Community Advisory Group (CAG)

Meeting #4

May 22nd, 2012

McHenry County College
Shah Center

www.ILRoute31.com

McHenry County
Introductions

- Illinois Department of Transportation
- STV Incorporated & Sub-Consultants
- Community Advisory Group Members
  » Please refer to list provided in Binder.
  » Introduce yourself and state the community in which you live and/or which group and/or government agency you represent.
Meeting Agenda Overview & Housekeeping Items

- Meeting Agenda Overview
  - CAG Meeting #3 Overview
  - Review of Project Problem Statement & Purpose & Need
  - Review of Developed Range of Alternatives
  - Presentation of Alternatives Evaluation Findings
  - Workshop: Alternatives to Be Carried Forward Workshop

- CAG Meeting #4 Housekeeping
  - Meeting Duration
  - CAG Folder Handouts
Summary of CAG Meeting #3

- Reviewed Project Problem Statement
- Reviewed Project Purpose and Need
- Discuss Regional Development
- Introduce Key Findings from Previous Study and Design Alternatives
- Workshop: Alternatives to Be Carried Forward
  - Range of Alternatives Based on CAG and PSG Input
  - Please refer to the CAG Meeting #3 Summary documents in your binder
Project Process – Alternatives to be Carried Forward

1. Transportation Issues
   - Problem Statement
2. Purpose and Need
3. Identify Range of Alternatives
4. Alternatives Identified for Further Evaluation
5. Preferred Alternative

May 22, 2012
Review of Project Purpose & Need

- NEPA Approved P&N at March, 2012 Merger Meeting
- IL Route 31 Project – Purpose

  The purpose of the proposed project is to improve safety, address roadway capacity and mobility, correct existing geometric deficiencies and encourage multi-modal transportation along IL Route 31 from the intersection of IL Route 176 to the intersection of IL Route 120, in eastern McHenry County.

- IL Route 31 Project – Needs
  - Improve Roadway Safety
  - Expand Roadway Capacity and Address Traffic Issues
  - Correct Existing Roadway Design Deficiencies
  - Improve Opportunities for Multimodal Connectivity
Range of Alternatives – South Section

- South Section (IL Route 176 to Bull Valley Road)*
  - 6-lane with 30’ & 50’ Depressed Median and 10’ Outside Shoulders
  - 6-lane with 18’-22’ Raised Barrier Median
  - 4-lane with 18’-22’ Raised Barrier Median
  - 4-lane with 18’-22’ Raised Barrier Median and 10’ Outside Shoulders
  - 5-lane with Bi-directional TWLTL
  - 4-lane with 30’ Raised Barrier Median
  - 4-lane with 30’ Depressed Median and 10’ Outside Shoulders
  - No-Build Alternative

* All options include a shelf for off-street bicycle and pedestrian accommodations
Range of Alternatives – North Section

- North Section (Bull Valley Road to IL Route 120)
  - 4-lane with 6’-8’ Landscaped/Planter Median
  - 4-lane with 18’-22’ Raised Barrier Median
  - 4-lane with 30’ Raised Barrier Median
  - 5-lane with Bi-directional TWLTL
  - No-Build Alternative

* All options were investigated with on-street bike lanes, off-street multiuse paths, elimination of on-street parking (IL 31), maintenance of on-street parking (IL 31)
Evaluation Criteria

- Meets Identified Needs
  - Safety, Traffic and Capacity, Mobility, Pedestrian & Bicyclist Accommodations, Corrects Existing Design Deficiencies

- Environmental, Social, and Cultural Impacts
  - Wetlands, Parks, Historic Buildings, Etc.

- Property Impacts / Right-of-way
  - Residential, Commercial, Land Use Plans

- Construction Costs
  - Construction, Maintenance
Alternates Development Evaluation Process

- Initial Alternatives
- Fatal Flaws
- Purpose and Need Screening
- Detailed Evaluation Criteria (ROW, Cost, Environmental Impacts)

Evaluation Process

Preferred Alternative

We are here

May 22, 2012
Purpose and Need Screening

- **Improve Roadway Safety**
  » Improve motorist and pedestrian safety throughout the corridor

- **Expand Roadway Capacity and Address Traffic Issues**
  » Improve Level of Service and Mobility

- **Correct Existing Roadway Design Deficiencies**
  » Improve Roadway and Intersection Alignments

- **Improve Opportunities for Multimodal Connectivity**
  » Provide Pedestrian and Bicycle Accommodations
  » Look for ways to enhance and improve public transportation options
Safety Evaluation

- Methodology
  - Followed 2010 Highway Safety Manual (HSM) for representative section analysis
  - Relative comparison, not an absolute prediction of crashes

- Assumptions
  - Existing analysis used 2009 ADT values
  - Proposed analysis used 2040 projected ADT values

