**WSDOT/ACEC Structures/Geotechnical Team**

**MEETING MINUTES**

**March 18, 2022 -- 10:00 AM – 1:00 PM**

**MS Teams Meeting**

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| --- | --- | --- | --- |
| WSDOT  | Mark Gaines, PE | WSDOT – Bridge Design (co-chair) |  |
| Tony Allen, PE | WSDOT – Geotechnical Office |  |
| Jeri Bernstein, PE/SE | Washington State Ferries | x |
| Craig Boone, PE/SE | WSDOT – Bridge Design | x |
| Andrew Fiske, PE | WSDOT – Geotechnical Office | x |
| Bijan Khaleghi, PE/SE | WSDOT - Bridge Design | x |
| Katie Olleman, PE | WSDOT - Bridge Design |  |
| Amy Leland, PE (visiting) | WSDOT – Bridge Design | x |
| Nick Rodda, PE/SE | WSDOT - Bridge Design | x |
| Scott Sargent, PE | WSDOT - HQ Construction Office | x |
| ACEC | Joan Zhong-Brisbois, PE/SE | CDM Smith (co-chair) | x |
| Lee Andrews, PE/SE | HDR | x |
| Matt Barber, PE | WSP | x |
| Matt Baughman, PE/SE | COWI | x |
| Stan Boyle, PE | Shannon & Wilson | x |
| Brice Exley, PE | Hart Crowser | x |
| Eric Herzstein, PE/SE | Parsons | x |
| Yang Jiang, PE/SE | HNTB | x |
| Matthew Lengyel, PE/SE | FIGG Bridge Engineers  |  |
| Scott Phelan, PE/SE | David Evans & Associates | x |
| Reza Sehhati, PE | Stantec | x |

1. Review meeting agenda (10 minutes) – All
2. Andrew Fiske suggested a new item on MSE Wall design and provided a link access to the lessons taught by Tony Allen in Q1 2022. There will be another set of sessions presented in the first half of April. <https://ftp.wsdot.wa.gov/incoming/MSE%20Wall%20Webinar%20Handouts/>.
3. Bijan introduced Amy Leland WSDOT Seismic, Foundation & Scour Specialist who joins today’s meeting.
4. Joan called for future agenda items - If you are passionate about any topic that are related to our industry, please make suggestion for our future meetings.
5. Review minutes from January 21 meeting (5 minutes) – All

No comments on January minutes.

**ACTION**: Bijan to have the January minutes posted.

1. COVID-19 Update (20 minutes) – Bijan/All
	1. WSDOT Situation Report (Bijan)

Mark Gaines took on the new role as Development Division Director (Congrats Mark!); A new State Bridge Engineer position is being advertised. The new State Bridge Engineer will co-lead WSDOT/ACEC Team. Till then, Bijan will cover for WSDOT (Thanks Bijan).

* 1. Governor’s vaccination mandate and Bridge Office staffing (Bijan)
	2. Return to the office (Bijan/all)
		+ The masking restriction and some social distancing have been relaxed.
		+ Working in the office is encouraged but not mandated by the consulting firms. Teleworking remains popular among the established workforce, though hybrid or setting boundary between work and home is also desired by some. The practice of “Core Days” helps new staff or junior staff adapt to their new roles and assignments. Both WSDOT and ACEC leveraged this good practice.
		+ Scott updated the staffing changes in Construction Office (Chris Tams, Chuck Meade, John Romero etc.)
	3. Travel/conferences (Bijan/all)

No travel restrictions are currently active.

* 1. Future ACEC/WSDOT Structures & Geotech meetings (All)

The last meeting of this season is on May 20. The team meetings will resume again in September.

1. Disconnect between design requirements for retaining walls vs. buried structures shorter than 20 feet (30 minutes) - Andrew/All

Andrew provided the background of this discussion. There appears inconsistent level of seismic consideration and criteria between a buried structure less than 20 feet and the adjacent wingwalls mandated by the hydraulic requirements. This resulted more efforts and costs in wall and foundation design/construction such as ground improvement, lightweight backfill, and heavy reinforcements. Are these extra cost and schedule impact justified?

