MONMOUTH COUNTY OCEANIC BRIDGE (S-31) LOCAL CONCEPT DEVELOPMENT STUDY

Online Public Information Center No. 3

August 27, 2020
Introductions

Project Team
- Monmouth County
- North Jersey Transportation Planning Authority (NJTPA)
- New Jersey Department of Transportation (NJDOT)
- Michael Baker International – Consultant Team Lead
Agenda

• Process Overview
• Data Collection and Environmental Screening
• Public Outreach
• Navigational Impact Report – USCG Letter
• Purpose and Need
• Conceptual Alternatives
• Comparison of Conceptual Alternatives Matrix
• Cost Summary Matrix
• Preliminary Preferred Alternative
# Project Overview

## Local Project Delivery Process

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<thead>
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<th>Construction</th>
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<td>Approved Design Exception Report</td>
<td>Construction Contract Documents and PS&amp;E package</td>
<td>Completed Construction</td>
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<td></td>
<td>Data Collection and Environmental Screening Report</td>
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<td>Environmental Reevaluations</td>
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<td>Selection of Preliminary Preferred Alternative</td>
<td>Approved Environmental Document</td>
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<td>Update and Finalize Design Communications Report</td>
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<td>NEPA Classification</td>
<td>Approved Project Plan</td>
<td>Acquisition on ROW</td>
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<td>Concept Development Report</td>
<td>Preliminary Engineering Report</td>
<td>Update Design Communications Report</td>
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<td>Create Design Communications Report</td>
<td>Update Design Communications Report</td>
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</table>

We are here

**Our Current Phase**
Data Collection & Environmental Screening
Public Outreach

Existing Conditions

Community Stakeholders Meeting No. 1
- October 6, 2016, 6-8pm, Rumson Bingham Hall

Public Information Center No. 1
- October 25, 2016, 2-4pm, Rumson Bingham Hall
- October 25, 2016, 6-8pm, Middletown Public Library

Conceptual Alternatives

Community Stakeholders Meeting No. 2
- June 6, 2017, 6-8pm, Middletown Public Library

Public Information Center No. 2
- June 20, 2017, 2-4pm, Middletown Public Library
- June 20, 2017, 6-8pm, Rumson-Fair Haven Regional HS
• Received March 25, 2019

• Vertical Clearance: 65’ if a Fixed Bridge
“As discussed below, we have determined that the reasonable needs of navigation require the replacement bridge, if a movable bridge, provide for a minimum 22 feet vertical clearance (VC) at mean high water (MHW) in the closed position; if a fixed bridge alternative is selected, its VC must be at least 65 feet at MHW.”
Project Purpose & Need and Goals & Objectives

Purpose
The overall purpose of this project is to address structural, geometric, carrying capacity, and operational deficiencies of the Oceanic Bridge (S-31) over the Navesink River and to provide safe, efficient, and reliable passage for all modes of transportation.

Identified Needs
Bridge and Roadway Deficiencies
The Oceanic Bridge is structurally deficient, functionally obsolete, and is at the end of its service life. Built in 1929, the bridge requires extensive ongoing repairs in order to remain functional. The overall condition of the bridge is “critical”, the superstructure is “serious”, the deck is “fair”, and the substructure is “poor.”

The bridge roadway does not comply with current design standards. Numerous elements such as lane widths and shoulder widths are substandard and result in inefficient traffic operations.

The overall condition of the Oceanic Bridge is deemed “critical,” due to a deficiency rating of 25, on a scale of 0 to 100. The bridge’s weight limit has been decreased to 2 tons in response to its structural condition. Prior to the maintenance work, the bridge’s weight limit had been decreased to as low as 3 tons. The superstructure is in “serious” condition due to heavy loss throughout steel members with section losses in the girder and floor beam flanges and webs. Several concrete approach spars exhibit large spalls with exposed rusted reinforcing and cracking in the T-beams.

The concrete deck is in “fair” condition, exhibiting medium to wide longitudinal cracks and spalling throughout. There are also large areas of oil and new concrete patching throughout the deck, and the entire deck surface has chloride contamination exceeding 3%. The underside of deck, floor beams of the concrete T-beams, and sidewalk overhangs exhibit small to large spalls with exposed rusted reinforcement.

The substructure is in “poor” condition and does not meet current design standards due to wide cracking and deep spalls with exposed and severely rusted reinforcing steel in the concrete columns, towers, and pier caps.

