SR 520 Floating Bridge and Landings
Medina noise: Tech team meeting
Thursday, October 27th, 2016
Medina City Hall

Attendees

WSDOT
• Dave Becher
• Larry Kyle
• Lawrence Spurgeon
• Stacey Howery
• Kathryn Murdock

City of Medina
• Robert Grumbach
• Michael Sauerwein
• Ryan Osada

City of Medina consultants
• Mike Groesch
• Kelly Evans
• Paul Berendt
• AJ Dotzauer

Materials

• Agenda
• Draft agenda for 11/1 Committee of the Whole
• Expansion joint folio
• Expansion joint data

Key topics discussed

Role of consultants and timeline of work

• Strategies 360 reported on their scope of work:
  o There is a growing concern in the community that this issue is not getting enough attention. Our role is to engage the legislature to ensure the issue gets adequate attention.
  o We understand there are a lot of technical issues to work out in regards to replacing or retrofitting the joint.
  o Our goal is to work cooperatively and constructively with WSDOT to bring added resources so that we can come to a solution for the noise being generated by the expansion joints.

• Soundview Strategies reported on their scope of work:
  o Soundview Strategies has a short-term and secondary role to Strategies 360.
  o Our scope of work is to devise a communications plan for the city of Medina that enables them to effectively work with the community, legislators and WSDOT moving forward.
  o When Soundview Strategies first came on, the community was confused about the next steps. At this point, it is clear that WSDOT is moving forward with next steps so our role is to communicate that progress to the community.

• Robert Grumbach echoed the consultants and noted that they were helping city staff by adding capacity, doing outreach with the community and connecting with legislators and the Governor's office in Olympia.

Review of COW materials

• WSDOT reviewed the materials that they planned to take the Nov. 1 Committee of the Whole meeting, including the expansion joint folio, expansion joint data and a possible Mageba proposal.
• Becher reviewed the expansion joint folio:
- Crews took measurements of the expansion joints during the weekend closure of Oct. 7 to 10 on both the east and west end of the floating bridge.
- It took crews 12 hours on Saturday and 14 hours on Sunday to complete measurements.
- The expansion joint folio shows how the crews took the measurements and some of the preliminary measurements on the joints.
- Mageba is currently looking at the measurements taken during the weekend closure and plans to speak with WSDOT tomorrow, Oct. 28, to share a proposal with WSDOT to potentially adjust the joints.
- Lawrence Spurgeon also mentioned that there is seasonality to the noise issue on the expansion joints as Lake Washington’s level rises and falls:
  - The gaps between the joints may change but they should be consistent across the joint at any given time.
  - As Lake Washington rises and falls, it can change the slope which can cause a dip as vehicles approach the joint.
- Becher noted that at the previous COW meeting, they had discussed testing of the joint with sinus plates for use on the floating bridge and how that could influence the timeline for potentially installing a new joint. He reiterated that testing, both geometric modeling and fatigue testing, would be necessary prior to installing the joint with sinus plates on the floating bridge.
  - Becher also noted that if WSDOT moved forward with testing the Mageba joint, they would likely have to offer testing to other competitors as well to provide an even playing field.
  - Larry Kyle noted that this testing is particularly important if the decision was made to move forward with a sinus plate because a sinus plate has never been installed on a floating bridge. A floating bridge needs six degrees of freedom of movement which makes it very difficult for a sinus plate to accommodate the six degrees of movement.
  - Expansion joint manufacturers are extremely competitive and WSDOT does not want to be sued for offering an unfair advantage to one manufacturer.

**Questions**

- **Question:** How can you show that the noise has improved after you tweak the joint?
  - **Response (WSDOT):** Some information will come anecdotally from homeowners since there are different pitches in different lanes. With tweaks to the joint, the frequency of the noise may change. The average sound level discernable to the human ear is three decibels so with any solution, you would want at least a three-decibel reduction.

- **Question:** Do you know what the sound level would be if it was perfectly installed?
  - **Response (WSDOT):** We do not because every joint is different and every bridge is different with its own unique sound.

- **Question:** What happened to the $30,000 study?
  - **Response (WSDOT):** Mageba no longer needs to do the measurements that they were planning to do because WSDOT has already completed the measurements. Mageba may need to do additional work which is what we will discuss with them tomorrow.

- **Question:** Is it feasible to replace the joint? If the joint is replaced, will it solve the problem?
  - **Response (WSDOT):** Mageba is looking at whether there is a technical way to address noise by adding a sinus plate or otherwise adjusting the joint. Mageba did not want to retrofit the joint because it is hard to retrofit in the field and they cannot guarantee the quality needed in the field.

- **Question:** Is retrofitting off the table?
Response (WSDOT): It is possible to adjust the joint slightly or completely replace the joint. It also may be possible to do something in between but we are waiting on the proposal from Mageba.

Response (City of Medina): At the Nov. 1 Committee of the Whole meeting, it will be important to be clear with what you are recommending and what you are not recommending.

- **Question:** Will you need different data for different seasons?
  - **Response (WSDOT):** It should not matter once you correct the issue.

- **Question:** What would it take to adjust the joint?
  - **Response (WSDOT):** We have to ask Mageba for more technical information to be able to answer this question. Each option will take time and money. We are hoping to get more information from Mageba to evaluate each option to determine how much time and money each will cost.

- **Question:** Whose liability is it if [the joints] were installed incorrectly?
  - **Response (WSDOT):** We are currently working with the contractor, Kiewit/General/Manson (KGM), and Mageba to verify the installation of the expansion joints. There is a tolerance in the contract for installation so it will depend if the installation meets the tolerance requirements. WSDOT will continue to work with KGM to determine whether the joints were installed correctly.

- **Question:** Do you feel like these joints are installed correctly?
  - **Response (WSDOT):** We will not be able to tell until Mageba comes to look at the joints. Our primary concern is whether the current installation affects the long-term viability of the joints because they need to last the full lifespan of the bridge, at least 75 years. We are not concerned about their short-term function based on the measurements we took.

- **Question:** Do you have potential dates for the next full closure when Mageba could come to look at the expansion joints?
  - **Response (WSDOT):** The contractor on the west side of the bridge, Flatiron, is looking at closing the bridge the weekend of Dec. 10.

- **Question:** Mageba did the sinus plate testing on the west side. Does the West Approach Bridge North (WABN) structure need six degrees of freedom?
  - **Response (WSDOT):** No, the WABN structure functions like a normal bridge since it is a fixed structure.

- **Question:** Who tested the expansion joints prior to installation?
  - **Response (WSDOT):** Mageba used Lehigh University lab in Pennsylvania on the east coast to test the expansion joint. The lab takes a portion of the joint and runs six million cycles through the motion of the joint. The joint on I-90 had significant issues with welds on joint breaking because the fatigue on the joint was not understood prior to installation.