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# Village of Winnetka

## **TUNNEL FEASIBILITY**

(Willow Road or Ash Street)

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November 13, 2012





# Direct Jacking



# Tunneling



# Layout Area



# Tunneling vs. Direct Jacking

<b>Tunneling Method</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Direct Jacking</b>	<ul style="list-style-type: none"><li>- Potential for slightly reduced cost</li><li>- Reduced construction schedule and associated impacts due to the single pass</li><li>- Shaft locations could be designed to coincide with required future storm connection locations</li><li>- Increased access points for maintenance and operations</li></ul>	<ul style="list-style-type: none"><li>- 2 to 3 additional shafts and associated staging areas required</li><li>- Additional pedestrian and vehicular traffic disruption</li><li>- Potential for more utility relocations in vicinity of shafts/staging area</li><li>- Would need approval by RR for single pass RCP pipe in lieu of steel casing requirements</li></ul>
<b>Conventional Tunneling</b>	<ul style="list-style-type: none"><li>- Only 2 shafts required, at the east and west ends of the project</li><li>- Reduced impacts to pedestrian and/or vehicular traffic during construction</li></ul>	<ul style="list-style-type: none"><li>- Reduced access points to final storm sewer</li><li>- Longer construction schedule</li><li>- Storm sewer connection points and associated structures will be required in the future</li></ul>

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# Willow Road vs. Ash Street

Route	Advantages	Disadvantages
<b>Ash Street</b>	<ul style="list-style-type: none"><li>- No significant overhead Utility lines</li><li>- Willow Road remains open to through traffic from Hibbard to Green Bay Road</li><li>- No businesses disrupted</li></ul>	<ul style="list-style-type: none"><li>- Residential traffic</li><li>- Pedestrian traffic</li><li>- Increased number of shaft locations</li><li>- Tighter intersections and narrower roadway widths</li></ul>
<b>Willow Road</b>	<ul style="list-style-type: none"><li>- Share of road restoration cost with IDOT</li><li>- Less pedestrian traffic</li><li>- Keeps trucks off residential side roads</li></ul>	<ul style="list-style-type: none"><li>- Rerouting of Willow Road traffic</li><li>- Possible business disruption</li><li>- Utility lines</li></ul>

