Irondequoit Bay Outlet Bridge Alternatives Analysis Study

April 12, 2017
Study Team:

• Town of Irondequoit
• Fisher Associates
  – HDR
  – Ravi Engineering
• Steering Committee
Steering Committee:

- Town of Irondequoit
- Town of Webster
- Business Owners
- Seabreeze District
- Assemblyman Joe Morelle’s office
- Senator Rich Funke’s office
- Senator Chuck Schumer’s office
- Monroe County Legislature

- USCG
- NYSDOT
- NYSDEC
- NYS Parks
- MCDOT
- GTC
- MC Planning
Agenda:

- Introductions
- Study Purpose
- Results of Existing Conditions Research
  - Jurisdictional Ownership
  - Structural Conditions
  - Environmental Screenings
  - Traffic Data
  - Land Use/Business Assessment
- Evaluation Criteria Process
- Next Steps and Schedule
- Public Involvement Breakout Stations
Study Purpose:

The purpose of the study is to explore options to provide year-round access across the Bay Outlet, creating a better regional transportation system for all modes of travel. The feasibility study will provide a mechanism to assess whether any reasonable design solutions are available to provide year-round access to all travelers, including vehicles, boats, bikes and pedestrians while preserving the Irondequoit Bay’s ability to serve as a Safe Harbor.
Study Tasks:

- Project Initiation
- Existing Conditions Analysis
  - Public Information Meeting
- Development of Alternatives
- Assessment of Feasibility and Cost Analysis
- Present Draft Recommendations
  - Public Information Meeting
- Complete Report
Existing Conditions:

Review of previous plans, designs, reports and documents relating to the Irondequoit Bay Outlet

• NYSDOT Route 104 Ramp Plans – 1967 as-builts
• County and NYSDOT Traffic Records
• Regional Travel Demand Model (TDM)
• Seneca Trail Feasibility Study - 2014
• Comprehensive Plans (Irondequoit, Webster)
• LWRP
Jurisdictional Information
Current Physical and Natural Conditions

Structural Conditions:

- The existing outlet bridge was constructed in 1998.
- Provides two travel lanes and two sidewalks crossing the outlet channel to Irondequoit Bay.
- The bridge is seasonally operated.
- It is open to roadway traffic from November 1 through April 1. The remainder of the year, it is swung open to allow unrestricted marine traffic and is positioned along the west side of the outlet.
- The inside width between trusses is 24 ft and there is a 5 ft sidewalk on each side of the bridge (outside the trusses).
- The navigation clearance with the bridge in the closed position is 4 ft.
Current Physical Conditions

Navigation Study: Access to Irondequoit Bay from Lake Ontario is through a channel which has 100 feet of horizontal clearance and 16 feet of authorized water depth. The water depth has been reported anecdotally as 12 feet by local mariners.

Note: Channel depth of 16 Feet
## Current Physical Conditions

**Vessel Survey:** Review of the local mariners was performed

<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>Estimated Number</th>
<th>Beam (feet)</th>
<th>Draft (feet)</th>
<th>Height from waterline (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor boat 10 to 30 feet in length</td>
<td>1400</td>
<td>8</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Motor Boat over 35 feet in length</td>
<td>25</td>
<td></td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Sail Boat under 30 feet</td>
<td>340</td>
<td></td>
<td>6</td>
<td>33</td>
</tr>
<tr>
<td>Sail Boat over 30 feet</td>
<td>25</td>
<td>15</td>
<td>10 – 12</td>
<td>45</td>
</tr>
<tr>
<td>Work Barges</td>
<td></td>
<td>40</td>
<td>3 to 12</td>
<td>0 to 15</td>
</tr>
<tr>
<td>Emergency Service vessels</td>
<td></td>
<td>12</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>
Current Physical Conditions

Vessel Survey: Review of the local mariners was performed

- Discussions with marina owners
- Count of the slips within the Bay
- ~90% of the vessels berthed within the Bay are recreational craft from 10'-30' long; Some larger craft up to 50' long
- The bay is also home to sailing vessels in 15-30’ range.
- Based upon a count of slips, the bay can accommodate approximately 1800 small craft.

