The Value of Accelerated Bridge Construction

A Rural DOT Perspective

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Overview

- Introduction
- Expediting Project Delivery
- Creating a Culture that Values Innovation
- Garnering Political Capitol
- Using ABC to Delivery Legacy Projects
- Partnering with Local Communities
- Developing Future Leaders
- Three Years of Proven Performance
Introduction: Common Benefits of ABC

- Minimizes impacts to:
  - Right of Way
  - Utilities
  - Environmental and Cultural Resources

- Improves safety of motorists and construction workers

- Reduces onsite construction time
Benefits of ABC in Urban Areas

- Minimizes mobility impacts
- Reduces road user cost
- Often results in lower project costs
How to Justify ABC in Rural States?

- Lower Traffic Volumes
- Scarce Roadway Networks
Expediting Project Delivery (EPD)
Setting the Stage for the Accelerated Bridge Program (ABP)
Common Constraints to Expediting Project Delivery

- **Project Impacts** =
  - Lengthy and Arduous Right-of-Way (ROW) Process
  - Utility Relocation
  - Impacts to Environmental and Cultural Resources
  - Increases in project costs and delivery time
- **Stakeholder Buyin and Support**
- **Turnover in local governmental officials**
- **Maintenance of Traffic**
Setting the Stage for Expediting Project Delivery

- Aging Bridge Population
- American Recovery and Reinvestment Act (ARRA) – 2009
- Tropical Storm Irene (TSI) – 2011
Expediting Project Delivery

- In 2012, Structures reorganized to streamline project delivery
  - Project Initiation and Innovation Team (PIIT)
  - Accelerated Bridge Program (ABP)
- Programmatic approach to identifying and delivering ABC projects
- 24 month performance goal from project defined to procurement (80%)
- Jump started with TSI – 14 bridge replacement project delivered in 24 months
Creating a Culture that Values Innovation

ABC Improves Efficiency and Effectiveness
Putting ABP and ABC into Practice

- Making a case for change
- Bottom up approach
- PMs given a great deal of latitude to explore and vet different strategies to EPD
- Emphasis on collaboration and communication
- Standardized plan sets and specifications
- Best practices for public involvement and outreach
- Celebrate successes and build on momentum
Goals for Creating a Sustainable Program

- Expedite the delivery of bridge reconstruction and bridge rehabilitation projects to support performance measures for bridge inventory conditions
- Be a leader for deployment of innovation at VTrans and nationally
- Be transparent to stakeholders and customers
Garnering Political Capitol

Promoting Rapid Bridge Replacements Statewide
Partnering with the Legislative Branch

- Informational presentations to House and Senate Transportation Committees
  - Advancements
  - Showcase innovative ABC projects
  - Brainstorming
Partnering with the Legislative Branch

- Passed Act 153 in 2012
  - Applies to town highway projects
  - Reduces the town share by 50% if they elect for a short term road closure
Using ABC to Deliver Legacy Projects
Tapping into Innovation to Remove Impediments
Legacy Projects – Every DOT is Affected

- Projects at a standstill
  - Public opposition
  - Impacts from conventional construction methods
  - Scope creep
- Lengthy schedule delays
- Increased design costs
Middlebury Sand Hill Bridge, VT 125

- Historic 49’ arch structure built in 1924
- Programmed for replacement in 1983
- Narrow bridge width
- Flanked with recreational resources and archeological significant mill sites
- Local businesses depend on travel and tourism
Middlebury Sand Hill Bridge, VT 125

- Used innovation to deliver prefabricated arch-like structure during off-peak tourism season.
Partnering with Local Communities
Use of ABC Increases Public Satisfaction
ABC Requires Heightened Public Involvement

- Meaningful public engagement and outreach from project initiation through construction
- Community Questionnaire
- Alternatives and Regional Concerns Public Meetings
  - Audience Response System
  - Allow public to have an impact on the timing and duration of the closure
  - Post Results
What would be the maximum acceptable length of closure for Bridge #33?

A. 5 days
B. 1 week
C. 10 days
D. 2 weeks
E. 4 weeks
Which time of year would be most acceptable for Bridge #33 to be closed?

A. June
B. July
C. August
D. September
E. Other

89%

6%
0%
0%
6%
Project Outreach for ABC Projects

- Project Factsheets
- Project Outreach Coordinators
- Preclosure Public Information Meetings
- Weekly Email Updates
- Customer Satisfaction Surveys
Q8 The Stowe VT 108 Bridge Project used an innovative construction method called Accelerated Bridge Construction, which uses prefabricated bridge elements and road closures to reduce onsite construction time. Conventional construction typically uses temporary bridges and takes one to two years to complete. How satisfied were you with the Accelerated Bridge Construction?

Answered: 109  Skipped: 6

Q9 How would you rate your level of satisfaction with the road closure compared to alternating one-way traffic following the bridge closure period?

Answered: 108  Skipped: 7

Q12 Overall, how satisfied were you with how VTrans delivered this project?

Answered: 108  Skipped: 7
Developing Future Leaders

ABC Cultivates Critical Thinking
Use of ABC Promotes Innovation Across an Organization

- Future Trends in Transportation
  - Lack of adequate funding
  - Climate change
  - Changing demographics
  - Increasing congestion and movement of goods
  - Technological Advancements
VTrans Accelerated Bridge Program
Three Years of Proven Performance
ABP Putting it Altogether

- Since 2012, the ABP has:
  - Implemented a programmatic approach to ABC
  - Reduced standard design duration from 60 to 24 months
  - Established Act 153
  - Replaced several legacy projects
  - Gained statewide support for ABC
  - Delivered 28 projects totaling $71.3 M
  - 17 projects currently under development

- To learn more:
  https://www.youtube.com/user/VTransTV
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