

**Memorandum**

To: Dave Holien, P.E.  
TA Engineer

From: Ben Schendel, P.E.  
Consultant Plans Engineer

Date: March 3, 2022

Subject: IM 90-1(227)0  
Taft - West  
UPN 9487000  
Work Type 140 - Reconstruction – without added capacity

Please Approve the Alignment and Grade Review for this project.

Approved David T. Holien Date 3/3/2022  
for Ryan Dahlke  
Consultant Design Engineer

We are requesting comments from the below distribution. If no comments are received within two weeks of the release date, we will assume concurrence.

**Distribution (electronic only):**

Bob Vosen, Missoula District Administrator  
Stephanie Brandenberger, Bridge Engineer  
Damian Krings, Highways Engineer  
Gabe Priebe, Traffic and Safety Engineer  
Jason Gilliam, Right-of-Way Bureau Chief  
Jake Goettle, Construction Engineer

Rob Stapley, Rail, Transit, & Planning Division Administrator  
Jeff Jackson, Geotechnical and Pavement Bureau Chief  
Tom Martin, Environmental Services Bureau Chief

Jon Swartz, Maintenance Division Administrator

**CC:**

Ben Schendel EPS Project Manager, Missoula District

**e-copies:**

Located at the end of this document

## Alignment and Grade Report

### **Introduction**

The first alignment and grade meeting was held virtually via Microsoft Teams on November 22, 2021 at 12:30 pm. This meeting focused on the construction costs of the project and how to develop the design moving forward. The following personnel attended the meeting:

Ben Schendel, MDT Consultant Design  
Jon Rainwater, MDT Hydraulics  
Rebecca Ridenour, MDT Environmental  
Bob Vosen, MDT Missoula District  
Ben Nunnallee, MDT Missoula District  
Jacquelyn Smith, MDT Missoula District  
John Schmidt, MDT Missoula District  
Tim Hufford, MDT Pavement Analysis  
Gregg Wood, MDT Missoula Utilities  
Scott Gerken, MDT Missoula District  
Joe Green, MDT Construction  
Steve Felix, MDT Missoula Maintenance  
Wayne Dykstra, MDT Missoula Maintenance

Bret Boundy, MDT Geotechnical  
Will Tangen, MDT Consultant Design  
Dave Holien, MDT Consultant Design  
Rebecca Franke, MDT Missoula District  
Lisa Fischer, HDR  
Bryant Johnson, HDR  
Ben Fennelly, HDR  
Jon Updike, HDR  
Leif Sande, HDR  
Jon Schick, HDR  
Sam Sherwood, Yeh & Associates  
Leyla Safari, Yeh & Associates

A second alignment and grade meeting was held virtually via Microsoft Teams on December 17, 2021 at 9:00 am. This meeting was a plan review meeting and the following personnel were in attendance:

Ben Schendel, MDT Consultant Design  
Jon Rainwater, MDT Hydraulics  
Rebecca Ridenour, MDT Environmental  
Ben Nunnallee, MDT Missoula District  
Jacquelyn Smith, MDT Missoula District  
Maureen Walsh, MDT Missoula Right-of-Way  
Tim Hufford, MDT Pavement Analysis  
Gregg Wood, MDT Missoula Utilities

Joe Green, MDT Construction  
Will Tangen, MDT Consultant Design  
Matney Juntunen, MDT Missoula District  
Lisa Fischer, HDR  
Bryant Johnson, HDR  
Ben Fennelly, HDR  
Leif Sande, HDR

### **Scope of Work**

The proposed scope of work for this project is to reconstruct I-90 to current MDT design standards and replace the existing plant mix bituminous surface with PCCP from Reference Post (RP) 0.0 (Idaho State Line) to RP 5.7 (Taft Interchange). The project will also include drainage, environmental, traffic and safety improvements. I-90 is classified as a Rural Freeway (NHS – Interstate) in mountainous terrain within the project limits and a design speed of 50 mph will be used to meet current design standards.

The project limits and potential project split was discussed at the first AGR meeting to address the concern of the anticipated construction costs overrunning the programmed funding. As a result of the meeting, it was determined that project development will continue to include the full 5.7 miles and a project split will be determined after PIH in the fall of 2022.

### **Project Location and Limits**

The project is located on I-90 in Mineral County from RP 0.0, at the Idaho – Montana border to RP 5.7, east of the Taft Interchange bridge. I-90 is classified as a Rural Freeway (NHS – Interstate) in mountainous terrain within the project limits. The overall project length is 5.7 miles and is located in Township 20 N, Range 32 W, Section 32 and Township 19 N, Range 32 W, Sections 2, 3, 4, 5, 11 & 12.

