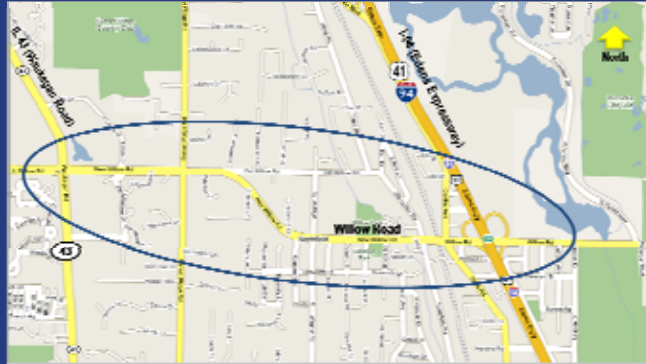


Technical Advisory Committee Meeting #2

Willow Road Study

Illinois Route 43 (Waukegan Road) to
Interstate 94 (Edens Expressway)

June 2, 2011



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TAC #2 Agenda

- Respond to key question from comments received on the following subjects
 - Mutually exclusive alternatives
 - Selection of Sunset Ridge Road intersection for Round #1 analysis
 - Capacity analyses assumptions
 - CMAP data
 - Traffic projections for the alternatives
 - Use of the HSM
 - Crash rate comparison
 - Speed Study

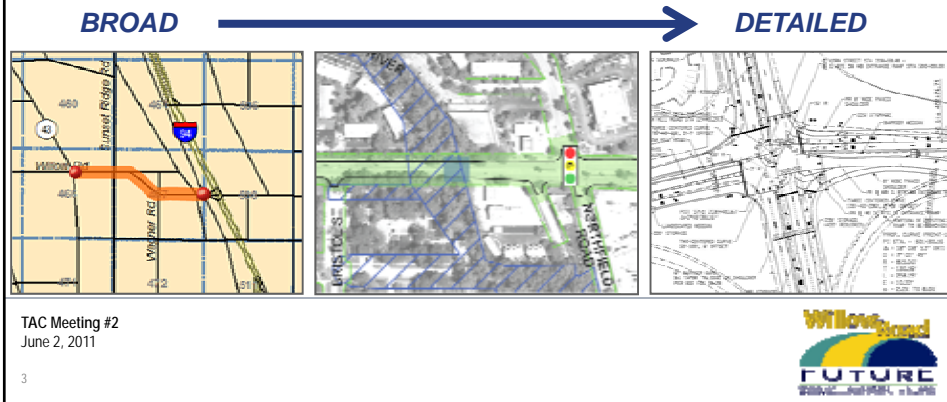
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June 2, 2011



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Alternatives Development and Evaluation Process

- Starting point – How well alternatives address project needs
- Continuous process
- Starts at a broad level of detail, adding more specific detail as the number of alternatives are reduced
- Multiple evaluation rounds



Evaluation Rounds

- Round #1 considers transportation needs (each alternative evaluated independently), environmental factors and costs
- Round #2 refines transportation needs, additional pedestrian safety elements, environmental factors, and costs
- Round #3 evaluates environmental factors, community factors, and costs (continued refinement of transportation needs and pedestrian safety elements)

