

Engineering Services for Detailed Design and Permitting for Willow Road Stormwater Tunnel and Area Drainage Improvements

JANUARY 2014



MWH®

BUILDING A BETTER WORLD

PROJECT Objectives

- Achieve Flood Risk Reduction Goals
- Protect Winnetka's Beaches and Lake Michigan
- Avoid Excessive Disruption During Construction
- Fit within Established Budget Constraints





The Conceptual, Seven-Phase Project

Major Issues to be Resolved

- 
- A hand holding a green pencil is positioned on the right side of the image, pointing towards a checklist. The checklist consists of five items, each with a green checkmark in a square box to its left. The items are written in a cursive script and are arranged in a descending staircase pattern from top-left to bottom-right.
- Permits
 - Public Acceptance
 - Tunneling
 - Risk Management
 - Delivery Method

Permits Action Plan

- Joint Application
- MS4 Permit Modification
- MWRDGC Stormwater
- NPDES Construction
- IDOT
- Railroad

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF INTENT
FOR GENERAL PERMIT FOR DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
 (MS4s)

For Office Use Only – Permit No. ILR40 _____

Input forms in Word file
 by via e-mail
marilyn.davengood@epa.gov
 or by calling the Permit
 217/782-6
 See address for mail

Part I. General Information

- MS4 Operator Name: Village of Winnetka with the Winnetka Park District – JOINT PER
- MS4 Operator Mailing Address:
 Street- 510 Green Bay Road City- Winnetka
 State- Illinois Zip Code- 60093
- Operator Type: Village
- Operator Status: Local
- Name(s) of Governmental Entity(ies) in which MS4 is located: Village of Winnetka; Winnetka District
- Area of land that drains to your MS4 (in square miles): 3.94
- Latitude/Longitude at approximate geographical center of MS4 for which you are requesting authorization to discharge:
 Latitude: 42 06 23 Longitude: -87 44
DEC. MIN. SEC. DEC. MIN.
- Name(s) of known receiving waters: *Attach additional sheets (Attachment I) as necessary:*

1. <u>Lake Michigan</u>	2. <u>Skokie River (East Fork of the North Branch of Chicago River)</u>
3. _____	4. _____
5. _____	6. _____
7. _____	8. _____
9. _____	10. _____
- Persons Responsible for Implementation/Coordination of Storm Water Management Program:

<u>Name</u>	<u>Title</u>	<u>Telephone No.</u>	<u>Area of Responsibility</u>
<u>Steven Saunders</u>	<u>Dir. PW/ Village Engineer</u>	<u>847-716-3534</u>	<u>Public Works/Engineering, Winnetka</u>
<u>Susan Chen</u>	<u>Assistant Village Engineer</u>	<u>847-716-3532</u>	<u>Public Works</u>

Water Quality Planning

Pollutants of Concerns

- Floatables
- Solids
- Nutrients
- Chloride
- Bacteria



Tower Road Beach



Lloyd Beach

BMP's are Part of the Solution



Public Acceptance

Protecting Lake Michigan from Winnetka's stormwater debated

Proposed \$34.5 million Willow Road tunnel worries some residents

July 02, 2013 | By Gregory Trotter, Chicago Tribune

Winnetka residents question stormwater project plans

\$34 million bond sale proposed under home-rule authority

September 26, 2013 | By Karen Ann Cullotta and Brian L. Cox, Chicago Tribune

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Winnetka residents who recently gathered at a town hall meeting appeared sharply divided over a proposed stormwater [management](#) project, with some questioning why taxpayers whose homes have never flooded should help foot the estimated \$61 million bill.

Village Manager Robert Bahan and Steven Saunders, public works director, fielded questions from a crowd of roughly 100 residents. Some of them applauded officials for taking action to combat flooding, yet worried about the financing of the project,



Steven Saunders, Winnetka's director of public works, talks with..

Winnetka ready to meet more often with residents about stormwater plan

October 16, 2013 | Karen Ann Cullotta, Chicago Tribune reporter

...million [bond](#) sale. The bonds would not require voter approval

Public Acceptance Strategy

Communication

- “Early and often”
- Tailored to audience
- Solid technical details

Issue Resolution

- Water quality plan
- Sewer routing/disruption
- Traffic control

Task	2014											
	F	M	A	M	J	J	A	S	O	N	D	
Meetings/Workshops												
Workshops	■	■	■	■							■	
Permitting Meetings	■	■	■									
Review Sessions			■	■			■		■			
Progress Meetings	■	■	■	■	■	■	■	■	■	■	■	■
Council Briefings			■			■			■			■
Stakeholder Updates		■	■		■	■		■	■			■

