

# Technical Team Meeting #17

August 8, 2018
CDOT I-70 Mountain Corridor



- 1. INTRODUCTIONS AND OVERVIEW
- 2. PROJECT TT CHARTER
- 3. RESPONSES TO TECHNICAL TEAM ISSUES
- 4. OUTCOMES FROM ISSUE TASK FORCE MEETINGS
- 5. OUTREACH SUMMARY
- 6. FOLLOW UP
- Report Out

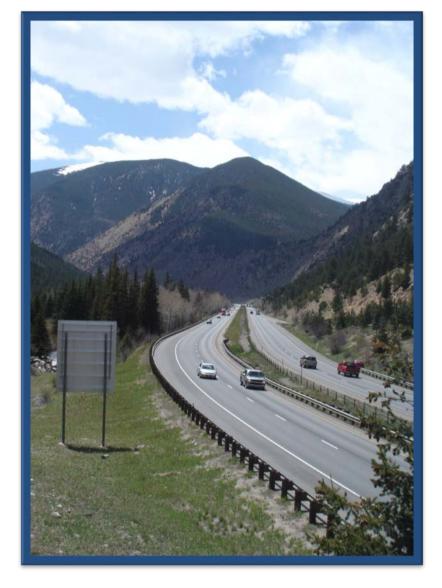
- 7. DISCUSS PROPOSED SOLUTIONS
- Rock cut / Rock fall
- Guardrail
- Signing and Traffic
- 8. OUTSTANDING ISSUES
- 9. DEVELOP CRITERIA FOR
- 10. NEXT STEPS
- Upcoming Meetings
- Parking Lot





# INTRODUCTIONS AND OVERVIEW

- > Floyd Hill
- Region 3 Vail Pass
- Idaho Springs Transit Center
- Colorado Boulevard Reconstruction
- Clear Creek Greenway
- > Fall River Road Bridge
- Smart 70 / RoadX
- Geohazard Mitigation Program
- > INFRA Grant
- Variable Speed Limit
- Concept of Operations

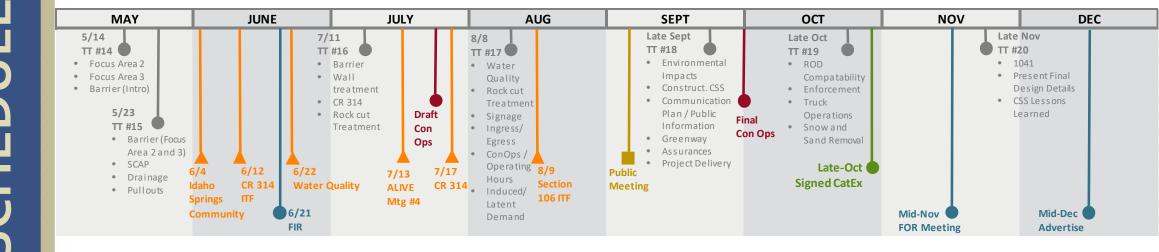




## **RELATED PROJECTS AND SCHEDULES**

Project	NEPA	Design /	Start	
		Advertisement	Construction	
Fall River Road	Fall 2018	End of 2018	Early 2019	
The Proposed Action constructs a new bridge that connects Stanley Road to				
the Fall River Road/I-70 interchange near Mile Post (MP) 238. Currently,				
bicyclists use I-70 to go between the Fall River Road community and Idaho				
Springs. With the Westbound Peak Period Shoulder Lane (PPSL) project, that				
access will no longer be available. This project is advanced mitigation for the				
WB PPSL project that will provide bicyclists a route between Fall River Road				
and Idaho Springs once I-70 is no longer available. The bridge will also allow				
vehicles to use it based on community preference.				
Westbound PPSL	Fall 2018	Winter	Spring 2019	
The Proposed Action includes modifications to I-70 for approximately 13		2018/2019		
miles for a peak period toll lane, mitigation for wildlife, SH 103 modifications,				
pullouts for safety and enforcement, rock fall mitigation, drainage				
improvements, pedestrian improvements and active traffic management.				
County Road 314 (Phase II)	Early 2019	Summer 2020	Spring 2021	
County Road 314 will be improved between the Game Check Station				
Trailhead to just west of the Exit 241 interchange. Improvements include				
roadway reconstruction, restriping, and minor widening for safety				
enhancement and bicycle and pedestrian connectivity.				
Clear Creek Greenway	Early 2019	Summer 2020	Spring 2021	
Construction of portions of the multiuse Clear Creek Greenway Path. The				
segments include East Idaho Springs Trail to Game Check Station Trailhead,				
Dumont Trailhead Connection to Lower Dumont Creek Access, and the				5
Animal Shelter to Dumont Trailhead.				

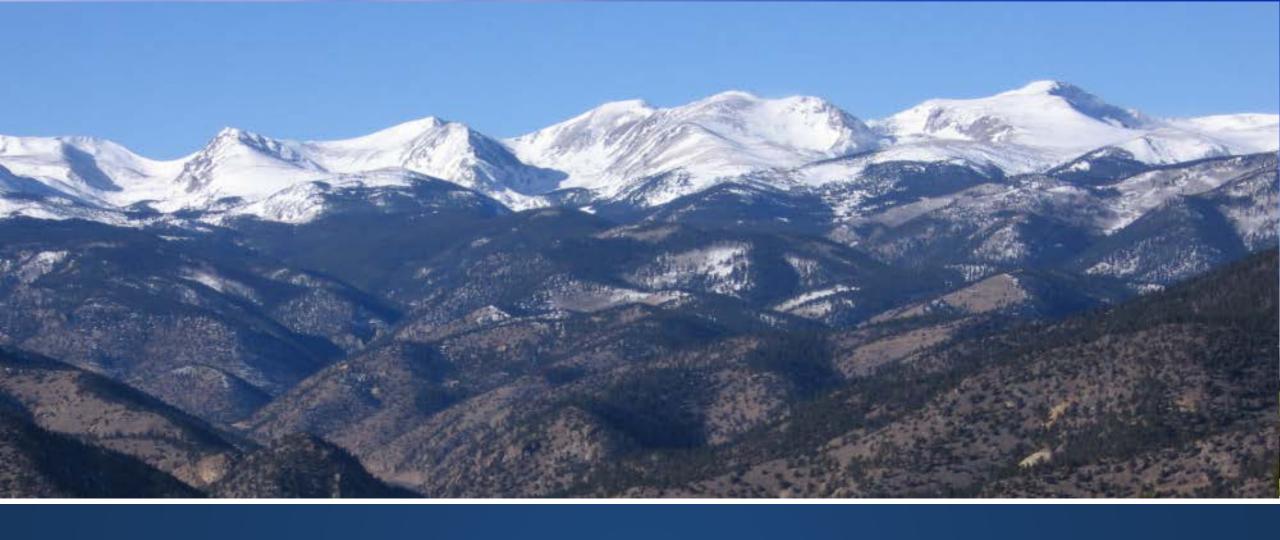
## SIMPLE SCHEDULE





#### PROJECT ELEMENTS DISCUSSION

- August TT
  - Report out: Rock cut and rock fall mitigation
  - Report out: Sediment control and water quality
  - Signage and Traffic
- September TT
  - Environmental Impacts
  - Construction CSS
  - Communication Plan
  - Assurances
  - Project Delivery
  - Greenway



