



Mountain Corridor Incident Management Program



Pat Noyes & Associates





Background

- The I-70 Incident Management study was initiated in response to CDOT's I-70 MIS. The resulting program was the outcome of successful multi-agency collaboration





Statistics

- **259 miles – Denver to Utah**
- **Six counties**
- **Two CDOT regions**
- **100± jurisdictions**
- **Numerous volunteer response agencies**
- **Urban, rural and resort communities**





Statistics

- **Four to six-lane Interstate**
- **Provides access to all major ski resorts**
- **Volumes range from 11,000 to 52,000 ADT**
- **Crashes range from 4 to 24 per mile/ year**
- **Crosses the Continental Divide**







Occurrence & Impact

- Total number of crashes in the corridor between August of 1998 to August of 1999 was 2,950
- Reported crashes represent 10%- 13% of incidents
- An estimated 19,900 to 25,900 total incidents occurred on the corridor between August 1998- August 1999
- Cost of delay (150,000 vehicle-hours/ year) is approximately \$2.2 million/ year





Project History

- **CDOT initiated the planning effort in July 1999**
 - To invite participation from local and volunteer response agencies
 - To identify opportunities to support local efforts on I-70 and enhance coordination among players
- **Meetings were held regularly through November 2000 with various groups**
- **Program implementation phase kicked off in December 2000**







Participation

- Stakeholders (500)
- Corridor Coordination Team
- Sub-area Teams (6)
 - Fire/Rescue
 - Engineering
 - Maintenance
 - EMS
 - Enforcement
 - Public Information





Participation

- Action Groups (24)
 - Technology & Resources
 - Incident Command
 - Communications
 - Media & Public Information





Project Organization

Corridor Coordination Team

Sub-area Stakeholders

Mesa

Eagle/
Garfield

Summit

Clear Creek

Jefferson



Sub-area Teams

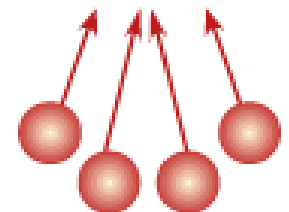
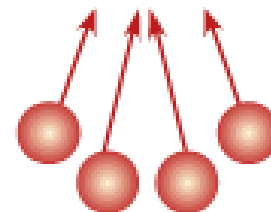
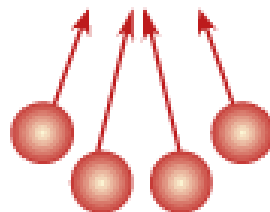
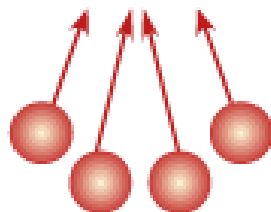
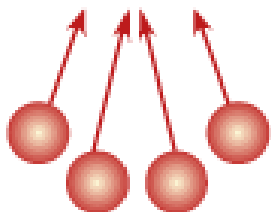
Mesa

