ACEC/MaineDOT Bridge Design Subcommittee

MEETING AGENDA

March 6, 2024

Location
Hybrid: Virtual/MDOT HQ Room 227

Time
1:00 PM to 3:00 PM

Purpose of Meeting
1st Quarter Meeting - 2024

Invitees

☒ Garrett Gustafson, MaineDOT
☒ Laura Krusinski, MaineDOT
☐ Ron Taylor, MaineDOT
☒ Richard Myers, MaineDOT
☒ Devan Eaton, MaineDOT
☒ Joshua Hasbrouck, MaineDOT
☒ Tim Aguilar MaineDOT
☐ Chad Lewis, MaineDOT
☒ Bryson Welch, Thornton Tomasetti
☒ Ashley Stephens, HNTB
☒ Andrew Blaisdell, GZA
☒ Ben Toothaker, TYLIN
☒ Shannon Beaumont, Fuss & O'Neill
☒ Wayne Frankhauser

AGENDA ITEMS

1. Members
    a. Bryson's first meeting.
    b. Ashley and Andy's last meeting.
    c. Co-chair moving forward.
        - *Ben will be co-chair through Q3 2024*
2. Meeting Minutes Submission – *meetings were submitted.*
    a. *Meetings will be posted shortly, they are ready.*
        - *Have been forwarded to ACEC and will be posted on the website.*
3. Information Dissemination by MaineDOT
    a. Contracting/workload:
        - *The 2024/25/26 workplan is published and public.*
            - *2024 – 69 projects, (1 multi-modal) $236M total.*
            - *2025 – 86 projects, (12 multi-modal, 1 planning) $267M total.*
            - *2026 – 106 projects (8 multi-modal) $350M total.*
        - *80 new projects were assigned in January, of those 16 are paint projects.*
        - *Alternative project delivery – Wayne & Rich met with CPO about bundling. CPO is on board. Multiple bridges can be bundled but will be subject to $1M cap for the package (and will need to track expenditures for each WIN in the bundle). This should be less burden on CPO.*
            - *For contracts >$1M, they would need to go to RFP, and would likely include survey, geotechnical, utility coordination, etc.*
        - *3 Design-Build packages upcoming:*
            - *3 Bangor bridges bundle (Stillwater through Kenduskeag Ave over I95)*
            - *6 I95 bridges from Sidney-Waterville (contingent on grant funding, grant in process)*
            - *I395 between Bangor and Brewer (contingent on grant funding, grant in process)*

b. BDG update:
   - *Chapters 1-3 are complete in draft form.*
     - *The draft chapters will be reviewed by Joyce and the bureau director for comments. After the internal bureau review, the draft chapters will be distributed to ACEC for review and comments. MaineDOT will be relying on ACEC and the consultant community to help identify gaps in the new BDG. Review and guidance comments are encouraged, appreciated, and helpful to the process.*
     - *Chapter 1 is General Information*
     - *Chapter 2 is Project Development/Process*
     - *Chapter 3 is Preliminary Design (without hydraulics)*
     - *Chapter 4 is Hydraulics (mostly completed, but is still in draft stages)*

c. GCA Schedule:
   - *Wayne indicated that they would not like a break in service, and that the GCA will probably be coming this summer for a fall selection process.*

d. Federal Grants & Federal Funding Updates:
   - *Nothing noted outside of the Design Build projects above.*

e. MaineDOT Staffing Update:
   - *Many openings for entry level and technician/detailing positions*
   - *Jason Stetson is the new Fabrication Engineer*
     - *MaineDOT is working on filling his PM1 position in team N.*
   - *Sam Stillwell is transitioning to the fabrication group as an Assistant Transportation Engineer*
   - *Abanoub Rezkallah has accepted a role as an Assistant Transportation Engineer*
   - *Joshua Albee and Matthew Kolodziejczyk have started as Assistant Transportation Engineers in the construction group.*

f. Standards Update (BDG, PDR/PIC, CADD, Notes) –
   - *See above for BDG update, no additional updates.*

g. OpenRoads update –
   - *Ongoing process, see below.*

4. Summary of Designer Meetings
   a. *One designer meeting with three topics*
      - *Topic 1: Concrete Closure Pours for NEXT Beams.*
        - *Discussed using NEXT Beams and the impacts of differential camber between adjacent sections.*
        - *The biggest issue is between stages. The differential camber between adjacent sections causes reinforcement & mechanical coupling conflicts.*
        - *Avoid using staged construction for NEXT beam superstructures.*
        - *The issue is further complicated because the fabricated beams often do not match the design camber, which causes issues when trying to match up phases at the staging line.*
        - *Possible solutions/mitigation:*
          a. *Consider providing extra bottom concrete cover for first phase, to help provide at least 1" bottom cover on*

following phase even if the bottom of deck is not aligned perfectly.

