



Montana Department of Transportation

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Memorandum

To: Distribution
From: James A. Combs, P.E., Highways Engineer
Date: January 28, 2019
Subject: STPS 203-1(15)4
North of Stevensville - North
UPN 6138000
Work Type 140 - Reconstruction - without added capacity

RECEIVED

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Rc dept
gw

FEB 11 2019

Ravalli County Commissioners

Five empty rectangular boxes for signatures

The Scope of Work Report for this project has been released on 1/31/19. We request that those on the distribution review this report and submit your concurrence within two weeks of the above date.

Your comments and recommendations are also requested if you do not concur or concur subject to certain conditions. When all the personnel on the distribution list have concurred, we will submit this report to the Preconstruction Engineer for approval.

I recommend approval:

Approved _____ Date _____

Distribution:

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Stephanie Brandenberger, Bridge Engineer
James A. Combs, Highways Engineer
Roy Peterson, Traffic and Safety Engineer
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William M. Squires, EPS Project Manager, Missoula District

Ravalli County Commissioners
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Scope of Work Report

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Scope of Work

The proposed scope is to reconstruct the horizontal and vertical alignments to meet 60 mph design criteria, except for two horizontal curves. The northerly 4.7 miles of the project was originally scoped as pulverization, but the design team agreed to revise the scope from a partial reconstruction and partial major rehabilitation to a total reconstruction in August 2013. The change to total reconstruction allows more flexibility to alter the horizontal and vertical alignments to provide acceptable connections to public road intersections and to avoid/minimize impacts to sensitive features identified during the design process.

The work will include clearing, grading, drainage, gravel, plant mix surfacing, signing, striping, fencing, and other miscellaneous items. Extensive right-of-way acquisition and utility relocation will be required.

Purpose and Need

The purpose of the project is to reconstruct the facility along the existing corridor to provide needed improvements in safety and operation for the traveling public.

Public Summary

Eastside Highway will be reconstructed from Wildfowl Lane to Huckleberry Lane to handle the heavy traffic volumes and to provide a safer roadside. The new road will have a center/left turn lane, paved shoulders, flatter roadside slopes, better drainage, and new signing. The sharp horizontal curves at Rathbun Lane and Ambrose Creek Road will be flattened.

Project Location and Limits

Secondary-203 is in Ravalli County and begins at the junction with Secondary 269 in Stevensville and ends in Florence at US 93. The project begins at RP 4+0.046, about four miles north of Stevensville, and about 350 feet south of Wildfowl Lane. It extends northerly 5.874 miles to RP 10+0.147, about 300 feet north of Huckleberry Lane. The end of this project will tie to the beginning of BR-STPS 203 1-(11)10 Florence – East [4854], which was constructed in 2015.

The length of new construction (determined by difference in stationing) does not correlate to the difference in accumulated mileage tabulated below because the proposed flattening of the curves at RP 4.6± and RP 5.1± will reduce the length of road by about 0.085 miles.

DESCRIPTION	MDT RTE	CORRIDOR	REFERENCE POINT + OFFSET	ACCUMULATED MILEAGE
Begin project	S-203	C000203N	4+0.046	3.917
End project	S-203	C000203N	10+0.147	9.879

The project stationing will increase from south to north. The project begins at Station 211+30.59 and ends at Station 521+46.66 Back = Station 518+62.80 Ahead on STPS-BR 203-1(12)10.

Physical Characteristics

Secondary-203 (Eastside Highway) is functionally classified as a Major Collector. It passes through level to rolling rural terrain. The adjacent land use is generally agricultural and residential. There are numerous county roads, private roads, and private approaches intersecting S-203 within the project limits.

The Lee Metcalf National Wildlife Refuge is located west of S-203 between the highway and the Bitterroot River. The refuge is directly adjacent to S-203 between RP 6.2± and 7.1±.

As-built plan information is not readily available from RP 3.032 to RP 4.808, a county construction project reportedly built in 1945. The as-built plan information we do have is listed below:

Reference Post (RP)	As-Built Stationing	Project Number	Year
4.961 to 5.495	255+86.5 to 286+79.9	S-120(1)	1955
5.495 to 9.90	286+79.9 to 517+00±	S-170(1)	1955

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According to the TIS Roadlog, the original surfacing on the county-constructed segment consisted of 0.25' of base course. It was subsequently covered with road mix bituminous surfacing. For the rest of the project, the original surfacing included 0.58' of compacted select borrow base course, 0.25' of top cushion course, 0.17' of road mix bituminous surfacing, and seal and cover.

