

Utilizing Road Weather Information to Automate Traction Law Implementation Along Colorado's I-70 Ski Corridor

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The extremely well-traveled mountainous corridor of Interstate 70 in between Morrison and Vail, Colorado, consistently is subject to the implementation of two different traction laws during winter weather conditions. If a Code 15 traction law is in place, all passenger vehicles must operate using either four or all-wheel drive or face a financial penalty. If a Code 18 traction law is in place, all Commercial Motor Vehicles (CMVs) must apply chains to their tires, or face a more significant financial penalty. These traction laws are in place for the safety of all vehicles on the road, and are effective in reducing the number of accidents caused by dangerous road conditions during winter weather situations. However, if a Code 18 chain law is not taken out of effect in a timely manner when conditions improve, the chains on the tires of CMVs can cause the road's structural integrity to deteriorate faster than it would under normal conditions.

With the intention of identifying the proper set of conditions for the implementation and lifting of Code 18 chain laws, Road Weather Information System (RWIS) stations located along Interstate 70 will provide meteorological and road condition data. Additional frictional and meteorological data will be provided by NIRA Dynamics AB products installed on Audi, Volkswagen, and Volvo automobiles. Data from these two sources will be evaluated in 5 sections of the interstate that experience a high frequency of Code 18s during winter storms: Vail Pass, Silverthorne up to the Eisenhower-Johnson Memorial Tunnel (EJMT), the EJMT down to Bakerville, the Georgetown corridor, and the final descent between Idaho Springs and Morrison. Finally, a set of conditions present in each section will be identified as the trigger for implementing or lifting a Code 18 chain law for that portion of the interstate. In future work, the ultimate goal of this endeavor will be to automate Code 18 implementation in Colorado, maximizing the structural integrity of the interstate while simultaneously maintaining the public safety that these laws protect.

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