

ACEC/Maine DOT Bridge Design Subcommittee

MEETING MINUTES

June 18, 2019

Location

MaineDOT, Room # 317 A-B

Time

1:00 PM to 3:00 PM

Purpose of Meeting

2nd Quarterly Meeting of 2019

Invitees

- Wayne Frankhauser, MaineDOT
- Jeff Folsom, MaineDOT
- Leanne Timberlake, MaineDOT
- Rich Myers, MaineDOT
- Garrett Gustafson, MaineDOT
- Laura Krusinski, MaineDOT
- Kathy Parlin, MaineDOT

- Ben Foster, MaineDOT
- Theresa McAuliffe, McFarland Johnson
- Jenn MacGregor, Kleinfelder
- Jaime French, Fuss & O'Neill
- Adam Stockin, WSP
- Josh Olund, HNTB

AGENDA ITEMS

1. Introductions
 - a. Approval of March 2019 Meeting Minutes – *several editorial comments identified, otherwise approved. Minutes will be finalized and posted to the website in the near future.*
 - b. Welcome Josh Olund to the committee - *complete*
2. Information Dissemination by MaineDOT
 - a. Contracting /workload
 - 2020 work plan update- JSF – *STIP approved by FHWA; slightly later this year than typical. New projects are being activated and consultants are being contacted as needed. Eight projects have been deferred from 2019 to 2020 – eight total projects totaling approx. \$26-million in construction, which equates to approximately 20-30% of program funding and 10% of the 2019 projects. There will likely be a funding ripple effect into subsequent years. Candidate selection starting for next three year Work Plan. Many current projects need supplemental funding therefore there will be funding for fewer new projects in the next work plan.*
 - Station 46 Bridge- This project is a 2019 BUILD grant candidate (former TIGER grant program) with an expected construction cost of \$30 million. 80% of the cost will be requested from the BUILD Grant Program.
 - Update? – *The project has been assigned; the Preliminary Design phase recently kicked off. A Build Grant Application will be submitted in July to help fund the project.*

- Bundled Bridges- Two bundles have been developed; one in Franklin County and one for interstate bridges in the Yarmouth area. Funding will be split 80/20. Projects will be funded 50% in next program. Total available funding is \$225 million; Department hopes to receive \$10 to \$15 million and projects will target lower population areas.
 - Update? – *FHWA noted award notifications would occur in Spring 2019; the grant requires construction funds to be obligated by September 2021.*
- The Department-wide RFQ has been postponed until Fall of 2019. – *No timing update beyond this. The last round of GCA's resulted in all consultants being selected. However, this time the number of selected consultants will likely be trimmed since managing 13 consultants is difficult.*

b. MaineDOT Staffing Update:

- New Positions
- New Employees – *Tom Furrow, Administrative Assistant*
- Retirements - *Roger Sproul retired and Rickey McKenna promoted to Appraiser III to fill the position.*
- Other – *two AE's received PE's; promoted to Civil Engineer II. The Geotechnical Engineer PE has since left the DOT*

3. Summary of Designer Meetings (Rich, Garrett) - *Rich can provide minutes if requested.*

One meeting since last ACEC meeting: Informational Only - A Father/Son team discussed Hycrete which is a liquid concrete admixture to protect steel and reduce permeability, perhaps better than CaNi. The product may have been used in a dolphin project by MaineDOT – the resulting concrete had difficulty meeting air entrainment criteria.

Hycrete may provide a 70-80% reduction in permeability and was first used in a large-scale project in New Jersey in 2006; the product is now used in all CTDOT projects.

4. Discussion Topics

Geotechnical (Laura K.)

- Cohesive Soil Scour: FHWA is looking for a site to do in-situ testing to improve ability to predict scour at locations with cohesive soils. – *a test boring was performed in the Scarborough maintenance lot – the results of the in-situ testing device are promising and FHWA agreed to move forward with this as a test site. The actual test will be in July; the objective is to improve/modify scour predictability with fine-grained materials.*

- *EDC5 – the next progress report is due to FHWA in July, which includes identification of underutilized tools such as seismic refraction and borehole geophysics – Laura is looking to consultant teams to identify projects that could benefit to use these tools. CPT testing was used on two bridge replacement projects in Falmouth. CPT was performed by Summit Engineering (as opposed to ConeTech).*

- a. Continuation of previous discussion
 - ACEC NH- Knowledge Share- Adam Stockin – The following is a brief summary; see *the attached meeting minutes for more details.*
 - *NHDOT is blending in-house and consultant bridge teams (sections) within the DOT*
 - *Approach slabs are being cast with synthetic fibers in-lieu of top mat of steel; the specs call for 7% fibers but may be reduced to 4 or 5% as requested by construction for improved workability and finishing.*
 - *Protective coatings for steel girders – new guidance forthcoming*
 - *Transverse deck bar placement has proved difficult at crown or high-shoulder breaks with stainless bars – issue not seen in Maine, however with many stainless concrete decks going out in the past construction season they will look to see if this issue arises*
 - *Continuous spans – more guidance on how to accommodate additional negative moment rebar with the use of partial depth panels is being discussed/developed. More discussion is needed for consensus.*
 - *NH contractors are noting they're light on work after 2019; this is opposite than seen with MaineDOT contractors*
 - *Integral abutments: in-line vs U-wings. NHDOT and VTrans use return walls; MaineDOT uses in-line walls. More discussion on this topic may happen at future meetings.*
 - *Issues with abutments perched on MSE walls have been identified – how to maintain/fix walls in the future due to corrosion or from errant vehicles.*
 - a. *Laura noted the use of stainless steel in MSE panels in Sapling Township; reasonable cost was bid.*
 - *Deck haunches, flush with the bottom of the girder flanges and extending approximately 3-inches beyond the tips, are falling – a sound, chip, and remove program is underway similar to that on the I-95 High-Level bridge.*

 - Ideas for streamlining project development & delivery
 - Incomplete and inconsistent submittals. It was asked if the Department can outline the submittal expectations.

