

**More mobility options, more data:
Transportation and privacy issues in shared-mobility data use**

**California Legislature
Information Hearing
Senate Transportation & Judiciary Committees
Beall and Jackson, Chairs**

**Tuesday, February 25, 2020 1:30pm
State Capitol, Room 4203**

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COMMON APPROACHES TO MOBILITY DATA SHARING

Aggregated/ Reported By Mobility Operator

EXAMPLES:

- DDOT (2018) scooter permit.
- Most carsharing permits.

PROS:

- Reporting burden on operator.
- City bears little risk.

CONS:

- Cities may feel they cannot trust self-reported data.
- Data may be too aggregated for desired use cases.

Data Delivered Through A Trusted Third Party

EXAMPLES:

- Populus reporting in 70+ cities (e.g. Long Beach, Baltimore)

PROS:

- Data is audited through a trusted third party.
- City bears little risk.
- Cost effective to perform advanced analytics.

CONS:

- Data may not meet every imaginable use case.

City Directly Receives Raw, Disaggregate Data

EXAMPLES:

- LADOT, Chicago

PROS:

- Flexible, direct access to raw data for all use cases.

CONS:

- Requires significant technical lift.
- Challenges with records requests.

LEAST RISK



MOST RISK

ALTERNATIVE THIRD PARTY DATA GOVERNANCE MODELS

Nonprofit organization

PROS:

- Typically unbiased, depending on funding sources.

CONS:

- Resource constraints limit ability to protect data.
- Resource constraints limit ability to ensure data can be effectively utilized by a broad set of stakeholders (securely).

Academic institution

PROS:

- Typically unbiased, depending on data and funding relationships.
- Very knowledgeable of key data use cases.

CONS:

- Limited ability to to deliver scalable solutions.
- Incentive structures do not encourage academics to share data across institutions.

For-profit company

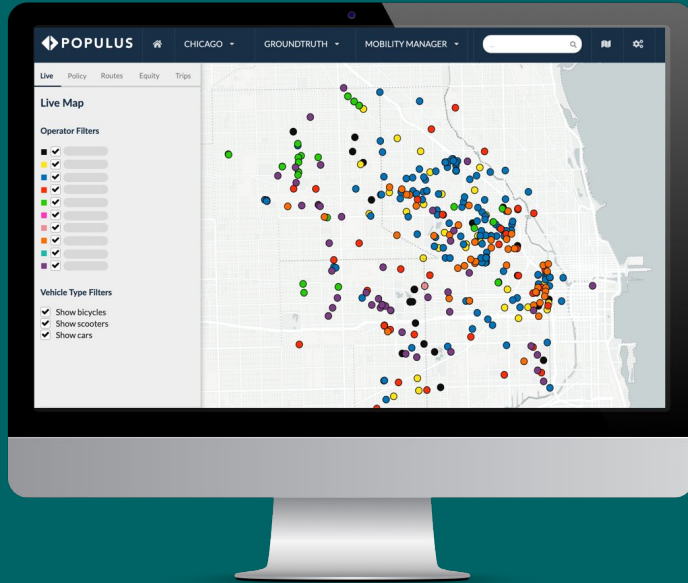
PROS:

- Financial resources for advanced technical capacity to protect (and share) data.
- Typically unbiased (if not an operator).

CONS:

- Not incentivized to share data broadly (but can be required).

THIRD PARTY MOBILITY DATA MANAGEMENT: AN EXAMPLE



- Populus securely hosts data from the world's largest mobility operators.
- We utilize, contribute to, and are agnostic to different open data specifications and standards that allow mobility service operators to share data.
- Populus securely delivers key transportation insights required by cities and other public agencies (our customers) for effective transportation policy and planning.

DATA USE CASES AND REQUIRED DATA

LEAST RISK &
LIABILITY
OWNERSHIP



MOST RISK &
LIABILITY
OWNERSHIP

	Data Latency: Low (e.g. daily or more)	Data Latency: High (e.g. minute or less)
Level of Control: Low (general management)	<ul style="list-style-type: none">● Assessing environmental impacts.**● Identifying frequently traveled routes for planning.**● Identifying/ enforcing mobility equity policies.*● Identifying/ enforcing preferred or restricted scooter parking areas.*	<ul style="list-style-type: none">● Real-time pricing/enforcement of curbs.*● Real-time enforced pricing of roads.**
Level of Control: High (active management)	<ul style="list-style-type: none">● Enforcing geo-fenced scooter speed or no-ride zones.**	<ul style="list-style-type: none">● Real-time routing of vehicles.**● Real-time dispatch of vehicles.**