■ Preliminary Engineering/Permitting

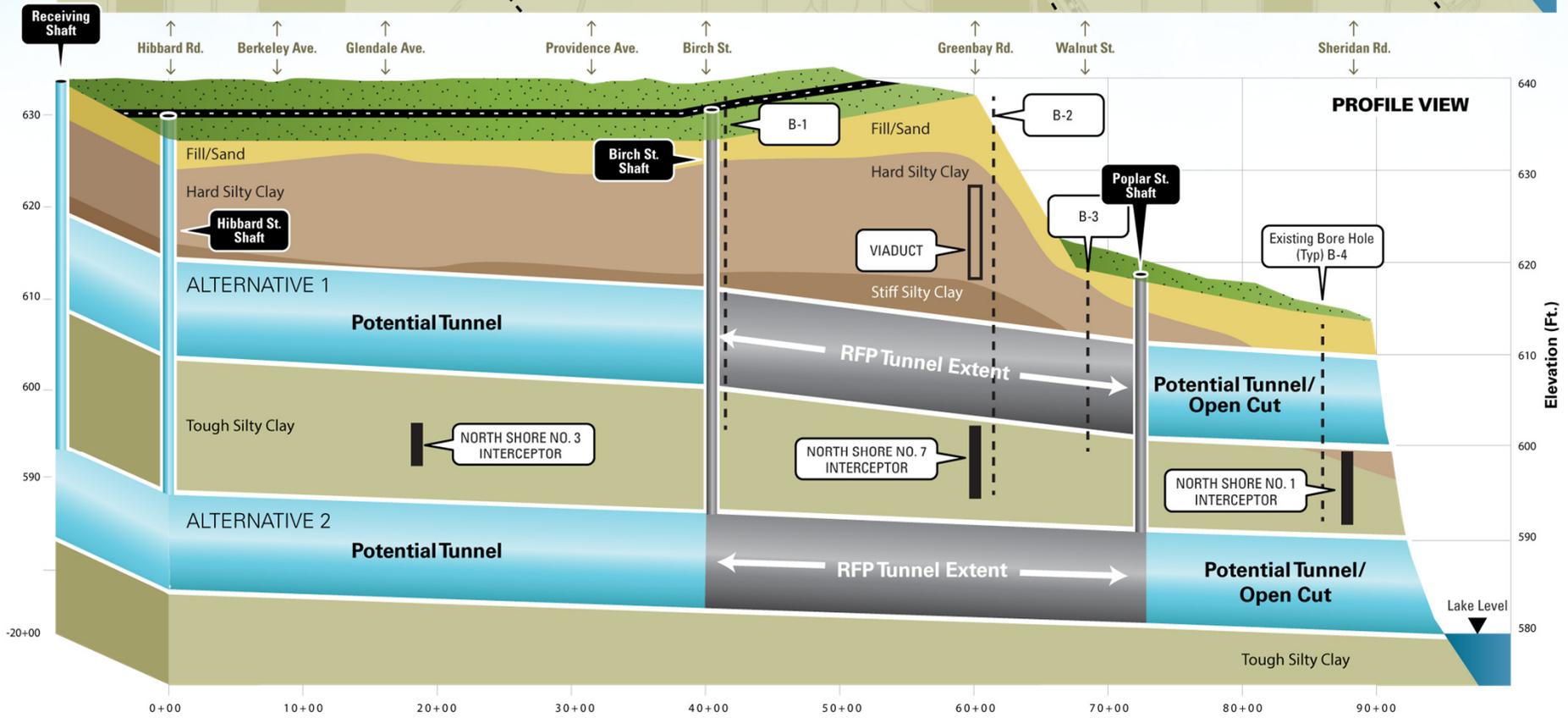
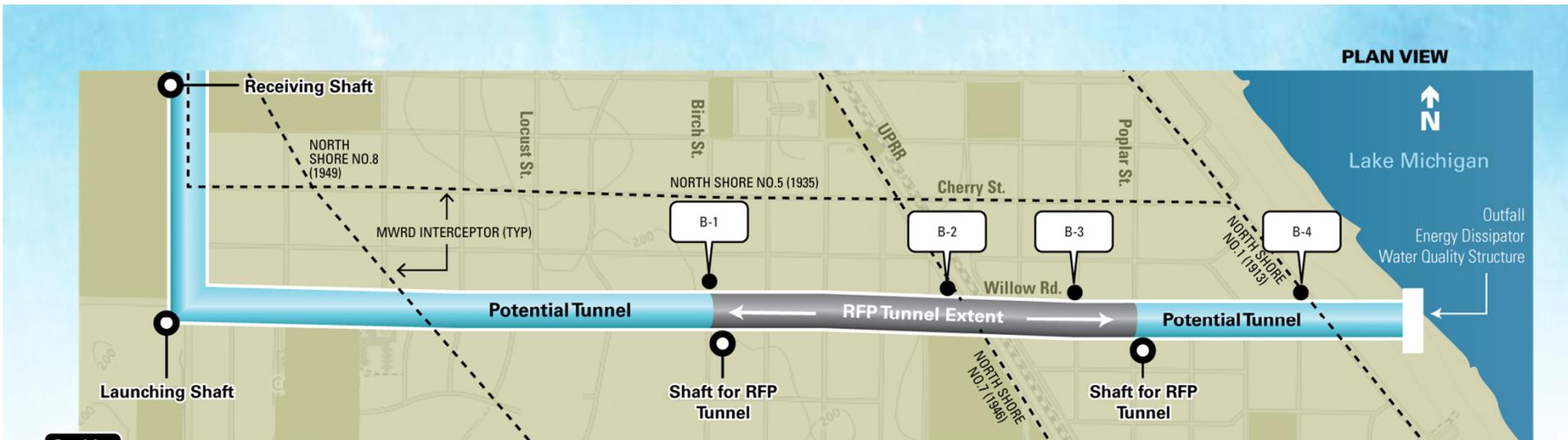
■ Engineering Design

