

January 2019 ABC-UTC Webinar Featured Presentation: FDOT Main Street Bridge over Hogan's Creek Emergency Replacement Using ABC

#	Questions	Responses
Planning		
1	Can you talk about the level of cooperation from the state historical preservation group during the preparation of the Project Development Report?	Southeastern Archaeological Research, Inc. served as the liaison between the DB team, the FDOT and the State Historic Preservation Officer. There was very good cooperation between the team and the SHPO.
2	How do you assess and communicate the impact of construction on traffic and quality of life in its vicinity?	Since this was an emergency project, our goal was to open up the roadway as soon as possible to limit such impacts. There was no assessment of what would occur on a typical non-emergency project.
3	Can you give some background on the severity of cracking that lead to the emergency replacement?	The cracking was very severe as was shown in the photo slide of the deck underside. Since the original structure was not considered a bridge, as the length was less than 20 feet, it was not part of the bridge inventory and did not fall under the biennial inspection regimen.
Design		
4	Why did you use prestressed slab units that require a cast-in-place topping, versus full-depth precast concrete slab units?	The prestressed slab units are a developmental standard and, therefore, served as an "off the shelf" solution requiring only permission to use them on-system. Development of a special (non-standard) design would have been prohibitive with respect to the time available to complete the project.
5	What foundation alternatives were considered? What was used?	Initially we considered precast piles and drilled shafts. Precast piles were chosen due to cost, construction time, and contractor preference.
6	Did you do any structural investigation of the existing foundations?	No, because we did not have enough as-built information to make an assessment. This is one reason we spanned beyond the existing foundations.

7	What was the design loading, and was scour considered in the design?	The design loading is HL 93 (LRFD). Since the waterway is contained within a concrete channel, scour was not considered.
8	Was lightweight concrete considered for its weight reduction for handling and structural efficiency, or for its reduced cracking?	We did not consider lightweight concrete for the prestressed slab units as FDOT does not allow prestressed lightweight concrete. For the CIP topping, a special mix design was used. Practically speaking, lightweight concrete for a span of 26 ft would probably not provide enough reduction in dead load to offset the additional cost.
9	Looking back, could any additional types of ABC technologies have been implemented to further speed construction?	Given a longer time for design (>90 days), additional precast items could have been incorporated in the project such as end bent caps. However, development of connection details and obtaining Department approval would have been difficult to accomplish within our allotted time frame.
10	Did you include any considerations for future repairs and rehab in your design?	No special considerations were included beyond standard FDOT details which have been developed over the years to provide low maintenance structures. We are confident the new bridge will meet a 75-year design life.
11	In Florida, what are your criteria for steel versus concrete spans?	This is generally left up to the Engineer of Record to justify to the Department during preliminary design development. Considerations include: environmental classification (superstructure distance above salt water, proximity to corrosive industry, proximity to salt water bodies), aesthetics, span length, cost, etc.
Construction		
12	How did you handle the flow of the channel during construction, i.e., bulkhead?	Since we left the bulkhead walls in place (the cracks were repaired), the water remained in its channel during the duration of the project.
13	Were there any construction details that didn't quite fit up as intended and needed to be modified in the field?	There were a few minor issues; however, the construction team was essentially in constant contact with the design team so there were no delays in the field work related to plan errors.
Cost		

14	In utilizing ABC techniques, what was the cost difference between ABC and traditional construction?	We did not prepare any competing cost estimates; however, we believe that the prestressed slab option was ultimately less expensive than a full-depth cast-in-place solution.
Questions during Webinar		
15	What is the elevation difference between high tide and low tide?	The tidal fluctuations, while variable, are approximately 1.5 ft.
16	Slide 28: Any reason you didn't use drilled shafts near the historic building?	Construction cost and contractor preference. We felt that since we were predrilling the piles to near minimum tip (~40' below ground) that vibration impacts to the building would be mitigated.
17	Did you pre-drill for the round piles?	The steel pipe piles were vibrated to the minimum tip elevation.
18	Slide 29: Who developed the monitoring requirements? Were "Review and Alert" levels established for reporting anything adverse?	The requirements for monitoring existing structures for vibration are found in the FDOT Specifications for Road and Bridge Construction. Article 108-2.2 states: "Upon either detecting vibration levels reaching 0.5 inches per second or damage to the structure, immediately stop the source of vibrations, backfill any open excavations, notify the Engineer and provide a corrective action plan for acceptance by the Engineer. "
19	Were the slab units tied down at both ends with the grouted dowel? How did that affect the dead load moments compared to a simply-supported beam system where the span is simply supported made continuous for live load?	The slab units are restrained against horizontal translation by the dowels. They do not limit end rotation, and the slabs are design as simply supported.
20	Can you talk a little bit about how you use the program modeling the whole structure for the corrosive deterioration?	We do not model the structure with respect to corrosion per se. We address the individual components that are or may be exposed to corrosive soil, water, or air depending on the assigned environmental classification of the site. Substructure and superstructure may have different environmental classifications and are treated separately.

21	How was the 1929 railing ornamentation near midspan removed from the old railing and attached to the new railing?	A specialty contractor used a saw to remove the elements that contribute to the historical character of the area.
22	Was a Technical Special Provision used for the Historic Restoration?	Yes, we were required to prepare a technical special provision that was reviewed and approved by the State Historic Preservation Officer.
23	Were panels parallel to traffic?	Yes, the prestressed slabs are placed parallel to traffic.
24	Were there concerns related to ADA? The sidewalk on the NE side of the bridge looks a bit steep.	We were not tasked with bringing the facility up to meet the ADA standard requirements.
25	What the the total cost of the project?	The total cost including early completion incentive bonus was \$2.8M.
26	Were the PS units transversely post-tensioned and, if so, how was corrosion of the PT addressed?	The prestressed slabs were not transversely post tensioned. The slabs are keyed along the longitudinal joints and the keys filled with grout.
27	Was the bridge closed to traffic during the entire construction period?	The bridge was closed as soon as the crack in the existing structure was found by inspectors.