WB I-70 Peak Period Shoulder Lane

FLOODPLAINS AND DRAINAGE TECHNICAL REPORT

October 26, 2018

Categorical Exclusion

FLOODPLAINS AND DRAINAGE TECHNICAL REPORT

WESTBOUND I-70
PEAK PERIOD SHOULDER LANE

Prepared for:

Prepared by:

October 26, 2018

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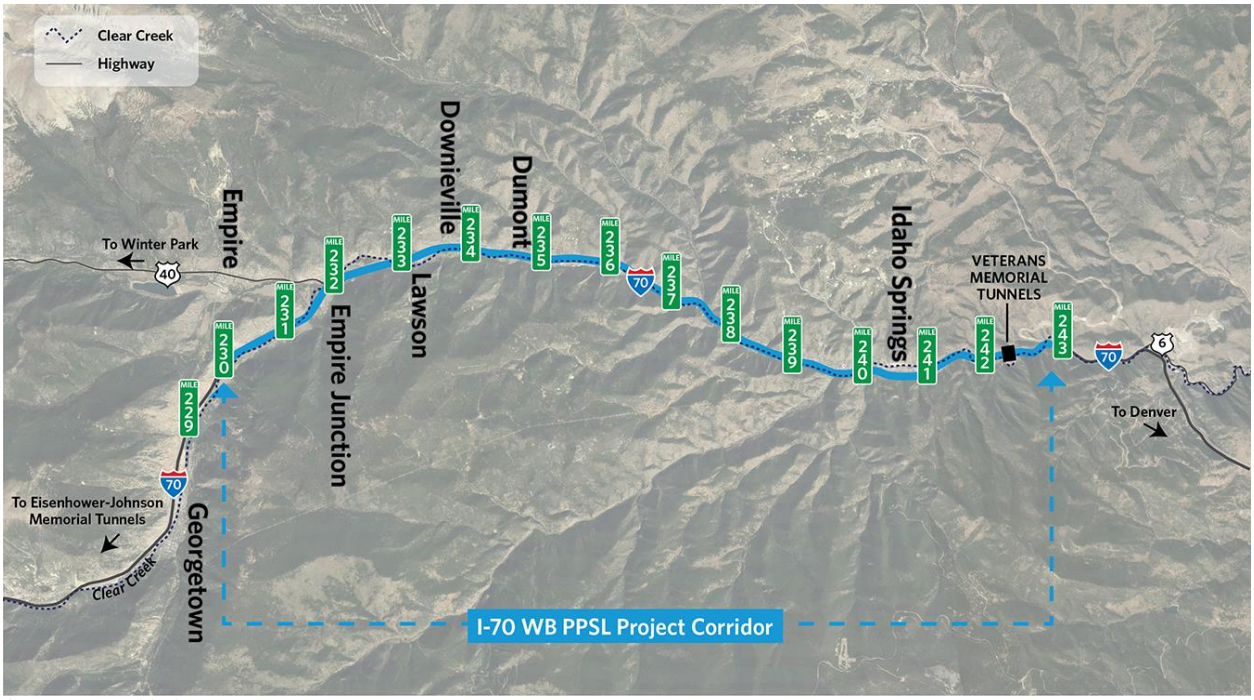
Acronyms and Abbreviations

BFE	Base Flood Elevation
CFR	Code of Federal Regulations
CDOT	Colorado Department of Transportation
CWCB	Colorado Water Conservation Board
CLOMR	Conditional Letter of Map Revision
CR	County Road
EA	Environmental Assessment
EO	Executive Order
EB	Eastbound
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
I-70	Interstate 70
LOMR	Letter of Map Revision
MP	Milepost
NEPA	National Environmental Policy Act
PPSL	Peak Period Shoulder Lane
PEIS	Programmatic Environmental Impact Statement
ROD	Record of Decision
SCAP	Clear Creek Sediment Control Action Plan
SH	State Highway
WB	Westbound