Severe spalling, minor or severely deteriorated steel piers, spalling of concrete encrustations exposing steel chipping, and severe decay in timber piers and deteriorated fender systems at the bascule pier.

Several Control and Design Elements (CDE) exist within the study limits, including Lane Width, Shoulder Width, and Structural Capacity. The roadway has a substantial geometry, including Minimum Radius of Curves, Cross Slope, Superelevation, and Stopping Sight Distance (horizontal curve).

System Linkage
The Oceanic Bridge provides an important multimodal link within the regional transportation network. Heavily utilized by cars, maritime vessels, pedestrians, and bicycles, its connectivity is vital to the local economies.

The Oceanic Bridge is a major north-south arterial roadway for regional and local travel and serves as a vital Navesink River crossing for residents, commuters, tourists, school buses, emergency services vehicles, and commercial vehicles. The bridge is also utilized by emergency services to access to Shrewsbury Medical Hospital and local community facilities as a coastal evacuation route

South Monmouth County Oceanic Bridge (S-31) LC Study – Purpose and Need Statement – April 2017

Local Concept Development Study for Monmouth County Oceanic Bridge (S-31) Bridging the Navesink River

Purpose and Need Statement – April 2017

In Sea Bright, Middletown, Long Branch, and Sandy Hook National Park, particularly in the peak tourist season.

The connection provided by the Oceanic Bridge is economically important, linking customers with local businesses. Local residents and business owners rely on the Oceanic Bridge for their daily needs. Due to its local and regional importance, bridge closures become highly detrimental to the community from the lack of convenient alternate routes. The Oceanic Bridge is the only crossing over the Navesink River in the immediate area, and requires a detour in excess of 8 miles when closed.

The bridge spans a navigable channel within IJISD jurisdiction, which cannot be impacted. Bicyclists and pedestrians frequently utilize the bridge for travel and recreation. One sidewalk is provided along the east side of the bridge, and there are no bicycle facilities. Shoulders are not wide enough to accommodate bicycles, and riders are instructed by signs to dismount while crossing the bridge.

Goals and Objectives

- Avoid delay or disruptions caused by aging infrastructure.
- Avoid or minimize impacts to social, economic, and environmental resources.
- Accommodate recreation on the bridge where safe and appropriate.
- Accommodate ADA compliant bicycle and pedestrian access.
- Accommodate public access and parking where feasible.
- Avoid or minimize complete or long-term bridge openings or roadway closures.
- Minimize traffic impacts related to bridge openings.
- Implement cost-sensitive design solutions.
- Accommodate responsible needs of navigation.
- Address slope stability at the northern limits of the project.
Project Purpose & Need and Goals & Objectives

“The overall purpose of this project is to address structural, geometric, carrying capacity, and operational deficiencies of the Oceanic Bridge (S-31) over the Navesink River and to provide safe, efficient, and reliable crossing for all modes of transportation.”
## Project Purpose & Need and Goals & Objectives

### Goals and Objectives

- Avoid delays or disruptions caused by aging infrastructure.
- Avoid or minimize impacts to social, economic and environmental resources.
- Accommodate recreation on the bridge where safe and appropriate.
- Accommodate ADA compliant bicycle and pedestrian access.
- Accommodate public access and parking where feasible.
- Avoid or minimize complete or long-term bridge openings or roadway closures.
- Minimize traffic impacts related to bridge openings.
- Implement context sensitive design solutions.
- Accommodate reasonable needs of navigation.
- Address slope stability at the northern limits of the project.
Development of Conceptual Alternatives
26 Total Alternatives Evaluated

Federally Required Alternatives

Alternative 1: No Build
Alternative 2A: Rehabilitation
Alternative 2B: Modified Rehabilitation
Alternative 3: New Location Alignment

Additional Alternatives

Alternative 4A: West Alignment A
Alternative 4B: West Alignment B
Alternative 5: Same Alignment
Alternative 6A: Half-on/Half-off Alignment A
Alternative 6B: Half-on/Half-off Alignment B
Alternative 7A: East Alignment A
Alternative 7B: East Alignment B
Alternative 8: Outer East Alignment
Alternative 1
No Build

Alternative 2A
Rehabilitation

Alternative 2B
Modified Rehabilitation

Alternative 1 would keep the bridge in the current state of repair.

