The Unfair Advantages of “Open”:
Data, Services, and Platforms for Mobility

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Mapzen

Outline

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2. The “open” playbook
   a. 3 Myths
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   c. Why important now in 2017?

3. Open Transport Partnership
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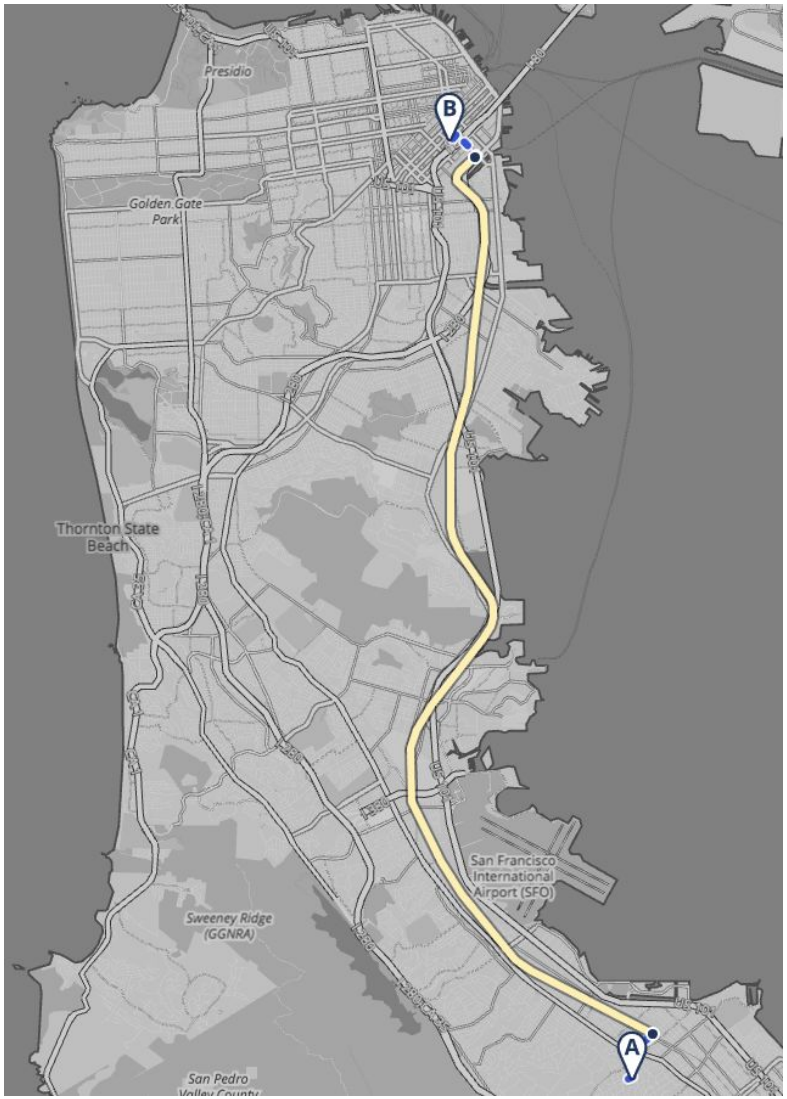
   b. Open Traffic platform
   c. OSMLR linear-referencing toolkit

4. Conclusion: the advantages of “open” right now



From Point A to Point B: a daily commute using Mapzen Turn-by-Turn multimodal routing.

