

**Project Name**  
**Project Number**  
**NPS PMIS #**

# **Project Technical Memorandum (XX% Design)**



by *A/E Firm for*  
**Federal Highway Administration**  
**Central Federal Lands Highway Division**

**Date**

## **Introduction and Project Scope**

The CO FLAP US50(1), Little Blue Creek Canyon Project is located on U.S. Route 50, between Gunnison, CO (33 miles) and Montrose, CO (30 miles). This project will focus on the segment of US 50 between mile post 122.9 and 127.1. The proposed improvements include; roadway realignment for improved geometry and clear zone, curve widening (to the extent practical), wider paved shoulders, improved rock fall catchment, bridge repair, new drainage structures, guardrail, and updated permanent signing and striping.

## **Scope Revisions (Major Revisions from Previous Submittal and Reasons for Change)**

### Revisions from 95% Submittal

- The asphalt depth was changed from 3” to 4”
- The aggregate base depth was changed from 6” to 5”
- Additional wetland mitigation areas were added and measures were adjusted
- No horizontal or vertical adjustments were made
- The material source plan was refined
- The USFS will need to provide all funds for Option X – toilet vault

### Revisions from 70% Submittal

- Minor adjustments were made to the alignment and profile in two locations to better fit the topography and minimize impacts
- Rock buttress, subexcavation and underdrains were reviewed and small adjustments in limits were identified
- A potential material source was identified at station 72+00 Lt, test pits will be made and analyzed for suitability
- An option for installation of a toilet vault at the Vista Road parking area will be added, with the USFS to provide matching funds

### Revisions from 30% Submittal

The following general strategies were applied:

- MSE walls and Rockery were eliminated by constructing embankment fill slopes, and/or cutting into cut slopes.
- Ditches were widened to 10ft in select locations, to provide rock fall containment.
- Roadway alignment was refined to fit existing roadway to a greater extent in

selected areas, and to minimize wetland impacts.

- Locations of cut slopes in wet seepage areas include: installation of 5ft deep underdrains in the ditch, cut slope protection with 5ft thick rock buttress, and selected locations of subgrade reinforcement with geotextiles or subexcavation.
- Most of the existing culverts are 15” – 18” diameter. All existing culverts were replaced, with a minimum diameter of 24”. Additional culverts were included. The largest culvert required being a 42-48” diameter. Riprap aprons were included at all pipe outlets, and selected inlets. Selected ditches will be riprap lined based on current erosion.
- In areas of re-alignment, the old roadway will be obliterated and re-contoured to the surrounding terrain and reseeded. Some areas will be blocked from public access with boulders or berms.

#### Revisions from Scoping

- N/A

#### **PS&E Deliverables**

Please review all the PS&E deliverables. Extra consideration should be taken for the following:

- **Plans:**
  - Any details from a maintenance perspective, traffic control plans, etc.
- **Specifications:**
  - 105: Staging area locations, material and water sources
  - 107: Project specific environmental commitments and restrictions, fire plan
  - 108: Work restrictions, holidays and local events, completion date
  - 156: Allowable delays and closures
  - 625 and 713: Seed mix, seeding dates
- **Estimate:**
  - Any high risk, high dollar pay items. Are the unit prices in alignment with local/regional trends and history?
  - Any CBUPA performed and any anticipated unit price verifications at pending milestones.

➤ **Other (Technical Reports, Structure Criteria Memo, HDS, requests for Partner Approval, etc.)**

- Final geotechnical report completed and included in this 70% PSE submittal. Includes recommendations for bridge foundations and slope scaling. County to review and provide feedback on extent of proposed scaling.
- Highway Design Memo and Partner Concurrence on Plans are included in this submittal. Please review both and barring additional comments, provide your concurrence.
- FHWA-CFLHD led NEPA has been completed. Categorical Exclusion is included for reference.