Alternative 2A would include major rehabilitation to address deficiencies in the substructure, superstructure, and road deck in order to meet current design standards.

Alternative 2B would include major rehabilitation to address deficiencies in the substructure, superstructure, and road deck in order to meet current design standards; however, elements which contribute to its historic significance (per Secretary of Interior Standards) such as the double leaf bascule span, operator’s house, approach span design, railings, and lighting would be retained.
Proposed Cross-Section For Bridge Replacement Alternatives

EXISTING

PROPOSED
Alternative 3
New Location, Maintaining the Existing Bridge

Alternative 3 would construct a new bridge in a different location, crossing the Navesink River approximately 1 mile west of the existing bridge. The new bridge would connect to Buena Vista Avenue in Rumson and Browns Dock Road in Middletown, and would be designed to meet current design standards. The existing bridge would remain and be maintained for non-vehicular use.

Vertical Options
- Movable bridge with 45 foot vertical clearance
- Fixed bridge with 65 foot vertical clearance
ALTERNATIVE 4B: WEST ALIGNMENT

OCEANIC BRIDGE PLAN - ALIGNMENT ALTERNATIVE NO. 4B

OCEANIC VERTICAL BRIDGE PROFILE
ALIGNMENT ALTERNATIVE NO. 4B

OCEANIC BRIDGE CROSS SECTIONS
LOOKING NORTH

NOTES:
1. VERTICAL PROFILE SHOWN AT EXAGGERATED SCALE OF 1:1
2. DRAWING NOT TO SCALE

LEGEND
ROADWAY IMPROVEMENTS:
SEWER/VALVE IMPROVEMENTS
WALL & RETAINING WALL
EXISTING RIGHT-OF-WAY
ROADWAY REALIGNMENT
WASH HEIGHT LIMITS

MONMOUTH COUNTY OCEANIC BRIDGE (S-21)
ON BINGHAM AVE. - LOCUST POINT RD. (CR 8A)
OVER THE NAVESEK RIVER
LOCAL CONCEPT DEVELOPMENT STUDY

BOROUGH OF KEANESBOROUGH & TOWNSHIP OF MIDDLETOWN
MAY 2017

18
Community Stakeholders Meeting No. 2 – Dot Exercise

Community Stakeholders Meeting No. 2
• Alternative 7A horizontal alignment was preferred

PIC Meeting No. 2
• Alternative 7A horizontal alignment was preferred
Community Stakeholders Meeting No. 2/PIC Meeting No. 2
Preference – Vertical Alignment

Community Stakeholders Meeting No. 2
• All height options supported

PIC Meeting No. 2
• 22’ high movable option preferred

Community Stakeholders Meeting No. 2 – Dot Exercise
Engineering Technical Reviews

NJDOT Subject Matter Experts – December 2019

• Elimination of Substandard Curvature

Value Engineering Study – March 2020

• Reduced Posted Speed Limit to 35 mph
Conceptual Alternatives

Federally Required Alternatives

Alternative 1: No Build
Alternative 2A: Rehabilitation
Alternative 2B: Modified Rehabilitation
Alternative 3: New Location Alignment

Additional Alternatives

Alternative 4A: West Alignment A
Alternative 4B: West Alignment B
Alternative 5: Same Alignment
Alternative 6A: Half-on/Half-off Alignment A
Alternative 6B: Half-on/Half-off Alignment B
Alternative 7A: East Alignment A
Alternative 7A - Modified: East Alignment A
Alternative 7B: East Alignment B
Alternative 8: Outer East Alignment
Preliminary Preferred Alternative – 7A Modified – 65’ Fixed Bridge
Comparison of Alternatives Matrix

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>1: New Build</th>
<th>2: Rehabilitation (AB)</th>
<th>3: Low Level-traveler Alternative (BA)</th>
<th>4: High Alignment (BB)</th>
<th>5: Same Alignment</th>
<th>6: No-build/no-build (BB)</th>
<th>7: East Alignment (BA)</th>
<th>8: West Alignment (BA)</th>
<th>9: North Alignment (AA)</th>
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Note: The table above compares various alternatives in terms of their purpose, need met, controlling substandard design elements, mechanical and electrical aspects, multimodal and system linkage, environmental impact, rights-of-way, and construction duration and cost. Each row represents a different aspect or stage of the project, with columns indicating different alternatives.

