



Transportation 2040 Update: Technology

Transportation Policy Board
April 14, 2016



Puget Sound Regional Council

An Exciting but Uncertain Future...

Autonomous & Connected Vehicles



Shared Mobility



Traveler Information





Today's Discussion

- Why do we care?
- Planning Questions
- Current Technology and Benefits
- Future Technologies and what's happening now
- Since we care...Next Steps





Why Do We Care?

- **Immense benefits**
Save lives, reduce congestion, decrease emissions and improve quality of life
- **Immense uncertainty**
We don't know exactly what the future is going to look like
- **Huge opportunities**
A chance to change how people get around for the better and improve equity in transportation access
- **Huge challenges**
Maximize advantages and minimize disruptions





Planning Questions

1. **What is government's role in advancing transportation technology?** To implement? Facilitate? Regulate? To prod and provide funding?
2. **How can we plan for an increasingly uncertain future?**





Current Technologies

- Central Signal Systems
- Transit Signal Priority
- Active Traffic Management
- Integrated Corridor Management
- Traffic Management Centers
- Ramp Metering
- And others...





Current Technologies – *Benefits*

How do they help?

Improve safety, congestion, and traffic flow.

Examples:

- **Snohomish County SR 527 Adaptive Signal Control: 15-20% reduction in travel time, 15-25% reduction in collisions**
- **King County Metro RapidRide E Line Transit Signal Priority: 5% reduction in travel time, up to 14% reduction in signal delay**
- **City of Lakewood TMC: 5 -10 % reduction in travel time, faster response to traffic interruptions**





Autonomous Vehicles

- Vehicles that can operate **without the need for driver interaction**, although there is a spectrum of functionality between no automation and fully automated





Autonomous Vehicles



Driverless Cars



Driverless Transit



Driverless Trucks

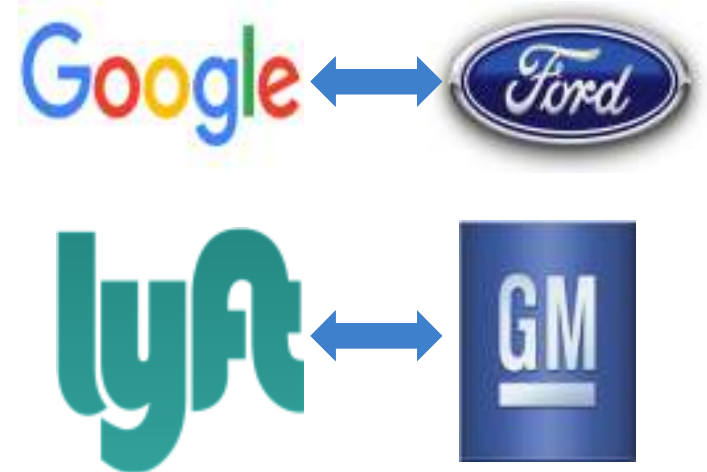
- **Predictions range btw. 2020-2050** in terms of when fully automated will be widespread
- Potential benefits includes **improved safety, decreased congestion, improved emissions** – overall impacts still uncertain in terms of car travel and mode split





Autonomous Vehicles – *What is Happening Now?*

The Short Answer: A lot of private sector development, collaboration, and media attention!



Connected Vehicles



Vehicle to Infrastructure (V to I) Technology



Vehicle to Vehicle (V to V) Technology

- **Based on communication** - Allows vehicles to talk to infrastructure (V to I), each other (V to V), and everything (V to X).
- **V to I requires public infrastructure investment** (e.g. Metro RapidRide), V to V does not
- Benefits include **improved safety and congestion, data collection**





Connected Vehicles – *What is Happening Now?*

The Short Answer: Increased funding, increased prevalence, and growing role in freight

- Increasing **Federal funding** and **private investment**
- **More and more cars** have connected vehicle technology
- Being **used by transit agencies** like King County Metro
- Playing a **growing role in freight movement**





Shared Mobility



Car-Sharing



Ridesourcing



Microtransit

- Shared forms of transportation including **carsharing, ridesharing, ridesourcing, bikesharing, and microtransit**
- Typically relies on **IT-enabled apps** involving real-time information
- Potential benefits include increased **mobility choices, first & last mile solutions, reduction of congestion and emissions, and reduction of parking pressures**





Shared Mobility – *What is Happening Now?*

The Short Answer: Auto manufacturers and transit agencies are getting involved

- **Auto manufacturers** are shifting from strictly being car manufacturers to **becoming mobility providers**
- **Transit agencies** are partnering with on-demand providers



FORD **SMART MOBILITY**





Shared Mobility – *What is Happening Now?*

The Short Answer: Local Governments are trying to regulate and optimize

- **Local governments are working through important policy issues**, such as access to parking for carsharing and licensing for ridesourcing
- Many are trying to figure out how to **integrate shared modes into transportation management plans**





Information Technology



OneBusAway



- Smartphone apps such as Waze now allow better real-time traffic/road information along with ETA which helps drivers plan routes better
- Mobile Transit Technology such as One Bus Away has become increasingly popular
- Some transit agencies (Austin, Portland, Boston, Dallas) allow users to pay via mobile app
- “Mobility-as-a-service”





So Now What Do We Do?

- **A lot of uncertainty, but also some certainties:**
 - Demand for new technology will grow
 - Technology will change how people get around
- **Must acknowledge that change is happening and understand the implications**
- **Effective planning for technology will entail:**
 - Meeting Demand
 - Minimizing Disruptions
 - Ensuring equity
 - Maximizing Advantages



Efforts Underway: Federal- and State-Level

Next Steps

Federal

- USDOT/NHTSA rulemaking on V2V technology
- Grants (e.g. Connected Vehicle Pilot Program, US Smart City challenge)

State

- WSDOT developing a strategic approach to researching and deploying these technologies and is involved in demonstration projects.





Efforts Underway: Local- and Regional-Level

Local-level

- A shared mobility plan involving led by Seattle and involving other regional partners
- Technology Conference – Fall of 2016

Next Steps

Regional-level: What is PSRC doing?

- Transportation 2040 Update
- Convening regional partners and facilitating conversations around grants and other opportunities
- Enhance technical tools to model impacts of these technologies



Questions

- **How would you like to see technology reflected in our plan update?**
- **What are key local efforts?**
- **How can we help position the region for success in adapting to new technologies?**

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