

# Twin Tunnels Design/Construction Technical Team Meeting #5

July 12, 2012  
9:00AM – 12:00PM  
CDOT  
425 Corporate Circle  
Golden, Colorado



# Agenda

1. **Introductions**
2. **Other Corridor Project Updates**
3. **Follow-up :**
  - Impacts to Traffic – MOT update
  - I-70 Retaining Wall Aesthetics – median shift
4. **Develop initial performance measures:**
  - CR 314 Frontage Road Wall Fascia
5. **Next Steps**
  - Any new items for enhancement list

**Step 1**  
Define Desired Outcomes  
and Actions

**Step 2**  
Endorse the Process

**Step 3**  
Establish Criteria

**Step 4**  
Develop Alternatives and Options

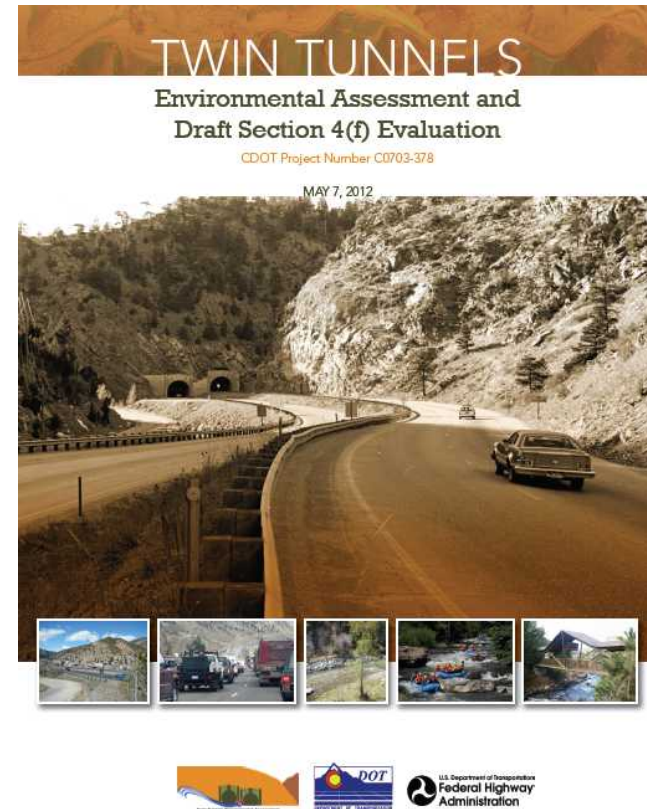
**Step 5**  
Evaluate, Select, and Refine  
Alternatives and Options

**Step 6**  
Finalize Documentation and  
Evaluation Process



# Other Corridor Project Updates

- Frontage Road
- Twin Tunnels EA
- Westbound Tunnel Repairs
- CDOT Rockfall Program
- Master I-70 Schedule
- Trailhead Improvements
- AGS Study



# Core Values

- **Safety**
- **Mobility**
- **Gateway**
- **Wildlife**
- **The Creek**
- **Destination**
- **History**
- **Constructability**
- **Inclusivity**
- **Schedule**







**TWIN TUNNELS WIDENING**  
**ISSUES FOR TECHNICAL TEAM PRELIMINARY SCHEDULE**

ISSUES	2012																2013										
	MAY		JUNE		JULY		AUG		SEPT		OCT		NOV		DEC		JAN		FEB		MAR		APRIL		MAY		
	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	2ND WEEK	4TH WEEK	
NOISE/ VIBRATION	—	*																									
TUNNEL LINING	—					*	●																				
RETAINING WALL RAILING	—	*																									
IMPACTS TO TRAFFIC	—	*	●		●		●		●																		
I-70 RETAINING WALL AESTHETICS	—	*	●	●																							
BRIDGE AESTHETICS	—		*		●		●																				
NEPA ANALYSIS OF CONSTRUCTION METHODS	—	*	●																								
ROCKFALL STRUCTURES	—	*	●																								
SIGNING			—				*	●																			
ADAPTIVE MITIGATION							*		●				●											●			
PUBLIC INFORMATION			—		*	●		●			●											●					
IMPACTS TO RECREATION USERS			—	*	●																	●					
INFRASTRUCTURE IN MEDIAN			—			*	●																				
COATINGS (COLOR)			—					*	●																		
LIGHTING			—				*	●																			
LANDSCAPING			—				*		*		*		*				●										
TUNNEL PORTAL AESTHETICS			—		*	●	●	●																			
INCIDENT MANAGEMENT PLAN			—			*	●																				
C.R. 314 FRONTAGE ROAD RETAINING WALL FASCIA				—					*	●	●	●															
SOUTH SIDE OF W.B. BRIDGE OVER CLEAR CREEK				—																							
TRAILHEAD IMPROVEMENTS					*		●		●		●		●			●							●				
ENHANCEMENT OPPORTUNITIES			—					*		*	●		*			●						*			●		

