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Alex Keros
GM Urban Mobility and Maven Chief Smart Cities Officer

# MOBILITY IS CHANGING

- Rapid growth in urban centers impacting congestion and air quality
- Views on vehicle ownership and aging consumers driving transportation as a service
- New planning and regulatory considerations for cities—e.g. congestion pricing, bike lanes, package/people delivery
- Mobile first, data/analytics

**Alternative Propulsion**

**Sharing**


**Connectivity**


**Autonomous**




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# Desired Outcomes and Priorities in Cities

...and, really, across multiple stakeholders.




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# Connectivity is Foundational

**CUSTOMER EXPERIENCE**

**URBAN MOBILITY**


**SAFETY**


**SUPER CRUISE**

**OVER THE AIR UPDATES**

**PRO-ACTIVE ALERTS**


**VEHICLE DATA**

**AUTONOMOUS**

**PERSONALIZATION**

**REMOTE FUNCTIONS**

# GM's Electrification Mission

*DESIRABLE, OBTAINABLE AND PROFITABLE VEHICLES*

*DELIVERING OVER 300 MILES OF RANGE*

# A Robust EV Market Benefits Everyone.

- **Individual Benefits**
  - Quiet and exciting ride & handling
  - Fuel savings
  - Ability to “fill up” at home
- **Societal Benefits**
  - Economy (local spending, local jobs)
  - Environment (local air, climate)
- **Utility / Grid Benefits**
  - Load growth that’s “flexible”
  - Renewable energy integration
  - Downward pressure on rates



**We are committed to supporting the development of sustainable, robust EV infrastructure**

- **We will partner and invest as necessary**
- **We will leverage GM’s data sources and long-standing relationships with utilities, service providers**

# MAVEN CITY

Round-Trip Car Sharing

NUMBER OF CITIES
13 and counting

AVERAGE TRIPS
~13-14 Hours
~75-80 Miles

FAVORITE CARS
Chevrolet Volt
Chevrolet Tahoe

# MAVEN HOME

Exclusive closed-community car-sharing

AVAILABLE IN
Residences in DC, San Francisco + growing. (Multiple non-exclusive properties as well)

AVALIABLE TO
> 8,000 Residents and counting

# MAVEN GIG

Solutions for the Gig Economy – Ridesharing, Delivery Services.

Short-term rental includes vehicle, maintenance, insurance.

AVAILABLE IN
7 Cities and Counting

MILES DRIVEN
>175 Million

Service brand for shared access by different demand pools

Member services

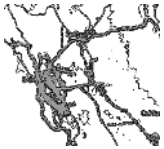
Real-world ridesharing ops and learning with Bolt EVs

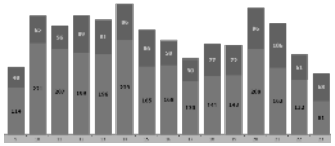
Fleet Management:
Registration, repairs, transport, maintenance, lifecycle & residual management, financing, insurance

Physical infrastructure

Public sector:
Tax, regulatory, utilities, municipalities

Telemetry, Data Science







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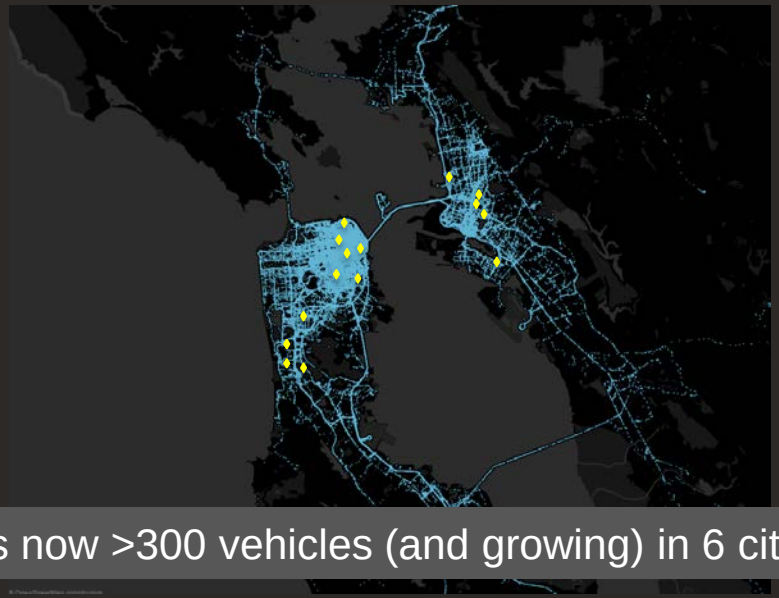
**Background**: Beginning in February 2017, Maven began deploying Bolt EVs into Maven Gig, our short-term rental program. While used mostly for commercial purposes, drivers "live with the car" so personal mileage is includes as well. Most drivers had no previous experience with EVs and nearly all do not have access to charging at home.