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# Cost Comparison

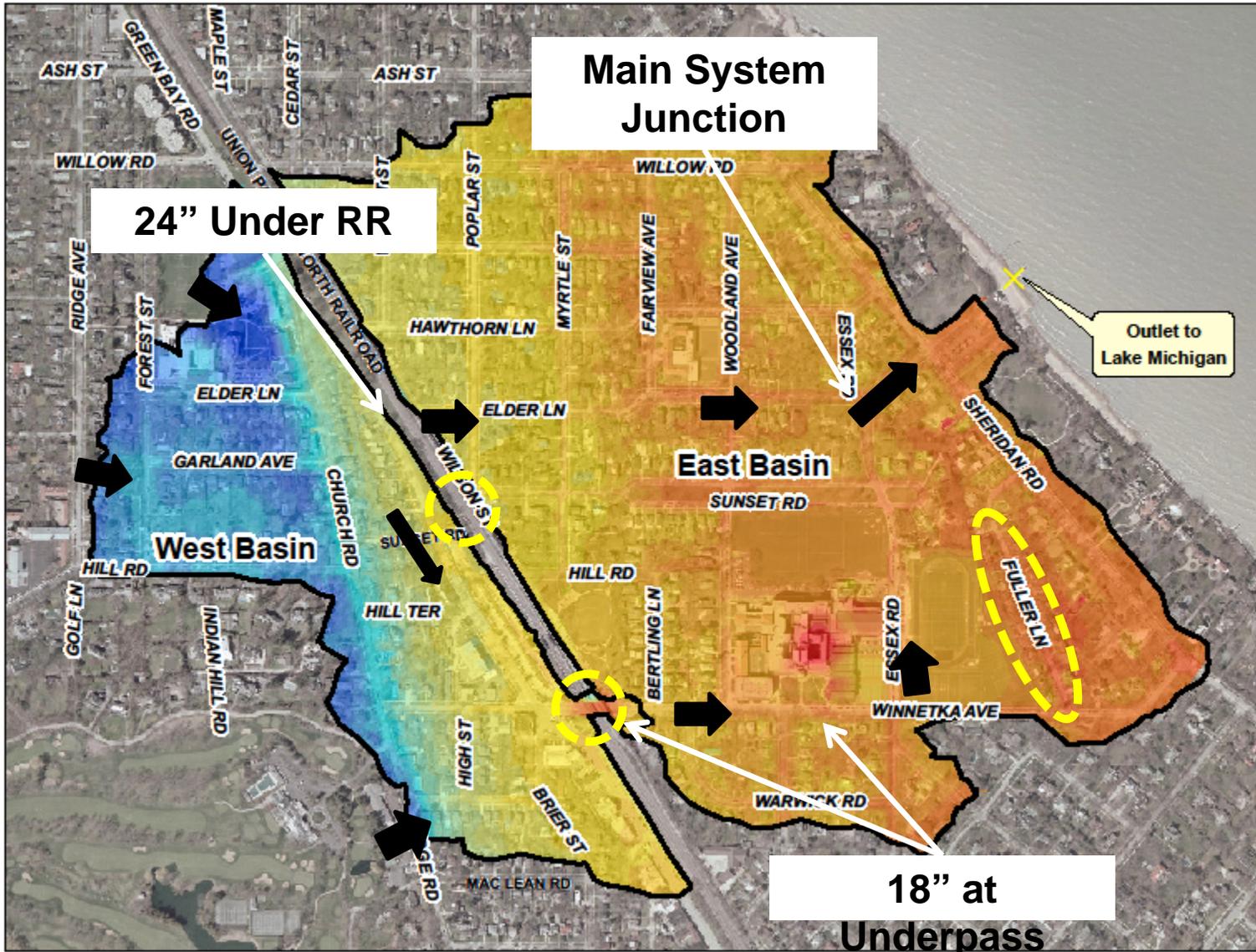
Item	Willow Route Cost Estimate	Ash Route Cost Estimate	Cost	Comments
Seeding/Erosion Control Blanket	\$15,000	\$45,000		
Topsoil Furnish and Place	\$20,000	\$60,000		Restoration for additional drop shafts
Remove Storm Sewer & Structure	\$230,000	\$230,000		
Storm Sewer, RCP (24" to 96")	\$6,635,000	\$6,915,000		Additional 96" sewer from Ash to Willow on east end.
Storm Sewer, RCP 96", Tunneled	\$9,540,870	\$9,200,000		
Box Culvert 5'X8'	\$1,125,000	\$1,125,000		
Storm Structures, 5' Dia., 7' Dia., 10' Dia.	\$965,000	\$965,000		
Junction Chamber	\$100,000	\$100,000		
Riprap with Filter Fabric	\$5,000	\$5,000		
Class D Pavement Patches, 12"	\$2,649,975	\$2,737,975		
Trench Backfill, Special	\$2,981,250	\$3,157,250		
Energy Dissipater	\$140,000	\$140,000		
Water Quality Structure	\$94,000	\$94,000		
Traffic Control	\$1,000,000	\$900,000		
Construction Layout	\$500,000	\$550,000		
Utility Relocations	\$200,000	\$250,000		Conceptual Estimate
Subtotal Construction	\$26,201,095	\$26,474,225		
Contingency	\$4,763,176	\$4,834,845		20% contingency (15% on tunneling item based on additional detail)
Construction Total	\$30,964,271	\$31,309,070		
Design Engineering (4.5%)	\$1,393,392	\$1,408,908		Percentage of construction costs
Construction Observation (4.5%)	\$1,393,392	\$1,408,908		Percentage of construction costs
Permitting (1.0%)	\$309,643	\$313,091		Percentage of construction costs
Feasibility Studies	\$37,750	\$37,750		Completed
Material Testing	\$35,000	\$35,000		Estimate
Project Management (1.5%)	\$464,464	\$469,636		Estimate
<b>Total Estimated Project Cost</b>	<b>\$34,597,912</b>	<b>\$34,982,363</b>		