- Findings
### Safety Evaluation - Findings

<table>
<thead>
<tr>
<th>Segment Alternative</th>
<th>IL Route 31 AADT</th>
<th>Predicted Total Crashes / Year</th>
<th>Change from 2009 Existing Alternative</th>
<th>Change from 2040 No-Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical Segment:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009 Existing</td>
<td>23,500</td>
<td>4.4</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2040 No-Build</td>
<td>32,000</td>
<td>6.4</td>
<td>45% Increase</td>
<td>--</td>
</tr>
<tr>
<td>2040 Build with 4-lanes &amp; a TWLTL</td>
<td>44,000</td>
<td>12.3</td>
<td>180% Increase</td>
<td>92% Increase</td>
</tr>
<tr>
<td>2040 Build with 4-lanes &amp; a Median (Raised or Depressed)</td>
<td>44,000</td>
<td>4.2</td>
<td>5% Decrease</td>
<td>34% Decrease</td>
</tr>
<tr>
<td>2040 Build with 4-lanes, a TWLTL, and On-Street Parking</td>
<td>44,000</td>
<td>16.6</td>
<td>277% Increase</td>
<td>159% Increase</td>
</tr>
<tr>
<td>2040 Build with 4-lanes, a Median (Raised or Depressed), and On-Street Parking</td>
<td>44,000</td>
<td>5.7</td>
<td>30% Increase</td>
<td>11% Decrease</td>
</tr>
</tbody>
</table>

- Center median reduces crash frequency significantly versus bi-directional turn lane (TWLTL)
- Bi-directional alternative crash frequency worse than No-Build option for year 2040
- On-street parking increases crash frequency for both bi-directional and center median alternatives, with a more significant increase for the bi-directional alternative
Safety Evaluation - Summary

- TWLTL vs. Median
  - TWLTL Alternative anticipated crash rate is 193% higher than the Median Alternative
  - TWLTL Alternative anticipated crash rate is 92% higher than the No-Build Alternative

- On-Street Parking impacts
  - On-Street Parking Alternative anticipated crash rate is 35% higher than the No On-Street Parking Alternative for both the TWLTL and Median options
Expand Roadway Capacity and Address Traffic Issues - Evaluation

- **Methodology**
  - Used Highway Capacity Software (HCS) and Synchro to analyze Level of Service (LOS)
  - Compared 2040 No-Build to Build Alternatives
  - Range of Alternatives includes full build to minimal build options
  - Intersection alternatives development mainly focused on Lillian/Grove and at IL Route 120
  - Roundabout alternatives investigated at both Lillian/Grove and at IL Route 120

- **Assumptions**
  - Included pedestrian volumes

- **Findings**
Expand Roadway Capacity and Address Traffic Issues - Findings

Lillian Street / Grove Avenue Intersection Alternatives:

**ALTERNATIVE 1.0 (NO BUILD)**

- 2040 DELAY (sec/veh)
  - 133.4 (AM)
  - 89.8 (PM)

- 2040 LOS
  - F (AM)
  - F (PM)

**ALTERNATIVE 1.1**

- 2040 DELAY (sec/veh)
  - 28.1 (AM)
  - 22.4 (PM)

- 2040 LOS
  - C (AM)
  - C (PM)
Expand Roadway Capacity and Address Traffic Issues - Findings

Lillian Street / Grove Avenue Intersection Alternatives (cont.):

**ALTERNATIVE 1.2**

<table>
<thead>
<tr>
<th>2040 DELAY (sec/veh)</th>
<th>2040 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.1 (AM)</td>
<td>B (AM)</td>
</tr>
<tr>
<td>16.3 (PM)</td>
<td>B (PM)</td>
</tr>
</tbody>
</table>

**ALTERNATIVE 1.3**

<table>
<thead>
<tr>
<th>2040 DELAY (sec/veh)</th>
<th>2040 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>48.8 (AM)</td>
<td>E (AM)</td>
</tr>
<tr>
<td>33.7 (PM)</td>
<td>E (PM)</td>
</tr>
</tbody>
</table>
Expand Roadway Capacity and Address Traffic Issues - Findings

IL Route 120 Intersection Alternatives:

**ALTERNATIVE 2.0 (NO BUILD)**

- **2040 DELAY (sec/veh):**
  - 130.5 (AM)
  - 120.3 (PM)
- **2040 LOS:**
  - F (AM)
  - F (PM)

**ALTERNATIVE 2.1**

- **2040 DELAY (sec/veh):**
  - 16.5 (AM)
  - 17.5 (PM)
- **2040 LOS:**
  - B (AM)
  - B (PM)
Expand Roadway Capacity and Address Traffic Issues - Findings

IL Route 120 Intersection Alternatives (cont.):

ALTERNATIVE 2.2 (Re-Striped)

2040 DELAY (sec/veh) 2040 LOS
71.3 (AM) E (AM)
70.8 (PM) E (PM)

ALTERNATIVE 2.3 (Intermediate Build)

2040 DELAY (sec/veh) 2040 LOS
46.6 (AM) D (AM)
51.3 (PM) D (PM)

May 22, 2012
Expand Roadway Capacity and Address Traffic Issues - Findings

IL Route 120 Intersection Alternatives (cont.):

