



Accelerated Innovation Deployment (AID) Demonstration Project: East Kingston Bridge Rehabilitation

NH Route 107A over Pan Am Railway in East Kingston, NH

Final Report

April 30, 2019



U.S. Department of Transportation
Federal Highway Administration

AID Demo
Accelerated Innovation Deployment

Disclaimer

This material is based upon work supported by the Federal Highway Administration under a grant through the Accelerated Innovation Deployment (AID) Demonstration program. The U.S. Government assumes no liability for the use of the information contained in these reports. These reports do not constitute a standard, specification, or regulation. Any opinions, findings, conclusions or recommendations expressed in these reports do not reflect the views of the Federal Highway Administration and the Federal Highway Administration does not endorse these materials.

Table of Contents

Executive Summary	1
Introduction	2
ACCELERATED INNOVATION DEPLOYMENT (AID) DEMONSTRATION GRANTS 2	
REPORT SCOPE AND ORGANIZATION.....	2
Project Overview	2
Project Details	3
BACKGROUND	3
PROJECT DESCRIPTION.....	4
DATA COLLECTION AND ANALYSIS	4
SAFETY	5
SCHEDULE	5
QUALITY.....	5
USER COSTS.....	6
USER SATISFACTION	6
Project Outcomes and Lessons Learned	6
Recommendations and Implementation	7
RECOMMENDATIONS.....	7
STATUS OF IMPLEMENTATION AND ADOPTION.....	8
Appendix	9
TECHNOLOGY TRANSFER.....	9
USER SATISFACTION SURVEY	26
WEB RESOURCES	27
REFERENCES	27

Executive Summary

The New Hampshire Department of Transportation (NHDOT) employed innovative solutions to replace a deteriorated superstructure in East Kingston, NH. The existing bridge was constructed in 1937 and comprised of three simple spans of 40'-0" each for a total length of 120'-0". The existing bridge consisted of a concrete deck on steel beams supported by concrete abutments and two steel column piers. The bridge carries NH Route 107A over the Pan Am Railway and a private residential drive.

The proposed superstructure matched the existing bridge width, span, and configuration, but utilized a bare concrete deck to minimize dead load on the existing piers. Due to the high volume of train traffic (ten commuter trains and six to eight freight trains per day), Accelerated Bridge Construction (ABC) techniques were utilized to reduce the overall construction duration and minimize construction operations within the Railway corridor. By contract, the bridge would be closed to vehicular traffic for 28 days to facilitate the ABC.

Prefabricated Bridge Units (PBU's) and Ultra High Performance Concrete (UHPC) were the innovative solutions used for this bridge rehabilitation. The PBU's allowed the superstructure to be safely constructed outside of the Railway corridor and to be installed in a rapid manner. Conventional construction would have required time consuming forming further hindered by the many shutdowns for train passage. This was the first use of PBU's by the NHDOT.

UHPC was used to complete the transverse and longitudinal joints between the PBU's. UHPC is ideally suited for this application given that its enhanced mechanical properties and superior bond strength should provide a durable joint that eliminates concerns with leakage and deterioration. The UHPC joints were particularly desirable for this location since the replacement structure utilized a bare deck without the typical protection of a membrane and pavement overlay. This was the first use of UHPC by the NHDOT.

The project was successful and was completed in 25 days (three days ahead of the 28 day bridge closure outlined in the contract documents). The PBU's installed easily and greatly reduced the closure duration for the project. PBU's will become a useful tool in the NHDOT's toolbox for future bridge projects. UHPC will also be added to the toolbox and utilized provided the application warrants the considerable cost. The bridge will be monitored for durability of the UHPC joints, though they are expected to function as intended.

Introduction

ACCELERATED INNOVATION DEPLOYMENT (AID) DEMONSTRATION GRANTS

The Federal Highway Administration (FHWA) AID Demonstration Grants Program, which is administered through the FHWA Center for Accelerating Innovation (CAI), provides incentive funding and other resources for eligible entities to offset the risk of trying an innovation and to accelerate the implementation and adoption of that innovation in highway transportation. Entities eligible to apply include State departments of transportation (DOTs), Federal land management agencies, and tribal governments as well as metropolitan planning organizations and local governments which apply through the State DOT as subrecipients.