Eagle/
Garfield

Summit

Clear Creek

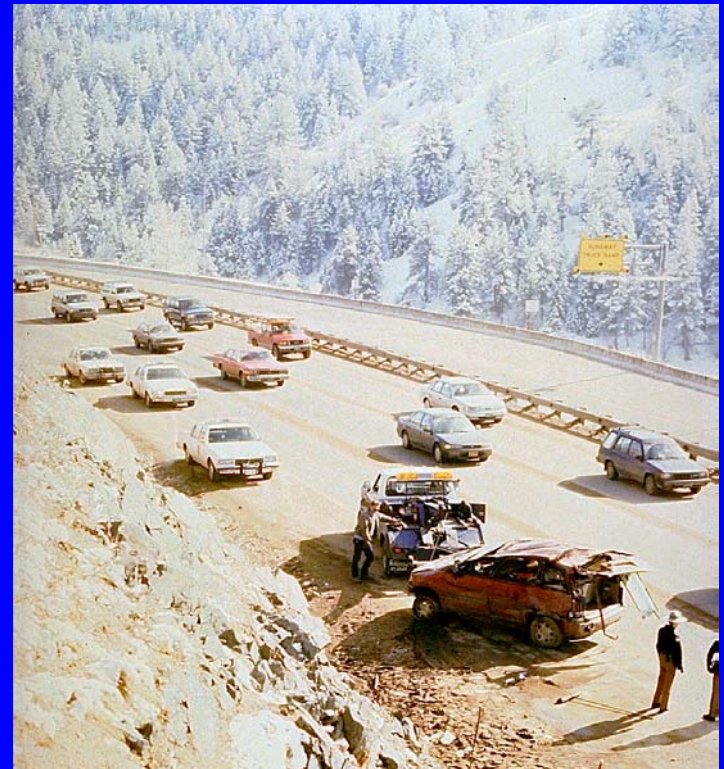
Jefferson





Goals

- **Improve communication & cooperation among agencies along the corridor**
- **Reduce delay**
- **Reduce impacts to volunteer, local and public agencies**
- **Improve public & responder safety**
- **Improve public information & public education**





Strategy Development

- Reviewed over 65 strategies
- Prioritized recommended strategies based upon implementation considerations
- Assigned a timing priority
 - short-term
 - mid-term
 - long-term





Incident Levels

Level 1

Impact less than 1 hr

Routine procedures

Level 2

Impact greater than
1hr- less than 3 hrs

- Establish Incident Command
- Contact CDOT
- Consider establishing detours

Level 3

Impact greater than 3
hrs—or roadway fully
closed either direction

- Establish command center
- Contact CDOT
- Establish detours
- Consider MACs





Scene Management Guidelines

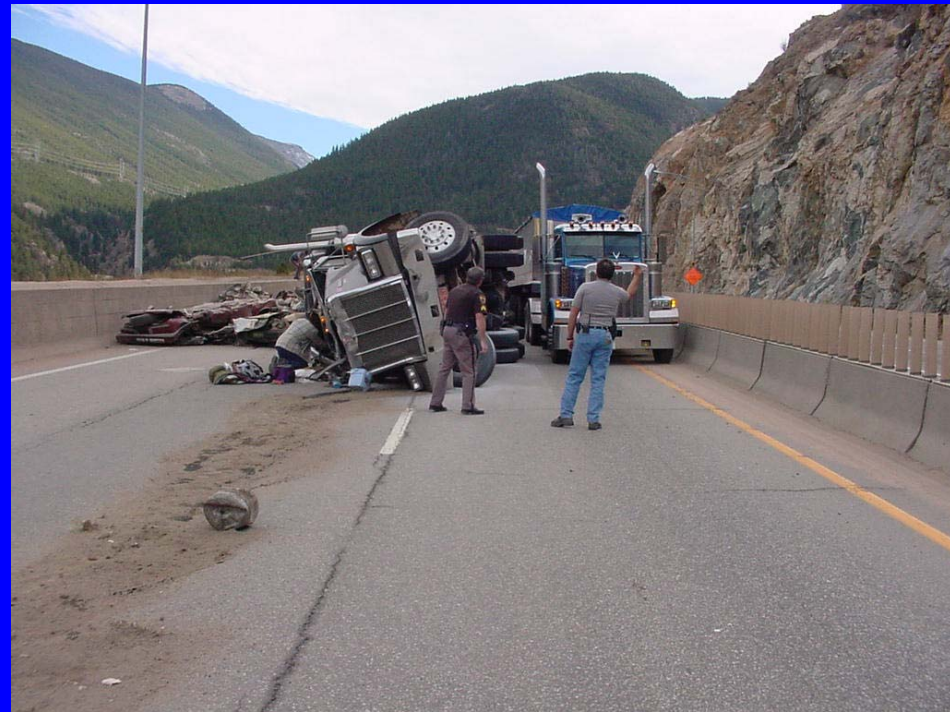
- Incident Command System (ICS) principles
- Flashing lights
- Rapid vehicle removal
- Marking vehicles
- Lane closures / openings
- Medical landing zone
- Incident management review debriefs





