

Performance Measures Report FHWA/MT-24-002/10000-844

More Info:

The research is documented in Report FHWA/MT-24-002/10000-844

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EXPLORATION OF UHPC APPLICATIONS FOR MONTANA BRIDGES

<https://www.mdt.mt.gov/research/projects/uhpc.aspx>

Bridge deck deterioration is a significant issue across Montana. Overlays are a common bridge deck repair method; however, traditional overlay materials often lack durability and have high maintenance costs over the lifetime of a bridge. In contrast, ultra-high performance concrete (UHPC) overlays offer a compelling alternative, particularly when addressing structural capacity and performance concerns. By providing durability and strength, UHPC can be used either in place of inferior overlay materials or when the alternative is complete bridge or deck replacement.

Overall, this research was a critical step toward understanding the benefits of using UHPC in this new application, ultimately paving the way for the successful rehabilitation of numerous deteriorating bridge decks across Montana. If an implementation project is pursued, beyond the immediate extension of the selected bridge's lifespan, the project will instill confidence within MDT regarding the effective use of UHPC as an overlay material. While the initial cost of UHPC may be higher, its enhanced durability and strength contribute to a longer lifespan and reduced need for maintenance, greatly lowering the associated costs over time. This research investment will lead to increased use of UHPC in Montana, ultimately resulting in a more sustainable and economical infrastructure for the state.

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