



Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Memorandum

To: RRC Members
Steve Albert/WTI
Debbie Alke, Administrator/Aeronautics Division
Mike Bousliman, Administrator/Information Services Division
Jeffery M. Ebert, P.E./District Administrator-Butte
Larry Flynn, Administrator/Administration Division
Dwane Kailey, Administrator/Highways and Engineering Division
Bob Seliskar/FHWA
Jon Swartz, Administrator/Maintenance Division
Mike Tooley/Director
Duane Williams, Administrator/Motor Carrier Services Division
Pat Wise/Deputy Director
Lynn Zanto, Administrator/Rail, Transit, and Planning Division

From: Susan C. Sillick, Manager
Research Programs

Date: July 14, 2014

Subject: May 28, 2014 RRC Meeting Notes

Note: Attachments can be found at <ftp://ftp.mdt.mt.gov/research/OTHER/RRC/2014-5-28/ATTACHMENTS>.

RRC Members Present: Debbie Alke, Mike Bousliman, Jeff Ebert, Dwane Kailey, Sue Sillick, Mike Tooley, Pat Wise, and Lynn Zanto.

Others Present: Kent Barnes, Whitney Bugni (Research Intern), Katy Callon, Kevin Christensen, Kris Christensen, Jack Dartman, , Mike Grover, Dave Hand, Megan Handl, Jeff Jackson, Paul Jagoda, Kevin Kauska, Steve Keller, Tom Martin, Roy Peterson, Bill Semmens, Matt Strizich, Ed Toavs, Lesly Triplehorn, and Bob Weber.

1. **2014 Solicitation:** A [table](#) listing all of the research topics submitted during the 2014 research topic solicitation was presented. There were 34 submittals; five of which came from UDOT's (highest priority projects resulting from UDOT's annual research meeting) in an effort to partner on topics of mutual interest. There were 13 topics with champions and sponsors (see table below), none from UDOT. Sue noted that we received about 50% more topics and there are 2-3 times the number of topics with champions and sponsors than we've seen in the recent past. Sue also noted that for this meeting, the project champions will present their topics and immediately following, the RRC and District Administrators would vote whether the topic is to be moved forward to a technical panel for further consideration. At this point, no funds are

being approved. Finally, a list of tentative technical panel members was presented and those present were asked to review and request modifications as desired.

SUBJECT AREA	TOPIC NO.	TOPIC TITLE	CHAMPION
Structures/ Materials	14-002	Feasibility of Non-Proprietary Ultra-High Performance Concrete (UHPC) for Use in Highway Bridges in Montana	Kent Barnes
Materials	14-007	Development of a New Specification for ¾-in. Crushed Base Course, Type A	Matt Strizich
Aeronautics	14-008	Montana Airport Economic Impact Update	Tim Conway
ISD	14-016	Development of Strategic Enterprise Architecture Design for MDT	Jack Dartman
Construction/ Contracting	14-017	Top-down Construction Cost Estimating Model/Guide Using a Neural Network within an Off-the-Shelf Spreadsheet and Database Programs	Lesly Tribelhorn
Maintenance	14-019	An In-Depth Assessment of Montana Road Weather Information System	Steve Keller
Maintenance	14-020	Statewide Land Mobile Radio Propagation Analysis and Modeling along Major Highway Network	Steve Keller
Construction/ Contracting	14-021	Advanced Method to Detect Unbalanced Bidding Patterns Using Historical Bid and DWR Data	Kevin Christensen
Construction/ Contracting	14-022	Advanced Methodology to Determine Highway Construction Cost Index	Mike Grover
Environmental	14-031	MDT Wildlife Crossing Guidelines	Bill Semmens
Environmental	14-032	Assessing Noise Levels and Impacts from Pile Driving on Bull Trout during MDT Project Construction	Bill Semmens
Environmental	14-033	Evaluation of Jump-out Designs in a Controlled Setting and Along US Hwy 93 N	Bill Semmens
Geotechnical	14-034	Large-Scale Laboratory Testing of Geosynthetics in Roadway Applications	Jeff Jackson

- a. **14-002:** Kent Barnes presented this topic. The purpose of this project is to design and test non-proprietary UHPC mixes to determine if it is a viable option in Montana. Kent indicated this material was used on one rapid construction project. It is a commercial product and has Buy America issues; however, the Buy America issues maybe going away, which would shift the need. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- b. **14-007:** Matt Strizich presented this topic. The purpose of this project is to develop a standard specification for a new gravel base course with nominal maximum aggregate size of ¾ in. Matt stated the Yellowstone River aggregate is small and it's difficult to meet our specifications- especially in the Glendive District. He believes there is no reason why we shouldn't be able to use a smaller aggregate as other states do. A potential benefit is a

decrease in raveling. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.

