

Autonomous Vehicles:

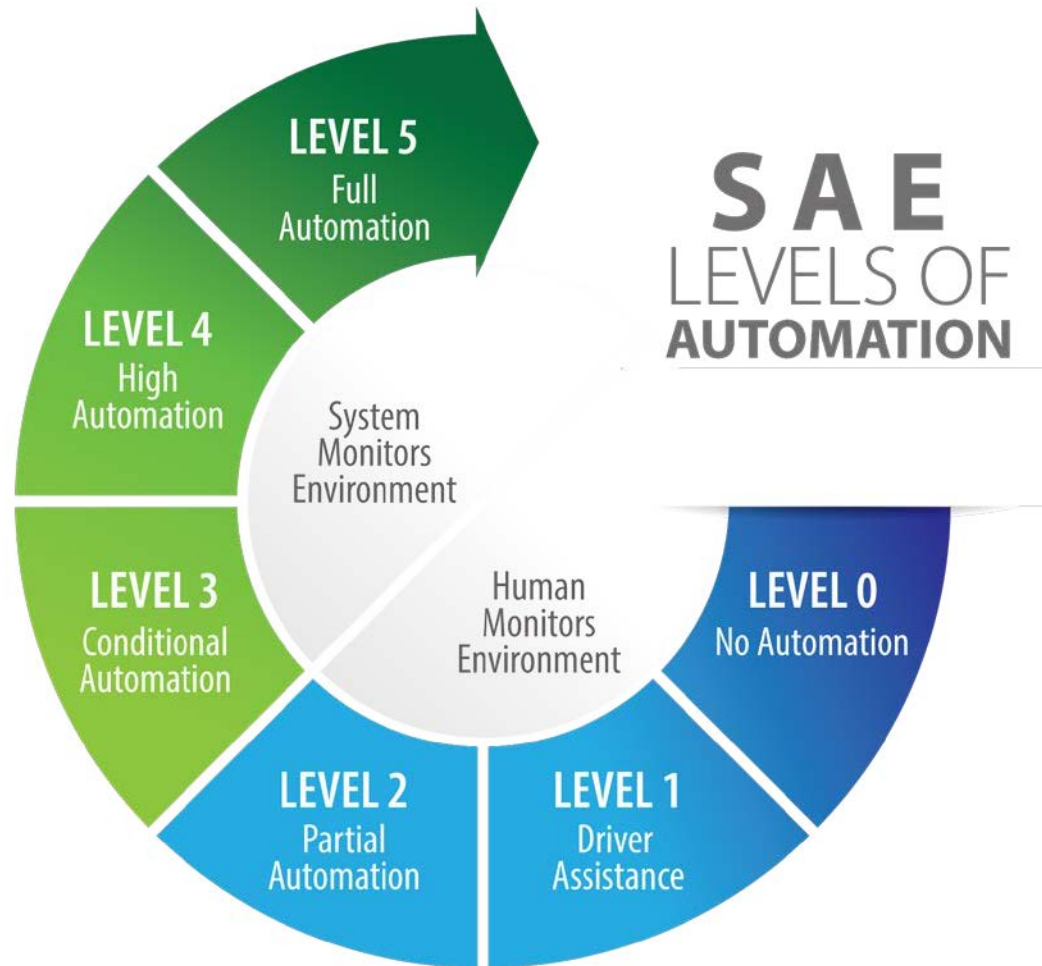
Portland's Smart Autonomous Vehicle Initiative

June 14, 2017



PBOT
PORTLAND BUREAU OF TRANSPORTATION

What in the world is an “Automated Vehicle?”



