PennDOT Rapid Bridge Replacement Project

Ohio Transportation Engineering Conference

October 27-28, 2015
Agenda

- Project Overview
- Project Development and Scoping
- Procurement Process
- Technical Requirements
- Commercial Requirements
Pennsylvania leads the nation in structurally deficient bridges, with 18% of its 25,000 bridges classified as such. The national average is 7.3%.

- Average age of bridges
- Safety challenges
- Funding challenges
Project Overview

- Goals
  - Expedite delivery
  - High-quality, cost-effective and sustainable technical solutions
  - Minimize environmental impacts
  - Minimize public inconvenience
  - Whole-life cost approach
  - Minimize cost
Project Overview

- **558 total bridges replaced**
  - **Early Completion Bridges (88 total)**
    - PennDOT provides ROW, NEPA clearances, permits utility relocation needed to begin design and construction
  - **Remaining Eligible Bridges (470 total)**
    - Developer obtains permits to begin design and construction
    - PennDOT provides ROW and environmental clearance
  - **25-year maintenance obligation**
Project Overview

- Bridge Characteristics
  - Technically straightforward
  - Environmentally straightforward (categorical exclusions)
  - Replacement bridge must accommodate long term needs — bridges not replaced strictly in kind

Effective logistical management and optimizing economies of scale were key drivers to cost effective project delivery
Significant data collection and evaluation efforts recently completed

Apply high-level screening criteria
- Structurally deficient
- Full replacements
- Single and multi-spans
- Representative of PennDOT’s portfolio
- No consultant activity

Conduct preliminary assessments
- Performed by Districts
- Resulting preliminary bridge list
  included 880 state bridges and
  88 local bridges
Project Development and Scoping

- **Conduct detailed assessments**
  - **Achieve biggest bite**
    - Fewer spans
    - Smaller deck area
    - Lower cost
    - No utilities
  - **Best value**
    - Closed or posted
    - On larger networks
    - Older
    - Lower cost
  - **Most impact**
    - Closed or posted
    - Over railroads
    - Higher ADT
    - Higher number of lanes
    - Important functional classification (i.e. interstates)
    - Higher percentage trucks
  - **P3 Readiness**
    - No utilities
    - Not over water
    - Low ADT
    - Good approach alignment
    - Good deck geometry
    - Not over railroads
    - Good waterway adequacy
Procurement Process

- **Adherence to the fast-paced procurement schedule**
  - Maintaining the procurement schedule was a top priority for PennDOT and the proposers
  - Close adherence to the procurement schedule increased proposers’ confidence
  - Result: 10 months from issuance of RFQ to selection of preferred bidder, 12 months to Commercial Close – a record for the market

- **Active engagement of proposers throughout the procurement process**
  - Great value was generated by the discussions with proposers in developing a common understanding of innovative risk allocation clauses stemming from the portfolio nature of the Project

- **Well-structured evaluation process for RFQ and RFP, including training of reviewers and clear understanding of evaluation process and objectives**

- **Strong PennDOT leadership and continuous involvement throughout the process ensured quick decision-making**

- **Early and continuous involvement of Federal Highway Administration**
Procurement Process

- Four proposers shortlisted and four compliant, competitive bids received
  - Plenary, the Walsh Group, Granite Construction and HDR
  - Design build price was $899 million
  - Milestone payments
  - Annual payments
  - Best value proposer committed to achieve substantial completion 6 months ahead of required PennDOT date
## Procurement Process

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Issuance of RFQ</td>
<td>December 12, 2013</td>
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<tr>
<td>Issuance of Industry Review Draft of RFP Documents</td>
<td>April 4, 2014</td>
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<tr>
<td>Issuance of Draft Final RFP</td>
<td>July 3, 2014</td>
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<td>Last Addendum of Final RFP</td>
<td>August 12, 2014</td>
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<td>Proposal Due Date</td>
<td>September 29, 2014</td>
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<tr>
<td>Announcement of Preferred Proposer</td>
<td>October 24, 2014</td>
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<tr>
<td>Commercial Close</td>
<td>January 8, 2014</td>
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<tr>
<td>Notice to Proceed with Design and Construction</td>
<td>March 18, 2015</td>
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<td>Substantial Project Completion</td>
<td>June 30, 2018</td>
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- The substantial project completion deadline is the later of 42 months after the commercial closing date and August 30, 2018
Technical Requirements

