Bridge Factors Factual Report Attachment 31 – FIGG 3/15/18 Meeting Minutes

Miami, FL

HWY18MH009

(5 pages)

Temporary Construction Loading Condition

Presentation by FIGG

University City Prosperity Project (BT-904)

Pedestrian Bridge over Tamiami Trail US 41

Contract No.: ARI73 FM No.: 434688-1

Date: 03/15/18 Time: 9:00 AM Location: MCM Field Office

- **Overview**
  - Discuss temporary construction loading condition
  - Summarized review of before and after movement bridge conditions
  - Overview of FIGG's analysis presentation
  - Questions & Answers discussion

- **Attendees**
  - FIGG: Denney Pate, Eddy Leon, Dwight Dempsey (on the phone)
  - MCM: Rodrigo Isaza, Ernie Hernández, Pedro Cortes
  - FDOT: Alfredo Reyna
  - FIU: John Cal, Patrick Meagher
  - BPA/CEI: Jose Morales, Rafael Urdaneta, Carlos Chapman, Maria Christina Acosta

- **FIGG's Presentation Summary**
  - FIGG presented a power point presentation (attached).
  - The span was moved on Saturday, March 10, 2018, onto the permanent supports.
  - Immediately after the move, BPA/CEI inspected the span and nothing of particular interest was noted (FIGG was present during the move in an observing role. BPA's role was CEI).
  - At 4:52 pm on 3/12/18, MCM e-mailed FIGG photographs showing some cracks and spalls at the pylon diaphragm end of the span. FIGG recommended that MCM install the temporary shims in the pylon base directly below member 12 (nodal area of members 11/12) between the permanent support shims.
  - FIGG reviewed calculations and recommendations with the group.
  - Based on the discussions at the meeting no one expressed concern with safety of the span suspended over the road.
  - FIGG noted that the spalled areas were not replicated by the engineering analysis.
  - The importance of the pylon diaphragm pour and back span construction was discussed and that these next steps being taken in construction would increase the reserve strength. MCM was tasked with looking into expediting the schedule for these operations.
  - A temporary mechanism to capture the nodal zone and the time frame to deliver the plan was discussed.

- **Questions & Answers**
  - BPA/CEI to FIGG: Do we need temporary shoring?
    - FIGG responded that shoring adjacent to the pier would not be helpful to add reserve strength and could provide a false sense of security. Shoring close to the pier would bear loads against the slab part of the structure which was not designed to carry the full weight of the span.
    - FIGG, MCM, and BPA/CEI discussed additional steps that could be done. Rather than carry span weight on the bottom slab it is more appropriate to transfer some of the load off 11 & 12 node. The parties discussed potential options to implement in order to add reserve strength. The options were to capture some of the forces from that node which would be better than the vertical support/ temporary shoring. One option discussed was that steel channels to 10/9 node & PT bars to capture some of that force would be better than vertical shoring. The diagonal member should be captured in the options considered.
  - BPA/CEI asked if they should initiate crack repairs now (saw cutting concrete and patching). FIGG responded that no repairs should be done until enhancements were made. FIGG also stated that the prudent action is to share some of the load carried, back to 9/10 and construct the pylon diaphragm.
  - BPA/CEI to FIGG: Will the mechanism to capture the load from the node have to be integrated with the pylon diaphragm and will it remain in the structure?
    - FIGG answered that the preferred option was not to leave anything in the structure that was not intended but the option for the enhancement was not ultimately decided. That decision would need to be made later.
  - MCM was to look into expediting the next phase of the operations. Under the type 2 diaphragm under the north end, MCM was to place concrete for support. Because the pour back was only 2.5 inches tall, MCM was concerned about using white concrete which would be visible. Titanium dioxide concrete is very sticky and workability is a concern. MCM asked to use a more conventional grout for that area and said that would be faster. FIGG said that grout substitution was okay if that would expedite the improvement and that other steps could then be done for aesthetics purposes.
  - MCM to FIGG: Will the additional temporary shims under truss member 12 put in after the 3/13/18 e-mail remain in the structure? MCM was concerned they may be difficult to remove based on how tightly they were installed.
    - FIGG replied that the temporary shims were contemplated to ultimately be removed, however, if they cannot be removed, something would be worked out for aesthetics purposes.
  - FIU to BPA/CEI: What is the BPA/CEI opinion on presentation analysis from FIGG?
    - CEI: At this point we cannot comment, will follow up on this request and expedite in 2-3 days with Jake Perez and Luis M. Vargas.
    - FDOT requests a copy of FIGG's analysis presentation to give to their structural group.
  - The question was asked if FIGG's analysis predicts diagonal cracking. FIGG responded that it did indicate some diagonal cracking but expected to see it uniformly on the two diaphragm faces which is not what showed in the field. The cracking observed at the site