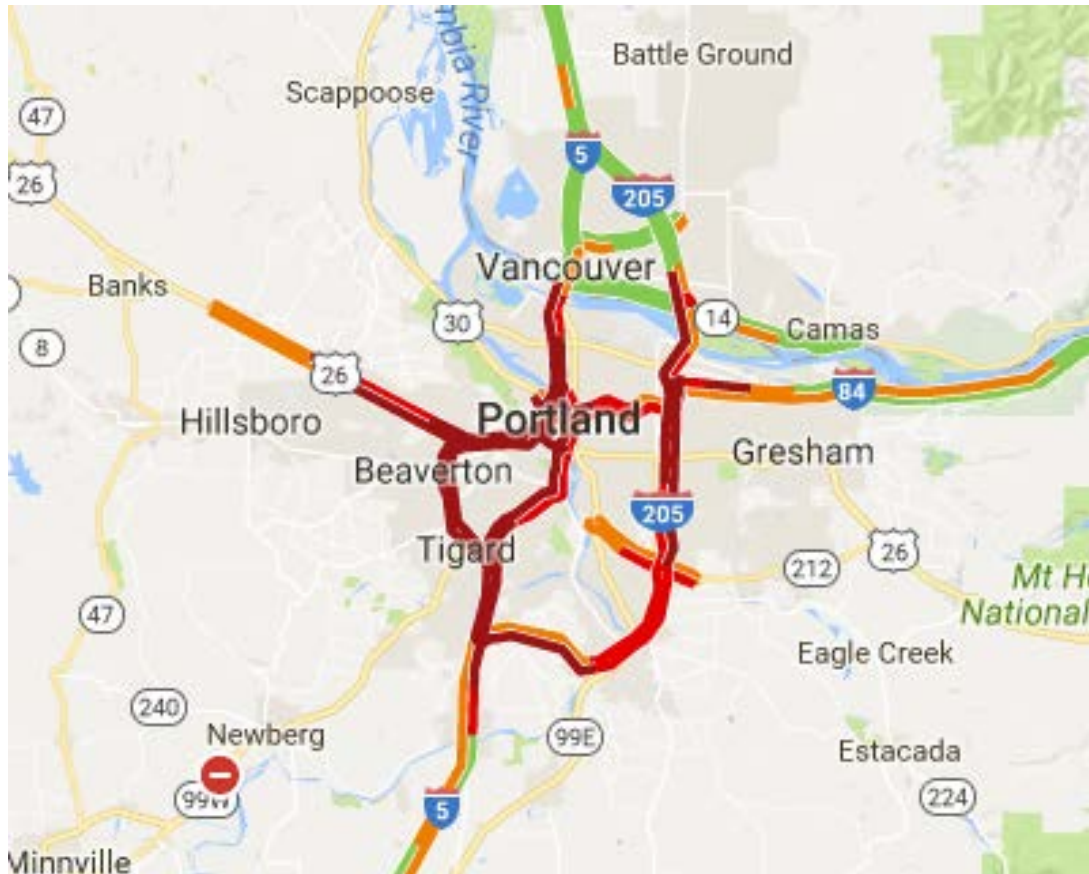
Thanks to ODOT Graphics for use of this image

What does mobility look like in the future?



Is this what 10,000 steps looks like?

How Might Autonomous Vehicles Impact Congestion?



We use our cars 5% of the time and at 25% utilization

How Can AV Pricing Policy Reduce Congestion?

If we want to support growth...

- We have wasted capacity (lots of empty seats)
- We need to use existing capacity more efficiently
- Pricing to incent higher vehicle occupancy can move more people and more goods

Efficient use of urban space



The amount of space required to transport the 60 persons by different modes

How can Autonomous Vehicles help parking demand?



**Parking is a major land use that competes with other uses
and makes development more expensive**

How can Autonomous Vehicles lower transportation cost?

