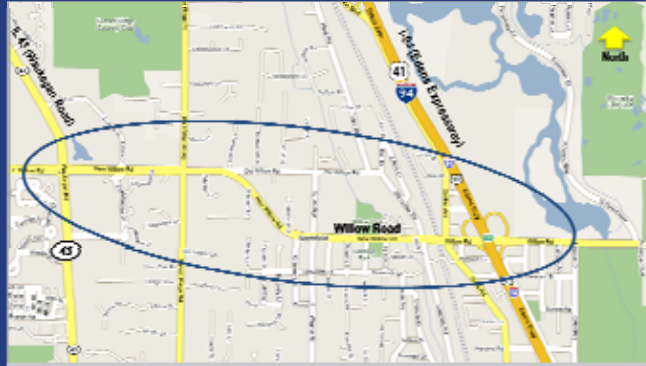


Community Advisory Group Meeting #9

Willow Road Study

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

April 7, 2011



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Tonight's Topics

- Continue Discussions from CAG Meeting #8
 - Alternatives Evaluation Round #1 Analysis
- Public Meeting #2
 - Purpose
 - Materials to be presented
- Introduction of Evaluation Round #2 Methodology



CAG Meeting #9
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16 Build Alternatives and 3 Corridor Specific Options

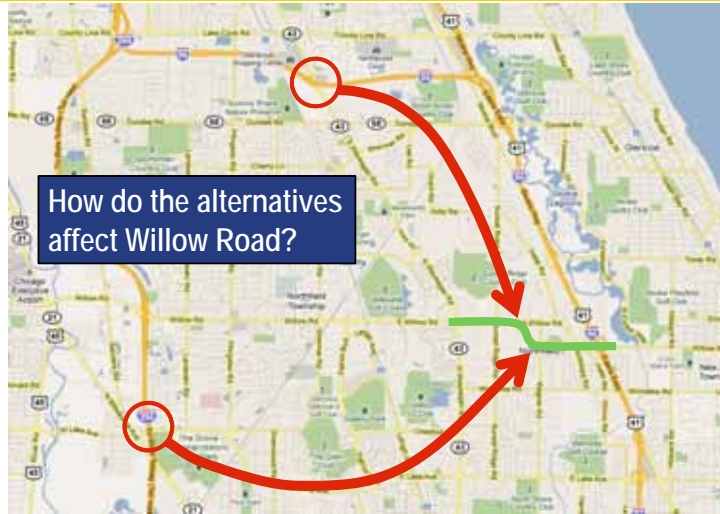


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Alternative Development and Evaluation Process

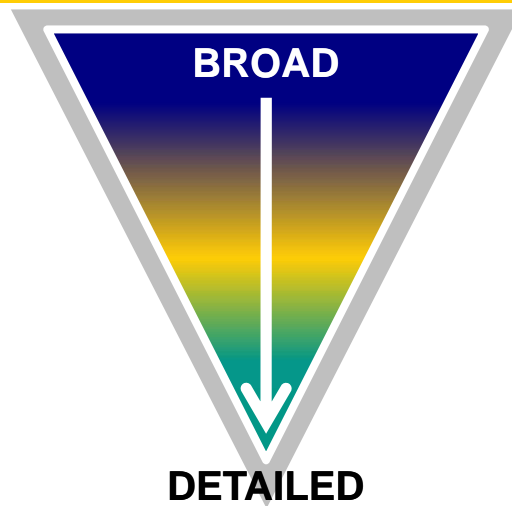


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Alternatives Development and Evaluation Process

