

MONTANA DEPARTMENT OF TRANSPORTATION
Helena, Montana 59620-1001

MEMORANDUM

To: RRC Members
D. John Blacker, Administrator/Maintenance Division
Monte N. Brown, Administrator/Administration Division
Jim Currie, Deputy Director/Department of Transportation
Dave Galt, Director/ Department of Transportation
Joel M. Marshik, P.E./Administrator/Highway and Engineering Division
Drew F. Livesay, Administrator/Motor Carrier Services Division
Patricia Saindon, Administrator/Transportation Planning Division
Stan Sternberg, Acting Manager/Environmental Services
Robert Burkhardt/Federal Highway Administration

From: Susan C. Sillick
Manager, Research Section

Date: March 2002

Subject: Summary of Minutes from Tuesday, January 29, 2002 RRC Meeting

Champion's Presentation of Research Proposals:

Road and Sand Management on Highway Adjacent to Streams – 02.004

Eric Stimson, project champion, was present to discuss this research idea. Eric explained that road sand from MDT snow removal operations is entering adjacent streams and adversely affecting water quality. DEQ has identified this as a problem. Eric feels that MDT needs to develop better technologies and maintenance procedures to minimize the amount of sand that leaves the road surface and enters areas where streams can be impacted.

Unknown Benefits of Fog Seal on Chip Seal Projects – 02.007

Bill Juve is the champion for this project; however John Blacker made the presentation in Bill's absence.

There is no standard practice within the state with regards to applying a fog seal over chip seals. This research project involves determining the benefits of and developing a statewide policy for fog seals on chip seals.

Assessment of State Air Quality Initiative or Effect of Montana Air and Congestion Initiative (MACI) on State Air Quality – 02.008

Tom Steyaert, project champion, was present to discuss this research idea.

Under TEA-21, MDT developed the Montana Air and Congestion Initiative (MACI) to proactively address air quality and automobile congestion problems throughout the state of Montana. Various projects to reduce transportation pollutants have been funded through MACI; however there is no data to indicate these projects resulted in any actual improvements to air quality. This project would provide MDT with data on the effects these projects have had on air quality.

Funding GIS-T Coordinator – 02.011

Mike Randall, project champion, was present to discuss this topic.

The Department of Administration, Information, Technology Services Division (ISTD) is planning to hire a full time employee to coordinate Geographic Information Systems for Transportation (GIS-T) in Montana. The Director has indicated support for this position by committing \$50,000.00 over a three-year period. Mike Randall would like this position to be supported by Research funds.

Bozeman Pass Wildlife Corridor Management Plan – 02.012

Gordon Stockstad, project champion, was present to discuss this topic. Following a discussion, the RRC decided that this project should be funneled through MDT's Fisheries and Wildlife Ecology and Transportation MOA process. This topic will be removed from consideration through the current solicitation process.

1. Budget Report:

Sue distributed two budget reports: 1) current "actual" figures and 2) "what if" showing the financial scenario "if" various pending projects were funded.

She also announced that she received FFY 2002 appropriation figures and an estimate for FFY 2003. These numbers are shown in the budget and reflect approximately a 3% increase for FFY 2002 and a 30% decrease for FFY 2003 and beyond.

2. Research Project – current listing:

2a. *Effect of Magnesium Chloride on Montana Bridge Decks* (99.009) - Attached

Based on other efforts that are on-going, it was the Technical Panel's consensus to cancel this project. The RRC concurred and the project was cancelled.

2b. *Erosion and Sediment Control Best Management Practices* – (99.008) Update

Based upon a memo ballot from the RRC, this project was approved in December; the contract is in progress.

2c. *Impact on the Highway System of Changes in Grain Transportation Operations*
(01.012) – Attached

Pat Saindon spoke with Will Kissinger from the Department of Agriculture. Will feels that with the current economy and grain terminals being nowhere near capacity there is neither need nor desired to go forward with his project.

The RRC, with concurrence from the Department of Agriculture, cancelled this project.

2d. *A Study of the Economic Effects of Reconfiguring Montana's Two-Lane Highways* - Update

The committee met November 26, 2001 to develop a scope of work. The RFP has been issued and 5 proposals were submitted. The committee will meet on Friday to evaluate these proposals. It is the committee's goal to have the contract in place by March 15th.

2e. *Cut Slope Stabilization Through Organic Matter Addition* – (98.019) - Attached

The Technical Panel recommends this project be cancelled due to lack of time and a change in priorities.