PACKAGE 1A      PACKAGE 1B      PACKAGE 2      PACKAGE 3

LEGEND:	
Discuss Criteria	Presentation of Concepts
Shaded Items are Complete	Follow-up (As Needed)

NOTE: FINAL DESIGN AND CONSTRUCTION WILL CONTINUE THROUGH MARCH 2014. AFTER FEBRUARY 2013, TECHNICAL TEAM MEETINGS WILL OCCUR ON AN AS NEEDED BASIS, LESS THAN ONCE A MONTH.

# Follow up: Impacts to traffic

- Strategy to minimize traffic impacts
- Stakeholder concerns and input
- Review of geotechnical investigation closures July 24-27 and 30



# Process Affirmation

- CSS process guidelines
- EA continuation to Final design
- Opportunities to create context specific rationale
- Acknowledge and define specific and concerns
- Document in CSS commitments table

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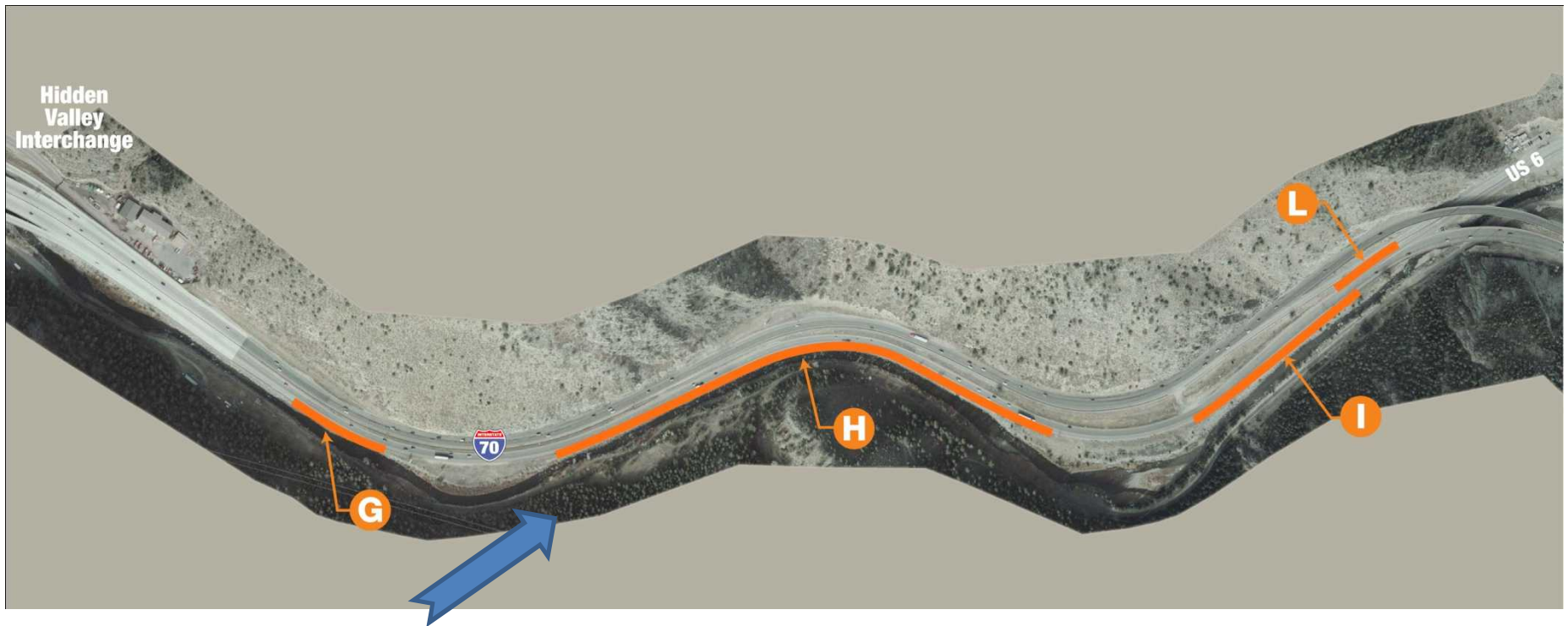
# Balancing Median and Creek Impacts through CSS

- Engineering Design Criteria
- Mountain Mineral Belt Aesthetic Guidelines
- I-70 Mountain Corridor CSS Commitments