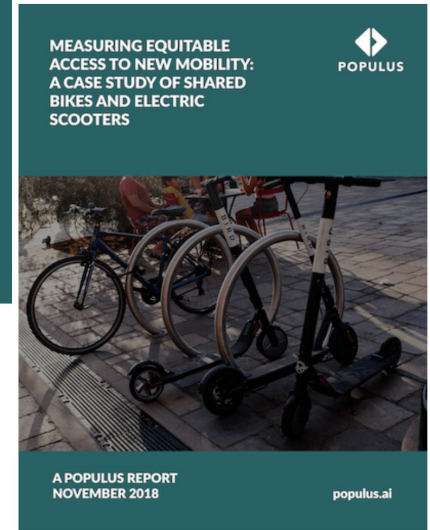
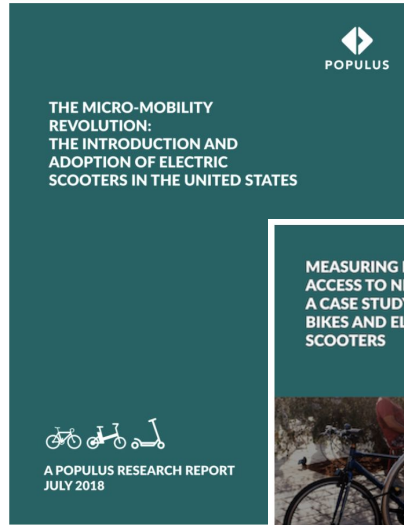
* requires only stationary vehicle data

** requires trip data

APPENDIX

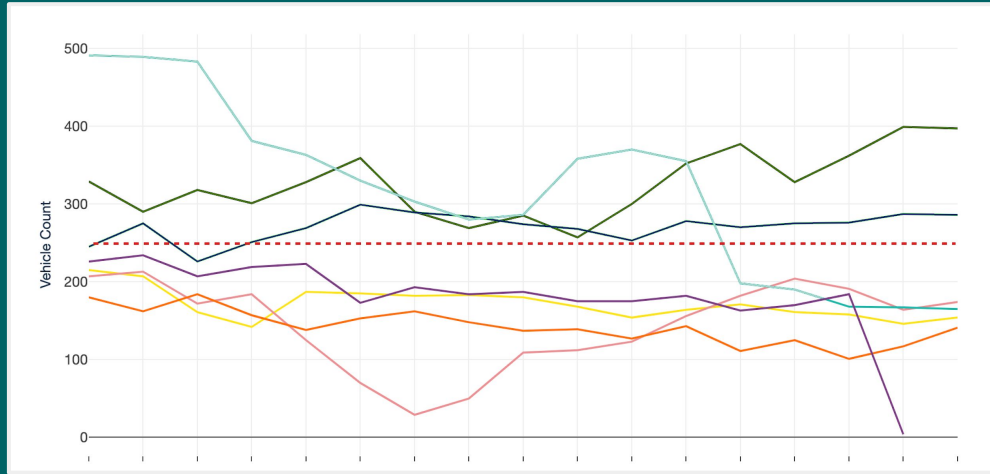
COMPANY OVERVIEW

- Founded by transportation and urban planning PhDs from UC Berkeley and MIT who have spent the past decade building software for cities.
- Formed to support and other public agencies to receive mobility data from private operators, and manage the public-right-of-way.
- Uniquely trusted by cities and operators due to our high security and data privacy standards, designed to comply with the latest regional and federal policies.
- The following slides describe the most common data use cases which are accessed by cities through the Populus platform. (Company branding, i.e. the colors for theoretical mobility operators has been anonymized.)