- A Bridge Design Guide update is forthcoming, with traction anticipated this summer. The first chapter to be revised is the project development section, with clarity to identify separation of PDR and PIC milestone needs. The guidance may also suggest trying to engage Resident Engineers earlier, perhaps around 60%. Intend to define a *Semi-Final Plans submission that will include an item list for the review by construction staff to be effective.*
- Updates to construction cost estimating data & methods - *estimating guidance: need to develop a “reasonable” estimate, someplace between historic bids and current bids. This approach may result in the engineer’s estimate being the low bid on a number of projects in the near-term. However, if the Engineer’s Estimate is too conservative to match the current bid environment, the DOT may not be able to reject bids that are only 10% beyond this conservative value, but may have been 20% beyond a reasonable value.*
- PIC submittals and Utility \ ROW Coordination – *the Department recognizes that the expectations for PDR have grown over the past year or two to include much of that needed for PIC. Going forward, the PDR and PIC will go back to being separate milestones.*
- A possible query of Bridge GCA firms to solicit feedback on items that would benefit from greater clarity and to identify common challenges was discussed. Questions could include:
 - *still in progress*
- MaineDOT CADD standards and deliverables. – *new Bentley rollout has not yet affected the bridge group; likely will in the future.*
- Low Shrinkage Concrete – Durability testing is being completed on the Jonesport-Beals Bridge. UMaine has a new lab to investigate concrete durability (partnering with MaineDOT and VTrans).
 - *Results: The Department bought two devices for testing shrinkage (a shrinkage ring and one other device for an elongated mortar bar). Plan to randomly test Class A and LP this summer to gather baseline results to then be used to establish changes to standard specifications. VirginiaDOT and NYSDOT have limits within their specs; DOT may follow suit.*
- Computer simulation for MASH crash testing - NETC style rail, 3-bar, 4-bar, NH style (steel) transitions and Maine style (concrete) transitions. No concrete barrier will be included in the study.
 - *Results? –The finite element models were calibrated using previous crash test results. Powerpoint and simulations may be*

forthcoming. All steel rails, concrete end posts, and steel transition railings were investigated. All railings have passed the simulations; the next step may include physical testing or immediate designation of MASH compliance – this is up to states per FHWA. Note: 2-bar and 4-bar railings were crash-tested under NCHRP 350.

Changes to concrete barrier are forthcoming; likely single-slope barrier. MaineDOT is looking at details within other states to begin this effort.

- New composite beam – In March the Department advertised a project in Hampden using composite beams for the Grist Mill Bridge;
Was presented at a designers meeting; shop drawings recently submitted and erection is next year. Possible future presentation including lessons learned from construction.

b. New discussion items

- Update Subcommittee Goals – *one change noted: goal to have minutes developed, approved, and posted within 1-month of meeting. All agreed this was reasonable.*
- Section 106 process – *many historic structures within Team North's inventory of projects. A case study project would be helpful for discussion, including the bridge itself and the surroundings. All trusses are now historic; these projects require increased attention to reasonable, appropriate development of:*
 - *purpose and need statement*
 - *evaluation of alternatives*
 - *rehabilitation limits/types**Also looking for innovative ways to rehabilitate all-concrete structures*
- *Bare deck traction method: saw-cut grooving vs micro-milling. Both tried by DOT with mixed opinions. The tined finish resulted in a rougher finish; allowance and methods for this type of finish were removed from recent spec book due to too many issues. Diamond grinding may be used on a job in Paris soon, but cost is high – no local subcontractors to perform the work. Note: bare decks may become more standard due to increased use of stainless steel and GFRP rebar, regardless of AADT.*

c. Potential future discussion topics

- MaineDOT moving toward single slope concrete barrier.
 - *Details? – no new details; still investigating which way to go and which states have standards. Looking at NHDOT.*

- Research – UMaine micropile supported integral abutments. *Funding for phase 1 is being executed (analytical study); phase 2 (field monitoring) will happen at a later date. The research and resulting design methodology needs to be suitable for use by MaineDOT designs on future projects (i.e., use software available to Department staff). Adam noted NHDOT will be constructing a micro-pile supported integral abutment now; NYSDOT has done a few.*
- *Curved Girder Integral Abutment Research – New NETC research will happen soon, performed by University of Amherst.*
- *VTrans 3-span cantilever bridge – discussed Morristown and East Montpelier; no interest from MaineDOT.*

d. Training Areas

- *Jeff suggested reviewing the NHI website for training opportunities*
- *Other?*

5. Subcommittee Rotation for Consultants

(2-yr rotations for new members joining 2014 and later)

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| a. Theresa McAuliffe, McFarland Johnson | Q1 2018 thru Q4 2019 |
| b. Jennifer McGregor, Kleinfelder (Geotech Rep) | Q2 2018 thru Q2 2020 |
| c. Jaime French, Fuss & O'Neill | Q2 2018 thru Q2 2020 |
| d. Adam Stockin, WSP | Q4 2018 thru Q3 2020 |
| e. Josh Olund, HNTB | Q2 2019 thru Q1 2021 |

6. The Next Meeting is set for Tuesday, September 17, 2019 at 1 p.m.