The AID Demonstration program is one aspect of the multi-faceted Technology and Innovation Deployment Program (TIDP). AID Demonstration funds are available for any project eligible for assistance under title 23, United States Code. Projects eligible for funding shall include proven innovative practices or technologies such as those included in the Every Day Counts (EDC) initiative. Innovations may include infrastructure and non-infrastructure strategies or activities, which the award recipient intends to implement and adopt as a significant improvement from their conventional practice.

REPORT SCOPE AND ORGANIZATION

This report documents the NHDOT's demonstration grant award for the NH Route 107A bridge superstructure replacement using PBU's and UHPC. The report presents details relevant to the employed project innovation(s), the overarching TIDP goals, performance metrics measurement and analysis, lessons learned, and the status of activities related to adoption of PBU's and UHPC as conventional practice by NHDOT.

Project Overview

This project rehabilitated a structurally deficient bridge in East Kingston, New Hampshire. UHPC connections between PBU's were utilized as a means of accelerated bridge construction. This project addressed the Technology and Innovation Deployment Program (TIDP) goals of implementing a proven innovation in highway transportation to promote faster construction, improved safety, improved quality, and longer service life of bridges. The PBU's provided faster construction and their prefabrication produced a better product by being fabricated in a controlled environment which improved quality, safety, and will produce a longer service life. This application of UHPC greatly improved the quality and service life of the joints, particularly considering the bare deck. The AID Demonstration funding was used to cover the cost of the prefabricated bridge elements and UHPC connections.

Project Details

BACKGROUND

The project involved the use of PBU and UHPC innovations to replace a deficient bridge superstructure. This project represents the first use of both PBU's and UHPC by the NHDOT. The East Kingston location and bridge were uniquely suited for the NHDOT's first use of these innovations. A short detour on State routes was readily available, reducing the risk of using new innovations. The high frequency of the train traffic made the use of accelerated bridge construction an ideal candidate. The completed structure would have a bare concrete deck. The superior bond strength and durability of UHPC allowed the use of prefabricated bridge elements. Traditional construction methods would have utilized high-strength concrete or grout that would not have been desirable for a bare concrete deck.

Figure 1 shows the project location.



Figure 1. Map. Project location.

PROJECT DESCRIPTION

The existing bridge, a grade separation constructed in 1937, is a three span simple structure carrying NH Route 107A over Pan Am Railway in East Kingston, New Hampshire. The state-owned bridge was classified as structurally deficient due to the serious condition of the concrete bridge deck and steel stringers. The bridge was scheduled for rehabilitation work consisting of replacement of the superstructure. The active railroad line carries both the Amtrak Downeaster passenger rail as well as freight and runs underneath the center span of the bridge. The superstructure replacement work must take place within the short windows of opportunity necessitating accelerated bridge construction techniques. Prefabricated bridge elements (PBU's for this project) can be quickly positioned in the field. The connection of these elements using UHPC allows for narrow width full-moment closure pours, which require minimum cure time. The durability of prefabricated bridge elements and UHPC will provide for a longer service life of the rehabilitated structure.

The primary goals of the project included:

Goal 1 – Decreased Construction Duration. This project met the goal of decreased construction duration through the use of PBU's and ABC techniques. The estimated construction duration for a traditional construction method was six months. Using PBU's, the construction duration was reduced to 25 days, a savings of five months.

Goal 2 – Improved Durability of Cast-in-Place Closure Pours. Traditional methods of cast-in-place concrete closure pours would consist of high strength concrete or grout. Experience has shown that these traditional materials are the weak point of a prefabricated system and typical exhibit leaking and failure prior to the desired service life. Additionally, the leakage often results in the accelerated deterioration of the structure below the joints. This project utilized UHPC for the closure pours. The superior bond strength and durability of UHPC is expected to provide a service life well beyond what would be achieved with traditional materials. The NHDOT will inspect the UHPC connections within one year of completion of the project for evidence of cracking, joint leakage, and general integrity of the joints using the condition on the day of construction acceptance as a baseline and continue to monitor the UHPC connections on a biannual inspection interval.

DATA COLLECTION AND ANALYSIS

Performance measures consistent with the project goals were jointly established for this project by NHDOT and FHWA to qualify, not to quantify, the effectiveness of the innovation to inform the AID Demonstration program in working toward best practices, programmatic performance measures, and future decision making guidelines.

