Emerging Transportation Technology in Oregon

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Oregon Department of Transportation
ODOT Office of Innovation Priorities

- Automated vehicles
- Electric vehicles
- Connected vehicles

- Road Usage Charge
- Public-private partnerships
Automated Vehicle Task Force
## Task Force on Autonomous Vehicles Membership

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Affiliation</th>
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<tr>
<td>Chair</td>
<td>Lt. Timothy Tannenbaum</td>
<td>(Washington County Sheriff’s Office), Law enforcement</td>
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<td>Task Force on Autonomous Vehicles Membership</td>
<td>Daniel Fernández</td>
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<td>Chris Hagerbaumer</td>
<td>(Oregon Environmental Council), Nonprofit organization</td>
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<td>Rep. Susan McLain</td>
<td>(D), Oregon State House</td>
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<td>Rep. Denyc Boles</td>
<td>(R), Oregon State House</td>
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<td>Sen. Sara Gelser</td>
<td>(D), Oregon State Senate</td>
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<td>Sen. Fred Girod</td>
<td>(R), Oregon State Senate</td>
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<td>Richard Blackwell</td>
<td>, Department of Consumer and Business Services</td>
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<td>Marie Dodds</td>
<td>, American Automobile Association</td>
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<td>Eric Hesse</td>
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<td>Cheryl Hiemstra</td>
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<td>Neil Jackson</td>
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<td>Jana Jarvis</td>
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<td>Carla MacLaren</td>
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<td>Mark MacPherson</td>
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<td>Galen McGill</td>
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<td>David McMorries</td>
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<td>Robert Nash</td>
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<td>Eliot Rose</td>
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<td>Jeremiah Ross</td>
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<td>Becky Steckler</td>
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<td>Sean Waters</td>
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<td>Caleb Weaver</td>
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Task Force recommendations
Requirements for AV testing permit

- ID for vehicles and test drivers
- Safety requirement certification
- Information about prior testing
- Law enforcement interaction plan
- Proof of insurance
- Certification vehicle meets cybersecurity standards
Second Round Subcommittees
At its Dec. 4 meeting, the Task Force voted to form six subcommittees

- Land Use
- Road & Infrastructure Design
- Public Transit
- Workforce Changes
- Cybersecurity & Privacy
- Vehicle Code & Public Safety
Public Opinion Research
Most people in Oregon know little or nothing at all about automated vehicles; this is similar to the rest of the nation.

**Oregonians**
- 64% Know little to nothing

**Americans**
- 60% Know little to nothing

*Source: Kelley Blue Book, 2016*
Oregonians may be more hesitant about riding in AVs when compared to national results

Very comfortable/Would definitely consider:

- In areas with few vehicles: 26% (Oregonians) vs. 39% (Americans)
- In lower speed areas: 23% (Oregonians) vs. 31% (Americans)
- In higher speed areas: 10% (Oregonians) vs. 17% (Americans)

Source: Bloomberg Statefarm, 2016
People who have used automated features are significantly more comfortable with AVs in several situations.

- Comfortable with AVs in low speed areas: No experience with automated features: 54%, Experience with automated features: 65%
- Riding in AVs in low speed areas: No experience with automated features: 49%, Experience with automated features: 59%
- Riding in AVs with other passengers: No experience with automated features: 42%, Experience with automated features: 49%
- Riding in AVs for most trips: No experience with automated features: 34%, Experience with automated features: 46%
Men are significantly more comfortable with AVs than are women.

- Riding in AVs in low speed areas: Women 49%, Men 59%
- Riding in AVs for most trips: Women 34%, Men 46%
- Comfortable with AVs in busy downtown areas: Women 22%, Men 39%
- Comfortable with AVs in higher speed areas: Women 28%, Men 38%
- Riding in AVs in high speed areas: Women 24%, Men 37%
A majority support pilot projects of driverless low-speed shuttles and taxis within designated areas.

### Pilot projects on designated routes

- **Strongly Support**: 29%
- **Somewhat Support**: 36%
- **Support**: 65%
- **Oppose**: 20%
- **Somewhat Oppose**: 13%
- **Oppose**: 33%
- **Don't know**: 2%

### Pilot fleet of driverless taxis

- **Strongly Support**: 25%
- **Somewhat Support**: 32%
- **Support**: 57%
- **Oppose**: 26%
- **Somewhat Oppose**: 14%
- **Oppose**: 40%
- **Don't know**: 3%
Key takeaways

• Few Oregonians have experience with automated features or know much about automated vehicles (AVs) — this leads to higher skepticism and negative attitudes

• Attitudes about AVs are mixed with skepticism, safety concerns, an understanding about benefits, and some openness

• Experience + knowledge = comfort with AVs and widespread use = comfort with AVs

• Link to full report
Emerging Technologies Impact Assessment Overview
Incorporating emerging technologies into long-range planning
Emerging technology trends

- Connected Vehicles
- Automated Vehicles
- Electric Vehicles
- Microtransit
- TNCs
- Car Share
- Bike & Scooter Share
- Mobility as a Service
- Freight and Delivery
Policy implications

Safety

Efficient freight movement

Equity

Mobility

Transportation options

Fuel efficiency/reducing CO₂

Transportation funding sufficiency

Land use
Example: Potential impacts on congestion

Positive

- Widespread adoption of AVs & CVs
- Coordinated & predictable behavior
- Fewer crashes lead to fewer delays
- Ridesharing and shared mobility

Negative

- AVs increase zero-occupancy trips
- Lower opportunity costs and per-mile cost of travel lead people to take more trips
- Frequent pick-up and drop-off
Example: Possible policy interventions to decrease congestion

• Increase access to real-time traveler information
• Invest in vehicle-to-infrastructure technology
• Use CV technology to improve incident response times
• Consider pricing strategies
• Prioritize high-occupancy vehicles
• Change development review tools for issues such as curb space management
Next steps

• Research additional topics

• Continue outreach to local jurisdictions and state agencies

• Define a range of alternative futures/planning scenarios to model

• Initiate public involvement process for OTP and OHP updates

• Form advisory groups for OTP and OHP updates
Why we need a road usage charge

- Unsustainable fuel tax revenues due to more efficient vehicles
- Increasing construction costs
- Same pavement degradation profile for passenger vehicles
- Registration (flat fee) pays for access
- Road use charges pay for actual usage
Road Usage Charge as a possible local funding option

Static, variable rates

Layered options

Corridor options
Automated Vehicles and Road Usage Charging
Many AVs will be electric
Automated TNCs likely to have high VMT
50,000 approximate VMT for TNC vehicle

$770 approximate Oregon fuels tax for the average gasoline taxi

$110 annual registration fee for EVs in Oregon beginning 2022
Current funding mechanisms will not price electric AVs for use of roadway

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<td><strong>Gas tax</strong></td>
<td>• Scales with VMT, providing some link between road use and funding</td>
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<tr>
<td><strong>Registration fee</strong></td>
<td>• Flat fee, does not scale with VMT</td>
</tr>
<tr>
<td><strong>Road Usage Charge</strong></td>
<td>• Scales with VMT and could be used to fairly price high-mileage AVs</td>
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Questions?