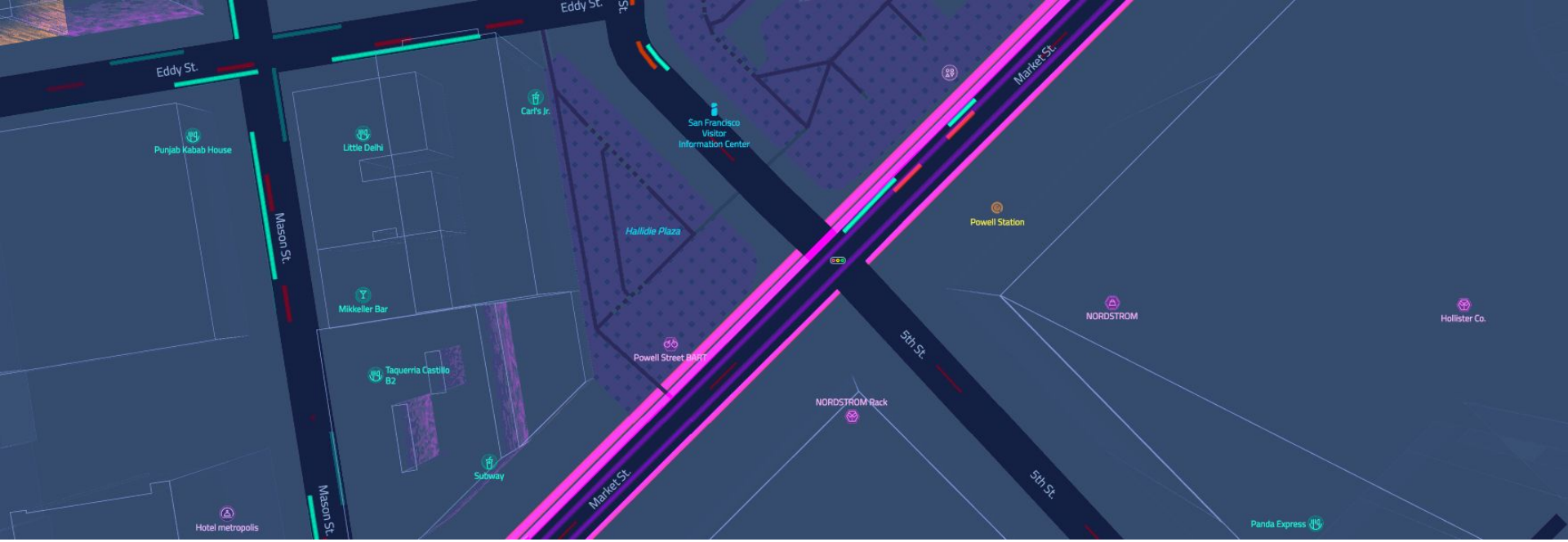
Mapzen

- Part of Samsung's accelerator program
- Offices in:
  - New York City
  - San Francisco
  - Lancaster, PA
- Powered fully by:
  - Open-source software
  - Open data
- Services offered as:
  - Hosted SaaS with metered billing (with a generous free tier)
  - For on-premise server deployments
  - For embedded on-device/in-car usage
  - Custom integrations and premium support packages available

- Services include:
  - map rendering (2D and 3D)
  - search/geocoding
  - mobility
    - multimodal routing
    - route optimization
    - time/distance matrices
    - elevation
    - accessibility/isochrone analysis
    - public-transit/multimodal analysis
    - GPS map-matching
    - traffic data (*in-progress*)

- See https://mapzen.com for demos

- Send your engineering colleagues to https://mapzen.com/developers for free API keys



The “Open” Playbook: Myths, Realities, and Advantages

Open Myth #1

“open” means “free”

Open Myth #1

~~“open” means “free”~~

- **Reality**:
  - software/data/hardware always require resources to integrate and to maintain well
  - for critical applications, support plans and SLAs are always important

- **Unfair advantages**:
  - “open” means that engineers can prototype freely
  - “open” reduces vendor lock-in for production systems
  - “open” allows switching among in-house, outside contracting, and SaaS options depending upon growth and scale

Open Myth #2

“open” is only for code

Open Myth #2

~~“open” is only for code~~

- **Reality**:
  - open-source software is well known (Red Hat, Apache, Mozilla...)
  - open data is also available (OpenStreetMap, public transit schedules, OpenAddresses...)
  - companies provide hosted services and value-add on top of open data (Mapzen, CartoDB, Esri,, CartoDB...)

- **Unfair advantages**:
  - open data is often quicker to fix than proprietary subscription services
  - open data allows a “virtuous cycle” of consumption and contribution
  - open data allows for advantageous partnerships → *more on this later*