Questions were raised as to what caused the decrease in priority. Stan Sternberg asked that the decision to cancel this project be put on hold until he can talk to Phil Johnson, project champion. The RRC agreed and this item was tabled.

3. **Reports:** Dave Galt requested that reports are made available upon request and not attached to the agenda. The RRC agreed. This will be done in the future

3a. *Statewide Corrosivity Study on Corrugated Steel Culvert Pipe* – FHWA/MT-01-001/8148 - Available Upon Request

3b. *Mechanistic-Empirical Modeling and Design Model Development of Geosynthetic Reinforced Flexible Pavement* – FHWA/MT-01-002/99160-1A – Available Upon Request

3c. *Mechanistic-Empirical Modeling and Design Model Development of Geosynthetic Reinforced Flexible Pavements: Appendix C – DARWin OUTPUT* – FHWA/MT-01-002/99160-1B – Available Upon Request

3d. *Numerical Modeling of Geosynthetic Reinforced Flexible Pavements* – FHWA/MT-01-003/99160-2 – Available Upon Request

3e. ***Monitoring Animal Use of Modified Drainage Culverts on the Lolo South Project*** – FHWA/MT-01-004/8117-5 – Available Upon Request

3f. ***LTAP*** – Quarterly Progress Report – 7/31/01 to 9/30/01 – Attached

3g. ***Develop Performance Prediction Models for Checking Design Generated by a Flexible Pavement Design Procedure*** – Progress Report – October 2001 – Attached

3h. ***Develop Performance Prediction Models for Checking Design Generated by a Flexible Pavement Design*** – Progress Report – December 2001 – Attached

3i. ***Cost-Effective of Crack Sealing Materials and Techniques for Asphalt Pavements*** – 4th and 1st Quarterly Progress Report – 4/1/2001 to 6/30/2001 and 7/1/2001 to 9/30/2001 - Attached

3j. ***Cost-Effectiveness of Crack Sealing Materials and Techniques for Asphalt Pavements*** – Progress Report – Second Quarter – 10/1/01 to 12/31/01 - Attached

3k. ***Methods for Determining Bankfull Discharge and Other Flood Discharges for Ungaged Sites in Western Montana Based on Channel Morphology*** – Progress Report – 1/1/2001 to 6/30/2001 - Attached

3l. ***Hydraulic Characteristics of the Upper Yellowstone River, Montana*** – Progress Report – 1/1/2001 to 6/30/2001 - Attached

3m. ***Evaluation of Methods for Estimation of Bridge-Pier Scour for Streams with Coarse Bed Materials Based on Observed Pier Scour in Montana*** – Progress Report – 1/1/2001 to 6/30/2001 - Attached

3n. ***Landslide Inventory Project*** – Quarterly Progress Report – 7/1/2001 to 9/30/2001 – Attached

3o. ***Highway as Potential Barriers to Movement and Genetic Exchange in Small Mammals*** – Progress Report – October 31, 2001 - Attached

3p. ***Performance of Steel Pipe Pile to Concrete Bent Cap Connections*** – Progress Report – 6/1/2001 to 12/15/2001 - Attached

3q. ***Development and Evaluation of Performance Based Specifications for an Overlay*** – Attached

3r. ***Evaluation of Geosynthetic Reinforced Flexible Pavement Systems Using Two Pavement Test Facilities*** – Progress Report - Attached 7/1/2001 to 9/30/2001

3s. ***Evaluation of Geosynthetic Reinforced Flexible Pavement Systems Using Two Pavement Test Facilities*** –Progress Report - Attached 10/10/2001 to 12/31/01

3t. *Enhanced Guidance for Implementing Safety Strategies – Unbelted Drivers/Curves* - Progress Report – 7/1/2001 to 9/30/2001 – Available Upon Request

3u. *Midwest Roadside Safety Facility* – Mid-States Regional Pooled Fund Study – 3rd Quarter Progress Report – October 12, 2001 – Available Upon Request

3v. *Extending the Season for Concrete Construction and Repair* – Progress Report – November 2001 – Available Upon Request

3w. *TRB 2001 Montana State Visit* – Available Upon Request

4. **Contract Extension: None**

5. **Proposals:**

5a. *Bridge Deck Service Life Prediction Model (Phase I)* (01.011) - Attached

Nigel Mends was present to discuss and support this project.