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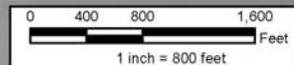
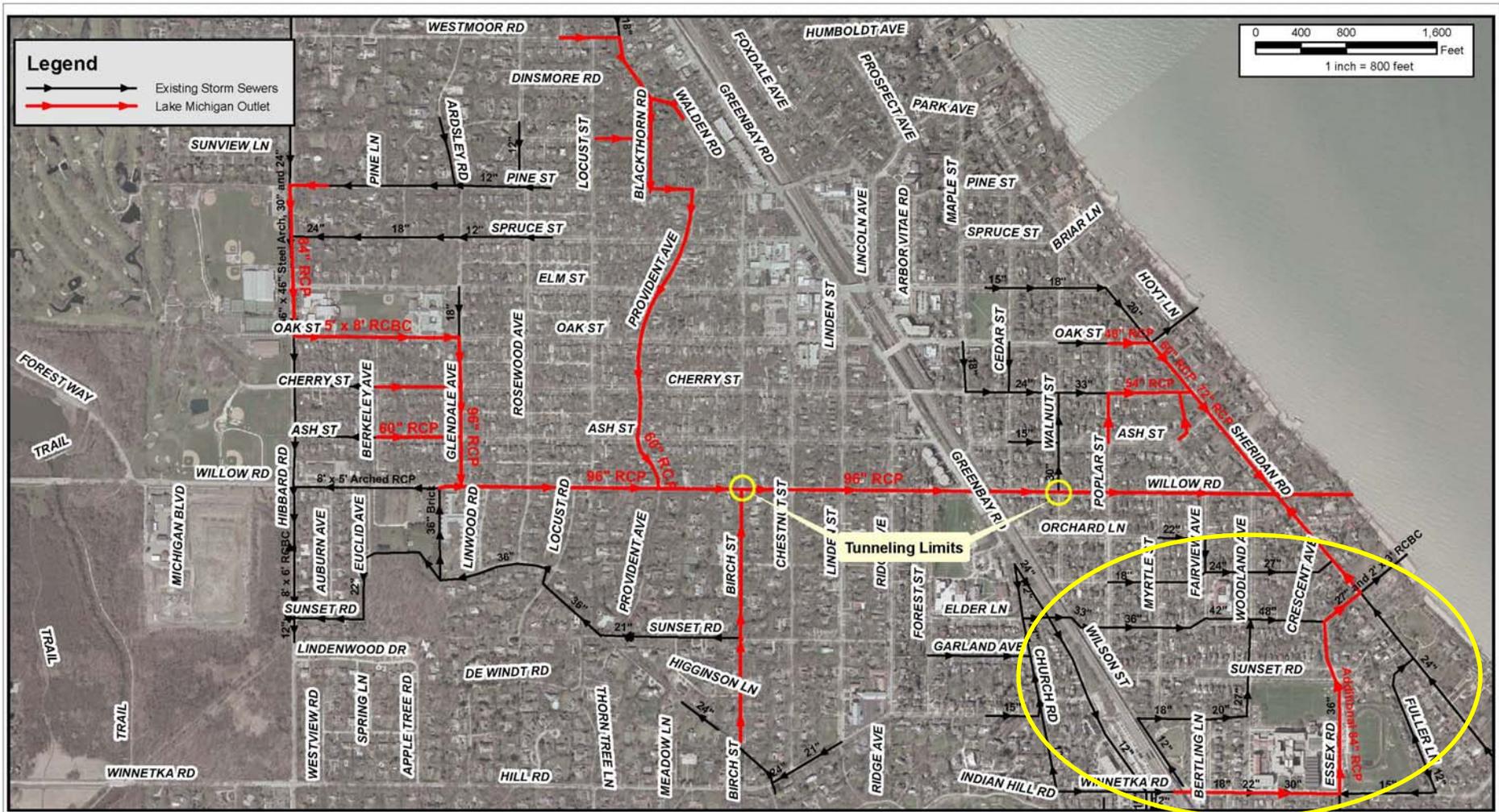
# Next Steps

- November 13, 2012
    - Authorize staff to prepare, but not publish, an RFP for Council review and input.
  - December 18, 2012
    - Staff provides draft RFP for Council review and input.
  - By January 15, 2013
    - Council provides input on Draft RFP.
  - January 31, 2013
    - Publish RFP.
  - March 1, 2013
    - RFP responses due.
  - March 2013
    - Evaluate RFP responses.
  - April 2013
    - Award engineering contract.
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# Underpass Study Area



# Underpass Study Area



**Legend**  
 — Existing Storm Sewers  
 — Lake Michigan Outlet

Tunneling Limits

DSGN. MJB CHKD.



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CLIENT Village of Winnetka

PROJECT NO. 08-0671

TITLE Lake Michigan Outlet - Willow Road

DATE 11/7/12  
 EXHIBIT

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# Underpass Study Area Next Steps

- Three Considerations
    - Cost vs. Benefit
      - Underpass extension (~\$4.4m) also reduces flood depths in residential areas and near New Trier High School
    - Level of Protection
      - Underpass extension could be constructed to 10-year protection level rather than 100-year (savings approximately ~\$2m)
    - Extent of Construction
      - Project could be constructed to intersection of Essex/Winnetka rather than to underpass
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# Questions and Answers

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# Tunneling