**Project Specific Risks**

Description of Risk	Date or Milestone Risk was Identified	Status (How is risk being mitigated, actions or decisions needed, and responsible party)
ROW acquisition from 3 private parcels	Scoping	FHWA-CFLHD has provided ROW exhibits and descriptions for needed ROW. County to assess fair market value and negotiate acquisition with landowners. Bimonthly status calls between FHWA-CFLHD are occurring. County has indicated anticipated ROW certification by April 15, 2024. Med risk. Project obligation and advertisement scheduled for summer 2024.
New fiberoptic line identified	95% Field Review	County to coordinate with Utility on project impacts. Higher risk, could delay obligation of funds and advertisement.
Newly listed T&E species	Post-70%	Post NEPA, the white bark pine tree was listed as a T&E species. FHWA-CFLHD to lead coordination with FS and FWS on impacts and need to reinitiate Section 7 consultation. Expect determination prior to 95%. Low risk, being mitigated.

**Construction Cost Estimate**

Milestone	Date of Milestone	Program Year	Escalation Rate Used	Escalated Estimate	Causes of Major Changes

Scoping	5/11/2017	2019	4%	\$15,704,740	
30%	11/3/2017	2019	4%	\$18,657,910	Added new parking area and pullouts, potential wall for historic pullout, more accurate earthwork quantities
70%	4/19/2018	2019	4%	\$19,075,730	Updated unit prices
95%	1/22/2019	2021	6%	\$20,723,320	Inclusion of stone masonry wall and escalation to 2021
100%	8/11/2019	2021	6%	\$26,842,076	Inclusion of reinforced soil slope, increased earthwork from changes to the template and updated unit prices
Final	7/26/2021	2021	6%	Sch. A: \$16,270,000 Option X: \$15,544,000 Option Y: \$2,430,000	Updated unit costs to reflect nearby project bids and divided into Schedule/Options to accommodate funding sources

### Project Schedule

Milestone	PS&E Delivery Year	Program Year	Construction Duration (days or months)	Causes of Major Changes
Scoping				
30%				
70%				
95%				
100%				

### Design, Traffic and Safety Data

Refer to the HDS for Highway Design Standards documentation.

- **Crash History:**

Crash data was provided by CDOT in October 2016. The crash data-reporting period is 2000 to 2015; crashes were reported between mileposts 122 and 126. There were a total of 189 crashes during the reporting period: 5 fatal crashes, 56 injury crashes, and 128 property damage only (PDO) crashes. Another fatal crash was reported in 2018 within the project limits. CFLHD has prepared a crash analysis report based on the data provided by CDOT. See Appendix B.

- **Clear Zone and Barrier Crashworthiness:**

Based on the AASHTO Roadside Design Guide, the clear zone for this project is 7 feet, except at Sta. 587+00 to Sta. 591+00 where the clear zone is 4 feet. This 400' section of roadway traverses through a narrow, winding area with steep cut and fill slopes in environmentally sensitive terrain. The 4' clear zone was chosen to minimize impacts. In this section of roadway, advance warning signing for curvature along with pavement markings will mitigate for the reduced clear zone and increase driver awareness.

<b>FLH Supplemental Design Standards</b>		
	<b>FLH Standard</b>	<b>Used on This Project</b>
Clear Zone	7'	4'
Barrier Crashworthiness	TL-2	TL-2

- **Bicycle Design:**

Design Guidelines: AASHTO Guide for the Development of Bicycle Facilities 2012

<b>Criteria</b>	<b>Guideline</b>	<b>As Designed</b>	<b>Exception</b>
<b>1. Design Speed (AASHTO 5.2.4)</b>			
<b>2. Width (AASHTO 5.2.1)</b>			
<b>3. Shoulder Width (AASHTO 5.2.1)</b>			
<b>4. Shoulder Slope (AASHTO Figure 5-1 and 5.2.1)</b>			
<b>5. Cross Slope (AASHTO 5.2.6)</b>			
<b>6. Horizontal Curvature (AASHTO Table 5-2)</b>			