# Twin Tunnels - CM/GC Design East Wall Locations



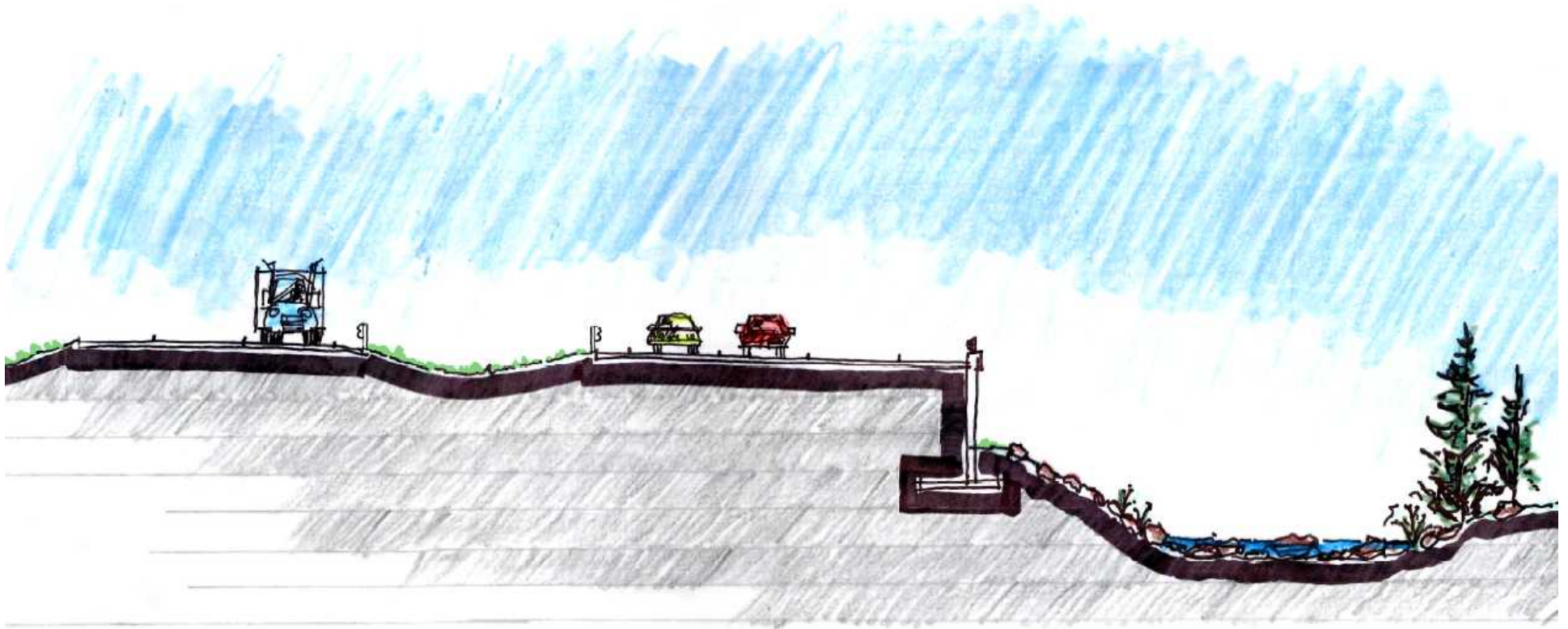




# Current Wall H Perspective

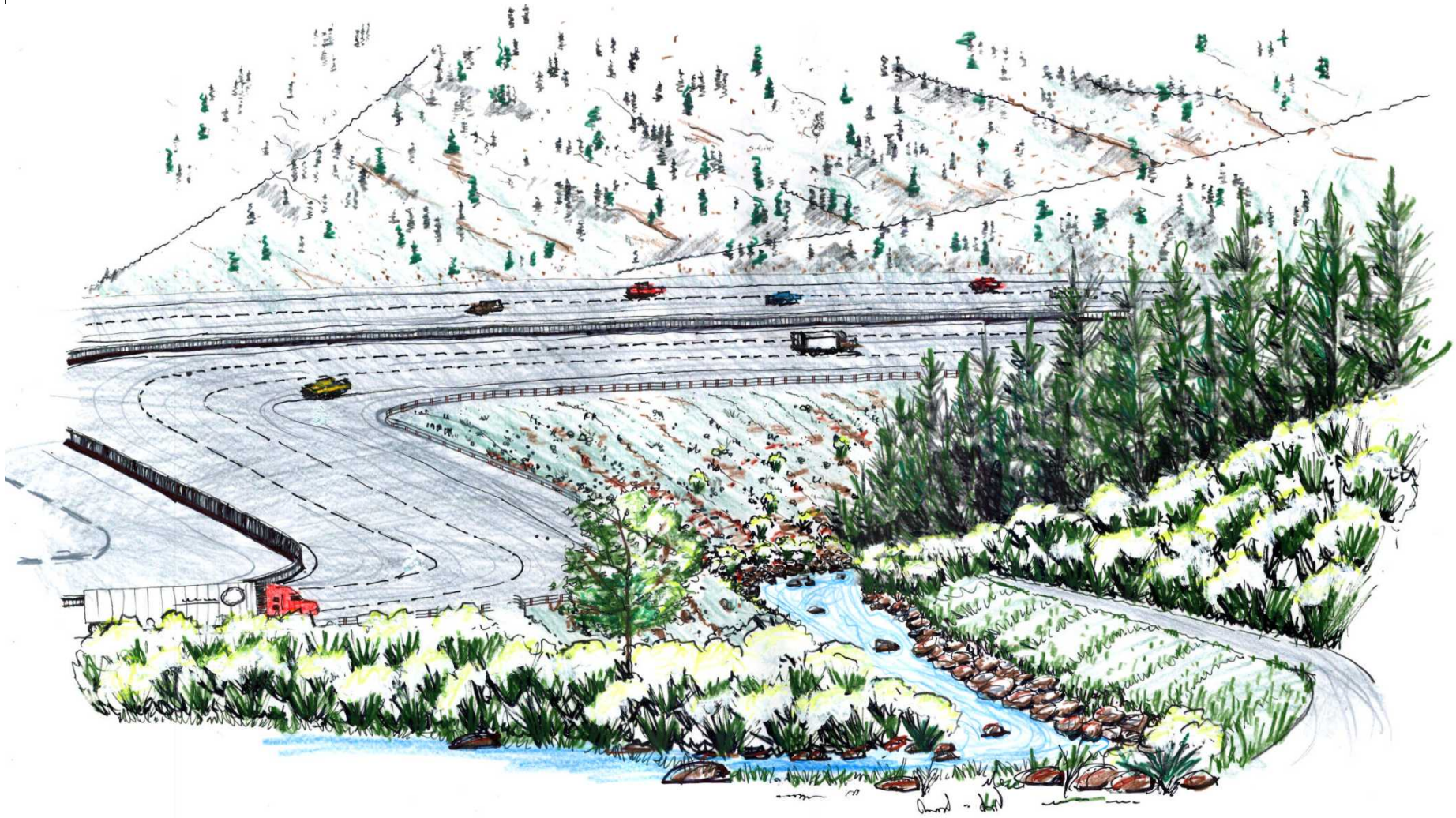


# Current Wall H Cross-Section



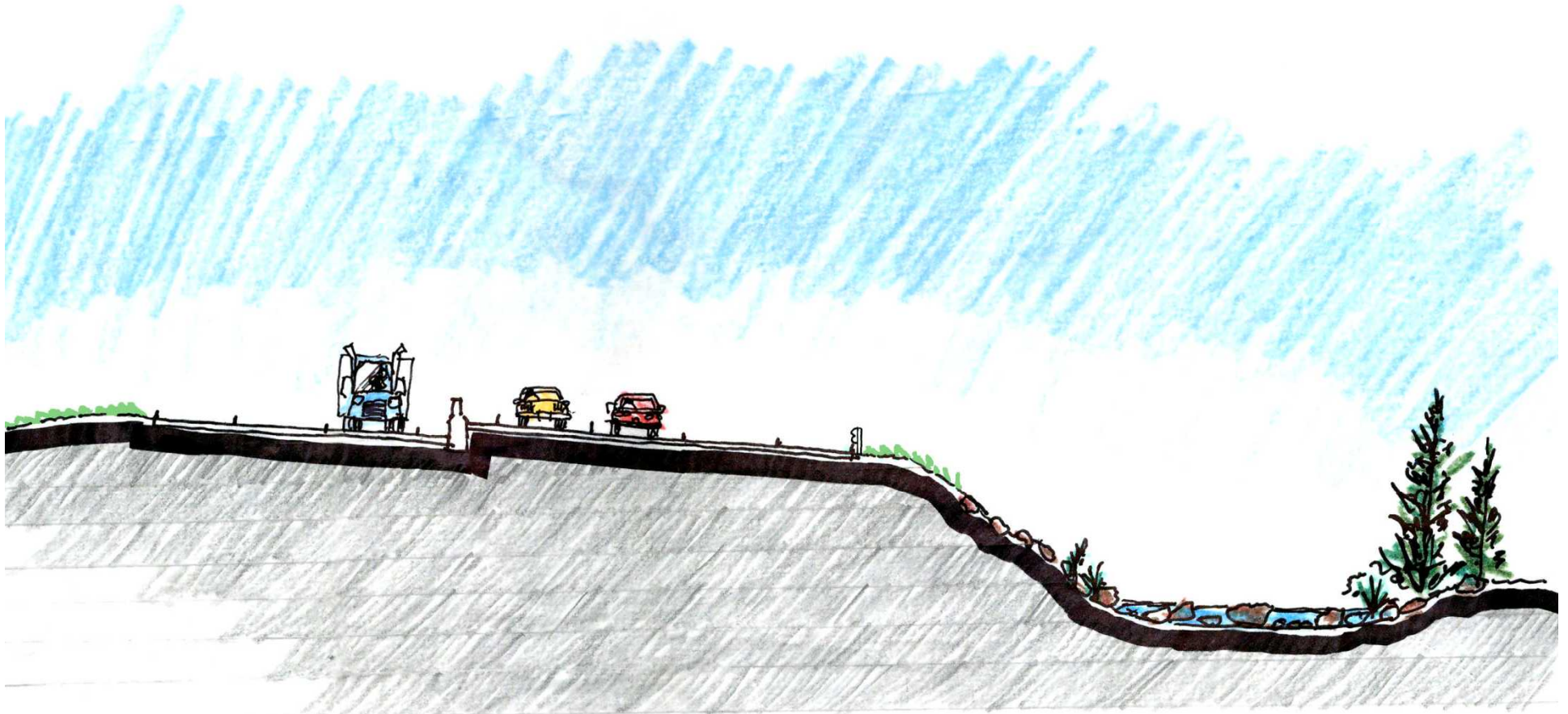


# Median Shift Wall H Perspective

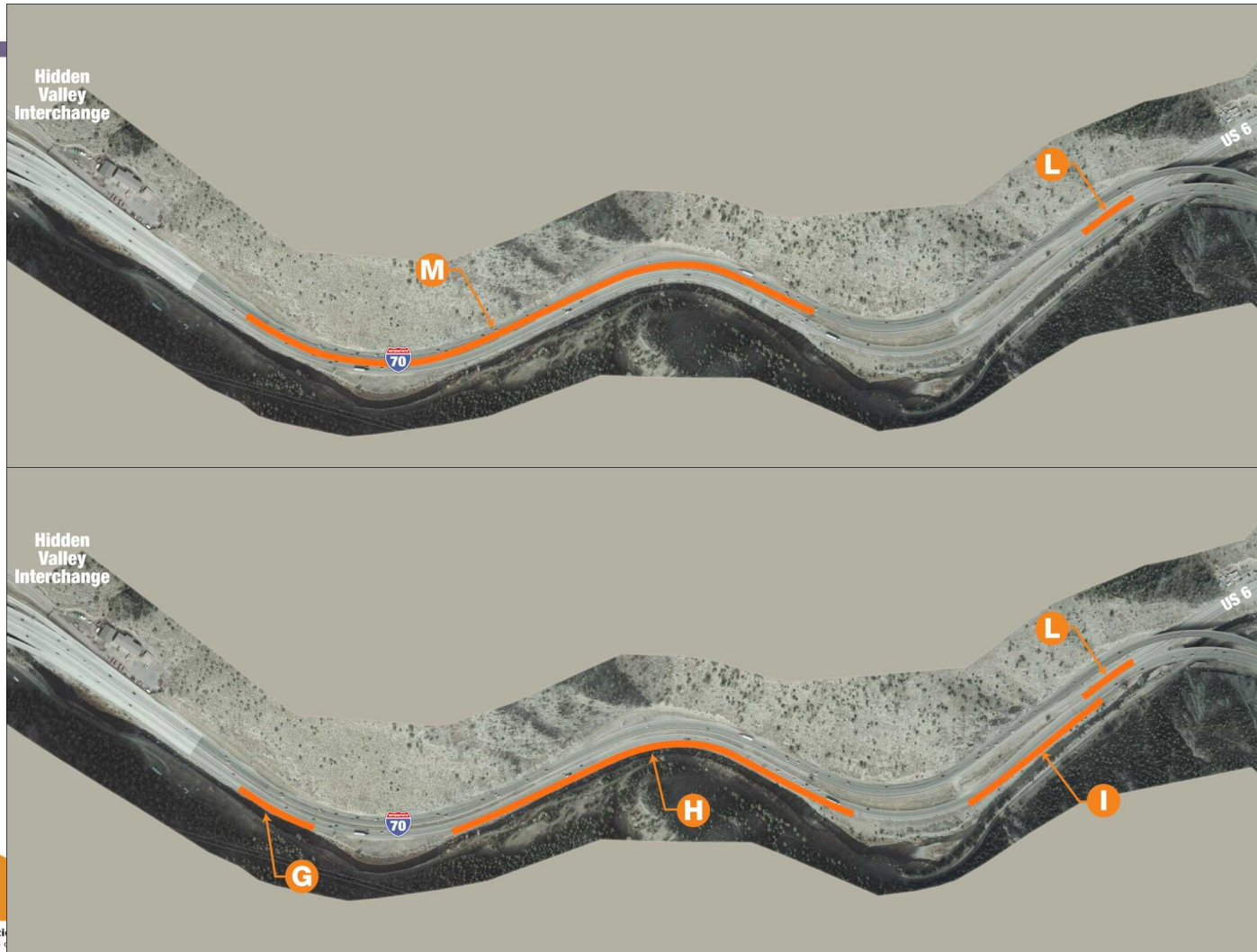




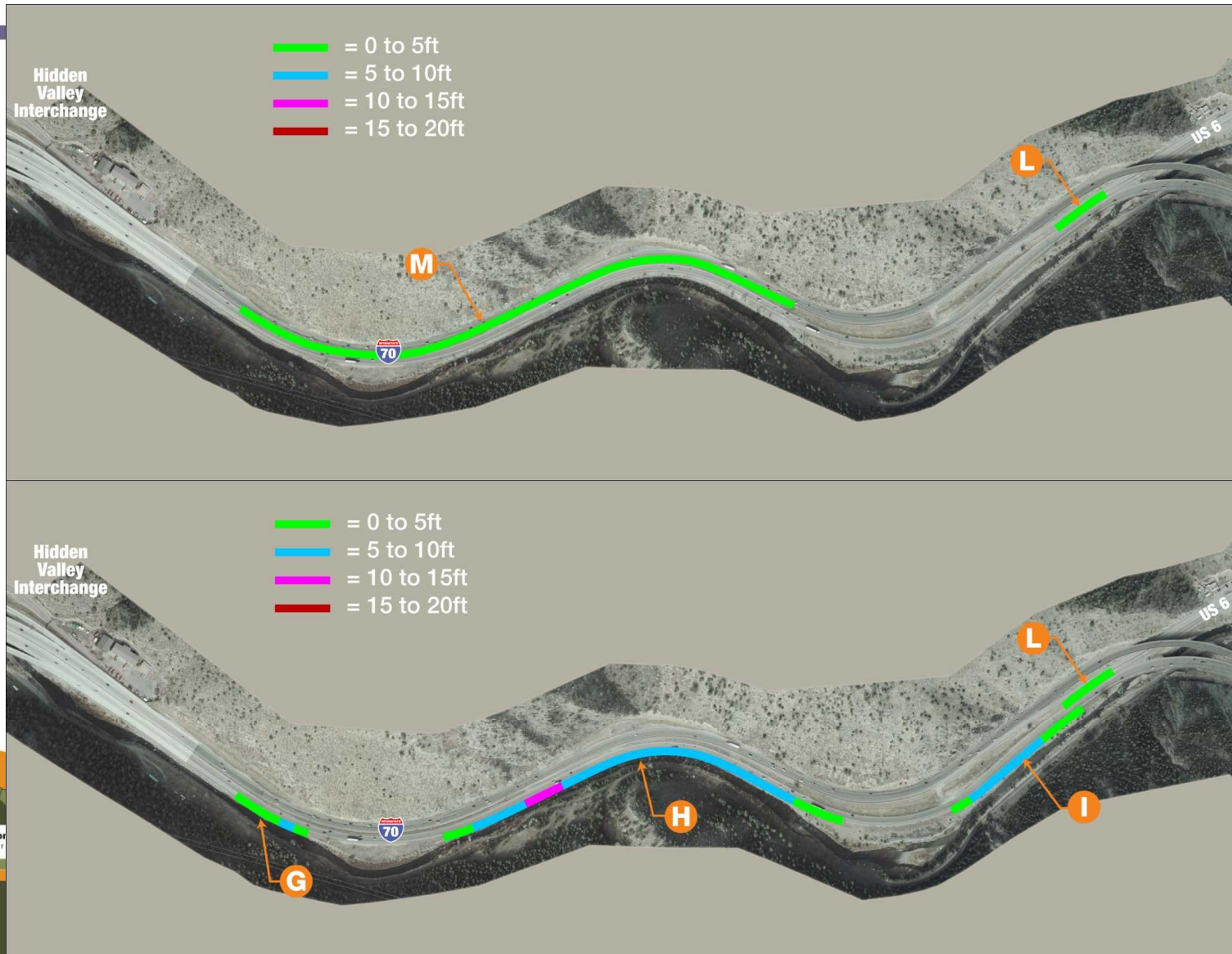