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As-built drawings for Project IM 90-1(184)0, Taft – West (UPN 5830001) were completed in 2011-2012. The project included crack & seating the existing PCCP, overlay with 0.40-ft of plant mix surfacing and a full width seal & cover. The as-built station limit for this project are Sta. 1+09.45 at the Idaho-Montana border to Station 302+63.00.

A location map is included at the end of the report for reference.

### **Work Zone Safety and Mobility**

At this time, Level 1 construction zone impacts are anticipated for this project as defined in the Work Zone Safety and Mobility (WZSM) guidance. The plans package will include a Transportation Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). A Transportation Operations (TO) component and a limited Public Information (PI) component to address interchange ramp closures and wide load detours will also be included in the plan package. These issues are discussed in more detail under the Traffic Control and Public Involvement sections.

### **Physical Characteristics**

This section of I-90 is located in rugged, mountainous terrain within the Lolo National Forest. The project roughly parallels the upper reaches of the St. Regis River from RP 1.7 to RP 5.7. The adjacent terrain is heavily forested and sparsely populated. Local access is provided at two interchanges: Lookout Pass (RP 0.2) and Taft (RP 5.7). The Dena Mora Rest Area is located at RP 4.7. A design speed of 50 mph will be used for a Rural Interstate in mountainous terrain.

The first 3.4 miles of the project has an undivided four-lane interstate typical section which consists of 4 – 12-ft lanes, a 10-ft flush median, and 2 – 10-ft shoulders. For about 600 feet at the Lookout Pass Interchange and the shoulders are 14-ft wide. The median has concrete barrier installed throughout the section and varies between tall and standard height. The Lookout Pass – Interchange has one bridge crossing over the old railroad grade and crosses the St. Regis River twice using large culverts. There are ten horizontal curves and four vertical curves in the first section.

In the section of Interstate from RP 3.4 to 4.8. This section of interstate divides into two independent alignments, eastbound and westbound. The typical section for both the eastbound and westbound sides is 2 – 12-ft lanes, a 4-ft inside shoulder and 10-ft outside shoulders. There is roughly a 200-ft wide median between the two alignments through most of this section. The median has a mixture of open grassy areas and forested areas with mature trees. There is one authorized-vehicle-only turnaround at RP 4.2. Chippy Creek runs in the median from RP 3.8 to RP 4.3. This section also includes the Dena Mora Rest Area at RP 4.7. There is a westbound chain-up area from RP 3.5 to 3.9 and an eastbound chain removal area from RP 4.4 to 4.6. There are three horizontal curves for both eastbound and westbound. There are four vertical curves and one VPI for eastbound and five vertical curves for westbound. This section ends within the middle of a horizontal and vertical curve for both alignments.

The last section of I-90 from RP 4.8 to 5.7 is an undivided alignment with 4 – 12-ft lanes, a 10-ft flush median, and 2 – 10-ft outside shoulders. The median has concrete barrier installed throughout the section and varies from tall to standard height. This section ends at the Taft Interchange and has two bridges. One bridge crosses over the old railroad grade and the other bridge is the I-90 overpass at the Taft Interchange.

### **Context Specific Criteria and Scope Specific Considerations**

The following context specific criteria are anticipated based on MDT's Baseline Criteria Practitioner's Guide.

**Spiral Curve Length:** The spiral curve length on 15 horizontal curves extends longer than the

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superelevation runoff length to match existing conditions and reduce impacts to the surrounding mountainous terrain.

Vertical Alignment: The maximum grade for rural interstate in mountainous terrain is 6% for a design speed that is less than 65 mph. The proposed vertical alignment closely follows the existing terrain and maintains a 6% maximum slope from Sta. 7+20.00 to Sta. 123+50.00. Profile changes in this area of the project would require steep cut slopes and could impact the surrounding Lolo National Forest.

Ditch Width: The standard ditch width for a rural interstate is 10 feet. A maximum 4-ft wide ditch is proposed throughout the project limits to match existing conditions and reduce additional grading. By matching the existing conditions, right-of-way impacts to the neighboring Lolo National Forest will not be required.

Project Context Specific Criteria /Scope Specific Considerations				
Controlling Element	Existing Condition	Baseline Value	Proposed Criteria	Location
Spiral Curve	Spiral curve length does not equal superelevation runoff length	Spiral Curve Length = superelevation runoff length	Match Existing	All spiral curves. See horizontal alignment table.
Vertical Alignment	6.021%	6% for V < 65 mph	6.000%	7+20 to 123+50
Ditch Width	4-ft	10-ft	4-ft	Throughout project limits

### Design Speed

A 50 mph design speed is recommended for Rural Freeway (NHS – Interstate) in mountainous terrain and will be utilized for the project. The existing posted speed is 75 mph and 65 mph for trucks.