Open Myth #3

“open” is insecure

Open Myth #3

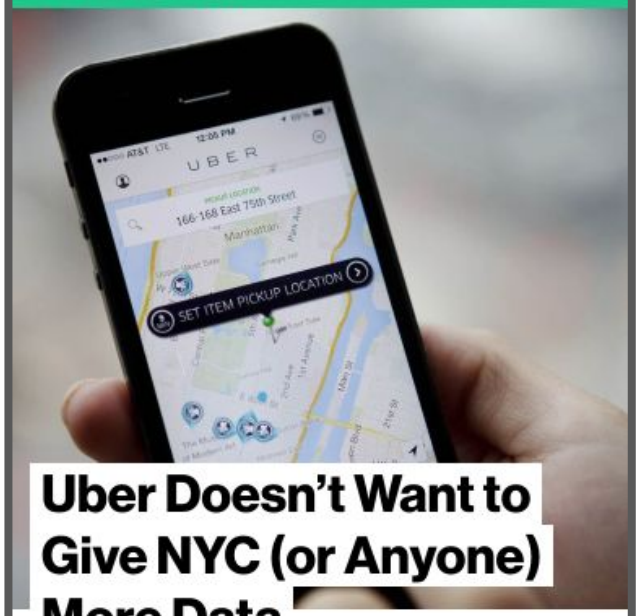
~~“open” is insecure~~

- **Reality**:
  - “security through obfuscation” works... until it doesn’t!
  - open-source software allows multi-party security audits
  - “differential privacy” techniques allow private datasets to be released as open data for outside analysis, while preserving privacy

- **Unfair advantages**:
  - free help!
  - bug reports are often more prompt and detailed for open-source software
  - data analysis by academics/public/hobbyists often raises valuable questions

Why is “open” important now in 2017?

Bloomberg Technology



Uber Doesn’t Want to Give NYC (or Anyone) More Data

Ride-hailing companies aspire to be something akin to public transportation, but that doesn’t extend to sharing data with governments.