Section 1. Purpose of the Report

The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), is preparing a Categorical Exclusion for proposed changes to the westbound (WB) lanes of Interstate 70 (I-70) between approximately milepost (MP) 230 and MP 243, in Clear Creek County, Colorado (Proposed Actionl; Figure 1). The Proposed Action includes the addition of a 12-mile tolled Peak Period Shoulder Lane (PPSL) between east Idaho Springs and the U.S. Highway 40 (US 40)/I-70 interchange in the WB direction and improvements to the State Highway (SH) 103 interchange. The Proposed Action improves operations and travel time reliability in the WB direction of I-70 in the study area. Additionally, the improvements are consistent with the *I-70 Mountain Corridor Programmatic Environmental Impact Statement* (PEIS; CDOT 2011), PEIS Record of Decision (ROD; FHWA 2011), Context Sensitive Solutions (CSS) on the I-70 Mountain Corridor (CDOT 2009) process, and other commitments of the PEIS and ROD. The Proposed Action fits within the definition of "expanded use of existing transportation infrastructure in and adjacent to the corridor" included in the "Non-Infrastructure Related Components" element within the Preferred Alternative's Minimum Program of Improvements.

Figure 1. Project Corridor



Source: HDR 2018.

This document discusses the regulatory setting, and describes the affected environment and the impacts of the Proposed Action on regulatory floodplains and drainage within the study area. This document also identifies mitigation measures, including applicable measures identified in the I-70 Mountain Corridor PEIS, which reduce impacts during construction and operation.

Within the scope of this memorandum "floodplain" refers the the area designated by the Federal Emergency Managemant Agency as special flood hazard area (SFHA). The SFHA is defined as the land

area covered by the floodwaters of the base flood on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA includes Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. The SFHA zones are depicted in flood insurance rate maps (FIRMs).

The base flood refers to the flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood." The base flood is the national standard used by the National Flood Insurance Program (NFIP) and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development.

Section 2. Summary of Floodplains and Drainage from Previous NEPA Analyses

2.1 How were Floodplains and Drainage Treated in the I-70 Mountain Corridor PEIS and ROD (Tier 1)?

The FHWA, in cooperation with CDOT, prepared the I-70 Mountain Corridor PEIS and ROD (Tier 1; CDOT 2011). The PEIS provided a brief overview of floodplain and drainage issues from a corridor perspective. The WB PPSL project is congruent with the Minimum Program of the Preferred Alternative described in the PEIS. There was no separate floodplain or drainage analysis included in the PEIS, except for a brief description of floodplain impacts in the Water Resources section. The PEIS and ROD committed to conducting specific additional analysis and coordination regarding floodplain impacts during Tier 2 processes.

2.2 How were Floodplains and Drainage Treated in the Twin Tunnels Expansion Projects (Tier 2)?

The FHWA, in cooperation with CDOT, prepared an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for proposed changes (2012 Westbound I-70 Twin Tunnels Expansion project) to the eastbound (EB) section of the Twin Tunnels between MP 241 and MP 244 in Clear Creek County, Colorado (CDOT 2012a). The project area analyzed in the EA extended along I-70 from approximately MP 241.5 on the west to the base of Floyd Hill on the east (a larger extent than the current project). A portion of the east side of the WB PPSL study area overlaps the Twin Tunnels project area from approximately MP 241.5 to MP 243, the eastern limit of the WB PPSL study area.

CDOT prepared a Categorical Exclusion for the Twin Tunnels for the WB lanes of I-70 which used the same study area as the Twin Tunnels EA and FONSI (EB). Findings from this study were similar to the findings from Twin Tunnels EA and FONSI completed for the EB direction.

Flood insurance rate maps from the Federal Emergency Management Agency (FEMA 2007) were used to identify the regulatory floodplain boundaries. However, the FEMA 2007 floodplain delineations identified the reach of Clear Creek within the Twin Tunnel project area as an approximate FEMA Zone A where no base flood elevations (BFE) have been determined. These delineations were based on data from the 1970's. Therefore, a hydraulic model was developed to more accurately delineate the 100-year floodplain for Clear Creek. The detailed analysis showed the 100-year floodplain is contained within the channelized section of Clear Creek and does not inundate the existing I-70 main lanes. The preliminary hydraulic

analysis and floodplain delineation created a significantly narrower floodplain than the FEMA Zone A delineation.

Although the Twin Tunnels project impacted the FEMA-mapped floodplain, the project did not encroach into the modeled floodplain. Therefore, no floodplain mitigation was required. Portions of the existing main lanes for I-70 have been shown to be in the regulatory Zone A floodplain for over 30 years. The improvements within these portions of I-70 will continue to be shown in the regulatory Zone A floodplain until this entire reach of Clear Creek is remapped. The Twin Tunnels project avoided impacts by placing retaining walls outside of the floodplain and designing new bridge structures to span the 100-year floodplain.

