

# I-70 Mount Vernon Canyon Emergency Escape Ramp Reconstruction

A historically underused I-70 safety feature was transformed into a highly-effective, life-saving system. After a tragic 2019 truck crash, the emergency escape ramp (EER) was reconstructed to be more visible, easier to use, and safer, achieving the Colorado DOT’s primary goal: increasing EER usage.



AFTER



AFTER, IN USE



ARRESTOR BED CONSTRUCTION (Credit: CDOT)



BEFORE



2019 CRASH AFTERMATH (Credit: 9News)

**Entrant:** Muller Engineering Company | Lakewood, CO  
**Project Location:** Jefferson County, CO    **Client:** CDOT Region 1 | Golden, CO

## 1. Uniqueness and Innovative Applications

- Overcoming limited established design standards, the team combined research, international examples, and stakeholder input for optimal site-specific design
- Shortened arrestor bed and parallel traversable gutter provides improved visibility and continuous ramp entry capability
- Innovative crash wall design prevents runaway trucks from tumbling down mountainside
- Trucker survey responses informed practical, high-visibility intelligent messaging system design

## 2. Future Value to Profession & Enhanced Public Awareness

- Highly publicized 2019 crash and subsequent EER improvements heightened awareness of safe mountain truck travel practices
- Research-based design features serve as benchmark for EER upgrades elsewhere

## 3. Social, Economic & Sustainability Considerations

- New ramp is used 18 times more frequently, reducing accident risk downstream
- Improved visual cues provide psychological safety for distressed drivers
- Barrier-protected pullout areas and “CLOSED” signs increase safety for maintenance and emergency crews
- Winter construction and intensive information campaign maximized safety throughout closure
- Underground containment vaults prevent contaminants from reaching Mount Vernon Creek

## 4. Complexity

- Located beyond curve on 6% downgrade with steep slope to creek below
- Multi-layered traffic safety program minimized risks to workers and 82,000 vehicles/day while closing the only EER on 44-mile downgrade to Denver

## 5. Client Satisfaction

- Dramatically achieved CDOT’s primary goal: EER usage rose 1867%
- Met aggressive schedule, allowing May 2024 opening before high-demand summer months
- Optimized ramp length reduced cost while improving operational effectiveness
- Extensive CDOT and freight industry engagement ensured full solutions support