# FOLLOW UP

#### REPORT OUT

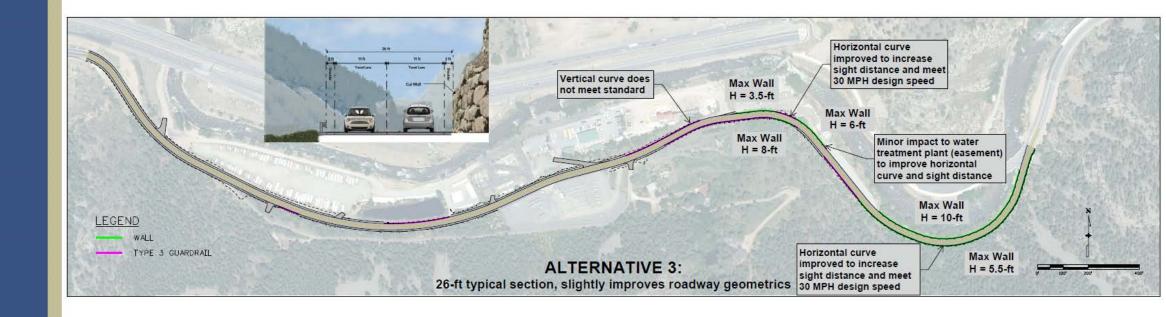
- ➤ ALIVE Meeting #4 7/13/18
- > CR 314 ITF #2 7/18/18
- Water Quality Meeting 7/26/18



#### **ALIVE**

- > Addition of four more median gaps for a total of 8
- Speed study had been completed by CDOT to reduce speed limit to 45 mph on US 40 to I-70 WB on-ramp
- Removal of vegetation was considered in select areas, however there was concern about unintended consequences, so this will not be implemented

### **CR 314**



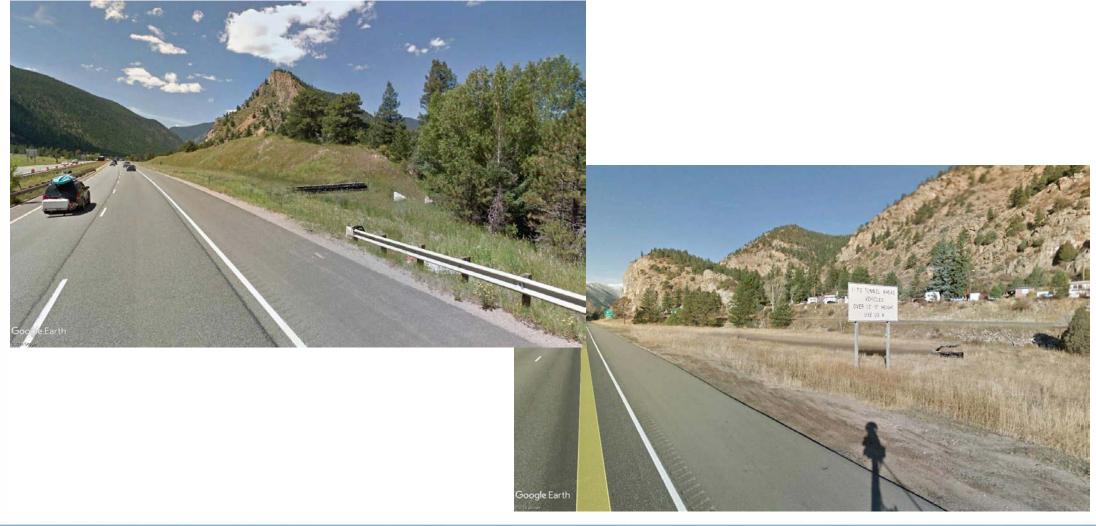


# 314 / Greenway

- Maintain access under I-70 for vehicles
- Look at "boardwalk" for alignment adjacent to creek on the north and south sides



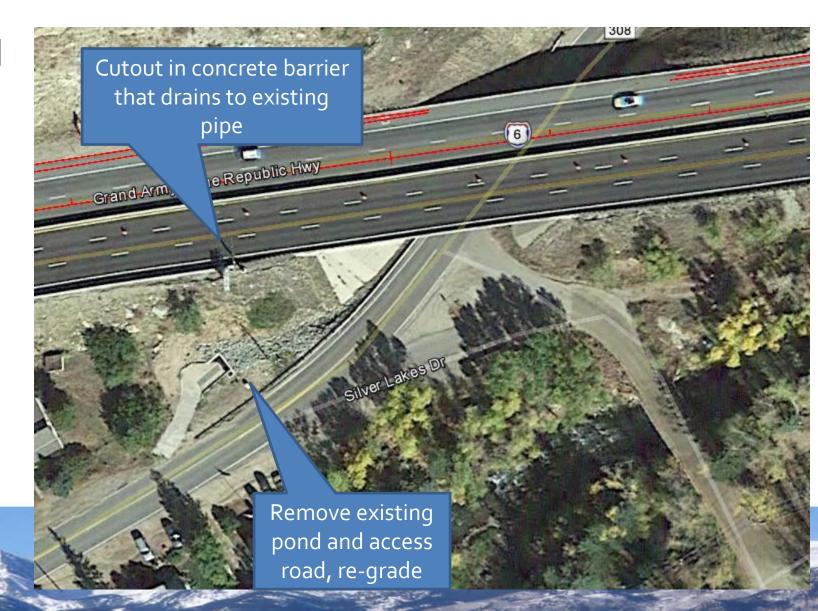
# Water Quality - Proposed Sediment Basins



