

I-70 EB Peak Period Shoulder Lane Project

Project Number: NHPP 0703-401

Project Code: 19474

Technical Team Meeting

August 12, 2013

CDOT I-70 Mountain Corridor | HDR Engineering, Inc.



Meeting Agenda

- ❖ Introductions
- ❖ Where we have been
- ❖ Where we are
- ❖ Where we are going
- ❖ Glossary of terms
- ❖ Left versus right
- ❖ Roadway width
- ❖ Issue-Specific Criteria
 - Widening to the median versus Clear Creek
 - Auxiliary lanes

Background



Where We've Been

- Finalized Context Statement
- Finalized Core Values
- Developed Critical Issues and Project Evaluation Criteria
- Issues heard from Clear Creek County at July 22 meeting
 - Is PPSL compliant with the ROD, especially considering planned infrastructure improvements such as pullouts, rebuilding acceleration and deceleration lanes and replacing bridges?
 - How does CDOT intend to address the safety concerns? Concerns about access for emergency vehicles; room for broken down vehicles, creating unsafe conditions.
 - Is an EA more appropriate than a CatEx? Specific concerns are related to consideration of alternatives and to enforceable mitigation
 - Interim/temporary—Will there be a written commitment to an end date or triggers for when a more permanent solution will be implemented?
 - Not convinced that passive management will keep everyone safe.
 - How can economic viability and livability of CCC communities be protected/enhanced?

Where We Are

- Left versus Right
- Roadway Width

Background



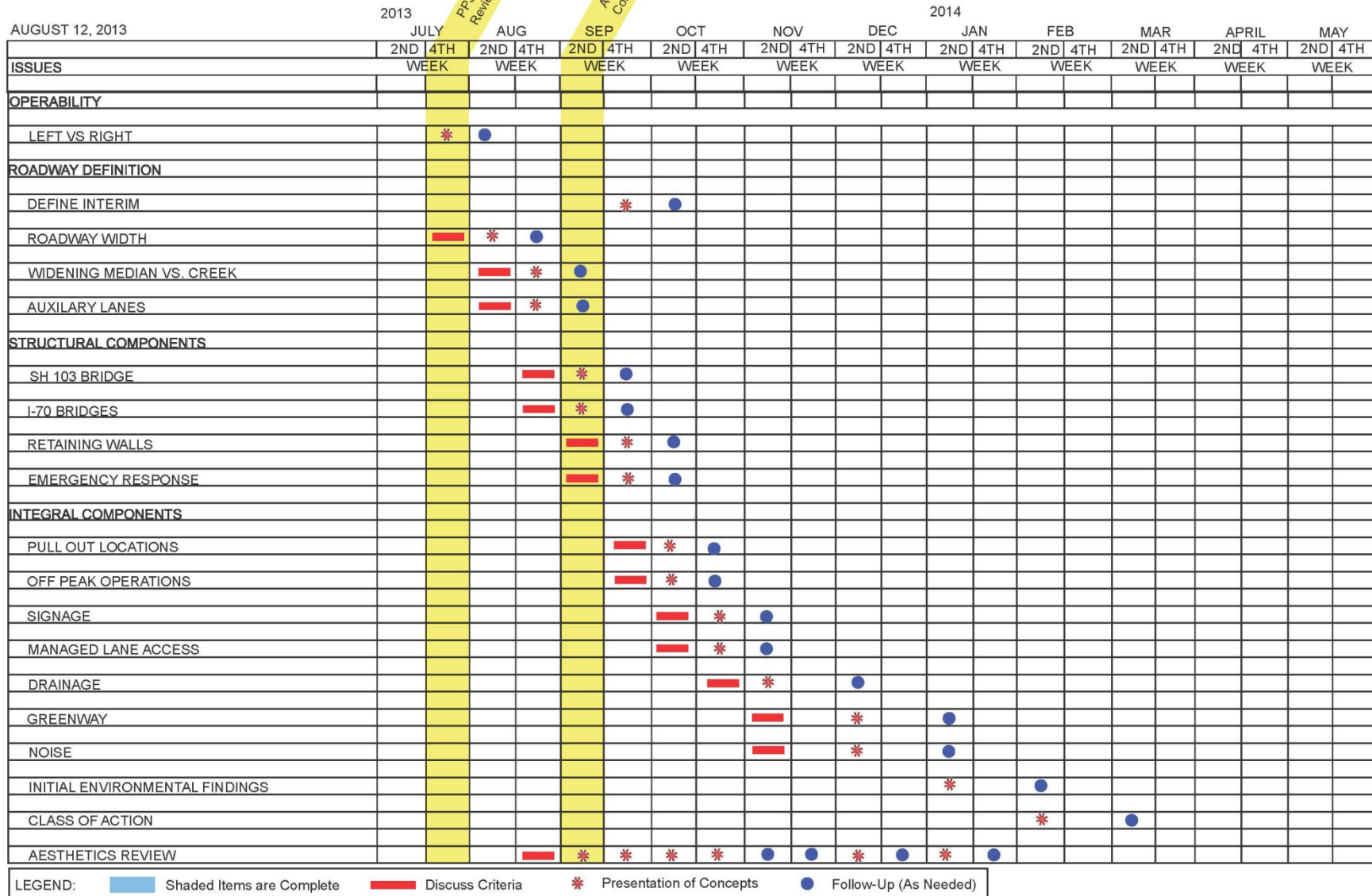
Background



- Where We Are Going
- CSS issues tracking schedule
- CSS issues tracking checklist

CSS Tracking Schedule

I-70 MOUNTAIN CORRIDOR PEAK PERIOD SHOULDER LANE
ISSUES FOR TECHNICAL TEAM PRELIMINARY SCHEDULE



CSS Tracking Checklist

CSS: Operability

- Left vs. Right
- PPSL Feasibility Review

CSS: Roadway Definition

- Median Widening vs. Creek Encroachment
- Roadway Width
- Auxiliary Lanes
- Snow Removal

CSS: Structural Components

- SH 103 Bridge
- Bridges in General
- Retaining Walls
- Noise Abatement (if needed)
- AGS

CSS: Integral Components

- Emergency Response
- Location of Pull-Outs
- Off-Peak Operations
- Signage
- Managed Lane Access
- Aesthetics
- Water Quality/ Drainage
- Greenway
- Noise
- Initial Environmental Findings
- Class of Action
- ROD Compatibility
- Interim Definition
- Safety

Glossary of Terms and Acronyms

- **Acceleration Lane**—A lane adjacent to the primary travel lane that allows drivers to accelerate before merging into traffic on the main road.
- **Auxiliary Lane**—Along a highway an auxiliary lane connects entrance and exit ramps, with the entrance ramp or acceleration lane from one interchange leading to the exit ramp or deceleration lane of the next.
- **Deceleration Lane**—A lane adjacent to the primary travel lane that allows drivers to pull off the main road and decelerate safely in order to turn or exit without slowing the traffic behind.
- **EOP**—Edge of pavement
- **General Purpose Lane**—A traffic lane that does not have any restrictions, such as time of day or type of vehicle that may use the lane.
- **Managed Lane**—In this case, the managed lane operates during a peak period and traffic utilizing that lane will be required to pay a toll.
- **Peak Period Shoulder Lane**—This is a lane of traffic that may function either as a shoulder and a managed lane or a shoulder and a general purpose lane, depending on left versus right .

