NATIONAL ROAD RESEARCH ALLIANCE

MnROAD along with its national partners are in a unique position to make a difference in the way we design, build, and maintain our roadways into the future. This document helps explain the deficiencies that we have nationally and how federal, state, local, and industries and universities can join together to better bridge the gap related to national coordination of research and the implementation to put findings into practice.

NRRA
National Road Research Alliance
Strategic Implementation Through Cooperative Pavement Research

www.mndot.gov/mnroad

NRRA (MnDOT) is requesting $3 million + $2 million annually to

- Support national coordination of future research investments
- Support successful national implementation of research findings
- Foster new innovative practices
- Provide data critical to regional research validation of national models
- Ensure test tracks (like MnROAD) are best utilized at the national level

This proposal outlines the potential that can be realized with your support. Better collaboration of research efforts on a local, state, and national level will ensure the right research is being pursued, new technologies being developed, and how the results are being successfully implemented. This will avoid redundancy and delays getting findings implemented.

Development of a Center of Pavement Excellence ($3 million)
A new research center will be designed around national collaboration with our agency and private industry partners. This will include a one-time cost to build this national center on land owned by MnDOT located at MnROAD in Albertville, Minnesota. The center will include training rooms, testing labs, and offices needed for national expert collaboration and transfer of knowledge.

Operational Support ($2 million/year)
To support the center annual funding will be required. The National Road Research Alliance (NRRA) members (FHWA, States, Industry, Associations, and Academia) will provide the management and oversight needed to direct the funding and investments related to the following activities.

- National technical training – Classes developed around developing a work force with the skills necessary for the future. Implementation of both new technology related materials, designs, and technical advancement are examples of some of the needs. Students will have access to labs and the MnROAD facility to obtain hands-on training required.
- Funding for visiting scholars – Support for university sabbaticals, state loan staff, and PHD students to focus on national needed research. FHWA Loan Staff and or staff rotations at the major test tracks to support the national coordination.
- National research coordination – Support for the development/updates of national pavement roadmaps to help coordinate both the local, state and national pavement research investment. Task groups of NRRA members will be developed to tie the research efforts together. A roadmap for future investment which would include the best use of test tracks like MnROAD and NCAT along with others doing accelerated pavement testing into the national research needs.

- Industry collaboration – Public private partnerships are vital to the ultimate success of this effort. Most research will involve industry at some point of final implementation. The focus will be on working with industry to try new ideas and materials to advance engineering practice.
- National data sharing - Strong efforts are needed to have a common database to optimize the research completed. This includes test tracks, heavy vehicle simulators, state, and national research efforts.

Other Innovation opportunities can also be supported/attracted with additional funding and public private partnerships. These activities could include:

- Regional storm water training and research facility – NCAT is currently doing this effort to both train and do research on the latest erosion control techniques needed to ensure our construction practices do not have a harmful effect on the environment. MnROAD has the space and facilities to support this effort with very little extra cost and could provide this service for the region.
- Development of cold regions autonomous vehicle proving grounds – Both MnROAD and NCAT have test tracks that are closed to the public. This would permit testing/loading using autonomous vehicles both in both extreme hot and cold climates. Little has been done in this area and this is expected to be a need for the future.
- Intelligent construction center of excellence – MnDOT has been a leader in the development and deployment of future construction equipment and tools needed to build the roads of the future. Currently there is no location devoted to this endeavor for both agencies and industry to work on solutions for the future.
- Automated distress data collection calibration center – MnDOT has been doing ride calibrations for the region for a number of years but could expand this to other systems that will be future requirements including automated distress detection, friction, rolling resistance, along with other critical parameters to efficiently maintain our existing roadways. This would support the national performance management measures.
- Innovative pavement test decks – MnROAD and NCAT have developed national test decks outside of their facilities to develop the life extending benefits of different maintenance treatments. This needs to be expanded to other national needs for asphalt and concrete pavements.
- Environmental effects of winter maintenance – MnROAD would also be a valuable setting for the study of winter maintenance activities and their environmental impacts.
- Innovative materials - Infrastructure testing can be expanded to pipes, bridges, and repair materials to provide agencies with information for their approved products lists and common practices. This again reduces redundancy for each state.

Please contact us to help unlock the potential of this proposal and make it a reality

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