- Construction Limits
  - Early Completion Bridges
    - The area shown on the relevant plans developed by PennDOT and delivered to the Developer reasonably well in advance of the proposal due date, together with any amendments to such plans made by the Developer in accordance with the requirements of the agreement
  - Remaining Eligible Bridges
    - The area shown on the relevant final ROW plan submitted by the Developer and approved by PennDOT in accordance with the Technical Provisions
Maintenance Limits

- In respect of any Replacement Bridge, the Construction Limits and, if applicable, 50 feet upstream and downstream of the crossing waterway
Technical Requirements

- **Right-of-Way (ROW)**
  - **Early Completion Bridges**
    - By March 31, 2015, PennDOT acquired ROW based on the PennDOT’s TS&Ls
    - Any additional ROW must be coordinated with PennDOT at the earliest opportunity
  - **Remaining Eligible Bridges**
    - The Developer shall prepare and submit final ROW plans to PennDOT who will have up to 11 months to obtain a Categorical Exclusion and acquire ROW
    - PennDOT will not begin acquisition activities until deficiencies are corrected
Technical Requirements

- Construction Specifications
  - PennDOT standard prescriptive design and construction specifications
    - Little opportunity for innovative design or construction techniques (although Alternative Technical Concepts (ATCs) were approved and included in the proposal the ATCs were primarily geared toward shortening the construction period)

Using standard specifications are less problematic when there is less opportunity for innovation
Project Management Plan

- The Developer shall prepare and adhere to a Project Management Plan containing multiple component plans including the following plans at PennDOT’s sole discretion approval:
  - Public Information and Communications Plan
  - ROW Acquisition Plan
  - Utility Relocation Plan
  - Waste Management Plan
  - Comprehensive Environmental Protection Plan
  - Quality Management Plan (QMP)
  - Maintenance Management Plan
  - Safety Plan
  - Emergency Management and Disaster Recovery Plan
  - Traffic Management Plan
Quality Management Plan (QMP)

- Describe the quality policies and objectives
- Demonstrate the commitment to implement and continually improve
- Include processes and procedures for the quality control and quality assurance
- Include the roles, rights, and responsibilities of PennDOT, FHWA, Developer, and the Construction Quality Acceptance Firm (CQAF)

Construction Quality Management Plan (CQMP) that describes the procedures for the Developer’s quality control and quality assurance activities for construction work and establishes a clear distinction between quality control and quality acceptance activities and persons performing them
Technical Requirements

- SEP - 15

- SEP-15 stands for “Special Experimental Project Number 15,” the legal authority and process of FHWA to identify for trial evaluation new approaches for innovative project delivery
Special Experimental Project 15

PennDOT sought exceptions from three federal regulations:

- Clause (6) of 23 CFR 636.109(b) bars a Developer in a design-build project that receives federal assistance from preparing documentation required by the National Environmental Policy Act of 1969, as amended (NEPA) or having any decision-making responsibility with respect to the NEPA process.

- Clause (7) of 23 CFR 636.109(b) requires any consultants who prepare NEPA documents for such projects to be selected by and subject to exclusive control of the procuring authority.