Left Versus Right

MnDOT

I-35W

Best Practices



- Priced Dynamic Shoulder Lane (PDSL)
- Retrofit that converted right side bus-only shoulder lane to left side PDSL to avoid ramp conflict area
- MnDOT working to convert 260 miles of bus-only shoulder lane to PDSLs

US 36

Best Practices



- Right-side only bus lane
 - Bus yields to merging traffic at on- and off-ramps (bus drivers are specially trained)
- Left side managed lane
- Managed through active traffic management

MnDOT

I-494 (design phase)

Best Practices



- Right side priced dynamic shoulder lane for general purpose traffic
- Full ramp reconfigurations to accommodate safe acceleration/deceleration during peak and off-peak operation
- Extensive signs and active traffic management

MassDOT I-93

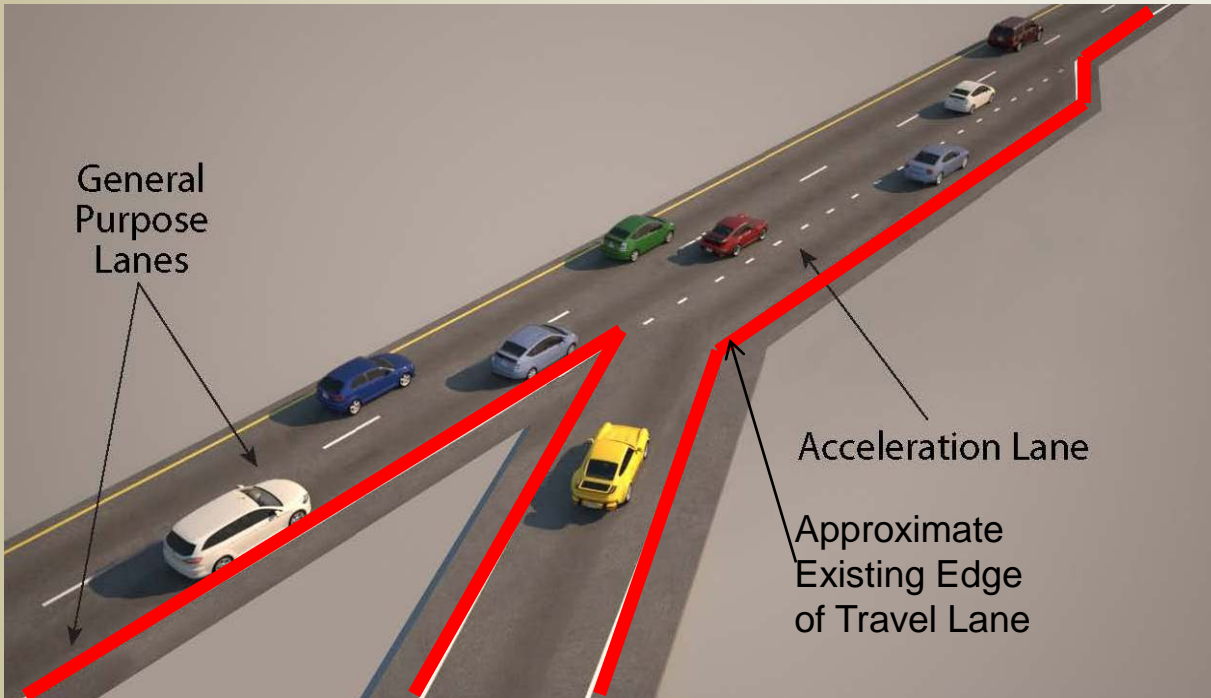
Best Practices



- Right side PPSL for general purpose traffic
- No special accommodations at low volume entrance ramps
- Provides advanced signing on ramps to warn motorists
- Provides emergency turnouts approximately every 1/2 mile
- As a result of a fatal accident new larger warning signs were added

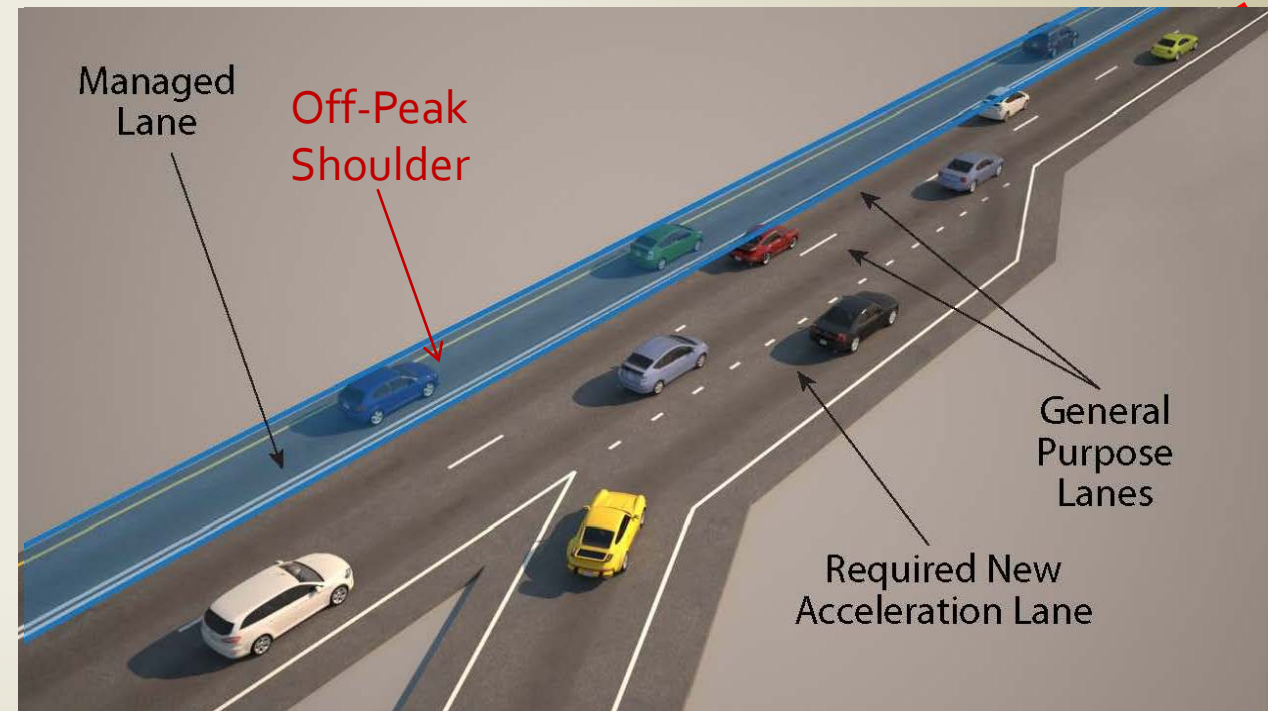
Interchange Applications—Existing Condition and Left Side

Existing

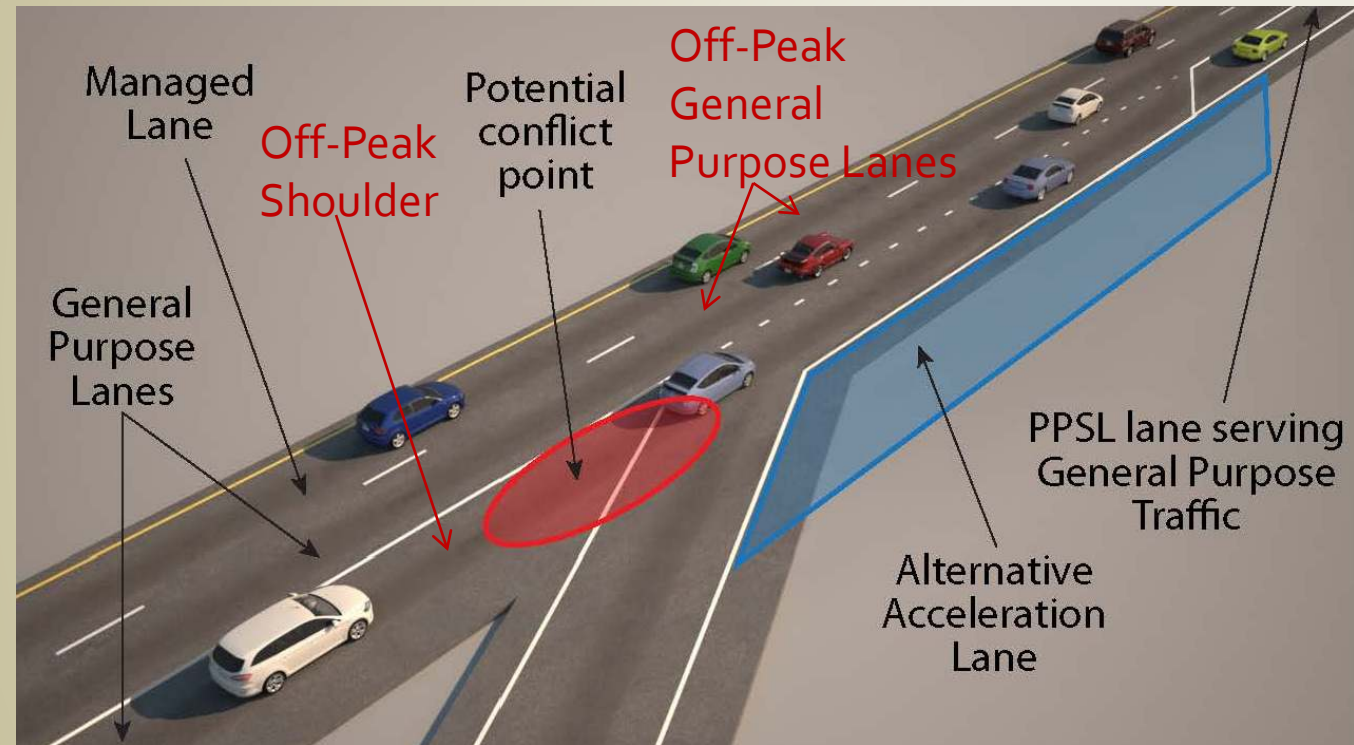


Left Side

- Add acceleration lane
- Estimated 11 signs
- Requires 103 bridge replacement
- No general purpose lanes shifts between on-peak and off-peak