During construction, excavation and grading activities within portions of the floodplain for the construction of retaining walls and bridges was required. Excavation of the existing channel bank and replacement of channel armoring within the 100-year floodplain was not anticpated to result in changes to channel or floodplain elevations. To mitigate impacts from roadway runoff, the following mitigation measures were used:

- Placing retaining walls outside of the modeled 100-year floodplain
- Spanning the modeled 100-year floodplain for new bridge structures

To mitigate long-term erosion impacts from soil disturbance during construction, CDOT committed to installation of revegetation and permanent erosion control measures and maintenance of temporary erosion controls and plantings to stabilize non-rocky areas.

2.3 How were Floodplains and Drainage Treated in the EB I-70 Peak Period Shoulder Lane Categorical Exclusion (Tier 2)?

The *Eastbound* (*EB) I-70 PPSL Categorical Exclusion* (Tier 2; CDOT 2014) project area extended from MP 230 to MP 243, which is the same as the WB PPSL project area. The EB PPSL Categorical Exclusion determined that negligible effects on the amount and peak flow rate of highway runoff occurred, and therefore the project was not expected to impact roadway drainage structure capacities.

Impacts to floodplains from the EB PPSL project included placement of a retaining wall, upstream of SH 103 bridge over Clear Creek, within the 100-year floodplain. A Section 404 Permit was obtained prior to construction, and to mitigate impacts to the placement of fill in the floodway, the low flow channel of Clear Creek was reshaped to offset flood conveyance lost by the placement of fill.

Section 3. What Process was Followed to Analyze Floodplains and Drainage?

3.1 Methodology

The methodology used to assess potential impacts to floodplains and drainage associated with the Proposed Action is summarized as follows:

- Determine project extents and drainage design considerations;
- Document effective and preliminary floodplain and floodway delineations;

- Assess changes or encroachments that may occur during and after construction; and
- Evaluate potential mitigation strategies.