Thin-lift overlays (< 0.20') were placed on Secondary 203 in 1993 from RP 0 to 4.808 under RTS 203-1(2)0, Stevensville Northeast [2227], and in 1995 from RP 4.808 to 11.963 under RTS 203-1(3)5, Florence –South [2664.]

The current roadway width is 24 feet consisting of two 12-ft. travel lanes and no shoulders. Surfacing inslopes are 4:1.

Existing fill slopes less than 5 feet are 4:1 and fills greater than 5 feet have 1.5:1 slopes. Embankments 5 to 10 feet high were widened about 4 feet and those over 10 feet were widened 5 feet. Gravel was placed atop the widened embankments flush with the top of the cushion course.

Existing ditch sections have 4:1 inslopes that extend to 12 feet beyond the edge of driving lane, and a 10:1 ditch bottom 10 to 20 feet wide. Backslopes for cuts less than 5 feet are 5:1, cuts between 5 and 10 feet have 3:1 backslopes, and backslopes for cuts over 10 feet are 1.5:1.

All of the horizontal curves, except the two curves at RP 4.6 and RP 5.1, have radii well above the 60 mph design speed minimum of 1200 feet. None of the curves have spiral transitions. We do not have as-builts for the horizontal curve at RP 4.6, but graphical inspection of the photogrammetric mapping and cross-sections indicates its radius is about 210 feet and its superelevation is 8%. The 210-ft. radius is slightly less than the minimum radius of 220 feet for a 30 mph design (see Fig. 9.3A of RDM). The curve at RP 5.1 has a radius of 114.6 feet and 8% superelevation, which corresponds to a design speed of 24± mph (based on Equation 9.2-1 of the RDM: $V = [15R(e+f)]^{1/2} = [15*114.6(.08+.25)]^{1/2} = 23.8$ mph). Each of these two curves has warning signs with flashers and 20 MPH advisory speed plates.

The maximum grade is -4.522% at as-built station 483+00 (RP 9.25±), compared to the maximum grade of 5% for a rural collector in level terrain. All the crest vertical curves meet 60 mph design speed criteria. The three sag vertical curves that do not provide 60 mph design speed stopping sight distance (SSD) are summarized below:

<u>PI Station</u>	<u>(MP)</u>	<u>Length (ft)</u>	<u>SSD (ft) (570' min.)</u>	<u>Design Speed</u>
320+97	(6.14)	400	462	53 mph
456+00	(8.70)	400	442	56 mph
486+80	(9.28)	400	317	41 mph

Traffic Data

The traffic data listed below is for S-203 from RP 4.0 to RP 10.0

2014 ADT	=	3,500
2017 ADT	=	3,850
2037 ADT	=	7,320 (Design Year)
DHV	=	780
T	=	4.3%
ESAL's	=	116
Growth Rate (Annual)	=	3.3%

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The Montana Traffic Data webpage lists the following 2017 traffic data for S-203 (RP 7+0.189 is the Dry Gulch Road junction):

Section	AADT	Commercial	Large Trucks
RP 1+0.249 to RP 7+0.189	1,893	232	199
RP 7+0.189 to RP 11+1.357	5,090	232	199

Crash Analysis

Safety Management completed a crash analysis for the segment from RP 4.0 to RP 10.1 covering the 3-year period from January 1, 2011 through December 31, 2013. The analysis evaluated the project from both a corridor-wide perspective as well from a segmentation perspective.

There were forty-one crashes reported, including thirteen injury crashes and one fatal crash. Thirty-six of the forty-one crashes were non-intersection related. In general, this portion of S-203 is performing at a Level of Safety Service (LOSS) III. This LOSS boundary indicates a moderate to high potential of crash reduction. For severe (fatal and injury) crashes, the project is also performing at LOSS III. For road departure crashes, this portion of S-203 is performing at a LOSS III overall, and specifically for severe road departure crashes,

There was one fatal injury crash with one fatality, thirteen injury crashes, and twenty-seven property-damage-only (PDO) crashes. Eighteen crashes involved collisions with wild animals, and in nine other crashes the vehicle overturned.

There were five intersection related crashes during the study period. Two occurred at the intersection of El Capitan Loop, with one crash resulting in a non-incapacitating injury, and the other in property-damage-only. The other three intersection crashes were evenly distributed within the project limits with no specific concentrations observed.