### Horizontal Alignment

The horizontal alignment perpetuates the existing roadway geometry and footprint to the extent practicable and will tie into the existing structures which are to remain in place. The following table identifies horizontal design elements throughout the project limits.

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Curve		Proposed Curve Data				Remarks
#	Proposed PI	Rc (ft)	e (%)	Ls In (ft)	Ls Out (ft)	
<b>A-1</b>	108+19.91 - ITD	1,528	7.0%	200	350*	Increase e, hold Ls
<b>EQN</b>	111+01.01 BK = 1+09.45 AH					
<b>A-2</b>	16+15.08	5,730	3.0%	-	-	Increase e
<b>A-3</b>	32+78.35	2,292	5.0%	225*	250*	Increase e, adjust Ls In
<b>A-4</b>	53+91.87	2,330	5.0%	250*	250*	Adjust Rc, increase e, hold Ls
<b>A-5</b>	68+48.87	2,292	5.0%	250*	250*	Increase e, hold Ls
<b>A-6</b>	84+38.15	3,820	3.0%	200*	200*	Decrease e, hold Ls
<b>A-7</b>	113+47.67	1,433	7.0%	400*	400*	Increase e, hold Ls
<b>A-8</b>	130+23.37	1,348	7.0%	400*	400*	Decrease e, hold Ls
<b>A-9</b>	147+93.77	1,100	8.0%	500*	500*	Adjust Rc, increase e, hold Ls
<b>A-10</b>	166+31.13	1,200	7.0%	475*	400*	Adjust Rc, increase e, lower Ls
<b>B-EB-1</b>	191+13.16	1,638	6.0%	350*	350*	Decrease e, hold Ls
<b>B-EB-2</b>	220+70.57	3,820	3.0%	150*	-	Decrease e, hold Ls
<b>B-EB-3</b>	241+99.90	11,460	NC	-	-	
<b>B-EB-4</b>	257+95.52	1,950	3.0%	-	-	No changes
<b>B-WB-1</b>	194+24.38	1,648	6.0%	350*	350*	Increase e, hold Ls
<b>B-WB-2</b>	222+02.01	4,584	3.0%	-	-	Decrease e, hold Ls
<b>B-WB-3</b>	256+78.49	1,627	2%	350*	-	Adjust Rc, decrease e, hold Ls
<b>C-11</b>	410+96.08	1,640	6.0%	350*	350*	Adjust Rc, decrease e, hold Ls
<b>EQN</b>	405+85.34 BK = 257+58.03 AH					
<b>C-12</b>	298+97.75	1,146	8.0%	500*	500*	Adjust Rc, increase e, hold Ls

\*Does not meet current design standards for Ls = Standard superelevation runoff length.

The horizontal alignments for the Lookout Pass Interchange and Taft Interchange ramps will match existing as these ramps are limited to a mill and overlay.

### Vertical Alignment

The vertical alignment will perpetuate existing conditions in order to limit the roadway reconstruction footprint. Minor profile grading adjustments will be implemented to match existing grade at bridge tie-ins and to avoid slope grading issues observed at the proposed outside edge of pavement.

The maximum grade on the project is in the first segment of the project from Sta. 7+20.00 to Sta. 123+50 at 6%. This matches the existing condition at this location.

The vertical alignments for the Lookout Pass Interchange and Taft Interchange ramps will match existing as these ramps are limited to a mill and overlay.

### Surfacing

The Preliminary Geotechnical Investigation and Pavement Assessment evaluated the existing pavement and subgrade in December 2020. Investigation borings obtained in the summer of

2020 indicate that the existing roadway subgrade generally consists of competent sand and gravel fill with good density. The subgrade properties of the soils encountered were predominantly A-1-a and A-1-b type soils, with a corresponding resilient modulus of about 22,000 psi, which are used in the proposed PCCP pavement section design models.

Preliminary PCCP pavement design was performed according to MDT's Pavement Design Manual for New and Reconstructed Rigid Pavement for both 30-year and 40-year design life.

The proposed reconstruction pavement section consists of 0.83' of PCCP over 0.5' crushed aggregate course. The existing chain-up and removal areas will be reconstructed utilizing the recommended PCCP pavement section. The existing pullout areas along I-90 will include a 0.20' mill and overlay and tie into the roadway reconstruction at the edge of the new PCCP, outside the 10-ft shoulder. The ramps at Lookout Pass and Taft Interchanges will receive a 0.20' mill and overlay.