MDT has a problem with chlorides infiltrating bridge decks and causing premature deterioration. The purpose of this project includes conducting a literature review and feasibility study for the development of project-level bridge deck performance prediction models. This project was previously approved-in-concept by the RRC. The Technical Panel issued an RFP and evaluated proposals.

Dave Galt made a motion to accept the Technical Panel's recommendation to fund this proposal for \$70,000.00. John Blacker seconded the motion. All present voted in favor of the motion.

5b. *Investigation of the Long Term Effects of Magnesium Chloride and Other Concentrated Salt Solutions on Pavement and Structural Portland Cement Concrete* - Pooled Fund Study – Attached

Joe Kolman and Kent Barnes attended the RRC meeting to discuss and support this pooled-fund study

The purpose of this pooled-fund study is to investigate the long-term effects of magnesium chloride and other concentrated salt solutions on pavement and structural Portland Cement Concrete.

The result of this study will be extremely beneficial to MDT and will give us valuable information to prevent premature concrete failure due to chloride infiltration. Joe and Kent recommended participating at a funding level of \$50,000.00

Jim Currie moved that MDT join this pooled-fund study. Joel Marshik seconded the motion. Motion passed unanimously.

5c. *Full-Scale Accelerated Performance Testing for Superpave and Structural Validation* – Pooled Fund Study – Attached

Jon Watson met with the RRC to discuss and support this proposed pooled-fund study.

This pooled-fund study will evaluate and validate; 1) Modified Asphalt Binders in Superpave Mixes; 2) Pavements designed with the 2002 Design Guide; 3) Measurements made with various Falling Weight Deflectometers (FWD) 4) Crumb Rubber Modified Asphalt Pavements, and 5) Recycled Materials in base layers. MDT is especially interested in 1) Modified Asphalt Binder in Superpave Mixes, and 2) Pavement Design with 2002 Design Guide. This study could last up to six years. However, Jon suggested a two-year contribution of \$20,000.00 per year for a total of \$40,000.00. He suggests MDT reevaluate additional contributions at a later date.

John Blacker made a motion to participate for 2 years contributing \$20,000.00 per year. At the end of the two-year period, the RRC will evaluate future contributions. Joel Marshik seconded the motion. All present voted in favor of the motion.

5d. *Transportation Asset Management Research Program* – Pooled Fund Study – Attached (for discussion)

The RRC decided representatives from Administration, Planning, and Maintenance should meet to discuss this pooled-fund study for future RRC consideration.

6. Implementation:

6a. *Statewide Corrosivity Study on Corrugated Steel Culvert Pipe* - Attached

MDT's Technical Panel has approved this final report.

As a result of this research, the Materials Bureau will begin using the 1:1 dilution test method versus the 1:2 dilution method and will add this testing procedure to MDT's Materials Manual to support consultant soil testing efforts.

In addition, the Technical Panel has recommended that a new committee be formed to evaluate MDT's pipe policy, including sampling protocols. This committee has been formed.

6b. Numerical Modeling and Design Development of Geosynthetics Reinforced Flexible Pavement Systems Using Two Pavement Test Facilities – Pooled Fund Study

This pooled-fund study has been completed. Recommended implementation involves the construction of an experimental project(s) to test the preliminary design methods developed in this project.

7. Technology Transfer Funding

Each year FHWA distributes available Technology Transfer funding. This year FHWA requested MDT participate in ranking ideas through the RRC process. There was some confusion in regards to process; Sue agreed to prepare a written process to follow in future years.

cc: Craig Abernathy/Research Section
Debbie Alke/Aeronautics Division
Kent M. Barnes, P.E./Materials Bureau
Bruce H. Barrett/District Administrator-Billings
Linda Francis/Business Plan Administrator
Loran Frazier, P.E./District Administrator-Missoula
Jason Giard, P.E./District Administrator-Butte
John Horton/Right-of-Way Bureau
Michael P. Johnson/District Administrator-Great Falls
Joseph P. Kolman, P.E./Bridge Bureau
William L. McChesney/District Administrator-Glendive
Russell G. McDonald/Human Resources Division
Robert D. Morgan, P.E./Traffic & Safety Bureau
Kenneth H. Neumiller/Engineering Oversight Bureau
Jeanne Nydegger/Research Section
Brooke Page/Research Section
Carl S. Peil, P.E./Preconstruction Bureau
Timothy W. Reardon/Legal Services
James A. Walther, P.E./Highway and Engineering Division
Mark A. Wissinger, P.E./Construction Bureau
File