Crash clusters between reference posts 4.2 to 5.3 were identified in 2004, 2010, and 2012/2013. In 2004, the Safety Engineering Section noted that there had been no new crashes on the curve at RP 4.5 since new flashers and signage had been installed under HSIP 203-1(13)4, UPN 6073 and recommended the junction at Ambrose Creek Road and Moiese Lane be reconstructed. These recommendations yielded a benefit cost ration of 0.51 with an estimated cost of \$2,500,000. Installing additional flashers were also reviewed and yielded a benefit cost ratio of 9.46 with a cost of \$15,900.

Reference Post 4.6 to 4.7 was identified as a crash cluster in 2010. The Safety Engineering Section noted the project history and had no further recommendations. In 2012/2013, RP 4.593 to 5.130 was identified as a crash cluster. The Safety Engineering Section had no recommendations at that time.

Crash clusters between reference posts 5.9 to 7.6 were identified in 1998, 1999, 2001, 2010, and 2013/2014. No addressable trends were observed when RP 6.2 to 7.5 was identified in 1998, RP 5.9 to 6.4 and RP 7.0 to 7.6 were identified in 1999, and RP 7.1 to 7.6 was identified in 2001. Reference Post 6.4 to 6.9 was identified as a crash cluster in 2013-2014. The Safety Engineering Section noted that crashes had been declining in the previous 10 years and had no additional recommendations at that time due to the project history.

The section from approximately RP 8.5 to 9.5 is consistently performing at a LOSS IV for total crashes, severe crashes, road departure crashes, and severe road departure crashes. This LOSS boundary indicates a moderate to high potential for crash reduction. Nine crashes occurred between these reference posts, including one fatal, two incapacitating injury, one non-incapacitating injury, and five PDO crashes.

Three of the collisions occurred due to animals in the roadway, two crashes occurred on the curve at RP 8.8, two were due to icy conditions, the driver fell asleep in one crash, and one involved sideswiping a parked vehicle's side mirror.

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In the Executive Summary of the Crash Analysis dated February 17, 2015, the Safety Engineer noted the following:

"Installing centerline rumble strips should be considered as this location has had six off-road left crashes during the study period and has been identified as an area meeting the cost effectiveness thresholds for installation of this countermeasure.

"Wildlife Crossing" warning signs and supplemental "Next 5 Miles" plaques are recommended at RP 5.5 and RP 10 to address the identified wild animal crash pattern.

Reconstructing the roadway to current design standards, including additional shoulder, rumble strips, clear zones and recoverable slopes, should mitigate the remaining observed crashes."

An updated crash listing for the period from 2014 thru 2017 was reviewed to determine if the crash trends previously identified were still intact.

Crash Type	2011 – 2013 Total	2011 – 2013 (per year)	2014 – 2017 Total	2014 – 2017 (per year)
Wild Animal	18	6.00	25	6.25
Roll Over	9	3.00	5	1.25
Fixed Object	7	2.33	9	2.25
Rear End	1	0.33	7	1.75
Right Angle	2	0.67	3	0.75
Sideswipe	2	0.67	2	0.5
Multi-vehicle	6	2.0	16	4.0
Total*	41	13.67	58	14.5

* Only the top seven most prevalent crash types are listed. Total does not match sum of crash types listed.

The rate of single-vehicle crashes (11.67/yr. in 2011-13 vs. 11.00/yr. in 2015-17) has remained consistent. The increased rate of multi-vehicle crashes (2.0/yr. in 2011-13 vs. 4.0/ yr. in 2015-17) suggests that the reduced shoulder width along much of the project so that a two-way-left-turn and dedicated left turn lanes can be provided is appropriate.

Major Design Features

The project is being developed in accordance with the Geometric Design Criteria for Rural Collector Roads (Secondary System), as presented in Figure 2.4 of the MDT Geometric Design Standards. Additional guidance will be obtained from the Guidelines for Nomination and Development of Pavement Projects (Corrective Maintenance → Reconstruction), updated in December 2017.

- a. **Design Speed.** A 60-mph design speed is proposed, appropriate for a rural collector in level terrain. The posted speed limit throughout the project limits is 60 mph for cars. The day/night speed limit for trucks is 60 mph/55 mph.
- b. **Horizontal Alignment.** The proposed horizontal alignment generally follows the existing alignment, except for the curves at RP 4.6 and RP 5.1, and except for a few deviations to avoid sensitive areas. It includes nine horizontal curves with radii ranging from 590 feet to 11,400 feet. The four curves with radii $\leq 2,865$ feet will have spiral transitions. The 590-ft curve Right at RP 4.6 ($V = 45$ mph) replaces a 30-mph curve. The pair of "broken-back" 625-ft. curves Left at RP 5.1 ($V = 45$ mph) are connected by spiral transitions and a 56' tangent. They replace a single 24-mph curve.
- c. **Vertical Alignment.** The project includes seven crest and eight sag vertical curves all of which provide the SSD for a 60-mph design speed. The grades range from +0.167% to -4.022%. The new profile ranges from up to five feet below PTW where a crest vertical was lengthened, to up to four feet above PTW to provide clearance for a new structure.

