

Passive Avalanche Defense for a Domestic Transportation Application: The Milepost 151 Avalanche, Jackson, Wyoming

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Despite increasing traffic volumes and all-weather travel demands on the mountain roads of the Western United States, surprisingly few examples of constructed passive avalanche defense exist. Active avalanche hazard management techniques require significant personnel resources to implement; can be ineffective; are undesirable adjacent residential development, recreation areas, and critical wildlife habitat. Passive defense measures on the other hand, used extensively in Europe, provide avalanche hazard reduction without requiring personnel in-the-loop, a resource in short supply during storm fighting periods and attendant high avalanche hazard. Presented is a design and deployment configuration for starting zone snow supporting structures at the Milepost 151 Avalanche above US89/191 in Jackson, Wyoming. The Swiss Technical Guideline was utilized along with domestic structural/geotechnical engineering design criteria. A novel deployment configuration was developed, focusing on the National Environmental Policy Act's (NEPA) visual retention requirements. A collaboration between the Forest Service's landscape architect, and experts from the Wyoming DOT and their contractor was utilized. The resulting configuration differs dramatically from the orderly deployments typically found in practice. The arrangement of snow supporting structures mimics visual elements of the existing landscape, leading to an "organic" appearance that has the potential to retain the visual characteristics of the site.