Short-term Recommendations

- **Produce an Incident Response Manual**
- **Contact cell phone providers for consistent coverage**
- **Promote and expand the Road Conditions phone line**





Short-term Recommendations

- Install half-mile markers in locations with recurring incidents
- Additional tow truck providers
- Improve emergency turnarounds
- Establish equipment storage /stockpile sites
- Promote incident debriefings
- Expand use of push bumpers





Short-term Recommendations

- **Public information campaign on the rapid vehicle removal law**
- **Public information protocols & contact information for CSP & CDOT PIOs**
- **Expand use of highway advisory radio**
- **Expand use of the internet**
- **Develop fax notification lists by level**
- **Expand traffic reporting services**





Mid-term Recommendations

- Provide 24 hour CSP patrol on I-70
- Develop an I-70 Incident Management training program for response agencies
- Install additional roadside call boxes
- Review need for additional service patrol
- Construct additional chain-up areas
- Improve detour routes





Mid-term Recommendations

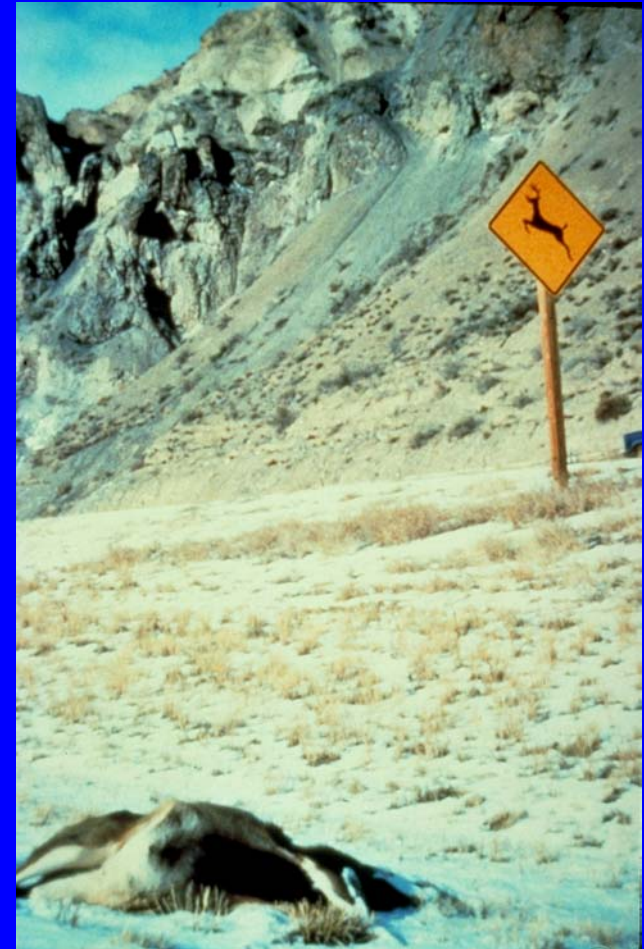
- **Additional variable message signs**
- **Firm communications between dispatch centers**
- **Agreements with local cable TV stations to run road-related information**
- **Posters with road closure information**





Long-term Recommendations

- Additional video surveillance
- Share camera feed with TV stations
- Enhance capabilities of highway advisory radios
- Automate travel time monitoring
- Improve interagency radio communications





Current Activities

- **Statewide fiber optic along I-70**
- **Additional variable message signs**
- **Additional video cameras**
- **Half-mile posts at recommended locations**
- **Road conditions hotline upgrades**





Current Activities

- Updated fax lists for all 3 incident levels
- Upgraded emergency turnarounds – maintenance, signs and markings
- Improved TOC coordination
- Incident management training funds
- COTRIP.org upgrades



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| | Variable Message Signs <ul style="list-style-type: none"> Statewide Interstate-70 West Interstate-25 North Denver | |
| Transportation | Airports | |
| <ul style="list-style-type: none"> Bus / Rail Bike Paths | <ul style="list-style-type: none"> Denver International Colo. Springs Other Airports (Map) | |

