

**ABC-UTC April 2023 Monthly Webinar: RIDOT's Glenbridge Avenue Bridge Replacement
Using Lateral Slide and SPMTs**

#	Questions	Responses
	Pre-Webinar Questions	
1	How much room is required adjacent to the bridge to stage the construction prior to the slide? How does this method impact the project?	There needs to be ample room to build the new bridge and leave approximately a 10-ft gap to make room for demolition. Other options were investigated, which are covered in the presentation.
2	Did the abutments have to be redesigned to accommodate the slide rails and construction loading?	Yes, the abutments were converted from cast-in-place construction to precast. Details were changed at the abutment and the beam ends to facilitate the slide.
3	What types of monitoring (if any) were used during the bridge move?	No monitoring was used, which is normal for lateral slide projects. One of the lessons learned was that flex monitoring should be specified if SPMTs (self-propelled modular transporters) are used. Monitoring would have resolved the minor issue noted with the final setting of the bridge.
4	What was the biggest engineering challenge the contractor had to overcome that wasn't designed by the Engineer of Record?	The biggest challenge was the use of a combination of SPMTs and slide rails. It was an unusual approach that was cost-effective. This is covered in the presentation.
5	Do you know of any other design examples that used this method of construction?	This is an unusual project. We are not aware of another project that used this method of sliding with SPMTs.
6	Can you discuss some of the costs of the project?	This is an unusual project that started as non-ABC and was switched to ABC. This complicates the cost analysis because of the need for a significant change order. For this reason, the cost of the change is not of much value due to the unusual nature of this change; therefore, project costs are not covered in the presentation.
7	Were there any incentives on the project for the contractor to finish quickly?	There were no incentives. The ABC approach was a result of a change order. The cost and the time frames were essentially negotiated between the state and the contractor.

	Questions during Webinar	
8	For Rhode Island, does the percent of structurally deficient bridges by length differ from the overall number of bridges?	In general, the numbers are similar.
9	Were there any public involvement meetings held before the letting of the Glenbridge Avenue project?	There were meetings for the original project. There were none for the ABC re-design. There was outreach during construction.
10	Changing from a multi-column bent to a wall pier may increase the lateral stiffness of the pier and attract more lateral seismic load. Has this been evaluated and found to be within acceptable limits?	The design included seismic isolation bearings. Rhode Island is not in a high seismic region. The design does not assume plastic hinging of the pier; therefore, the wall pier did not impact the seismic performance.
11	It seems that using SPMTs to lift the center of the two-span bridge would introduce a fair amount of negative moment into the bridge. Was this calculated and, if so, how did it compare to the Service Load negative moment?	The abutments were jacked along with the SPMT lift-off; therefore, no bending was imparted on the superstructure.
12	Could the demolition timeline be reduced by sliding the existing bridge on temporary falsework on the east side of the bridge?	This would not save much time, as the demolition would still need to have been done over traffic. It would have also led to a substantial increase in cost.
13	Was raising the roadway profile of Glenbridge Avenue considered to mitigate impacts to the beams? Do the nearby intersections prevent raising the roadway profile for the bridge?	The intersections limited the amount of grade raise. The final clearance is larger than many bridges in Rhode Island that were originally built with limited clearance. The truck that impacted the bridge was well over the maximum legal height in Rhode Island.
14	What was the vertical clearance beneath the new bridge?	The vertical clearance beneath the new bridge is 14 ft, 6 inches.
15	The General Plan indicates that all bearings are expansion bearings (North Abutment, South Abutment, and at the Pier). If there are no fixed bearings, then how were the longitudinal loads transferred to the substructure? Is there any special consideration for seismic requirements in the design?	The forces are reduced through the use of isolation bearings. These bearings can transmit the superstructure forces to the substructures via anchor rods.

16	For this case, it seems that the deck was hardened when the truck hit the bridge. Otherwise, if the truck had hit before the deck was cast, it would have caused complete collapse of the new bridge. What are your thoughts on this issue?	Most likely not (opinion). There would be more damage, which would have softened the impact forces. Without a deck, there is ample strength to prevent a vertical collapse, even with substantial damage.
17	Are there load restrictions on the existing bridge supported on temporary supports during the pier construction?	There were no load restrictions on the existing bridge when it was on temporary supports. The temporary supports were designed for all loads.
18	How long a cure time did you require on the precast bedding/sleeve grout before starting the slide and jacking operations?	The grout can gain strength in approximately one day. This was not an issue with the schedule.
19	Did you mention that the bridge was metalized and had an additional three-coat paint system? Was the metalizing and painting done in the shop? Was there any reason for not using hot-dip galvanizing on the bridge in lieu of metalizing?	The painting was done in the shop. There was field touch-up at the end of construction. The beams were too long for regional galvanizers to accommodate, which is why metalizing is more common in Rhode Island.
20	Did you have to remove a section of the concrete deck to replace the damaged girder, assuming that the deck was composite with the girder?	Yes, the deck, sidewalk, and parapet above the fascia beam had to be removed and re-cast.
21	Are there any training videos available for NCHRP 12-102A, AASHTO Guide Specification for ABC Design and Construction--Implementation Workshops?	Yes, there are 16 hours of training available. The link for the NCHRP Project 12-102A Training Modules is: https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5433
22	Can a sensor system be installed a distance from the bridge to set off an alarm if an approaching vehicle is higher than the vertical clearance of the bridge?	There are systems in the market. The Rhode Island DOT has many bridges with similar clearance. The truck that hit the bridge was well above the maximum legal height.
23	Up to 80-ft-long galvanizing is available in Kansas.	The cost of shipping to a large galvanizer is prohibitive, which is why metalizing is more common in New England.