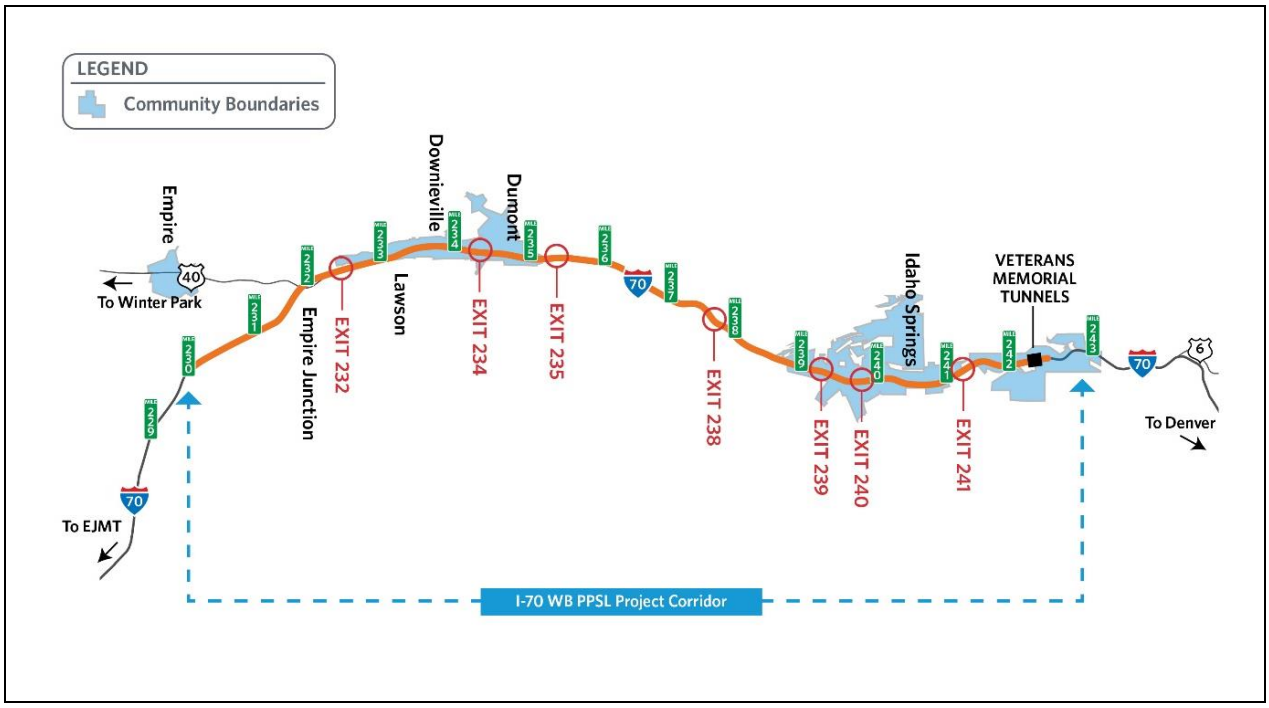
3.2 Study Area

The study area for the WB PPSL project encompasses CDOT right-of-way along I-70 in both directions from MP 243 to MP 230 and areas immediately adjacent to the right-of-way. This study area was used to evaluate the **direct** effects of the Proposed Action.

For transportation and socioeconomic impacts, the study area for **indirect** effects includes Clear Creek County and the communities of Idaho Springs, Downieville-Lawson-Dumont, and the town of Empire. This area is broadly defined and includes the communities and other areas that would be **indirectly** affected by the Proposed Action. The indirect effects study area includes the communities shown in Figure 2.

For the remaining resources, the study area for **indirect** effects generally includes a 0.25-mile buffer around the study area. This area encompasses the communities and other areas that would be indirectly affected by the Proposed Action.

Figure 2. Study Area Communities



3.3 Regulations

This section identifies the relevant regulations that apply to work within the floodplain and also regulations associated with the drainage design. Specific NFIP requirements are set forth within the Code of Federal Regulations (CFR)—44 CFR 60.3 “Floodplain Management Criteria for Flood-Prone Areas.” In addition, floodplain regulations are enacted and enforced at the state level by the Colorado Water Conservation Board (CWCB) and by Clear Creek County through their floodplain management regulation.

The FEMA regulatory floodplain and FEMA preliminary floodplain delineations are used as the basis of this study. Clear Creek County Flood Insurance Rate Maps are being updated by CWCB and FEMA. Preliminary mapping has been made available and can be used as "Best Available Data" until it becomes effective.

3.3.1 Floodplains

Within the study limits, FEMA-regulated floodplains are adjacent to and within the PPSL study area. The applicable regulatory zones are:

- Zone A—defined as the area with 1 percent annual chance of flooding and is determined using approximate methods with no flood depths defined. FEMA regulations state that for Zone A floodplains, all cumulative impacts to the system from the time of the original study cannot result in water surface elevation increase of more than one foot. These regulations are based on 44 Code of Federal Regulations (CFR) 60.3 (b). If exceeded a Conditional Letter of Map Revision (CLOMR) is required.
- Zone AE with Floodway—defined as inundated areas associated with the 1 percent-annual-chance of flooding determined by detailed hydraulics methods with base flood elevations. The floodway is defined as the channel of a river or other watercourse and adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. These regulations are based on the CFR Zone AE 60.3 I, (d), (e), and (f), and 64. If any increase in floodway water surface elevations is anticipated as a result of the project development, a CLOMR is required.

Flood Damage Prevention Regulation, Clear Creek County: These regulations address building, development, grading and other activities within the floodplain. The Clear Creek County Floodplain Administrator administers and implements the provision of these regulations including review and approval of floodplain development permits.

Rules and Regulations for Regulatory Floodplains in Colorado, CWCB, November 17, 2010: The CWCB requires that for all newly studied reaches, the designated floodway surcharge is reduced to 0.5 feet. Clear Creek is a newly studied reach that is currently considered preliminary as of February 8, 2017, but is used as the basis for this study. As such, the floodway is regulated to surcharges of 0.5 feet.

Executive Order 11988 requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modifications of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The 44 CFR Part 9 includes an eight-step decision-making general process for meeting compliance with this regulation.

If a revision results in changing or establishing floodway boundaries, provision of floodway public notice or statement by the community that it has notified all affected property owners in compliance with NFIP regulations Subparagraph 65.7(b)(1), is required.

If a revision results in any widening/shifting/establishing of the base floodplain and/or any base flood elevation (BFE) increases/establishing BFEs, provision of a copy of the individual legal notices sent to all the property owners affected by any increases in the flood hazard information is required.