Data was collected to determine the impact of using PBU's and UHPC on safety, schedule, quality, and user impacts and demonstrate the ability to:

- Achieve a safer environment for the traveling public and workers
- Reduce overall project delivery time and associated costs
- Reduce life cycle costs through producing a high-quality project
- Reduce impacts to the traveling public and project abutters
- Satisfy the needs and desires of our customers

This section discusses how the NHDOT established baseline criteria, monitored and recorded data during the implementation of the innovation, and analyzed and assessed the results for each of the performance measures related to these focus areas.

SAFETY

The NHDOT is always concerned with the safety of both the workers delivering the project and the users of our infrastructure during construction. Conventional construction methods using phasing would expect to complete this project in one construction season (6 months). The construction phasing would have the travelling public driving through the work zone throughout construction, greatly enhancing the chances of injury or incident to the public and/or workers. In addition, the longer construction duration associated with traditional construction enhances the chance of injury or incident of workers considering train frequency. The accelerated construction improved safety by shortening the construction duration and removing the travelling public from the construction zone.

- There were no injuries or incidents to workers and inspectors during construction.
- There were no work zone related crashes, user injuries during construction.

SCHEDULE

Streamlining the project delivery process results in earlier project completion. This in turn provides greater service to our end users sooner. The use of PBU's and UHPC greatly reduced the construction duration and impacts to users. By having the elements prefabricated, the PBU's enabled rapid erection of the replacement superstructure, taking only one night to install. The total bridge closure and impact to users for this project was 25 days.

The method traditionally employed by NHDOT to deliver a comparable project would require up to a six month duration which may include phased construction. For this project the work would be heavily impacted by the shutdowns required for the frequent passage of trains. However, by making use of PBU's and UHPC, this project realized a savings of five months.

QUALITY

As previously discussed, using traditional project delivery techniques the NHDOT would have constructed a composite deck with traditional formwork. However, using this innovation we could prefabricate the composite deck off-site in a more controlled environment, and without continued disruption from trains, producing a better quality

product. The use of UHPC provided joints that are expected to out-perform the concrete located in the adjacent portion of the PBU deck. The NHDOT traditionally has not used bare concrete decks, particularly with prefabricated elements, but the exceptional durability of the UHPC allowed the use of a bare deck with limited concern.

USER COSTS

Generally, the three categories of user costs used in an economic/life cycle cost analysis are vehicle operating costs, delay costs, and safety-related costs/crash costs. The impacts to the road users, though often underrepresented, are not to be neglected. Generally, user costs are categorized by delay costs, vehicle operating costs, and safety-related costs which incorporate numerous factors including fuel usage, vehicle emissions, distance traveled, point-to-point travel time, accelerated degradation of detour facilities, decreased levels of service along detour routes, and the viability of alternate routes for non-motorized users.

The user costs for this project were low due to the short detour (one mile) available.

USER SATISFACTION

Recipients of TIDP/AID grants were required to report on specified performance indicators relevant to the individual project's goals and resource constraints. Formal goals and targets were not predefined for all recipients, including goals for user satisfaction unlike under the FHWA Highways for LIFE program where requirements for user satisfaction included achieving a performance goal of four or more on a Likert scale from one to seven (approximately 57 percent or more participants showing favorable response) for the following two questions:

- How satisfied is the user with the new facility compared with its previous condition?
- How satisfied is the user with the approach used to construct the new facility in terms of minimizing disruption?

A before and after customer satisfaction determination was required of all AID Demonstration grant recipients making use of innovations for construction projects. The NHDOT collaborated with the FHWA (CAI, division/Federal lands/program office) to develop a method to collect the sense of satisfaction from users of the then current state of the facility, of their experience using the facility, and of the NHDOT performance in managing the facility, both before and after the construction phase of project delivery. See the Appendix for user satisfaction survey.

Project Outcomes and Lessons Learned

Through this project, the NHDOT gained valuable insights about the innovative construction techniques and materials used.

- Achieve a safer environment for the traveling public and workers: The use of PBU's allowed a greatly reduced construction duration that allowed for closure of the

bridge during construction. The bridge closure separated the travelling public from the workers providing a much safer environment for both.

- Reduce overall project delivery time and associated costs: The use of PBU's and UHPC allowed the construction to be completed in 25 days, five months less than what would have been expected using traditional methods.
- Reduce life cycle costs through producing a high-quality project: The service life of the deck based on the use of PBU's and UHPC is anticipated to be longer and require less maintenance.
- Reduce impacts to the traveling public and project abutters: The reduction in construction duration greatly reduced the impacts to the travelling public and the project abutters.
- Satisfy the needs and desires of our customers: Our customers desire projects that reduce the impact to their travel times, safety, and frustrations. The ability to reduce the construction duration from six months to 25 days satisfies the desires of our customers.