Web page under construction

TRAVEL ALERTS  CO 82 Independence Pass No Report ... Closed for the season  CO 5 Mt Evans I

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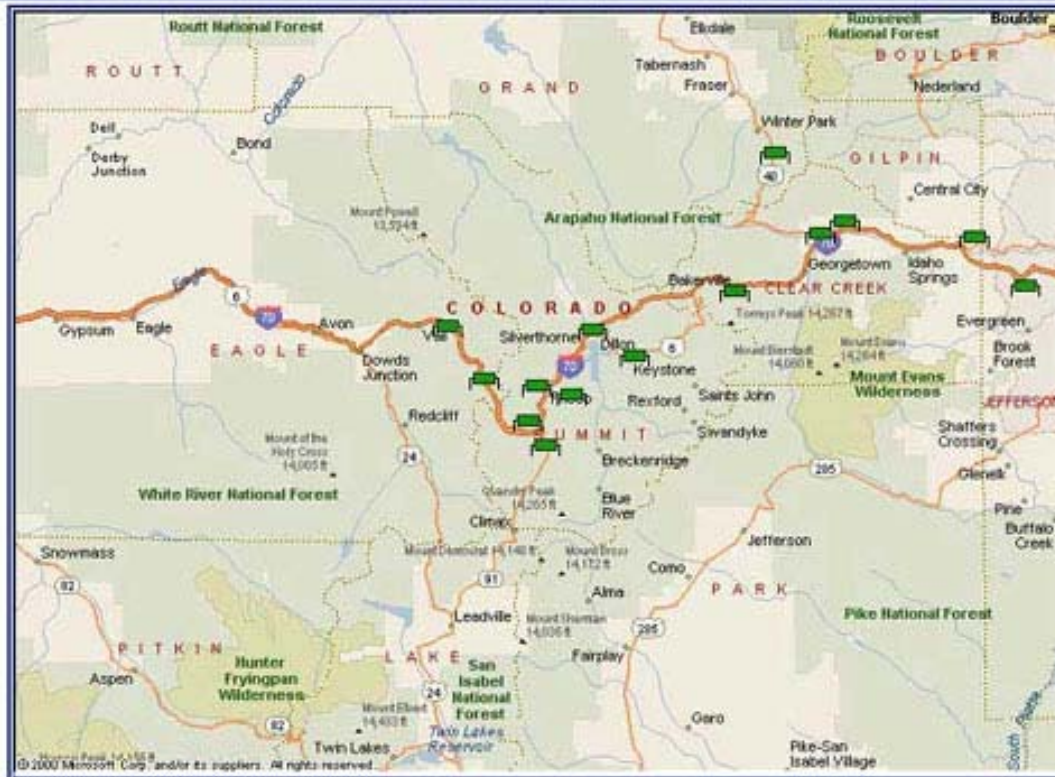
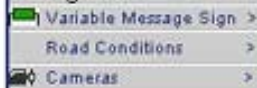
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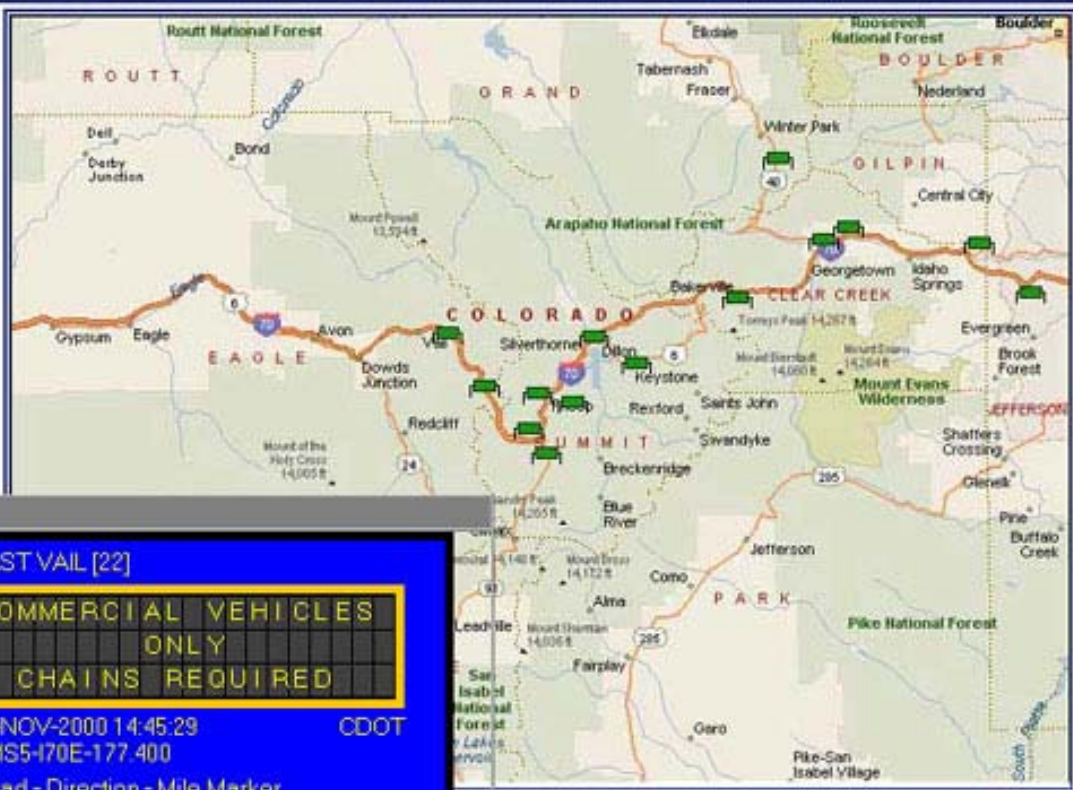