Interchange Applications— Existing Condition and Right Side



Right Side

- Possibility to avoid acceleration lane
- Estimated 25 signs
- Increased safety concerns
- Possibility to modify Highway 103 bridge
- **General purpose lanes shift from on-peak to off-peak**

SH 103: Existing Condition

Interchange Options



Primary Differentiators



Left Side

- Add acceleration lane
- Estimated 11 signs
- Requires 103 bridge replacement
- **Reduces potential of head on collisions during off-peak**
- **Maintains rumble strips on right side of shoulder**

Right Side

- Possibility to avoid acceleration lane
- Estimated 25 signs
- Increased safety concerns
- Possibility to modify 103 bridge
- **General purpose lanes are shifted between on-peak and off-peak**

Evaluation Matrix

See Handout



Segments



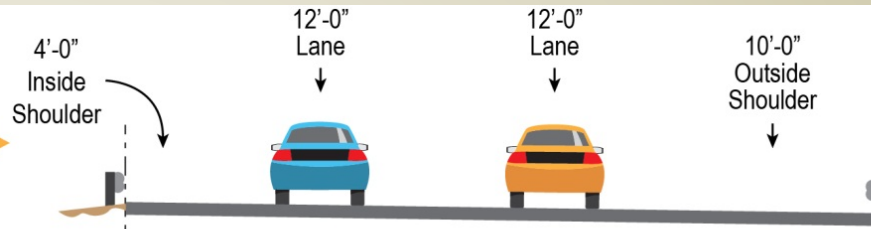
- Segment 1: Empire Junction
- Segment 2: Lawson
- Segment 3: Downieville/Dumont
- Segment 4: Fall River
- Segment 5: West Idaho Springs
- Segment 6: SH 103
- Segment 7: East Idaho Springs
- Segment 8: Twin Tunnels

Roadway Width

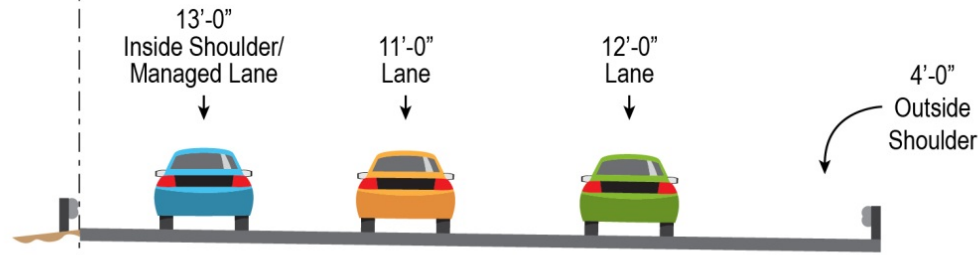
Typical Sections



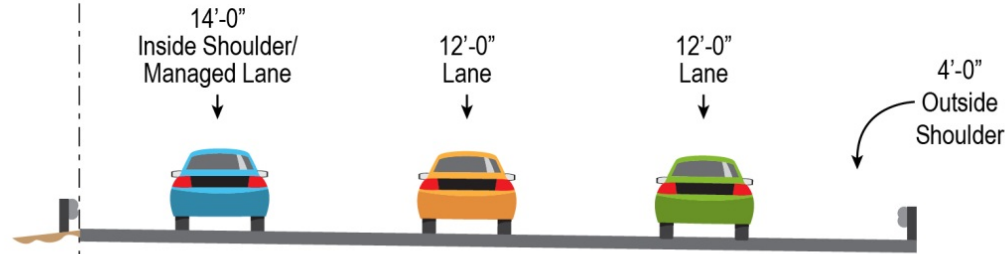
38'
Pavement Width
(existing condition)