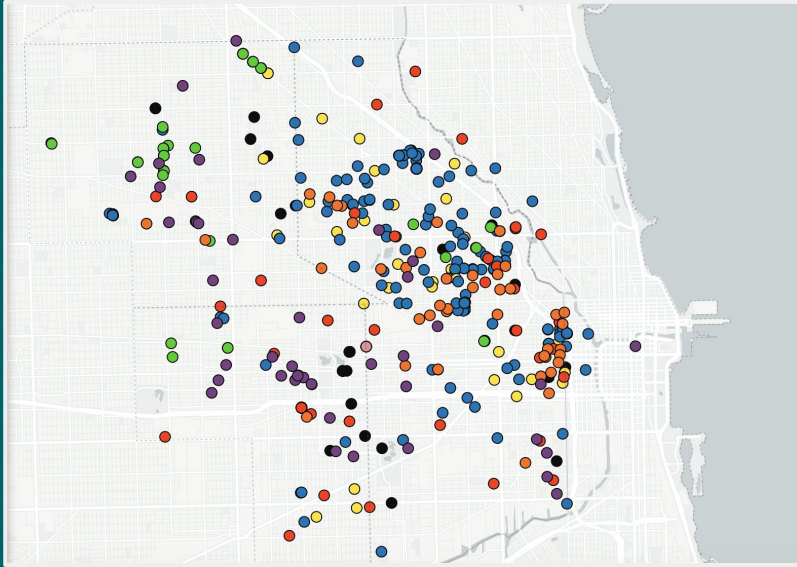
Our team regularly produces reports with new data and best practices for mobility management.

MOBILITY PROGRAM MANAGEMENT: VEHICLE COUNT MONITORING



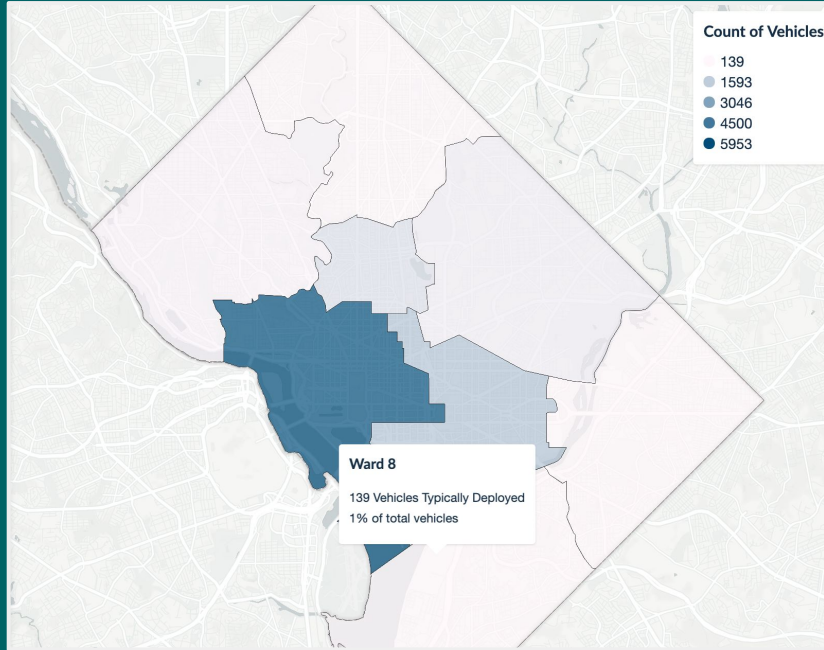
- Cities may limit the number of vehicles (a “cap”) that are allowed per operator and monitor compliance against this restriction.
- Many cities do not have a vehicle cap, but still wish to monitor how many vehicles are being deployed.

MOBILITY PROGRAM MANAGEMENT: LIVE VEHICLE MONITORING



- Cities may restrict vehicles to a designated service area, and may wish to monitor compliance in real-time.
- Cities may receive citizen complaints about a specific vehicle, and utilize our live map identify the operator and communicate with the operator.
- Cities occasionally hear from elected officials about too many (or too few) vehicles, and can respond with data.

MOBILITY PROGRAM EVALUATION: EQUITY ANALYSIS



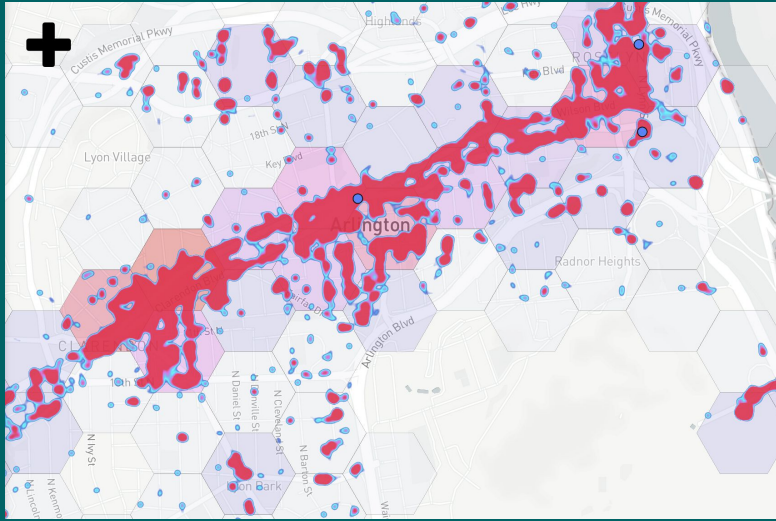
- Cities may analyze the deployments and distribution of vehicles by priority equity areas to inform future policies.
- More precise and more complex equity requirements are fairly common in large urban areas, which we also deliver through our platform.
- Most equity analysis is based on stationary vehicle data, measuring the availability of operational vehicles.