- c. [14-008](#): Debbie Alke presented this topic. The purpose of this project is to conduct research, review, and update MDT's economic impact study. Debbie stated the information Aeronautics currently uses is old (2007-2008) and issues have arisen to warrant an update. Lynn suggested adding the Planning Economist to the panel. All, who voted, voted in favor of moving this topic forward to the technical panel stage.
- d. [14-016](#): Jack Dartman presented this topic. The goal of this project is to develop a strategic enterprise architecture and executable plan customized for MDT. Pat expressed a high interest in this project. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- e. [14-017](#): Lesly presented this topic. The goal of which is to improve construction project cost estimating early in the process to maximize the efficient use of available funding. This will be accomplished by developing a neural network, using artificial intelligence that continuously learns as new data is fed into the system, becoming more accurate over time and resulting in improved cost estimates. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- f. [14-019](#): Steve Keller presented this topic. Steve stated MDT has 72 RWIS stations with different technologies. The purpose of this project is to assess the current state, state of the art and practice, needs, and develop a plan for future RWIS system installations. Dwane indicated this research will help with the performance management specified in MAP-21. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- g. [14-020](#): Steve Keller presented this topic. Due to "narrowbanding", land mobile radio (LMR) channel capacity is increased, but coverage is decreased. This project will analyze and model LMR propagation for major highways in Montana. Gaps will be identified and mitigation measures identified. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- h. [14-021](#): This research will identify patterns for unbalanced bids and will help to develop policy to prevent such bids. The panel suggested for this project includes: Kevin Christensen (Chair), Bill Fogarty, Suzy Price, Mike Grover, Tim Tilton, Lisa Durbin, and Chris Riley/FHWA. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.
- i. [14-022](#): This project involves the development of a more advanced and accurate methodology to determine Highway Construction Cost Index and a methodology to forecast it. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.

- j. [14-031](#): Tom Martin presented this topic. The purpose of this project is to provide MDT guidance for determining the appropriateness of including wildlife crossings and/or exclusionary devices on specific proposed MDT construction projects based on standardized criteria. This will be helpful for the public and when communicating with the public. Dwane commented that this will complement the current research being conducted on US 93. There was some discussion regarding the addition of resource agencies, such as USFWS and MT FWP, and related non-profits to the technical panel. It was commented that input/buy-also in can be attained by including stakeholder outreach in as a part of the research project as an option to inviting stakeholders to participate on the panel. All, who voted, voted in favor of moving this topic forward to the technical panel stage. Stakeholder involvement will be included as a component of the research.

- k. [14-032](#): Bill Semmens presented this topic. New USFWS requirements are expected to add workload and cause project delays. The purpose of this research is to proactively reduce the additional workload and project delays by determining noise impacts from pile driving on bull trout, a threatened and endangered species. All of the work done on this topic has involved large bodies of water. We need information relative to smaller bodies of water found in Montana. Bill mentioned a new special provision was developed and we are working on a programmatic agreement. The results from this research will be an integral part of this agreement. It is anticipated this project will be 3+years and include Butte, Great Falls, and Missoula districts. Dwane indicated it's more than bull trout; he said North Dakota is looking at Pallid Sturgeon. Bill indicated bull trout should cover all salmonmids. All, who voted, voted in favor of moving this topic forward to the technical panel stage. No comments were made on the tentative list of panel members.

- l. [14-033](#): Bill Semmens presented this topic. He stated this project came out of the US 93 N research which indicates mule and white-tail deer respond differently to jump-outs. The purpose of this project is to evaluate different designs. He mentioned Arizona is evaluating jump-outs for big horn sheep and other species. Dwane asked if there was information from the Midwest states. Kris noted there was some work conducted in Iowa. A literature search will be conducted to ensure the answer is not already available. All, who voted, voted in favor of moving this topic forward to the technical panel stage, except for Jeff Ebert, who voted against. No comments were made on the tentative list of panel members.

- m. [14-034](#): Jeff Jackson presented this topic. He indicated this research came out of the pooled-fund study MDT lead on the Relative Operational Performance of Geosynthetics Used as Subgrade Stabilization. The results of the pooled-fund study were somewhat surprising in that geotextiles performed surprisingly well. The purpose of this project is to perform laboratory testing to better characterize the behavior and performance of geosynthetics.

Dwane asked about the bike/ped. proposed topics and why they didn't move forward. Sue informed Dwane that 14-013, Bicycle/Pedestrian Count Collection, was operational as opposed to research, but said that 14-012, Bicycle and Pedestrian Data Collection Pilot Project for Small Urban and Rural Communities, is research. Lynn added that due to staffing levels in Planning, they are unable to champion the latter topic at this time. Dwane stated he was following the current [NCHRP project](#) on the topic and he would like to see research on bike/ped. issues. Lynn agreed once the Planning staffing level is sufficient. Lynn also mentioned Planning staff

is interested in 14-015, Estimating Commodity Specific Commercial Truck Flows on Montana's Highways, but, again due to staffing levels, is unable to champion the topic at this time.

2. **Budget Report:** Attached

No discussion on this topic.

3. **Research Projects – current listing:** Attached

Pat asked about the status of the [Impacts of Increased Economic Development on Northern Montana Highways](#). Kris informed Pat that the final report is currently in review with comments due on 6/9/14.

