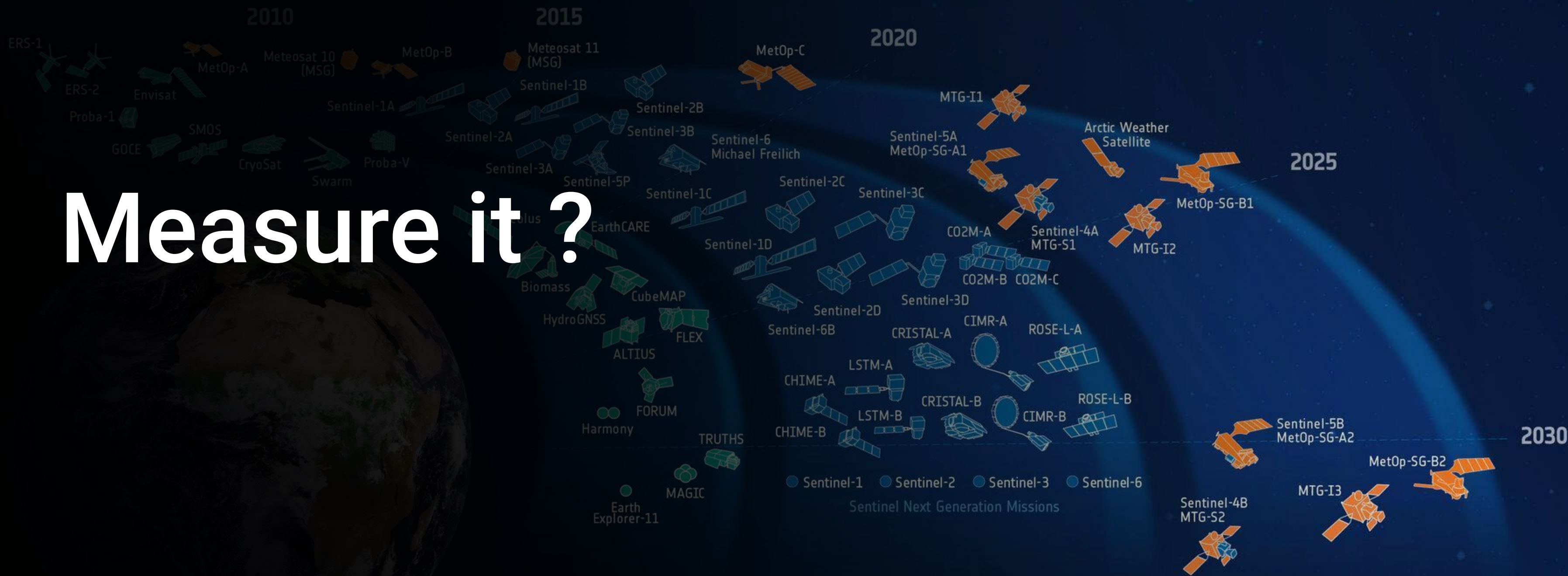
Maps

Whats

ter



Measure it?



Science



Copernicus



Meteorology



Beware !

Snake Oil Liniment

THE STRONGEST AND BEST LINIMENT KNOWN FOR PAIN AND LAMENESS.

USED EXTERNALLY ONLY FOR

RHEUMATISM
NEURALGIA
SCIATICA
LAME BACK
LUMBAGO
CONTRACTED CORDS
TOOTHACHE
SPRAINS
SWELLINGS
ETC.

CLARK STANLEY'S



Snake Oil Liniment

TRADE MARK REGISTERED

—FOR—
FROST BITES
CHILL BLAINS
BRUISES
SORE THROAT
BITES OF ANIMALS
INSECTS AND REPTILES.

GOOD FOR
MAN AND BEAST

IT GIVES
IMMEDIATE
RELIEF.

IS GOOD
FOR
EVERYTHING
A LINIMENT
OUGHT
TO BE
GOOD FOR

Manufactured by
CLARK STANLEY
Snake Oil Liniment
Company
Providence, R. I.

Clark Stanley's Snake Oil Liniment

Is for sale by all druggists. If your druggist fails to have it tell him he can get it for you from any wholesale druggists or it will be sent to you in any part of the United States or Canada upon the receipt of fifty cents in stamps by addressing the

Clark Stanley Snake Oil Liniment Co.
PROVIDENCE, R. I.





I AM A
GOOD
PERSON

Data not Opinion!



68%

Of Enterprise data is never used...

Seagate Inc, 2020 "Rethink Data: Put More of Your Data to Work—From Edge to Cloud"



AI everywhere..



Feature recognition & extraction..



Mobility Data & Human insights..