1. Alternatives which add one to two substandard scores.
2. Alternatives which add substandard at both right and left.
3. Alternatives which result in comparable substandard scores.
4. Alternatives which result in comparable substandard scores.
5. Alternatives which result in comparable substandard scores.
6. Alternatives which result in comparable substandard scores.
7. Alternatives which result in comparable substandard scores.
8. Alternatives which result in comparable substandard scores.
9. Alternatives which result in comparable substandard scores.

**Mechanical & Operation Cost:** Includes maintainable portion only.
## Alternatives Cost Summary

<table>
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<tr>
<th>Construction Duration and Cost</th>
<th>Alternative Height</th>
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<th>Alt. 2B</th>
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## Construction Duration and Cost (cont.)

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<td>Construction Related Road User Costs</td>
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<td>$19</td>
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</tr>
<tr>
<td>Total Construction Cost and Construction Related Road User Cost</td>
<td>millions $</td>
<td>$162</td>
<td>$175</td>
<td>$193</td>
<td>$203</td>
<td>$164</td>
<td>$164</td>
<td>$194</td>
<td>$204</td>
<td>$166</td>
<td>$192</td>
<td>$202</td>
<td>$164</td>
<td>$194</td>
<td>$204</td>
<td>$166</td>
<td>$192</td>
</tr>
<tr>
<td>Life Cycle Cost (present value - 100 yrs.)</td>
<td>millions $</td>
<td>$43</td>
<td>$48</td>
<td>$96</td>
<td>$96</td>
<td>$48</td>
<td>$48</td>
<td>$96</td>
<td>$96</td>
<td>$48</td>
<td>$95</td>
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<td>$47</td>
<td>$96</td>
<td>$96</td>
<td>$48</td>
<td>$95</td>
</tr>
<tr>
<td><strong>Total Construction Cost, Construction Related Road User Cost and Life Cycle Cost</strong></td>
<td>millions $</td>
<td>$205</td>
<td>$222</td>
<td>$288</td>
<td>$298</td>
<td>$211</td>
<td>$211</td>
<td>$289</td>
<td>$299</td>
<td>$213</td>
<td>$286</td>
<td>$296</td>
<td>$210</td>
<td>$289</td>
<td>$299</td>
<td>$213</td>
<td>$286</td>
</tr>
</tbody>
</table>
Preliminary Preferred Alternative

Key Design Features
- Improves all substandard design elements
- Removes all bridge openings
- Provides wider sidewalks on both sides of the bridge
- Provides shoulders for bicycle use
- Removes the open grate on the movable span to improve bicycle compatibility
- Eliminates the yearly operation costs of the movable span
- Provides a lower life cycle cost
- Maintains public access
- Provides a modified version of the community preferred horizontal alignment
- Provides longer spans with less piers, which provides more open views of the water
- Minimizes residential property and driveway impacts
- Complies with Code of Federal Regulations Section 650.809 for use of federal funds
- Requires a limited duration detour during construction
Preliminary Preferred Alternative

Looking West
From Middletown Towards Rumson
Preliminary Preferred Alternative

Existing

Looking West
From Middletown Towards Rumson

Proposed
Preliminary Preferred Alternative

Looking Southwest
From Middletown Towards Rumson

USE OF THIS AREA TO BE DETERMINED IN DESIGN
Preliminary Preferred Alternative

Existing vs. Proposed:
Looking Southwest
From Middletown Towards Rumson
Preliminary Preferred Alternative

Existing

Looking East
From Water Towards Sea Bright

Proposed
Preliminary Preferred Alternative

Existing

Looking Northeast
From Water Towards Middletown

Proposed

Middletown
Rumson
Existing

Looking Northeast
From Rumson Towards Middletown

Proposed
Preliminary Preferred Alternative

Looking Northeast
From Rumson Towards Middletown

Existing

Proposed
Preliminary Preferred Alternative

Looking Northwest
From Rumson Towards Middletown
Preliminary Preferred Alternative
Project Schedule / Next Steps

• Online PIC Meeting No.  
  
  August 27, 2020

  • Receive Written Comments from the Public
    Thursday, August 27 through Friday, October 16, 2020

• Obtain Resolutions of Support  
  October 2020

• Draft Concept Development Report  
  November 2020

• Complete Agency Review/LCD Study  
  December 2020
Project Website:
www.monmouthcountyoceanicbridge.com

Email:
monmouthcountyoceanicbridge@gmail.com

Thank You For Listening