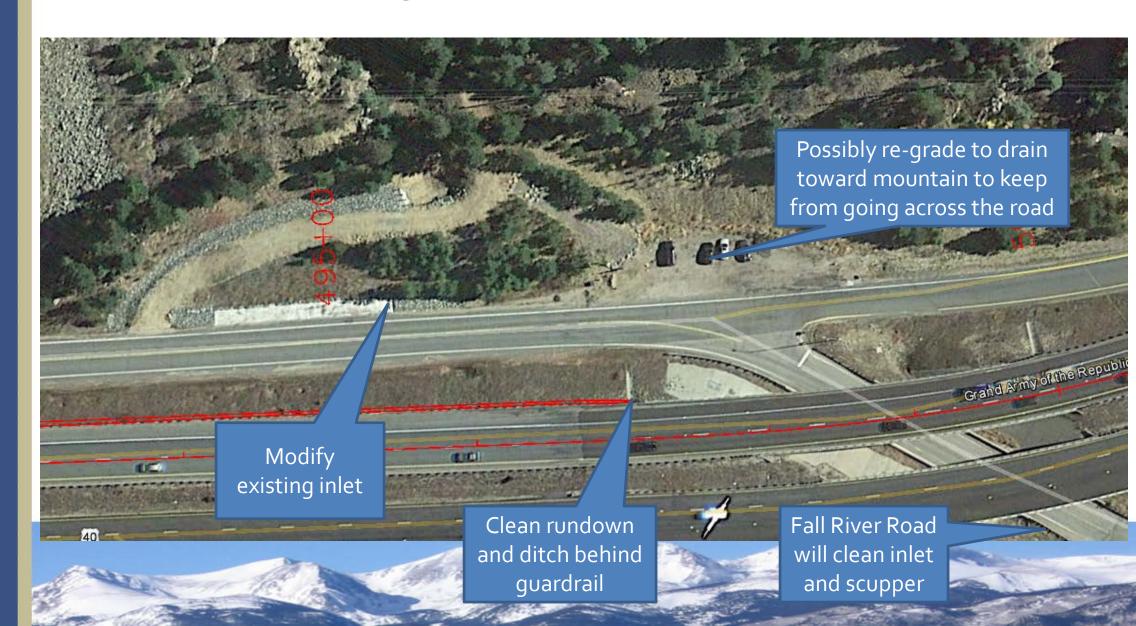


# Water Quality - Lawson

Rebuild pond



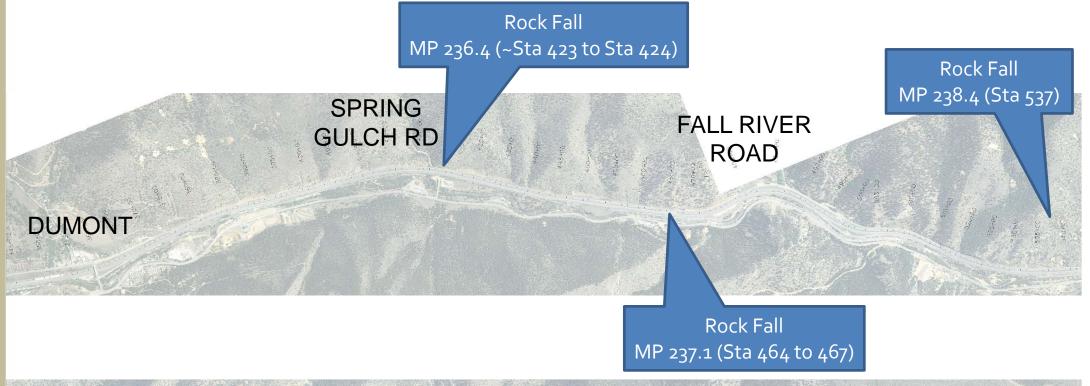
# Water Quality - Fall River Road





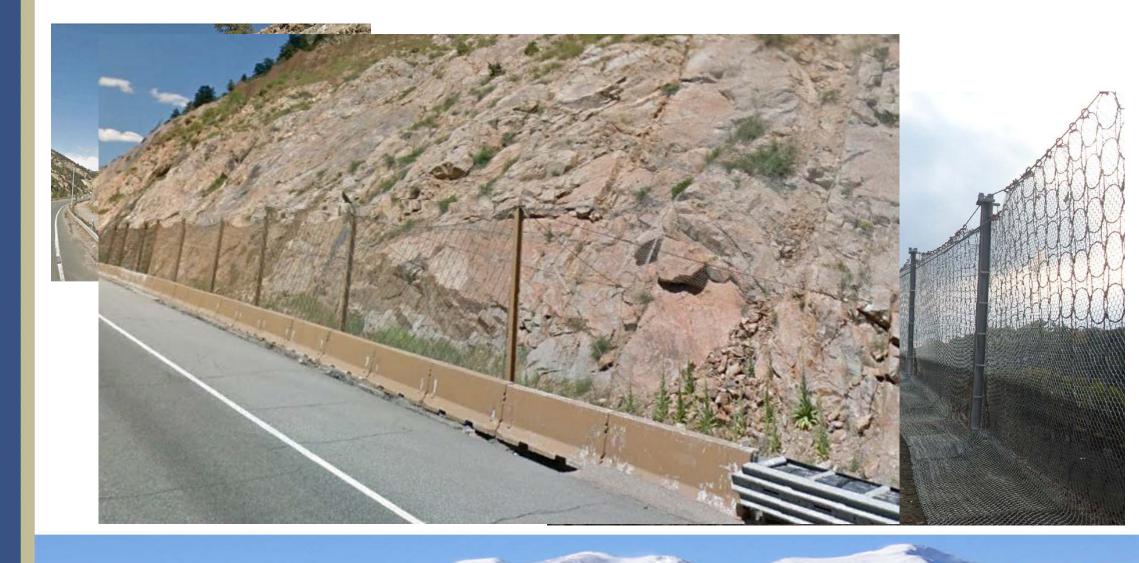
# DISCUSS PROPOSED SOLUTIONS

#### **ROCK CUT / ROCK FALL**





#### **ROCK CUT** – MP 239 (~Sta 549 to 559) at Exit 239

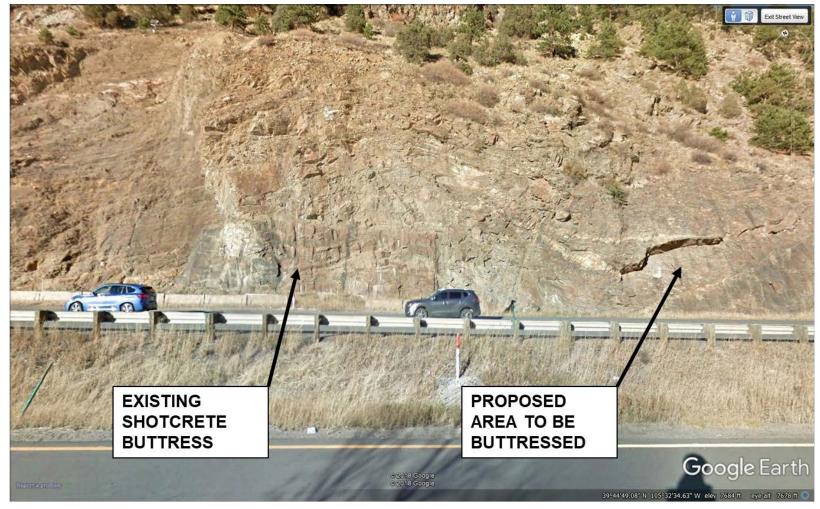


#### **ROCK CUT** – MP 239 (~Sta 549 to 559) at Exit 239



#### **ROCK FALL** – MP 238.4 (~Sta 537)

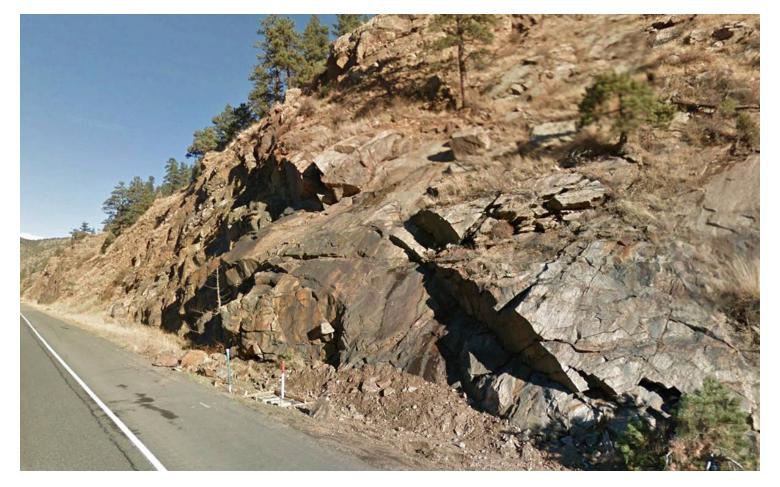
Sculpted Shotcrete



EXAMPLE: EXISTING SHOTCRETE BUTTRESS JUST WEST OF PROPOSED BUTTRESS

#### **ROCK FALL** – MP 237.1 (~Sta 464 to Sta 467)

Bolt and Mesh



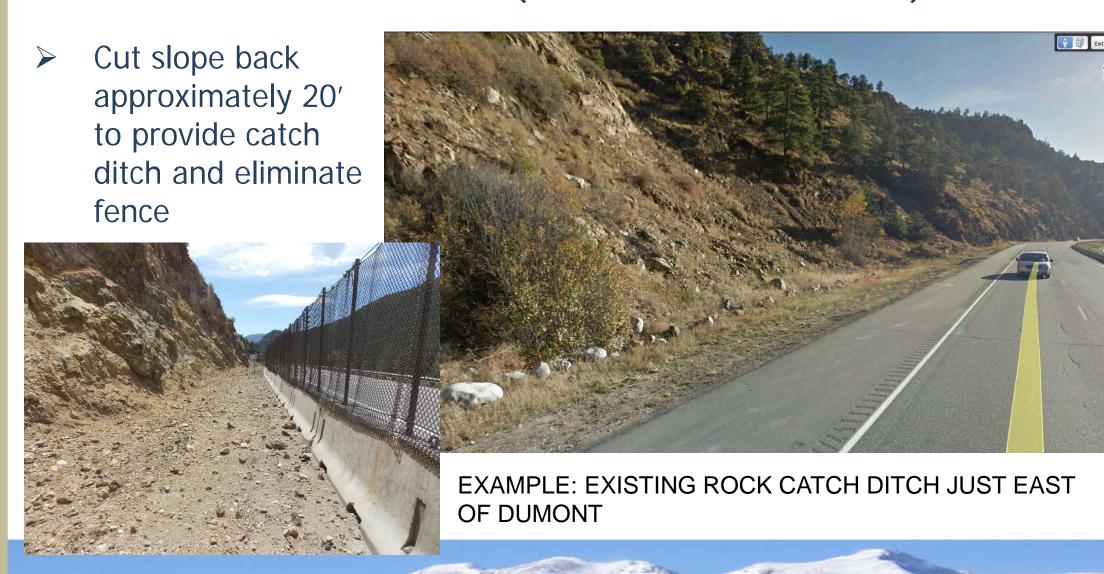