Google Street View

Explore the world at [google.fr / streetview](http://google.fr/streetview)









GOOGLE_Research_open-build... x

code.earthengine.google.com/?scriptPath=Examples%3ADatasets%2FGOOGLE_Research_open-buildings_v2_polygons

Google Earth Engine Search places and datasets...

Scripts Docs Assets

Filter scripts... NEW

Owner (1)
users/edparsons/default
01_hello_world.js
S5P
Sen2_demo
Sentinel1
Simple Demo

GOOGLE_Research_open-buildings_v2_poly... Get Link Save Run Reset Apps

```
1 // Visualization of GOOGLE/Research/open-buildings/v2/polygons.  
2  
3 var t = ee.FeatureCollection('GOOGLE/Research/open-buildings/v2/polygons');  
4  
5 var t_060_065 = t.filter('confidence >= 0.60 && confidence < 0.65');  
6 var t_065_070 = t.filter('confidence >= 0.65 && confidence < 0.70');  
7 var t_gte_070 = t.filter('confidence >= 0.70');  
8  
9 Map.addLayer(t_060_065, {color: 'FF0000'}, 'Buildings confidence [0.60; 0.65]');  
10 Map.addLayer(t_065_070, {color: 'FFFF00'}, 'Buildings confidence [0.65; 0.70]');  
11 Map.addLayer(t_gte_070, {color: '00FF00'}, 'Buildings confidence >= 0.70');
```

Inspector Console Tasks
Use print(...) to write to this console.

Layers Map Satellite

Google

Keyboard shortcuts Imagery ©2022, CNES / Airbus, Maxar Technologies 50 m Terms of Use Report a map error





Actionable..

20° C 17:45 60 mi

Supercharging

Time remaining to continue trip
7 min

STOP CHARGING

Time remaining to continue trip
7 min



Digital Decarbonisation

Transport, where digital tech plays a key enabling role in 60-70% of the needed CO2 reductions and helps to save energy

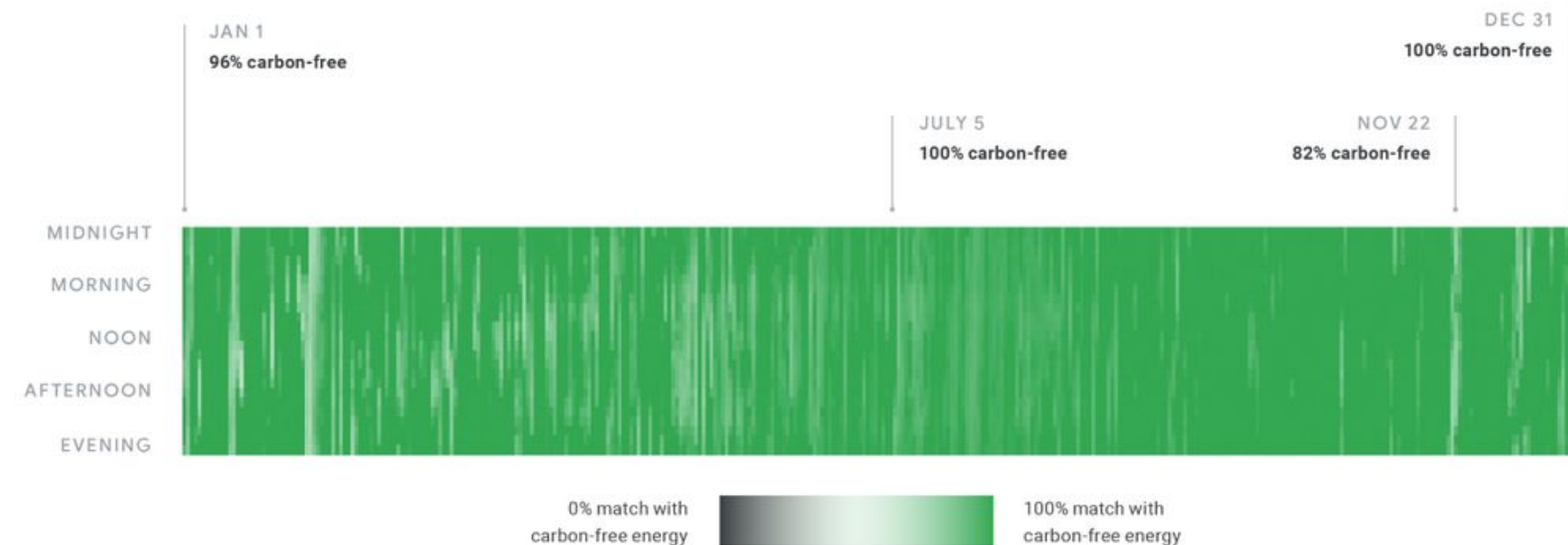
Buildings, with tech enabling 30-35% of the needed CO2 reductions, for example by saving energy and supporting the shift away from gas

