UCI EAST PELTASON
INTERSECTION STUDY
Institute of Transportation Engineers
University of California, Irvine
Overview

- Coordination with UCI Transportation
- Data Collection
- Existing network Constraints and Parameters
- Signal Timing & Phasing Analysis
- Coordination analysis
- Recommendations and Implementation
UCI Traffic Problems

- Long queues in peak hours
- Two-lane roads in high volume areas
- High pedestrian movements
- Frequent need for Traffic Directors
UCI Parking and Transportation

- Discussed problems at UCI
- Decided on analyzing intersections:
  - East Peltason & Campus (City)
  - East Peltason & Pereira
  - East Peltason & Anteater
  - East Peltason & Los Trancos (Stop)
  - East Peltason & Bison
Goals

• Obtain accurate data
• Analyze signal timing and phasing with Synchro & SimTraffic V7
• Explore coordination alternatives
  – Decrease overall delay
  – Minimize Stops
  – Minimize emissions
Data Collection

- Jamar counters

- AM hours 7:30am-8:30am
- PM hours 5:00pm-6:00pm

- Data collected
  - Turning Volumes
  - Pedestrian Counts
  - Pedestrian Calls
### Existing conditions Analysis

- Data obtained using Synchro & SimTraffic

<table>
<thead>
<tr>
<th>Location</th>
<th>Synchro</th>
<th>SimTraffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bison / E. Peltason</td>
<td>F</td>
<td>73.7</td>
</tr>
<tr>
<td>Los Trancos / E. Peltason</td>
<td>F</td>
<td>27.5</td>
</tr>
<tr>
<td>Anteater / E. Peltason</td>
<td>C</td>
<td>16.4</td>
</tr>
<tr>
<td>Pereira / E. Peltason</td>
<td>C</td>
<td>31</td>
</tr>
</tbody>
</table>

- LOS: Level of Service
- Delay/Veh (s): Delay per Vehicle in seconds
- Stops/Veh: Number of Stops per Vehicle
Constraints and Parameters

- No geometry improvements
- Campus/ E. Peltason controlled by the City of Irvine
- Existing Timing Parameters
- Flashing Don’t Walk time for Pedestrian Clearance
  - Measured Cross walk Lengths
  - Assume pedestrian speed of 4 ft/s
Signal Timing & Phasing

Intersection splits are optimized using Synchro

Existing Timing
Cycle Length: 140s

Optimized Timing
Cycle Length: 150s
Existing Bison Intersection
Signal Timing and Phasing

- Phasing alternatives analyzed
- Maximum split check to ensure volumes are being served.

Existing Anteater and East Peltason Cycle Length: 140s

Optimized Anteater and East Peltason Cycle Length: 85s
Los Trancos is still unsignalized

Intersections to coordinate are
- East Peltason & Campus
- East Peltason & Pereira
- East Peltason & Anteater
Signal Coordination

Existing

Campus
Pereira
Anteater

Campus not Coordinated

Coordinated Intersections

- Pereira/E Peltason
- Anteater/E Peltason
  - Cycle Length = 85
  - Reference phase 2 and 6
  - End of yellow

*Campus should be coordinated
Signal Coordination

Campus not coordinated

Campus/E Peltason
- Cycle Length = 120

Pereira/E Peltason

Anteater/E Peltason
- Cycle Length = 85

Campus coordinated

Campus/E Peltason

Pereira/E Peltason

Anteater/E Peltason
- Cycle Length = 120
- Better for Ped Clearance
# Summary of Results

## Measures of Effectiveness

<table>
<thead>
<tr>
<th></th>
<th>SimTraffic</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Delay (hour)</td>
<td>Total Stops</td>
</tr>
<tr>
<td>Existing</td>
<td></td>
<td>15</td>
<td>1370</td>
</tr>
<tr>
<td>Coordinated</td>
<td></td>
<td>13.7</td>
<td>1308</td>
</tr>
<tr>
<td>Coordinated with Campus</td>
<td></td>
<td>12.7</td>
<td>1164</td>
</tr>
</tbody>
</table>

## Level of Service

<table>
<thead>
<tr>
<th></th>
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<th>Optimized</th>
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Recommendations and Implementation

- Coordination with UCI Parking and Transportation to test Timing sheets
- Longer Flashing Don’t Walks for Pedestrians
- After study is conducted by ITE students