MOBILITY PROGRAM EVALUATION: PERFORMANCE METRICS



- Utilization rates can be used as a performance metric to determine whether and how a mobility program could continue.
- Utilization rates can also be used to reward mobility operators with higher vehicle caps or other incentives.

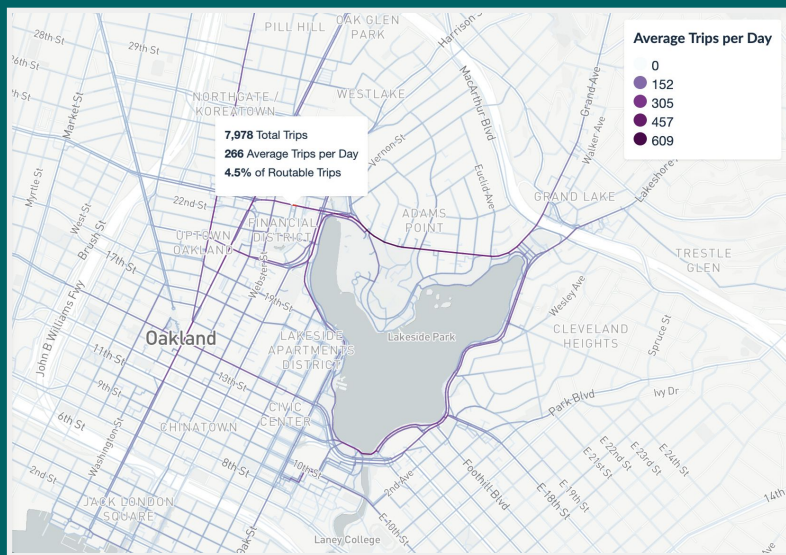
MOBILITY PROGRAM MANAGEMENT: PARKING POLICY/ ENFORCEMENT



- Historic scooter parking events can easily be aggregated to deliver heatmaps to identify preferred parking areas or corrals.
- Arlington County was one of the first major cities in the U.S. to install scooter corrals or “drop zones”. They monitor utilization of these parking areas and restricted parking areas, such as The Pentagon.



MOBILITY PROGRAM PLANNING: ROUTE-BASED ANALYSIS



- GPS trace data can be aggregated into routes to provide cities with information about trip volumes to determine where to place new protected bike lane infrastructure.
- Route data can also be used to evaluate the impacts of new policies or infrastructure improvements, for example a “road diet” or “car free” street policy.

ADDITIONAL RECOMMENDED RESOURCES

MICROMOBILITY POLICY AND MANAGEMENT

- Clewlow, R. R. (2019). *The Micro-Mobility Revolution: The Introduction and Adoption of Electric Scooters in the United States*. Transportation Research Board Annual Meeting No. 19-03991.
- National League of Cities. (2019). *Micromobility in Cities: A History and Policy Review*.
- National Association of City Transportation Officials. (2019). *Shared Micromobility in the U.S.: 2018*.
- Populus. (2018). *Measuring Equitable Access to New Mobility: A Case Study of Shared Bikes and Electric Scooters*.
- Chicago Department of Transportation. (2020). *E-Scooter Pilot Evaluation*.

MOBILITY DATA SHARING AND MANAGEMENT

- Clewlow, R. (2019). *Finding the right balance between mobility data-sharing in cities and personal privacy*.
- National Association of City Transportation Officials. (2019). *Managing Mobility Data*.
- City of Minneapolis. (2019). *Mobility Data Methodology and Analysis*.
- Eno Center for Transportation Webinar. (2019). *Mobility Data Sharing: How Cities Are Using New Data For Policy and Planning*.

FOR FURTHER INFORMATION:

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