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- d. **Typical Sections.** We propose a top width of 44 feet which will accommodate a 12-ft. through lane and a 4-ft. shoulder in each direction, along with a 12-ft. two-way-left-turn lane/dedicated left turn lane that will straddle the centerline. The 44-ft. top width was determined several years ago through the Roadway Width Decision process. See **Traffic** for a discussion on segments where the lane configuration on the 44-ft. top will be revised.

The northbound roadway will be widened an additional 12 feet for about 445 feet upstream of the Ambrose Creek Road intersection at RP 5.1 for a right-turn deceleration lane.

The realigned segments of the county roads at RP 4.6 and RP 5.1 (Rathbun Lane and Ambrose Creek Road, respectively) will each be paved 24 feet wide, as will the other county road approaches. Standard 6:1 surfacing inslopes are proposed for all typical sections on S-203. We will consider 4:1 inslopes on the county road approaches, which is appropriate for a rural local road.

The shoulder width will be increased from four feet to ten feet for mailbox turnouts at various locations throughout the project.

The Route Segment Plan indicates that an 8-ft. shoulder is the recommended shoulder width on the entire 12.0± mile length of S-203. The 4.1± miles south of the project currently has virtually no shoulder. The segment to the north (RP 10.1± to RP 12.0±) was reconstructed in 2015 with predominately 4-ft. shoulders.

- e. **Surface Design.** The predominant soils along the project include sands and gravels of varying thickness and density. Sands are more prevalent south of RP 6.1±, while gravels are common to the north. There are interbeds of silt common throughout, ranging in thickness from 0.2 to 20 feet. In general, the subgrade materials should perform well for the proposed reconstruction.

Surfacing Design's recommendation for a 20-year design life is 0.30' plant mix surfacing and 0.65' crushed aggregate course for the reconstruction surfacing section. The recommended plant mix is ½" Grade S, and the binder is PG 64-28. Surfacing design was based on 2006 traffic data projecting 56 ESALS and a subgrade with an R value of 30. The 2014 traffic data updated the projected ESALS to 116, but this does not affect the recommendation.

A seal coat with Type I cover material and CHFRS-2P seal oil will be placed full width atop the pavement.

- f. **Grading.** The greatest impact on the grading is the widening of the road from 25 feet to 44 feet. Virtually all the excavation should be unclassified, with a shrink factor of 17 to 20 percent. Although it is always desirable to achieve a balanced earthwork, that will be a secondary consideration. Our primary concern will be balancing the impacts to the roadside properties.

There may be opportunities for short (10 to 30 stations) intermediate balance points. Much of the excavation will come from the large cuts to the east from Station 473+60 to 485+00 and from Station 487+50 to 505+00. The preliminary grading quantities show about 168,600 cy of excavation and 209,400 cy of adjusted embankment (20% shrink), resulting in a required borrow of about 40,800 cy. These quantities do include topsoil replacement and the additional grading required to build the new approaches.

- g. **Slope Design.** We generally propose to use steeper recoverable fill slopes (i.e. 4:1's) along areas where a standard 6:1 slope would require more than 30 feet of new right-of-way acquisition. There will probably also be a few intermittent segments (including the historic properties, the wildlife refuge, and properties where improvements such as structures and drain fields would be impacted) where we will propose to steepen fill slopes less than 10 feet high to a 3:1.

For fills 10 to 20 feet high where the standard 4:1 slope would require more than 40 feet of

new right-of-way acquisition, we propose a 3:1 slope. Again, there could be a few isolated segments where we will propose a 2:1 or flatter slopes to avoid impacting roadside improvements.

We'll strive to provide recoverable (i.e. 4:1 or flatter) fill slopes for fills up to 20 feet high. We'll also strive to provide a recoverable ditch section (i.e. 6:1 inslopes with 4:1 backslopes) for cuts up to 5 feet high. However, given the proximity of roadside improvements (houses, outbuildings, drain fields, etc.), we fully expect that construction limits will have to be "pulled in" to acquire many parcels.