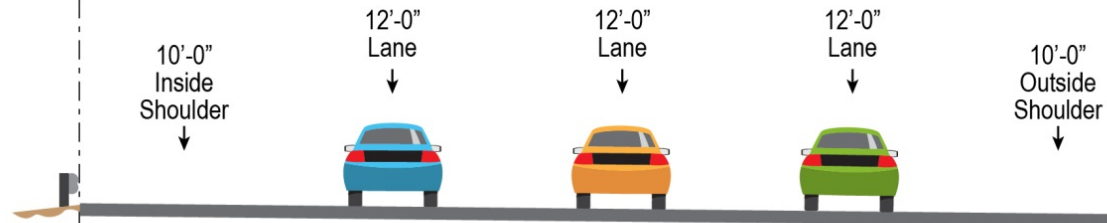
40'
Pavement Width



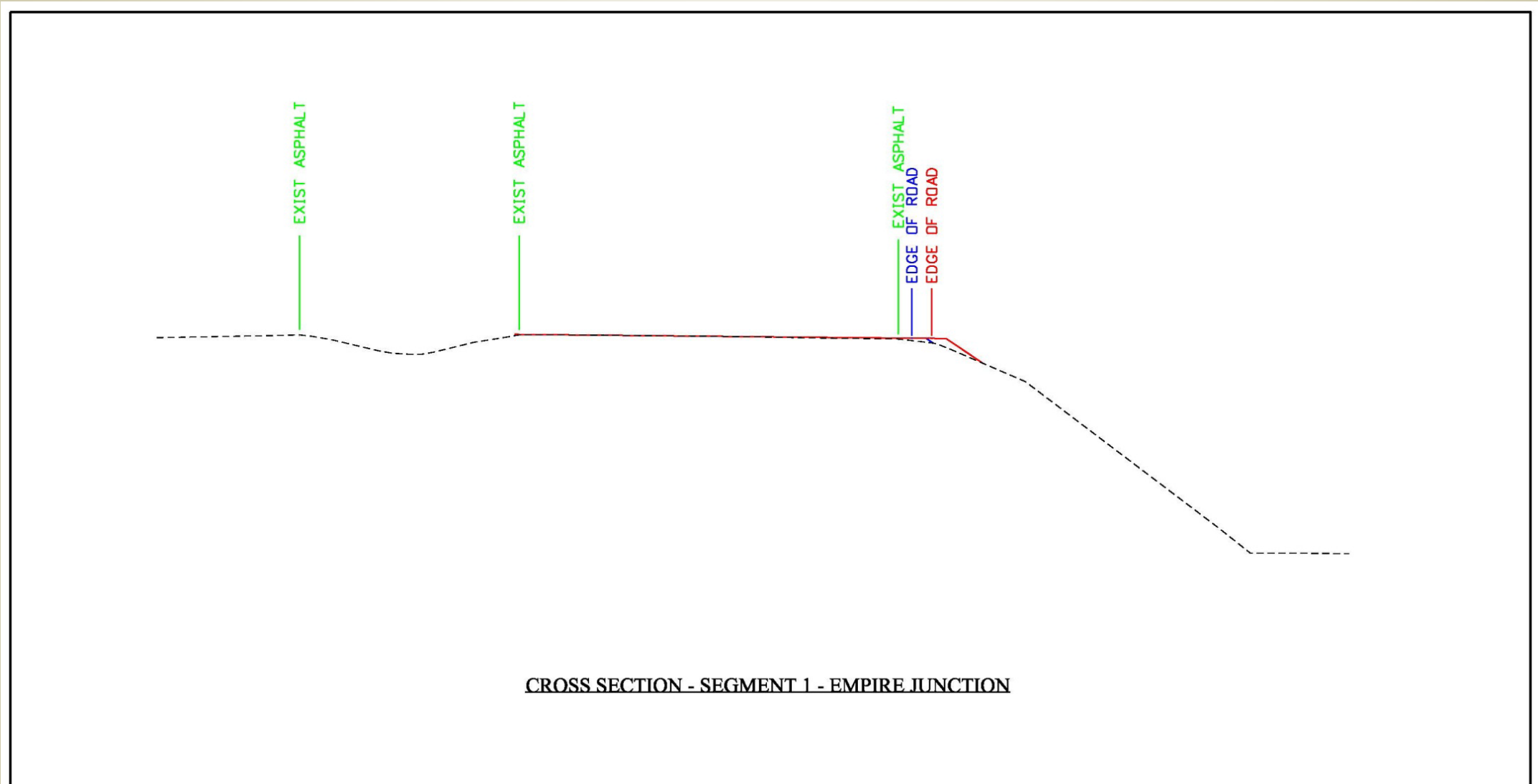
42'
Pavement Width



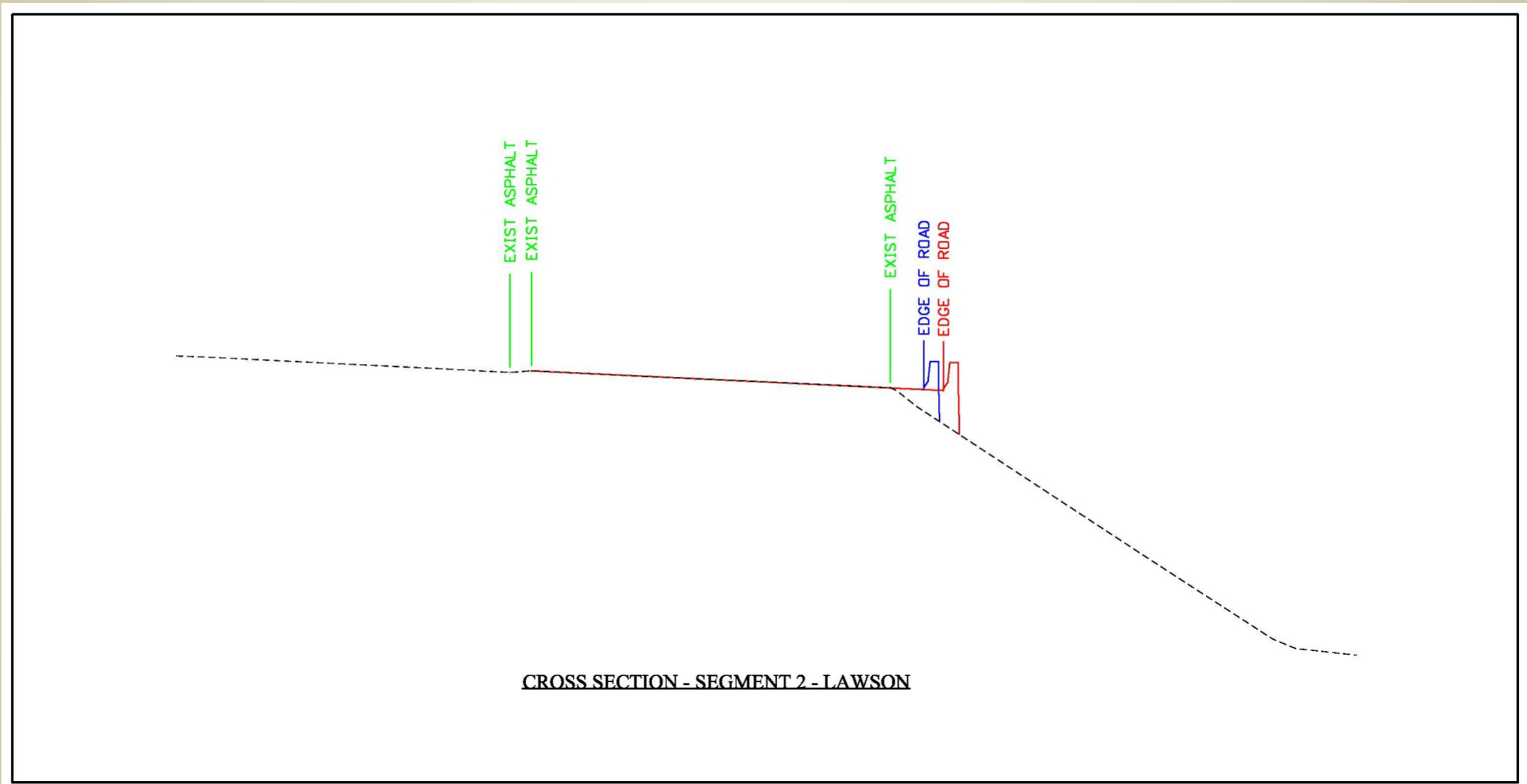
56'
Pavement Width



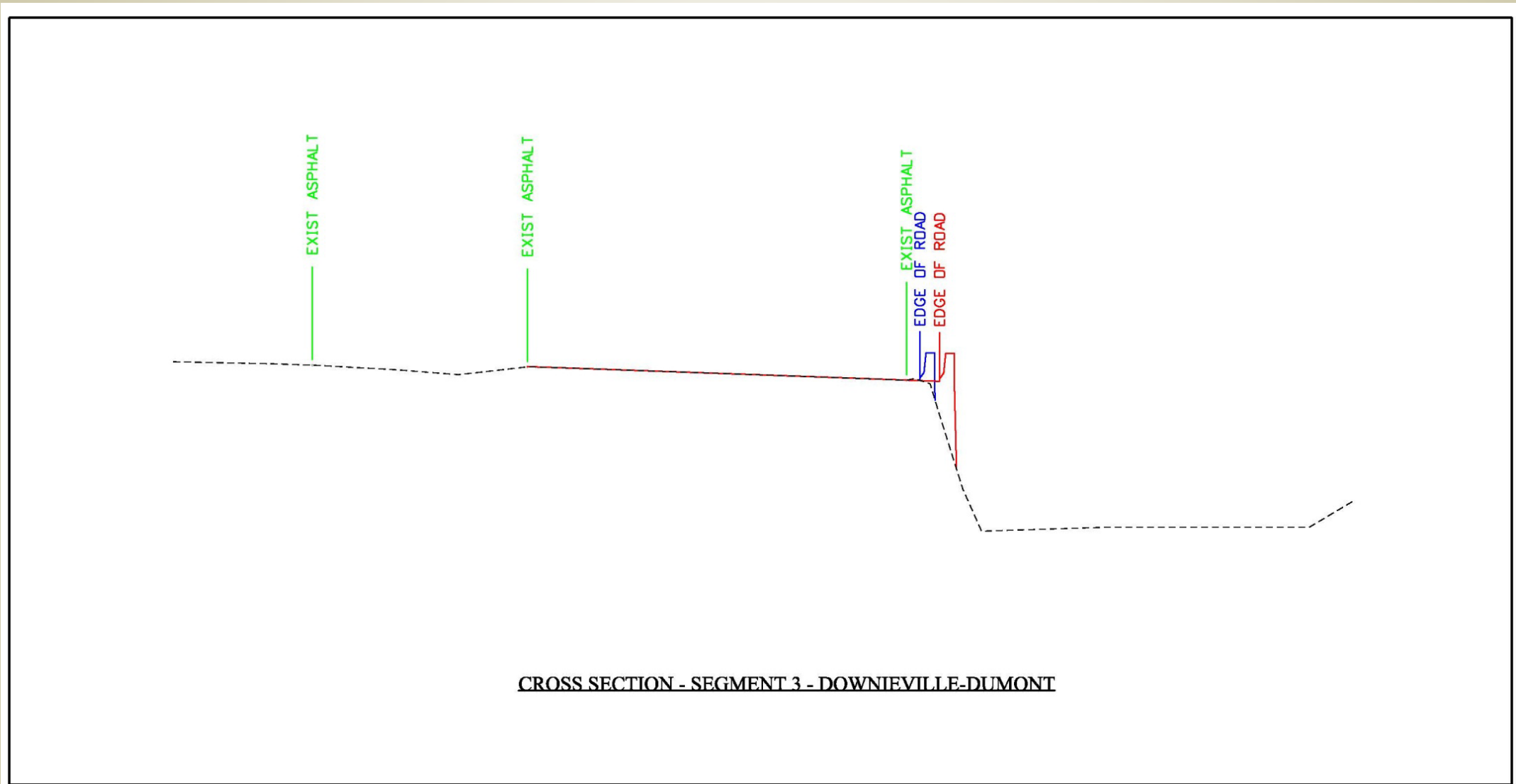
Segment 1: Empire Junction Critical Section