50’ – 100%, 40’ – 95%, 20’ to 30’ – 80%, 10’ – 75%
Environmental Screening and Regulatory Compliance

- Endangered Species
- Hazardous Waste Sites
- Ground / Surface Water
- Wetlands
- Cultural Resources
- Parkland
Environmental Screening and Regulatory Compliance

- Endangered Species – Northern Long-Eared Bat, Bald Eagle
  - (Both current location and Route 104 ramp alternatives)

- Hazardous Waste Sites – Spill Sites and Hazardous Waste Sites Within Study Areas Would Require Subsurface Investigations
  - (Both current location and Route 104 ramp alternatives)

- Ground Water – Sole Source Aquifer – No
  - Primary Aquifer – Yes but most likely no impact
  - (Both current location and Route 104 ramp alternatives)
Environmental Screening and Regulatory Compliance

- Surface Water – Lake Ontario and Irondequoit Bay NYSDEC Class A Water Bodies
  (Current location alternative consideration)

- Wetlands – Within 100 Foot Check Zone NYSDEC Wetlands Near Federal Mapped and Regulated Wetland
  – (Both current location and Route 104 ramp alternatives)

- Cultural Resources – No Historic, Possible Archeological
  – (Both current location and Route 104 ramp alternatives)

- Parkland – Irondequoit Bay State Marine Park – Section 4f Evaluation
Environmental Screening: Permitting

- US Army Corps:
  - Section 404 Clean Waters Act
  - Pre-Construction Notification Nationwide Permit 14
  - Section 10 of the Rivers and Harbors Act of 1899
- US Coast Guard
  - Section 9 of the Rivers and Harbors Act of 1899
- Executive Orders
  - EO 11990 Protection of Wetlands
  - EO 11988 Floodplains
- NYS Department of State
  - Coastal Zone Consistency Certification Statement
Environmental Screening: Permitting

- NYS Department of Environmental Conservation:
  - Article 34 Coastal Erosion Hazard Area Permit
  - Article 24 Freshwater Wetlands Permit
  - Section 401 Water Quality Certification
  - State Pollution Discharge Elimination System (SPDES) General Permit

- NYS Office of Parks Recreation and Historic Preservation:
  - Section 4(f) evaluation
Environmental Screening:

- State Wetland Mapped Boundary (requires delineation to confirm)
- Landward Extent of the State Wetland Check Zone
- Federal Wetland Mapped Boundary (requires delineation to confirm)
- NYSDEC Primary Aquifer Boundary
- NYS Parklands
- NYSDEC Superfund Sites (Hazardous Waste Sites)
Environmental Screening:

- State Wetland Mapped Boundary (requires delineation to confirm)
- Landward Extent of the State Wetland Check Zone
- Federal Wetland Mapped Boundary (requires delineation to confirm)
- NYSDEC Primary Aquifer Boundary
- NYSDEC Superfund Sites (Hazardous Waste Sites)
### Current Traffic Conditions: Historical Counts

#### Bridge Closed to Cars

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Location</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCDOT</td>
<td>Dec 17, 2014</td>
<td>West of IBOB</td>
<td>4558</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Dec 6, 2014</td>
<td>West of IBOB</td>
<td>4785</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Dec 2, 2014</td>
<td>West of IBOB</td>
<td>5008</td>
</tr>
</tbody>
</table>

#### Bridge Open to Cars

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Location</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCDOT</td>
<td>Mar 11, 2000</td>
<td>West of IBOB</td>
<td>5489</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Mar 7, 2000</td>
<td>West of IBOB</td>
<td>6126</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Dec 6, 1999</td>
<td>West of IBOB</td>
<td>5301</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Dec 5, 1999</td>
<td>West of IBOB</td>
<td>6371</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Dec 4, 1999</td>
<td>West of IBOB</td>
<td>5764</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Mar 14, 1999</td>
<td>West of IBOB</td>
<td>5031</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Mar 13, 1999</td>
<td>West of IBOB</td>
<td>5673</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Mar 11, 1999</td>
<td>West of IBOB</td>
<td>5125</td>
</tr>
</tbody>
</table>

#### First Year After Swing Bridge

<table>
<thead>
<tr>
<th>Source</th>
<th>Date</th>
<th>Location</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCDOT</td>
<td>Aug 1, 1985</td>
<td>West of Bay Road</td>
<td>1611</td>
</tr>
<tr>
<td>MCDOT</td>
<td>Aug 1, 1984</td>
<td>West of Bay Road</td>
<td>9817</td>
</tr>
<tr>
<td>MCDOT</td>
<td>June 1, 1981</td>
<td>West of Bay Road</td>
<td>9561</td>
</tr>
</tbody>
</table>

