



COLORADO
Department of
Transportation



US 34 Project Update April 2016



Meeting Goals

- Why are we doing all this?
- Project evolution
- What we've learned
- "Low-impact" summer
- Traffic options
- Communication





Why We're Doing All This Work

It will flood again!



Reduce Impact and Risk

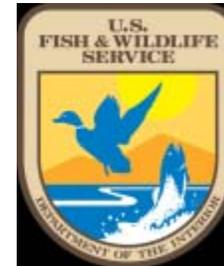
- Maintain evacuation routes and emergency access
- Avoid air evacuations
- Reestablish access to homes and businesses more quickly
- Mother Nature will do what she wants - let's give her room





US 34 Big Thompson Canyon Permanent Repair Collaboration Partners

- US Federal Highway Administration
- US Forest Service
- US Fish & Wildlife Service
- US Army Corps of Engineers
- US Bureau of Reclamation
- Larimer County
- City of Loveland
- Town of Estes Park
- Big Thompson Watershed Coalition
- Colorado Parks & Wildlife
- Colorado Department of Natural Resources
- Colorado State Historic Preservation Office



**US Army Corps
of Engineers.**





Ongoing US 34 Outreach

- Tourism outreach – sharing presentations & materials
- Business outreach – next couple of months
- Property owners – coordinated with Big Thompson Watershed Coalition (BTWC)
- Neighborhood meetings -coordinated with BTWC





Project Evolution

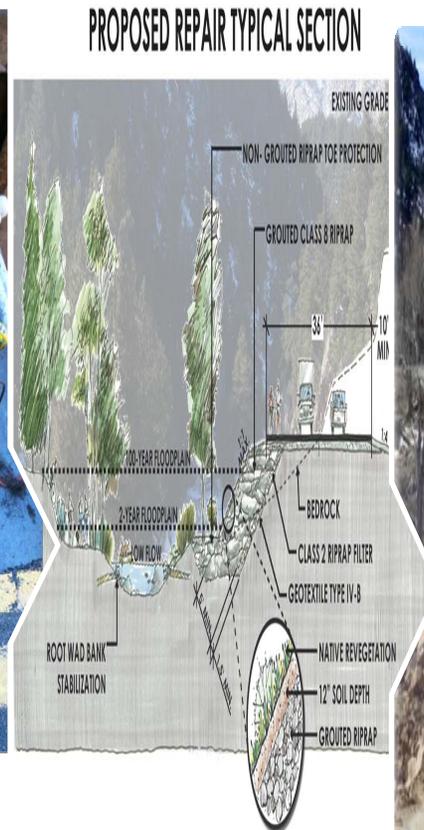
2013 Flood



Emergency Response



Resiliency Analysis and Design



Permanent Repairs and Construction





Emergency Response



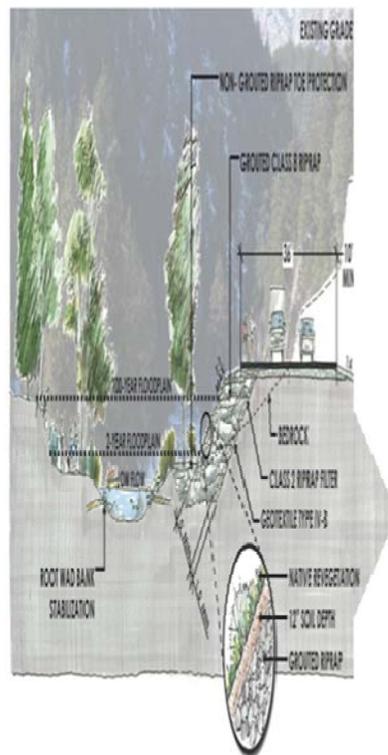
- Roadway reopened Nov 21, 2013 - 70 days after event
- CDOT reinstated access and safe travel through canyon
- Fixes were safe but not all to standard
- Roadway slopes and embankments temporarily repaired to handle normal high water but not flood
- Narrows walls quickly repaired and backfilled with stronger material





What Have We Been Doing Since Then?

PROPOSED REPAIR TYPICAL SECTION



Evaluation and Design

- Hydrology & Hydraulic analysis
- Watershed impacts
- Risk and Resiliency analysis and strategies
- Options for protecting roadway assets and slopes during 100-year events
- Expanding channel flow
- Identifying repeat “hot spots” from 1976 event



What Have We Been Doing? Damage Classifications

Classification	Description	Total Miles
A	Road was completely washed out	8.5
B	Road was significantly damaged	
C	Road was damaged but passable	14.5
D	Less severe damage but road may have had sediment and or was impacted from construction work	

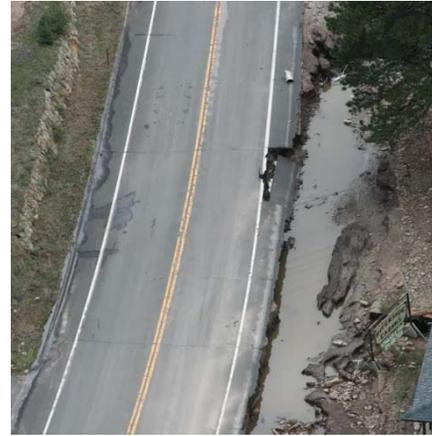
A



B



C



D





What Have We Been Doing? Priority Safety & Resiliency Investments

High Risk Areas from both events

- Narrows
- Horseshoe by Indian Village
- Cedar Cove (pictured)
- Idylwilde area
- Drake