3.3.2 Drainage

Westbound I-70 is a CDOT facility and the drainage design will follow the guidance presented in the CDOT Drainage Design Manual and the Clear Creek Sediment Control Action Plan (SCAP). The roadway drainage design will follow existing drainage patterns. Following a similar approach as the EB PPSL project, the existing crossing culverts will not be improved. Drainage improvements will also follow the the I-70 Mountain Design Criteria.

3.4 Public Involvement

There were no specific public involvement issues identified during the Concept Development or National Environmental Policy Act (NEPA) processes relative to floodplains or drainage.

3.5 Agency Coordination Conducted

Individuals from local jurisdictions, communities, state and federal agencies and special interest groups were a part of an 18-member Project Leadership Team and a 48-member Technical Team that is guiding the NEPA process. Many suggestions and concerns have been identified during the Concept Development Process and the NEPA process, including neighborhood and business concerns (from Idaho Springs, Downieville, Dumont and Lawson neighborhoods, from businesses throughout the corridor and others).

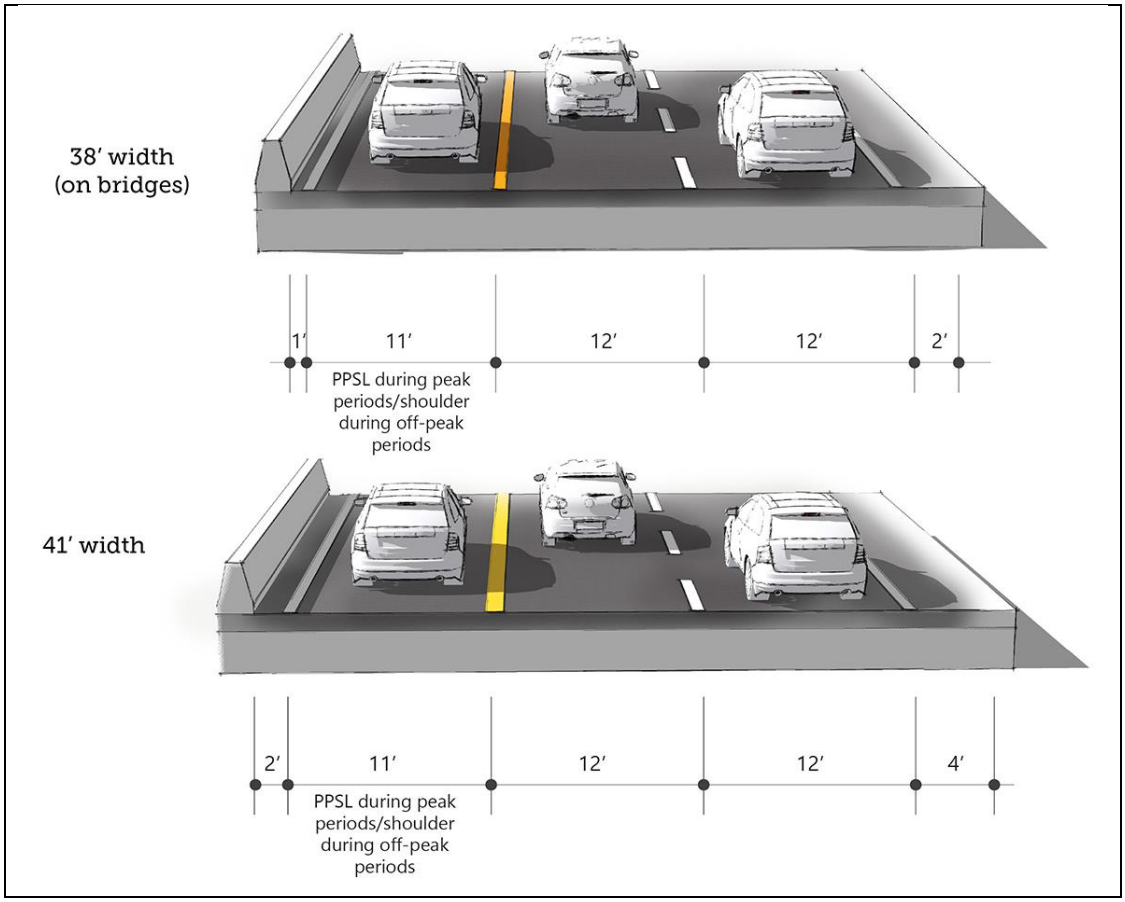
Section 4. Description of the Proposed Action