b. Detail to include a zipper strip/closure pour when using bituminous pavement with a membrane.

c. Can mill the profile if the deck is thick enough, but this can be challenging for the contractor.

d. Choose stage 1 for the worst camber, to help out when the stages are closed together.

- *Topic 2: Truck Configurations to use for Load Ratings*
  - *The Emergency Vehicle (EV) truck configurations are required for all structures (even though the parametric study may eliminate certain cases from this requirement).*
  - *The Routine Permit Vehicle (RPV) truck configurations rating requirements are dependent on the span length and traffic volume.*
  - *The lane load is required with all truck configurations.*
- *Topic 3: Creating a Standalone Load Rating Document*
  - *An update to load rating guide is coming, pending signoff by FHWA for the updated procedures.*
  - *The new guide will have all configurations listed in one place.*
  - *Service and fatigue not controlling cases, so they should be reported separately from strength ratings.*

5. Geotechnical Update (Laura K.)
   a. *No updates*
6. Discussion Topics
   a. OpenRoads Designer challenges with bridge detailing.
      - *Ongoing learning process.*
      - *Developing Geotechnical sheets has been challenging in ORD.*
      - *Check with the DOT project manager regarding mid-project conversions to ORD.*
      - *New projects moving forward are being surveyed in ORD and will be developed in ORD*
      - *All projects require the project file with a .dgnws file extension. If this file does not come with the project survey files, please request it from MaineDOT or the project will not function in ProjectWise.*
      - *Consultants should continue to watch the MaineDOT CAD support page for updates to the workspace and additional information.*
   b. Ways to improve productivity/improving efficiency
      - Project bundling:
        - In design

a. DOT has discussed with this option with CPO, and it seems likely to move this way.

b. Moving to final design from prelim design may not work for bundles due to funding/schedules/permitting etc.

- In construction
    a. *How is bundling anticipated to impact: Program delivery? Expectations for contractor? Has the program had success in bundling with contractors?*
        i. *Bundling has had mixed success (Hampden bundle went well, but was also a Design-Build bundle)*
        ii. *Jim Pond bundle was OK. The bundle did not provide a significant financial benefit, possibly shorter total duration. Overall, it seemed to operate as three separate projects.*
    b. *Bundling in construction likely limits bidders to larger contractors.*
    c. *Is there a desire to bundle to avoid projects being left unbid?*
        i. *DOT is considering some bundles due to similar geography and scope.*
    d. *DOT is trying to strive for mix of work. There are not currently many mega projects other than bundle projects. The future strategy will need to include putting out a few bundles, then a bunch of small projects so that there is something for everyone. Grants drive project bundling also.*
    - *The bundling focus is in getting the projects out and advertised.*
    - *Recent projects have often been allowing an extra year in construction contracts. This approach has received positive feedback from contractors.*
- *Property office needs a lot of help.*
- *CPO was behind for a while but is getting caught up again.*
- Low risk projects - design solutions
    - *Not discussed*
- Total project delivery
    - *Not discussed*
- Contractor In Design (CID) process
    - *Not discussed*

7. Other – *[Additional Topics Raised/Discussed in the Meeting]*
    a. *DAD (Driveway assisted devices) [Topic raised by MaineDOT]*
        - *MaineDOT received communication from FHWA that we could start using these on an experimental basis, with a hope that interim approval will be issued soon.*
        - *MaineDOT is looking for pilot projects (Rich may have 1-2 in mind for this calendar year)*
        - *Pilot projects will help to develop language for specs for future use.*
    b. *Bridge & Roadway scour protection (current practices) [Topic Raised by MaineDOT]*
        - *Recent storms resulted in abutment wash outs.*
            - *One of the recent wash outs was a modern integral abutment bridge.*

