“The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.”
STUDY SCOPE

2014 GLMRIS Report provided basis for this study

GLMRIS-BR Study Goal

- Reduce the risk of one-way aquatic nuisance species transfer to Great Lakes Basin
- Minimize impacts to multiple waterway users
AQUATIC NUISANCE SPECIES

Alternatives adaptable for future species

Modes of Transport:

- Swimming
- Floating
- Hitchhiking

GLMRIS-BR
- Bighead and Silver Carp
- Fresh Water Crustacean (Apocorophium lacustre)
WHY BRANDON ROAD?

- Effective
  - ~ 34 foot high dam
  - Upstream movement through lock
  - Avoids flood bypass via Upper Des Plaines

- Relevant
  - Identified in 3 of 6 structural alternatives (GLMRIS Report)

- Responsive
  - Stakeholder input
  - Upstream of leading edge of Asian Carp population

- Valuable
  - Enhance effectiveness of existing technologies

- Minimizes Impacts
  - Location seeks to minimize impacts to current waterway uses.
LEVERAGED EXPERTISE & SHARED RESPONSIBILITY

Executive Steering Committee
USACE • USFWS • USCG • NOAA • USEPA • USDOT
- Great Lakes Commission
- International Joint Commission
- Great Lakes Fisheries Commission
- Metro WRD of Greater Chicago
- State DNRs

Senior Executive Review Group
USACE HQ • LRD • MVD • SERG Co-chairs
LRD & MVD CGs, SES
Chicago & Rock Island Commanders & DPMs
Regional Integration Team Deputies
Laboratory and CX Leadership

Stakeholders
NEPA Scoping Interest Groups:
- Navigation & Environmental Communities
- Non-Governmental Organizations (CAWS Advisory Committee)
- Brandon Road Work Group
- Congressional Engagements

GLMRIS Program Management
LRC

Brandon Road Project Management
MVR

Planning
MVP/MVR
LRC

Real Estate
MVR

Communications
MVR, LRC

Economics
LRC, PCXIN

Nat Res & NEPA
MVR, LRC

ANS Risk & Tech
Eco-PCX, LRC, MVR, ERDC

Engineering
Inland Navigation Design Center & LRC
SAFEGUARDING NATION’S ECONOMIC INTERESTS IN THE GREAT LAKES BASIN AND NATION’S INLAND WATERWAYS

Brandon Road Lock
- Highly utilized for commercial navigation
- 11.3M tons of cargo transit each year
- $319M in annual transportation benefits
- Link between Great Lakes and Gulf of Mexico

Great Lakes Basin
- 63M recreational fishing trips annually with about $1.3B in net economic value
- Commercial fishing generates about $20M in revenue
WHAT ARE WE TRYING TO PROTECT?

- 20% of the world’s fresh water resource
- Over 5,000 Great Lakes tributaries
- 41% Great Lakes Basin is governed by Canada

- >60 fish species are special status
- 10 Threatened & endangered mussel species

- ~ $1.8B GLRI & Great Lakes Legacy Act (2010-present)
CONSEQUENCES OF ANS ESTABLISHMENT

**Bighead and Silver Carp**
NOAA modeling – Lake Erie
- Asian Carp biomass could range 10% to 34%

Great Lakes Consequences:
- Substantial economic impacts
- Management actions would be in multiple locations
- Perception of quality decreased
- Safety
Modes of Transport:
- Swimmers
- Floaters
- Hitchhikers