- Clause (9) of 23 CFR 636.109(b) (requiring termination provisions in the event that the no-build alternative is selected as the “preferred alternative” under NEPA).
Technical Requirements

- Special Experimental Project 15
  - The requirements of clauses (6) and (7) of 23 CFR 636.109(b) are intended to prevent the Developer from prejudicing NEPA analysis with respect to such project
  - Approval of the Special Experimental Feature
    - Allows PennDOT and FHWA to evaluate the efficiencies of a P3 procurement
    - The Developer will complete the required preliminary engineering
    - PennDOT and FHWA, as applicable, will retain control over the Project deliverables
Technical Requirements

- Federal Reg Clause (9) requiring termination provisions if the no-build alternative is selected as the “preferred alternative” under NEPA

  - Replacement Bridge Process ensures the avoidance of a conflict of interest for the Developer
    - Where a specific bridge becomes problematic, PennDOT, in its sole discretion, can remove that bridge
    - The process is designed to ensure that the Developer is left in a position neither better nor worse as a result of the removal of the bridge
    - All design documents and work developed for a bridge that is removed from the Project will be transferred to PennDOT for its unrestricted use
    - Replacement bridges will be drawn from PennDOT’s regular capital improvement program

  - The Developer will receive no financial benefit or risk related to environmental mitigation or project delays resulting from environmental findings in the NEPA process. PennDOT will compensate the Developer separately for the cost of NEPA-related environmental mitigation actions.
Technical Requirements

- Bridge lifecycle maintained for 25 years after substantial completion and then handed back (3 epoxy overlays required)
  - Developer must achieve NBIS Rating > 7 for 98% of all bridges and NBIS Rating of at least 6 for the remaining 2%, and at least 7 for each superstructure Element

- Developer shall develop and utilize the Maintenance Management Information System (MMIS), develop the Maintenance Management Plan, and self-report on performance and compliance

- Developer performs inspections of the Replacement Bridges, including NBIS inspections
Technical Requirements

- PennDOT Maintenance Obligations
  - Signage not attached to structures,
  - Flexible pavement after 5 years
  - Response to Incidents and Emergencies (and cleanup), severe weather events, HazMat releases
  - Winter maintenance
  - Vegetation management activities
  - Maintenance of ITS devices (other than structural supports)
  - Litter pick-up and removal of obstacles
  - Pavement maintenance under Replacement Bridges spanning other roadways
Commercial Requirements

- Funding of payments to the Developer

  - Transportation-related tax increase
    - Oil company franchise tax increase
    - Registration fee increase
    - Fees and fines increase
    - Approximately $1.3 Billion increase in funding by year 5
Commercial Requirements

- Up-front Project funding by the Developer
  - Private Activity Bonds $700 Million
    - Private Activity Bonds (PABs) are bonds that are sold in a publicly traded market and the interest paid on the bonds are not included in taxable income of the owner of the bonds. As a result of competitive tension for the purchase of the bonds and the tax-exempt feature, these bonds have lower interest rates than almost any other financing option.
  
  - Equity $60 Million (80% Plenary, 20% Walsh)

  - Public Funds $200 Million

- BBB Rated Debt, 17.9 average life
Payments

- During construction, the Developer will receive three types of payments:
  - Mobilization Payment, Milestone Payments and Availability Payments

- Mobilization Payment:
  - $15 million after commercial close to allow for an early start of Preliminary Work

- Milestone Payment (MP)
  - Six fixed, scheduled milestone payments to reduce financing costs
  - Payments are subject to spending at least equal amount of private funds on design build activities
  - Maximum MP linked to percentage of the DB contract
  - MPs are subject to deductions for noncompliance and unavailability
Commercial Requirements

Availability Payments (AP)

- The full AP for each individual Replacement Bridge corresponds to the Maximum Availability Payment (MAP) resulting from the bid divided by the total number of Replacement Bridges (558)
- The amount of the monthly AP steps up in proportion to the number of bridges reaching Substantial Completion
- The full AP for each individual Replacement Bridge is reduced during construction by a Completion Deduction Factor (CDF)
- A one-time lump sum payment is made at Substantial Completion of the first 50 bridges
- The Developer receives the MAP only when all 558 bridges are completed
- MAP includes a fixed and indexed portions linked to CPI. The indexed portion was determined by the bidders and PWKP fixed the indexed portion of the AP at 10%.
- AP are subject to deductions for noncompliance and unavailability relating to maintenance work
- The AP steps down at the end of the term as each bridge is handed back to the PennDOT after 25 years of maintenance