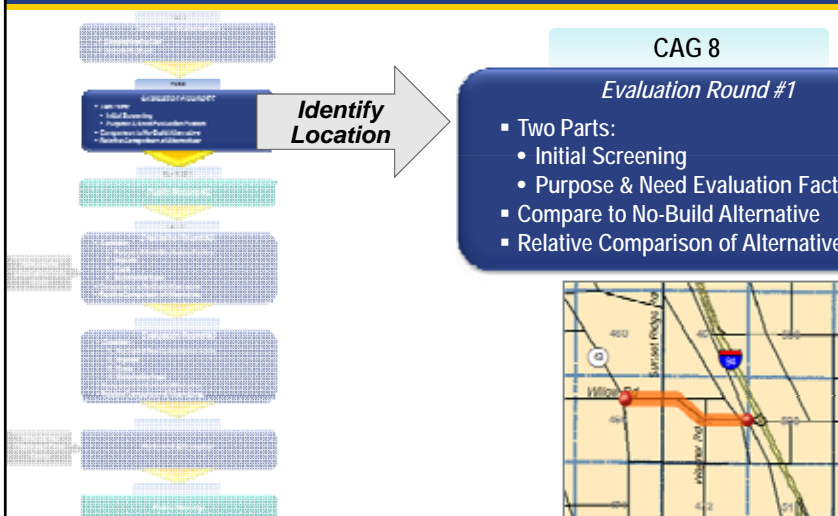


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Alternatives Development and Evaluation Process



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Alternatives Development and Evaluation Process

Methodology for Evaluation Round #1

Initial Screening and Purpose & Need Evaluation Factors
Identify Location

Level of Detail:	Tools:	Comparison Criteria:
<ul style="list-style-type: none"> • High level analysis • Identify location of alternatives 	<ul style="list-style-type: none"> • Highway Safety Manual • Travel Demand Model • Highway Capacity Manual • Existing Aerial Photography • Maps and GIS 	<ul style="list-style-type: none"> • Calculated safety performance <ul style="list-style-type: none"> • Vehicles • Pedestrians • LOS at Willow Road/Sunset Ridge Road intersection • Facility condition and design • Flaw analysis

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Evaluations for Round #1 – Safety

Purpose and Need Screening

▪ Safety

▪ Methodology

- Followed HSM for Segment and Intersection Analysis
- Relative comparison, not an absolute prediction of crashes

▪ Assumptions

- Each Build Alternative compared to the No-Build
- 2040 AADT volumes used
- Old Willow Road at Willow Road Skewed/Y-Intersection closed for local Willow Road Alternatives
- Engineering detail will be added

▪ Findings

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Evaluations for Round #1 – Safety

ALTERNATIVES		SAFETY (Calculated for the Willow Road Segment from Sunset Ridge Road to Wagner Road)	
Number	Name	Predicted Avg Crash Frequency (Crashes/Year)	Predicted Pedestrian Crash Frequency Willow Road at Sunset Ridge Road Intersection (Crashes/Year)
	No-Build	12.3	0.149
Willow Road Alternatives			
1	No-Build Plus	8.0	0.112
2	Willow Road 2-lane with median	6.6	0.112
2A	Willow Road 2-lane with median (2005 Plan)	6.7	0.112
3	Willow Road 4-lane with median	Painted Median - 13.0 Curbed Median - 6.2	Painted Median - 0.120 Curbed Median/Ped Refuge - 0.051
4	Willow Road 3-lane unbalanced with median	2 Ln WB - 9.9 2 Ln EB - 9.6	2 Ln WB - 0.112 2 Ln EB - 0.116
5	Willow Road 2-lane with roundabouts	6.9	0.081
Other Parallel Route Alternatives			
6	Dundee Road Add Lanes - IL 43 to I-94	12.2	—
7	Lake Avenue Add Lanes - IL 43 to I-94	12.0	—
Interchange Alternatives			
8	Full Interchange I-294 at Lake Avenue	12.8	—
9	Full Interchange I-294 at Dundee Road	12.2	—
10	Full Interchange I-94 (Edens Spur) at I-294	12.8	—
11	Full Interchange I-94 (Edens Spur) at IL 43	12.2	—
12	Eliminate Eastbound Lane drop on Edens Spur	12.8	—
13	Full Interchange I-94 at Dundee Road	12.2	—
14	Full Interchange I-94 at T-ower Road	12.8	—
15	Full Interchange I-94 at Willow Road	12.5	—
16	Full Interchange I-94 at Lake Avenue	12.2	—