Agriculture, where digital tech is in its early phase, but can play an enabling role in 20-25% of the needed CO2 reductions

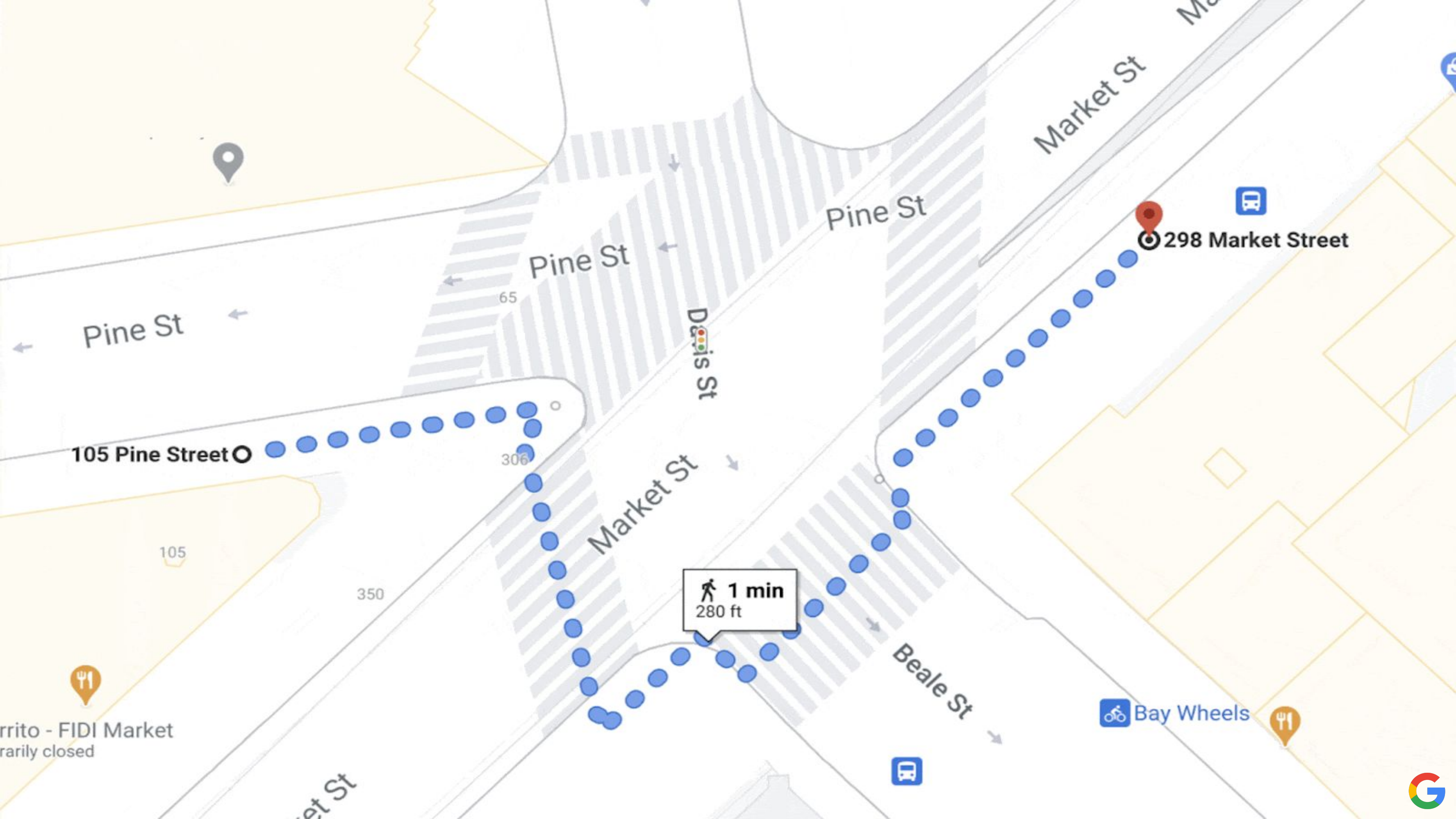
Factories and supply chains, where tech enables 10-15% of the needed CO2 reductions

Implement Consulting, 2022 “Digital Decarbonisation”