What We've Learned



Permanent Repairs need:

- Resiliency and safety focus
- Reinststate passing lanes and pull outs
- Shoulder improvements
- Slope and embankment improvements and protections
- Road on bedrock where possible
- Working with partners to accommodate future recreational opportunities





Addressing Risk Idylwilde Rock Cut

2013 Damage



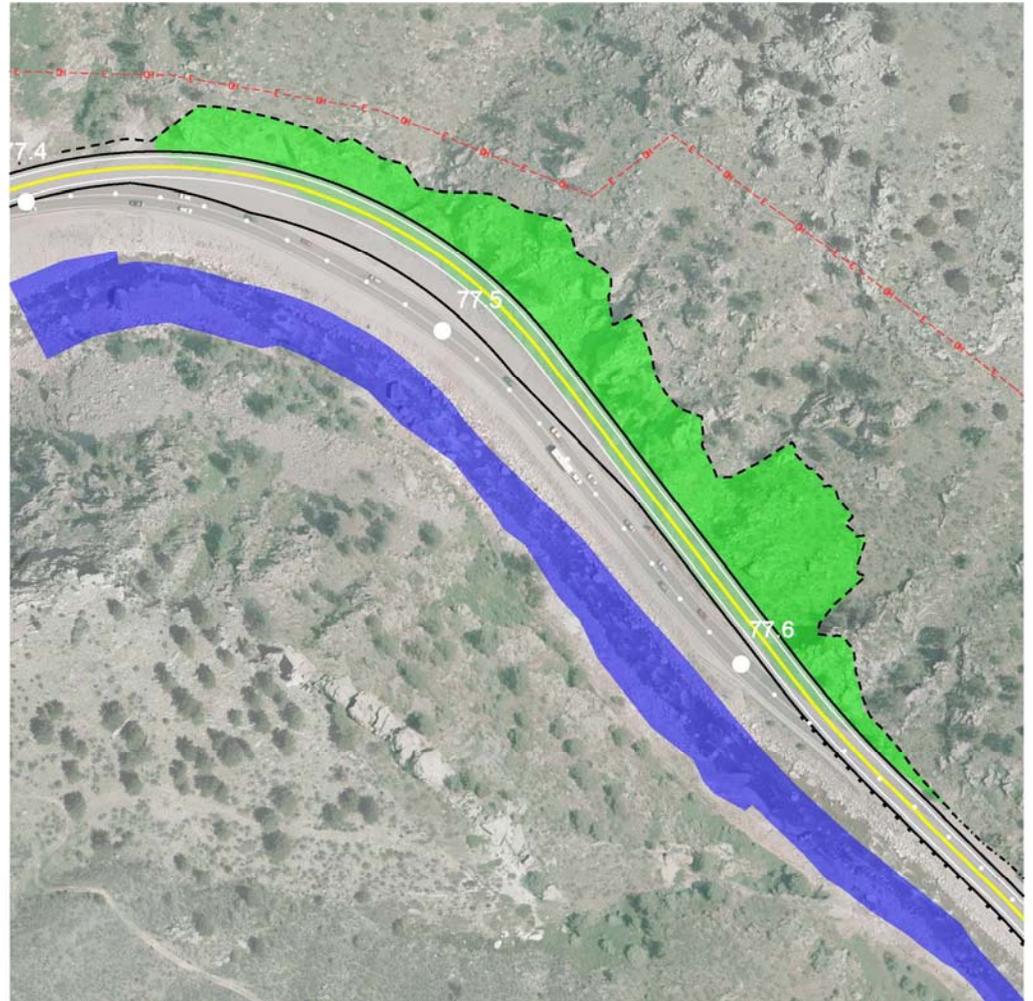
1976 Damage





Idylwilde Area Rock Cut

- High risk location
- Cut to allow 15' of roadway on bedrock on outside bend
- 115,000 cubic yards rock cut and removal
- Opens channel





Idlewild Lane Bridge



1976
Damage



2013 Damage



Idlewild Lane Bridge



- Undersized Access Structure
- Provide Resilience by installing a larger structure and adding slope protection down stream





Horseshoe 1976

Horseshoe by Indian Village

- 1976 flood damage
- Loss of roadway





Horseshoe 2013



Horseshoe



- Alignment swap most resilient option
- Add two new structures and let river do what it wants

