Agenda

1. Background

2. Carson Corridor

3. Marietta Performance Monitoring
What is big data?

- Location
- Speed
- Heading

Couple of minutes
What is big data?

19 mph
Segment 1

44 mph
Segment 2

63 mph
Segment 3

@ 7:14 AM

19 mph
44 mph
63 mph

Segment 1
Segment 2
Segment 3
How does big data help?

• **Greater accuracy**
  – Current approaches not statistically sound
  – (More vehicles) X (More times) X (More days)

• **Reduced costs**
  – Travel time runs are expensive
  – Probe data is cheaper
INRIX validation

2012 Freeways

2012 Arterials
### MAP-21 Implementation Schedule

<table>
<thead>
<tr>
<th>Area</th>
<th>#</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>Planning</td>
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<td>Q1</td>
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<tr>
<td>Safety</td>
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<tr>
<td>Conditions</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Congestion</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>Transit</td>
<td>3</td>
<td></td>
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</tbody>
</table>

- **Draft Rules**
- **Rule Making Finalized**
- **Measure Implementation**
## System Performance / Congestion

<table>
<thead>
<tr>
<th></th>
<th><strong>Delay</strong></th>
<th><strong>Reliability</strong></th>
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<tbody>
<tr>
<td><strong>Units</strong></td>
<td>vehicle hours</td>
<td>percentile</td>
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<tr>
<td><strong>Coverage</strong></td>
<td>National Highway System</td>
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<tr>
<td><strong>Required Data</strong></td>
<td>1. Segment volumes</td>
<td>1. Segment travel times</td>
</tr>
<tr>
<td></td>
<td>2. Segment speeds</td>
<td></td>
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<tr>
<td><strong>Segments</strong></td>
<td>Agency defined</td>
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<tr>
<td><strong>Targets</strong></td>
<td>Agency defined</td>
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</tbody>
</table>
Agenda

1. Background
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Carson Boulevard

Eight intersections
1.8 miles
Retiming & coordinating
- 6:00 AM to 9:00 AM
- 9:00 AM to 3:00 PM
- 3:00 PM to 6:00 PM
Innovation for better mobility

Carson Boulevard

- Applying big data analytics to signal re-timing
  (Continuous high resolution measured data)

- Performance Measures
  - Control/Intersection Delay
  - Travel time
  - % arrival on green

[Diagram of a traffic intersection with indicators for Arrival, Mid-Block, and Departure, showing through route.]
Control Delay

• Results
  – 2-32% reduction in control delay on Carson approaches
  – Side streets incurred more delay
Total Delay & Queue Lengths

- Weekday Average
- Eastbound Carson
Total Delay & Queue Lengths

- 95\textsuperscript{th} Percentile
- Eastbound Carson
Travel Time

- Measured using Mid Block Detectors and control delay
% Arrivals on Green

PM: Vehicle Arrivals before Coordination

45% arrivals on green

PM: Vehicle Arrivals after Coordination

60% arrivals on green
Innovation for better mobility

60% arrivals on green

Vehicle Arrivals during Cycle, 5:00 PM to 6:00 PM

Probability of Green vs. Vehicle arrivals

60% arrivals on green
Agenda

1. Background

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City of Marietta
Intersection Data Aggregator

Auxiliary Information

- VOLTAGES
- BATTERY BACK UP SYSTEM STATUS
- TEMPERATURES

Performance Measures

- DETECTION (COUNTS)
- PED ACTIVATIONS
- SIGNAL INDICATIONS (PHASE COLORS / FLASH / CONFLICTS)

Parsed Data/Management Tool

Wifi/Ethernet/cellular

Website

http://abound.iteris.com

Today's Timeline
Real-time Intersection Monitoring
Real-time Intersection Monitoring
Real-time Intersection Monitoring

Percent Arrival on Green

Phase Intervals
Questions?

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