

July 2019 ABC-UTC Webinar Featured Presentation: Missouri DOT's 2018 Poplar Street Bridge Lateral Slide

#	Questions	Responses
Design		
1	What is the estimated or expected residual life span of this bridge after this widening? How is it estimated?	35 - 40 years using engineering judgement
2	How is this slide different relative to others?	This slide was not done to save user cost. It was done to support the original idea of adding a lane/deck area without adding girders or foundation.
Construction		
3	Please comment on the construction schedule.	The project was bid in October 2016, and the slide took place the weekend of March 31, 2018. All lanes were open to traffic on December 1, 2018.
4	Did the Missouri DOT develop a special provision to guide the contractor through his design of the sliding scheme? If so, is it available?	We did develop a special provision; however, we weren't very happy with it so we won't be sharing it. Next time, we would add more prescriptive guidance on how the slide should be monitored across multiple piers.
5	What preparations were done prior to the slide (e.g., jacking the bridge, taking out the existing bearings, temporary support to repair the caps, etc.)?	This is covered in the presentation.
6	How was the synchronized skidding of the bridge accomplished, and what were the values of acceptable lateral differential deflection?	The jacks at all piers were controlled at one location, with workers on the piers in constant communication with the "control." The specifications stated the Contractor was to "...ensure the bridge to be slid at a uniform rate at the piers," without a maximum differential deflection given.
7	Was traffic maintained on the bridge during the slide?	The westbound superstructure remained open; however, the eastbound superstructure that was slid was closed for the duration of the slide.

Cost		
8	What is the cost of this operation relative to initial cost with traditional construction?	What we did on this project could only be done with a lateral slide.
9	How does the sliding option compare to other options in terms of cost?	The only other way to add a lane would have been to widen the foundations and substructure and add a girder line. No cost estimate was done for this much more expensive option.
10	Please comment on potential claims and how they were settled if due to changed field conditions, maintenance and protection of traffic (MPT), or weather.	There were no claims or delays of the slide.
11	Could you address hindsight changes to the project?	We would be more prescriptive with regards to monitoring the slide across multiple piers during the slide. We also would have been more prescriptive on the tolerance for final location.
Questions during Webinar		
12	Did any claims have to be addressed during the project? What was the driving nature of claims attributed to?	No.
13	What assessments were made related to conventional construction versus ABC construction? How argued?	Conventional construction was not possible to implement what we did.
14	What are the type and amount of steel fibers?	1" to 1.5" long low carbon steel fibers. Steel fiber volume fraction = 1.5%.
15	How were the shear studs installed?	They were shot on with traditional methods.
16	What is the cost of total replacement of the bridge deck as opposed to what was done?	Unknown. The bridge would not have been able to support itself without it's orthotropic deck.

17	What was the largest jacked load and slide single load?	We don't have records of the actual jacking loads. However, the maximum girder service bearing DL Reaction was 2820 kips, and the maximum girder service bearing LL reaction was 1084 kips. Multiple jacks were used at each bearing.
18	Any fatigue concerns with adding weld material to the steel deck plates to repair gouges?	No.
19	Are you concerned that those gouges will act as initial crack size and start crack formation and propagation?	No. We have a long and detailed history of cracks on this bridge which we will continue to monitor.
20	After deciding it was worthwhile to undertake this complicated project, why not slide the bridge over further to add *two* new lanes?	We didn't think the existing girders could handle two more lanes. It also would have necessitated foundation work in the river which we couldn't afford.
21	Was it AASHTO specs to have the spacing of shear studs so low? Using 1 mil studs is impressive!	Yes.
22	Slide 44: Was there a pre-move survey made of the existing box girder alignment(s)?	No.
23	Who was the contractor's engineer to perform the design of the slide?	2DM Associates, Inc. provided engineering services to Mammoet. Also, locally, the shoring and sliding equipment was provided by Custom Construction Solutions who used Carr & Associates as their engineer.
24	Did you consider polyester polymer concrete?	Yes. Great product but didn't help us with the fatigue issue.
25	What was the cost of the slide by itself (sans infill)?	\$3 million.
26	Did you find that the orthotropic deck cracking was in lanes heavily used by trucks?	For the most part.
27	Why did you metalize before adding shear studs, instead of afterwards?	Once the orthotropic deck is blasted, it starts to rust very quickly. Also, metalizing after the studs were added would cause shadows in the metalizing.

28	Was UHPC ever considered for the deck overlay?	No.
29	Considering your experience with the deck rehab, what are your thoughts on the orthotropic deck system? What should be incorporated in a new design?	With all the trouble we've had with getting overlays to stick to the orthotropic deck, we have no plans of ever doing one again.
30	What was the engineering cost estimates versus actual construction costs?	The engineers estimate to widen the bridge was \$25.6M; it was bid at \$28M.
31	What is the load increase for the pile foundation with additional widening loading? How much percentage increase?	Approximately 5% increase in total factored load.