#### **ROCK FALL** – MP 237.1 (~Sta 464 to Sta 467)



EXAMPLE: SLOPE ON SOUTH SIDE OF I-70 JUST WEST OF SODA CREEK ROAD

#### **ROCK FALL** – MP 236.4 (~Sta 423 to Sta 424)



#### **GUARDRAIL / BARRIER**

- > For project: 55,100 LF / \$3.5 million
- For remaining WB (inside and outside): 10,800 LF / \$440,00
- For median Type 4 with glare screen: 22,400 LF / \$3.2 million
- Safety and consistency
- Scope and budget implications



#### **CORRIDOR SIGNING**

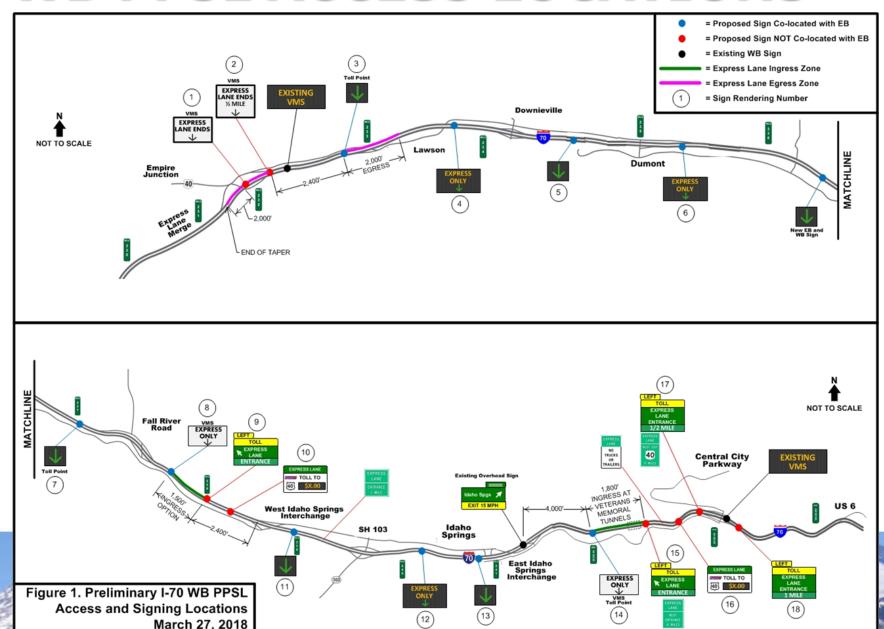
- Existing Signing
  - 197 signs
  - > 4615 SF (approximately 2900 SF added for WB)
- Proposed Signs
  - > 43 signs (Static and Dynamic Signs)
  - > 2818 SF
- Existing Signs Suggested to be Removed
  - 8 signs
  - > 160 SF



