Metro Nashville
Traffic Signal Timing Optimization

ITSTN
September 29, 2011
Project Overview

- American Recovery and Reinvestment Act
- Traffic Signal Timing and Phasing Policy
- Signal timing plans
  - 8 Networks
  - Over 300 traffic signal intersections
- Data collection
- Modeling – SYNCHRO
- Field implementation
- Before and after studies
Yellow, All-Red, & FDW Updates

- New ITE recommendations for yellow and all-red
- New MUTCD rules for flashing don’t walk times
  - New 3.5 feet per second speed
  - Alternate calculation for handicapped
- Increased times make improved MOEs a challenge
- Generally forced cycle lengths higher
Team

- Atkins
- R.G. Phillips Consulting
- Booker Engineering
- All Traffic Data Services
- Gerry de Camp
Networks

- Group 1 – Gallatin Pike
- Group 2 – Nolensville Pike/Harding Place
- Group 3 – Murfreesboro Pike
- Group 4 – Bell Road/Hickory Hollow Parkway
- Group 5 – 21st Avenue South/Hillsboro Pike
- Group 6 – West End Avenue/Harding Road
- Group 7 – Lebanon Pike/Old Hickory Boulevard/Donelson Pike
- Group 8 – Charlotte Pike/White Bridge Road
21st Avenue South/Hillsboro Pike

- Atkins – 30 Signals
West End Avenue/Harding Road

- Atkins – 38 Signals
<table>
<thead>
<tr>
<th><strong>Data Collection</strong></th>
<th><strong>Notes/Direction</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lane Settings</strong></td>
<td>Street Name</td>
</tr>
<tr>
<td></td>
<td>Speed Limits (mph)</td>
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<tr>
<td></td>
<td>Lane Assignments</td>
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<tr>
<td></td>
<td>Lane Widths (ft)</td>
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<tr>
<td></td>
<td>Distance from Ped Push button to curb</td>
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<tr>
<td></td>
<td>Approach Grade (%)</td>
</tr>
<tr>
<td></td>
<td>Storage Bay Length</td>
</tr>
<tr>
<td></td>
<td>Right Turn on Red</td>
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<tr>
<td><strong>Volume Settings</strong></td>
<td>Adjacent Bus Stops</td>
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<tr>
<td></td>
<td>Adjacent Parking</td>
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<tr>
<td><strong>Timing/Phasing Settings</strong></td>
<td>Signal Heads</td>
</tr>
<tr>
<td></td>
<td>Vehicle Detection</td>
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<tr>
<td></td>
<td>Pedestrian Heads</td>
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<tr>
<td></td>
<td>Pedestrian Push Buttons</td>
</tr>
<tr>
<td><strong>Miscellaneous Information</strong></td>
<td>Signing/Restrictions/School Zone</td>
</tr>
</tbody>
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Field Implementation

- Teams of 2 to 6
  - Implemented zones with smaller teams
  - Implemented networks with larger teams

- Ranged the areas around Vanderbilt on bikes

- Fine-tuned in the field
Field Implementation

- Not too many blow ups
Thank you!
Questions?