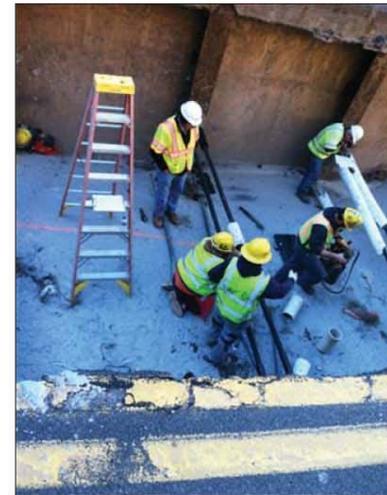


The Narrows

1976 Damage



2013 Damage and Repair

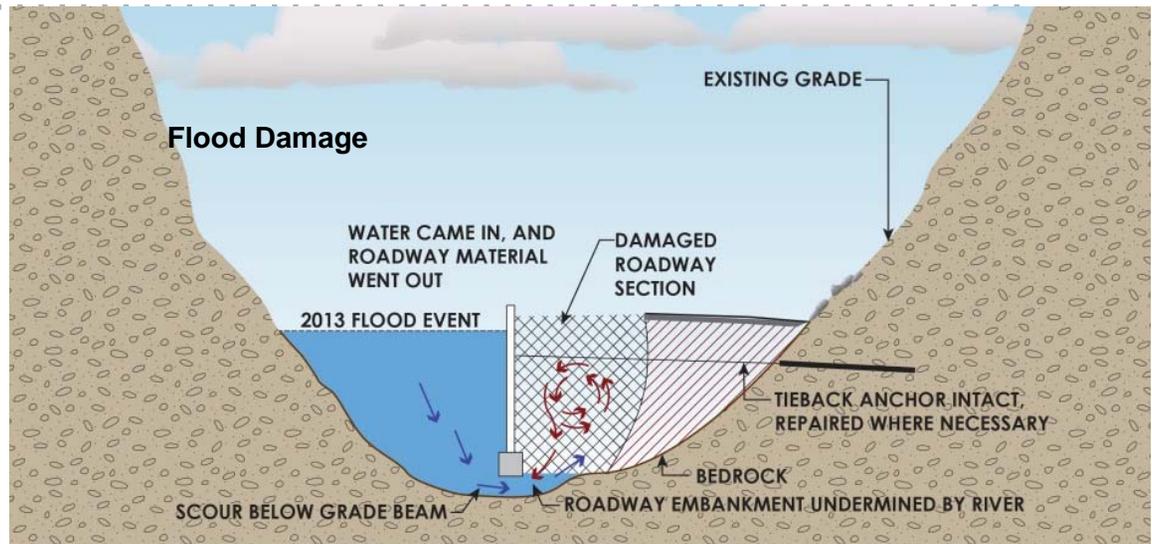




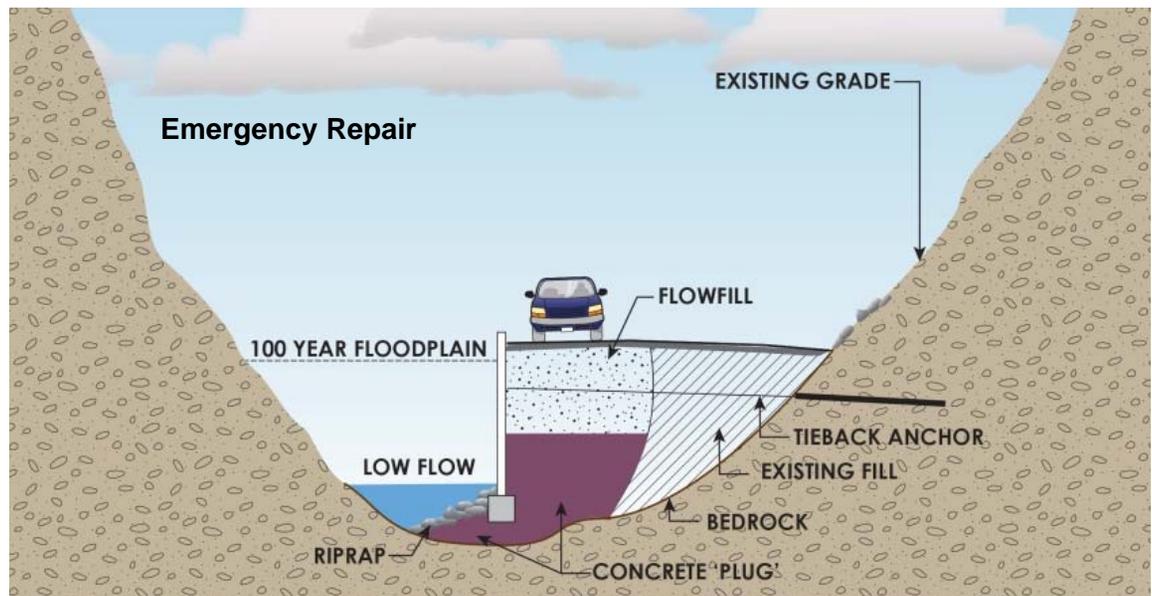
Big Thompson Canyon

The Narrows

- Walls built after 1976 flood
- First 1.8 miles of the Canyon
- 4,876 feet of walls



- Emergency work meets requirements
- Add wall extensions and connections





Drake Challenges

2013 Damage



1976 Damage





Drake Risk Factors Needing Attention

- Problems with existing bridge at North Fork in floods:
 - Floating material cannot pass under the deck, causing damage
 - Bridge is too short to accommodate side-to-side movement of both rivers
- In floods, lots of sediment settles out at this location raising the floodplain
- Buildings are at same elevation as highway, so raising highway requires walls in front of houses/businesses
- Road closures due to flooding
- Loss of road pavement and embankment due to erosion





