

DRAFT FOR PUBLIC RELEASE

# SMART MOBILITY ROADMAP 2017

AUSTIN'S APPROACH TO SHARED, ELECTRIC,  
AND AUTONOMOUS VEHICLE TECHNOLOGIES

Austin, Texas



City of Austin



and

Capital  
Metropolitan  
Transportation  
Authority



Community Technology  
and Telecommunications  
Commission

Karla Taylor, Chief of Staff  
Austin Transportation

November 2017

# Smart Mobility Roadmap

City Council [Resolution 20170302-39](#)

March 2017;

Capital Metro Board  
Resolution

[AI-2017-463](#), May 2017

**Develop nation-leading  
plan on **Shared, Electric**  
and **Autonomous**  
Vehicles and Services**

Plan will address:

- GHG emissions: Net zero by 2050
- On-demand mobility
- Accessibility: seniors, disabled, etc
- Affordability
- Congestion
- Shared Mobility: heavy adoption

# Smart Mobility Inspiration

**IMAGINEAUSTON**  
Vibrant. Livable. Connected.



**Connections**  
2025



# Use Technology to Solve Challenges



**Growth**   **Affordability**   **Traffic**   **Air Quality**  
**Access to Jobs**   **Equity**   **Traffic Safety**   **Public Health**



# Dealing with Disruptive Technologies

- *Don't envision a "perfect future"*
- *Develop plans that can be adapted to evaluate "a range of potential outcomes."*
- *"Pursue investments that make sense with or without driverless cars."*

**Dr. Erick Guerra, Planning professor,  
University of Pennsylvania**

# Austin: Pioneering Autonomous Vehicles



# Technology Doesn't Change Geometry

**TODAY**



**40 human-driven cars**

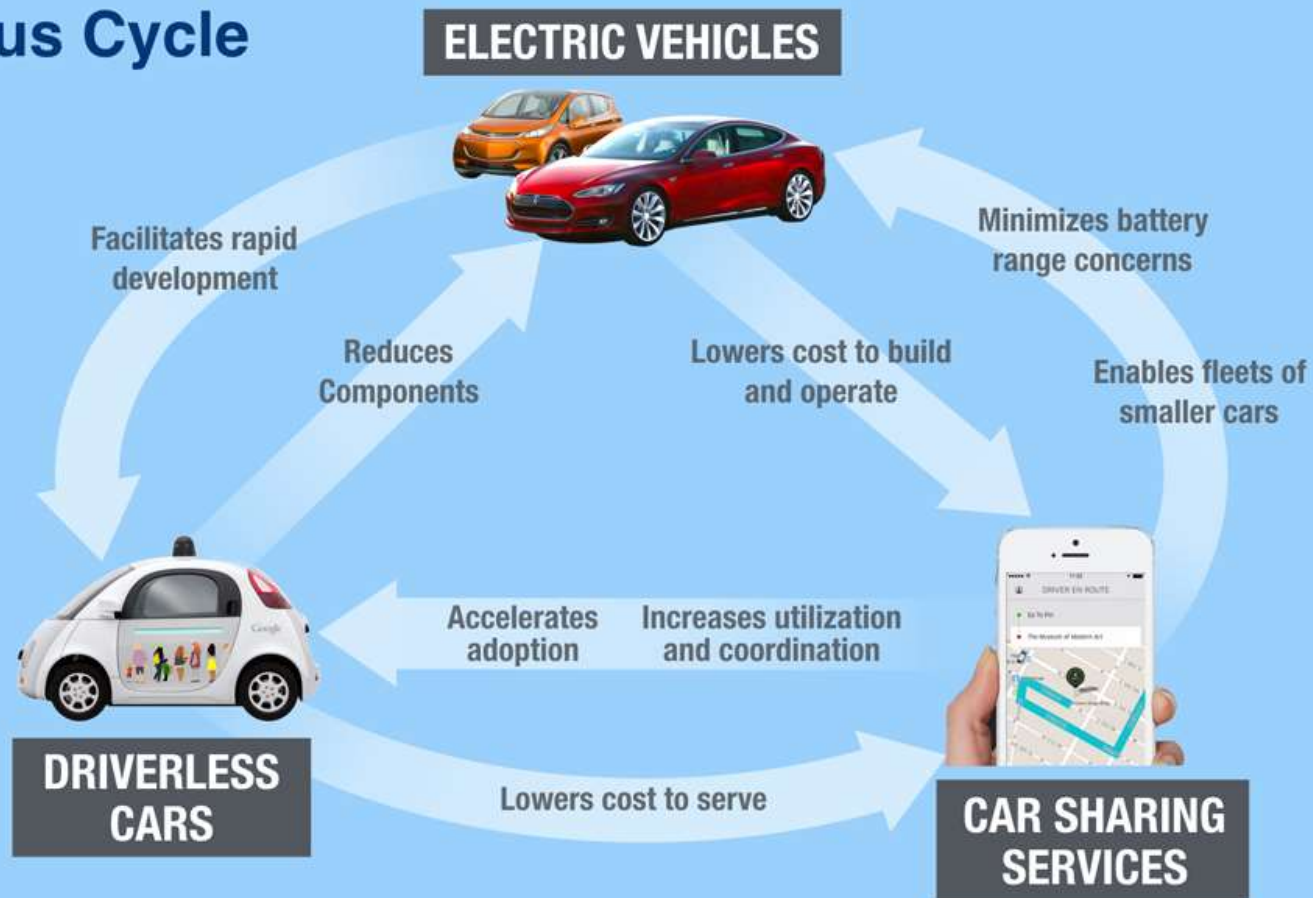
**TOMORROW**



**40 self-driving cars**

# Convergence of Technologies

## A Virtuous Cycle



## Next Steps:

- Encourage less SOVs with easy/affordable alternatives;
- More data and collaboration