### **Typical Section**

The finished top width of I-90 will match existing and consist of 10-ft outside shoulders, 2 – 12-ft lanes and a 10-ft flush median in the undivided sections and 10-ft outside shoulders, 2 – 12-ft lanes and 4-ft inside shoulders at the divided sections. Pullout, chain-up and chain removal areas will be perpetuated and match existing conditions.

The Lookout Pass Interchange, Dena Mora Rest Area and Taft Interchange ramps will match existing and consist of 6-ft outside shoulder, 15-ft (Dena Mora Rest Area and Taft Interchange) or 16-ft lane (Lookout Pass Interchange) and 4-ft inside shoulder.

### **Grading**

Grading along the project will consist of removing the existing plant mix surfacing and crack and seated PCCP pavement section down to the subgrade to construct the new PCCP pavement section. Additional excavation will be required to construct the proposed storm drain system and accommodate culvert replacements. Additional information on the drainage items are included in the Hydraulics Section.

### **Geotechnical Considerations**

The Preliminary Geotechnical investigation evaluated the geotechnical characteristics of subsurface soils near existing culverts and proposed stormwater detention locations to aid in the design of potential improvements. Five boring locations were identified based on culvert size and location and three borings were taken near stormwater detention areas. Boring logs were provided as part of the Preliminary Geotechnical Culvert Investigation Report as well as corrosion test results.

Additional geotechnical investigation will be required if new wildlife crossing structures are determined to be warranted and feasible. Rockfall hazard mitigation will not be evaluated at this time.

### **Hydraulics**

The project includes mainline culvert crossings, storm drain infrastructure, and floodplains. Numerous drainage issues are present throughout the project and are documented in the Preliminary Hydraulics Report. The area is subject to significant snowfall (typically exceeds 400 inches annually at Lookout Pass) which contributes to many drainage issues.

The project includes minor drainage culverts (42 inches and smaller) and major drainage culvert (48 inches and larger), with multiple mainline culvert crossings located in deep fill locations (greater than 15 feet of fill). The design of culvert replacements in deep fill locations will reference MDT's updated Hydraulics Manual (which incorporates the previous MDT Culverts in

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Deep Fill Procedure Memorandum). Where possible, culverts located under the Frontage Rd. will not be included in the project. All mainline culvert crossings, except for major culvert crossings in deep fill locations, will be replaced with minimum 30-inch culverts. Due to the corrosive nature of the site and heavy salt operations, all proposed crossings will consist of reinforced concrete pipe (RCP) or high density poly ethylene (HDPE). Where mainline culvert crossings outfall to steep slopes, spillway assemblies with down drains will convey flow to the toe of the slope. Culvert outlet protection and/or velocity dissipation devices will be incorporated at the outfall of down drains. Multiple 30-inch mainline culvert crossings have end treatments located within the clear zone. The incorporation of safety end sections could be considered, however, this may increase maintenance and be susceptible to corrosion due to salt. Five major culvert crossings are located in deep fill locations as follows:

- Station 29+24: 48 inch CMP (unnamed drainage)
- Station 70+62: 48 inch CMP (unnamed drainage)
- Station 93+82: 180 inch SSPP (St. Regis River crossing)
- Station 157+90: Double barrel 108 inch SSPP (St. Regis River crossing)
- Station 280+43: 48 inch CMP (unnamed drainage)

For the three 48-inch culvert crossings, rehabilitation (e.g., slip lining or cured-in-place pipe (CIPP) liners), rather than replacement, is recommended due to the deep fills and extra conveyance capacity exhibited at these locations. Additional culvert details (i.e., existing wall thickness, profile, potential voids, etc.) will be required before proceeding with the final recommendations. For the two St. Regis River crossings, both are located within a FEMA regulatory floodplain associated with the St. Regis River and will be rehabilitated in place, with current considerations consisting of slip lining and an in-place installation of a concrete invert. Coordination with the Mineral County Floodplain Administrator is recommended. Additional culvert details will be required before proceeding with the final recommendation. No stream channel impacts are proposed for the two St. Regis River crossings.

The majority of the existing storm drain infrastructure within the project limits will be removed and replaced with a new storm drain system. Where possible, existing infrastructure will be left in place. New storm drain infrastructure will include single and double drop inlets, median inlets, and storm drain piping. Where storm drain pipes outfall to steep slopes, spillway assemblies with down drains will be used (see above for details). Sediment basins will be incorporated where practicable downstream of storm drain pipe outfalls to limit sediment transport offsite. Pavement edge drains are proposed at long certain locations of the project to assist with the removal of water from the pavement section and promote pavement longevity. Edge drains will be integrated into the storm drain system facilities as design progresses.