by **Joshua Brustein**
January 5, 2017, 3:00 AM PST

recode

ALPHABET | GOOGLE | TRANSPORTATION

The Google Car was supposed to disrupt the car industry. Now Waymo is taking on suppliers.

Waymo’s move to bring its hardware manufacturing in-house shows the company’s attempt to edge out suppliers like Delphi and Mobileye.

BY JOHANA BHUIYAN | @JMBOOYAH | JAN 27, 2017, 2:31PM EST

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Waymo

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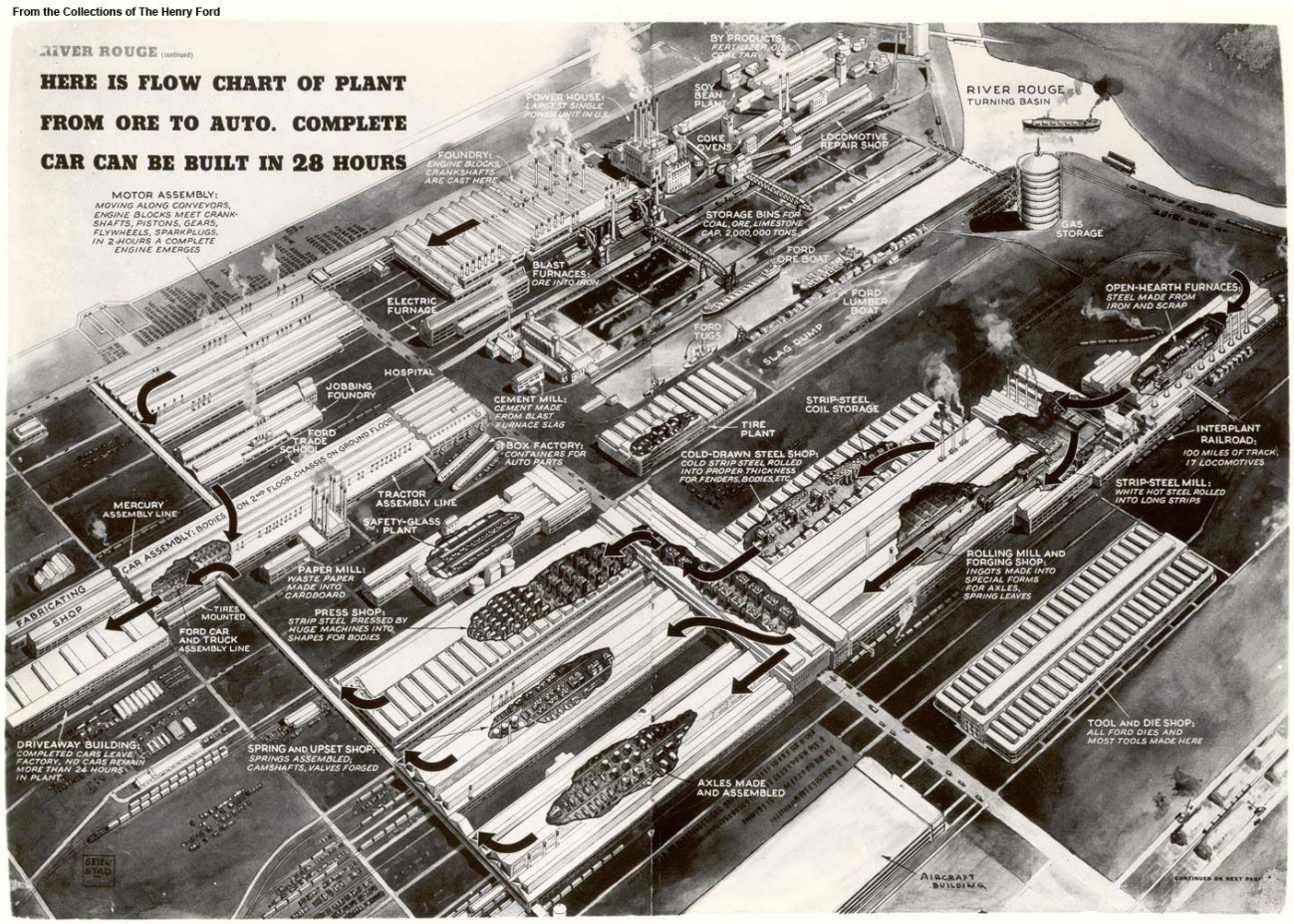
Marc Prioleau
Location services, GPS, wireless, mapping, M&A, Squaw Valley, bike riding sometimes, economic development in East Palo Alto community.
1 hr ago · 4 min read