a.
- *Others were on 2 rows of piles with a pile cap.*

- *Chief engineer asked DOT Bridge group if changes are needed for scour protection approach.*
  - *Pay more attention to riprap sizing & placement around abutments*
  - *Consider more design scour countermeasures following HEC-23 (Rumford-Mexico Red Bridge is a sample which detailed riprap following HEC-23)*
  - *Don't design constrictions to the channel.*
  - *No major failures, but there were many issues with embankments washing out.*
- *Additional discussion re: scour design in new Chapter 4*
  - *The freeboard requirement isn't necessarily changing, but the distinction between major and minor rivers might go away in favor of evaluating more freeboard where there is a higher risk of ice jams or debris.*
    a. *Designing culverts for a Hw/D ratio of 0.9 at Q50 vs 1.0 at Q100 is usually an insignificant change.*
  - *There has been a shift in DOT mindset to capture more approach work to facilitate meeting desired freeboard requirements.*
  - *Scour and Hydraulics need to be thoroughly vetted in PDR.*
- *Consideration & judgement are needed for locations which require more than a typical detail approach to scour protection.*

c. *DOT is looking for ways to get through PDR & PIC quicker.*
- *Regular team meetings with MaineDOT seems to facilitate project schedule.*
- *Getting buy in earlier in the process is beneficial.*
  - *Alternatively, projects need to have enough time in schedule to accommodate design changes later in the process.*
- *Hydraulics can often be the hangup on PDR.*
  - *With projects that are likely be controlled by hydraulics, a reach out to the Senior Structural Engineer ahead of laying out bridge options for PDR is helpful.*
  - *The impact to project design schedule is less concerning when hydraulics are 'high' than when they are 'low' for what is expected at the site.*

d. *Bundling survey with design projects may be in the future.*

e. *Would DOT consider program delivery as a means to help meet project load?*
- *Explained as splitting a portion of project profile out and stipulate that this group needs to be delivered within x years.*
- *DOT can/may ask a consultant to take on larger chunks of the projects, but their preference would still be to assign individual projects or a bundle to consultants.*

f. *Some take aways for improving PDR delivery:*
   - *Let the Senior Structural Engineer know about project hydraulics early.*
   - *Let the DOT Project Manager/Rich & Wayne know about likely MOT scheme early in project development.*
   - *QC is paramount, especially at PIC and PS&E submittals.*
     - *DOT has seen projects recently where the XS and Plan do not match, which leads to many questions about QC throughout the project and design.*

8. Future Discussion Topics
   a. Ways to improve productivity/improving efficiency of delivering program.
      - *This is an ongoing discussion with the current workplan. See above.*
9. Training Needs:
   a. OpenRoads Training
      - *OpenRoads training is a moving target due to ongoing changes with the software/workspace.*
   b. Hydraulic Training
      - *MaineDOT wants to host an NHI hydraulic training in 2024.*
      - *Could use input from consultants on which one to do*
        - *Consultants should touch base internally and advise DOT on which courses would be most beneficial.*
   c. Fracture Critical Training
      - *Not under consideration presently.*
   d. *Bridge maintenance is looking to host an NHI load rating course.*
   e. *DOT is considering hosting an NHI steel design training course.*
      - *Would need consultants to help fill it out seats in an NHI course. DOT has ~2 they could send but would likely need ~2 per consultant to fill the course seats.*
10. Subcommittee Rotation for Consultants
    a. Active:
       - Ashley Stephens, HNTB (Co-Chair) Q2 2022 thru Q1 2024
       - Andrew Blaisdell, GZA Q2 2022 thru Q1 2024
       - Ben Toothaker, TYLIN Q4 2022 thru Q3 2024
       - Shannon Beaumont, Fuss & O'Neill Q2 2023 thru Q1 2025
       - Bryson Welch, Thornton Tomasetti Q1 2024 thru Q4 2025
    b. Future:
       - Robert Blunt, VHB Q2 2024 thru Q1 2026
       - Bryan Steinert, H&A Q2 2024 thru Q1 2026
       - John Byatt, BETA Group Q4 2024 thru Q3 2026
       - Adam Stockin, WSP Q2 2025 thru Q1 2027
11. The Next Meeting is set for:
    a. *Tuesday 6/25/2024 from 1-3 in room 318*