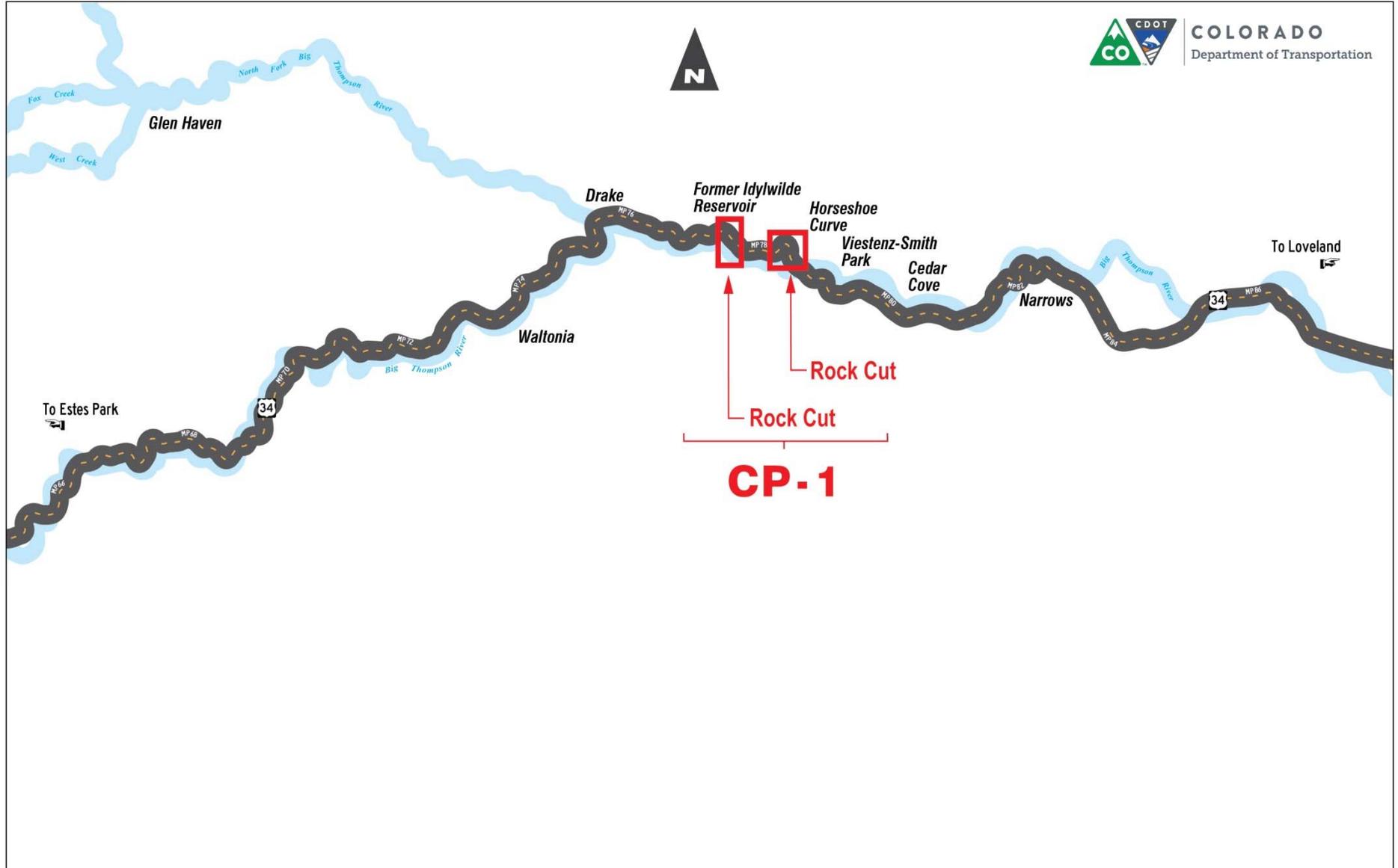
Construction Schedule Approach

- Construction will occur in phases
- Start with Drake to Loveland
- Summer 2016 intentionally “Low impact” - minimize traffic delays during peak summer season
- Rock blasting in first construction package - most critical work - biggest impact
- Package 1 - impact area 5 miles with 2 major blasting sites
- Entire corridor rebuild - 3 years



US 36 Approach

- Only 3 miles of damage
- Built under emergency waivers
- Different canyon characteristics