Intel pays $15B for Mobileye: A strategic play for data

Hint: It’s about maps (and Goldman nails it)

AV + MaaS may bring back vertical integration…



… or consider the advantages of “open” in 2017

- Opportunities to partner across transportation mode
  - private auto
  - ride-share operators (especially internationally)
  - public-transit agencies
- Opportunities to collaborate within private sector
  - for consumer products: compete on user experience, rather than data
  - for enterprise products: compete on support/sales experience, rather than data
- Opportunities to also partner with public sector
  - collaborative relationships with regulators
- Compete against vertically integrated solutions, at less cost and risk
- Agility to move up or down technology stack, as industry evolves

Open Transport Partnership

Open Transport Partnership

Partners

WORLD BANK GROUP

NACTO

WORLD RESOURCES INSTITUTE

Mapzen

NDrive

le TAXI

Grab

EASY

miovision
rethink traffic

Platforms

opentraffic

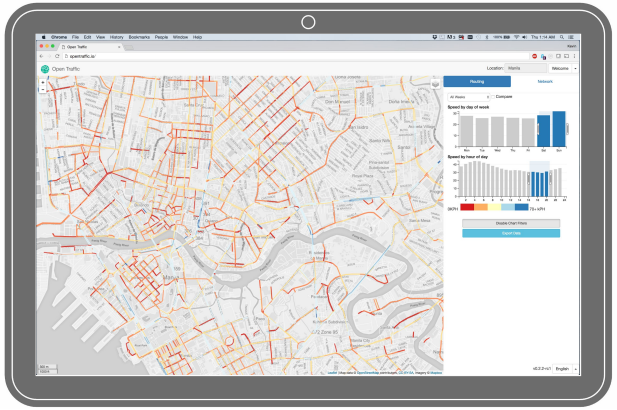
transitland

Open Traffic platform

DATA PARTNERS

DATA AGGREGATION

PUBLIC SECTOR TOOLS
+ DEVELOPER SERVICES

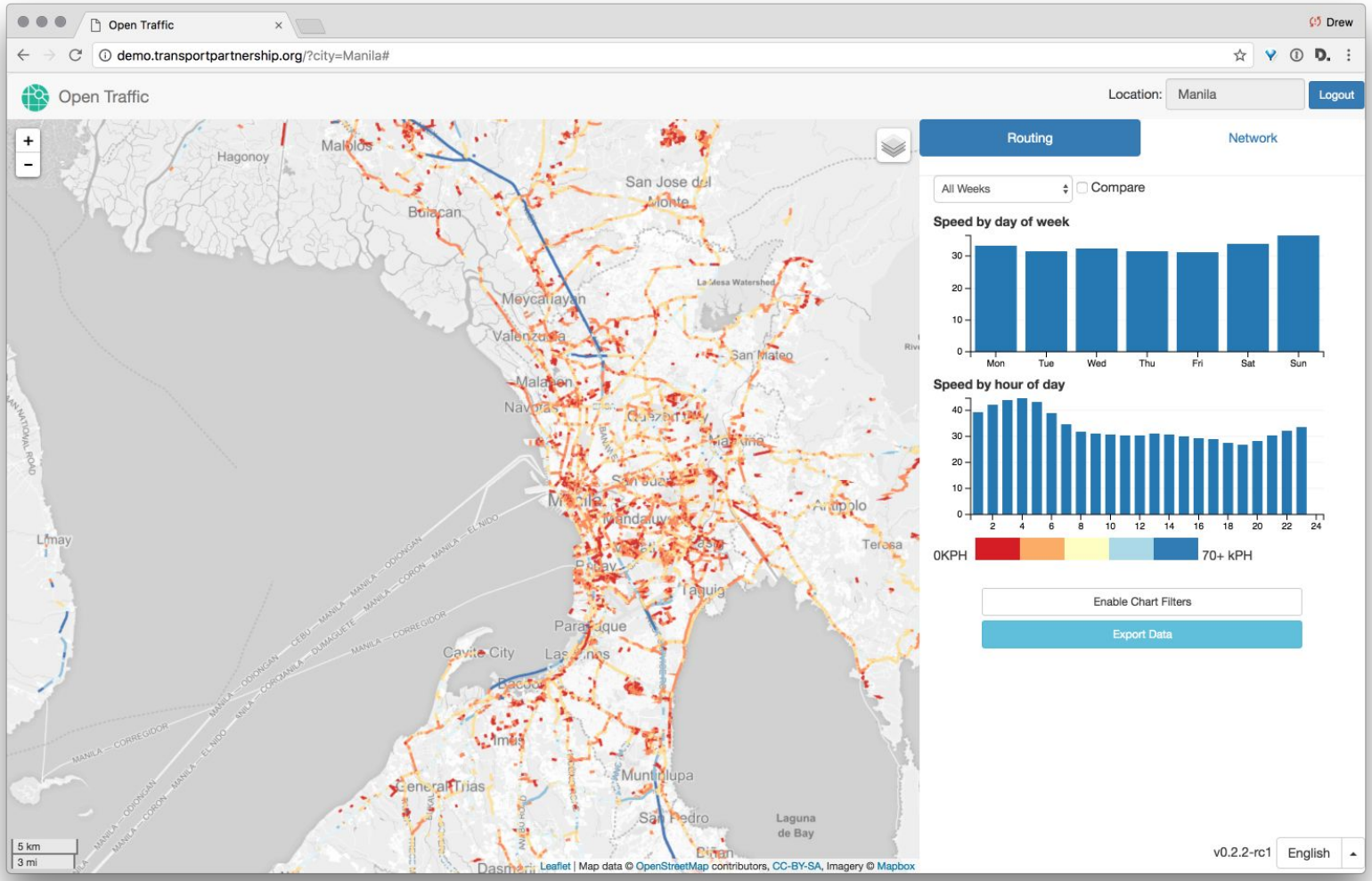


- Building a global data platform for real-time and historical traffic data
- Translating GPS probe data collected by commercial fleets and consumer apps into anonymous data attached to street and highway network segments
- Providing analysis tools to cities to manage congestion → cities in developing world can “leapfrog” fixed sensors and dedicated communication infrastructure
- Providing map and routing developers with global traffic data access