ALTERNATIVE 2.4 (Full-Build)

- 2040 DELAY (sec / vah)
  - 34.9 (AM)
  - 35.0 (PM)

- 2040 LOS
  - C (AM)
  - C (PM)

ALTERNATIVE 2.5

- 2040 DELAY (sec / vah)
  - 370.4 (AM)
  - 344.5 (PM)

- 2040 LOS
  - F (AM)
  - F (PM)
Correct Existing Roadway Design Deficiencies - Evaluation

- Methodology
  » Evaluated existing conditions vs. proposed conditions for each alternative

- Assumptions
  » Develop a roadway design to meet current IDOT geometric design standards

- Findings
Correct Existing Roadway Design Deficiencies - Evaluation

Existing Design Deficiencies

<table>
<thead>
<tr>
<th>South Section Deficiencies (Vertical Curves)*</th>
<th>Location</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL 31 at Drake Drive</td>
<td>Crest</td>
<td></td>
</tr>
<tr>
<td>470’ South of Brighton Lane on IL 31</td>
<td>Sag</td>
<td></td>
</tr>
<tr>
<td>970’ North of Half Mile Trail on IL 31</td>
<td>Sag</td>
<td></td>
</tr>
<tr>
<td>350’ South of Ames Road on IL 31</td>
<td>Crest</td>
<td></td>
</tr>
</tbody>
</table>

*Deficient curves impact sight distance and overall safety

<table>
<thead>
<tr>
<th>Drainage Deficiencies**</th>
<th>Culvert North of Gracy Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing water at Albany and IL 31</td>
<td></td>
</tr>
<tr>
<td>Half Mile Trail and IL 31</td>
<td></td>
</tr>
<tr>
<td>IL 31 from Anne St. to Lillian/Grove</td>
<td></td>
</tr>
</tbody>
</table>

**Deficient drainage impacts mobility and overall safety

<table>
<thead>
<tr>
<th>Deficiencies to Potentially Remain</th>
<th>Location</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Section; Option #1</td>
<td>Intersection Sight Distance from John St. to IL 120</td>
<td>Correction requires the obstruction (building) to be removed</td>
</tr>
<tr>
<td>South Section; Option #1 &amp; #2</td>
<td>6 (Six) Driveway Slopes/Grade are steeper than 6%</td>
<td>Correction would impact structure or adjacent driveway</td>
</tr>
</tbody>
</table>

All alternatives will address existing roadway design deficiencies; however, some deficiencies may or may not be corrected due to design constraints.
Improve Opportunities for Multimodal Connectivity - Evaluation

- Methodology
  » Evaluated existing conditions vs. proposed conditions for each alternative

- Assumptions
  » Alternatives will provide accommodations for future multi-use path and sidewalk
  » Design variances (exceptions) will need to be granted for any alternatives that do not provide for these accommodations throughout the entire study limits

- Findings
Pedestrian and bicycle accommodations will be provided with all alternatives

Downtown McHenry north of John St.
  » Limited Right-of-Way
  » Bicycle accommodations will create building impacts

*A majority of the alternatives developed north of John Street allow for the construction of a Multi-use path. However, the minimum build option does not provide for bicycle accommodations north of John Street*
Alternatives to Be Carried Forward

- **South Section**
  - Option #1 = 30’ Raised Median throughout
  - Option #2 = 30’ Depressed median and 10’ outside shoulder as needed to maintain > 45MPH zones and provide water quality
  - No-Build Option

- **North Section**
  - Option #1 = Re-stripe Alternative (10’ lanes @ IL 120)
  - Option #2 = Max Build (30’ Median @ IL 120)
  - Option #3 = Intermediate Build (18’ Median @ IL 120)
    - Note – All three options utilize a 18’ raised barrier median from Bank Dr. to John St.
  - No Build Option
Alternatives to Be Carried Forward

- South Section – 30’ Wide Raised Median – Option #1
Alternatives to Be Carried Forward

- South Section – 30’ Depressed Median – Option #2
Alternatives to Be Carried Forward

- North Section – 18’ Raised Median – Options #1, 2 & 3
Workshop: Alternatives to Be Carried Forward

- What will be accomplished during this workshop?
  » Provide feedback and suggestions on the Alternatives to Be Carried Forward
  » This input will be used to identify and develop the preferred alternative to address the Purpose and Need
  » Identify locations of potential median breaks, U-turn locations, planned access locations and consolidated driveway entrances

- Group Exercise
  » Provide feedback on alternatives to be carried forward (45 minutes)
  » Reconvene by approximately 2:45 p.m.
Next Steps and Future Meetings

Next Steps

» Ongoing Engineering Project Development activities:
  » Further refinement of project alternatives
  » Preparation for upcoming Public Meeting
  » Preparation for NEPA/404 meeting in September, 2012

» Identification of a Preferred Alternative

Future Meetings

» Public Meeting #2: July 2012
  • Present and obtain input on Purpose and Need and present the Range of Alternatives
Thank You!
www.IILRoute31.com