C19: Expediting Project Delivery

SHRP2 C19 Expediting Project Delivery – VTrans Accelerated Bridge Program

AASHTO Standing Committee on Bridges 2017
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Accelerated Bridge Program (ABP)

- ABP Created in 2012
- Reorganized into two new sections
  - Accelerated Bridge Program (ABP)
  - Project Initiation and Innovation Team (PIIT)
Accelerated Bridge Program (ABP)

- Programmatic approach to accelerating projects
  - Accelerate Bridge Project Planning and Design
  - Accelerate Bridge Construction
- The ABP draws projects from the existing project funding
- Initial goal of 25% of all bridge projects
Accelerated Bridge Program Goals

- Improve the condition of Vermont’s bridges
- Be Transparent and accountable to all stakeholders
- Be an early adopter of research
- Programmatic use of ABC
- Project Delivery 24 months from Project Defined to Bid Advertisement
- Initial Goal of 25% of all bridge projects
• Early Project Coordination  
  - Public outreach  
  - Contractor Input  
  - Internal and External Stakeholders  
• Streamline/expedite the project delivery process  
  - Maximize flexibility in rules and process  
  - Evaluate risk but run concurrent activities  
• Develop and use standard details for ABC  
• Design projects to be successful for ABC
Project Initiation & Innovation Team (PIIT)

- Dedicated team of scoping Engineers and Technicians
- All bridge projects start here
- Approximately 20-30 projects and scoped per year
- Heavy emphasis on collaboration
- Public Engagement in Process
- ABC option is always first consideration.
SHRP2 C19
Leveraging Strategies to Remove Impediments and Deliver Projects
- 16 Constraints
- 24 Strategies
• In October 2013, VTrans was selected as a Lead Adopter of SHRP2 C19.
• Program Assessment of Project Delivery
• Development of Action Plan
• Implementation of Action Items
• Final Report of Experience
5 Key Strategies for Expediting Project Delivery

- **Strategy 3**: Context Sensitive Design/Solutions
- **Strategy 8**: Expediting Internal Review and Decision-Making
- **Strategy 10**: Highly Responsive Public Engagement
- **Strategy 21**: Strategic Oversight and Readiness Assessment
- **Strategy 22**: Team Co-Location
C19 Desired Outcomes

- Evaluate risks to timely project delivery
- Identify opportunities to expediting projects with special emphasis on the strategies described in the *Expediting Project Delivery* report
- Identify resource demands for the ABP and how this may differ from conventional project delivery
- Analyze the VTrans organizational structure for opportunities for increased efficiencies
- Identify potential process improvements
- Build relationships with internal and external partners
C19 Action Plan Drawing Upon Key Strategies

Action Item
Project Initiation Process Improvements
- Develop an Operations Questionnaire ✓
- Add Collaboration Phase ✓
- Heightened stakeholder Coordination ✓

Action Item
Documenting the PIIT/ABP Process
- Document the PIIT and ABP Process ✓
- Develop performance measures for the PIIT and ABP ✓
- Document Resource Demands ✓

Action Item
Develop action plan with deliverables and performance measures
June, 2015

Implement Action Items
June, 2016

Action Item
Data Management
- GIS Application Research ✓

Action Item
Scanning Tour
- Conduct Scanning Tour ✓

Action Item
Generate Final Report of Findings
- Prepare final report ✓

Public Outreach
- Public Involvement Plan ✓
- Website Development ✓
- Early Coordination with Stakeholders ✓
- Outreach Products ✓
- Tools to Engage the Public ✓
Strategy 3: Context Sensitive Design Solutions

Objective: Improve public involvement and support

- Enhanced project scoping in the PIIT
- Community and Operations Questionnaires
- Addition of “Collaboration Phase” during project definition
- Proper Selection of selected alternatives (avoidance, minimization, and mitigation)
Strategy 8: Expediting Internal Review and Decision Making

Objective: Streamline decision-making

- Batching of scoping projects for resource ID
- Heightened Communication and Collaboration
  - Collaboration Phase during Project Definition
  - Team Meetings
  - Construability Review Meetings
  - Pre-closure Contractor Meeting
- Concurrent Activities and Decision Tree
Objective: Improve public involvement and support

- Public Meetings throughout the life of the project
- Effective Public Engagement
  - Audience Response Systems
- Public Involvement Plans
- Project Outreach Coordinators
- Customer Satisfaction Surveys
Strategy 21: Strategic Oversight and Readiness Assessment

Objective: Improve internal communication and coordination

• Creating a Culture that Values Innovation
• Strong and Effective Project Management
• Developing Key Project Planning Documents
  – Traffic Management Plans
  – Public Involvement Plans
  – Risk Registry
  – Credible Schedules and Spending Profiles
  – Alternative Contracting Decision Matrix
• Standardized Design Details
Objective: Improve internal communication and coordination