ins Required For Single Axle Semi Trucks  US 40 Rabbit Ears Pass (hwy sno)(icy)(snrk) ... Snow Tires/Chains or 4

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EAST VAIL [22]

COMMERCIAL VEHICLES
ONLY
CHAINS REQUIRED

27-NOV-2000 14:45:29 CDOT
VMS5470E-177.400

Road - Direction - Mile Marker
If image is blank, there is no message

Toggle animation Close window

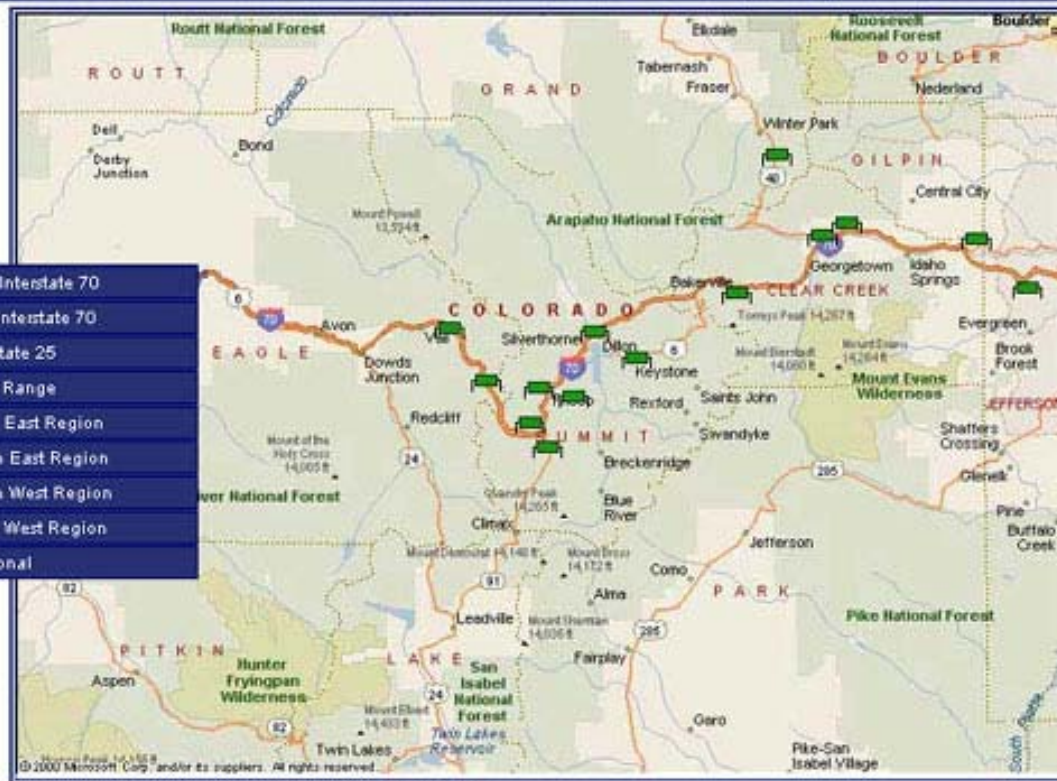
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CO 12 Kebler Pass No Report ... Closed for the season FR 306 Cottonwood Pass No Report ... Closed for the s