# **ACCESS LOCATIONS**

- Ingress (Entry)
  - East of Veterans Memorial Tunnels (Lane Begins)
  - West of Idaho Springs (Idaho Springs Traffic)
- Egress (Exit)
  - East of US 40 (Winter Park Traffic)
  - West of US 40 (Lane Ends)
- Other Locations Considered
  - > Egress east of SH 103
    - Too close to lane entrance (Idaho Springs-bound traffic can use GP lanes then access PPSL west of Idaho Springs)
  - Egress east of Downieville
    - Not compatible with primary function of the PPSL (through traffic). Local trips can use GP lanes, which will operate with less delay due to presence of PPSL

### WB PPSL ACCESS LOCATIONS

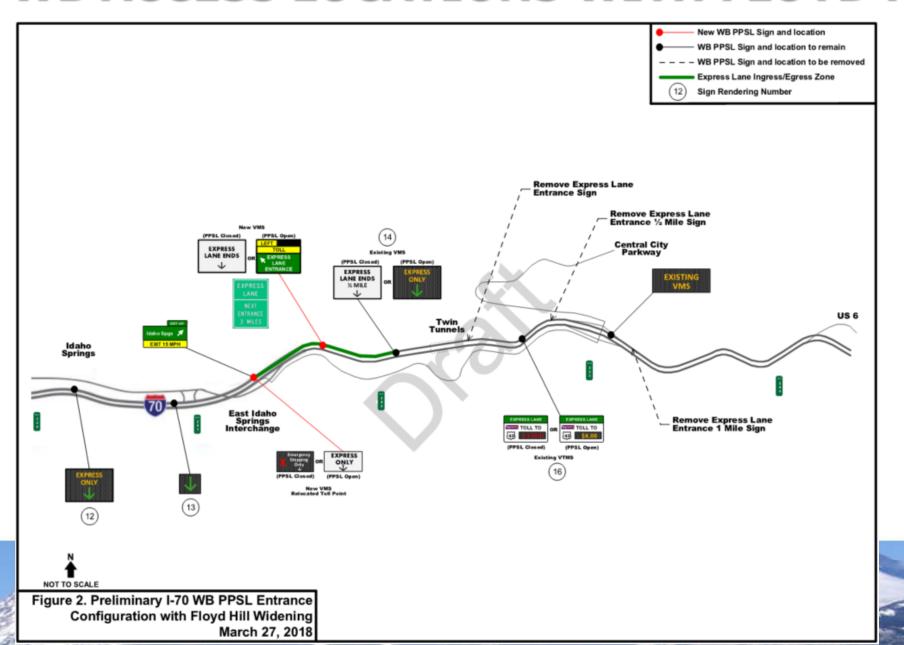


### COMPATIBILITY WITH FLOYD HILL

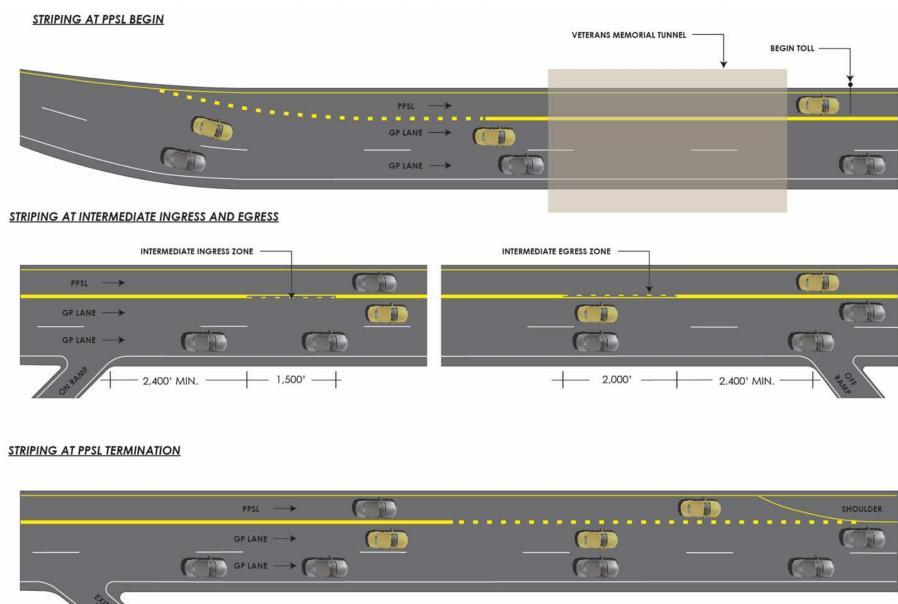
- Floyd Hill project is still a work in progress
- Transition will have to be confirmed by the Floyd Hill project once there is a Proposed Action
- Assumed that the west end of the Floyd Hill project will extend through the Veterans Memorial Tunnels, and PPSL entrance will shift to the west side of the tunnels
- Transition between Floyd Hill and PPSL was designed to utilize as much PPSL entrance signage as possible



#### WB ACCESS LOCATIONS WITH FLOYD HILL



## WB PPSL ACCESS STRIPING



#### **OPERATIONS – EB PPSL LESSONS LEARNED**

- Initial Operations, included in Cat Ex documentation:
  - Based on historical congestion patterns
  - 20 Percent of annual days (73 Days)
  - 7.5 Percent of the time (657 Hours)
- ➤ Initial MOU, October 2014:
  - 20 Percent of Annual Days (73 Days)
  - 7.5 Percent of the time (657 Hours)
  - Projected Peak Periods of Congestion
    - Saturdays, Sundays, Holidays December-April, July-September
    - 9 AM 8 PM



#### **OPERATIONS – EB PPSL LESSONS LEARNED**

- Lessons Learned in Season 1
  - Can't predict on-set of congestion
  - Need for operator safety during pre-opening procedures
  - Need to meet driver expectations
- Current Operations (Revised MOU, September 2017):
  - 100 Days / 1,163 Hours
  - Projected Peak Periods of Congestion
    - Saturdays, Sundays, Holidays
      - Winter: Thanksgiving-April
      - Summer: Memorial Day Labor Day
    - As Needed (Sundays)
      - Fall: September October 31
    - 9 AM 8 PM
      - Earlier/later if congestion warrants