Also, Megan Handl was present to discuss an update the MDT's Availability/Disparity. Study regarding MDT's DBE goals, which FHWA must approve. The A/D study is a requirement from a 9th circuit court ruling. No comments were made on the proposed technical panel.

4. **Reports:** Available on Research [website](#)

- a. [Evaluating WVC and Habitat Connectivity in the Madison Valley](#) (11-007)- Progress Report
- b. [Montana LTAP](#)- Progress Reports
- c. [A Peer-to-Peer Traffic Safety Campaign Program](#) (11-009)- Program Guidebook

No discussion on this topic.

5. **Proposals:** Attached

- a. [National Concrete Pavement Technology Center \(NCPTC\) Pooled Fund Program](#)

Paul Jagoda and Bob Weber were present to request funding for this pooled-fund study. Bob mentioned he attended a concrete Consortium meeting in 2003 and, at the time, recommended MDT not join the pooled-fund study. However, after attending a meeting recently and because of their success and the information (e.g., peer exchanges, training, reports/manuals, listserv, subject matter experts, technical assistance, model draft specifications) they provide, he is now recommending that we participate. The recommendation is to fund this project for three years at \$12,000/year for a total of \$36,000.

Dwane made a motion to fund this project. Mike seconded the motion. All members present voted for the motion; the motion passed.

- b. [Speed Limits Set Lower than Engineering Recommendations](#)

Dwane Kailey requested this research. He stated he wanted to know the enforcement necessary for compliance with speed limits set lower than engineering recommendations. It was mentioned these areas could be viewed as a speed trap or at least puts reasonable

drivers at risk for tickets. Ed indicated there are many more sites than are in the table in the proposal. Additional locations can be discussed in the project kick-off meeting.

Jeff made a motion to fund this project at \$143,332. Dwane seconded the motion. All present voted in favor of the motion. The motion passed.

c. [2014-15 LTAP Work Plan](#)

Sue clarified that LTAP has three different funding sources: Federal at \$150,000 as a pass-through grant that has a 1:1 match, local gas tax (\$100,000) that is legislated, and SPR. The latter two are used to match the federal funding. She told the RRC that, at this meeting, they will vote on SPR funding for LTAP. Michelle Beck joined the meeting via conference call to discuss the annual LTAP work plan and budget. Michelle described the training in the current year and that planned for the upcoming year. She stated that LTAP training is offered based needs assessments. She discussed the growth in the Road Scholars program and that is a win-win situation. Dwane made a motion to fund LTAP with \$80,000 SPR funds. Jon seconded the motion. All present voted in favor of the motion. The motion passed.

6. **Implementation/Performance Measures/Technology Transfer**

a. [Re-evaluation of Montana's Air Quality Program](#)

Lynn was present to discuss this recently completed project and implementation efforts. The goal was to determine where CMAQ funds would be most effectively and efficiently expended. For example, in areas with CO issues, intersection channelization and signals can help decrease CO emissions, and particulates can be reduced by sweepers and flush trucks. The focus is on high risk areas where MDT could be more proactive. A spreadsheet tool was developed to aid in these decisions.

b. [Information/Education Synthesis on Roundabouts](#)

Roy Peterson was present to discuss this recently completed project and implementation efforts. The goal of this project was to identify how MDT could help with public acceptance of roundabouts. A number of methods were identified and implementation recommendations were made. MDT staff is working on implementing them as appropriate. For example, on a recent project, the report was given to a consultant hired to coordinate the public outreach on potential roundabouts. Also, the information has been passed on to Anna O'Brien for incorporation into MDT's social media tools.

c. [Spring Research Newsletter](#) - Available on Research [website](#)

Announcement was made.

d. [2013 Research Annual Report](#)- Available on Research [website](#)

Announcement was made.

7. Department/Division Hot Topics – RRC Members Roundtable Discussion

No discussion due to a lack of time.

Copies: Craig Abernathy/Research Section
Audrey Allums/Grants Bureau
Kent M. Barnes, P.E./Bridge Bureau
Katy Callon/Research Section
Kevin Christensen/Highways and Engineering Division
Kris Christensen/Research Section
Ryan Dahlke, P.E./Consultant Design Bureau
Chris Dorrington/Multimodal Programs Bureau
Lisa Durbin/Construction Administration Bureau
Mike Dyrdahl/Engineering Operations Bureau
Ed Ereth/Data and Statistics Bureau
Paul R. Ferry, P.E./Highways Bureau
Dave Hand/District Administrator-Great Falls
Paul Jagoda, P.E./Construction Engineering Services Bureau
Tom Martin, P.E./Environmental Services Bureau
Shane Mintz/District Administrator-Glendive
Ed Toavs/District Administrator-Missoula
Roy Peterson, P.E./Traffic & Safety Bureau
Suzy Price/Contract Plans Bureau
Jim Skinner/Planning and Policy Analysis Bureau
Rob Stapley/Right of Way Bureau
Jerry Stephens, P.E./WTI MSU
Stefan Streeter, P.E./District Administrator-Billings
Matt Strizich, P.E./Materials Bureau
James A. Walther, P.E./Highways and Engineering Division
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