CP-1



"Low Impact" Summer Construction Schedule

Construction starts at the Horseshoe by Indian Village

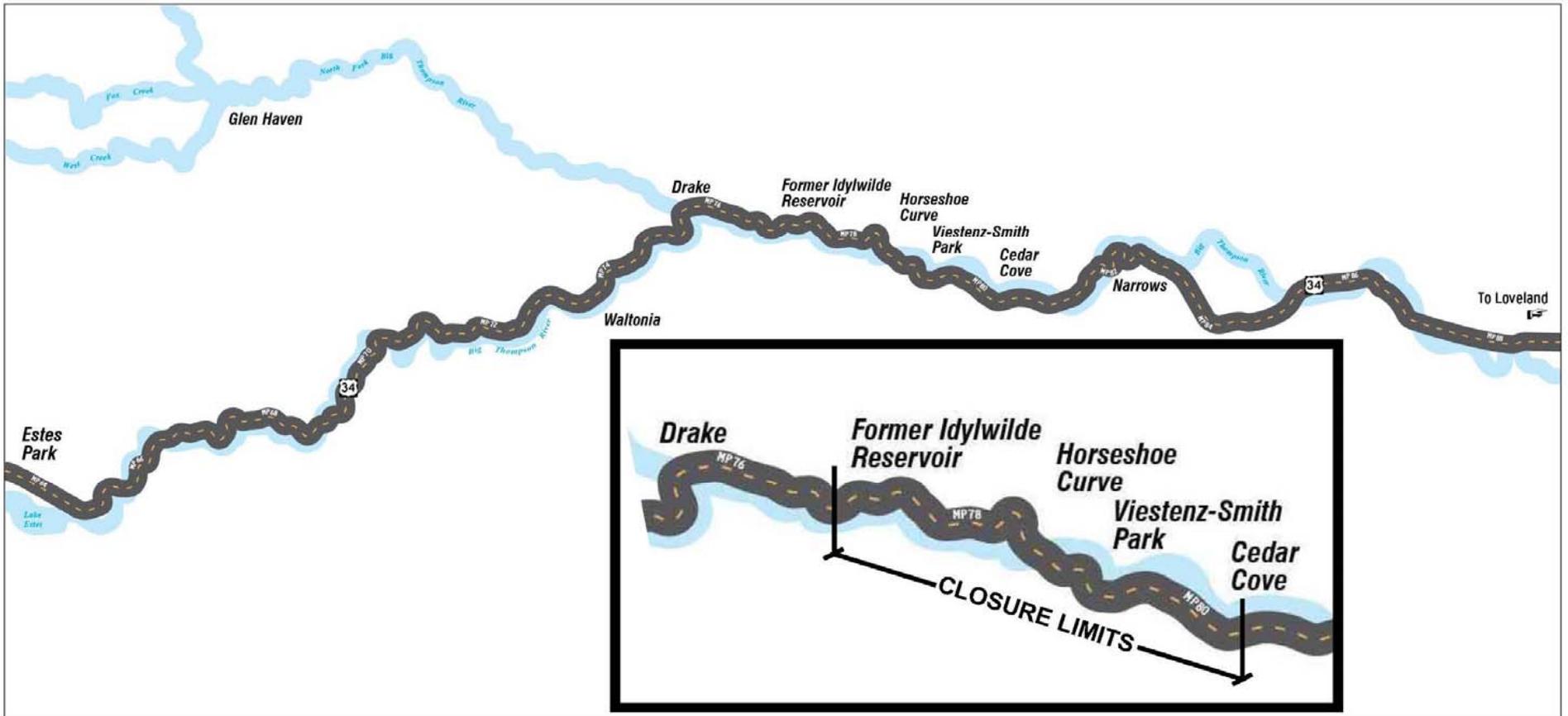
- Work off roadway
- Minimal traffic delays while blasting occurs
(15-30 minutes)
- Traffic flagging
- Construction start anticipated for July
 - Depends on securing permits and right-of-way acquisition in a timely manner





Construction Package 1

WE HAVE A LOT OF ROCK TO MOVE





Post Labor Day Construction Traffic Options

Comparison of Proposed Package 1 Traffic Impacts: Drake to Loveland After Labor Day

	OPTION A (less impact/long duration)	OPTION B (high impact/less duration)	OPTION C (hybrid impact/med. duration)
Daily Impact	<p>No through traffic access between Idylwilde and Cedar Cove on weekdays:</p> <ul style="list-style-type: none"> 8:30 a.m. to 3:30 p.m. 9 p.m. to 7 a.m. Local access to canyon residents only at top of hour from 10 p.m. to 6 a.m. <p>Through traffic allowed in the canyon:</p> <ul style="list-style-type: none"> 7 to 8:30 a.m. 3:30 to 9 p.m. 	<p>No through traffic access between Idylwilde and Cedar Cove for entire duration of closure (except for emergency access, Idylwilde residents and school buses in coordination with the Thompson Valley School District)</p>	<p>Sept. through Dec. 2016: Option A</p> <p>Jan. through May 2017: Option B</p>
Schedule	<ul style="list-style-type: none"> Access restrictions in place for 11 months (approximate) Sept. 2016 - July 2017 	<ul style="list-style-type: none"> Access restrictions in place for 5 months (approximate) Sept. 2016 - Feb. 2017 	<ul style="list-style-type: none"> Access restrictions in place for 9 months (fixed) Sept. 2016 - Memorial Day 2017
Comments	<p>Provides through traffic access in peak hours but extends the overall timeframe of restricted access into the summer of 2017 with total project completion in summer 2019</p>	<p>More impactful but reduces overall timeframe of travel restrictions and reduces overall project schedule by 7 months to end in late 2018</p>	<p>Provides through traffic access in peak hours through December and enables travel restrictions to end before Memorial Day 2017 but extends the overall timeframe of restrictions</p>



Post Labor Day Construction Traffic Options

Option A

Daily Impact: No through traffic access between Idylwilde and Cedar Cove on weekdays

- 8:30 a.m. to 3:30 p.m.
- 9 p.m. to 7 a.m.
- Local access to canyon residents only at top of hour
10 p.m. to 6 a.m.

Through traffic allowed in the canyon:

- 7 to 8:30 a.m.
- 3:30 to 9 p.m.

Schedule: Access restrictions in place for approximately 11 months (Sept. 2016 - July 2017)

Comments: Provides through traffic access in peak hours but extends the overall timeframe of restricted access into the summer of 2017 with total project completion in summer 2019





Post Labor Day Construction Traffic Options

Option B

Daily Impact: No through traffic access between Idylwilde and Cedar Cove for entire duration of closure (except for emergency access, Idylwilde residents and school buses in coordination with Thompson Valley School District)

Schedule: Access restrictions in place for approximately 5 months (Sept. 2016 - Feb. 2017)

Comments: More impactful but reduces overall timeframe of travel restrictions and reduces overall project by 7 months to end in late 2018