Near Lookout Pass, an existing CMP flume is present on the north side of I-90. The flume extends into Idaho, and collects runoff from the hillside, which also includes springs, and conveys runoff to a 48-inch mainline (broken-back) culvert crossing under I-90 which is likely to be replaced in-kind as part of the project. The flume is in poor condition and options to rehabilitate or replace the flume will be evaluated as design proceeds. Additional survey i.e., existing wall thickness, profile, potential voids, etc.) of the culvert profile is warranted.

### **Permanent Erosion and Sediment Control (PESC) Features**

Disturbed areas will be replanted with native grasses. Recommended PESC features for the project include ditch blocks, embankment protectors (both for mainline culvert crossings, spillway down drains, and bridge drainage), drainage chutes, sediment basins, and culvert outlet protection and velocity dissipation devices. Additional PESC features anticipated to be incorporated as design progresses include check dams, ditch lining, and possibly slope soil

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stabilization. Design of PESC features was limited and generally assessed as part of preliminary design. As design continues, required PESC features will be further evaluated and proposed, as necessary.

### **Bridges**

There are four bridges within the project limits:

Structure Name	Identification No.	Length	Width	Remarks
Lookout Pass Interchange	L31174000+02001	274.9'	40.2'	Over I-90 Min. Clearance 17.41'
1.9M E Lookout Pass	I00090001-09821	157.6'	88.3'	
5M E Lookout Pass	I000900005+01481	304.4'	83.9'	68% Skew
Taft Interchange	I000900005+06861	133.0'	82.0'	

Bridge work will be limited to deck sealing at all four structures. Horizontal and vertical alignments will tie into the existing bridge approaches.

### **Traffic**

The existing pavement marking layout will be perpetuated and signing and delineation will be upgraded to meet current design standards. The conduit and wiring to the Variable Message Sign (VMS) at Lookout Pass will be replaced due to the excavation required for the reconstruction of the eastbound lanes. New lighting is also proposed on the Lookout Pass Interchange ramps to improve sight distance and the overall safety of the interchange. Lighting along the chain-up and removal areas will also be upgraded with new conduit and LED fixtures.

### **Intelligent Transportation Systems (ITS) Features**

There is an existing overhead Variable Message Sign (VMS) located at the top of Lookout Pass at RP 0.03 for eastbound traffic. The sign pole is located in within the median concrete barrier rail. This will need to be removed and replaced as part of the project.

Additional ITS solutions are being evaluated at the chain-up and chain removal areas to help inform drivers of the extents of the pullout area to reduce lane blockage on the interstate. This could consist of additional signing, streetlights or flashing lights.

### **Miscellaneous**

Miscellaneous features within the project limits include:

Rumble Strips: Shoulder rumble strips will be installed as part of the project.

Guardrail: Guardrail will be placed where warranted due to steep fill slopes and obstructions within the clear zone. The existing guardrail will be updated to the new MASH standards.

Concrete Barrier Rail: New concrete barrier will be place where warranted. The existing 2-loop CBR will be replaced with 3-loop CBR throughout. The existing median concrete barrier will be replaced with new tall concrete barrier rail in the undivided interstate sections except in areas where emergency turnarounds are being perpetuated. Standard concrete barrier will be used adjacent to the emergency turnarounds in order to maintain sight distance for vehicles utilizing the turnaround. The base width of the new tall concrete barrier is 2'-8" as compared to the standard concrete barrier width of 2'. The additional barrier width will result in an inside shoulder width of approximately 3.6', which is less than the 4' standard for interstates. Additional pavement width on the outside of the roadway will be evaluated where terrain allows to maintain a 4' shoulder in the undivided sections. Drainage patterns will be evaluated as part of the concrete barrier placement and the standard scupper will be eliminated in order to convey



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surface drainage to the new inlets.

RWIS: An existing Roadway Weather Information System (RWIS) with cameras is located at RP 0.2. The RWIS sensors will need to be removed and replaced as part of the project.

Chain-up/removal areas: The chain-up area is located along the outside westbound shoulder from Sta. 191+68 to 206+99 and the chain removal area is located along the outside eastbound shoulder from Sta. 238+00 to 248+36. These areas have an existing surfacing section which consists of 0.65-ft of PMS and 0.42-ft of CAC with an average 15-ft of additional finished top width beyond the outside paved shoulder. The chain-up/removal areas will be reconstructed with PCCP as part of this project.

