Project: Transformative Solutions for Sustainable Rural Transportation

Brief Description: If the nation's aging rural transportation system is to serve the needs of current and future generations of Americans, a new and transformative approach must be adopted to address the challenges it faces, in which holistic, sustainable solutions are pursued and deployed. While making highways more efficient in moving people and goods in and across rural America, such solutions must also seek to improve safety and increase sustainability by using recycled products, protecting natural resources, and mitigating climate change.

Executive Summary: The landscape of rural America, and specifically the western United States, is changing at an accelerating rate. An essential part of this landscape is the rural transportation system, which also must evolve and improve to meet the significant challenges of 1) a rapidly increasing population and expanding exurban development, 2) an aging and deficient infrastructure and 3) an actively changing climate. Further, with a view toward future generations, these challenges must be addressed under an integrated paradigm of sustainability, where systems are created to safely meet the transportation needs of society in a manner that maintains ecosystem health, reduces the carbon footprint, minimizes consumption of non-renewable materials, recycles resources, extends the life of transportation infrastructure and operates efficiently.

Project Description: To meet these challenges the Western Transportation Institute at Montana State University has developed an integrated approach for addressing rural transportation issues that focuses on green solutions. In seeking solutions, WTI will take advantage of its ability to develop innovative designs and practices, use byproducts from industry and consumers (i.e., coal fly ash, glass), deploy new detection technologies that increase safety or infrastructure longevity, as well as evaluate the rural applicability of cutting edge products, nanomaterials and equipment. Emphasis areas for this initiative include:

- Smart Infrastructure: Develop/deploy new technologies to boost the durability, safety and reliability of transportation systems in rural America.
- Environmental Stewardship: Improve transportation applications, practices and design to protect natural resources and address climate change.
- Alternative Materials: Create public and private partnerships to better utilize recycled materials and other byproducts in transportation applications.

Congressional Action Needed: An appropriation of $2 million is requested to support research, tech transfer, and deployment of new technologies, materials and practices for sustainable transportation in rural America.

Importance to Montana: Some important facts for creating a more sustainable rural transportation system include:

- Montana ranks 5th in the nation for chances of crashing with wildlife. Approximately 2,000 collisions occur each year at an estimated cost of over $15,000,000.
- In the northern states, snow/ice control have a direct cost of $2.3 billion and indirect infrastructure cost of $5 billion annually, with increasing concerns about their environmental effects.
- Durability is a cornerstone of sustainability. Montana has 4,980 bridges, approximately 1,000 of which are structurally or functionally deficient, partially attributable to the climate and deicer use.
- This project would provide employment in Montana ($4 million), support Montana students ($2 million), create a use for byproducts from Montana coal plants and waste facilities and incubate new products for Montana entrepreneurial businesses.

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