#### Original Bridge Removed
Current Traffic Conditions:
2010 ADT
Open for Cars

Source: GTC Regional Travel Demand Model Estimates
Current Traffic Conditions:

2010 ADT
Closed for Cars

Source: GTC Regional Travel Demand Model Estimates
Land Use and Business Assessment

- Impact of seasonal closure on area businesses
  - Water-adjacent business uses in Irondequoit are largely summer-focused
    - Loss of access reduces customer base
    - Seasonal nature of businesses creates difficulty comparing winter and summer conditions
  - Businesses along Culver Road may see reduction in sales due to change in traffic pattern between bridge opening and closure
- Economic development potential and expected impacts will vary by bridge alternative
Economic Analysis

- Impact of seasonal closure on residents/tourists
  - Forced change in travel patterns
  - Bicycle/pedestrian access along waterfront
  - General connection between neighboring towns that are close for only part of the year
  - Increased emergency response time
  - Impacts to the boating community
Analytical Approach

• Review study area Census demographic and employment data
  – Population
  – Travel patterns
  – Employment
  – Work commute
  – Spending habits
  – Local sales

• Determine relative size of impacted market area

• Evaluate magnitude of existing impacts of summer bridge closure
  – Differences between summer and winter accounting for seasonal differences
Next Steps Economic Evaluation

• Utilize traffic data in combination with Census data to quantify seasonal variation and business impacts

• Quantify user-related impacts of seasonal bridge closure
  – Travel time costs, including emergency response
  – Loss of bike/ped connectivity
  – Environmental impacts of roadway diversion
  – Safety impacts of changing travel patterns

• Apply methodology to the bridge alternatives to assess differences between alternatives
  – Water-adjacent business uses in area are largely summer-focused; loss of access reduces customer base
Evaluation Criteria: establishes a process that...

- Is systematic
- Objective
- Defendable
- Utilizes a prioritized matrix
- Is developed in collaboration with the Steering Committee and the public
Alternatives Evaluation:

- Environmental considerations
- Existing conditions, traffic evaluation, property impacts, economic impacts
- Steering Committee, Stakeholder & Public Input
- Evaluation Criteria
Development of Alternatives

• Three alternatives with variations
  – Fixed Bridge at existing location
  – Movable Bridge at existing location
  – Extension of the ramps at Irondequoit Bay Bridge
### Fixed Bridge at Existing Location

<table>
<thead>
<tr>
<th>Under Clearance</th>
<th>Bridge Depth</th>
<th>Roadway Elev. Above Existing</th>
<th>Approach Length (5%)</th>
<th>Total Bridge Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>10</td>
<td>30</td>
<td>600</td>
<td>1300 (blue)</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
<td>40</td>
<td>800</td>
<td>1700 (orange)</td>
</tr>
<tr>
<td>40</td>
<td>10</td>
<td>50</td>
<td>1000</td>
<td>2100 (purple)</td>
</tr>
</tbody>
</table>
Movable Bridge at Existing Location

- Installation of traffic gates (150 feet each end)
- Potential vertical clearance increase to pass more vessels with bridge in place
- Type of Bridge
  - Swing (use existing)
  - Twin leaf bascule
  - Towerless vertical lift
Extension of Irondequoit Bay Bridge Ramps
Next Steps

• Finalize existing conditions research and complete economic analysis
• Develop concept alternatives for evaluation
• Apply evaluation criteria to the alternatives
• Prioritize Alternatives
• 2nd Public Meeting

http://www.irondequoit.org/all-news/330-i-b-o-b-feasibility-study
**Schedule**

**Project Initiation**
Dec - Jan

**Public Participation Plan**
Jan - Sept

**Existing Conditions Analysis**
Jan - April

**Development of Alternatives**
April - May

**Assessment of Feasibility & Cost Analysis**
June - July

**Present Draft Recommendations**
August

**Second Public Meeting**
August

**Finalize Report**
September
Breakout Stations

- Comment Station
- Trip Location Station
- Evaluation Criteria Station
- Community “Where do you live?” Map
- Online Survey
Breakout Stations for Public Input