Lessons Learned:

- Ensure the concept and process of achieving an 'exposed aggregate finish' is understood. The exposed aggregate finish is required for all surfaces exposed to UHPC, this is done to provide the best bond available. The Contractor self-performed the PBU's. Although the plans and specifications noted an exposed aggregate finish with minimum ¼" amplitude throughout, the Contractor was not aware of its importance nor the process to achieve it. This should be better explained and understood with the Contractor if self-performance is used.
- Better define the saturated surface dry condition. The surfaces exposed to the UHPC are called to be saturated surface dry, however this condition was not well defined. A more prescriptive definition would be better for the Contractor and the inspector.

Recommendations and Implementation

RECOMMENDATIONS

We propose adopting the use of PBU's and UHPC into our standard operating procedures.

However, we also identified the following areas that could be improved upon in future applications of this innovation:

- The cost of UHPC. The cost of the UHPC was very high at \$8,750 per CY. Hopefully the cost will come down in the future as the product is used more and additional vendors are available.

STATUS OF IMPLEMENTATION AND ADOPTION

Since the completion of the East Kingston project the NHDOT has undertaken the following activities to implement PBU's and UHPC into our standard operating procedures as a significant improvement from our traditional practice for similar type projects:

- PBU's: This innovation has been added to our toolbox as a consideration for all applicable ABC projects. This innovation can use a precast fabricator or can be completed allowing the Contractor to self-perform fabrication (as was done for this project). The PBU concept is not that different from traditional construction and will therefore be easy to implement.
- UHPC: Full implementation of UHPC will be based on cost and available supply. Currently there is only one supplier in the Northeast. Limited options on suppliers makes it difficult for contractors to meet closure durations and drives up cost. The experiences associated with the application of UHPC on this project coupled with the observed durability over the next few years will determine if the performance of UHPC is worth the cost.

Appendix

TECHNOLOGY TRANSFER

Since the completion of the East Kingston project the NHDOT has undertaken the following activities to implement PBU's and UHPC into our standard operating procedures as a significant improvement from our traditional practice for similar type projects:

- The East Kingston project was presented to approximately fifty attendees at the semi-annual NHDOT/ACEC-NH partnering meeting held on October 12, 2018.
- The East Kingston project was also presented to NHDOT Construction Bureau staff on January 22, 2019 as part of their annual construction training program.
- The East Kingston project was also presented to several hundred attendees at the NHDOT/ACEC-NH Technical Transfer Conference in April 18, 2019. This is the largest Transportation Conference in the State of New Hampshire.

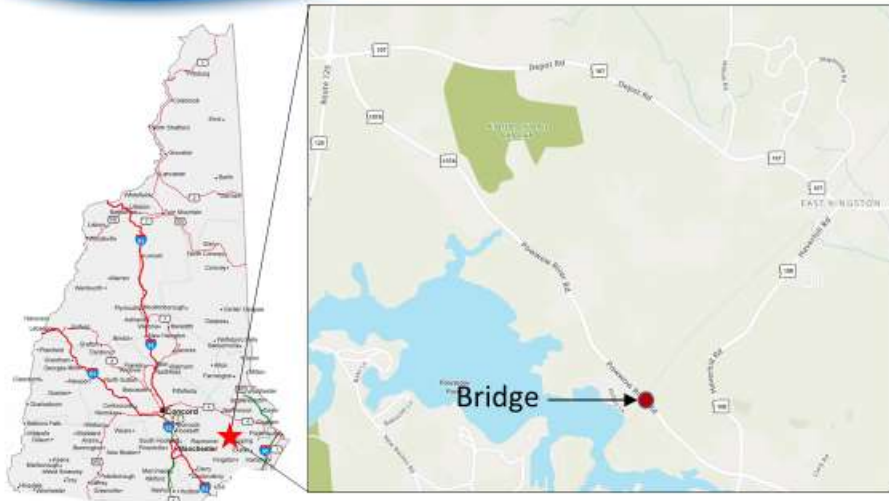
The presentation from the NHDOT/ACEC-NH Technical Transfer Conference is provided for reference below.

