

## What's Next?

The objectives of the feasibility study will be achieved by performing the following tasks:

- 1 • Study Advisory Group
- 2 • Partnership Identification
- 3 • Literature Review
- 4 • Other Infrastructure Testing
- 5 • Partner Survey
- 6 • Field Visits
- 7 • Potential Location
- 8 • Cost Estimate
- 9 • Benefit Cost Analysis

We invite you to consider this partnership to conduct your research on the proposed road track. By sharing resources, expertise, and knowledge among research partners, more cost-effective solutions will be provided to the region. If you are interested, please contact the WYDOT sponsors or principal investigators. In the near future, a comprehensive survey questionnaire will be sent out to all partners to collect all relevant information of building and operating the proposed test track.



## A Regional Road Track Pavement Testing Facility in Wyoming

A Feasibility Study



Wyoming Technology Transfer Center



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## Why a Test Track on I-80 in Wyoming?

Experiments of road testing tracks are designed to investigate expected pavement performances under full-scale structures and actual traffic loads. Although cost-effective enhancements are being achieved in pavement design and preservation strategies, pavement conditions may be treated differently in distinct climate due to different responses, stresses, and environmental effects. There are four main climatic regions in the U.S. The dry-freeze climatic region covers a significant portion of the nation. Yet, no road track testing facility has been developed for regional pavement research.



**Figure: Long-Term Pavement Performance (LTPP) Climatic Zones (FHWA, 2014).**

Several experiments have been conducted in major testing facilities, including the Minnesota DOT's MnROAD on I-94 in Minnesota and the National Center for Asphalt Technology (NCAT) closed test loop in Alabama.

A new road testing track is proposed on I-80 to assess the long-term pavement performance in the dry-freeze climatic region.

## Expected Benefits

The results of testing pavement materials and structures on the proposed road track will provide several benefits for enhancing pavement design methods, asphalt material specifications, concrete material specifications, and management techniques for all states in the dry-freeze climate. The road track will also allow the investigation of cutting-edge materials and treatments to improve pavement preservation strategies.

## Partnership

There are a lot of organizations and industrial entities that can benefit from the proposed road track. This study presents a unique opportunity for all states in the dry-freeze region to become active partners to advance pavement research and implementation of the test track. The current objective is to reach out to all interested states, including North Dakota, South Dakota, Nebraska, Colorado, Montana, Idaho, Utah, Nevada, Oregon, Washington and Alaska to share their experience and thoughts on building and operating the proposed testing facility.

## Study Organization

The study will be performed into two phases.

### Phase I

The Wyoming Department of Transportation and University of Wyoming are jointly conducting the first phase to evaluate the feasibility of building a state-of-the-art pavement testing facility on I-80. In this phase, all stakeholders and potential partners will be identified and coordinated with to verify how the proposed road track will serve their needs.

All states in the dry-freeze region are welcomed to participate in this phase by providing their feedback about the design of experiments and cost estimates of the proposed testing facility. They are also recommended to prioritize their most urgent research needs.

Another vital step in expanding the benefits from the proposed road track will be testing other infrastructures. All potential partners are welcomed to provide their ideas to possibly test the performance of connected vehicles, road safety features, smart infrastructure systems, pavement marking, sign retroreflectivity, bridge management, and others. Such tests will be identified on the road track to enhance the safety, mobility, and efficiency of transportation systems in the region.

By the end of this phase, all potential partners will be identified. The feasibility of the proposed road track will also be evaluated in terms of expected benefits and associated costs.

### Phase II

The actual construction of the testing facility will be adopted in this phase. There are some challenges and obstacles that may prevent the test track from being implemented. Hence, the full implementation of the second phase will depend mainly on how the expected obstacles will be overcome. The findings of the first phase will be disseminated to all states in the dry-freeze climatic region.

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