# Potential Benefits: Connectivity/Automation

Driving Externality	Shared Autonomy (L4, 5)**	Connected (Full V2X)	Electric***	Autonomy (L4, 5)*
Safety	Strong Benefits	Strong Benefits	Weakest benefits/no impact	Strong Benefits
Mobility	Strong Benefits	Weakest benefits/no impact	Weakest benefits/no impact	Strong Benefits
Congestion	Some expected benefits	Strong Benefits	Weakest benefits/no impact	Uncertain impact
Land Use	Some expected benefits	Weakest benefits/no impact	Weakest benefits/no impact	Uncertain impact
Emissions	Weakest benefits/no impact	Some expected benefits	Strong Benefits	Weakest benefits/no impact



Strong Benefits



Weakest benefits/no impact



Some expected benefits



Uncertain impact

# Shared Mobility



# Shared Mobility



*“When deployed alongside fixed-route mass transit networks, shared-ride AV taxis could all but eliminate the convenience advantage of personal autos.”*

## Next Steps:

- Create an Austin Shared Use Mobility Plan
- Promote shared vehicle services

— Bloomberg Philanthropies-  
Aspen Institute



# Electric Vehicles



Austin: Top 10 U.S.  
city – public/work  
charging  
places

- 600 EV charging ports
- 172 locations
- 4,000 area EV vehicles

## Steep Climb:

- .4% of 1M vehicles today
- 25% = 250,000 vehicles

EV's = lower GHG + cost + energy use

# Electric Vehicles

Fleets: early EV adopters,  
Lower  
Operating costs  
by 2020

Personal EVs:  
total costs  
meets gas-  
powered cars  
by 2025

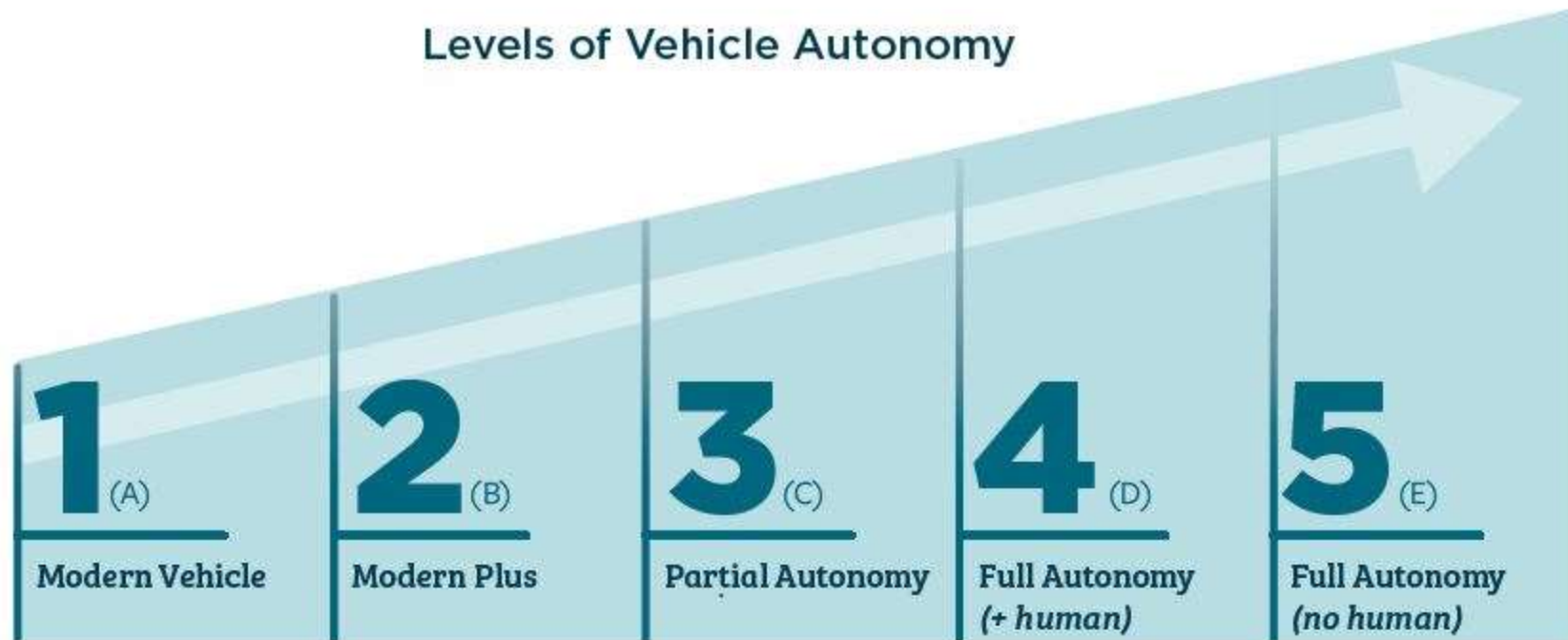


## Next Steps:

- Accelerate EV use with incentives and policies;
- Expand Public and Private charging infrastructure

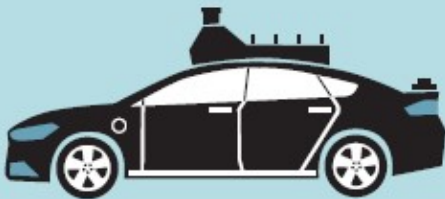


# Autonomous Vehicles



Graphic recreated, with permission, from "Future Autonomous Vehicle Driver Study," September 2016, Cox Automotive.

