Envisioning a Chicago Area Waterway System for the 21st Century

A Joint Project of the Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative

Public Meeting Presentation
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Presentation Overview

- Project drivers
- Purpose and goals
- Project management and organization
- Schedule and progress to date
- Separation options; considerations and other key issues
- Next steps
- Take home messages
A river reversed, a problem created

The Chicago and Calumet rivers were once tiny waterways that trickled into Lake Michigan. Beginning in 1900 the city dug a series of canals that reversed their flows so they could carry the city’s waste into the Mississippi River basin, and away from the lake – the city’s drinking water source. A push is now under way to engineer a system to re-establish the natural hydrological divide between Lake Michigan and the Mississippi.

Sources: Great Lakes Fishery Commission

Map: Journal Sentinel
Proposed Long-term Solution: Ecological Separation

- Preventing the interbasin transfer of aquatic organisms—at all life stages—through Chicago-area waterways

- Ecological separation is currently only a concept
Purpose and Goals

Develop options to separate the Great Lakes from the Mississippi River watershed that will

• PREVENT movement of Asian carp and other AIS
• IMPROVE transportation
• IMPROVE water quality
• IMPROVE stormwater, flood management

...in the Chicago area
Leadership and Funding

Executive Committee:
- Gov. Pat Quinn, Illinois
- Gov. John Kasich, Ohio
- Mayor Rahm Emanuel, Chicago, Ill.
- Mayor George Heartwell, Grand Rapids, Mich.
- Tim Eder, Exec. Dir., Great Lakes Commission
- David Ullrich, Exec. Dir., Great Lakes & St. Lawrence Cities Initiative

Funding support from:
- Joyce Foundation
- Great Lakes Protection Fund
- C.S. Mott Foundation
- Great Lakes Fishery Trust
- Wege Foundation
- Frey Foundation
Stakeholder Involvement

• Advisory Committee
  ▫ Business, industry, environmental and other NGOs, community-based groups, etc. – from both Chicago area and Great Lakes region

• Resource Group
  ▫ Governmental and quasi governmental entities with a direct interest in the project (e.g., Metropolitan Water Reclamation District of Chicago; U.S. EPA; U.S. Army Corps of Engineers; Great Lakes Fishery Commission; Tribal Representatives)
Project Schedule

- **Phase I:** Hire consulting team and establish executive committee and advisory committee (July-Dec. 2010)

- **Phase II:** Identify options and scenarios for separation (Jan.-Oct. 2011)

- **Phase III:** Finalize and evaluate options, and prepare final reports (Oct.-Dec. 2011)

Final outcomes by January 2012
**Progress to date...**

- Established and held 4 meetings of AC and RG, including additional small group “preview” meetings
- Hired lead consultant (HDR) with multi-disciplinary technical team
- Established criteria for developing and evaluating options
- Outlined framework for baseline, or “no project” conditions
- Conducted technical interviews
- Ongoing coordination with the Corps on GLMRIS
- Held 2 independent peer review sessions
- Currently finalizing three options to be evaluated
Stormwater Existing Conditions

WILMETTE PUMPING STATION & SLUICE GATES
~5,000 cfs

CHICAGO RIVER CONTROLLING WORKS
~18,000 cfs

CALUMET RIVER
~15,000 cfs

LOCKPORT POWERHOUSE & LOCK
~20,000 cfs

McCook Reservoir
10.0 BG

~15,000 cfs

Thornton Quarry
4.8 BG

~7,000 cfs
Water Quality Existing Conditions

Wilmette Pumping Station & Sluice Gates
- 30 MGD

Northside WWTP
- 330 MGD

Stickney WWTP
- 1,300 MGD

Calumet WWTP
- 350 MGD

Chicago River Controlling Works
- 120 MGD

O’Brien Lock
- 80 MGD
Industrial Cargo Existing Conditions

8m tons
Sand/Gravel/Coal & Lignite
85% → 15% →
Dry Cargo Barge

7m tons
Petroleum Coke & Coal Coke
70% → 30% →
Dry Cargo Barge

1.5m tons
Sand & Gravel
75% →
25% →
Dry Cargo Barge

10m tons
Coal & Lignite
55% → 45% →
Self Propelled Dry

13m tons
Coal & Lignite, Petroleum Coke
60% → 40% →
Dry Cargo Barge, Self Propelled Dry
Passenger Existing Conditions

Chicago Controlling Works Lock
Vessels: 37,016
Passengers: 735,689

O’Brien Lock
Vessels: 18,204
Passengers: 324
Considerations for separation

- Flooding, stormwater management
  - hydrology and conveyance capacities
- Water quality: CSOs and impacts to Lake Michigan
  - Discharges from WWTPs and ability to meet Lake MI standards
  - Disinfection/treatment of effluent and CSOs
- Balance risks of potential impacts:
  - CSOs vs. risk of flooding
  - flooding/CSOs vs. AIS movement
- Transportation: tour boats/recreation vessels in north and commercial vessels in south
  - Bringing barges close to ships; want to minimize cargo transfer and handling costs
What is an “option?”

• Barrier location(s)

• Opportunities for improvement – IMPORTANT; will impact costs, locations, and structure of options

• Timeline – when do we implement separation relative to projected completion of TARP or other anticipated system changes/improvements?

• Cost estimate – distinguish costs of separation project from costs to be incurred anyway for other improvements (e.g., WWTP upgrades, disinfection, TARP)

• Cost-benefit analysis – long-term return on investment
Preliminary Potential Separation Locations

- Started with 20 locations near major infrastructure and inflows or confluences
- One barrier vs. “ensemble” of barriers
  - South of confluence OR
  - Barriers needed in north and south CAWS
Potential Separation Options

“Near Lake” Option
• includes 5 barriers
Potential Separation Options

“Mid System” Option
• includes 4 barriers
Potential Separation Options

“Down River” Option
• single barrier
Artists Rendering: Calumet River at O’Brien Lock
Next Steps

- Evaluate and finalize options, run analyses: August-October
- Final Advisory Committee meeting: October
- Regional public meetings: October
- Develop final report: November-December
- Release of final report: January 2012
Take home messages...

- The study **will be** completed by Jan. 2012
- Study is focused **separation**, not other alternatives
  - Alternatives will be necessary in the interim
- This is **not** a consensus-building effort and will **not** recommend a preferred option for separation
  - A range of options for separation will be developed
- This effort includes extensive stakeholder engagement and input in the process
- Will complement, not supplant, important work of the Corps
Questions and Discussion

More information:
www.glc.org/ans/chicagowaterway