



UNIVERSITY TRANSPORTATION CENTER RESEARCH BRIEF

PROJECT TITLE: Synthesis of Best Practice for Design and Construction of Roadways and Airports Over Permafrost

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INSTITUTION: SINGLE-INSTITUTION PROJECT
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Background

Over the last 100 years, numerous reports and journal articles have been written about design and construction of roadways and airports on permafrost. Unfortunately, this knowledge is not in a form that is readily usable for practitioners. This leads to each

generation relearning lessons without the wisdom of the past generations. For example, current practitioners are relearning that disturbing vegetation will lead to thawing of permafrost; a lesson learned over 100 years ago.

Practitioners simply don't have the time to search out and read existing literature. If they do, much of that literature is not in a form that allows it to be included into routine designs. Further, in many cases, there is no clear design procedure or best practice clearly defined which often leads to poor decisions.



Research Project

This study is focused on using the existing literature to develop a synthesis of best practice for practitioners to use. Authors will be selected based on their expertise in design and construction practices on permafrost. Topics include, but are not limited to

- How the formation of permafrost defines ice content and the resulting thaw settlement.
- How permafrost and climate change impact planning
- Data collection including geotechnical information, vegetative cover, ground water, etc.
- How construction scheduling impacts the performance of the roadway over permafrost.
- Mitigation techniques, how they are applied, when to use them and when not to use them.
- How to include permafrost into Asset Management and Life Cycle Costs
- Maintenance techniques for roadways over permafrost