<b>7. Superelevation</b>			
<b>8. Grade (AASHTO 5.2.7)</b>			
<b>9. Vertical Curvature (AASHTO Figure 5-8)</b>			
<b>10. Stopping Sight Distance (AASHTO Table 5-4)</b>			
<b>11. Horizontal Clearance to Structure (not clear zone)</b>			
<b>12. Vertical Clearance to Obstruction (AASHTO 5.2.1)</b>			
<b>13. Clear Zone/Horizontal Clearance (AASHTO 5.2.1)</b>			

**Descriptions of, and reasons for, exceptions to guidelines:**

- **ADA Design:**
  - Accessible parking stalls with concrete drive pads meeting ABA requirements will be provided at Sentinel Dome, Washburn Point, and Glacier Point parking areas. Slopes will be limited to 1.8% to provide construction tolerance to meet requirements.
  - For ADA compliance, the US Access Board’s Supplemental Notice of Proposed Rulemaking titled Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way; Shared Use Paths will be followed.

**Environment/Permits**

- The project qualifies for a Categorical Exclusion under the National Environmental Policy Act (NEPA) per 23 CFR 771.117. To support the CE determination and comply with other laws, a cultural resources report, biological assessment, species memo, and delineation of waters of the U.S. will be prepared. Fieldwork is expected in January/February 2020, with reports being delivered by a consultant between March and May. FHWA-CFLHD will coordinate with BLM, Nevada State Lands and Parks, and Clark County throughout the environmental review process. [Should also have noted if BLM has a NEPA action]

For purposes of the environmental analyses, a study area was defined as along the road, extending about 50 feet out on both sides of the proposed cut/fill limits. An additional buffer of about 250 feet encompasses the action area, which will be surveyed for desert

tortoise. The project area (for analysis) and area of potential effects (for cultural resources) will be defined once the clearing limits and design plans are further along.

Consultations will be conducted to comply with Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act, once technical reports are complete. Permits are expected to comply with the Clean Water Act.

### **Right-of-Way and Utilities Coordination**

- CDOT is the lead agency for ROW acquisition. Public and private lands will be impacted by the project. CDOT has created ROW Plans and is proceeding with acquisitions. A Highway Easement Deed is anticipated from the BLM. At the time of the 100% submittal, one parcel of land is still being acquired. A ROW Certification is expected by project check-in.
- There are no private landowners within the limits of this project. Private right of way acquisition is not required for this project.
- A Highway Easement Deed (HED) will be executed to transfer right of way to the county for the constructed route and will replace the existing Forest Roads and Trails Act (FRTA). The Easement will vary in width. TCEs will be shown on the plans and will cover all areas of construction that are outside of the existing FRTA and proposed limits of the HED (slope construction and approach roads). CFL is currently waiting on the Region 2 to issue a letter of consent.
- CDOT is the lead agency for utilities. Utilities through the project consist of overhead power, underground telephone, a leach field and two wells. Impacts to the existing telephone is anticipated. The existing telephone is expected to be removed by the owner, prior to construction. As of the 100% Submittal, the utility certification forms have been signed and documents provided in the project records.
- There are no known utilities that would be impacted by this project. The only known utility in the project limits is an abandoned 2" diameter water line that crosses Cottonwood Pass Road near the USFS Taylor Park Guard Station. The waterline will be removed during construction.
- Gunnison County Electric might be installing a line from the reservoir hydro-plant to Stage Stop Meadows (Sta 268+00RT), installation would be 3ft deep at the toe of existing fill slope RT, safe from impacts due to roadway construction.

### **Non-Environmental Permits**

-

**Other**

- 

**Project Cross Functional Team**

	<b>Name</b>	<b>Phone</b>	<b>Email</b>
<b>Project Manager</b>			
<b>Design</b>			
<b>Environment/Permits</b>			
<b>Survey</b>			
<b>Bridge</b>			
<b>ROW/Utilities</b>			
<b>Safety</b>			
<b>Geotechnical</b>			
<b>Pavements/Materials</b>			
<b>Hydraulics</b>			
<b>Construction</b>			