



Montana Department of Transportation

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PO Box 201001
Helena MT 59620-1001

Michael T. Tooley, Director
Steve Bullock, Governor

Date: April 18, 2018

Subject: **Notice of Intent for Consultant Sole Source Selection**
Materials Deck Forensic Analysis

To Whom It May Concern:

The Montana Department of Transportation (MDT) is proposing to utilize non-competitive procurement procedures for the subject project, in accordance with 23 CFR 172(a)(3), and section 6.3.4 of the MDT Consultant Services Manual. The purpose of this Notice of Intent is to verify no other qualified sources are available for this work.

BACKGROUND

In 2016, several bridge decks in Montana were experiencing rapid deck deterioration, causing closure of interstate lanes. In an effort to determine potential causes for this deterioration and to determine a course of action in response to this emergency, MDT utilized the services of Wiss, Janney, Elstner Assoc., Inc. under non-competitive provisions for emergency response. The final report of this analysis can be found here:

<http://www.mdt.mt.gov/publications/docs/brochures/Forensic-Deck-Analysis-Report-2017-04-21.pdf>

MDT is now pursuing further work in this regard to advance detailed practices and specifications for our bridges.

DESCRIPTION OF SERVICES

The primary goals of the subject project are to:

- 1) Assess the performance of new curing procedures,
- 2) Observe progression of the cracks on the previously inspected bridges,
- 3) Obtain knowledge of internal temperature gradients and stresses on a newly constructed bridge decks,
- 4) Optimize the previous modeling efforts, and
- 5) Provide any appropriate follow-up recommendations to improve the modified curing procedures.

The scope of work is further described as follows:

- **Summary of Past and Current Testing and Data:** Review of all internal concrete bridge deck temperature data associated with construction of any new bridges since the implementation of the new curing procedures.

- **Field Inspection of Deck Performance with Modified Curing:** Inspection of any new bridge decks that implemented the new curing procedures, including mapping of cracks and photo documentation of conditions; Core extractions from the new bridge decks for physical testing (including compressive strength, splitting tensile strength, and surface permeability); Observe crack progression and repair performance of in-place decks.
- **Instrumentation of a New Bridge Deck:** Monitor temperature and stress gradients with modified curing (thermocouples, strain gages (steel and concrete), ambient conditions, and maturity) and compare identical deck section using standard 14-day wet curing; Perform follow-up field investigation to map cracks and photo documentation of conditions.
- **Perform Modeling to Demonstrate Benefit of Modified Curing on Deck Stresses and Cracking Risk:** Model deck(s) instrumented in Task 3 to quantify reduction in stresses and cracking risk using the modified curing procedures. Perform supporting laboratory tests on actual concrete mix design for flexural and/or splitting tensile strength, isothermal calorimetry, thermal analysis, coefficient of thermal expansion; and autogenous shrinkage testing to evaluate early-age strains resulting from cement hydration, as necessary to support modeling; Based on the field observations and testing, refine the previously developed model such that benefits of modified curing can be quantified; Optimize the placement and timing of the modified curing and better define details.
- **Report and Recommendations:** Produce a report with all field and laboratory data and findings; Provide any appropriate recommendations to improve modified curing.

The expected cost to perform this work is estimated to be less than \$160,000.

SUMMARY

MDT has initially determined that Wiss, Janney, Elstner Assoc., Inc. is the sole source that is qualified to perform this work. If your firm is qualified to provide the services described and is interested in competing for this work through an open solicitation process, please submit a response via email by **May 3, 2018**. Your response must include a brief description of your qualifications for this work. Submit response to:

Ryan Dahlke, P.E.
Consultant Design Engineer
Montana Department of Transportation
rdahlke@mt.gov
(406) 444-7292

If interest is expressed, and MDT determines the interested firm(s) is qualified to perform the work, procurement of services will follow competitive procurement procedures via an open RFP solicitation.

Sincerely,

Ryan Dahlke, P.E.
Consultant Design Engineer

copies:

Jay Skoog, ACEC Executive Director-Montana Chapter
MDT Consultant Design Bureau file

e-copies:

Dwane Kailey, MDT Chief Engineer
Dustin Rouse, MDT Preconstruction Engineer
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Lynn Zanto, MDT Planning Division Administrator
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