Introduction

• Partnering Agency
• Lincoln City, OR

INTELIGHT
Introduction

• Why Lincoln City as a Test Location…
  • High Variable Traffic Volumes
Introduction

• Why Lincoln City as a Test Location…
  • High Variable Traffic Volumes
    • summer tourist season
    • hosting large annual events
    • proximity to a number beaches
Introduction

• Why Lincoln City as a Test Location…
  • High Variable Traffic Volumes
    • summer tourist season
    • hosting large annual events
    • proximity to a number beaches
  • Recently Updated Timing Plans
MAXTIME adaptive

- What is it?
- How does it harness the ATC?
- ASPM’s. 1/10th second data you ask?
MAXTIME adaptive

- Locally Distributed
- Cycle, Offset, and Split Tuner
- Refined Algorithm Based on Proven Research
- Detection Requirements
MAXTIME adaptive API
MAXTIME\textsuperscript{adaptive} Cycle/Offset via Link-Pivot

• Uses Link-Pivot to adjust offsets and optimize capture
How did we evaluate the system?
Saturday Daily Volume Comparison

Week 1 (Adaptive): Northbound 16,955, Southbound 15,424
Week 3 (Adaptive): Northbound 17,302, Southbound 15,909
Week 4 (Non-Adaptive): Northbound 17,351, Southbound 16,209
ROUTE - 22nd to East Devils

Trip Distance (m): 1,762
Expected Travel Time(s): 277 (4:27)
Number of Trips: 3,580
Mean/Median Speed (mph): 25.8 / 26.7
Mean/Median Travel Time(s): 245.5 (4:05) / 227.8 (3:27)
Standard Deviation: 78.1
10th Percentile Travel Time(s): 193 (3:33)
50th Percentile Travel Time(s): 294 (4:24)
90th Percentile Travel Time(s): 317 (5:17)

NOTE: You can click and drag to select a portion of the chart to view in detail. Click Reset Chart to display the original chart.

Observed Travel Times (s) from 22nd to East Devils

<table>
<thead>
<tr>
<th>Total Trips</th>
<th>Mean (s)</th>
<th>Median (s)</th>
<th>Std. Deviation (s)</th>
<th>15th Percentile (s)</th>
<th>50th Percentile (s)</th>
<th>85th Percentile (s)</th>
<th>95th Percentile (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,242</td>
<td>243.9</td>
<td>222</td>
<td>66.1</td>
<td>189.5 (3:29)</td>
<td>295.5 (4:59)</td>
<td>351 (3:31)</td>
<td></td>
</tr>
</tbody>
</table>

Travel Time: 448s

Time: 7/12/2015 2:00 PM
Trips: 338 trips
Average Saturday Volumes
What are the performance metrics?
Past ODOT Adaptive Evaluations

- Volumes
- Corridor Average Travel Time
- Corridor Travel Time Reliability
- Movement Delay
- Number of Phase Failures
- % Arrival on Green
- Cycle Length
Past ODOT Adaptive Evaluations

- Volumes [manual counts]
- Corridor Average Travel Time [Bluetooth]
- Corridor Travel Time Reliability [Bluetooth]
- Movement Delay [manual video reduction]
- Number of Phase Failures [controller logs]
- % Arrival on Green [manual video reduction]
- Cycle Length [controller logs]
Lincoln City Adaptive Evaluation

- Volumes
- Corridor Average Travel Time
- Corridor Travel Time Reliability
- Movement Delay
- Number of Phase Failures
- % Arrival on Green
- Cycle Length

[UDOT SPM software]
[Bluetooth]
[Bluetooth]
[UDOT SPM software]
[controller logs]
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What did we learn?
Improvement in average travel time....
...by prioritizing the mainline travel time

<table>
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<tr>
<th>Movement</th>
<th>Non-Adaptive</th>
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<th>Adaptive</th>
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<td></td>
<td>Avg Split</td>
<td>% Force-Off</td>
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<tr>
<td></td>
<td>(sec)</td>
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<tr>
<td>Northbound Left</td>
<td>12.5</td>
<td>3%</td>
<td>11.6</td>
<td>2%</td>
<td>-0.9</td>
<td>(-8%)</td>
<td>-1%</td>
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<tr>
<td>Southbound Thru-Right</td>
<td>70.0</td>
<td>99%</td>
<td>74.5</td>
<td>99%</td>
<td>+4.5</td>
<td>(+6%)</td>
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<td>37.3</td>
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<td>32.2</td>
<td>38%</td>
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E Devil's Lake Road & US 101
...by prioritizing the mainline travel time

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Detection, Detection, Detection!

- Counter-intuitive results:
  - Average improvement in travel time
  - Average -3% to +3% change in arrival on green
Detection, Detection, Detection!

• Counter-intuitive results:
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  • Average -3% to +3% change in arrival on green

• Vehicles were queueing beyond advance detector in both TOD and MAXTIME adaptive scenarios
• Discharged vehicles were being registered as arrival on greens
Detection, Detection, Detection!

- Counter-intuitive results:
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- Vehicles were queueing beyond advance detector in both TOD and MAXTIMEAdaptive scenarios
- Discharged vehicles were being registered as arrival on greens

- Lesson: system is only as good as your detectors
Cycle Length Optimization

Monday, July 18 (A)
Monday, July 25 (N-A)
Questions?
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Lee Hansen
Lee.Hansen@Intelight-its.com
(509) 607-1710

Yi-Min Ha
yha@kittelson.com
(503) 535-7465