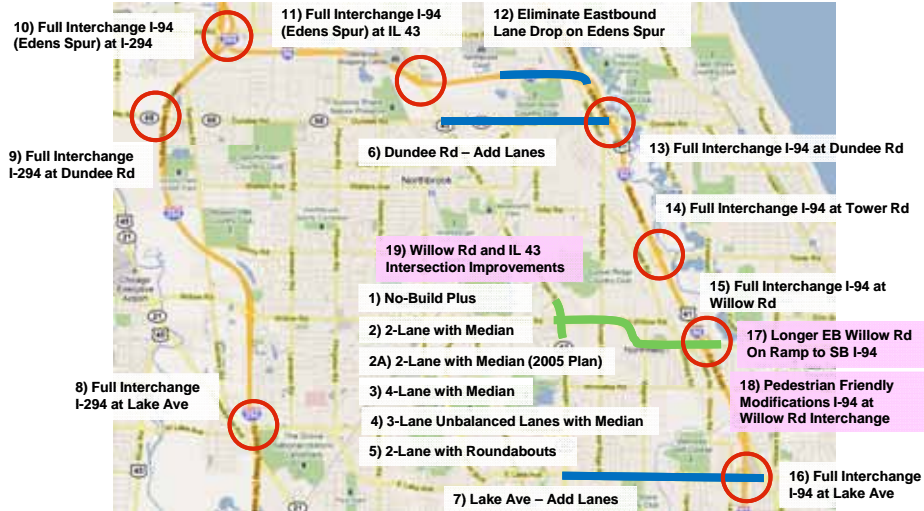


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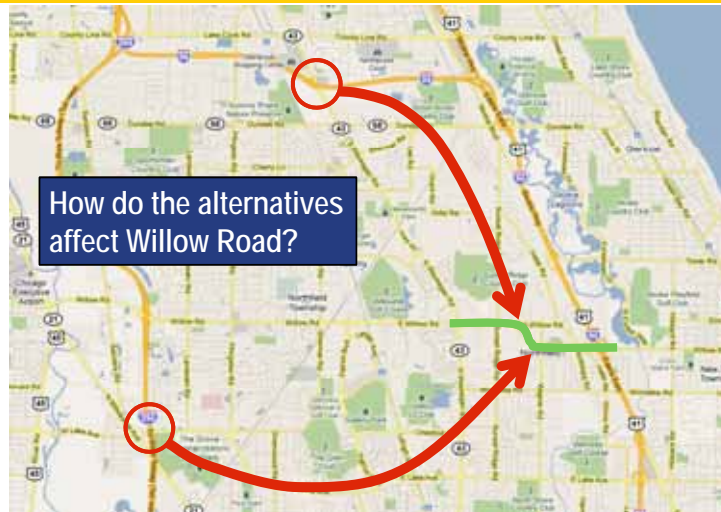


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Alternative Development and Evaluation Process



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Alternatives Development and Evaluation Process

Methodology of Round #1

- **Sunset Ridge Road**
 - Most sensitive to changes in traffic volumes
 - Highest side street volumes in 2-lane section
- **Segment between Sunset Ridge Road and Wagner Road**
 - Most significant changes in cross section and traffic volumes

Methodology of Round #2

- **All intersections and segments analyzed**

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Purpose and Need Screening

- **Safety**
 - Section of Willow Road between Sunset Ridge Road and Wagner Road
 - Pedestrian Safety at Willow Road and Sunset Ridge Road intersection
 - HSM Predicted Average Crash Frequency (crashes per year)
- **Mobility**
 - Willow Road and Sunset Ridge Road Intersection
 - Level of Service, Intersection Delay, Queue Lengths
- **Facility Condition and Design**
 - Improvements to Willow Road

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Flaw Analysis

- **Impacts**
 - Potential Displacements
 - Land Acquisition
 - Floodplains and Floodways
- **Conceptual Level Construction Costs**
 - Assumes reconstruction for all alternatives (2011 Dollars)
 - Construction cost only
 - Costs used for relative comparisons in Evaluation Round #1
 - Costs will be refined at each round

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Evaluations for Round #1 – Safety

Results

- Performance ranges from 6.2 to 13.0 crashes per year
- **Pedestrian Crash Frequency for Willow Road at Sunset Ridge Road intersection**
 - 2-Lane with Curbed Median and
 - 4-Lane with Curbed Median perform at nearly same rate of crashes per year
- **Regional alternatives perform worse, minimal change to Willow Road safety**

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Evaluations for Round #1 – Mobility

▪ Mobility

▪ Methodology

- Used 2040 No-Build AADT and forecasted 2040 Build AADT
- Used CMAP's Travel Demand Model Data to develop forecasts for the Build Alternatives
- Used HCS to analyze LOS and queue lengths