The WB PPSL project adds an approximate 12-mile tolled PPSL on WB I-70 between the Veterans Memorial Tunnels (just west of MP 243) and the US 40/I-70 interchange (MP 232). The lane entrance begins approximately 500 feet east of the Veterans Memorial Tunnels portal. The WB PPSL maximizes the use of the existing alignment and infrastructure in order to minimize any new impacts within the study area. The 11-foot lane is open for use only during peak periods, and otherwise serves as the shoulder of the interstate. Use of the WB PPSL is prohibited for trucks, buses, or any vehicle over 25 feet long. Overhead signs showing the lane status and toll rate are located throughout the corridor and at the entrance point.

An ingress/entrance point for traffic coming onto WB I-70 from Idaho Springs is provided approximately 2,500 feet west of Exit 239. An egress point for traffic exiting to Downieville is provided about 4,400 feet east of Exit 235, and an egress point for traffic exiting to US 40 is provided approximately 4,400 feet east of Exit 232.

The WB PPSL ends approximately 1/2 mile west of Exit 232. Figure 3 illustrates the typical cross sections of the Proposed Action.

Figure 3. WB PPSL Proposed Action Typical Cross Sections



Source: HDR 2018.

Improvements include:

I-70 Modifications. The general purpose lanes and shoulder of WB I-70 are resurfaced and widened in select locations on the existing alignment between approximately MP 241.5 and MP 232 to accommodate a lane on the shoulder during peak travel periods. Drainage enhancements include a storm system for minor and major storm events and water quality facilities. At SH 103, I-70 is slightly realigned to enhance safety and improve drainage.

SH 103 Interchange Improvements. Ramp improvements address sight distance problems. The pedestrian sidewalk is improved by adding lighting and a decorative paving buffer adjacent to the existing sidewalk on the SH 103 bridge over I-70. This sidewalk connects to a new sidewalk buffered from 13th Avenue between the interchange ramp and Idaho Street in Idaho Springs.

Safety Pull-Outs. A total of seven new safety pull-outs are built—five along WB I-70 and two along EB I-70. One existing safety pull-out on EB I-70 is improved. The intention of these is to provide a space for vehicles to use if they experience a break down and for law enforcement to use.

Rockfall Mitigation. Rockfall mitigation measures are added at five locations to reduce the chance of rocks or other debris from falling on travel lanes or shoulders and reduce the potential for crashes and

travel disruptions. Rockfall mitigation measures are included in the WB direction at MP 239, MP 238.4, MP 237.1, and MP 236.4, and in the EB direction at MP 240.3.

Active Traffic Management. Dynamic signage informs drivers so the WB PPSL is appropriately used to reduce congestion. This innovative design improves mobility.

Fiber Optic Upgrades. Fiber optics are designed to accommodate future emerging technologies for autonomous and connected vehicles, improving driver information and emergency response capabilities.

Dumont Port-of-Entry Interchange. Merge area improvements to the Dumont interchange acceleration lane includes restriping of I-70 to reduce merge conflicts between truck traffic and the general-purpose lane traffic.

Dynamic signage

Section 5. What are the Floodplain and Drainage Resources in the Study Area?

5.1 Current Conditions

Clear Creek is the primary water resource in the study area and generally flows immediately adjacent to and on the south side of I-70, receiving direct roadway runoff from EB and WB I-70 depending on adjacency. Small ephemeral drainages and larger perennial drainages generally flow under I-70 from north to south and into Clear Creek on the south side of I-70. The exception to this drainage pattern is between central Idaho Springs (MP 240) and west of the Twin Tunnels (MP 241.7), where Clear Creek flows along the north side of I-70. Primary perennial drainages in the study area include Mill Creek, Spring Gulch, Fall River, Chicago Creek, and Soda Creek.

This highway segment is characterized by a steep canyon environment with slopes at the angle of repose and near-vertical rock outcrops in several areas. I-70 was constructed using cut-and-fill methods in most areas, with fill material placed on Clear Creek's bank. In many locations Clear Creek is constricted by the narrow canyon and further channelized by fill material from I-70.