East Kingston Bridge Rehabilitation

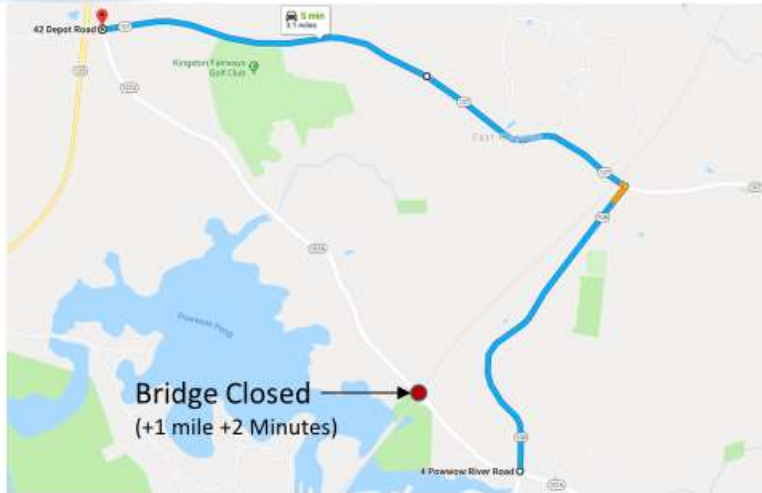


Prefabricated Bridge Units (PBU's) & Ultra-High Performance Concrete (UHPC)

PROJECT LOCATION:



AVAILABLE DETOUR ROUTE:



McFarland Johnson

AERIAL VIEW:



McFarland Johnson

EXISTING CONDITIONS:

- Carries NH Route 107A over Pan Am Railway
- AMTRAK Downeaster & Freight
- NH Route 107A AADT = 2,200
- 3 Span Bridge (Simple Spans)
- Deck in "Serious" condition (condition rating 3 out of 9)
- Foundation Elements in need of repair.



New Hampshire
DOT
Department of Transportation



McFarland Johnson

FHWA EVERY DAY COUNTS (EDC) INITIATIVE:

- Federally funded, State-based model for rapid deployment of proven, yet underutilized innovations.
- Shorten project delivery, enhance roadway safety, reduce traffic congestion, and improve environmental sustainability
- NHDOT EDC-4 (2017-2018)
 - Automated Traffic Signal Performance Measures (ATSPMs)
 - **Ultra-High Performance Concrete (UHPC)**
 - Collaborative Hydraulics: Advancing to the New Generation of Engineering (CHANGE)
 - e-Construction and Partnering: A Vision for the Future
 - Using Data to Improve Traffic Incident Management



AID Demo
Accelerated Innovation Deployment



New Hampshire
DOT
Department of Transportation



McFarland Johnson

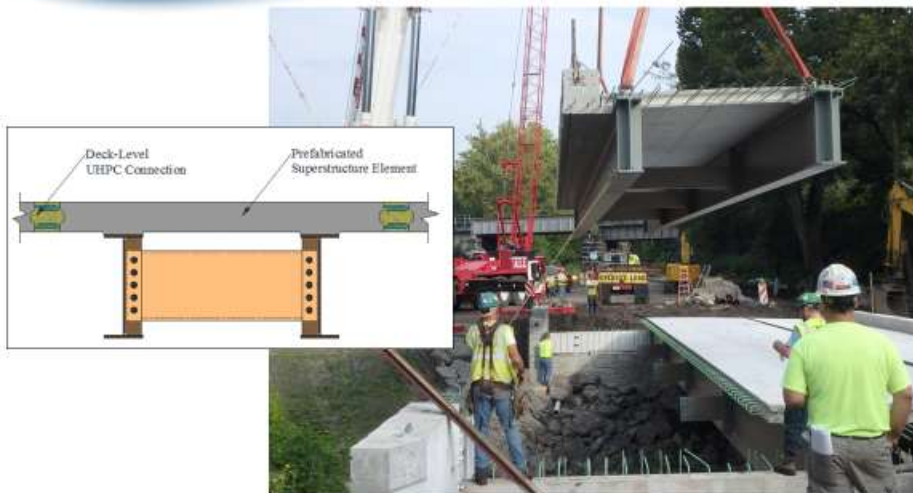
PROPOSED SOLUTION:

- Accelerated Bridge Construction (28 day bridge closure).
- Prefabricated Bridge Units (PBU's) with a bare concrete deck.
- Ultra-High Performance Concrete closure pours (UHPC).
- Substructure repairs utilizing rapid set concrete.