Post Labor Day Construction Traffic Options

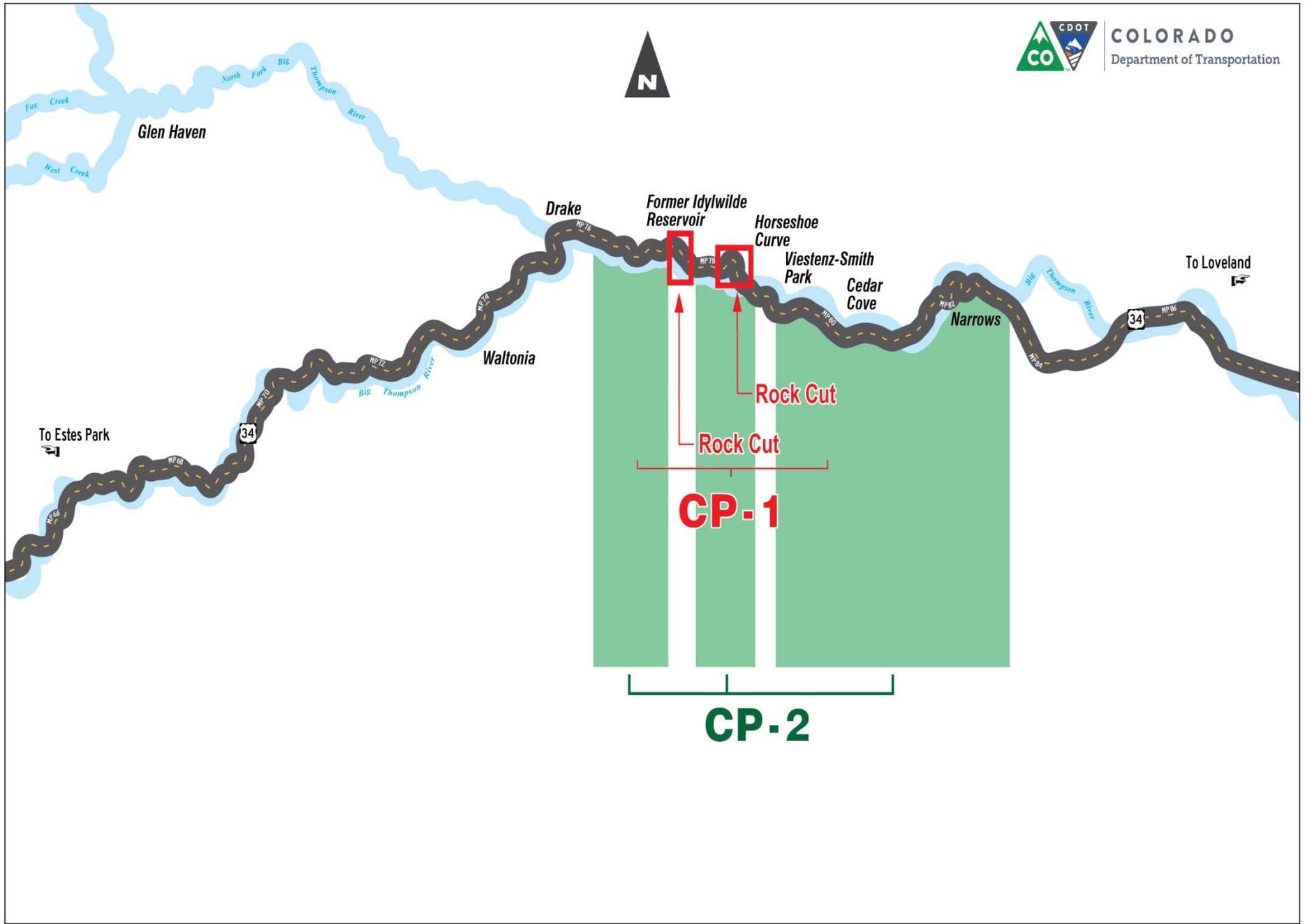
Option C (hybrid of A & B)

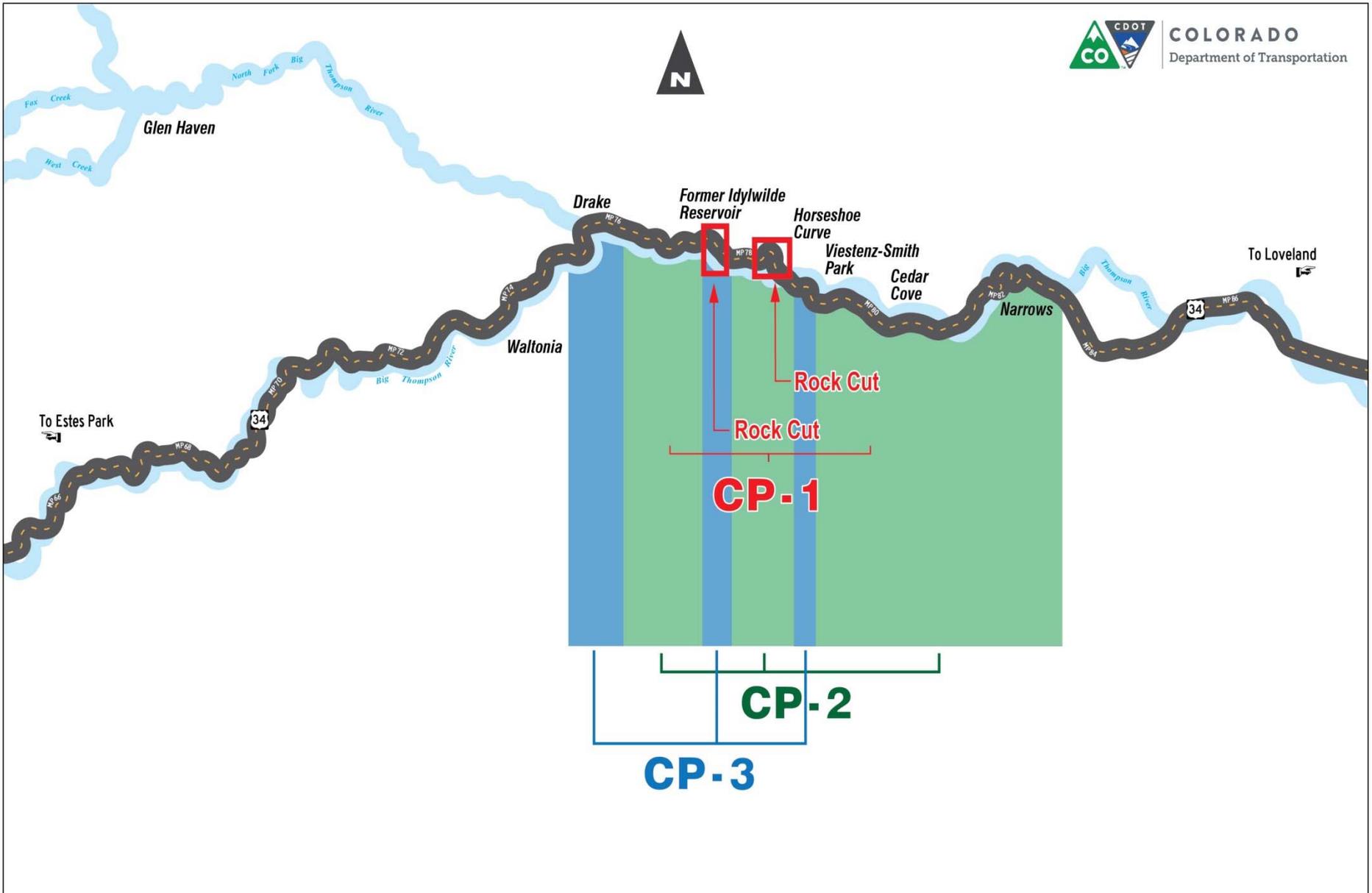
Daily Impact: Sept. through Dec. 2016: Option A
Jan. through May 2017: Option B