## BOLT EV MILEAGE

| Total Miles Driven | Average Miles Per Day, Per Car |
|---|---|
| ~5 million | ~125 – 130 |

**~4,000** INSTANCES OF > 238 MILES IN A DAY

INSTANCES OF > 400 MILES IN A DAY **~200**



Based on infrastructure availability, the fleet is now >300 vehicles (and growing) in 6 cities.

Data as of 31 Dec 2017

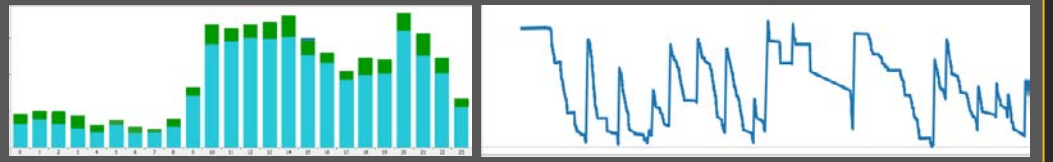
**Background** – Maven is working to build multiple, parallel models to support EV infrastructure commercialization for shared-used deployments. For example, ride-sharing drivers typically do not have charging at home, so they must leverage public charging.

To support a successful deployment, access to EVgo's public DC fast-charging network is included in the weekly rental price.

## BOLT EV CHARGING

| | |
|---|---|
| **Total DCFC Events** | **~53,000** |
| **Total kWh** | **~1.5 million** |

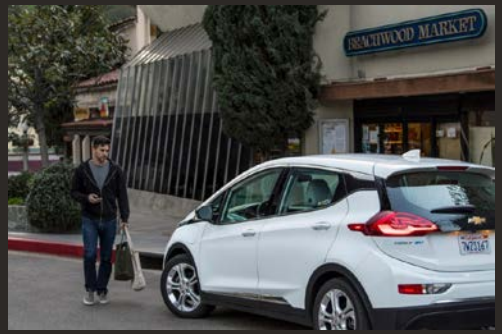
**Understanding Charging Strategies - Time of Use Considerations, DCFC vs. L2 vs. SOC**



Leveraging public DCFC is driving utilization, building new business models, and forcing us to reanalyze market needs

Data as of 31 Dec 2017

**Background** – Program designed, in part, to help new drivers and new riders get exposure to EVs. Building confidence through training, exposure, and the infrastructure network is critical towards long-term success.




# ~ 700 Drivers

*Driver feedback has been very positive, in spite of feedback that more EV infrastructure is needed*

# ~400,000 Riders*

*Drivers tell us that riders notice the Bolt EV and ask questions about their EV experience.*


Data as of 31 Dec 2017 *Maven Estimate

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CITY | HOME | GIG

## General Motors/ Maven Establishing Innovative Collaborations Around Bolt EV

**Charging:** Maven working with EV infrastructure service providers to support the business model for public charging. Early indications show positive influence on network health and on the business case.

**Utilities:** Maven working closely with a number of electric utilities to propose and demonstrate new shared-use models, such as grid-integrated DC Fast Chargers, rate-design considerations, and education/outreach efforts.

**Cities:** Maven in actively engaging in innovative, public-private partnerships to consider sustainable transportation solutions. Opportunities such as supporting multi-modal hubs to EV infrastructure deployment.


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#BeThere