Every hour of electricity use at Finland data center in 2017







Pine St

Pine St

Pine St

Market St

Denis St

Market St

Beale St

1 min
280 ft

298 Market Street

105 Pine Street

105

350

306

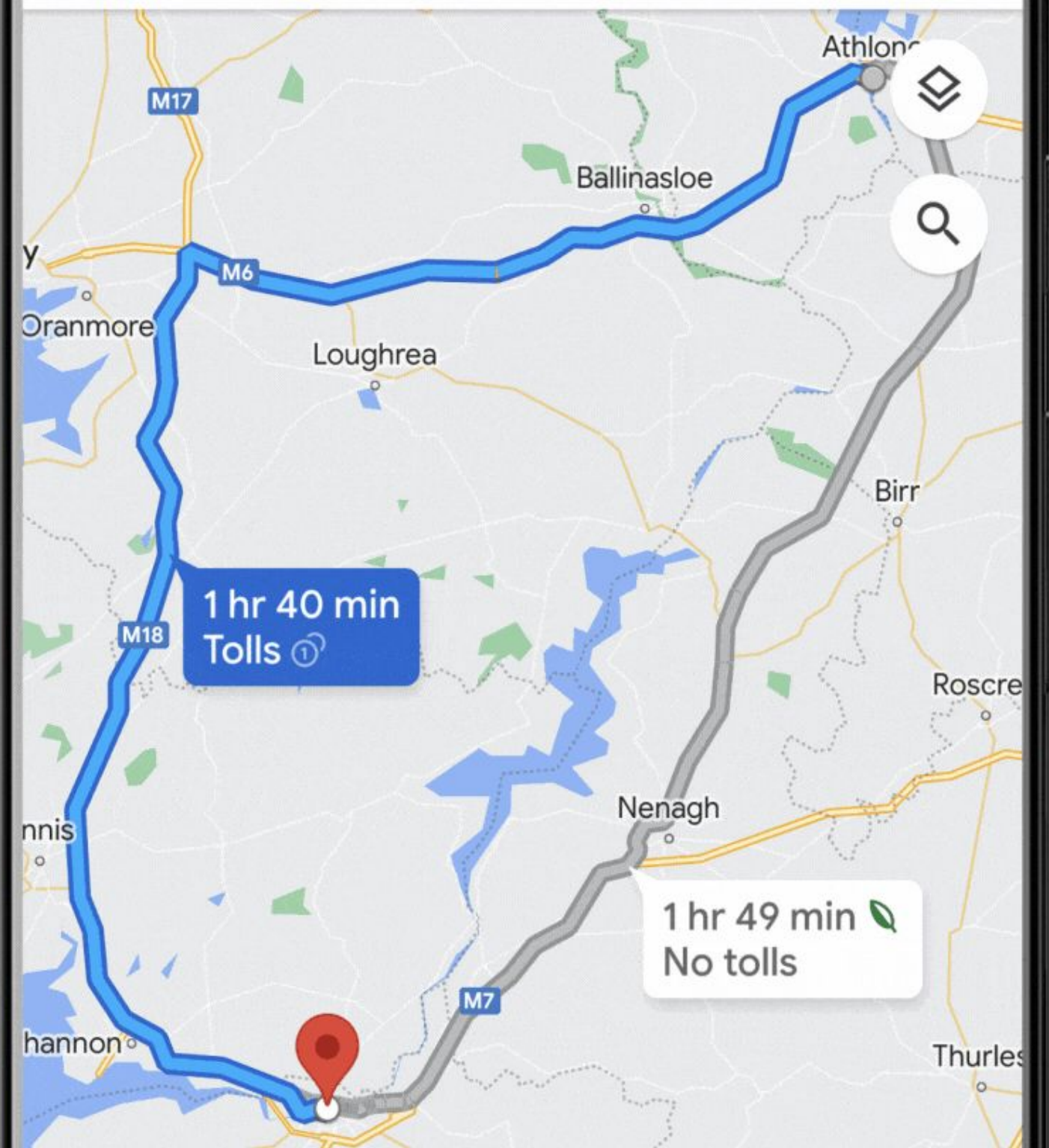
rrito - FIDI Market
rarily closed

Bay Wheels



← ○ Athlone
⋮
📍 Limerick

🚗 1 hr 40 🚝 2 hr 10 🚶 23 hr 🚶 1 hr 40 🚲 6



Mobility API's

The screenshot displays the Google Maps Mobility API interface. On the left, there is a control panel with the following sections:

- Location input:** Includes fields for Origin* (40.721726, -73.98392440) and Destination* (40.762240, -73.990104), with checkboxes for Stopover and Side of road.
- Engine Type:** Includes checkboxes for Fuel: Gasoline, Fuel: Diesel (checked), Fuel: Hybrid (checked), Battery: Electric, and Engine Type: Unknown.
- Heading (Optional):** Includes a note "Do NOT set heading if Place ID is used for the Origin" and an input field for "Enter heading value".
- Traffic Awareness:** Includes radio buttons for On, On-Optimized (Higher Latency), and Off, and a toggle for Traffic Aware Polyline.
- Polyline Quality:** Includes radio buttons for Overview (selected) and High Quality.
- Route Modifiers (Optional):** Includes checkboxes for Avoid Tolls, Avoid Highways, Avoid Ferries, and Avoid Indoor.