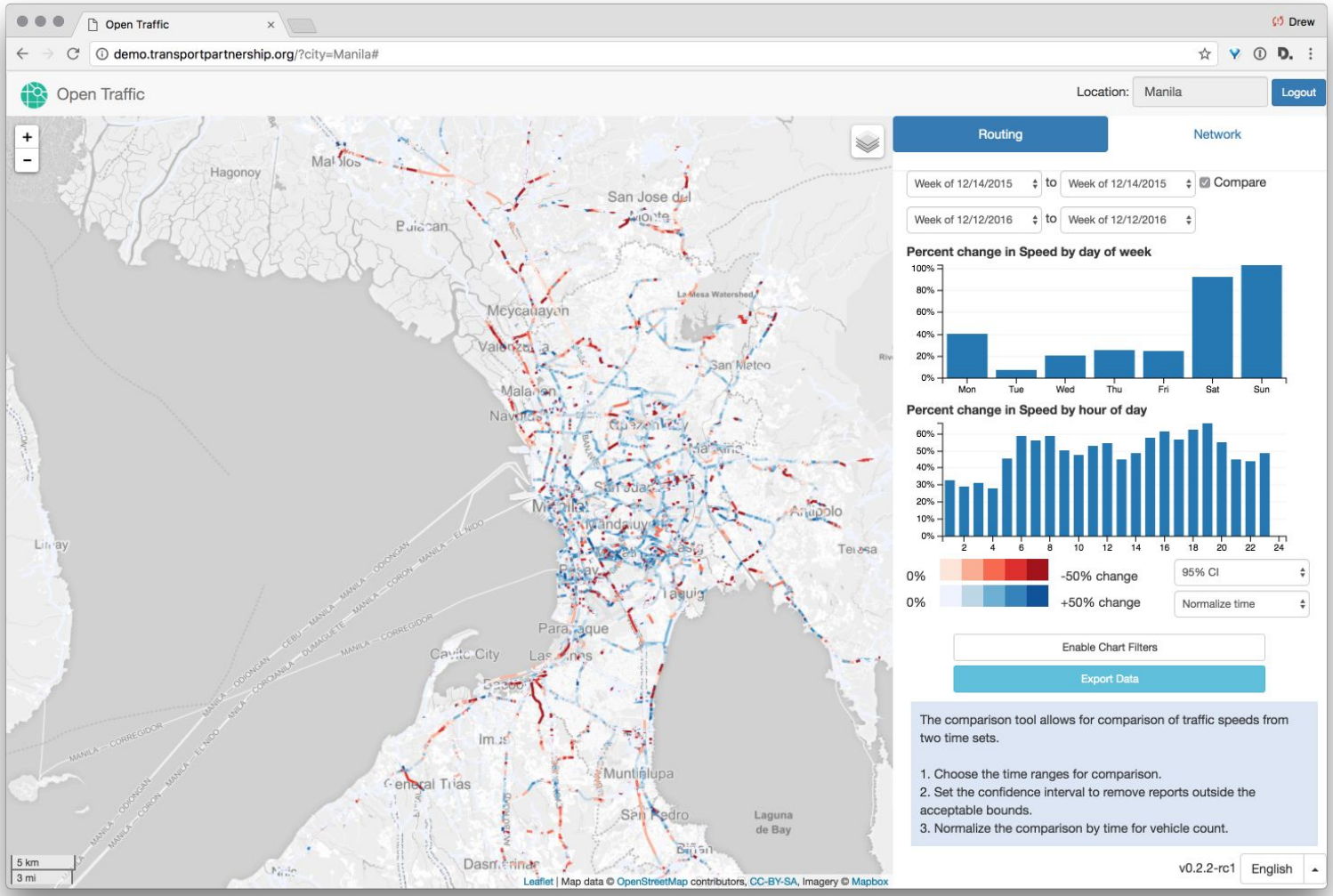
Open Traffic demo 1/3: A day of traffic in Manila