- Performance ranges from 6.2 to 13.0 crashes per year
- Pedestrian Crash Frequency for Willow Road at Sunset Ridge Road intersection
 - 4-Lane with Curbed Median, performance best at 0.051 crashes per year
- Regional alternatives perform worse, minimal change to Willow Road safety



Evaluations for Round #1 – Safety

Pedestrian Safety at Willow Rd/Sunset Ridge Rd Intersection

Alternative	Lane Configuration	Pedestrian	
		Expected Crash Frequency (Crashes/Year)	Expected Crash Frequency (1 crash every X years)
No-Build*	2-Lane Undivided	0.149	7
1	2-Lane Undivided	0.112	9
2 & 2A	2-Lane with Painted Median	0.112	9
2 & 2A	2-Lane with Pedestrian Refuge	0.049	20
3	4-Lane with Painted Median	0.120	8
3	4-Lane with Curbed Median, Pedestrian Refuge	0.051	20
4A	Unbalanced 3-Lane with Median, 2 Lanes Westbound	0.112	9
4B	Unbalanced 3-Lane with Median, 2 Lanes Eastbound	0.116	9
5	2-Lane with Median and Roundabout	0.081	12

Another way to look at it

* No countdown pedestrian signals installed

- Local Willow Road Alternatives range between:
 - 2-Lane and 4-Lane, Pedestrian Refuge Alternatives frequency is 1 crash every 20 years
 - No-Build is 1 crash every 7 years
 - Regional Alternatives perform similar to No-Build

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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

- 11-foot lane widths
- Included pedestrian volumes
- Regional build alternatives assumed no improvements on Willow Road

■ Findings

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Evaluations for Round #1 – Mobility

ALTERNATIVES		MOBILITY (Analyzed for the Willow Road at Sunset Ridge Road Intersection)			
Number	Name	Intersection LOS (A thru F)	Intersection Delay (seconds)	Queue Length Westbound Willow Rd (feet)	Queue Length Southbound Sunset Ridge Rd (feet)
	No-Build	F	157	1,830	820
Willow Road Alternatives					
1	No-Build Plus	F	154	1,990	550
2	Willow Road 2-lane with median	F	151	2,220	370
2A	Willow Road 2-lane with median (2005 Plan)	F	151	2,220	370
3	Willow Road 4-lane with median	D/E**	65	990	400
4	Willow Road 3-lane unbalanced with median	2 Ln WB - F 2 Ln EB - F	2 Ln WB - 143 2 Ln EB - 131	2 Ln WB - 650 2 Ln EB - 2,910	2 Ln WB - 410 2 Ln EB - 410
5	Willow Road 2-lane with roundabouts	F	225	420	5,000
Other Parallel Route Alternatives					
6	Dundee Road Add Lanes - IL 43 to I-94	F	157	1,990	550
7	Lake Avenue Add Lanes - IL 43 to I-94	F	145	1,840	550
Interchange Alternatives					
8	Full Interchange I-294 at Lake Avenue	F	169	2,150	550
9	Full Interchange I-294 at Dundee Road	F	157	1,990	550
10	Full Interchange I-94 (Edens Spur) at I-294	F	162	2,150	550
11	Full Interchange I-94 (Edens Spur) at IL 43	F	157	1,990	550
12	Eliminate Eastbound Lane drop on Edens Spur	F	169	2,150	550
13	Full Interchange I-94 at Dundee Road	F	164	1,990	550
14	Full Interchange I-94 at Tower Road	F	169	2,150	550
15	Full Interchange I-94 at Willow Road	F	162	2,150	550
16	Full Interchange I-94 at Lake Avenue	F	157	1,990	550