Nonstructural Measures

ANS CONTROLS

Engineered Channel

Complex Noise

Flushing Lock

Flushing Lock
# ALTERNATIVES

<table>
<thead>
<tr>
<th>Alternative</th>
<th>ANS Control Measures/Features</th>
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</table>
| **No New Action** (No Action)                   | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Electric Barrier](#)  
| ![Boat Ramp](#)                                 | ![Public Education and Outreach Monitoring Overfishing/Removal](#) |
| **Nonstructural Alternative**                   | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Nonstructural Boat Ramp](#)                                   |
| ![Engineered Channel](#)                        | ![Engineered Channel](#)                                      |
| ![Water Jets](#)                                | ![Flushing Lock](#)                                            |
| ![Mooring Area](#)                               | ![Electric Barrier](#)                                        |
| **Technology Alternative – Electric Barrier**    | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Nonstructural Boat Ramp](#)                                   |
| ![Engineered Channel](#)                        | ![Engineered Channel](#)                                      |
| ![Water Jets](#)                                | ![Flushing Lock](#)                                            |
| ![Complex Noise](#)                             | ![Complex Noise](#)                                            |
| **Technology Alternative – Complex Noise**       | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Nonstructural Boat Ramp](#)                                   |
| ![Engineered Channel](#)                        | ![Engineered Channel](#)                                      |
| ![Water Jets](#)                                | ![Flushing Lock](#)                                            |
| ![Complex Noise](#)                             | ![Complex Noise](#)                                            |
| ![Electric Barrier](#)                          | ![Electric Barrier](#)                                        |
| **Technology Alternative – Complex Noise with Electric Barrier** | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Nonstructural Boat Ramp](#)                                   |
| ![Engineered Channel](#)                        | ![Engineered Channel](#)                                      |
| ![Water Jets](#)                                | ![Flushing Lock](#)                                            |
| ![Complex Noise](#)                             | ![Complex Noise](#)                                            |
| ![Electric Barrier](#)                          | ![Electric Barrier](#)                                        |
| ![Mooring Area](#)                               | ![Mooring Area](#)                                            |
| **Lock Closure**                                 | ![FWOP](#)  
| ![CSSC EB](#)                                  | ![Nonstructural Boat Ramp](#)                                   |
| ![Boat Ramp](#)                                 | ![Lock Closure](#)                                            |
EVALUATION CRITERIA

- Effectiveness
- Relative Life Safety
- Impacts to Navigation (NED Costs)
- Costs
  - Construction
  - Operation, and Maintenance, Rehabilitation,
    - Repair and Replacement
  - Mitigation
- Ability to cycle in new
  - Nonstructural ANS Controls
  - Structural ANS Controls
- Number of Structural Control Points in the CAWS
- Modes of Transport
TENTATIVELY SELECTED PLAN (TSP)

Overview:
- Reduces risk of Mississippi River Basin ANS establishment in Great Lakes Basin
- Allows for continued navigation
- Nonstructural measures
- Mitigation required to address impacts to connectivity

Estimated Cost to Construct: $275.4M
Estimated Cost to Operate and Maintain: $8.2M/yr
Estimated Nonstructural Measures: $11.3M/yr
Estimated Time to Construct: 5 yr
TSP IMPLEMENTATION

- Life safety primary consideration
- Safety evaluation of constructed project
  - USCG, USACE and Navigation Community
- Assumed Operations:
  - Electric Barrier: When no vessels are immediately downstream of barrier, within channel or lock
  - Complex noise on when electric barrier off
- Seek to operate as effectively as possible within acceptable safety parameters
- Nonstructural measures begin as soon as project funded
SMART Feasibility Study Process

**SCOPING**

- USACE Vertical Team concurrence on array of alternatives

**ALTERNATIVE FORMULATION & ANALYSIS**

- USACE Vertical Team concurrence on tentatively selected plan

**PUBLIC REVIEW, ATR, IEPR & POLICY REVIEW**

- Release draft report for concurrent reviews

**FEASIBILITY-LEVEL ANALYSIS**

- Agency Decision Milestone
  - USACE endorsement of recommended plan

**CHIEF’S REPORT**

- Senior Leaders Review
  - Release for State & Agency Review
- Chief’s Report
  - Chief’s Report Signed

**STUDY SCHEDULE**

- **Start** April 2015
- **Finish** August 2019

- 53 months

**Alternatives Milestone**

- USACE Vertical Team concurrence on array of alternatives

**TSP Milestone**

- USACE Vertical Team concurrence on tentatively selected plan

**Agency Decision Milestone**

- USACE endorsement of recommended plan

- **Public Review, ATR, IEPR & Policy Review**

**Milestones**

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<td>Chief’s Report</td>
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<td>August 2019</td>
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# Project Schedule

**Chief's Report Aug 2019**

- **Authorization & Appropriation**: Fall 2020
- **Implement Non Structural Plan**: Fall 2020
- **Begin PED**: Fall 2020
- **Begin Construction**: 2022
- **Complete Construction**: 2025

*Assumes Authorization & Appropriation by Fall 2020*
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