was more noticeable than in the pictures.

- FIGG explained that the analysis was based on information provided to them and asked if there were any changes in the cracks. BPA/CEI and MCM confirmed only small changes.
- BPA/CEI to FIGG: Requested clarification on amount of transferred PT assumed for the nodal shear stability analysis
    - FIGG: Clamping action only from transverse strands
- FIU commented that nothing predicted cracking adjacent to the north end of number 12.
- It was confirmed that the cracks and spalls at that location were not replicated by the engineering analysis.
- FIGG mentioned that the shims in their permanent condition will have less stress than under construction condition.
- BPA/CEI: Are there any restrictions of any load on the span?
    - FIGG answered that until further restraining of the node, no load other than necessary should be placed on the span.
- BPA/CEI to MCM: Will there be a crack monitoring plan? CEI had been monitoring the cracks and insisted that MCM perform the crack monitoring as well.
    - MCM had no response.
- FDOT to FIGG: Are you going to continue to figure out why it happened?
    - FIGG responded that all we know is that it happened. Priority is to continue to look into options to improve the condition.
- MCM to FIGG: Should there be a further inspection inside the cracks?
    - FIGG answered that they don't want to core concrete out. The construction should move forward and cracks sealed and other appropriate enhancement steps taken before being covered.
- FIGG recommended that right now to not do any repairing of cracks until restraining the node is implemented. The rest of any repairs will be after construction of back span.
- FIU to MCM: This concrete is sticky (flowable) because of the titanium dioxide. FIU is concerned to be used under the pylon diaphragm. Potentially the grout was better.
- FIU: Why is the bridge less than 950 tons versus Barnhart's weight?
    - BPA/CEI confirmed that it was built as per plans and the approximate weight of 950 tons included an increase factor. FIGG noted slightly lighter weight was in normal tolerances.
- MCM to FIGG: What is the time frame for temporary mechanism to capture nodal zone?
    - FIGG: Saturday
- MCM explained that member 11 is going to be tensioned today 03/15/18.
- BPA/CEI to FIGG: Are you staying for MCM/VSL's restressing?
    - FIGG replied that they will not be staying for the restressing. FIGG was going back after this presentation to work on the assignment to develop options for the temporary mechanism to capture nodal zone.
- BPA/CEI to FIGG: Requesting a copy of the power point presentation
    - FIGG will provide.
- BPA/CEI to MCM: Provide to BPA/CEI the restressing procedure that will be

performed on 03/15/18

- MCM responded that we will provide to BPA/CEI. MCM clarified that VSL was currently on site to perform the stressing operation with the corresponding stressing procedure.

- FIGG requested to MCM the compressive strength test results. MCM stated that laboratory results on concrete had exceeded the design compressive strength.
- BPA/CEI to MCM: When do you have in your schedule the completion of the construction of the pylon diaphragm and back span and are you planning to expedite the completion of construction of them?
  - MCM responded that they are following the schedule but that they will expedite the construction of them.

Attachment: Power Point Presentation