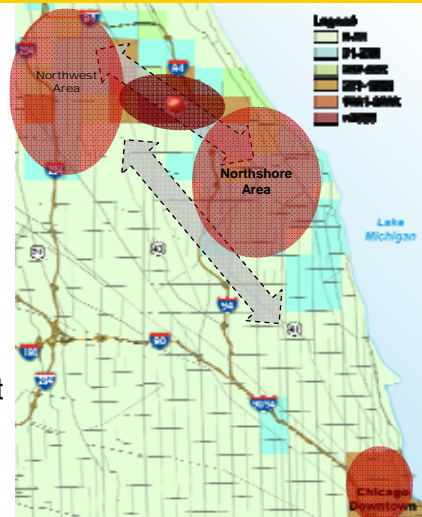
- No-Build at LOS F
- Most Build Alternatives at LOS F
- 4-Lane with Median
 - Through movements LOS D
 - Intersection LOS D until 2035
- Delays range between 65 and 225 seconds
- Queues on Willow Rd range between 420' and over 2,000'
- Regional Alternatives lowest performing



Travel Pattern Analysis

What were the findings?

- Predominant travel pattern is between northwest and southeast
- New access or improved capacity elsewhere can alter travel patterns
- Model considers factors such as trip lengths, travel patterns, and levels of congestion
- Regional alternatives do not offer sufficient new access or added capacity to affect Willow Road



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Select Link Location



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

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Evaluations for Round #1 – Facility Condition

ALTERNATIVES		FACILITY CONDITION
Number	Name	Reconstruct (Yes/No)
No-Build		
	No-Build	N
Willow Road Alternatives		
1	No-Build Plus	N
2	Willow Road 2-lane with median	Y
2A	Willow Road 2-lane with median (2005 Plan)	Y
3	Willow Road 4-lane with median	Y
4	Willow Road 3-lane unbalanced with median	Y
5	Willow Road 2-lane with roundabouts	Y
Other Parallel Route Alternatives		
6	Dundee Road Add Lanes - IL 43 to I94	N
7	Lake Avenue Add Lanes - IL 43 to I94	N
Interchange Alternatives		
8	Full Interchange I294 at Lake Avenue	N
9	Full Interchange I294 at Dundee Road	N
10	Full Interchange I94 (Edens Spur) at I-294	N
11	Full Interchange I94 (Edens Spur) at IL 43	N
12	Eliminate Eastbound Lane drop on Edens Spur	N
13	Full Interchange I94 at Dundee Road	N
14	Full Interchange I94 at Tower Road	N
15	Full Interchange I94 at Willow Road	N
16	Full Interchange I94 at Lake Avenue	N

- No-Build and Regional Alternatives include no improvements to Willow Road
- Local Alternatives along Willow Road provide for reconstruction of the 60 year old roadway



Evaluations for Round #1 – Flaw Analysis

Flaw Analysis

- Potential Displacements
 - Residential
 - Business
 - Open Space
- Potential Property Acquisition
- Potential Floodplain and Floodway Impacts
- Conceptual Level Construction Costs (2011 Dollars)
 - Does not include land acquisitions, relocations, mitigation and engineering costs
 - All roadways and bridges are reconstructed

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Evaluations for Round #1 – Flaw Analysis

ALTERNATIVES		FLAW ANALYSIS / IMPACTS			
		Potential Displacements	Potential Property Acquisition	Potential Floodplain & Floodways	Concept Level Construction Cost*
Number	Name	R-Residential B-Business O-Open Space	(acres)	(acres)	(2011 Dollars)
	No-Build	none	0.0	0.0	NA
Willow Road Alternatives					
1	No-Build Plus	none	0.0	0.0	\$2 MIL
2	Willow Road 2lane with median	none	0.0	0.8	\$18 MIL
2A	Willow Road 2lane with median (2005 Plan)	none	0.0	0.8	\$14 MIL
3	Willow Road 4lane with median	none	0.0	0.8	\$23 MIL
4	Willow Road 3lane unbalanced with median	none	0.0	0.8	\$20 MIL
5	Willow Road 2lane with roundabouts	3-R	0.6	0.8	\$20 MIL
Other Parallel Route Alternatives					
6	Dundee Road Add Lanes - IL 43 to 194	1-R 2-B	4.5	0.6	\$51 MIL
7	Lake Avenue Add Lanes - IL 43 to 194	5-R 6-B	4.3	0.2	\$55 MIL
Interchange Alternatives					
8	Full Interchange 1294 at Lake Avenue	147-R 7-B 1-O (cemetery)	28.2	0.0	\$60 MIL
9	Full Interchange 1294 at Dundee Road	5-R 3-B	7.7	0.0	\$75 MIL
10	Full Interchange 194 (Edens Spur) at 1294	10-R 4-B	9.9	0.0	\$57 MIL
11	Full Interchange 194 (Edens Spur) at IL 43	7-R 17-B	4.8	0.0	\$27 MIL
12	Eliminate Eastbound Lane drop on Edens Spur	7-B	8.1	3.9	\$38 MIL
13	Full Interchange 194 at Dundee Road	none	6.8	4.9	\$133 MIL
14	Full Interchange 194 at Tower Road	none	2.8	5.9	\$44 MIL
15	Full Interchange 194 at Willow Road	4-B	7.4	22.3	\$52 MIL
16	Full Interchange 194 at Lake Avenue	55-R 4-B	6.3	0.0	\$59 MIL