▪ Assumptions

- Included 11-foot lane widths and pedestrian volumes
- Willow Road Alternatives used optimized cycle length
- All others used existing cycle length
- Left turn phase times consistent for all alternatives
- 0.95 PHF used for all alternatives

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Evaluations for Round #1 – Mobility

Results

- No-Build at LOS F
- Most Build Alternatives at LOS F
- 4-Lane with Median
 - Through movements LOS D
 - Intersection LOS D until 2035
- Delays range between 65 and 225 seconds
- Queues on Willow Rd range between 420' to over 2,000'
- Regional Alternatives lowest performing

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Evaluations for Round #1 – Facility Condition

- **Facility Condition**
 - **Methodology**
 - Does the Build Alternative include improvements to Willow Road itself?
 - **Assumptions**
 - Build Alternatives only included improvements applicable to the alternative
 - Other Parallel Routes and Interchange Alternatives did not include improvements along Willow Road corridor
 - **Findings**
 - Local Alternatives along Willow Road provide for reconstruction of the 60 year old roadway

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Evaluations for Round #1 – Flaw Analysis

- **Regional Alternatives involved most impacts and higher costs**
 - Additional cost for ramps, bridges, and retaining walls
 - Typically larger footprint
- **Local Alternatives involved fewer impacts and lower overall construction costs**
- **Evaluation Round #3**
 - Detailed flood plain impacts will be evaluated
 - Refined geometry

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Evaluation Round #1 Summary

- Regional Alternatives did not address the Willow Road project needs as well as Local Alternatives
- Local Willow Road Alternatives involved fewer impacts and overall lower construction costs than Regional Alternatives
- Local Alternatives should be carried into Round #2
- All intersections and segments analyzed in Round #2

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CMAP Process

- Willow Road Study:
 - Based on 2040 forecasts from CMAP using the latest data sets available; state of the practice analysis
 - Population data is just one input in the travel demand model
 - Existing traffic
 - Employment
 - Household income
 - Existing roadway is severely congested
 - Modest increase in traffic volumes in 2040 forecast
 - O-D Study will not provide more reliable information
 - CMAP model provides a level of analysis beyond a single O-D study

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Travel Patterns and AADTs

- **State of the practice tools and techniques used**
 - CMAP Model
- **Minor differences in AADTs**
 - Resulted from changes in the network and redistribution of travel across the network
 - No substantive effect on performance
- **Evaluation process used that starts broadly and adds detail**
- **Used to determine how well an alternative meets the transportation needs**

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Safety Analysis

- **Highway Safety Manual is an FHWA approved state of the practice**
 - New techniques and knowledge reflect an evolution in safety analysis
 - Comparison to existing crash rates not applicable in alternatives analysis
 - Relative comparison between alternatives
 - Empirical Bayes (EB) method is not applicable
- **Full corridor analysis will be prepared in Evaluation Round #2**

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Safety Analysis

- **Crash Analysis Report**
 - Robust data set that provides valid results
 - Number of crashes in 4-lane section nearly identical to 2-lane section
 - Comparison to other nearby roadways would be an apples-to-oranges comparison (unique factors at every intersection)
 - Regardless, safety problems exist on Willow Road (3 injury crashes per month)

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IDOT Speed Study Results

- Considered prevailing speed, access conflicts, other factors (pedestrian volumes and crash experience)
- Data collected outside of peak period to capture free flow speed
- **Speeds vary along Willow Road**
 - cross section and access points
 - volume of pedestrians
 - posted speed limit
- **Number of crashes in 4-lane section nearly identical to 2-lane section**

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Additional Alternatives

- **Combination alternatives**
 - Regional Alternatives showed very little change in traffic to Willow Road
 - Combining Regional Alternatives would still have little change in traffic with higher costs and impacts
- **Consideration of other alternatives**
 - Suggested alternatives similar to studied Regional Alternatives
 - None improved the mobility on Willow Road

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Review Meeting Goals

- **Respond to key question from comments received on the following subjects**
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