https://mapzen.com/blog/announcing-open-traffic/

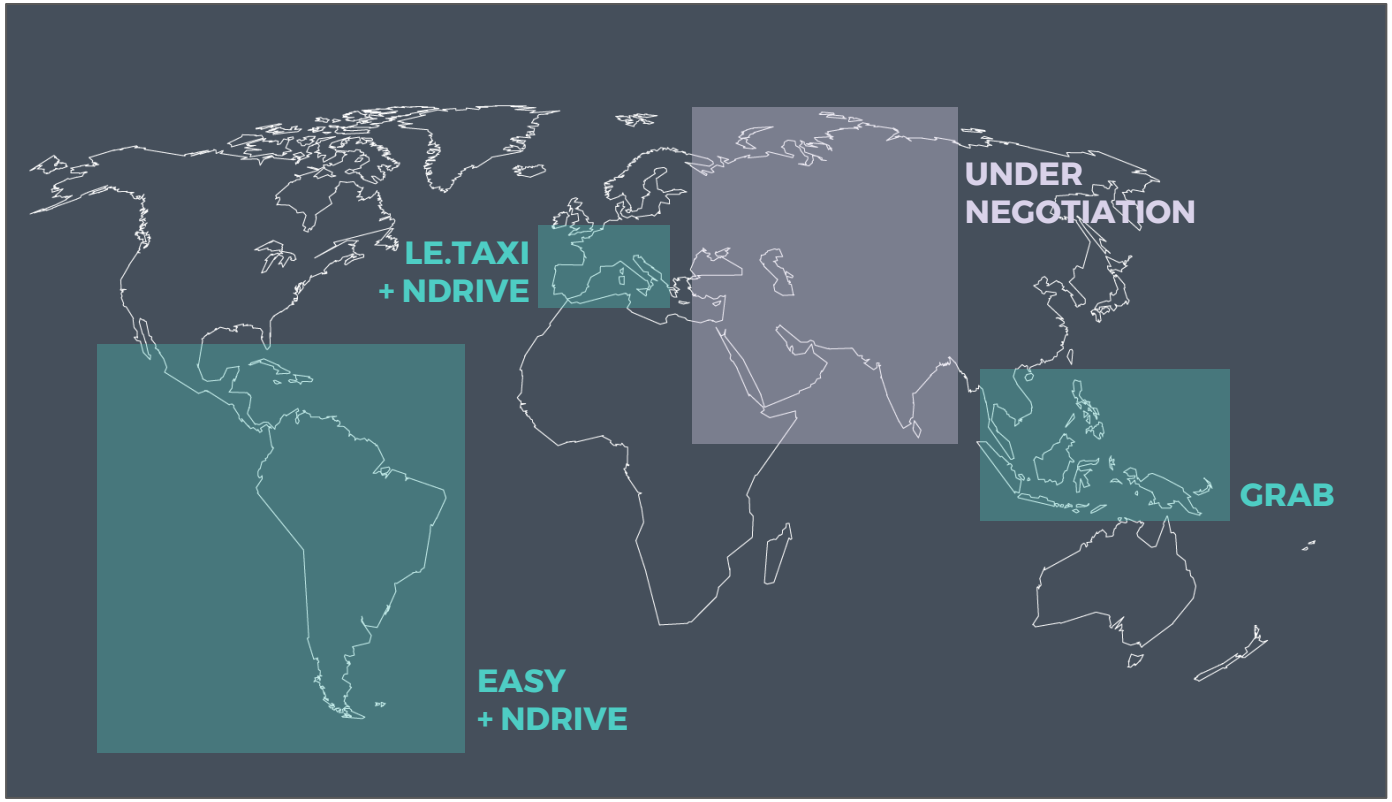
Open Traffic demo 2/3: road network analysis



Open Traffic demo 3/3: timeframe comparison



Open Traffic data provider coverage



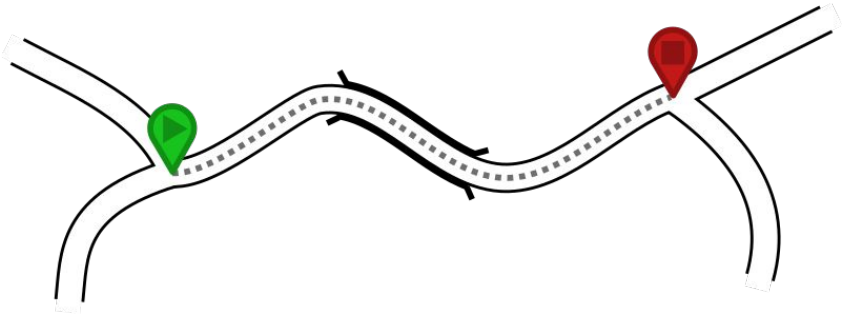
Launched in pilot SE Asia in April 2016

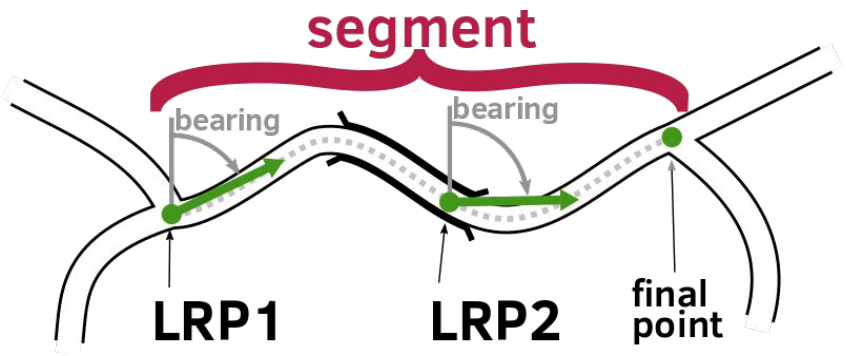
Real-time traffic data from millions vehicles