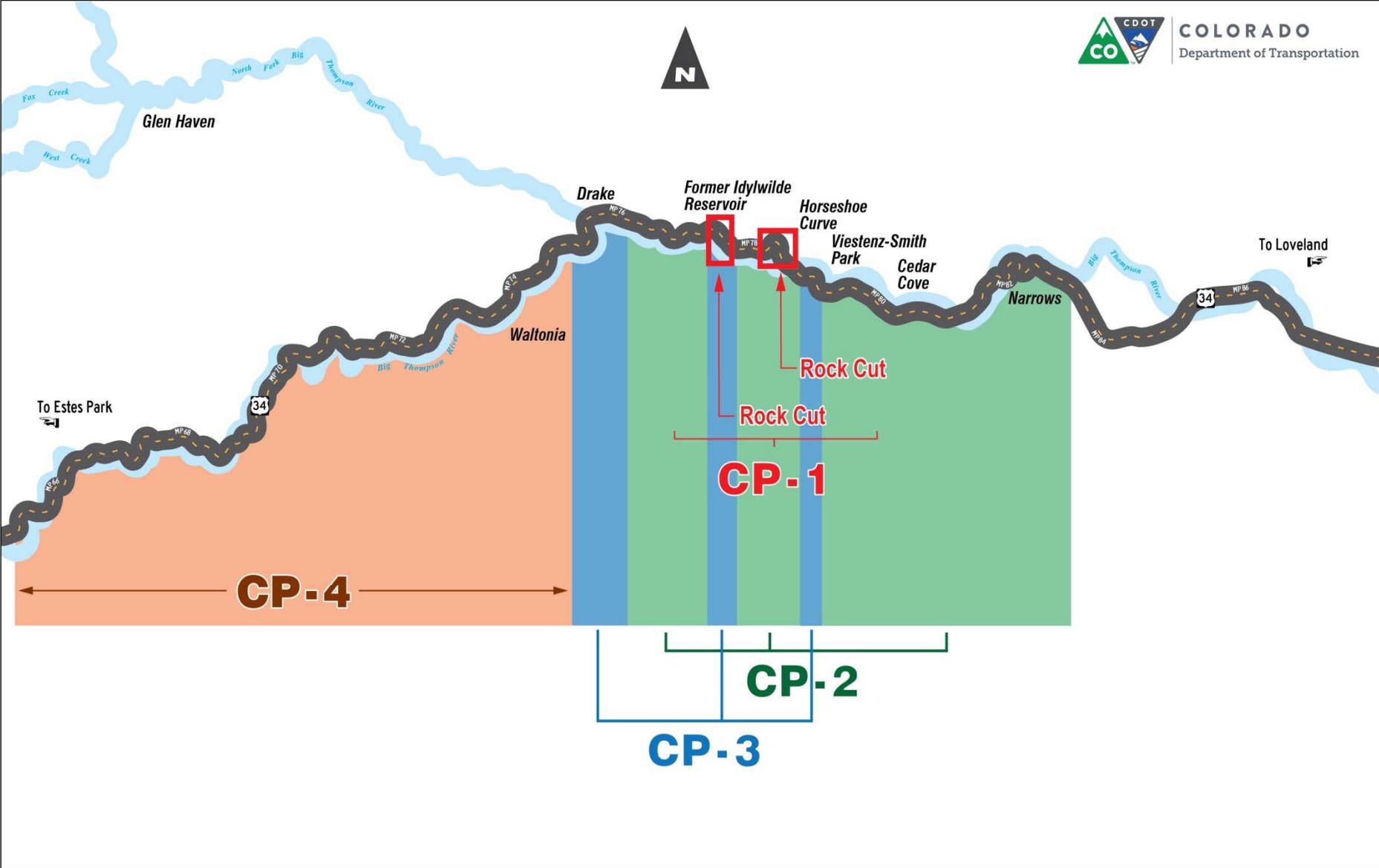
Schedule: Access restrictions in place for 9 months (Sept. 2016 - Memorial Day 2017)