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- West Interstate 70
East Interstate 70
Interstate 25
Front Range
North East Region
South East Region
South West Region
North West Region
Seasonal



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Close

West_Interstate_70

| HIGHWAY | CITY/AREA | CONDITIONS | Comments |
|---------|-------------------------|---|--|
| I 70 | Denver | (dry) | |
| I 70 | Mt Vernon Cyn | (dry) | |
| I 70 | Idaho Springs | (wet spts) | |
| US 40 | Berthoud Pass | (lt sno)(icy sp)(snpk spts) (drft sno) | Road widening east side Mon-Fri, 630A-530P (330P Fri) weather dependent. Delays to 45 min. |
| US 6 | Loveland Pass | (hvy sno)(icy)(snpk spts) | Restricted |
| I 70 | Eisenhower Trl WB | (wet)(slush) | Erosion control north side Mon-Fri 830A-4P (1P Fri). Delays. |
| I 70 | Eisenhower Trl EB | (wet)(slush) | |
| I 70 | Silverthorne-Copper Mtn | (wet)(slush)(icy sp)(snpk spts) | |
| I 70 | Vail Pass WB | (hvy sno)(icy)(snpk) | Restricted |
| I 70 | Vail Pass EB | (hvy sno)(icy)(snpk) | Restricted |
| I 70 | Eagle | (lt sno) | |
| I 70 | Glenwood Cyn | (dry) | |
| I 70 | Rifle | (dry) | |
| I 70 | Debeque Cyn | (dry) | |
| I 70 | Grand Jct | (dry) | |

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ALERT

I-70 DENVER-UTAH INCLUDING BERTHOUD AND LOVELAND PASSES

US 6 Loveland Pass

Existing Conditions: (hwy sno)(icy)(snpk spts)

Restrictions in Place: Chains Required For Single Axle Semi Trucks

Comments:

I 70 Vail Pass WB

Existing Conditions: (hwy sno)(icy)(snpk)

Restrictions in Place: Chains Required For Single Axle Semi Trucks

Comments:

I 70 Vail Pass EB

Existing Conditions: (hwy sno)(icy)(snpk)

Restrictions in Place: Chains Required All Commercial Vehicles. Includes Buses and Vans Carrying 16+ Passengers

Comments:

NORTHWEST

US 40 Rabbit Ears Pass

Existing Conditions: (hwy sno)(icy)(snpk)

Restrictions in Place: Snow Tires/Chains or 4WD All Vehicles. Chains Required For Single Axle Semi Trucks

Comments:

SEASONAL

US 34 Trail Ridge Road

Existing Conditions: No Report

Restrictions in Place: Closed for the season

Comments: Closed

CO 82 Independence Pass

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he season  US 6 Loveland Pass (hwy sno)(icy)(snpk spts) ... Chains Required For Single Axle Semi Trucks  U