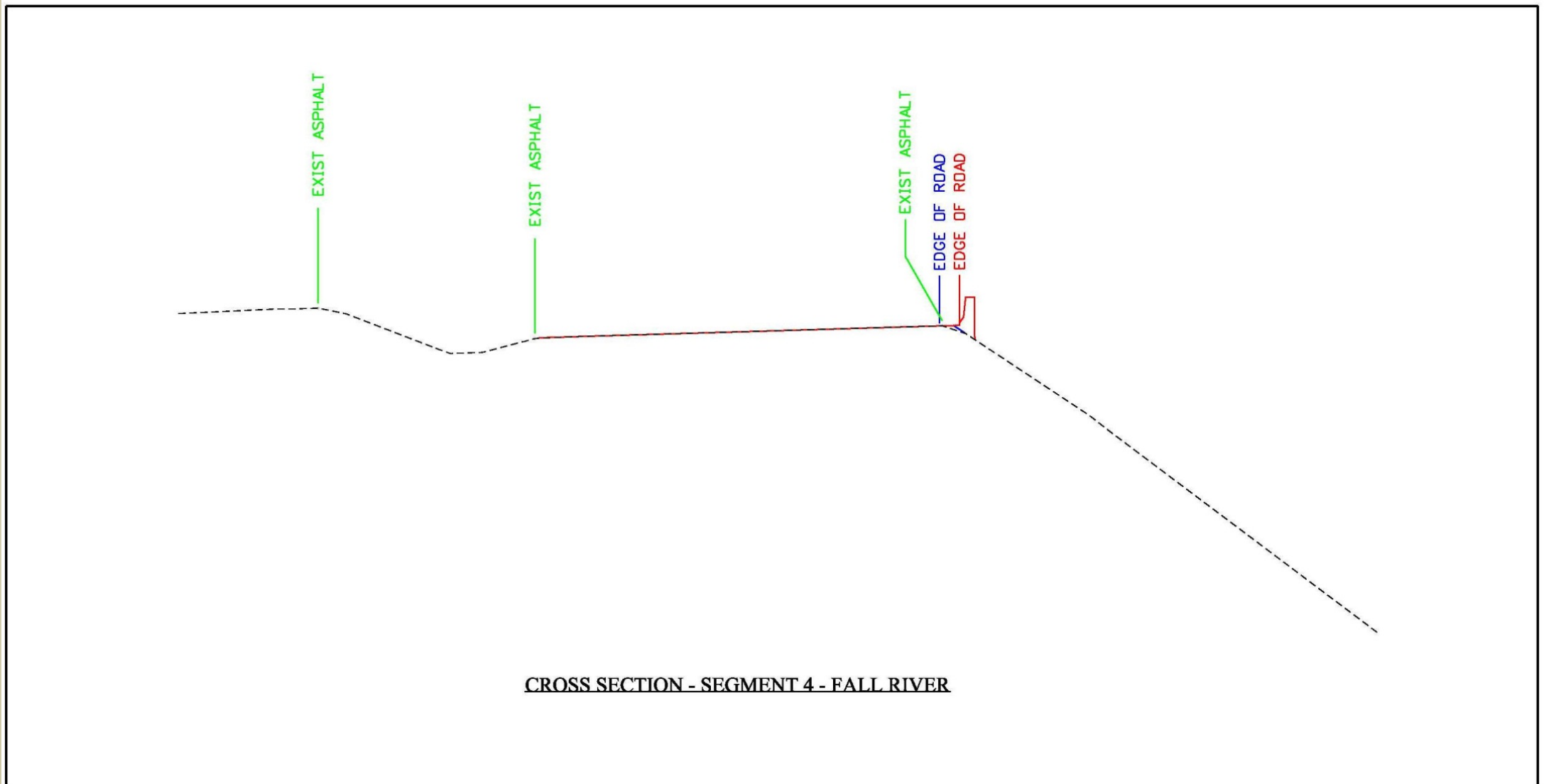
Segment 2: Lawson Critical Section



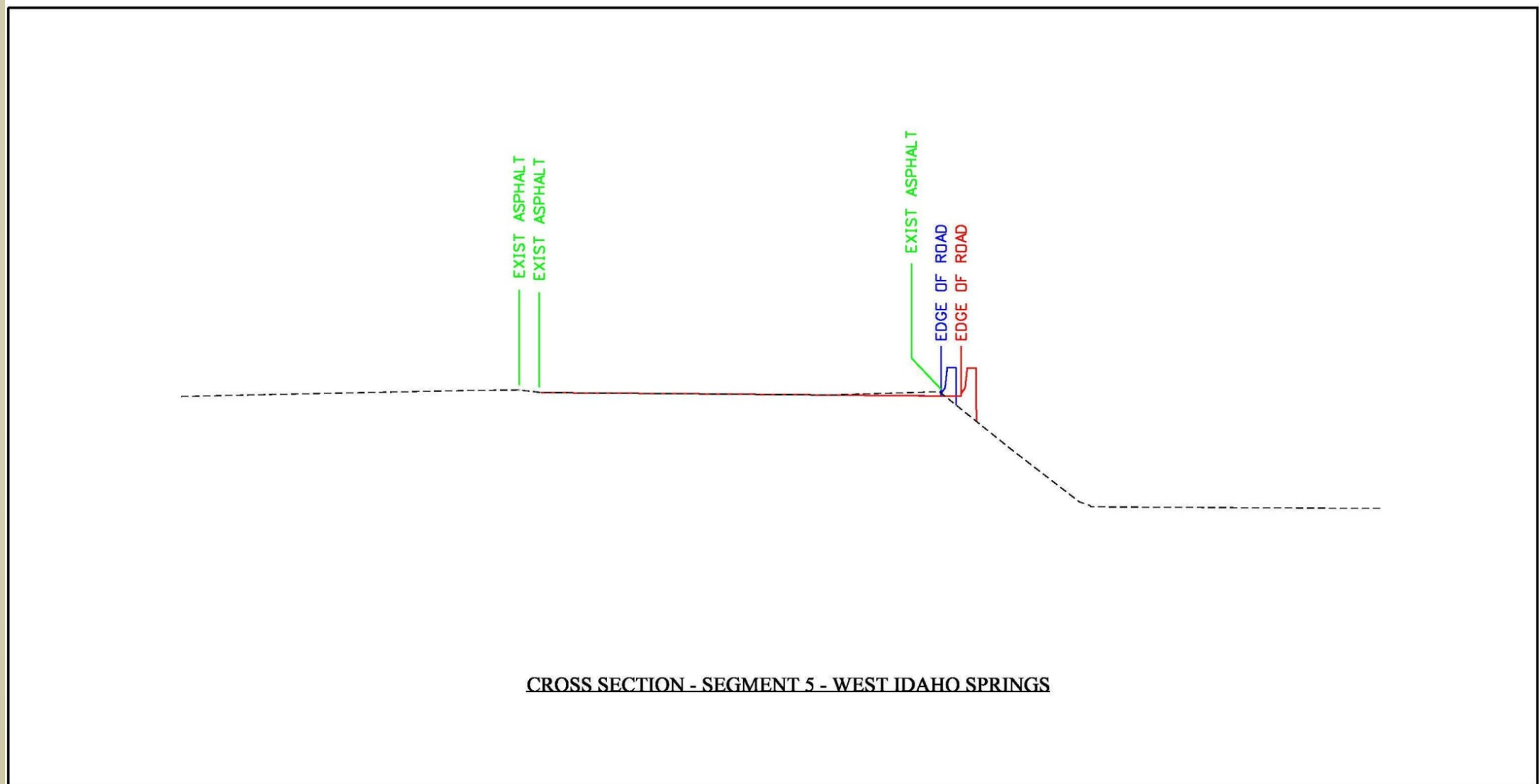
Segment 3: Downieville/Dumont Critical Section