Taxibot



Deliverybot



Driverless Shuttle



Software Train



# Autonomous Vehicles

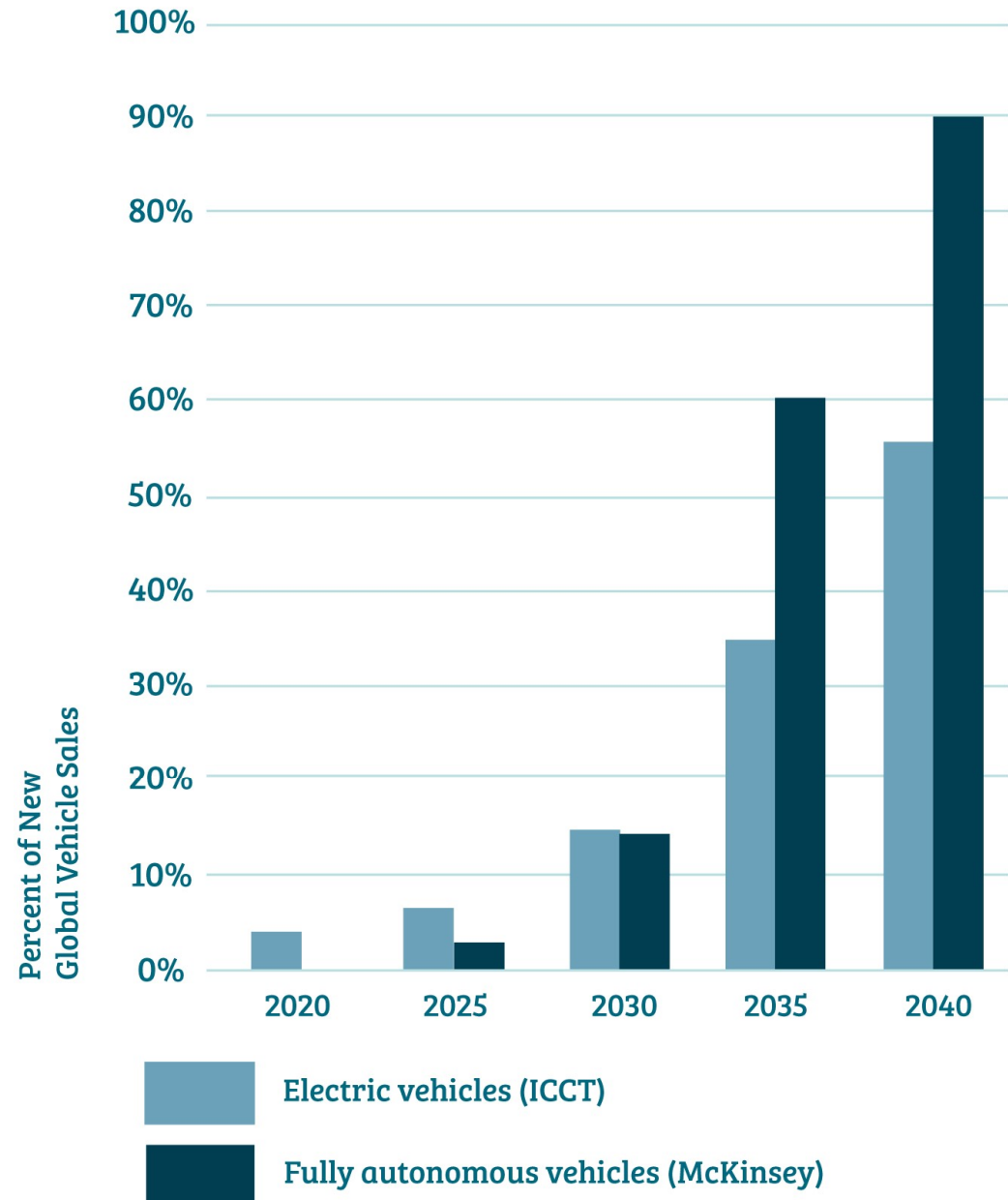
AV Sales:

- 15% by 2030
- 60% by 2035

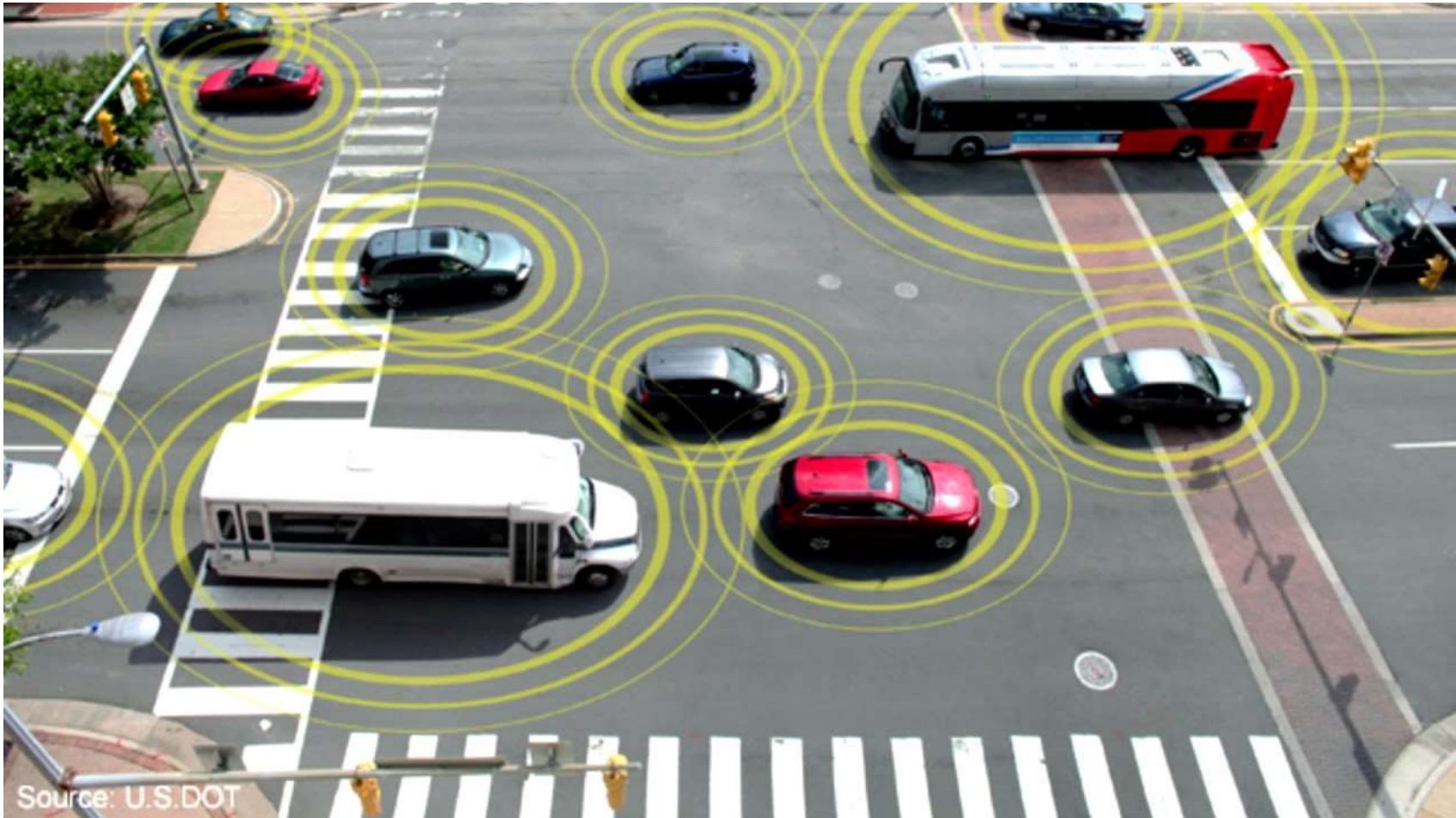
## Next Step:

- Develop a Master Plan for emerging E-AV technologies and services to pursue, keep it human centered

Projections of Electric and Fully Autonomous Vehicle Sales



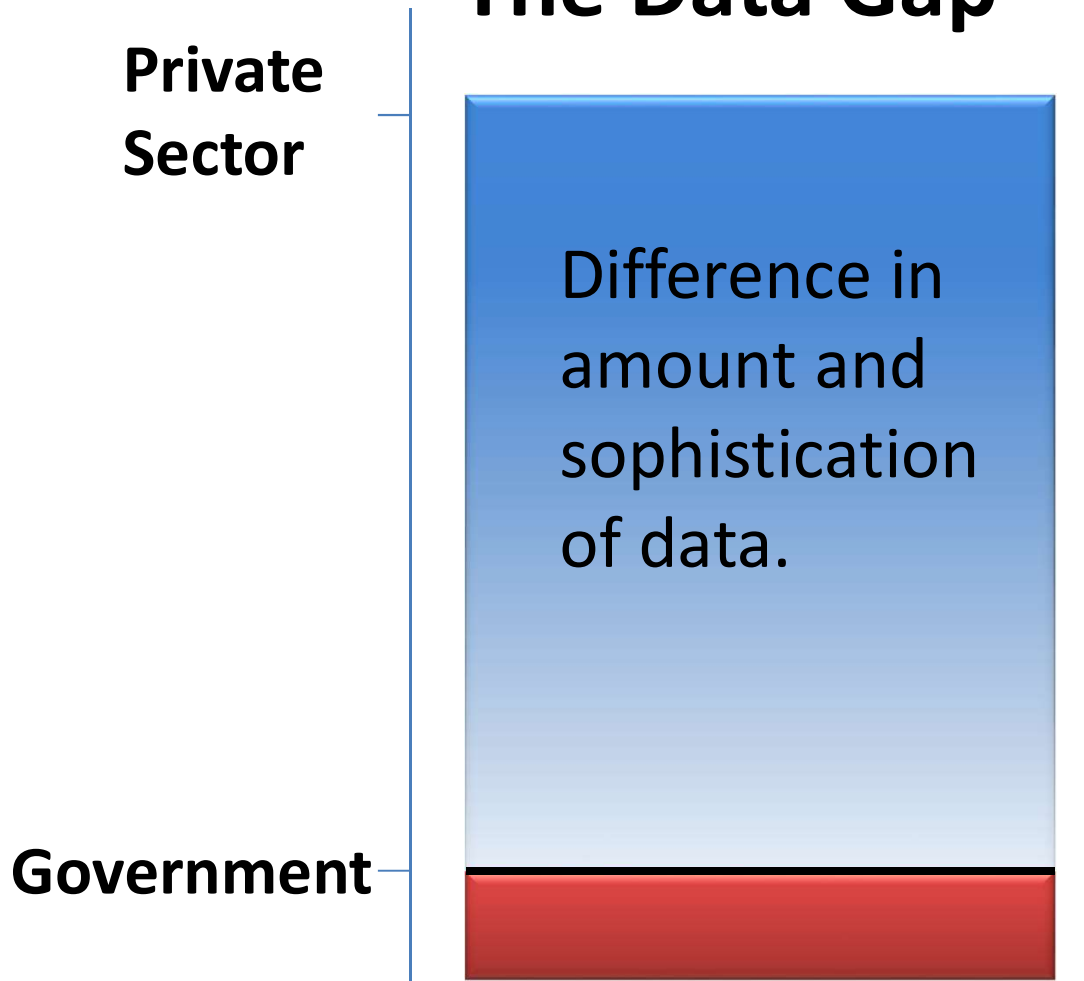
# Data and Technologies



**V2V + V2I + V2P + V2X = More complex data and analyses that yields better safety and mobility**

# Data and Technologies

## The Data Gap



### Next Step:

- Test and invest in data driven technologies that promotes open data, real-time public information
- Collaborate with public /private sectors.



# Current and Future Land Use

A compact and connected Austin supports travel options other than just driving alone, like walking, biking, transit, taxis, TNCs, etc.





# Current and Future Land Use



## Next Steps:

- Enhance policies to support compact and connected
- Create policies and review technologies to actively manage curb space

# Impacts on Austin - Equity

On-demand  
AVs can help  
non-drivers,  
the elderly  
and disabled,  
along with  
better  
sidewalks

