TMC Mobility Study

Steering Committee Meeting
March 25th, 2014
Introductions
Agenda

- Introductions

- Review of Items Already Completed
  - Identification of Existing Deficiencies
  - Discussion of Short Term Improvements
  - Fannin Street Analysis

- Current Tasks
  - Future Year Traffic Volume Growth Projections
  - Future Year Street Network Analysis
  - Identification of Improvements

- List of Projects with Handouts
  - Roadway
  - Parking
  - Handouts Only – Ped/Bike & Transit

- Status of On-Going Work
  - Alternative Analysis
  - Roadway Functional Classification Update
  - Final Report

- Updated Schedule

TMC MOBILITY STUDY
STEERING COMMITTEE MEETING
MARCH 25, 2014
Improvement Alternatives

- Estimated Future Demand
- Identified Deficiencies
- Used Stakeholder Input
- Iterative Process
Existing Conditions
Future Year Traffic Volumes

- H-GAC Travel Demand Model Results
- Updated Model with smaller Zones and more local streets
- Refined Demographic Data
- Planned and Committed Projects Included
Future Year No-Build Street Network Analysis

• FY No-Build Scenario without any Study Recommended Projects

• Traffic Operational Analysis using Synchro

• Network Fails

Texas Medical Center
The Campus connections list was composed by merging such recommendations from all previous TMC studies and plans.
Short-term Improvements

- **Holcombe @ Fannin**
  - Turn-bays NBU, NBL, WBL, EBL, SBL
- **Holcombe @ Main**
  - Turn-bays NBR, EBR, WBR, NBL
- **Holcombe @ Almeda**
  - Turn-bay EBL
  - Protected Phase E/W
- **Fannin at Pressler**
  - Turn-bays EBL, WBL Bay & Signal Timing Improvements (LRT)
- **Main @ Cambridge**
  - Turn-bays NBR, SBR, WBR
  - WBR changed from Thru and Thru/Right to Thru/Left and Thru
- **Almeda @ OST**
  - Turn-bays EBR, NBL dual bay
- **288 NBFR @ OST**
  - WBR bay 150’
  - NBL dual bay 150’
- **288 NBFR @ Holcombe**
  - Turn-bays NBL dual
  - NBT Thru and Thru/Right
- **Corridor Signal Timing Optimization**

Estimated Cost – $12M
Short-term Improvements
Conversion of University/Dryden to One-way Pair

- Local Circulation
- Estimated Cost - $1M
Mid-term Improvements

- **Cambridge at East Drive**
  - Possible Signalization
  - Turn Bays – NBL, SBU, EBR dual
- **OST at Fannin**
  - Exclusive Right Turn Bays – NB, SB, EB, WB
- **OST at Bertner**
  - Dual Turn Bays SBL, EBL
  - Dual SBR Turn Bays, WBR Turn Bay
- **OST at Cambridge**
  - Provide additional exclusive right and left turn-lanes
- **OST at Almeda**
  - Turn Bays – WBL dual, SBR, NBR, EBR
- **Cambridge at Holcombe**
  - Turn Bays – WBL, EBL, EBR
- **Cambridge at Braeswood**
  - Turn Bays – WBR Dual
- **Almeda at Holcombe**
  - Turn Bays – NBL Dual, EBL Dual, EBR

Estimated Cost – $13M
# Long-term

<table>
<thead>
<tr>
<th>Location</th>
<th>Option</th>
<th>Details</th>
<th>Cost</th>
<th>Right-of-Way</th>
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<tbody>
<tr>
<td>East-West Access Improvements</td>
<td>Holcombe Blvd. - Option 1</td>
<td>Holcombe Blvd. - Grade Separated Express Lanes</td>
<td>$120 Million</td>
<td>RoW cost to be determined</td>
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<td></td>
<td>Holcombe Blvd. - Option 2</td>
<td>Holcombe Blvd. - Transit Center Option</td>
<td>$24 Million</td>
<td>RoW cost to be determined</td>
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<td>Old Spanish Trail - Option 1</td>
<td>Old Spanish Trail - Grade Separated Express Lanes</td>
<td>$85 Million</td>
<td>RoW cost to be determined</td>
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<tr>
<td>North-South Access Improvements</td>
<td>Cambridge 6-Lane Option</td>
<td>Cambridge 6-Lane Option(Betn. Holcombe and Main)</td>
<td>$16 Million</td>
<td>RoW cost to be determined</td>
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<tr>
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<td>Almeda Road - Option 1</td>
<td>Almeda Road - Transportation Terminal</td>
<td>$12 Million</td>
<td>RoW Available</td>
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<td></td>
<td>Almeda Road - Option 2</td>
<td>Almeda Road - Direct Connector to Transportation Terminal</td>
<td>$30 Million</td>
<td>RoW Available</td>
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<td></td>
<td></td>
<td>Almeda Road - 8-Lane Option (Betn. IH 610 and N. MacGregor Way)</td>
<td>$45 Million</td>
<td>RoW Available</td>
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</table>
Long-term Improvements
Holcombe Boulevard Demand Requirement
Long-term Improvements
Holcombe Boulevard Option 1 – Grade Separation