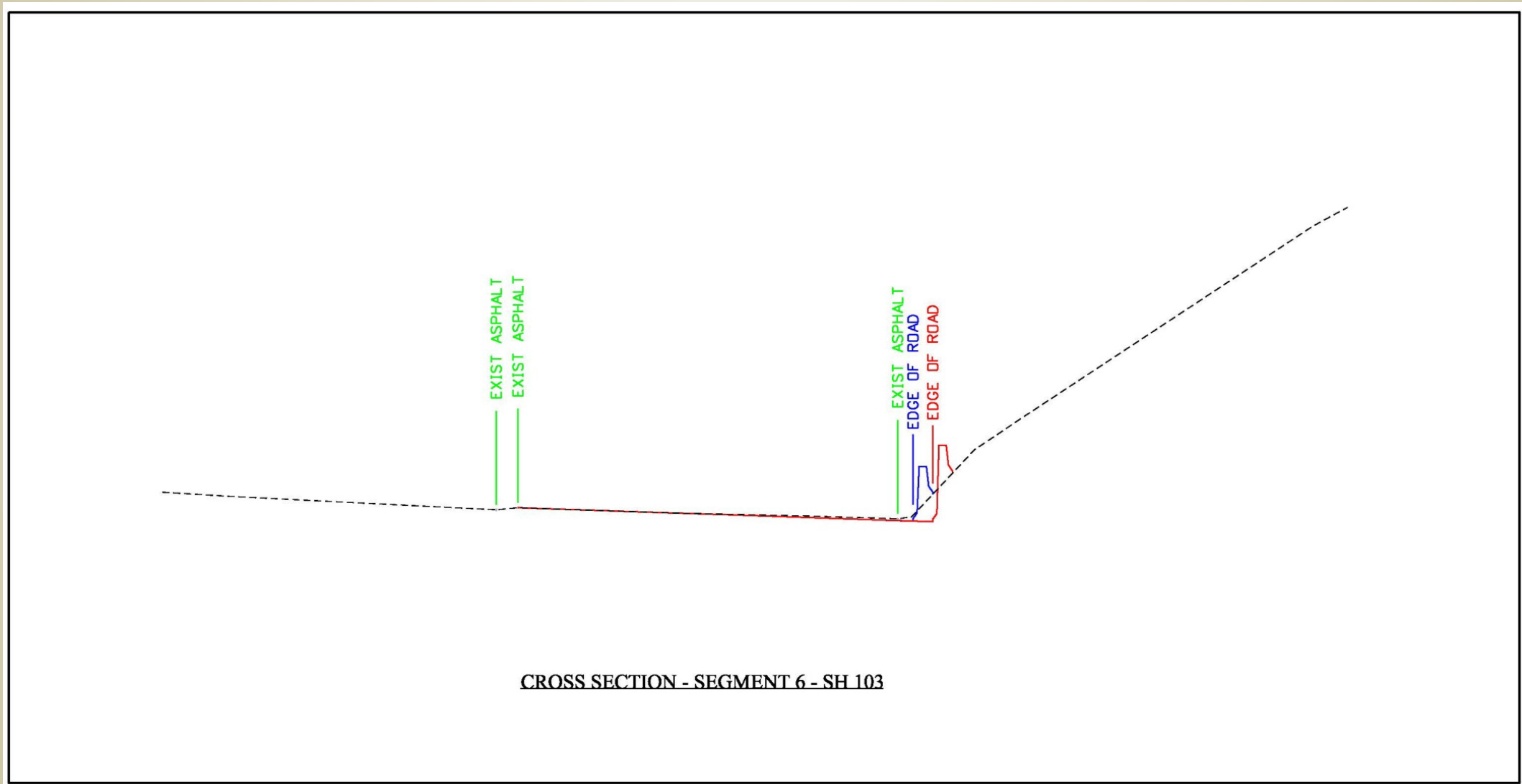
Segment 4: Fall River Critical Section



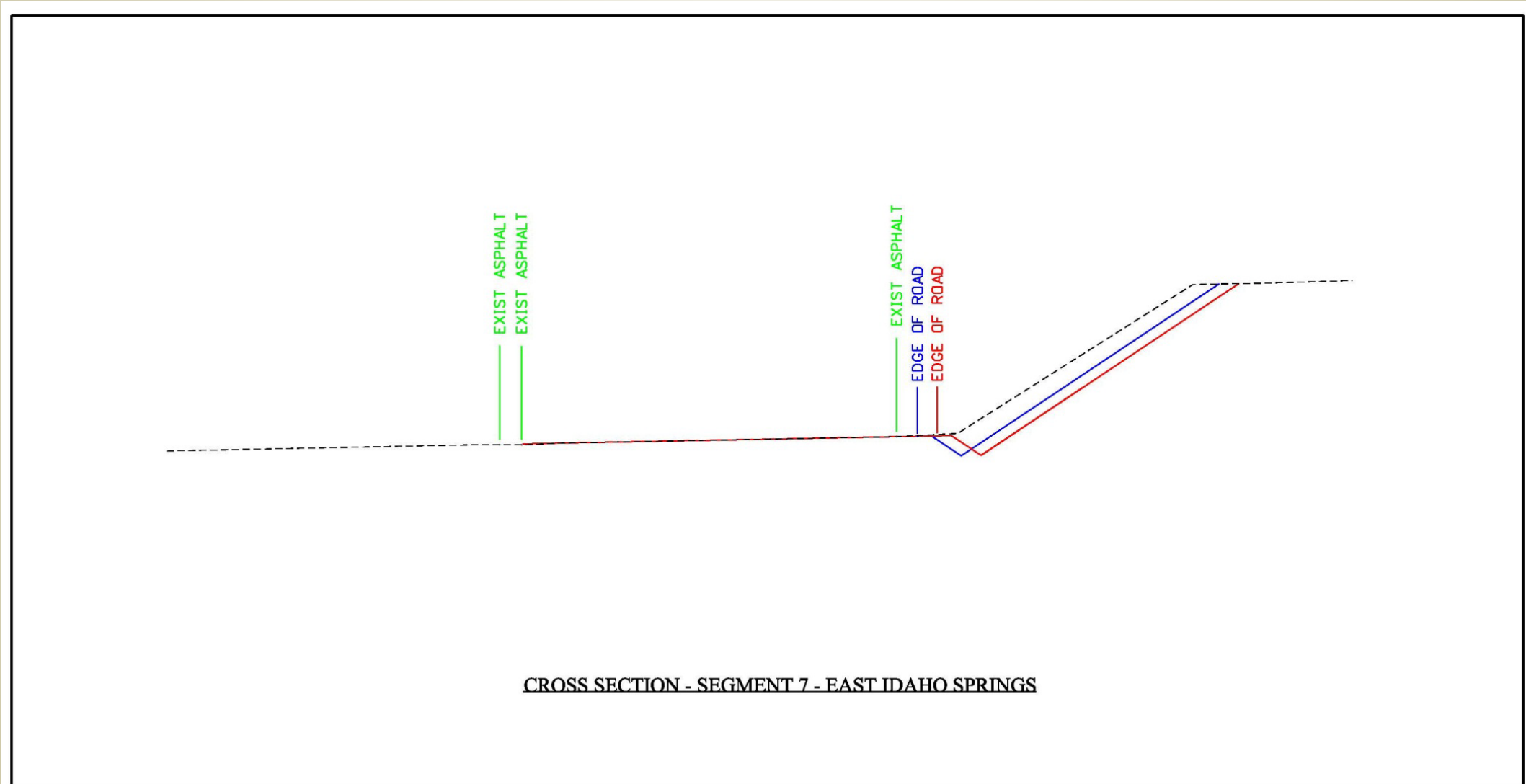
Segment 5: West Idaho Springs Critical Section