More pilots  
with pricing  
incentives are  
needed

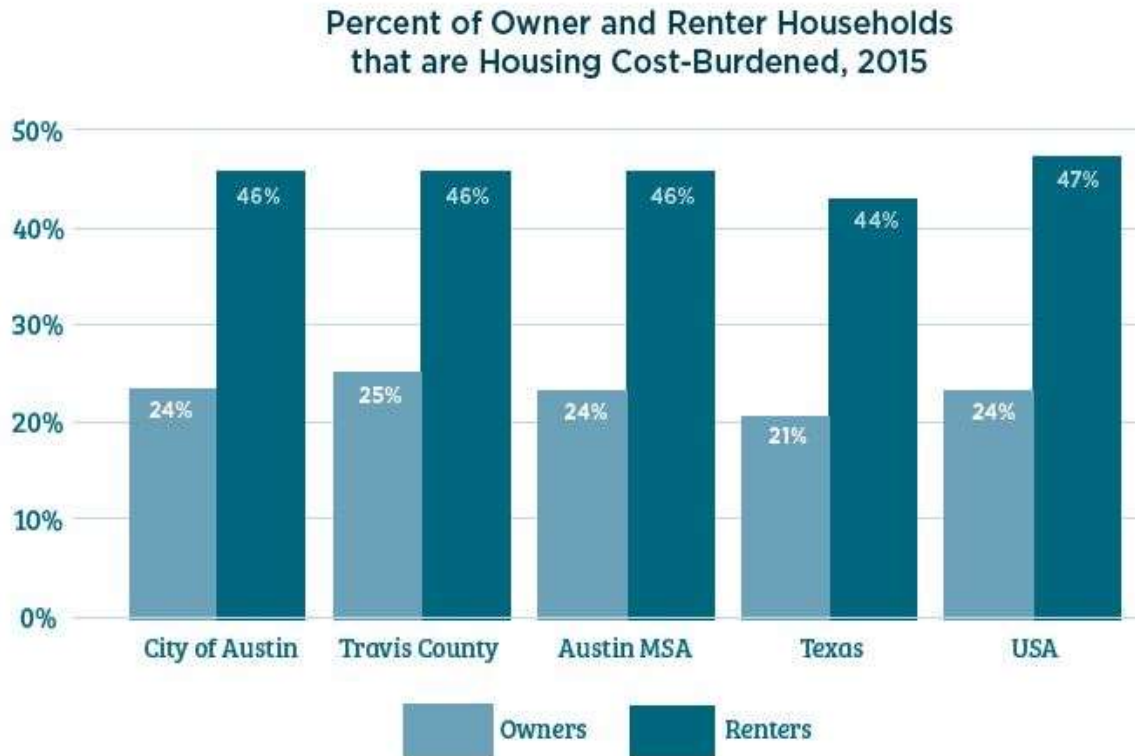


## Current Pilots

Capital Metro piloting  
“PickUp” on-demand  
service in East Austin

Community Care + Ride  
Austin piloting free  
transport to health care

# Impacts on Austin - Affordability



Study: Costs saved on housing 12+ miles from jobs/city center is wiped out by transportation costs Housing and Affordability Index.

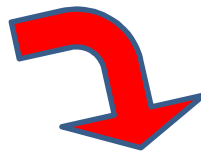
Shared Mobility – car-pool/vanpool, coupled with driverless vehicles to reach transit can extend transportation access, reduce cost



# Impacts on Austin - Safety



Today: 94% of crashes caused by human error



Tomorrow: 80% of crashes can be reduced through automation



# Impacts on Austin - Workforce



Potential jobs lost:  
~3% of Austin jobs are drivers

- 77% delivery/  
heavy truck drivers
- 14% bus drivers
- 8% taxi/chauffeur  
drivers

## Next Step:

- Create New Mobility Workforce training taskforce - partner with educational institutions and businesses

