DRISI
CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION
TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Avalanche Research Pooled Fund 2.0 TPF-5(497)

A collaborative research effort in the field of avalanche hazard assessment and mitigation, with the goal of improving the safety.

Maintenance

November 2025

Project Title:
Avalanche Research Pooled Fund

Task Number: 4165

Start Date: January 31, 2022

Completion Date: December 31, 2025

Task Manager:
Larry Baumeister
Transportation Engineer (Electrical)
larry.baumeister@dot.ca.gov

WHAT IS THE NEED?

Reducing the avalanche hazard to transportation corridors is crucial to winter operations of Departments of Transportation (DOTs) in many western states, and, as such, are large budgetary items to these DOTs. Much of the research done by each DOT is relevant and useful to the efforts in other states, but there is not any official, long-term collaboration effort currently in place. Because of this, money can often be spent on the same research efforts in multiple different states. DOTs associated with the Avalanche Artillery Users of North America Committee (AAUNAC) currently have an annual meeting in Seattle and have been meeting since 2012 to discuss avalanche mitigation efforts, but this covers only a small portion of total avalanche related control and research activity. It's clear that a national effort to collaborate on avalanche related issues is needed. This pooled fund satisfies the need by gathering DOTs from across the country to pool knowledge and resources for maximum benefit. A coalition of transportation related groups with interest in avalanche control research will provide a single source of funding for unified research efforts that will benefit all contributing parties.

This allows for larger and more significant research projects to be undertaken and leads to an overall cost savings by consolidating many different DOTs' research efforts in the same field.

WHAT ARE WE DOING?

The study's mission is to support collaborative research efforts in the field of avalanche hazard assessment and mitigation, with the goal of improving the safety, efficiency, and quality of control efforts, along with providing better information gathering and analysis techniques and seamless

Caltrans

DRISI provides solutions and knowledge that improves California's transportation system.

integration of new technologies to further these goals. The participation of many transportation related agencies in this study also furthers cooperation in this industry, leading to improved future development of beneficial technologies and improved sharing of information and avalanche data, greatly furthering the safety, efficiency, and quality of the work done in this field for all relevant agencies.

Scope of Work:

The group funds research and development efforts to achieve the program goals, with initial proposed research focusing on:

- Infrasonic sensing and mapping/Light Detection and Ranging (LiDAR)
- Avalanche Safety/ Risk Management
- Avalanche Information Exchange Platform for information sharing
- Mobile Blast Shield – further development
- Explosive techniques, including an extension to an existing Case Charging contract
- Avalanche Asset Management
- Other New Technology

WHAT IS OUR GOAL?

The goal of this research is to partner with other DOTs to investigate new technologies and equipment that can help improve Caltrans avalanche hazard assessment and mitigation efforts.

WHAT IS THE BENEFIT?

Caltrans benefits from this research by receiving the most up to date avalanche mitigation strategies for use in avalanche control operations. As a result, the safety of motorists and workers increases, avalanche control costs decrease, and delays to the travelling public are minimized.

WHAT IS THE PROGRESS TO DATE?

As of December 2025, here is the current progress of this pooled fund research:

- LIDAR Phase 2 project was approved, and contract is being processed.
- The Snowshed synthesis project was completed, and the final report is being written.
- Development of an Avalanche Metric project has just started.

For more information, please contact the Task Manager.