Lessons Learned - Tunneling

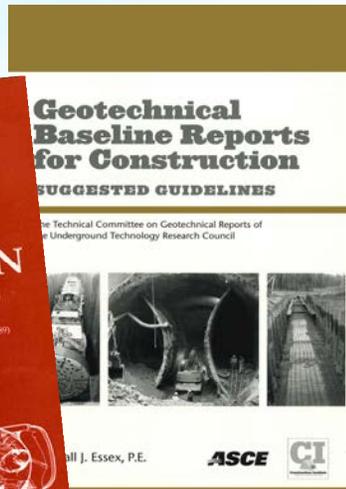
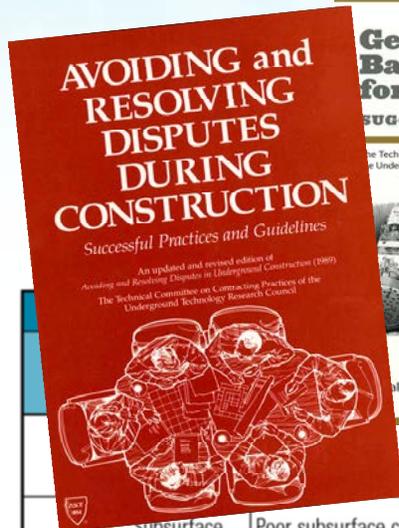
- Open Cut and Tunneling are both valid approaches
- Public impacts/acceptance are huge considerations
- Tunneling can be used to cost-effectively reduce disruption in certain situations

Lessons
Learned





Risk Management



Risk ID	Risk Category	Description	Consequences	Project Impact		Likelihood	Potential Consequence	Initial Risk Score	SME		Measures to Mitigate Risk	
				Cost, Schedule	1,2				Initial Risk Score	Final Risk Score		
		outfall permit	Delay in permitting could affect overall project schedule	Cost, Schedule	1,2	Possible	3	High	4	12	Unacceptable	Early interaction with permitting agencies; Aggressive water quality management strategy
2.0	Subsurface Conditions	Poor subsurface conditions affect cost and productivity	Increased construction costs, delays, change orders	Cost, Schedule	1,2	Possible	3	Very High	5	15	Undesirable	Conduct subsurface investigation during design; Incorporate GDR, C into bidding documents
3.0	Infrastructure Damage	Damage to existing infrastructure due to adjacent excavation, settlement	Failure of existing infrastructure resulting in service disruption, emergency repairs	Cost, Schedule, Safety	1,2,6	Likely	4	High	4	16	Unacceptable	Conduct settlement analyses; identify critical infrastructure; perform pre-construction assessments of critical infrastructure
4.0	Private Property	Construction-related damage to private property	Settlement, foundation cracking, loss of trees	Cost	1	Possible	3	High	4	12	Undesirable	Clearly define construction limits; perform settlement analyses; conduct pre-construction surveys
5.0	Hydraulics	Excessive flows cause overflows	Overflows result in property damage and may create	Safety	1,6	Possible	3	High	4	12	Undesirable	Perform extensive surge analyses, design in overflow facility at optimum

Delivery Method Options – CM at Risk



Owner Involvement

Constructability and O&M Reviews/VE Consideration

Change Management

Risk

Estimating

Schedule

MWH Workplan

- Phase 1 – Permitting/Preliminary Engineering
 - Concept Review/Permit Plan/H&H Verification
 - REVIEW POINT 1
 - Field Investigations/Prelim Design and Permit Apps
 - REVIEW POINT 2
 - CMAR Contractor Selection
 - REVIEW POINT 3
- Phase 2 – Engineering Design



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