# Median Shift Wall H Cross-Section



# Twin Tunnels – Median Shift Analysis East Wall Locations

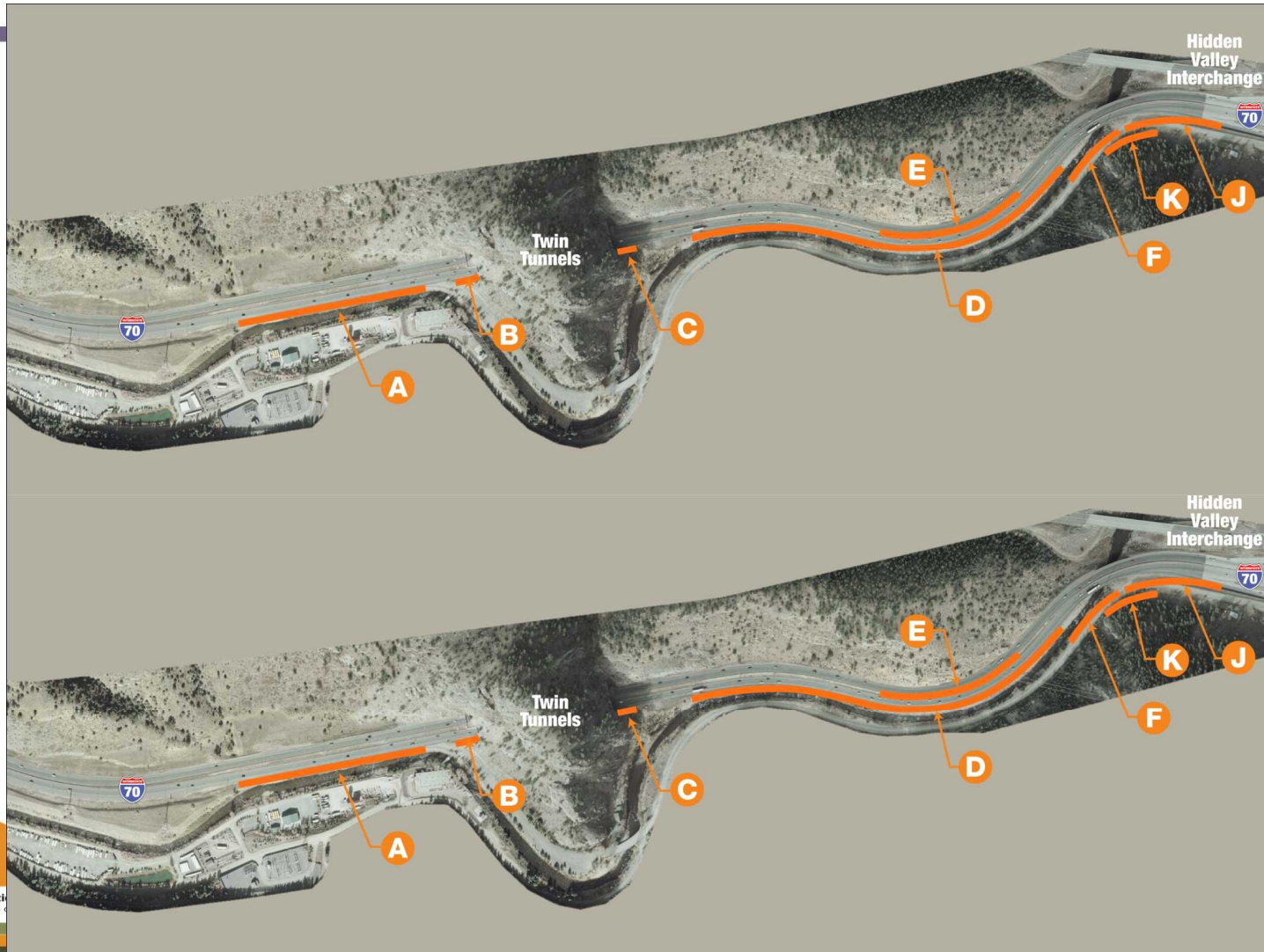


# Twin Tunnels – Median Shift Analysis East Wall Heights

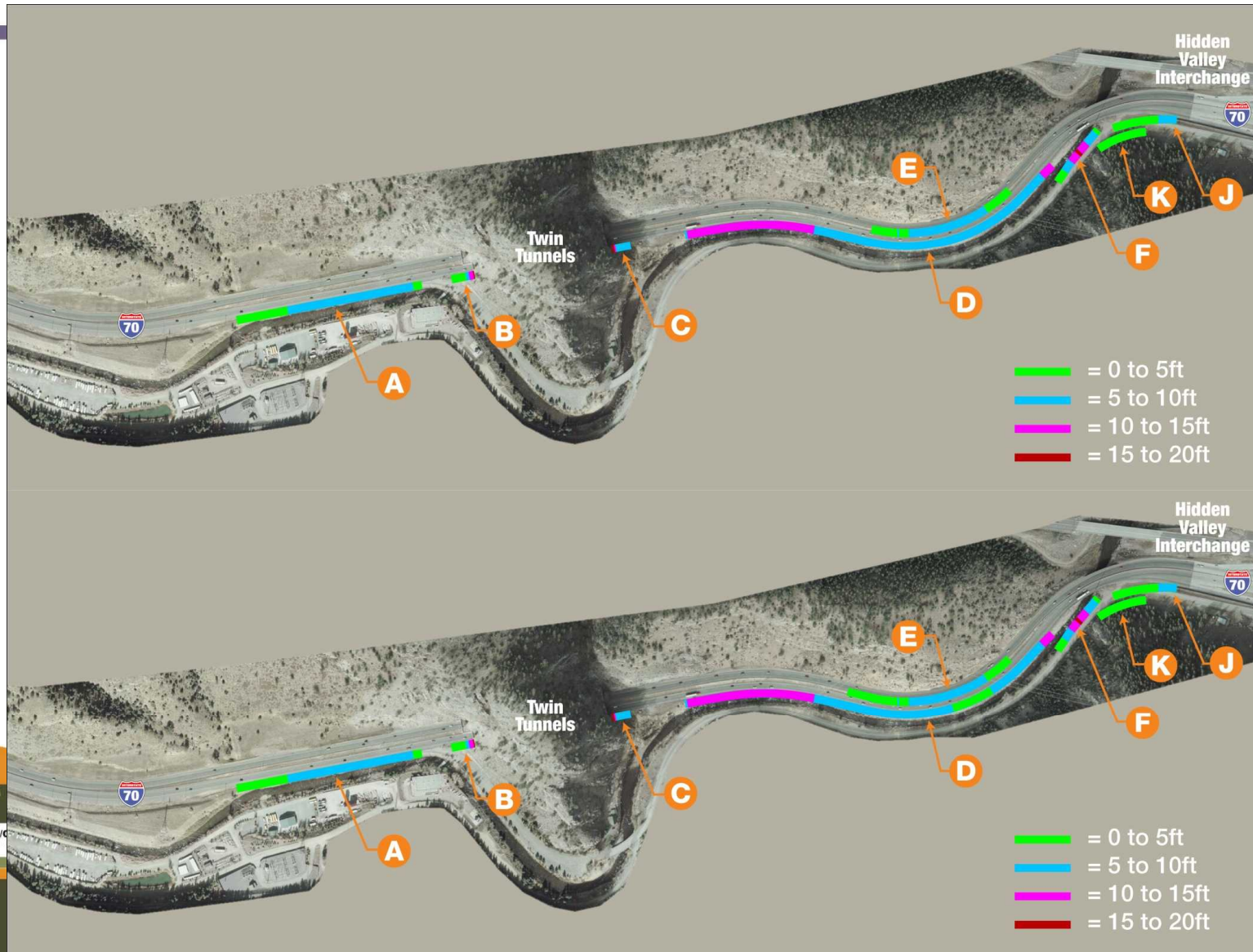




# Twin Tunnels – Median Shift Analysis West Wall Locations



# Twin Tunnels – Median Shift Analysis West Wall Heights













# Alignment Option Comparison

## Key