At the bottom of the control panel are "Clear" and "Create Routes" buttons. The main map area shows a route in New York City, with two callouts providing route details:

- Route 1: 53 min, 4.3 mi, 72 gal
- Route 2: 48 min, 4.8 miles, 64 gal

The map includes various landmarks and street names, such as the Hudson River, Central Park, and the Empire State Building.

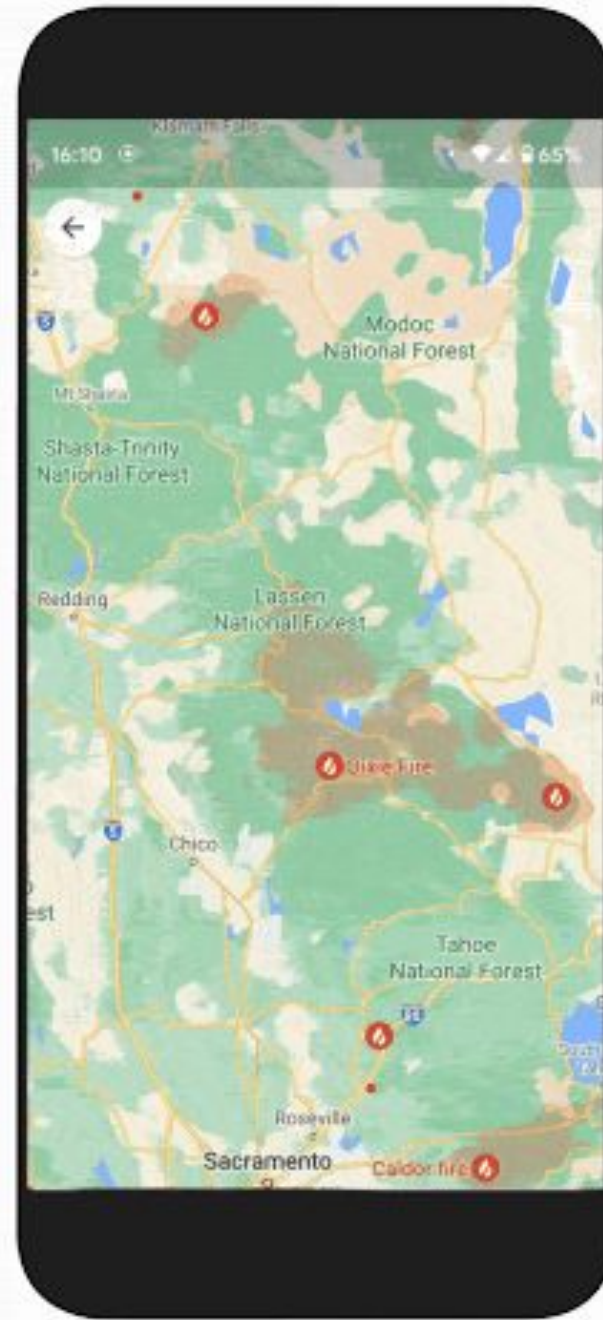
- Average fuel or energy consumption based on regionally representative vehicles per engine type (petrol or gas, diesel, hybrid, or electric)
- Steepness of hills on your route
- Stop-and-go traffic patterns
- Types of roads (such as local roads or highways)


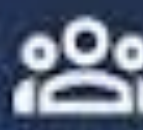












11:42     •

   32%


Earthquake: Expect shaking

 Est mag 4.9, ~38.6 miles away





Data: SIO, NOAA, U.S. Navy, NGA, GEBCO
Image: Landsat/Copernicus
DEM: SRTM30 PLUS
Data: USGS, Columbia, NSF, NOAA