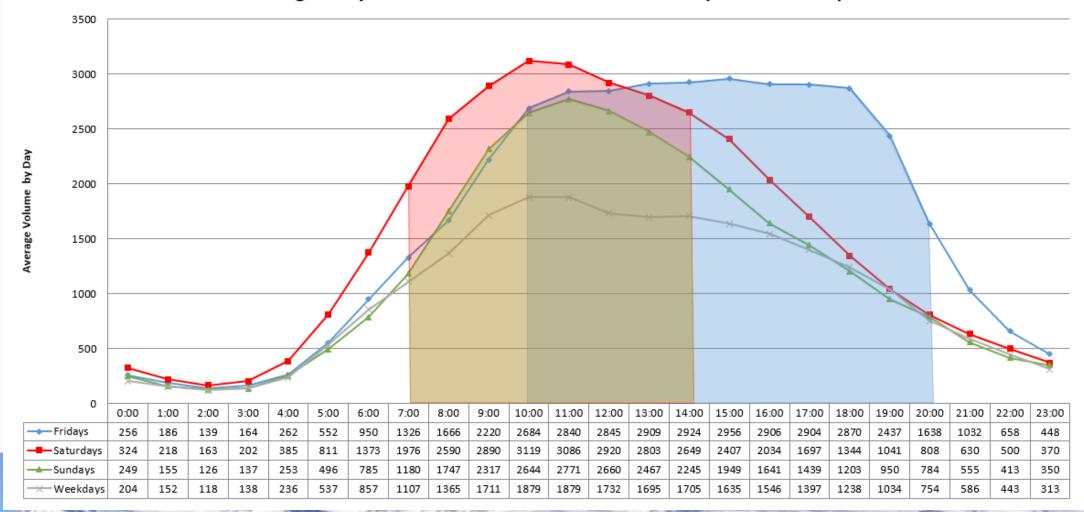
# WB PPSL HOURS OF OPERATION - CONSIDERATIONS

- Westbound hourly volumes
- Westbound congestion
- Lessons learned from eastbound
  - Congestion
  - Operator safety
  - Driver expectations



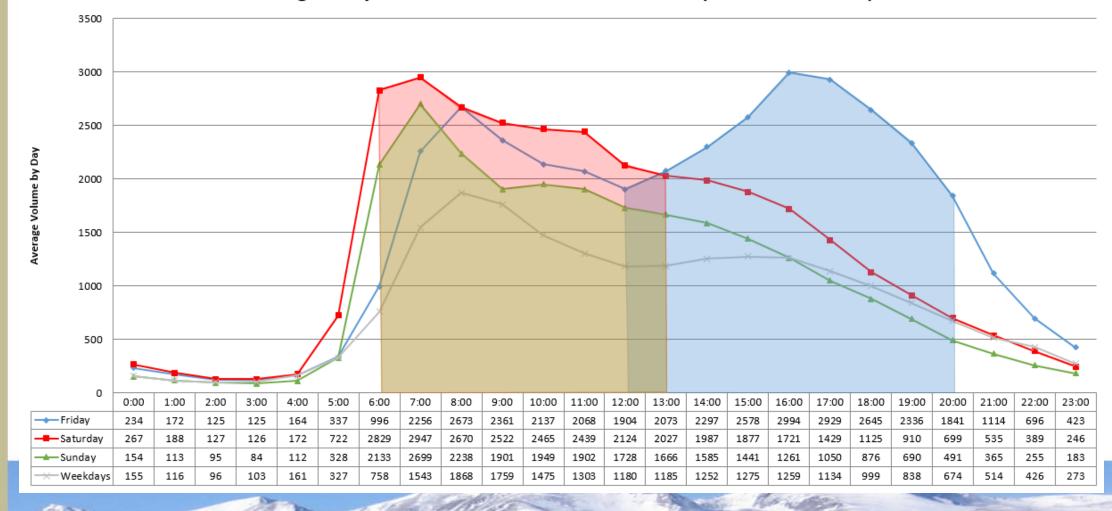
#### TYPICAL WB TRAFFIC VOLUMES - SUMMER

#### Average Daily Traffic Volumes at Twin Tunnels ATR (Summer 2016)

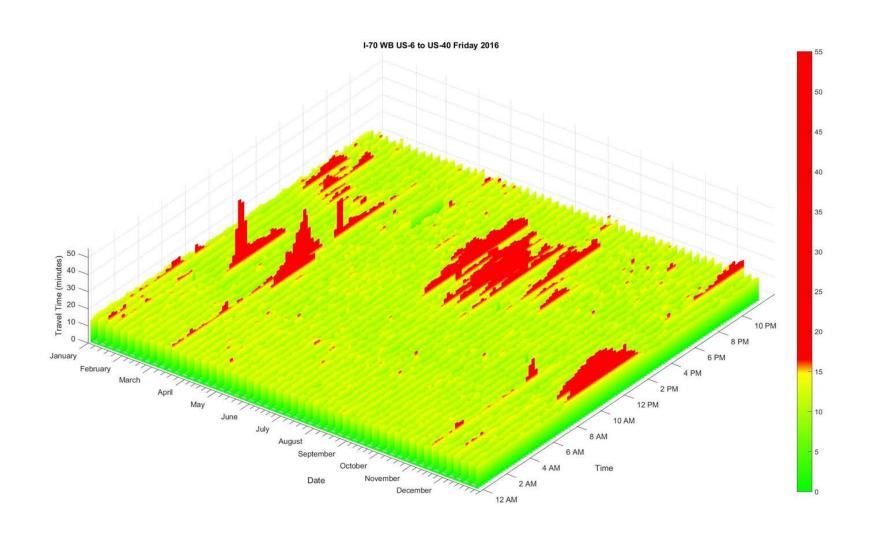


#### **TYPICAL WB TRAFFIC VOLUMES - WINTER**

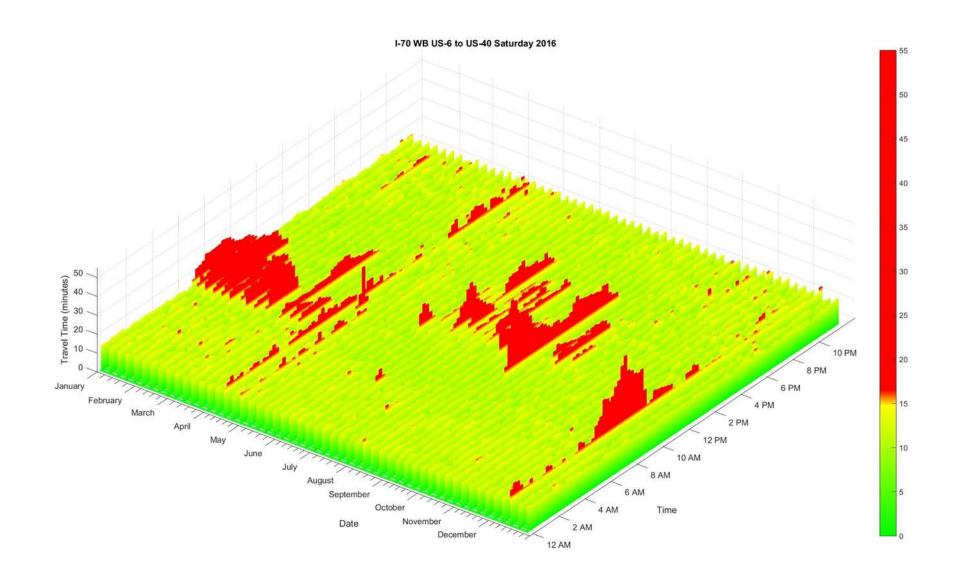
Average Dailly Traffic Volumes at Twin Tunnels ATR (Winter 2016-2017)