Pullouts: The pullout areas are located from Sta. 31+41 to 35+39 (EB), Sta. 87+96 to 89+87 (WB) and Sta. 125+58 to 128+78 (EB). The existing surfacing is made up of 0.20-ft of PMS over 1.00-ft of CAC. These three areas will remain in place and receive a 0.20-ft mill and overlay as part of this project.

Dena Mora Rest Area: There are rest area facilities on both sides of the Interstate. The rest area was rebuilt, and the parking area expanded in 2003 as part of project IM 90-1(138)5 [UPN 3206]. The asphalt surface ramps and parking areas were last chip sealed in 2015. No further improvements will be made with this project

### **Design Exceptions**

No design exceptions or baseline variances are identified at this time.

### **Right-of-Way**

No new right-of-way acquisition, easement or construction permits are anticipated. The existing right-of-way limits will be reproduced based on as-built plans and provided for information only on the plans.

Currently no funds are programmed for R/W. At this time a modification to this amount is not necessary.

### **Utilities/Railroads**

There are no railroads in the vicinity of the project and no railroad involvement is anticipated.

Existing utilities include fiber optic cable and overhead transmission power lines near the Idaho border. Underground power also exists along the roadway. The VMS at Lookout Pass has power supplied to it under the eastbound lanes. The Dena Mora Rest Area also has underground power and sanitary sewer located under I-90 connecting the two facilities. The existing luminaires along the chain-up and removal area also have underground power that will be replaced as part of this project.

Currently no funds are programmed for IC. After we are further in the design and have a better understanding of these impacts IC funds will need to be programmed.

### **Maintenance Items**

The project team met with MDT Maintenance staff in July 2021 to discuss challenges along this stretch of I-90. Due to the mountainous terrain, snow removal is prevalent in this area. Sediment accumulation due to standard snow removal practices causes drainage issues by clogging scuppers, culverts and other inlet structures. The proposed drainage and roadside barrier systems will take this into consideration as the design progresses.

### Environmental Considerations

The proposed project meets the criteria for a categorical exclusion in accordance with 23 CFR 771.117(c)(26) and significant impacts are not anticipated. A draft Categorical Exclusion environmental document was submitted to MDT on November 5, 2021. Review comments have been received and a revised final environmental document will be submitted after this AGR report has been approved by MDT.

No "use" of any Section 4(f) resource is anticipated to occur. The NorPac recreational trail is located within National Forest but is managed by the non-profit Friends of the Coeur d'Alene Trails. Should impacts or temporary closures to the NorPac trail system be identified as a result of the proposed project, additional coordination with the USFS would be necessary to determine whether the trail system is protected as a Section 4(f) resource.

A Section 404 Clean Water Act permit is anticipated due to in-stream work required for culvert replacements and likely unavoidable wetland impacts. Culvert replacements or rehabilitations within Chippy Creek, Mephisto Creek, and other unnamed streams are likely to require minor grading and temporary impacts within the stream, and thus would require water quality permits obtained by the construction contractor to conduct this work. Similarly, culvert rehabilitation of the two St. Regis River culverts at RP 1.75 and RP 3.0 may require a Section 404 permit if in-stream temporary impacts are anticipated. Stream mitigation requirements are not anticipated for the project. Unavoidable wetland impacts are anticipated due to the proximity of wetlands immediately adjacent to the highway where potential grading may occur. Avoidance and minimization of wetland impacts will continue to occur as design progresses. Requirement for compensatory mitigation will be determined during final design and the permitting phase for the project.

A Stream Protection Act (SPA) 124 Notification through MT Fish, Wildlife, and Parks (FWP) is anticipated to be required for the project based on proposed improvements to the culverts carrying the St. Regis River, Chippy Creek, and Mephisto Creek. Additional permits, such as a 318 authorization for short-term water quality standard for turbidity related to construction activity, would be a contractor requirement to carry out any in-stream work. In addition, the proposed project is anticipated to require compliance with the MPDES General Permit administered by the MT Department of Environmental Quality (DEQ).

The Preliminary Biological Assessment rendered a "May Affect" determination for Canada lynx and grizzly bear. Based on the "May Affect" determination for these two species, a Biological Assessment will be prepared, and a final determination of effect will be made at a later phase in project development in coordination/consultation with the USFWS. Formal consultation with the USFWS is anticipated.