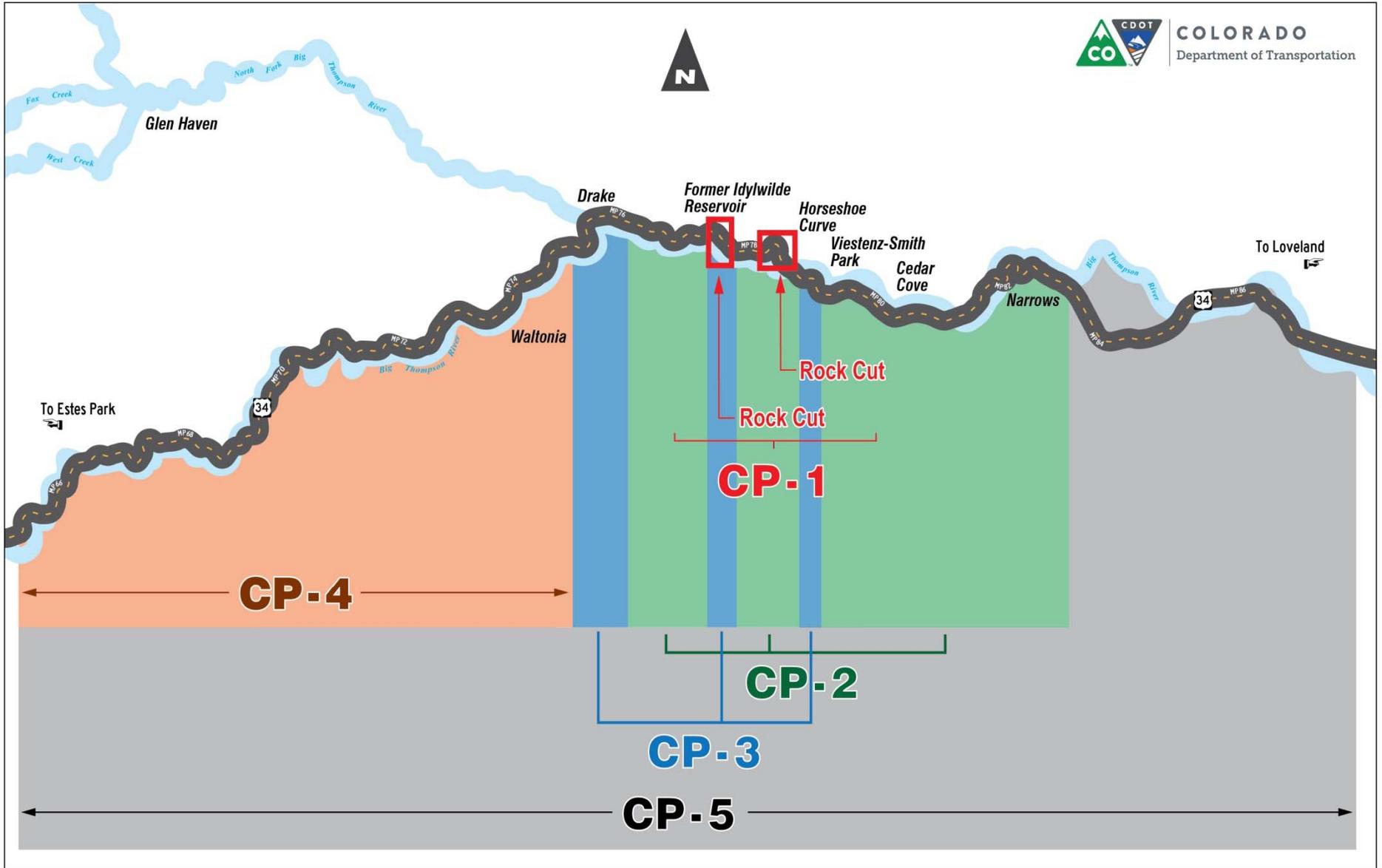
Comments: Provides through traffic access in peak hours through December and enables travel restrictions to end before Memorial Day 2017 but extends the overall timeframe of restrictions













Communication Plan



- Targeted communication -
 - Businesses, residents, schools, service providers, tourism orgs., commuters, recreation, emergency, etc.
 - Early, effective, and frequent public outreach and notification as part of the overall project communication plan
- Newsletter summarizing information from this meeting
- Coming out again with specifics JUNE OR JULY (2 weeks prior to construction at a minimum)
- Closure/alternate routes communicated 7 days in advance using email, website, and signage
- Contractor required to coordinate essential services and access during closures



Information Stations

1. Design of specific sites
2. Construction Schedule
3. Roll plot of corridor from Drake to Loveland
4. Traffic options
5. Big Thompson Watershed Coalition





Project Contacts

- James Usher, CDOT US 34 Project Director
- Heather Paddock, CDOT Flood Recovery Office
- Corey Stewart, CDOT Reg. 4 North Program Engr.

- Call (720) 263-1589

- Visit our website
www.codot.gov/projects/floodrelatedprojects/us-34-big-thompson-canyon-1