We propose to reduce the flat-bottom ditch width to as little as 0 feet (i.e. a v-ditch) where doing so will reduce the right-of-way acquisition required. With a 6:1/4:1 v-ditch, the lateral extent of construction impact will be reduced by about 7 feet on a 10-ft. cut, compared to the standard flat-bottom ditch with a 4:1 backslope.

- h. **Geotechnical Considerations.** The Geotechnical Section has completed an extensive subsurface investigation. Their evaluation of the borings and preliminary cross-sections has led to the following recommendations:

Slope stability: Stations 393+50 to 394+50, 396+00 to 399+50, 401+50, and 473+50±: Proposed cuts up to 42 vertical feet high with backslopes as steep as 1½:1 will expose A-1, A-2, A-4, and A-6 soils. Through slope modeling analyses, it was determined that for long-term stability, the slopes within the areas listed above (and all other slopes on the project) should be no steeper than 2:1.

We will not propose cut and fill slopes steeper than 2:1 during the design phase, even though design exceptions have been approved for them. If during the R/W acquisition phase we are requested to consider slopes steeper than 2:1, we will collaborate with Geotech and other functional units to evaluate the efficacy of various options. We will weigh the initial and long-term costs of a special slope design (i.e. retaining wall, RSS, etc.) and probable project delays (for re-design) against the savings in reduced impacts to various roadside features (residential, commercial, biological, cultural, etc.).

The two bore holes near Station 256+50± to 270+50± indicate that groundwater is fairly close to the existing surface (four to fourteen feet). It was recommended to raise the left ditch bottom if possible, as the ditch may hold standing water for extended periods during rain or melt events. The proposed left ditch bottom along this segment is about 10 feet above the ground water and is only two to three feet below existing ground, so we don't believe it needs be raised.

The Geotechnical Section recommends the installation of stabilization geotextile atop the subgrade to improve constructability along the segment from Station 322+50 to 376+50±, where A-4 soils with high moisture content could make construction problematic during unfavorable weather. The geotextile will also reduce the chances of base course contamination and improve long-term pavement performance.

Questionable subgrade soils were encountered within Stations 408+00 to 454+50, but it is not recommended to include additional quantities of stabilization geotextile in the plans. If it becomes necessary to add the stabilization geotextile to some of this section, having the bid item in the contract should yield a reasonable cost.

Culvert foundation treatment is recommended for the 60" culvert at the Three-Mile creek overflow (Station 281+15±), due to the poor soils detected in a nearby boring. We will evaluate whether foundation treatment should also be specified for the larger pipe proposed for the main channel of the creek, which is only 40 feet south of the overflow pipe.

Finally, Geotech recommends that a high quality backfill material be used for the larger culverts to attain good compaction, provide adequate support, and reduce settlement-related issues or potential pipe failures.

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Once the project is in right-of-way acquisition status, the need for additional geotechnical investigation/recommendations may arise if retaining walls must be considered in a few areas to reduce/eliminate impacts to roadside improvements/property.

- i. **Hydraulics.** The major drainage on the project is the Three-Mile Creek crossing at Station 280+85±. A very preliminary recommendation from Hydraulics called for a 14'-2" span x 9'-10" rise SSPPA set down two feet, plus a 6-ft. CSP overflow culvert. The minimum road grade elevation for this proposal is 3299.63 feet, which virtually matches the PTW profile.

The proposed profile along this section is almost two feet above PTW and could conceivably accommodate an SSPPA with slightly more rise and span, or possibly a reinforced concrete box culvert (RCB) of equivalent size. We may elect to offer alternate bid items (SSPPA vs. RCB) at this location.

The rest of the cross drains are 60" diameter and smaller (except for a 72" unused stockpass that provides a small drainage function). We propose to upsize up to three pipes that are in high fills to enhance wildlife connectivity. None of the upsized pipes will require revising the profile at any given location.

There are scattered irrigated fields adjacent to the highway, along with associated irrigation facilities, adjacent to and/or crossing under the road along the southerly 3.4 miles, and along the northerly 0.2 miles of the project. The as-built plans showed eight 18" irrigation pipe crossings, but some have been abandoned. Irrigation facilities that are being used will be perpetuated; those that are not will be abandoned.

Generally, the impact to irrigation facilities will be relatively minor. Most of the impact will occur along the southerly 0.4 miles, where an irrigation ditch on the east side will have to be relocated, and at RP 5.1, where the proposed curve flattening will affect several irrigation crossings and an irrigated hayfield.