Westbound drainage is primarily managed with inlets and culverts that drain to Clear Creek. Clear Creek is generally located to the south of I-70 in the study area.

The effective Clear Creek and Soda Creek FEMA floodplain is currently undergoing revisions based on an ICON Engineering 2013 study as referenced in the EB PPSL Technical Memorandum and Categorical Exclusion. The ICON study mapping has been released by FEMA as a preliminary product. Since the preliminary mapping represents the best available information, it will be used for the WB PPSL analysis. Both effective and preliminary floodplain mapping are shown on the Floodplain and Drainage figures in Appendix A. Where there is an effective studied reach, both floodplain models are assessed for impacts.

Different FEMA Zone designations are associated with the different floodplains and locations located along the corridor. These designations correspond to the regulations as described in Section 3.3 of this report. Zone A floodplain areas are subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply. Zone AE areas are subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply. Zone A areas have been approximately mapped and Zone AE areas have been mapped with BFEs using detailed hydraulic modeling.

- Clear Creek—Zone AE with Floodway—MP 230 to MP 242
- Clear Creek—Zone A – MP 242 to MP 244
- Mill Creek—Zone A
- Fall River—Zone AE with Floodway
- Soda Creek—Zone AE with Floodway

The following locations have been deemed critical in terms of potential floodplain impacts to WB I-70 based on the preliminary mapping. All locations are shown on the Floodplain and Drainage Maps, presented in Appendix A.

- Upstream of the US Route 40 and I-70 intersection between MP 231 and MP 232, the floodplain is directly adjacent to WB I-70.
- At the US Route 40 and I-70 intersection (MP 232), the preliminary Clear Creek floodplain and floodway abuts WB I-70 before crossing under the highway to the south. The effective floodplain is shown to encroach upon the interstate.
- At MP 235 the Mill Creek floodplain is shown to encroach upon the interstate.
- Between MP 237 and MP 238 the Fall River floodplain and floodway is shown to encroach onto the study area.
- Near MP 240, Clear Creek crosses I-70 and travels north through the town of Idaho Springs. The floodplain and floodway are contained within the channel.
- To the east of MP 240, the Soda Creek floodplain and floodway crosses I-70 from the south.
- Between MP 241 and MP 242 the Clear Creek floodplain and floodway abuts WB I-70 around the Idaho Springs Skate Park and then, just to the east, crosses I-70 to the south.
- At the Central City Parkway, near MP 243, the effective floodplain is shown to encroach upon the interstate. Clear Creek crosses I-70 from the south, loops up to the north, and then crosses back over to the south of I-70. There is no preliminary revised floodplain at this location.

A number of large culverts and bridges cross underneath I-70 and are utilized for drainage conveyance or pedestrian access. These crossings are listed in Table 1.

Table 1. Culverts and Bridge Crossings

Milepost	Drainage	Structure
232.3	Clear Creek	Twin 12-foot-wide by 10-foot-tall concrete box culverts
234.8	Mill Creek	10-foot by 10-foot concrete box culvert
235.0	Clear Creek	Three-span bridge
236.2	Spring Gulch	14-foot-wide by 16-foot-tall concrete box culvert
236.2	Clear Creek	Three-span bridge
237.5	Fall River	10-foot by 10-foot concrete box culvert
238.7	Clear Creek	Three-span bridge
239.9	Clear Creek	Three-span bridge
240.1	Soda Creek	Large Pipe
240.65	Pedestrian Crossing	Box Culvert

As shown in the Floodplains and Drainage Maps in Appendix A, runoff is generally conveyed underneath I-70 towards Clear Creek. The direction of flow depends on the location of Clear Creek in relation to the interstate highway.

5.2 Future Conditions

An updated floodplain delineation for Clear Creek and Soda Creek completed by ICON Engineering for CWCB is under public review and is expected to become effective and regulated once that process is complete. On Clear Creek, this updated mapping extends from Georgetown to the Veterans Memorial Tunnels. The updated floodplain delineation is based on updated topography and hydrology. This update shows Clear Creek contained within the channel and not affecting I-70.

Section 6. What are the Environmental Consequences?