- 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 #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 Evaluation Round #2

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CAG Discussion

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Public Meeting #2: Purpose

- Update the Public on Progress to Date
- Present Technical Analyses
 - Crash Report
 - Traffic Report
 - Physical Inventory Report
 - Travel Demand Modeling
 - Pedestrian and Bicycle Safety Tool Box
- Purpose and Need Document
- Display all No Build and Build Alternatives
- Present Findings of Round #1 Evaluation of Alternatives
- Request Public Input and Comments

CAG Meeting #9
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Public Meeting #2

- **Monday, May 16, 2011**
 - 5:00 p.m. to 8:00 p.m.
 - New Trier High School Cafeteria, Northfield Campus
 - Open House Format
- **Continuous Audio Visual Presentation**
- **Written Comments Area**
- **Court Reporters**
- **Exhibits Area**
- **Reports and Documents Area**

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CAG Discussion

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Introduction of Evaluation Round #2

CAG 10
Evaluation Round #2

- Consider:
 1. Purpose & Need Evaluation Factors
 2. Impacts
 3. Costs
 4. Stakeholder Input
- Compare to No-Build Alternative
- Relative Comparison of Alternatives

Additional Footprint Details

CAG Meeting #9
April 7, 2011

Introduction of Evaluation Round #2

Methodology for Evaluation Round #2

Identify Additional Footprint Details

Level of Detail:	Tools:	Comparison Criteria:
<ul style="list-style-type: none"> • More definition • Identify what alternative looks like 	<ul style="list-style-type: none"> • Highway Safety Manual • Travel Demand Model • Highway Capacity Manual • Existing Aerial Photography • Maps and GIS • Site verification 	<ul style="list-style-type: none"> • Calculated safety performance <ul style="list-style-type: none"> • Vehicles (For entire corridor) • Pedestrians (For entire corridor) • LOS at Willow Road/Sunset Ridge Road intersection • LOS at all intersections in study area • Facility condition and design • Flaw analysis • Cost • Impacts to environmental resources • Acres of ROW • Number of homes displaced • Number of businesses displaced

CAG Meeting #9
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Introduction of Evaluation Round #2 Methodology

- **Additional Analysis for Alternatives Carried Forward**
 - HSM analysis for Willow Road corridor
 - Traffic analysis at all signalized intersections on Willow Road
- **Additional Design Details**
 - Include typical cross sections
 - Environmental Resource impacts (wetlands, parks, open space, forest preserves, historic places)
 - Safety Tool Box items
- **Refine Cost Estimates**

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CAG Discussion

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Future Meetings

- **Public Meeting #2**
 - Monday, May 16, 2011
 - 5:00 p.m. to 8:00 p.m.
 - Open House Format
 - New Trier High School Cafeteria, Northfield Campus

- **CAG Meeting #10 – July 21, 2011**
- **CAG Meeting #11 – September 15, 2011**

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Public Comments

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April 7, 2011

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