Today’s Agenda

- Emerging Technologies
- Plan Scenarios
DSRC vs Cellular

Source: Auto Talks
C-V2X
5G network slicing

5G network slicing enables service providers to build virtual end-to-end networks tailored to application requirements.

- Mobile broadband
- Machine-to-machine
- Reliable low latency
- Others

IoT: Internet of things

- Mobile broadband slice
- Massive IoT slice
- Mission critical IoT slice
- Other slices

Applications:
- Communication
- Entertainment
- Internet
- Retail
- Shipping
- Manufacturing
- Automotive
- Medical
- Infrastructure
- Other applications
Adaptive Traffic Signals

1. V2I Communications: BSM + Environmental Data
2. Develop Eco-Timing Plans
3. Send Eco-Timing Plans/Information to Traffic Signal Controller

Source: USDOT, 2014
Plan Scenarios

Key Variables that will impact future surface transportation:
- Proportion of fully autonomous vehicles in the traffic stream
- Amount of ridesharing
- Trip Generation
<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>Scenario Description</th>
<th>AV (%)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2020 Base</td>
<td>Existing System</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>2050 E+C</td>
<td>Include existing plus TIP</td>
<td>0%</td>
</tr>
<tr>
<td>3</td>
<td>2050 A</td>
<td>Ridesharing decreases</td>
<td>70%</td>
</tr>
<tr>
<td>4</td>
<td>2050 B</td>
<td>Ridesharing increases</td>
<td>70%</td>
</tr>
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*Additional intermediate years 2030 and 2040 will be evaluated for AQ conformity*
Potential Changes in Investment Mix

Traditional Projects
Multimodal Capacity (road, transit, bike, ped, freight)
Maintenance

Transportation System Management and Operations (TSMO)
New system and corridor approaches to optimizing mobility
• Active Traffic Demand Management enabled by traditional technologies and emerging technologies
• Hard shoulder running, variable speed limits, ramp metering, V2X technologies enabled by DSRC and 5G and autonomous vehicles
• Adaptive traffic signals with detection, preemption, etc.
• Infrastructure to support CAVs.
Thank you
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