A Wildlife Accommodation Recommendation Memo (WARM) was prepared for the project, and recommendations are summarized as follows:

- **Wildlife Guide Fence.** Location includes approximately one-half mile each side of existing bridges at RP 1.9 and 5.2. The existing highway corridor is currently unfenced and coordination with the USFS will be important moving forward. MDT has standard design details available (Section 607) for wildlife guide fence and no additional research is warranted. Wildlife fence presents challenges with regard to installation and maintenance that would need to be discussed with MDT maintenance crews.
- **Wildlife Crossing Signs.** For this recommendation, a single wildlife crossing sign with yellow flashing lights would be installed for eastbound traffic near RP 3.3 and for westbound traffic near RP 5.1. Coordination with local biologists from the USFS and FWP as well as coordination with MDT maintenance staff would be required to dial in the

best specific location for the proposed signs on both ends of the divided corridor. Power supply for flashing yellow lights would be a critical design and maintenance consideration moving forward with solar power being the anticipated power source. MDT has standard design details available (Section 619) for wildlife crossing signs and no additional research is warranted.

- **Upsized Culverts.** Location varies over the length of the project. The project corridor contains numerous cross drains and drainage culverts of various size (24" to 48") that will be replaced or rehabilitated in place as part of the proposed project. An opportunity may exist to increase the size of one or more of these culverts within the project limits to accommodate the movement of wildlife up to the size of an adult deer (84" to 108"). If a larger size diameter is not feasible, upsizing to a 54" culvert would allow for passage of smaller animals. However, opportunities for this accommodation are severely limited by a multitude of constructability challenges. MDT has standard design details available (Section 603) for all culvert types and sizes and no additional research is warranted. Further coordination with the USFS and FWP is encouraged and will help determine the level of support from the agencies for this type of accommodation. Additional design team coordination is necessary to identify specific locations where this accommodation is feasible. If no locations are identified, the accommodation will be dropped from consideration in the WADR.

### **Experimental Features and Proprietary Products**

There are no experimental features identified for this project.

### **Traffic Control**

Traffic will be maintained during construction of the project with appropriate crossover detours and signing in accordance with the Manual on Uniform Traffic Control Devices (MTUCD) and MDT Standard Detailed Drawings. The work zone will require traffic to be merged into one travel lane in each direction and all traffic will be detoured onto one half I-90 to allow for the other half to be constructed. The traffic will then be switched over and detoured on the newly constructed side to allow for room to construct the other half of I-90.

The AGR plans identify four crossover locations:

- Crossover 1: RP 73.80 (ITD) Closed Median Crossover (west of Lookout Pass Interchange)
- Crossover 2: RP 3.40 Closed Median Crossover
- Crossover 3: RP 4.90 Closed Median Crossover
- Crossover 4: RP 5.8 Closed Median Crossover (East of Taft Interchange)

Coordination with Idaho Department of Transportation (ITD) will be required to finalize the crossover location on the Idaho side of Lookout Pass to obtain permission to construct and remove the detour.

### **Public Involvement**

The project Level of Impact (LOI) has been determined to be Moderate, and level of public involvement B, as defined by MDT's Public Involvement Plan.

A Public Involvement Plan (PIP) has been completed for the project. Project website materials have also been drafted and provided for MDT's review including a project logo, map, fact sheet, project photo and web content. This information will be posted on the project website once approved by MDT.

Individual stakeholder meetings will be held between AGR and PIH to inform and educate the public about the project. Stakeholders include United States Forest Service, ITD, Mineral and

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Shoshone Counties, emergency officials, heavy truck traffic and recreational users and local interest groups. No open house public meetings are scheduled for the project as this time but will be evaluated as the design progresses.

Updates during construction will be important in order to identify lane closures and detours for users. The project team will continue to coordinate with ITD and other key stakeholders to identify any events or recreational access in the area that may be impacted during construction. Crashes or disabled vehicles along I-90 will require quick attention in order to keep traffic moving when traffic is limited to one lane in each direction.

### **Preliminary Construction Cost Estimate**

A preliminary cost estimate was prepared for the project. The project total CN+CE at PFR was \$37,261,688 including INF + IDC.

	Estimated cost	Inflation (INF) (from PPMS)	TOTAL costs w/INF + IDC (from PPMS)
<b>IM CN</b>	<b>\$47,930,000</b>	<b>\$5,544,759</b>	<b>\$ 53,503,519</b>
<b>TOTAL CN</b>	<b>\$47,930,000</b>	<b>\$5,544,759</b>	<b>\$ 53,503,519</b>
<b>CE (10%)</b>	<b>\$4,793,000</b>	<b>\$554,475</b>	<b>\$ 5,350,351</b>

*Project TOTAL from all of the funding types above:*

<b>Project TOTAL CN+CE</b>	<b>\$52,723,000</b>	<b>\$6,099,234</b>	<b>\$ 58,853,870</b>
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The estimate above includes \$2,000,000 for traffic control, 20% allowance for contingency, and 10% for mobilization.