Estimated Cost: $120 Million
Long-term Improvements
Holcombe Boulevard Option 2 – Holcombe Transportation Terminal

- 2000 Space Garage
- Local Intersection Improvements
- Estimated Cost - $30M
Long-term Improvements
Old Spanish Trail Demand Requirement
Long-term Improvements
Old Spanish Trail Option 1
Grade Separation at Critical Intersections

Estimated Cost: $ 85 Million
Long-term Improvements
Old Spanish Trail Option 2 – Grade Separation

Estimated Cost: $105 Million
Long-term Improvements
Almeda Road Option 1 – Eight Lane

Estimated Cost: $ 28 Million
Long-term Improvements
Almeda Road Option 2 – Almeda Transportation Terminal

- 1000 Space Garage
- Estimated Cost –
  - Direct Connector - $30M
  - Almeda Transportation Terminal - $15M

TMC MOBILITY STUDY
STEERING COMMITTEE MEETING
MARCH 25, 2014
Long-term Improvements
Cambridge Street Widened to Six Lanes

Estimated Cost: $16 Million
# Comparison of Alternatives

## Texas Medical Center Mobility Study

**Measures of Effectiveness - PM Peak Hour**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Travel Time (Minutes)</th>
<th>% Travel Time Savings (Minutes)</th>
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<tbody>
<tr>
<td></td>
<td>NB/EB</td>
<td>SB/WB</td>
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<tr>
<td>No-Build Holcombe</td>
<td>17.38</td>
<td>19.83</td>
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<tr>
<td>Holcombe Grade Separation</td>
<td>9.72</td>
<td>10.53</td>
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<td>Holcombe Demand Requirement (10 Lane)</td>
<td>8.76</td>
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<tr>
<td>No-Build OST</td>
<td>24.27</td>
<td>16.72</td>
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<td>OST Grade Separation</td>
<td>6.78</td>
<td>7.70</td>
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<td>OST Demand Requirement (10 Lane)</td>
<td>6.46</td>
<td>7.67</td>
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<tr>
<td>No-Build Cambridge</td>
<td>7.27</td>
<td>12.36</td>
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<tr>
<td>Cambridge 6 lanes (Main to Holcombe)</td>
<td>6.19</td>
<td>7.59</td>
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</table>

Holcombe from SH 288 to Main Street
OST from SH 288 to Fannin
## Estimated Costs Summary

### Short Term Improvements

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<thead>
<tr>
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<th>Details</th>
<th>Cost</th>
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<td>Core Area Intersection Improvements</td>
<td>Add Turn Bays</td>
<td>$12 Million</td>
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<tr>
<td>University/Dryden Conversion to One-way Pair</td>
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### Mid Term Improvements

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<td>Core Area Intersection Improvements</td>
<td>Add Turn Bays</td>
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### Long Term Improvements

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Details</th>
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<td>Option 1 - Grade Separated Express Lanes</td>
<td>$120 Million</td>
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<td>Option 2 - Holcombe Transportation Terminal</td>
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<td>$28 Million</td>
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Parking List of Projects

- 28M Square Feet New Development
- 50,400 Additional Parking Spaces Needed
Parking
List of Projects

• Parking Facilities Management
  • Incorporate ITS Solutions
    • Electronic Parking Guidance Signs
    • Display Space Availability
    • Improved Mobile App
  • Alternative Parking Payment Solutions
    • Parking Mobile App
    • EZTag for Payment
Fannin Street – List of Projects

- Fannin St. provides best accessibility to TMC Main Campus

- LRT relocation alternatives are all expensive

- Lower cost roadway and signal system options effective
  - Consider conversion of University/Dryden to one-way pair
  - Signal removal at Ross Sterling and Bellows
  - ADA accessibility improvements at intersections (Outlined in Ped/Bike list of projects)
Transit – List of Projects

- Re-align route 34 and improve headways.
- Re-route peak-direction route 292 service via Bellaire – Holcombe between US 59 and the Medical Center.
- Extend route 402 into the TMC main campus or to the VA Medical Center; consider combining routes 402 and 426.
- Retain the 26/27 routing as it is; modify route 426 to include service to VA Medical Center. Budget permitting, add midday service on route 426. Consider combining route 426 peak-period service with route 402.
- Campus Shuttles for connections to new remote parking/Transportation Facility.
- Commuter Rail Corridors – US 90A.
Pedestrian/ Bicycle List of Projects

- Handout for List and Cost
- Sidewalk & Shared Use Path Projects
- Intersection Accessibility Projects
- Signing & Striping Projects
- Potential Skywalk Connections
Committee Involvement

• Facilitate Data Collection - Complete
• Identify Issues and Needs - Complete
• Review of Goals and Objectives and Evaluation Framework - Complete
• Identify and Evaluate Alternatives - Today
• Review Draft Mobility Plan – Mid-April
Updated Schedule

- Second Stakeholder Meeting: April 1, 2014
- Draft TMC Mobility Plan: April 18, 2014
- Public Meeting: April 24, 2014
- Final Steering Comm. Meeting: May 10, 2014
- Final TMC Mobility Plan: May 31, 2014
Questions??
Thank You!