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I-70 West Eisenhower Tunnel

NOV 27 00 12-45-48



M18 07 M21 W K3 Partial
S3 Attendant Sun
Fixed
TIME: Mon Nov 27 11:47:08 MST 2000

November 27, 2000

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38th Avenue

Image/s reload every 10 min





Frequently Asked Questions

- [Winter driving tips](#)
- Chain regulations
 - [Non-Commercial vehicles](#) (includes sedans, wagons, compacts, sub-compacts, sports, light trucks, vans, campers and motor homes, sport utility and light commercial vehicles)
 - [Commercial vehicles](#) (includes buses and heavy commercial vehicles)
- [911 in Colorado](#)
- [Who can close a road and why](#)
- [How mile markers are used](#)
- Accessing road, weather and construction information by phone.
 - 303-639-1111 Denver Metro Area
 - 1-877-315-ROAD (7623) Outside of Denver Metro Area



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Mile markers

Mile markers on Colorado roads are generally numbered from south to north and from west to east. For example, mile marker 1 on Interstate 25 (MM 1) is one mile north of the Colorado/New Mexico border. MM 1 on I-70 is one mile east of the Utah/Colorado border (odd numbers are assigned to highways running north and south, as I-25. East and west highways are numbered evenly, as U.S. 40).

Highways that do not begin at the border start with MM 1 one mile east or north of the highway starting point. For example, I-76 runs from Wadsworth Blvd. in the Denver area 180 miles northeast to Julesburg at the Nebraska border. MM 1 is one mile east of Wadsworth and MM 180 is the last mile marker on I-76.

Another example is state highway CO 119 in the foothills west of Denver. CO 119 begins in Clear Creek Canyon where U.S. 6 bends to the south and CO 119 continues north. MM 1 on 119 is one mile north of the 6/119 intersection. The final mile marker is at I-25 after CO 119 winds through the foothills and turns east at Nederland.

Mile markers are also used to determine exit numbers on Interstate highways across Colorado. Interstate exits are numbered by the closest mile marker on that highway. For instance, the I-25 Prospect Street Exit 268 at Fort Collins is approximately 268 miles north of the Colorado-New Mexico border and the closest mile marker is MM 268.

Mile markers are generally posted on the right side of the highway. The markers help to locate incident sites, for example, where a motorist might be stranded.

Done Last modified: Tuesday, October 31, 2000 Local intranet



Winter Driving Tips

1. Always keep the top half of your gas tank full. It can give you better traction and gives you a bigger margin of error if you get stuck and have to keep the engine running periodically to keep warm.
2. If you are stuck in a serious storm do not leave your car. Run the engine periodically and wait for help.
3. Carry blankets, water, a flashlight, a shovel, some nutrition bars or even candy bars for sustenance.
4. Remember that 4-wheel drive does not mean 4-wheel stop. A four wheel drive vehicle will not stop any better on sheer ice than a 2 wheel drive vehicle.
5. Be sure of your route. Don't go exploring in the back country without some local knowledge, especially during a storm or when one is bearing down anywhere near your location. The weather can change quickly and violently in the Rocky Mountains and not necessarily only in the heart of winter.
6. Be sure you have good tires. The colorado state patrol recommends at least 1/8 of an inch tread depth. All season radials on a front-wheel-drive passenger vehicle are adequate for most situations. Snow tires on most rear wheel drive vehicles are usually adequate. Chain restrictions in colorado are most often put into effect for [commercial vehicles](#) (semi's) and usually do not affect [passenger vehicles](#).
7. In poor visibility or even white-out conditions, don't drive faster than you can see ahead. High speeds in poor or no visibility can lead to large chain reaction accidents. Remember you can't see around mountain curves and corners either.



Implementation

- **Incident Response Manual**
- **Training**
- **Evaluation**
- **Updates**
- **Annual Review**





Response Manual

- Levels and Guidelines
- Resource Lists
 - Agency contacts
 - Radio frequencies
 - Equipment lists
 - Shelter contacts
- Turnarounds and Staging
- VMS and Video Camera
- Detours & Closure Information