Expanding partnerships in Central Asia and MENA regions

OSMLR linear-referencing toolkit

- OSMLR is a linear-referencing toolkit for associating data with stable roadway segments in OpenStreetMap and other basemaps
- Necessary for sharing traffic data
- Inspired by TomTom's OpenLR scheme
- Open Transport Partnership is investigating how to use OSMLR as open and share more transport data:
  - Roadway incident and closure reports
  - Driver/vehicle/cyclist/pedestrian behavior data -- for safety analysis
  - On-street parking inventory, usage, pricing, and enforcement
  - Right-of-way ownership and jurisdiction
  - Public-transit and TNC integrations

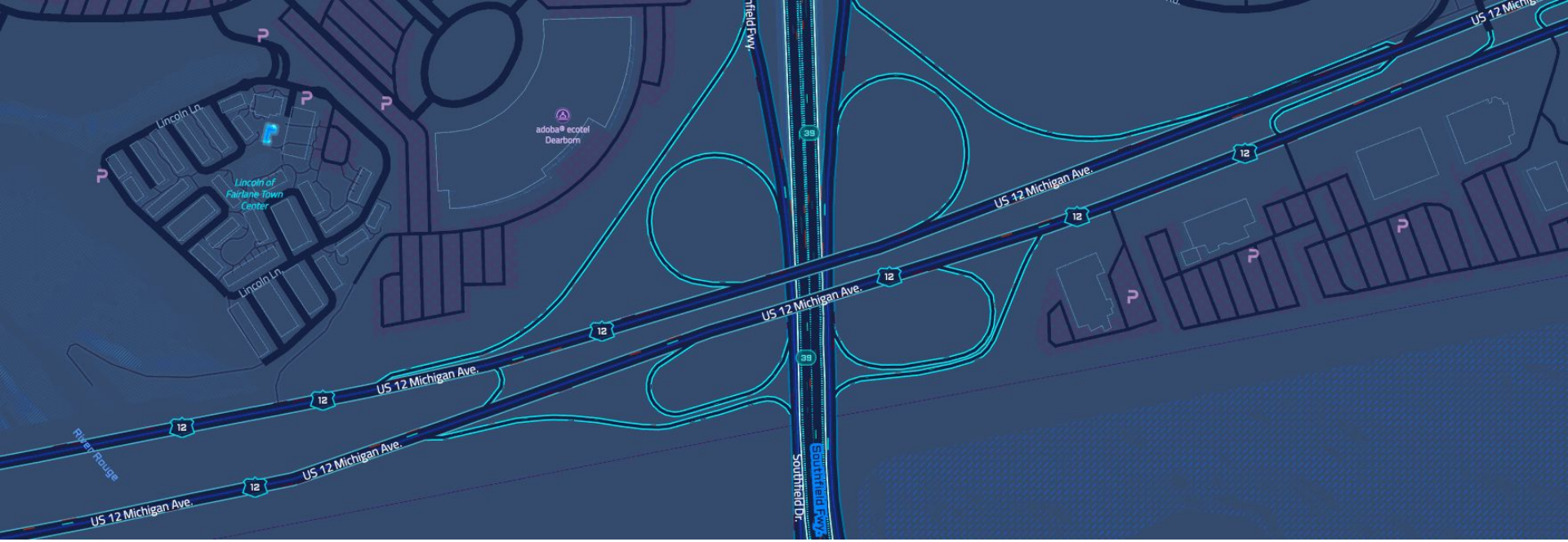




https://mapzen.com/blog/open-traffic-osmlr-technical-preview/

Conclusion: The advantages of “open”

- Open-source software and open data allow creative collaborations and partnerships:
  - Within private sector
  - With public sector
  - Across modes of transport
  - Across countries of differing level of development
- *A Warning*: Unless your organization has the resources to build a vertically integrated consumer mobility solution, “open” is the only way you will win
- *A Challenge*:
  - If you or your customers have GPS probe data, consider the benefits (and the risks) of sharing it with the Open Traffic platform.
  - What data and software are truly unique to the value your product/service/business provides? And was is better shared and pooled in the open?



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