There is a large irrigation pivot centered about 1,400 feet east of Station 347+00 (RP 6.7). The proposed 15-ft. centerline shift along this section may impact the operation of the pivot from Station 342 to 354. If not, there is a chance the spray from the pivot could hit the highway.

The delineated floodplain for the Bitterroot River is nominally adjacent to the west side of the highway at Station 337+70, Station 349+30 to 362+70, Station 372+65, and Station 419+70 to 429+40. At all four locations the NAVD 88 Q100 elevation is well below any of our proposed slopes, so a floodplain permit will not be required.

- j. **Permanent Erosion and Sediment Control (PESC) Features.** There are a few locations where potential PESC features may be required, including the major drainages (Three Mile Creek, Dry Gulch, Sta. 406+00, Sta. 414+50, Sta. 422+70, Sta. 460+70, and Sta. 479+40). Check dams may be needed along the ditches of the steeper grades, (Sta. 311 to 324, Sta. 447 to 456, and Sta. 477 to 488). An outlet ditch on a cut to fill transition may be needed from Sta. 454 to 455 Left. Other locations for potential PESC features may be identified as the design progresses.
- k. **Bridges.** There are currently no bridges within the project limits. A bridge was mentioned as a potential option for the Three Mile Creek crossing but was eliminated from consideration during the alignment and grade process.
- l. **Safety Enhancements.** Safety will be enhanced by virtue of the wider shoulders, flatter inslopes, recoverable clear zones, guardrail where warranted, and the addition of dedicated turn lane/two-way-left turn lane where appropriate.

We propose to install centerline rumble strips (CLRS) in accordance with the October 31, 2018 guidance distributed by the Traffic and Safety Engineer. The CLRS will also be placed on centerline along the segments that will be striped as a TWLTL.

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Shoulder rumble strips will be installed along the entire project, in accordance with current guidelines. Given the density and proximity of residential abodes, we will consider the use of the recently developed "mumble strip", which reportedly provides enough audible warning to a driver, yet emits less nuisance noise to roadside denizens. Shoulder rumble strips will be discontinued across guardrailed sections with shoulders less than six feet wide.

Road Approach Culvert End Treatments (RACETs) will be installed on culvert ends within the clear zone. New signing and delineation will also enhance safety.

- m. **Context Sensitive Design.** The major context-sensitive design issues include the lane configuration, wildlife crossings, the presence of historical/cultural sites, and the high level of interest to provide a shared use path (see **Pedestrian/Bicycle/ADA**). Based partially on public input, we were able to modify the initially proposed lane configuration (see **Traffic**.)

The issue of providing enhanced wildlife crossing opportunities is discussed under **Environmental Considerations**.

- n. **Traffic.** The lane configuration discussed in the Alignment & Grade Review Report (a three-lane section marked predominantly as a two-way-left-turn-lane, with major intersections marked as dedicated left turn lanes) was re-evaluated by the Traffic Operations Section. Comments received during the extensive public involvement process indicated the proposed design removed too many passing opportunities currently available. Traffic Operations provided updated recommendations based on the following:

- The proposed overall width of the paved surface is anticipated to be 44-feet throughout the project.
- Updated crash history and updated AADT (to adjust the original counts from 2007).
- Current approach quantity and locations.

The need to provide access (three lanes) versus mobility (two lanes with passing opportunities) was based on engineering judgement along with input and discussion with MDT and Ravalli County officials. The following items were evaluated:

- Access density.
- Updated left turn involved crashes.
- Updated roadside development and planned future development

The two-lane configuration will include a 12-ft lane and a 10-ft. shoulder in each direction. These sections will be striped for passing where appropriate. The three-lane configuration will include a 12-ft lane and a 4-ft. shoulder in each direction that straddle a 12-ft. two-way-left-turn lane.