Google Earth


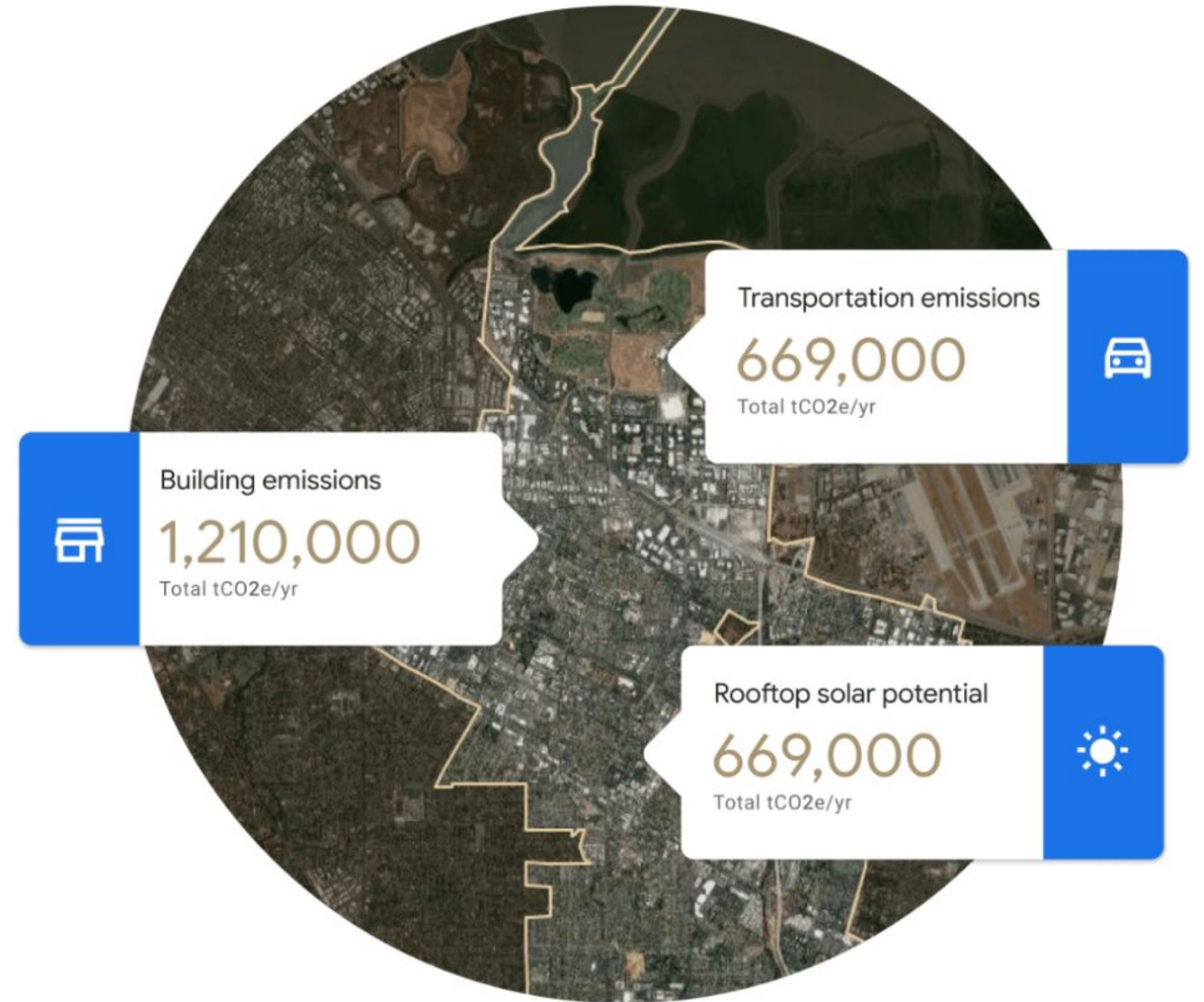
An aerial photograph of a city, likely Manchester, showing a mix of modern and traditional architecture. In the foreground, there are several large, modern buildings with distinctive colors: a bright red one, a green one, and a grey one. In the background, there are older, more traditional brick buildings and a tall red construction crane. The sky is clear and blue.

Tools for decision makers..





Environmental Insights Explorer (EIE) uses exclusive data sources and modeling capabilities in a freely available platform to help cities and regions measure emission sources, run analyses, and identify strategies to reduce emissions — creating a foundation for effective action.



