Project Purpose: Regional Context
Used multiple data sources to understand the corridor performance:

- Traditional counts
- HERE Data
- StreetLight Data
Increasing congestion on the freeway

Three-year trend in travel speed

Source: HERE data (ODOT iPeMS)
What did we find out from 3-day data collection?

- **Demand:** consistent traffic volumes
- **Operation:** significant variation in travel speed on freeway
High traffic volumes during PM peak hour

Metered on ramp

HCM analysis indicates
- Overall congestion in the area
- May not reflect observed lane utilization*
Southbound auxiliary lane options over the Boone Bridge
StreetLight Data

- GPS-based services
- Mobile device and GPS data from 23% of US and Canadian adults
- 12% of commercial truck trips
Understanding the Travel Pattern

Using StreetLight Data to Understand OD
Understanding the Travel Pattern

Data Validation
Does the overall trip distribution match traffic counts?

Analysis Volumes for Alternatives
Post-processed with StreetLight
How do the alternatives perform? **HCM Freeway Analysis**

<table>
<thead>
<tr>
<th>Performance measures (2040 PM peak hour)</th>
<th>Baseline (No Build)</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worst speed observed</td>
<td>22 mph</td>
<td>45 mph</td>
<td>44 mph</td>
<td>52 mph</td>
</tr>
<tr>
<td>Performance compared to state benchmark (maximum v/c ratio of 0.99)</td>
<td>1.09</td>
<td>0.95</td>
<td>0.89</td>
<td>0.88</td>
</tr>
<tr>
<td>Number of vehicles per lane per mile</td>
<td>79.3</td>
<td>40.2</td>
<td>36.7</td>
<td>35.0</td>
</tr>
<tr>
<td>Worst level of service observed (A is great, F is terrible)</td>
<td>F</td>
<td>E</td>
<td>E</td>
<td>D</td>
</tr>
</tbody>
</table>
Recommended Solution

Alternative C

- Longer ramp-to-ramp lane
- An option lane at the second ramp exit.
- Mobile device and GPS data from 23% of US and Canadian adults
- 12% of commercial truck trips
Use of Big Data
- Can you handle the truth?

Limitations of HCM analysis
- Static demand does not reflect variability
- Lane imbalance

Questions?
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