- Looking for Opportunities to Co-locate resource Groups
- Dedicated Utility Specialists
- Project Development Team Meetings
- Constructability/bid ability Review Meetings
C19 Peer Exchanges

• Peer Exchanges with MassDOT, NYSDOT and MaineDOT
  – Project teams from VTrans in Attendance
  – Program Overviews
  – Accelerated Program Emphasis Areas
  – Shared New Initiatives, Innovations, and Lessons Learned

• Numerous Takeaways from the Program/Process Review, Peer to Peer Exchanges, and Stakeholder Interviews
Our C19 Journey Has Just Begun

• Explore Enhancements in the PIIT process
  – Leverage expertise in VTrans to help refine recommended alternatives
  – Develop truncated scoping report for Preventative Maintenance and Emergency Projects
  – Explore effective methods to engage upper lever management on high risk and high cost projects

• Develop prescreening GIS tool for resource ID

• Peer to Peer “list of good ideas”
54 ABC projects
Delivered from 2012 to date, which is
50% of all Projects
Representing

$84 Million
Construction costs

100%
New Bridges Opened on Time
ABP – Engineering Costs

40% savings in Engineering costs

- ABC Standardized approach
- Shorter duration design process = Preliminary Engineering (PE) Savings
- ABC = Shorter Construction Durations and Construction Engineering (CE) Savings
ABP – Resource Demands

**BRIDGE PROJECT AVERAGES**

- **Accelerated**
  - ROW: $59,115
  - Environmental: $13,174
  - Utilities: $15,579

- **Conventional**
  - ROW: $17,838
  - Environmental: $3,424
  - Utilities: $3,549

70-75% savings in resource demands

- ABC = Less impact to existing Utilities
- ABC = Less ROW impacts
- ABC = Less Environmental impacts
- Team Co-organization and Co-location efficiencies
18% Savings
ABC vs Conventional Projects based on 37 new projects
- How satisfied were you with ABC?

397 Responses from 9 2015 projects

- How satisfied are you with the information you received about the bridge project?

- Overall, how satisfied were you with how VTrans delivered this project?
Want to Know More…

- Final Report to come in August 2017
- Project Case Study Sheet
- Contact Us
Thank You
SHRP2 Structures Products

Improving the service life of bridges and tunnels.
• 8 states have completed bridges using *Innovative Bridge Designs*

• Significant construction and detour time savings

• In some cases construction that used to last 12 months was reduced to 25 days

• Coming up:
  - Three national webinars
  - Case studies

• SHRP2 Product Page: [http://shrp2.transportation.org/Pages/Bridge-Designs-for-Rapid-Renewal.aspx](http://shrp2.transportation.org/Pages/Bridge-Designs-for-Rapid-Renewal.aspx)
Nondestructive Testing for Concrete Bridge Decks - R06A

• Advanced technologies to locate deficiencies in aging concrete bridge decks
• Implementation in progress in Florida, Indiana, Iowa, Louisiana, Missouri, Oregon, Pennsylvania, and Virginia, and Oregon
• Indiana DOT was able to test 46 decks in 1 – 2 nights using GPR versus 23 nights using traditional methods.
• IAP states completing reports for Round 4 projects.
• SHRP2 product page: http://shrp2.transportation.org/Pages/R06_NondestructiveTesting.aspx
Nondestructive Testing for Tunnel Linings - R06G

• Variety of mobile-scanning and hand-held technologies for mapping voids, debonding, delamination, moisture, and other defects behind/within tunnel linings. These technologies allow vehicles to drive through the tunnel and conduct the inspection.

• Colorado and Pennsylvania have completed training; field testing of two tunnels in Pennsylvania are complete

• Coming up:
  – Upcoming Colorado Tunnel Showcase August 8-9, 2017 in Golden Colorado

• SHRP2 product page: http://shrp2.transportation.org/Pages/ServiceLifeDesignforBridges.aspx
Service Life Design for Bridges – R19A

- Service Life Design Guide for Bridges – Comprehensive document for bridge engineers; offers solutions for given conditions (including environmental concerns) and physical constraints.
- Additional reference document: Durability Assessment of a Bridge Substructure
- Used in 5 states and FHWA Central lands
- SHRP2 product page: http://shrp2.transportation.org/Pages/ServiceLifeDesignforBridges.aspx
Service Limit State Design for Bridges - R19B

- Toolkit to accurately predict bridge deterioration
- Proposed modifications to LRFD specifications and revisions. Agenda items are under consideration by AASHTO SCOBS T-15 and T-5 subcommittees.
- Significant cost efficiencies can be realized.
- Coming up:
  - Two states to undertake “proof of concept” in SHRP2 Round 7 Implementation Assistance Program (IAP)
  - Training Sessions for Central and Western Federal Lands in June and July 2017
- SHRP2 product page: http://shrp2.transportation.org/Pages/R19B_ServiceLimitStateDesignforBridges.aspx