Earth Engine Apps

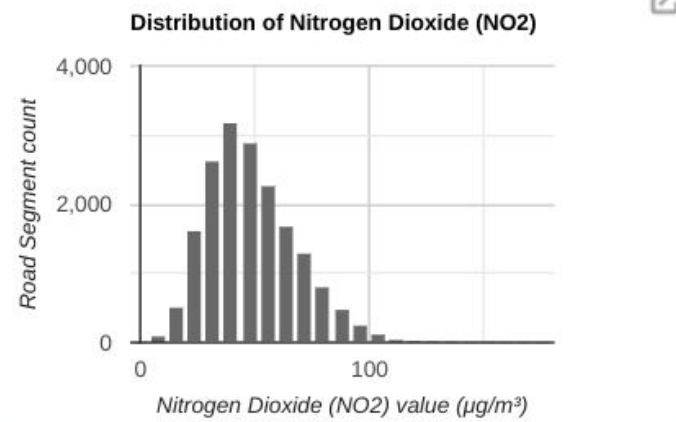
Search places

Choose City London

Choose Pollutant Nitrogen Dioxide (NO2)

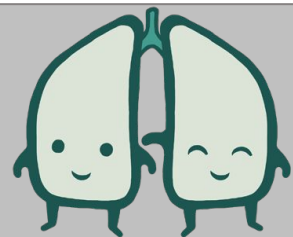
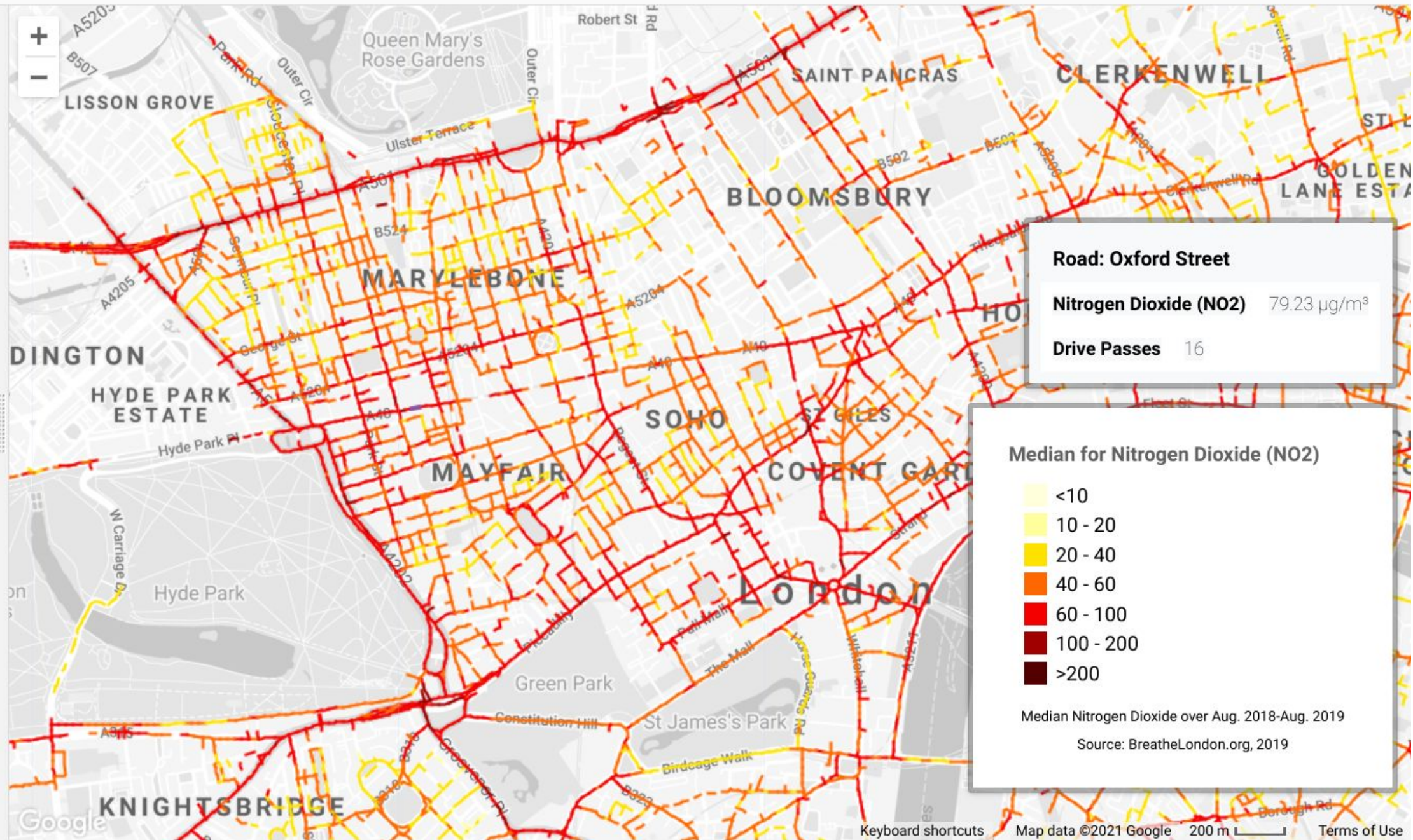
London Nitrogen Dioxide (NO2)