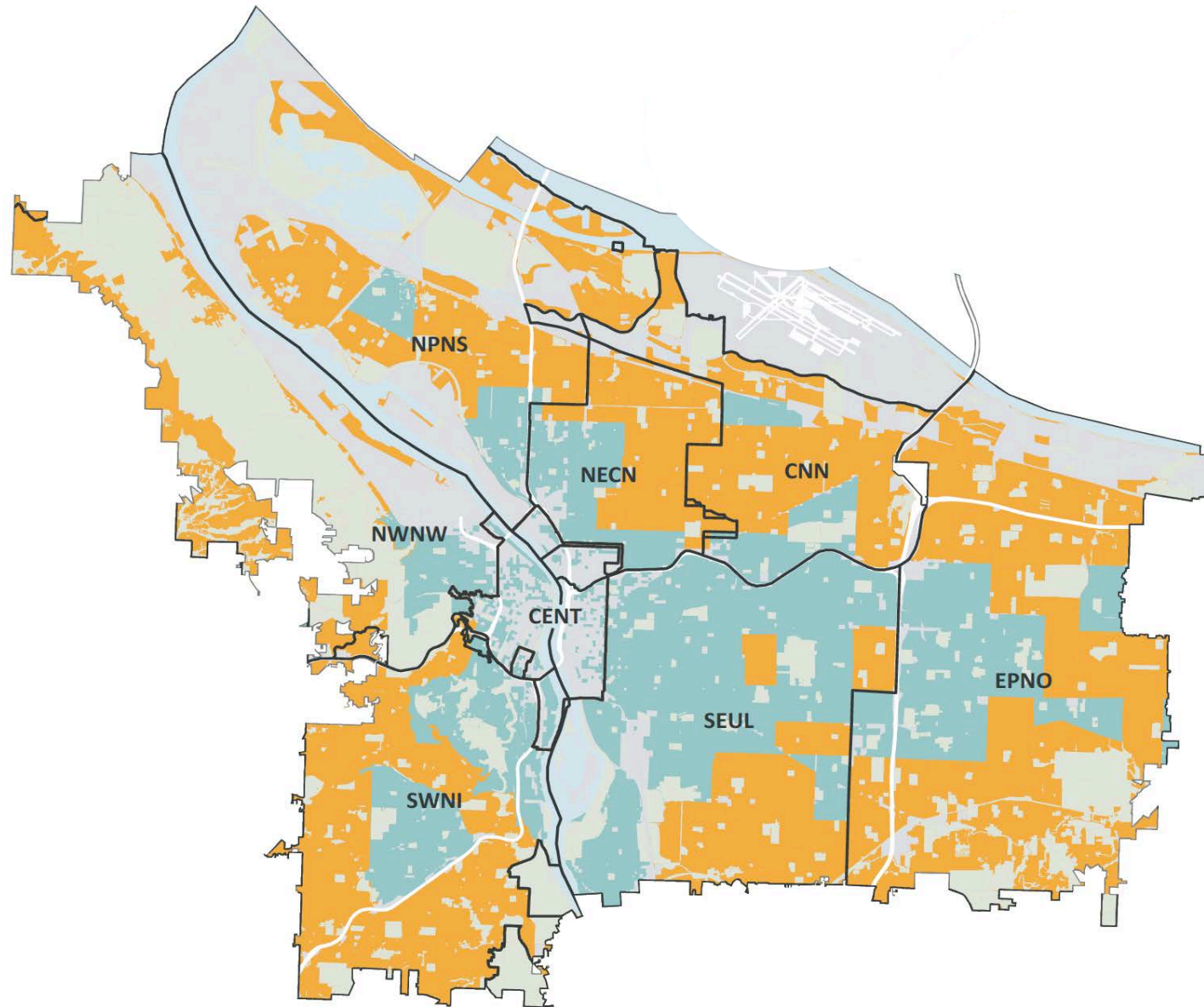
Average transportation costs as a percentage of household income

regional average of 19%

above
below

Sources: Center for Neighborhood Technology H+T Index;
Portland Bureau of Transportation 10-22-2015

Average transportation cost is calculated as a percentage of regional typical household, which assumes a household median income, the average household size, and the average commuters per household for the region.



How can Autonomous Vehicles help create great places?



EQUITY

JOB
ACCESS

HEALTH

ACCESS

SAFETY

CLIMATE

The Potential Promise of AV's

- **Safer streets** as AV's "see" and stop for red lights, pedestrians, bicyclists, other vehicles
- **Reduced congestion** as fleet AV's carry more people, complement rail transit system, and require less following space on roads
- **Less climate pollution** with fewer crashes, smoother braking & acceleration, more occupants per vehicle
- **Reduced cost of freight movement** with driverless trucks, automated delivery, and closer following distances reducing fuel costs



The Potential Peril of AV's

Crashes: Current technology recognizes vehicles better than pedestrians or human drivers = VZ Risk

Increased congestion: Driving time becomes more attractive. "Empty miles" from zero and low occupancy trips without a "time penalty"

Health and Climate: significantly more vehicle miles travelled. Adverse health impacts: pollution/inactivity

Equity: Benefits accrue to wealthy. Transit ridership drops; service cuts.

Funding: parking and fuel tax revenue drop; smart city investments increase system costs.

Jobs: significant loss of truck driver and delivery jobs requiring extensive retraining.