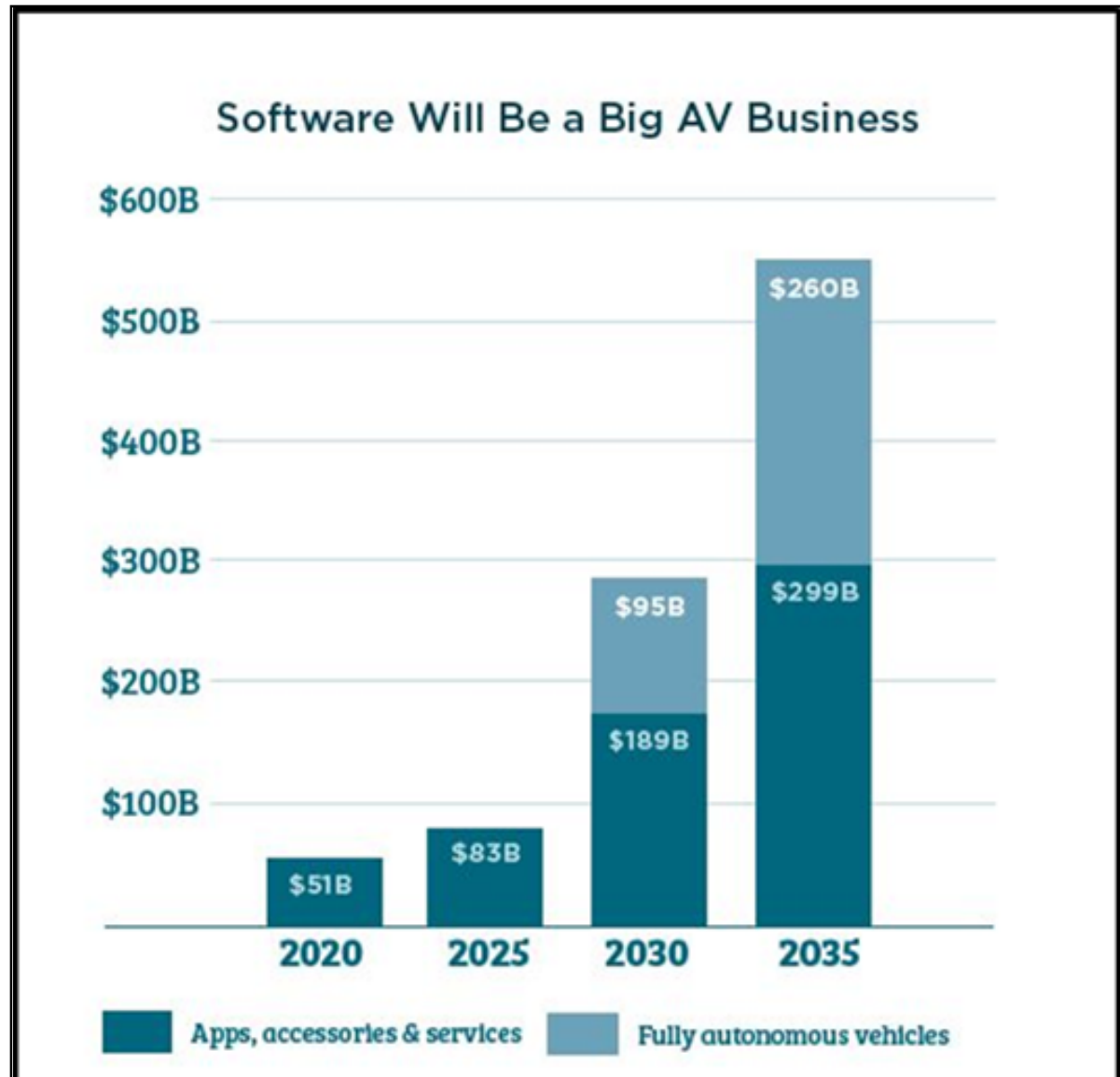


# Future of Austin - Workforce

Austin is a software and technology leader

## Next Step:

- Create Commercial Opportunities and Economic Development P3 Workgroup



# National New Mobility Pilots



# Community Engagement



60% of Austin residents would shift away from driving alone if given better options  
(2016 Mobility Talks)

New mobility options, tailored to a community and individual's needs, begins with community engagement