McFarland Johnson

PREFABRICATED BRIDGE UNITS (PBU'S)



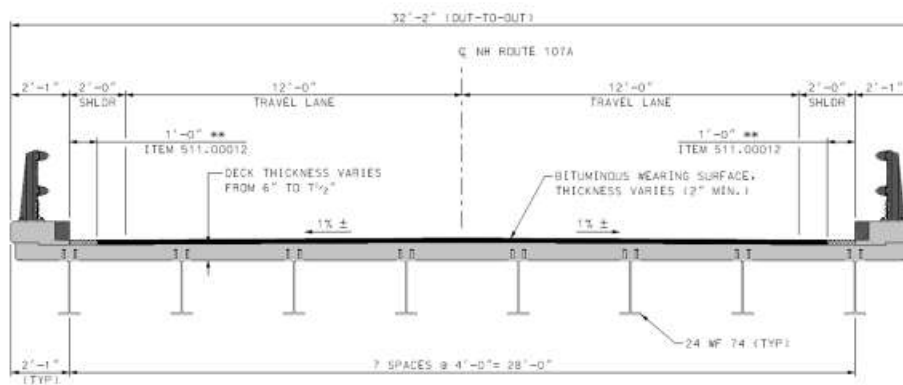
McFarland Johnson

WHY WAS EAST KINGSTON PROJECT SELECTED?

- Lower traffic volumes and relatively short State detour route.
- Minimize impacts to railroad and residential properties.
- Technical solution appropriate for project scope (rehabilitation).
- Lower risk opportunity to try new ABC materials and systems.



EXISTING SUPERSTRUCTURE:



PBU CONSTRUCTION:



McFarland Johnson

PBU CONSTRUCTION:



McFarland Johnson

PBU CONSTRUCTION:



New Hampshire
DOT
Department of Transportation



McFarland Johnson

PBU STAGING:



New Hampshire
DOT
Department of Transportation



McFarland Johnson

SUPERSTRUCTURE REMOVED:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

EXISTING SUPERSTRUCTURE:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

PBU INSTALLATION:



New Hampshire
DOT
Department of Transportation



McFarland Johnson

PBU INSTALLATION:



New Hampshire
DOT
Department of Transportation



McFarland Johnson

PBU INSTALLATION:



McFarland Johnson

WHAT IS ULTRA-HIGH PERFORMANCE CONCRETE (UHPC)?

PROS:

- High bond strength
- High strength, high stiffness
- Exceptional durability
- Internal steel fiber reinforcement for added ductility
- Self-consolidating

CONS:

- Limited producers (proprietary)
- High cost (\$8k to \$10k per CY)



McFarland Johnson

UHPC BATCHING:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

UHPC FLOW TEST:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

UHPC PLACEMENT:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

UHPC PLACEMENT:



New Hampshire
DOT
Department of Transportation

McFarland Johnson

UHPC FORMWORK:



McFarland Johnson

PROJECT SUMMARY:

- Bridge reopened after **25 day closure**
- Low Bid Amount: **\$1.65M**
- Early completion incentives were awarded at: **\$2,000 per day**
- UHPC Costs: **\$8,750 per CY**
(15 CY) **\$127,000 total**
- PBU Costs: **\$130 per SF**
\$505,000 total



U.S. Department of Transportation
Office of Public Affairs
1200 New Jersey Avenue, SE
Washington, DC 20590
www.transportation.gov/briefingroom

Follow us on Twitter @USDOTFHWA
News

FHWA 19-18
Friday, September 7, 2018
Contact: Neil Garbney
Tel.: (202) 366-0560

FHWA Awards \$8.4 Million to Nine States for Innovative Highway Projects

WASHINGTON – The Federal Highway Administration (FHWA) today announced \$8.4 million in Accelerated Innovation Deployment (AID) Demonstration awards to the state Departments of Transportation in Arizona, Florida, Illinois, Iowa, Minnesota, New Hampshire, New Jersey, Oklahoma, and Utah. Projects will soon be under way in each state to improve safety and operational efficiency of roads and bridges using cutting edge pavement materials, engineering techniques, and connected-vehicle technology.

"These states are leading the way in implementing innovative solutions to improve safety and mobility on America's roadways," said Deputy Federal Highway Administrator Brandye L. Hendrickson. "Their creative approaches to delivering better quality and more cost-effective solutions in roadbuilding and operations are sure to inspire other states in using such methods."