6.1 How Does the Proposed Action Affect Floodplain and Drainage Resources?

The following locations have been assessed for impacts on floodplains and drainage:

- In locations where the effective Clear Creek floodplain is delineated as Zone A and encroaches upon the interstate, there is no impact. In these scenarios, the preliminary floodplain delineation is considered the best available data and there is no impact to the Clear Creek floodplain as a result of the Proposed Action.
- At the bridges and culverts in the Study Area, the Proposed Action does not change the existing conditions. Since the bridges are not impacted, there is no impact to the floodplain. This includes Fall River, the Clear Creek crossing at Idaho Springs, and Soda Creek.
- Upstream of the US 40 and I-70 intersection between MP 231 and MP 232, the floodplain is directly adjacent to WB I-70. At this location, I-70 is widened to the median and does not impact the floodplain.

- At the US 40 and I-70 intersection (MP232), the preliminary Clear Creek floodplain and floodway abuts WB I-70 before crossing under the highway to the south. The effective floodplain encroaches on I-70. In this location, I-70 is widened to the median and does not affect the floodplain.
- At MP 235, the Mill Creek floodplain encroaches on I-70. Mill Creek is an approximate Zone A and crosses under I-70 in a culvert. At this location, there is no widening of the culvert and the Proposed Action does not impact the floodplain.
- Between MP 241 and MP 242 (around the Idaho Springs Skate Park), the Clear Creek floodplain and floodway abuts WB I-70 and just to the east, crosses I-70 to the south. In this location, no pavement is being added so there is no impact to the floodplain.
- For the SH 103 improvements, there is no updated Clear Creek floodplain delineation at this location. A updated model will be created at this location to assess the Clear Creek Zone A Floodplain. The delineation currently shows SH 103 within the floodplain. The updated hydraulic modeling is expected to correspond with the updated upstream portion of Clear Creek, which shows the 100-year floodplain delineation contained to the channel, Therefore, no impacts to the floodplain are anticipated as a result of the Proposed Action.

The Proposed Action increases the impervious surface by 8.1 acres, which increases the amount of runoff. It is anticipated that the increase in runoff compared to the existing condition is insignificant. The increased amount of runoff should not impact existing stormwater infrastructure.

6.1.1 What Direct Effects are Anticipated?

In some locations, the Proposed Action is located within a delineated floodplain. However, as described above, there are no direct effects to floodplains. No direct impacts on natural and beneficial floodplain values occur. The Proposed Action does not induce new incompatible land uses into areas within the floodplain. No riparian vegetation is removed as part of the Proposed Action.

The increased amount of runoff should not impact existing stormwater infrastructure.

The addition or relocation of concrete barrier as a part of the Proposed Action impacts drainage patterns. New storm systems are planned on the interstate. At SH 103, these storm systems are upgraded from those currently in place, which improves drainage conditions on I-70 in both directions.

Minor alterations in roadway alignment may impact existing ditch capacities along I-70.

6.1.2 What Indirect Effects Are Anticipated?

At SH 103 and Mill Creek, water surface elevation increases within the Zone A floodplain are possible. While these increases are possible, they are not anticipated to be in exceedance of regulations or to increase flooding to adjacent development.

With new storm system networks being introduced into the corridor, additional maintenance is required.

There are no other anticipated indirect effects on the drainage system.

6.1.3 What Construction Effects Are Anticipated?

No effects on floodplains are anticipated during construction.

6.1.4 Would there be Cumulative Effects?

The Proposed Action, when combined with past, present and other reasonably foreseeable future actions, has no anticipated cumulative impacts to floodplains and drainage resources.

Section 7. What Mitigation Is Needed?

7.1 Mitigation

Mitigation commitments for the WB PPSL project are presented in Table 2. Because the Proposed Action is within a regulated floodplain, a local floodplain development permit will be submitted to Clear Creek County.

Table 2. Mitigation Tracking

Mitigation Category	Impact from NEPA Document	Commitment From Mitigation Table In Source Document (Use Exact Wording from Table in Source Document)	Responsible Branch	Timing/Phase of Construction Mitigation to be Constructed
Floodplains	Minor alterations in roadway alignment may affect existing ditch capacities along I-70.	Ditches will be re-established.	CDOT Engineering and Contractor	During Construction
Floodplains	The Proposed Action may affect drainage patterns.	Drainage systems will be installed per spread requirements on the roadway. Sediment control measures will be provided.	CDOT Engineering and Contractor	During Construction

Section 8. References

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Appendix A.

Floodplain and Drainage Maps