# Budget Implications



# Metrics



Austin Transportation

**Austin Strategic  
Mobility Plan**

Innovations Section:  
New Mobility Plan



Corridor Program  
Implementation Office

**Corridor Mobility  
Program—  
2016 Bond**



Office of Performance  
Management

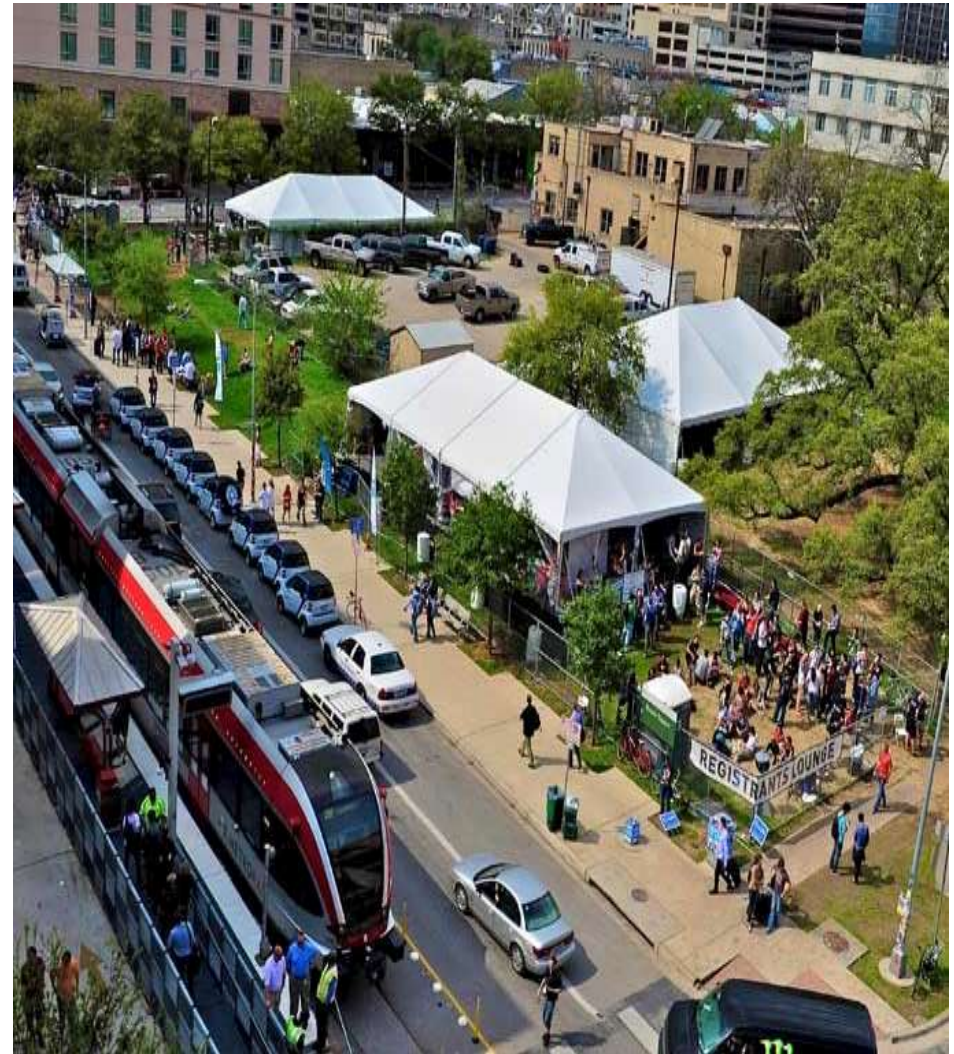
**Council Strategic  
Plan**

**Core Coordinated Mobility Metrics**

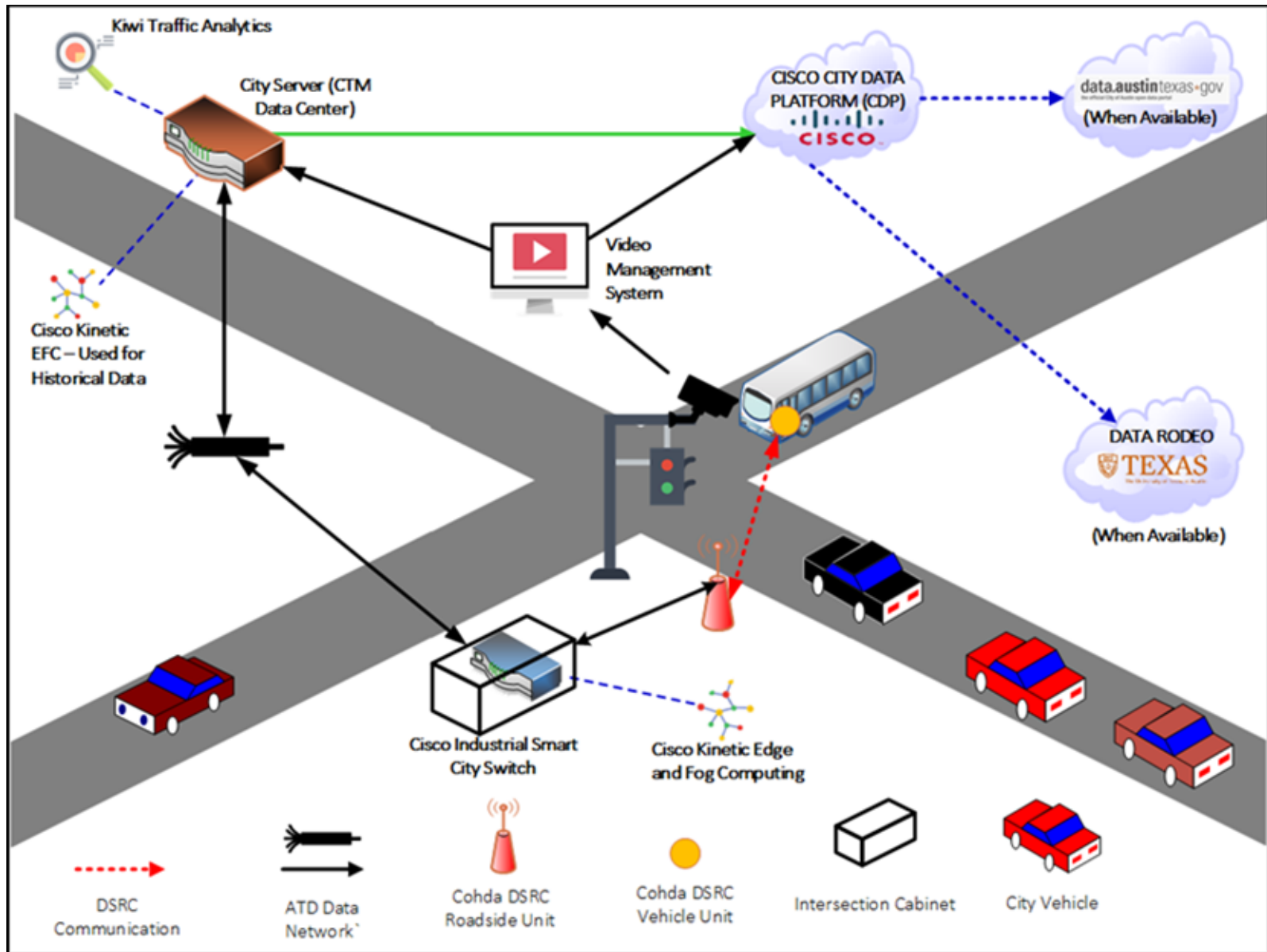


# Next Steps

- Release draft roadmap for public review  
[www.austintexas.gov/smartmobilityroadmap](http://www.austintexas.gov/smartmobilityroadmap)
- Begin dialogue with stakeholders, community
- Start technology pilots
- Seek funding sources, partners
- Initiate policy discussions in concert with Austin Strategic Mobility Plan



# Pilot 1 : DSRC Safety Messages



## Pilot 2: Autonomous Vehicles



Capital Metro, UT- Center for Transportation Research and McDonald Transit recently collaborated to bring an Easy Mile autonomous shuttle to Austin for a multi-day demonstration and learning event.

## Pilot 3: Electric Shared Bikes



[Peopleforbikes.org](http://Peopleforbikes.org)