Here are the updated recommendations for two lane/three lane configurations (gaps are transitions between sections):

Begin Project Sta. 210+30.59 to 215+20± (RP 4.0 to RP 4.09): Two-lane

Sta. 218+80± to 313+60± (RP 4.16 to 6.07): Three-lane

Sta. 317+20± to 369+40± (RP 6.13 to 7.13): Two-lane

Sta. 373+00± to 463+85± (RP 7.20 to 9.06): Three-lane

Sta. 467+45± to 507+10± (RP 9.13 to 9.88): Two-lane

Sta. 510+70± to 521+47± (RP 9.95 to RP 10.15): Three-lane to end of project

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Here are the updated recommendations for dedicated turn lanes at public/private road intersections:

Rathbun Road (Sta. 239+83, RP 4.56): northbound left turn lane

Grassland Drive (Sta. 249+57, RP 4.74): southbound left-turn lane

Ambrose Creek Road (Sta. 263+98, RP 5.10): southbound left-turn lane and northbound right turn lane

Rathbun Road/Three Mile Creek Road (Sta. 288+90, RP 5.60): northbound/southbound left turn lanes

Porter Hill Road (Sta. 307+94, RP 5.96): southbound left-turn lane

Dry Gulch Road (Sta. 373+25, RP 7.19): southbound left-turn lane

Old Eastside Highway (Sta. 391+67, RP 7.55): northbound left-turn lane

El Capitan Loop south approach (Sta. 414+21, RP 8.08): southbound left-turn lane

Sleepy Hollow Trail (Sta. 458+45, RP 8.92): southbound left-turn lane

Bullrun Road (Sta. 510+78, RP 9.95): southbound left-turn lane

Traffic Engineering will provide the required pavement marking quantities, geometric layouts, and signing & striping plans. There are flashing amber lights mounted to the "20 MPH" curve warning signs for the existing curves at RP 4.6 and RP 5.1. The lights for the curve at RP 4.6 appear to be connected to the power grid. The lights for the curve at RP 5.1 have solar panels mounted to the tops of the sign poles. We assume that any curve warning signs required for the reconstructed curves will not require auxiliary flashing lights.

- o. **Miscellaneous Features.** We propose to construct a school bus turnaround along the east side of the road in the vicinity of Station 475+50. This site is near the top of a crest vertical curve that will be lengthened to increase sight distance.

Fencing will be installed as determined through right-of-way negotiations. Early in project development, the Montana Department of Fish, Wildlife & Parks (DFWP) asked that we encourage landowners to specify wildlife-friendly fencing.

- p. **Pedestrian/Bicycle/ADA.** There are no existing dedicated pedestrian or bicycle facilities, and none are proposed. There is no evidence of existing pedestrian use (such as a beaten path along the roadside slope). The proposed 4-ft and 10-ft. shoulders will provide better accommodation (compared to existing conditions) for bicyclists and pedestrians. See the discussion on shoulder rumble strips under **Safety Enhancements** for more information on bicycle accommodation.

The public involvement process generated many requests for the inclusion of a SUP. A SUP will not be included because we cannot demonstrate that it would meet the criteria listed in the SHARED USE PATHS IN MDT RIGHT-OF-WAY POLICY enacted November 30, 2016. The criteria that were not satisfied include:

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4.4.1.1 – A public sponsor/agency must be willing to accept ownership and long-term maintenance responsibility for the SUP.

Missoula District Maintenance has expressed opposition to long-term maintenance responsibility. In early 2017, the Ravalli County Commissioners applied for a TA grant to provide funding for the SUP based primarily on MDT preliminary design information. The grant application was not selected for funding. Under the Project Ownership and Maintenance section, the application stated, "Ravalli County will ensure general maintenance of the proposed path through routine inspections and performing maintenance on an as needed basis."

4.4.1.2 – It must be demonstrated that the SUP is principally used for transportation, not recreation.

Few public comments that favored a SUP mentioned using it for transportation. Some did tout its potential as a tourist attraction for recreational cyclists.

4.4.1.3 – The SUP must be located within three miles of the city limits of incorporated cities, or within three miles of the geographic center of unincorporated towns. Construction of new SUPs partially within the three-mile threshold may extend beyond the three-mile limit if they provide a transportation purpose.

The north end of a SUP for the subject project would be about 3.7 miles from the Florence-Carlton school, which is roughly the geographic center of the town. This is measured along existing shared use paths. The south end of the SUP would be about 3.7 miles from where S-203 enters the city limits of Stevensville, and about 3 miles from city property nearly abuts the S-203 right-of-way.

4.4.1.7 – The SUP must provide connections to origins or destinations within a city or town or be part of system designed to do so.

The north end of the SUP would connect to the existing SUP along S-203 that provides connection to the town of Florence. The south end of the SUP would not connect to an existing SUP, although Ravalli County has a long-term vision to construct a SUP from the south end of the project to Stevensville.

Design Exceptions Design exceptions to the design criteria for a 60-mph design speed have been approved for the following design elements.