City-wide median: 50 (µg/m³)



About Nitrogen Dioxide (NO2):

Nitrogen dioxide (NO2) is formed primarily by the burning of fuel, often from cars, trucks, and power plants. It is associated with respiratory problems, including increased asthma attacks



Breathe London

the community sensing network



Tree Canopy Insights | Search places | Earth Engine Apps

Tree Canopy for

East Palo Alto, CA

Base layer

Tree Canopy

Interaction mode

Select a Region

Currently including:

Tree canopy coverage < 100%

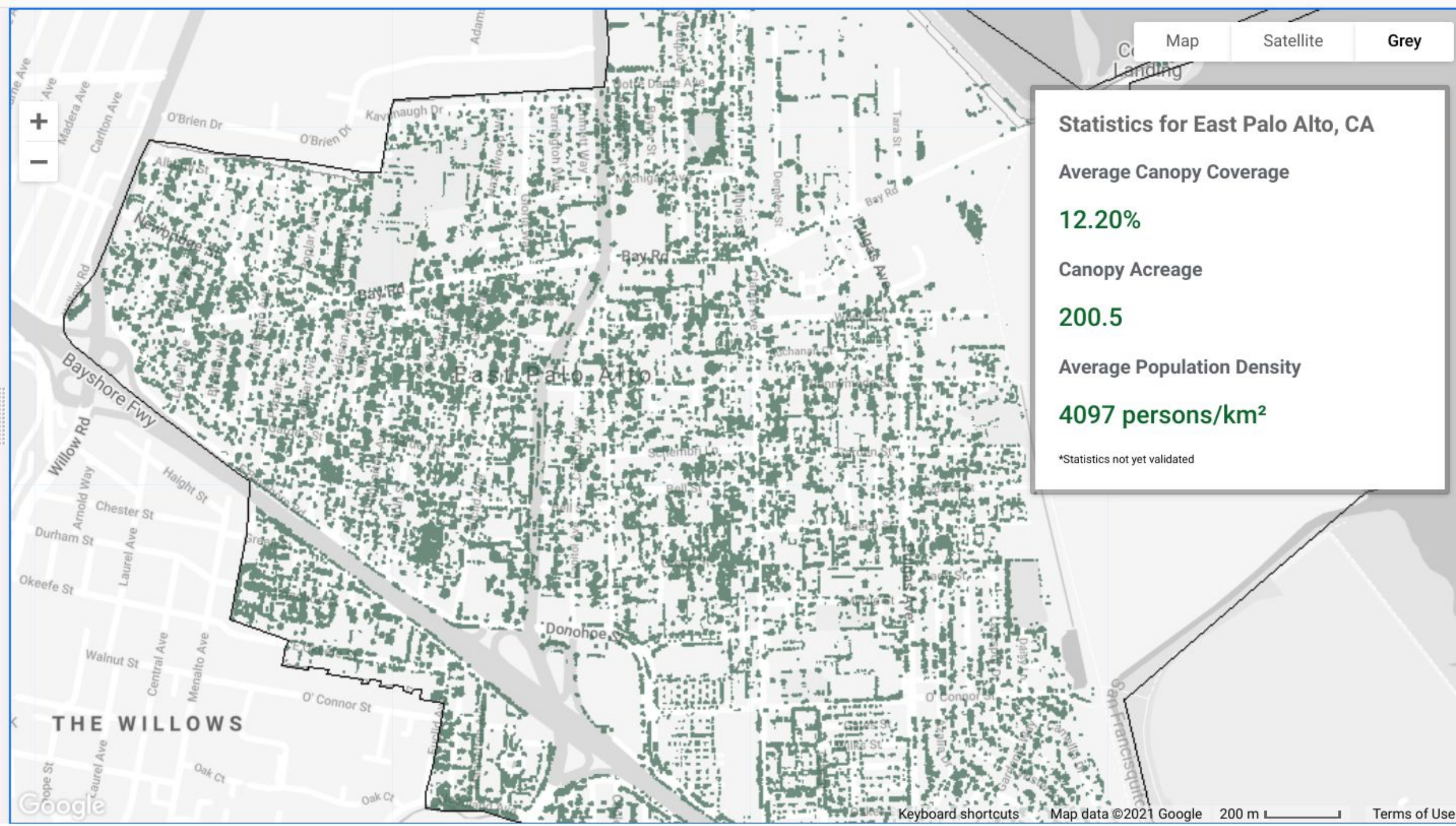
Median Household Income < \$300000

Max Land Surface Temp > 8°F

Population Density > 0 ppl/km²

Median Age > 0

Land use



Thank you..



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