"Uber's Self-Driving Systems Missed Six Red Lights in SF"



Traffic



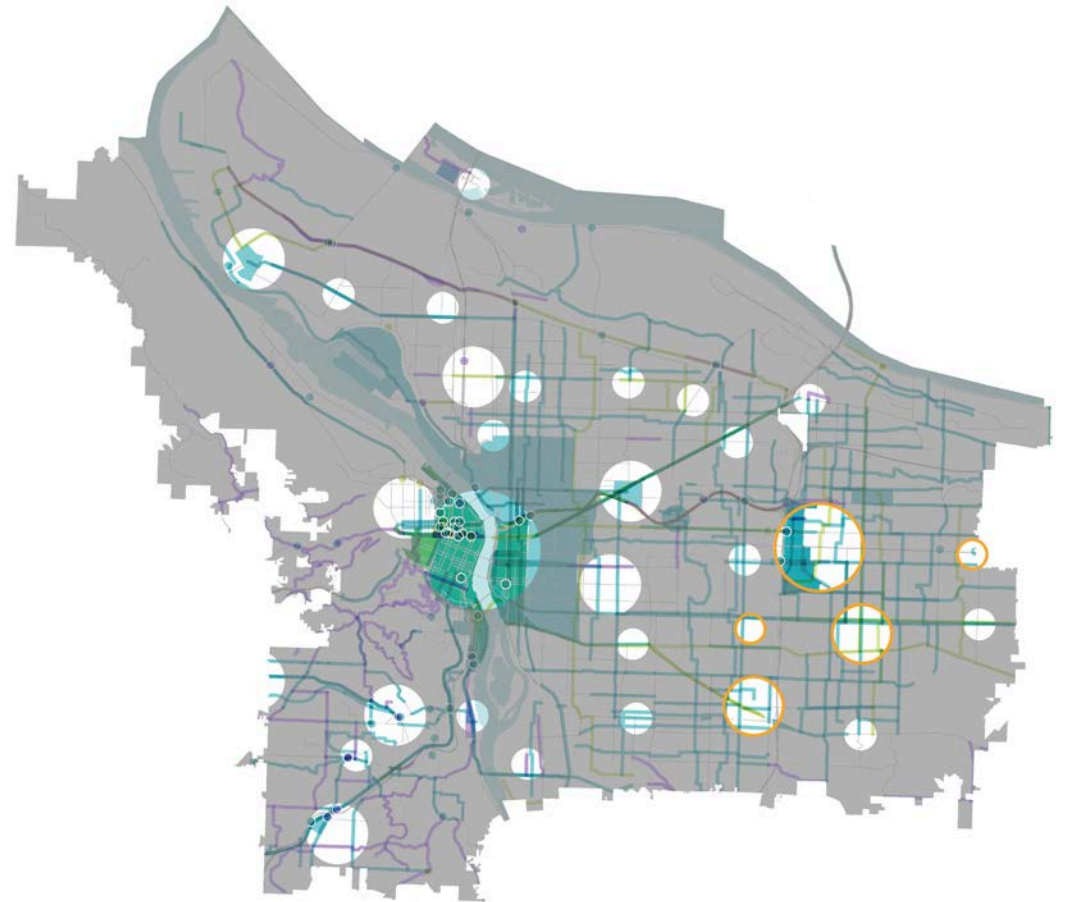
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What will determine the outcome?

SAVI Deliverable #1: Draft policy focuses on outcomes to create a great city

- AV's should advance the outcomes/goals adopted by City Council in Comprehensive Plan
- Vision Zero = Safer Streets
- Equity: ensure benefits accrue to disadvantaged people without increased burden
- Congestion & Climate: use price signals to reduce inefficient use/"empty miles"
- Prioritize FAVES: Fleet Autonomous Vehicles that are Electric & Shared



What will determine the outcome?

SAVI Deliverables

- Policy: Planning & Sustainability Commission TSP hearing September 26
- Request for Information: posted June 9
- Administrative Rule: posting for comment
- Public Engagement: moving forward



What will determine the outcome?

SAVI Deliverables: Equitable Pilot Project Examples

- First mile/last mile integration with transit
- Late night/early morning service to extend transit availability
- Pick-up/drop-off zones for multi-passenger, electric, AV's
- Mobile delivery services providing fresh foods to underserved neighborhoods
- Data collection systems to improve safety and planning.



Community & Council Engagement