differentiators

- EA alignment reduces median encroachment, improves sight lines and is more consistent with the letter of the aesthetic guidance
- Median shift alignment is easier to construct, reduces overall visual impact, prioritizes creek protection and enhancement opportunities



# Criteria: CR 314 Frontage Road Wall Fascia

Review of Frontage Road PLT/TT process:

- Acknowledgement of aesthetic variance to allow cut wall
- Consideration of 3 wall types
  - » Rockery, Soil Nail with sculptured shotcrete, Soil Nail with formliner
  - » **Endorsement of soil nail with shotcrete as the structural wall with an endorsed wall fascia**
- Consideration of tiering and undulation
  - » **Allowable extension of walls above 12 feet**
- Preference of stack rock aesthetic for



# East wall locations



**I-70 Twin Tunnels and Frontage Road Walls**

Sheet 2 of 2

**Legend**

**Wall Height**

- 0 - 5 ft
- 5 - 10 ft
- 10 - 20 ft
- 20 - 30 ft

0 100 200 400 600 800 1,000 Feet

0 100 200 300 Meters



# Criteria: CR 314 Frontage Road Wall Fascia

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Additional Criteria:

How well does the wall aesthetic adhere to the Frontage Road process?





# Next Steps

## Agenda for July 26<sup>th</sup> Technical Team Meeting in Idaho Springs

- Present proposed solutions that meet criteria for:
  - » CR 314 Frontage Road Wall Fascia
  - » Tunnel Lining
  - » Bridge Aesthetics
  - » Public Information
  - » Infrastructure in Median
  - » Trailhead Improvements
  - » Tunnel Portal



# END OF PRESENTATION