With today's award, since the launch of the AID Demonstration program in 2014, FHWA officials have awarded more than \$60 million to help federal, state, local, and tribal government agencies use innovative traffic, safety, and construction practices.

The program works closely with FHWA's On-Ramp to Innovation Every Day Counts (EDC) program to encourage the delivery of innovation in transportation projects. The techniques and methods used on all AID Demonstration projects follow all applicable federal regulations and policies to ensure that roads, bridges, and other transportation infrastructure are built safely for use by the traveling public.

The latest AID grant recipients are:

New Hampshire Department of Transportation/Town of East Kingston	\$631,925	The Town of East Kingston will use its AID grant to use long-lasting Ultra High Performance Concrete and prefabricated bridge elements in the rehabilitation of a bridge.
---	-----------	---



McFarland Johnson

LESSONS LEARNED:

- Exposed Aggregate Finish
 - Precast Fabricator vs. Contractor Self-Performance
 - Shot blast vs. gel retardant
 - Mockup suggested
- Saturated Surface Dry (SSD)
 - Suggest using more prescriptive language in contract documents
 - e.g. pre-wet joint surfaces for 24 hours prior to UHPC placement



New Hampshire
DOT
Department of Transportation



McFarland Johnson

PROJECT TEAM:



QUESTIONS?



USER SATISFACTION SURVEY

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner



William Cass, P.E.
Assistant Commissioner

Bureau of Bridge Design
Tel: (603) 271-2731

March 11, 2019

Town of East Kingston
24 Depot Road
East Kingston, NH 03827
Attn: Cheryll Hurteau, Town Office Manager

Re: EAST KINGSTON 26942
Bridge Rehabilitation - NH 107A over Pan Am Railways

Dear Ms. Hurteau:

This letter is requesting you complete the questionnaire below on the bridge rehabilitation project (NH 107A over Pan Am Railways) that we completed last year. This effort is a part of our Accelerated Innovative Delivery Demonstration Project grant that we received to fund the effort.

East Kingston Questionnaire:

1. Was the Town notified and sufficiently informed of the bridge closure in advance of the construction?
Yes, the town was adequately informed.
2. The 25-day construction required a full bridge closure. Based on the construction of this project, would the Town have preferred a construction alternative that would have retained one lane of alternating 2-way traffic for 6-month construction duration?
We were fine with the full bridge closure due to available alternate routes.
3. Did the Town receive any complaints related to the bridge closure?
No complaints were received.
4. Did the Town receive any positive feedback related to the short construction duration?
No feedback was received.
5. Based on the actual construction, were the allowable work windows (7am -7 pm, Monday thru Saturday) appropriate?
The provided work window were appropriate.
6. Would the Town entertain longer work hours (in excess of a 12hr workday) to reduce the road closure duration even more for future projects?
We would entertain longer hours, so long as disturbances to abutters were not encountered.

If you have any questions, please do not hesitate to contact me. If you could please respond by April 8th it would be greatly appreciated. Thank you for taking the time to complete this questionnaire.

Sincerely,

Robert Landry, PE
Administrator, Bureau of Bridge Design

WEB RESOURCES

1. East Kingston Project Web Page:
<https://www.nh.gov/dot/projects/eastkingston26942/index.htm>
2. Federal Highway Administration UHPC Research and Development:
<https://highways.dot.gov/bridges-and-structure/ultra-high-performance-concrete/ultra-high-performance-concrete>

REFERENCES

1. FHWA Publication No.: FHWA-HRT-14-084, *Design and Construction of Field-Cast UHPC Connection*. October 2014.
2. FHWA Publication No.: FHWA-HRT-14-089, *Bond Behavior of Reinforcing Steel in Ultra-High Performance Concrete*. November 2014.



U.S. Department of Transportation
Federal Highway Administration

AID Demo
Accelerated Innovation Deployment

Project Contact:

Robert Landry, P.E.
NHDOT Bridge Design, Administrator
New Hampshire Department of Transportation
John O. Morton Building, Concord, New Hampshire 03302
(603)-271-2731
Robert.Landry@dot.nh.gov

The AID Demonstration program provides funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation. The AID Demonstration program is one initiative under the multi-faceted Technology and Innovation Deployment Program (TIDP). For more information please visit:
<https://www.fhwa.dot.gov/innovation/grants/>