Segment 6: SH 103 Critical Section



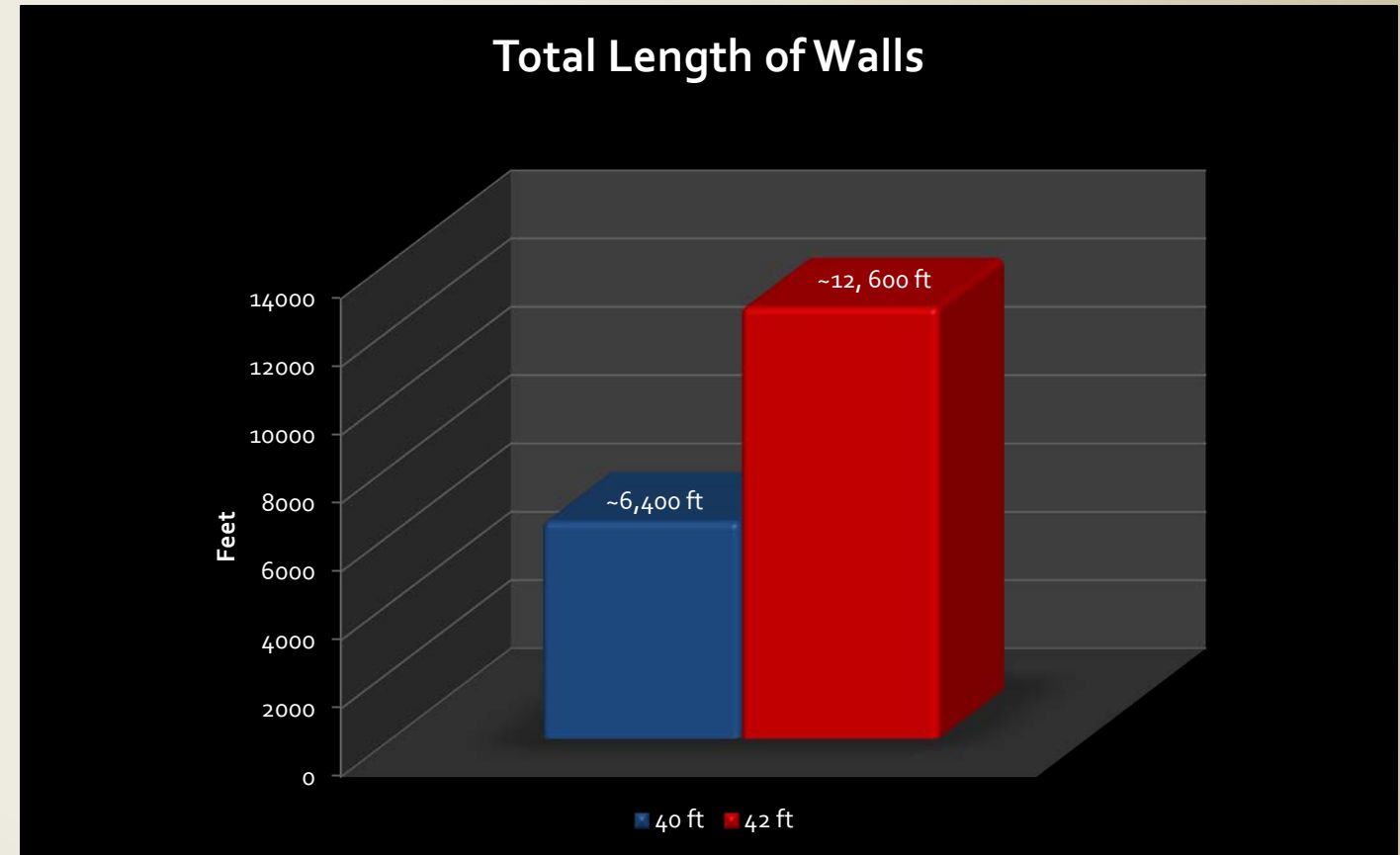
Segment 7: East Idaho Springs Critical Section