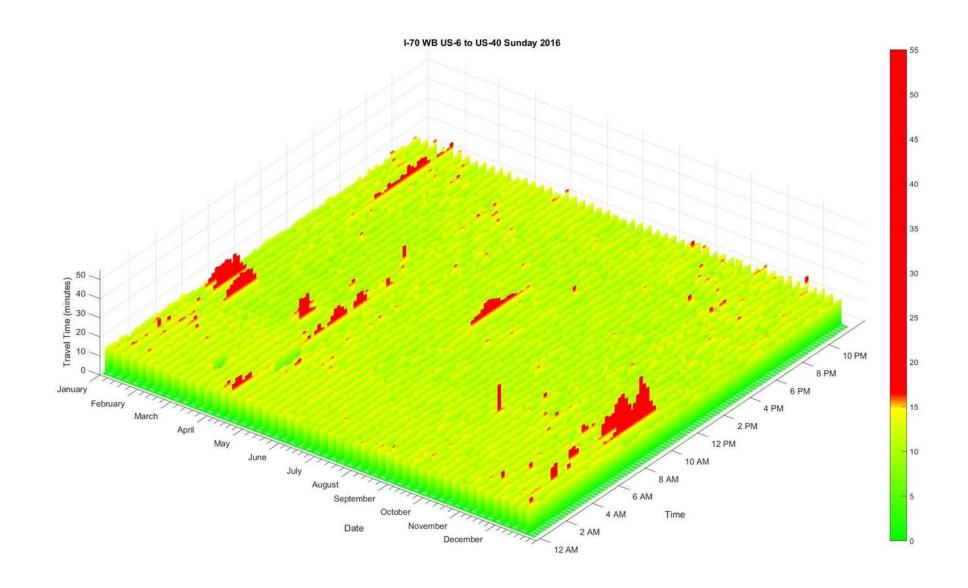
#### **TYPICAL WB CONGESTION VOLUMES - FRIDAY**



#### **TYPICAL WB CONGESTION VOLUMES - SATURDAY**



#### **TYPICAL WB CONGESTION VOLUMES - SUNDAY**



#### WB PPSL HOURS OF OPERATION - DRAFT

- Hours
  - Summer
    - Friday: 10 AM 8 PM
    - Saturday, Sunday, Holidays: 7 AM 2 PM
  - Winter
    - Friday: 12 PM 8 PM
    - Saturday, Sunday, Holidays: 6 AM 1 PM
  - > Earlier/later if congestion warrants
- Seasons/days of operation
  - Winter: Thanksgiving-April
    - Friday, Saturday, Sunday, Holidays
  - Summer: Memorial Day Labor Day
    - Friday, Saturday, Sunday, Holidays
  - Fall: September-October 31
    - As Needed (Friday)
- Annual Limits
  - > 125 Days
  - > 1,183 Hours

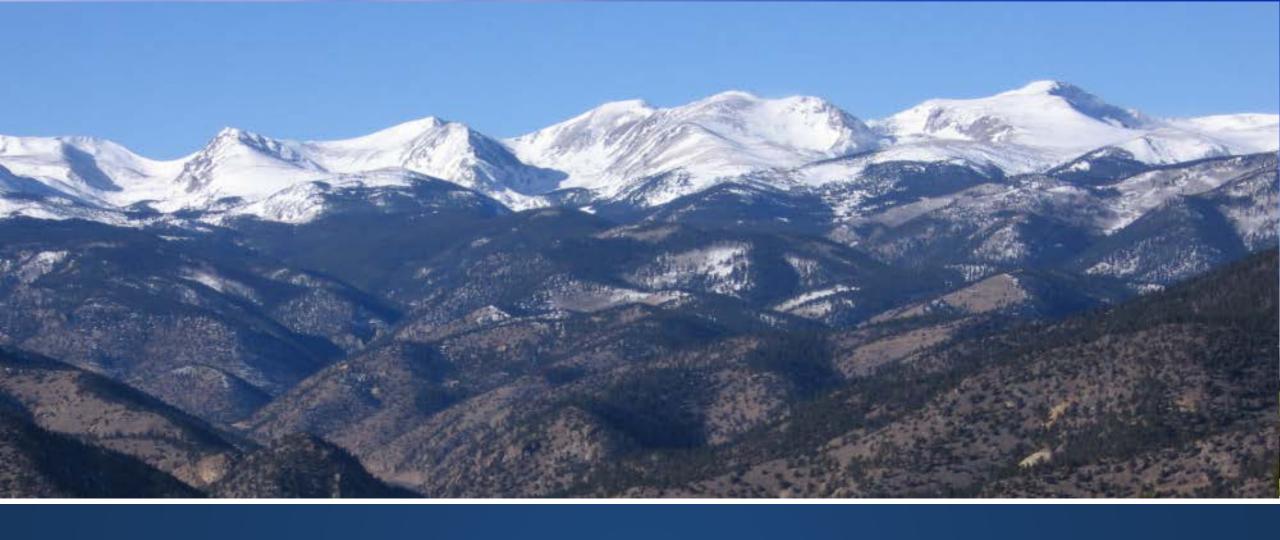
#### INDUCED/LATENT DEMAND

- Background Network
  - Floyd Hill
  - EJMT and Berthoud Pass
- Denver Metropolitan Area Population

1995	2015	2040
2,067,000	3,181,000	4,367,000

Annual Growth Rate





# NEXT STEPS

- > SECTION 106 ITF August 9, 2018
- > PLT MEETING August 29, 2018; 9 am 11 am
- > NEXT TT MEETING September 12, 2018
- > PUBLIC MEETING September 13, 2018
- > CSS LESSONS LEARNED November/December, 2018



#### PARKING LOT ISSUES

- Improved construction quality
- Better define CSS during construction
  - Improved communication
  - Improved traffic control
  - Improved safety
  - School District issues during construction
- Modeling projections vs actual impacts/public health issues (i.e., air quality, noise, vehicular trips)