Note: Inflation is calculated in PPMS to the letting date. If there is no letting date, the project is assumed to be inside the current TCP and is given a maximum of 5 years until letting. IDC is calculated at 9.66% for FY 2022.

The increase in cost is due to a concrete overlay-type scope to a full reconstruction scope, higher traffic control estimate, higher unit costs for earthwork and concrete pavement, and higher costs due to percentage estimates for CE and mobilization. The project will likely be split at PIH at a location that will keep the cost similar to what was estimated in the PFR estimate.

### **Preliminary Engineering**

HDR is completing Preliminary Engineering activities. Scoping of phase two is currently taking place and PE will be evaluated at that point. At this time 48% of current PE has been expended.

### **Ready Date**

The current ready date is October 18, 2023. The project has a letting date of March 01, 2024 and plans to use 2024 and 2025 funds for the construction costs. At this time, design issues that may delay the design timeline are not anticipated.

The current PE End Date is 05/31/2025 as listed in the PE Obligation and Expenditures Report. A review of the remaining EPS schedule, critical path activities, and target letting date indicates that a modification to the PE End Date isn't needed.

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### Headquarters

Ryan Dahlke, Preconstruction Engineer (acting)  
Jacob Brotzler, Highways Design Engineer (acting)  
Dave Hedstrom, Hydraulics Engineer  
Bill Weber, Supervisor, Photogrammetry & Survey  
Stanton Brelin, Traffic Operations Engineer  
Tyrel Murfitt, Traffic Design Engineer  
Patricia Burke, Safety Engineer  
Brett Harris, Engineering Cost Analyst  
John Pirre, Engineering Information Services  
Megan Redmond, Communications Assistant  
John Mueller, Public Relations Specialist  
Vacant, Research Section Supervisor  
Chad DeAustin, Experimental Project Manager  
Lisa Hurley, Fiscal Programming Section  
David Phillips, Engineering Division  
Ed Cohlhepp, Engineering Division

Steve Giard, Utilities Engineering Manager  
Linda Cline, Lands Section Supervisor (acting)  
Bob Heiser, Acquisition Section Supervisor  
Jon Burnett, R/W Access Management Section Manager  
Jim Davies, Materials Bureau Chief  
DJ Berg, Pavement Analysis Engineer  
Miles Yerger, Surfacing Design Supervisor  
Scott Helm, Geotechnical Operations Manager  
Paul Johnson, Project Analysis Bureau  
Jean Riley, Planner  
Tom Gocksch, ESB, Engineering Section Supervisor  
Erin Murphy, Fiscal Programming Section

Doug McBroom, Maintenance Division Operations Mgr (RWIS)

Joe Radonich, Remediation and Assessment  
Shane Pegram, Construction Bureau – VA Engineer  
Darin Reynolds, Engr. Const. Contracting Bureau Chief

Bill Semmens, Environmental Resources Section Supervisor  
Jon Axline, Historian  
Darcy Goodson, Reclamation Specialist  
Nathan Haddick, Bridge Design Engineer

### Missoula

Steve Felix, Maintenance Chief (Missoula)  
Justun Juelfs, Maintenance Chief (Kalispell)  
Darrell Williams, Construction Ops Engineer  
Andy Cullison, Bridge Area Engineer  
Bret Boundy, Geotechnical Manager  
Rebecca Ridenour, Project Development Engineer  
Pat Metzger, District MCS Captain  
Tim Hufford, Surfacing Design  
Gregg Wood, District Utility Agent (Missoula)  
Josh Dold, Road Design Area Engineer  
Michael Ivanoff, Environmental Engineer  
Glen Cameron, Traffic Engineer - Missoula  
Rebecca Franke, Traffic Engineer - Kalispell

Jacquelyn Smith, Preconstruction Engineer  
Mike Dodge, Materials Lab Supervisor  
Johnathon Schmidt, Construction Engineer  
Maureen Walsh, Right of Way Supervisor  
Johnathan Rainwater, Hydraulics Engineer  
Scott Gerken, Traffic Project Engineer  
Joe Weigand, Biologist  
Benjamin Nunnallee, Projects Engineer  
Peter Thelen, District Utility Agent (Kalispell)  
Joe Green, Constructability Reviewer  
Nick Tholt, Signing Designer Supervisor  
Jim Turner, Registered Land Surveyor

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