Jupiter Federal Bridge Replacement Project

SR-5/US-1 Federal Highway Bridge Replacement
CR-A1A to Beach Road | Palm Beach County, Florida
Financial Project ID 428400-2-32-01
Town of Jupiter Inlet Colony Commission Meeting
June 11, 2019
Meeting Agenda

- Replacement Bridge Update
- Construction Approach Evaluation
- Intersection Improvements & Traffic Management
- Construction Cost and Schedule Estimates
Proposed Replacement Bridge

- Existing bridge from Sawfish Bay Park
- New bridge includes twin double leaf bascule span – similar to existing bridge
Proposed Bridge Appearance

- Cleaner appearance
- Less viewshed obstruction
- Bridge piers placed to improve channel flow and reduce shore erosion

Existing bridge south approach spans

New bridge south approach spans (observation deck not shown for clarity)
Bridge Aesthetic Coordination

- Conducted Six Bridge Aesthetics Committee (BAC) meetings
- Provided input and direction for bridge aesthetics

Presented to BAC at Meeting No. 6

Update in progress due to BAC feedback
Bridge Lane Configuration

- Improved facilities for pedestrians and bicyclists
Proposed Solid Bridge Deck

- Solid bridge deck:
  - Quieter
  - Improved ride for vehicles, bicyclists, and motorcyclists
Navigation Clearances

- 25’
- 90’
- 125’
- 35’
Placement of Proposed Bridge

- Right-of-way constraints prohibit placement of proposed bridge adjacent to existing bridge alignment.
- Placement of proposed bridge on existing bridge alignment is only option.
- Evaluation of placing proposed bridge on existing bridge alignment included:
  - Detour traffic during construction of new bridge.
  - Phased construction: place traffic to one side of existing bridge and build new bridge in phases.
Conventional Phased Construction Evaluation

- Requires delicate removal of half existing bridge
- Rehabilitate remaining movable span to improve reliability
- 3 - 4 month detour during removal operation
- Risk of existing bridge settlement/malfunction prompting 9 – 12 months or more extended closures and construction delays
Conventional Phased Construction Evaluation

- Install new foundation adjacent to remaining half of existing bridge
- Construct half of the new bridge while maintaining traffic on the existing half: 24 – 27 months
- Significant increase in impacts to vehicular traffic during existing bridge openings (12 – 18/day)
- Limited space for work zone mobility
- Remove existing bridge adjacent to half of new bridge
- Construct remaining half of new bridge: 27 – 30 months schedule
- 60 – 63 month total schedule
Benefits of Hybrid Phased Construction

- Optimizes benefits of phasing and detour
- Consideration of all stakeholders
  - Avoids delicate removal of half existing bridge
  - Greatly reduces risk of existing bridge settlement/malfunction and extended closures and construction delays
  - Targets fast track construction of half of new bridge: 18 – 20 months; 12 months to construct remaining half of new bridge
  - 12 months of 2 lanes, bike and pedestrian facilities on half new bridge
  - Improved work zone mobility
  - Higher bridge with less frequent openings upon opening half of new bridge (7 – 10/day)
  - 42 – 45 month total schedule
## Construction Cost and Schedule

<table>
<thead>
<tr>
<th>Construction Phases</th>
<th>Conventional Phased</th>
<th>Hybrid Phased</th>
<th>Notes</th>
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</table>
| **Detour Duration**               | 3 – 4 months        | 18 – 20 months| - Risk of conventional phased construction removal of half of existing bridge resulting in detour duration of 9 – 12 months or longer  
- Hybrid phased detour for full closure to build southbound half of new bridge |
| **Two Lanes of Traffic Duration on Half Existing Bridge** | 27 – 30 months      | N/A           | - Conventional phased includes 27 – 30 months of two lane traffic on half existing bridge  
- Hybrid phased construction maintains two lanes of traffic on new bridge following detour  
- No bike, pedestrian facilities on existing bridge |
| **Two Lanes of Traffic Duration on Half New Bridge** | 30 – 34 months      | 12 – 15 months| - Hybrid phased construction maintains two lanes of traffic on new bridge following detour  
- Two lanes, bike and pedestrian facilities on half new bridge  
- Higher bridge with less frequent openings upon opening half of new bridge |
| **Total Duration**                | 60 – 64 months      | 42 – 45 months| - Hybrid phased construction includes 9-12 months pre-detour phase |
| **Construction Cost**             | $122,000,000        | $135,000,000  | - Hybrid phased construction includes innovations, incentives, and intersection improvements |
Intersection Improvements & Traffic Management

• Evaluating viability of intersection improvements along detour route
• Mitigate community impacts during detour
• Conducted detailed traffic studies at following intersections:
  - US 1 at Beach Rd/Alt A1A at Old Dixie Hwy
  - ALT A1A at SR 706
  - US 1 at SR 706
• FDOT working with Palm Beach County to evaluate traffic management to maintain mobility during construction
## Traffic Study Summary

<table>
<thead>
<tr>
<th>Start/Finish AM/PM</th>
<th>Existing Condition (minutes)</th>
<th>During Detour (minutes)</th>
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<tbody>
<tr>
<td><strong>Northbound</strong></td>
<td></td>
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<tr>
<td>Start: US 1 South of Indiantown Road</td>
<td>AM 4.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Finish: US 1 North of Beach Road</td>
<td>PM 4.6</td>
<td>9.0</td>
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<tr>
<td><strong>Southbound</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start: US-1 North of Beach Road</td>
<td>AM 4.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Finish: US 1 South of Indiantown Road</td>
<td>PM 3.8</td>
<td>5.3</td>
</tr>
</tbody>
</table>

- Study includes intersection improvements
- Traffic management will improve traffic flow
- Considerations for SR 706 bascule span operations peak limitations
Project Status/Schedule

- Anticipated construction activity schedule*:
  - Summer 2021 - Intersection Improvements begin
  - Late Summer 2021 - Pre-detour phase bridge construction begins
  - Spring/Early Summer 2022 – Detour phase begins
- Contractor schedule incentives for detour phase completion (18 – 20 months) is under evaluation

*Final schedule developed by contractor
Questions ?