**Thank You!**

**Questions?**

**BACK UP SLIDES**

EASIER TO  
NAVIGATE



SIMPLIFIED  
FARES



MORE  
FREQUENCY



MORE  
METRORAPID



MORE  
METROEXPRESS

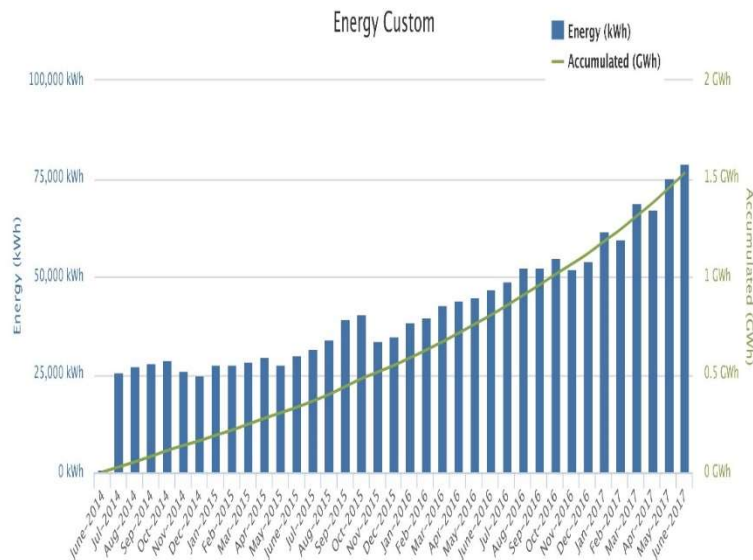


MORE  
EAST/WEST

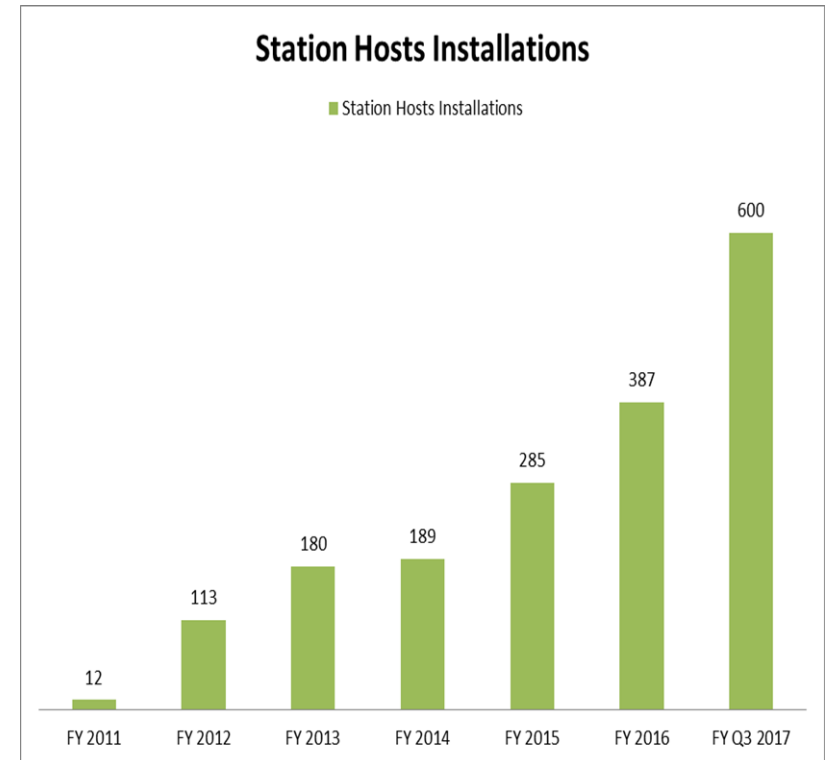


***“An additional 200,000 people will have access to frequent transit”***

# Austin Energy's Plug-in Everywhere™



**Public Charging Usage:** 1.85GWh  
consumed through 251,641 charging sessions  
since program inception, displacing  
approximately 7.3M petroleum miles with  
100% renewable GreenChoice® energy.

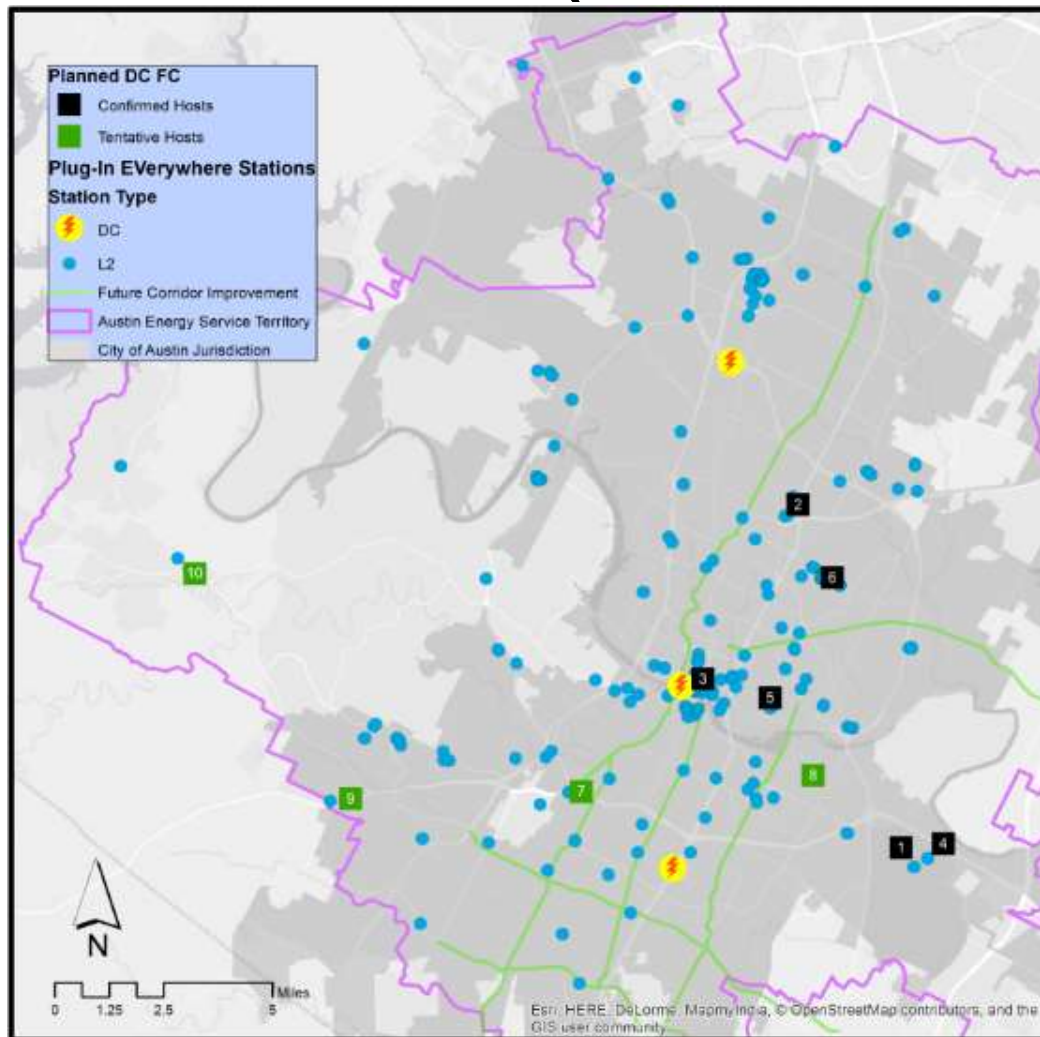


**EV Installations:** 600 charging ports  
have been installed at 172 locations to  
include retail, workplace, multifamily, and  
fleet.



# Austin's Public EV Stations

## (L2 & Fast) Planned Fast Chargers



Station #	Site Name	Address
1	ABIA Cell Phone Lot	3600 Presidential Blvd
2	Misuma Holdings	6406 N I 35
3	Travis County	700 Lavaca
4	Execu Tesla	2705 Highway 71
5	Eastline	2008 E 7th St
6	Austin Film Society	1901 E 51st St
7	CapMetro Park and Ride	Westgate & Ben White
8	ACC Riverside	1020 Grove Blvd
9	ACC Pinnacle	7748 Highway 290 West
10	Hill Country Galleria	12701 Hill Country Blvd