* Amy - It definitely sounds like we have a little bit of a disconnect and there might be something we need to do.
* Andrew – Typically the walls are not connected with the buried structure due to different settlement they have; typically seismic does not control the buried structure; the walls are designed for life safety.
* Bryce - How far away is the wall from the buried structure so that it does not need to design for seismic, and what if the wall is long for example 100 ft?
* Joan – Perhaps consider two scenarios for wall design: one being minimal life safety issue expected, the other being considerable life safety issue. The first scenario would warrant non-seismic wall design as the damage is limited to function loss.
* Andrew - We need some more information to show if it's a life safety or not; providing a bit more structure and geotechnical design manual as to how do you prove this is a life safety problem or not? I think a little more description is warranted
* Bryce – walls are designed for lateral earth pressures; I am curious if there is research on how we could ignore global stability and just let the wall move if it's going to move (and does it rotate?); this would be a policy decision that need to be backed up by research.
* Andrew - research or even addressing case histories evaluating X number of walls from for example Japan or other places where they've had subduction zone types of failures in order to come up with some empirical data to benefit West Washington

**ACTION**:

* Andrew to look for some relevant research on wall performance; also explore a pooled fund study or research study
* Bijan to look into BDM 8.1 and 8.3 and update the group in May
1. Specific technical area in resiliency (25 minutes) – Jeri/All

Update on WSDOT’s efforts to expand the lifeline to ferry terminals and to peninsulas, islands,

outlying areas

Jeri introduced the Bridge Seismic Lifeline Map (2018) to the team, also resilience of the current engineering practice of WSF terminals. Jeri also highlighted Oregon example of Economic Tradeoff Analysis and exploring Best Options for Emergency Access.

* Amy – The decision-making is often on the program planning side (Resilience Group) and not a structural specific issue, but we have capability to design structures to higher standard.
* Andrew: Roadway including auxiliary routes will also need to be considered in addition to bridges.
* Jeri - Maybe the bridge office can develop/update the designated lifeline similar to the 2018 version.
* Andrew - Southwest region is taking a very proactive approach, I-5 is a major corridor with the commitment to function after seismic events
* Bijan – limitations on the existing bridges, and how to improve their resilience in the event of seismic and tsunami; Bijan presented information of innovative material ECC, PS self-centering columns, shape memory alloys
1. Update on Precast Concrete Culvert Standards for WSDOT Fish Passage Projects (25 minutes) –

Bijan updated the progress of developing precast concrete culvert standards. Box culverts is typically more resilient than the three-sided structures. The group discussion highlighted some questions on how to include liquefaction’s impact in standard plans. It was anticipated that three quarter of the culvert inventory would be represented by the standard plans, the notes are important to ensure proper implementation of the standards. Bijan suggested more update on this in the team meeting in May.

**ACTION**:

* Joan to include this topic in May 2022 meeting agenda.
* Bijan to update the group again in May meeting
1. Discussion of the recent scour policy (15 minutes) – Reza/All

Amy provided responses to the questions Reza shared with the group related to scour policy. They include buried structures without approach slab, facia on the retaining walls, clarification on the limit states, and the limit of a wall affected by scour.

Amy mentioned that she is aware of those questions mainly raised by design build projects and working on addressing them.

***Lunch Break (30 minutes)***

1. AASHTO LRFD agenda items (15 minutes) - Bijan

Bijan provided information of the ballot items for AASHTO committee votes in June 2022. Bijan will send these items for the group to provide comments. The comments are due back to Bijan by April 12 (?)

**ACTION:**

Bijan to provide the information of AASHTO ballot items for the team to comment on by the April deadline.

1. Best practices for hybrid work environment (5 minutes) – All
* See agenda item 3( c) for best practice discussion.
* Joan asked for team’s input on the venue for the May meeting. There is no objection to a virtual meeting though there is preference of in-person meeting if the safety measures are met (air purifier etc.). Alternating the venue between Tumwater and Seattle is still an option for future meetings.
1. Meeting adjourned at 1:00pm

**Future meeting dates:**

 **Friday, May 20, 2022**

Attachments:

1. AASHTO ballot items