Roadway Width and Retaining Walls



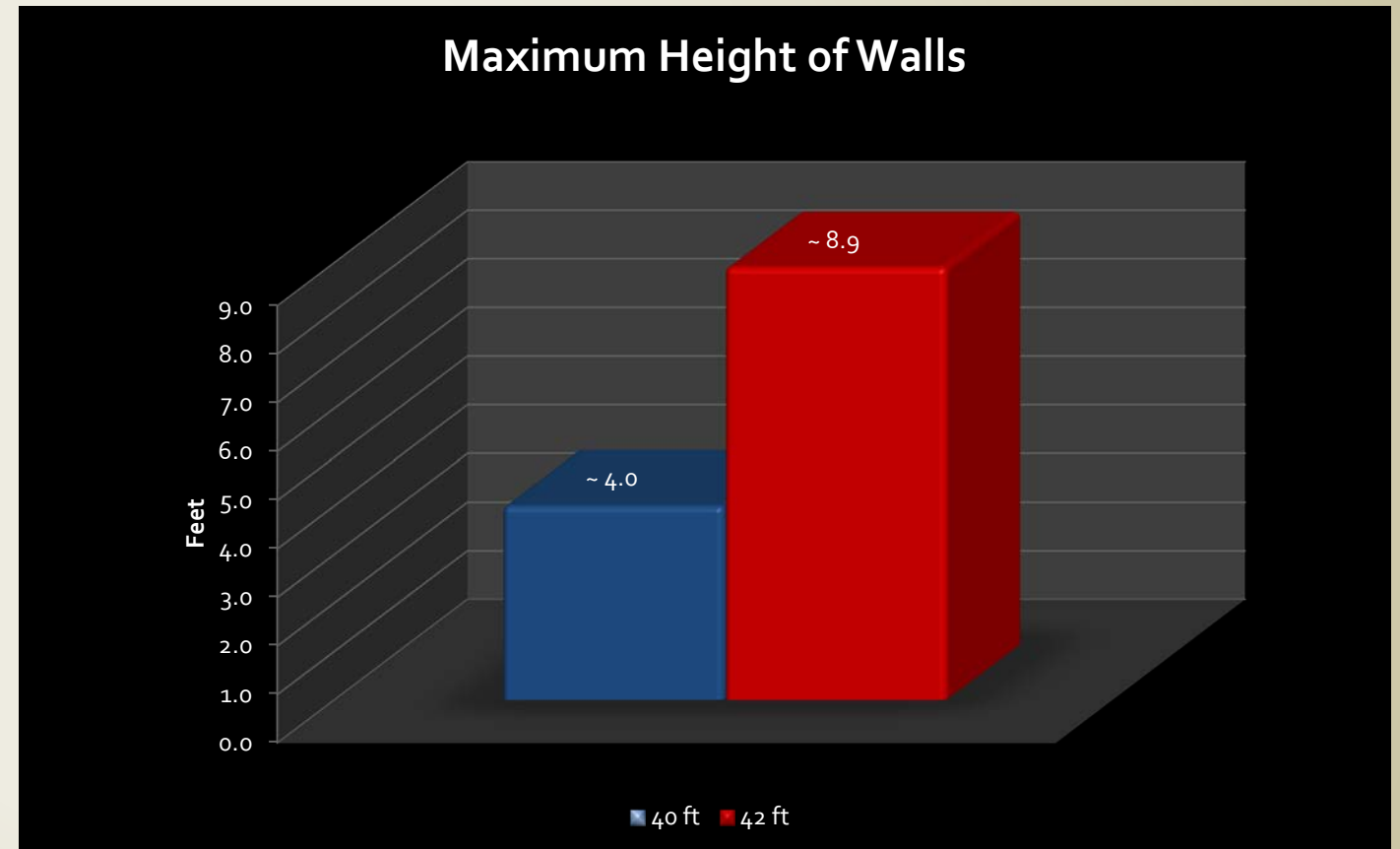
Total Length



Roadway Width and Retaining Walls



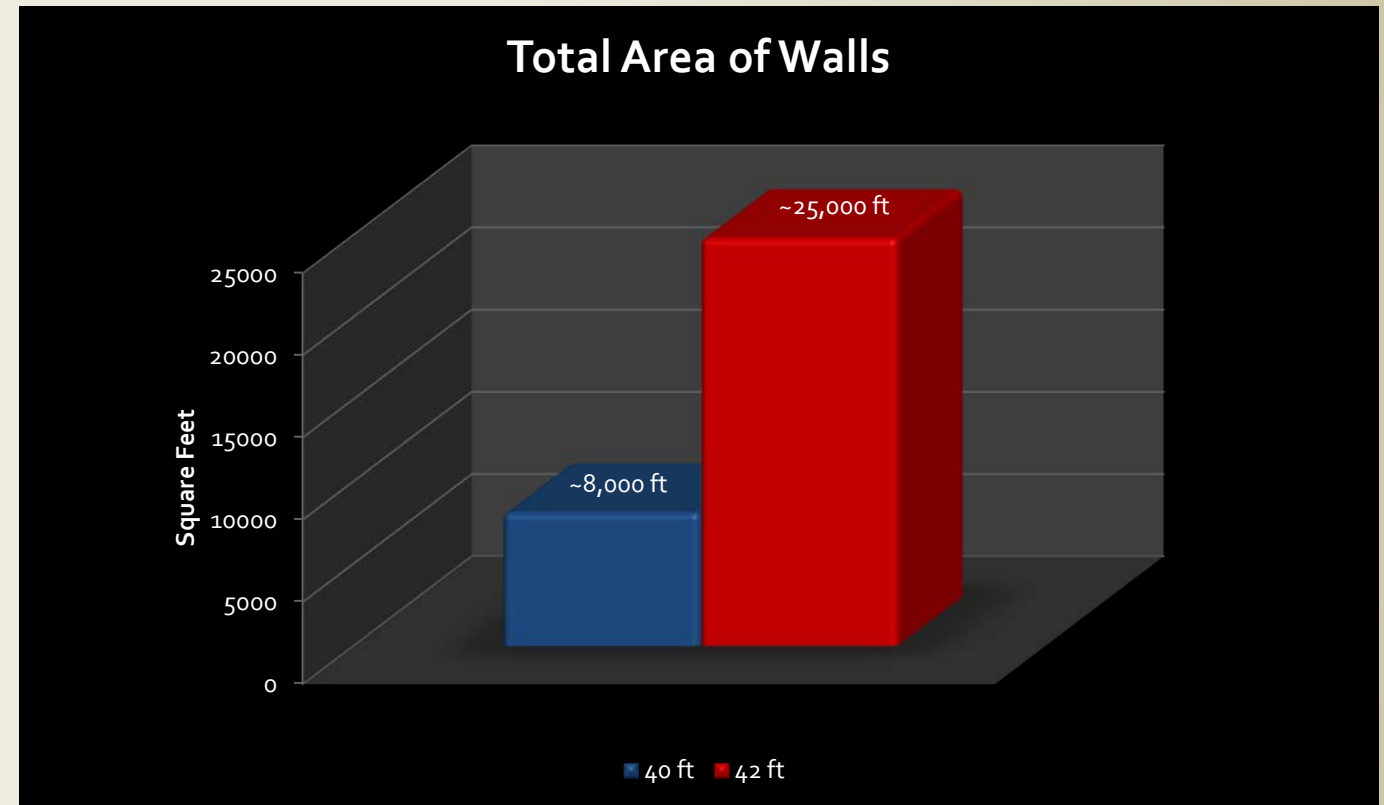
Maximum Height



Roadway Width and Retaining Walls



Total Area



Safety



- Driver comfort
 - Lane width
 - Shoulder width
 - Curves
 - Weather
 - Speeds
 - Driver expectation

Primary Differentiators

	Pros	Cons
40 ft Width	<ul style="list-style-type: none"> Requires 2 feet of widening Maximum wall height of 2.6 4.0 feet Requires 9 less retaining walls (11 total) Requires 50% more feet of walls (over 6,300 ft) Requires approximately 50% less total wall length 	<ul style="list-style-type: none"> Substandard lane widths Inconsistent with driver expectancy Additional safety concerns
42 ft Width	<ul style="list-style-type: none"> Standard lane widths Consistent with driver expectancy 	<ul style="list-style-type: none"> Requires 4 feet of widening Maximum wall height of 8.9 feet Requires 9 more retaining walls (20 total)

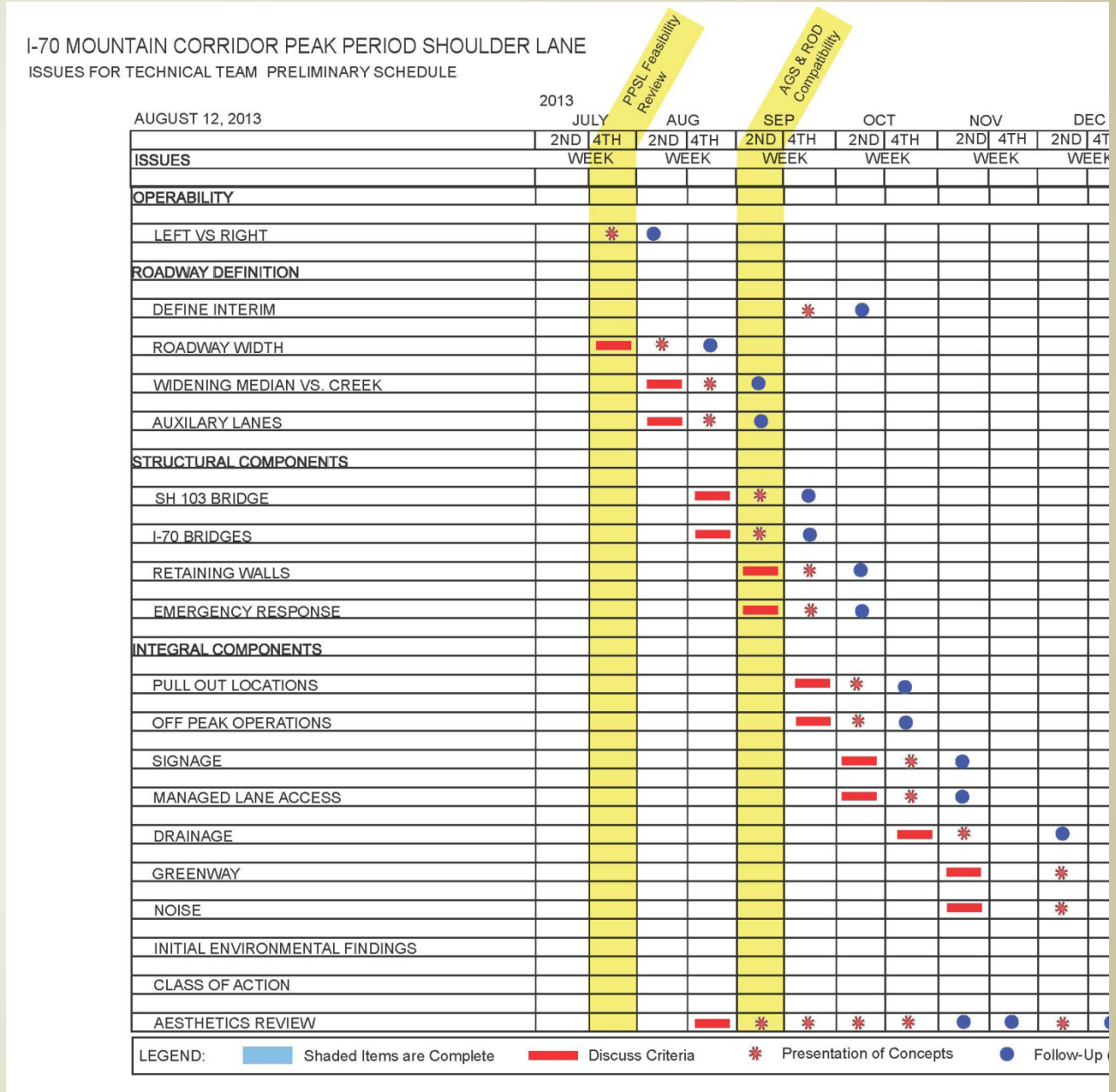
Evaluation Matrix

See Handout



Issues Schedule

Schedule will be used to determine when critical issues will be discussed at the Technical Team meetings.



Technical Team input on Issue-Specific Criteria



- **Widening to the median or creek**
- **Auxiliary lanes**

PLT & TT Recurring Meeting Time

Meeting Dates

August 26—Idaho Springs

September 9—Golden

September 23—Idaho Springs

All meetings begin at 9:00 a.m.

Week No.	Mon	Tues	Wed	Thurs	Fri
1	FHWA Afternoons	CCC Commission	I-70 Coalition Board 10-12		
2	PPSL PLT/TT - Morning FHWA Afternoons	CCC Commission	AGS PLT	Incident Mgmt/I-70 Coalition	
3	FHWA Afternoons	CCC Commission	Commission CDOT Accountability	Commission 470 Meeting (Afternoon)	
4	PPSL PLT/TT - Morning FHWA Afternoons	CCC Commission	T&R PLT	Twin Tunnels TT I-25 Region 4	

Meeting Locations: Split between Golden and Idaho Springs

THANK YOU!

STATE OF COLORADO
DEPARTMENT OF TRANSPORTATION
REGION 1 I-70 MTN CORRIDOR PROGRAM
425A CORPORATE CIRCLE - GOLDEN, CO 80401
(720) 497-6900 (OFFICE), (720) 497-6901 (FAX)

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Basement

- Checklist for CSS (White)
- Breakfast
 - ✓ Pastries, coffee, bottled water, bottled juice
- Lunch
 - ✓ Taco bar, bottled water, soft drinks, dessert