9/30/2017

#### DEPARTMENT OF TRANSPORTATION

Region 1 I-70 Mountain Corridor 425A Corporate Circle, Golden Ph: 720.497.6900 Fax: 720.497.6901



Context Statement Core Values Critical Issues **Evaluation Criteria** HOW DOES THE ALTERNATIVE... Emergency response Safety of Traveling Public · Local and Tourist Driver Expectancy Accommodate safety during peak times? Safety Incident and Closure Management 2. Maintain safety during off-peak times? Sight Distance Rock Fall Reliability · Eliminate bottlenecks Operations . Improve local and regional mobility and reliability? Mobility & Maintenance Active Management 4. Minimize the effort required to maintain the option? Accessibility • Induced/Latent Demand · Roadway Connectivity/Network Connected Vehicles Regional Parking Non-Motorized Connectivity The I-70 Mountain corridor is a Fiscally responsible Costs magnificent, scenic place in close Create infrastructure investments that are reasonable to construct and provide . Limit Throw Away Work proximity to the Denver Metro area. Implementability · Minimize Infrastructure Improvements the best value for their life cycle, function and purpose? Human elements are woven through Adaptability breathtaking natural features. The Feasibility integration of these diverse elements Constructability · Quality of Construction World has occurred over the course of time. The corridor is a recreational destination for the world, a route for Unintended Consequences of Mobility & Accessibility interstate and local commerce and a · Economic Vitality unique place to live. I-70 is also Local Access Signing Create opportunities to "correct past damage"? federally designated as a high priority Livability Provide access and protect opportunities for enhancements to tourist destinations, community corridor, a significant part of the Community · Effects to low-income and minority populations facilities, interstate commerce and also limit disproportionate effects to the community? defense network, a major east/est Parking continental corridor and a major · Conflicts with Private Development • Preserve a "sense of place" economic corridor for Colorado . For Adverse Impact to Enviro/Communit many local communities along the corridor, I-70 is the lifeline, primary Recreation Access and Parking 8. Protect or enhances recreational opportunities? access and only connection to other · Tourism and Economy Recreation Carrying Capacity of Recreational Resources communities. · Protect and Enhance Existing Recreation Features Recreation Experience Current I-70 roadway geometry is constrained with narrow shoulders and Clear Creek / Fisheries tight curves that impact safety, · Wildlife Habitat and Movements · Mining, Minerals and Hazardous Materials Protect wildlife needs? mobility, accessibility and capacity for Water Quality 10. Protect natural features and Clear Creek? travelers and residents. Environment Sediment 11. Address noise and air quality? Air Quality In a manner that respects the unique Noise environmental, historic, community and Wetlands recreational resources in Clear Creek Balance Design Using CSS Guidance County, Westbound improvements are Engineering Criteria & • Aesthetics Inspired by Surroundings 12. Meet CDOT and industry standards? needed to lessen delays caused by peal Aesthetic Guidelines . Use of Most Recent Technology and Standards 13. Meet the I-70 Mountain Corridor Design Criteria and Aesthetic Guidance? period volumes. Blends with Future Possibilities (AGS, Sustainability Transit, Greenway, etc.) 14. Preserve opportunities for the AGS and the ultimate preferred alternative? · Meet future demands of growth 15. Incorporate sustainability by using locally available materials and environmentally-· Seasonality of Economy Energy Efficiency and Carbon Emissions 16. Meet the needs of the present without compromising the future? · Contribute to Climate Change Historic Context Historical and Cultural Resources 17. Protect the defining historical elements of Clear Creek County? Adherence to ROD and Design Speed Study **Decision Making** . Lessons learned from EB / PPSL 18. Provide opportunities for Partnership? • Continue strong Partnerships 19. Meets measures of success? (ROD, MOU, purpose and need, and local agency visioning) • Transparent and Clear Process for the Public · Maintain the spirit of the Past Agreements Satisfied Stakeholders Holistic and Shared Vision

Adherence to MOU

#### **DRAFT Technical Team Schedule** ISSUES FOR TECHNICAL TEAM AUG SEPT OCT NOV DEC JAN FEB MAR AUG SEPT OCT NOV May 17, 2018 JUN JUL 2ND 4TH 2ND 4TH 2ND 4TH 2ND 4TH 2ND 4TH 2ND 5TH 2ND 5TH 2ND 2ND 4TH 2ND 4TH 2ND 4TH 1ST 4TH 2ND 4TH ISSUES WEEK DISCUSSION ITEMS FOR REVIEW CONTEXT STATEMENT/CORE VALUES COMMUNITY CONSIDERATIONS/OPPORTUNITIES CRITICAL ISSUES EVALUATION CRITERIA VISIONING IDEAS COMPONENTS AND DESIGN PARAMETERS CONTEXT (SEGMENT DEFINITIONS) ANALYSIS & SPECIFIC SAFETY RECOMMENDATIONS ROADWAY DEFINITION ROADWAY STRIPING OPTIONS ROADWAY ALIGNMENT OPTIONS ROADWAY WIDTH CONTEXT / FOOT BY FOOT ROADWAY WIDTH SCENARIOS **\*** 0 SH 103 INTERCHANGE / FOCUS AREA 1 WIDENING MEDIAN VS. MOUNTAIN / FOCUS AREA 2 EMPIRE JUNCTION/ FOCUS AREA 3 CORRIDOR SAFETY TOOLS ACCELERATION & DECELERATION LANES SIGNAGE/ATM CR 314 (FUTURE ITF) FOCUS AREA 1 (SUGGESTED FUTURE ITF) ALIVE AND SECTION 106 (FUTURE ITFS) SWEEP ITF INTEGRAL COMPONENTS TRANSIT/PARKING PULL-OUT LOCATIONS/EMERGENCY RESPONSE DRAINAGE GEOTECHNICAL CONCERNS AND ISSUES EASTBOUND IMPROVEMENTS (PULL-OUTS) AESTHETICS REVIEW WILDLIFE MOVEMENT (ALIVE MEETINGS) MEDIAN BARRIER AND WALLS BARRIERS THROUGH IDAHO SPRINGS IMPACT REPORT / PROCESS CHECK ROCK TREATMENT AESTHETICS SNOW AND SAND REMOVAL ENFORCEMENT AND TRUCK OPERATIONS NOISE/AIR QUALITY ROD COMPATIBILITY AND CONCEPT OF OPERATIONS (SPEED LIMITS) SUMMARY OF IMPACTS AND MITIGATION PPSL EDUCATION, OUTREACH AND VSL CONSTRUCTION CSS PUBLIC INFORMATION INDUCED/LATENT DEMAND AND TRAVEL TIME PLT UP-DATE LEGEND: SHADED ITEMS ARE COMPLETE DISCUSS CRITERIA T DISCUSSION OF CONCEPTS DECISION MATRIX / DECISION