Horizontal alignment: The minimum radius is 1,200 feet. We propose spiral curves with lesser radii at the following locations:

RP 4.60: 590 feet
RP 5.05: 625 feet
RP 5.19: 625 feet

Two-Way-Left-Turn-Lane Width: The minimum width for rural areas is 14 feet. We propose a TWLTL width of 12 feet.

Shoulder Width: The minimum shoulder width is 8 feet, given the current ADT (> 3000) and the DHV (> 400). We propose a 4-ft. shoulder along the three segments where a three-lane configuration is proposed: RP 4.08 to 6.12, RP 7.13 to 9.13, and RP 9.88 to 10.15. The shoulder width will be 10 feet along the two segments where a two-lane configuration is proposed: (RP 6.13 to 7.13 and RP 9.13 to 9.88),

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Fill slopes: We will strive to provide standard slopes, but we expect the following exceptions will be required along relatively short, intermittent locations:

<u>Standard</u>	<u>Proposed</u>
0 to 10' fill - 6:1	3:1 and flatter
10' to 20' fill - 4:1	1½:1 and flatter
20' to 30' fill - 3:1	1½:1 and flatter
>30' fill - 2:1	1½:1

Ditch Section: We propose a v-ditch with a 6:1 inslope 13 feet wide and backslopes that may vary from standard. The non-standard backslopes are proposed where needed to limit impacts to sensitive features and/or to limit right-of-way acquisition.

<u>Standard</u>	<u>Proposed</u>
0' to 5' cut - 5:1	3:1 or 4:1
5' to 10' cut - 4:1	2:1 or 3:1
10' to 15' cut - 3:1	2:1 and
15' to 20' cut - 2:1	2:1 and steeper
> 20' cut - 1½:1	½:1 or flatter

Clear Zone – from edge driving lane (EDL - no correction for outside of curve)

<u>Fill slope</u>	<u>Standard</u>	<u>Proposed (minimum)</u>
6:1	30'	24'
4:1	44'	19'

<u>Ditch (6:1/4:1 v-ditch)</u>	<u>Standard</u>	<u>Proposed (minimum)</u>
	30'	25'

The complete Design Exception Request can be viewed at <\\mdthq\mdtshares\CaddPr\USR1\6138000\RD\6138000RDDER001.PDF>

Right-of-Way

Right-of-way widths are typically 20 to 60 feet per side throughout the project. There are several sections where the right-of-way widths are 100 to 150 feet to accommodate large cut or fill sections. Proposed right-of-way widths will generally be 60 to 80 feet per side with several sections extending to 100 to 110 feet. We anticipate we will need to acquire approximately 35 to 40 acres to accommodate our proposed widened roadway and generally standard cut and fill slopes.

One parcel was acquired in late October 2017 as a full acquisition due to hardship. The parcel (No. 40) is in the northwest quadrant from Station 289+20± to 290+78±. Similar situations with other parcels may arise during right-of-way negotiations.

As stated in the Location Study Hydraulics Report, the as-built plans show eight 18" irrigation crossings. Maintenance says most of these aren't being used since the agricultural land has been subdivided for housing. During the right-of-way appraisal process, Right-of-Way should determine which irrigation facilities can be abandoned.

The District Administrator initially expressed the desirability to design and acquire right-of-way to the standard widths. However, given the high probability that acquisition could be contentious along much of the project, we concluded that the project could be developed more efficiently if we reduced right-of-way impacts via the judicious use of design exceptions. The right-of-way will be designed to a consistent width wherever practical. The minimum width we will pursue will be 10 feet beyond the construction limits.

We recommend the project be developed as a limited access facility.

A federal aid program for right-of-way (RW) has not been requested yet. The current RW estimate in PPMS is \$1,100,000. The RW ownership study completed in April 2008 estimated the costs for the
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actual landowner payments at \$1.2 million for 37 acres (does not include MDT staff time and other peripheral costs).

The 9202 account expenditures incurred on Florence- East [4854] totaled about \$1.1 million dollars. The lateral right-of-way impacts on that project were similar to what we expect on [6138000], but Florence-East was about one third the length. One could extrapolate that the RW costs on [6138000] will be about three times that incurred on [4854]. Upon scope approval, we will update the PPMS estimate to three million dollars.

Utilities/Railroads

There will be substantial utility impacts along virtually the entire length of the project.

An overhead power line parallels the east/south side from RP 4.0 to RP 5.1, where it crosses and parallels the west side from RP 5.1 to 9.1, and from RP 9.3 to the end of project. Another overhead power line parallels the east side from RP 9.2 to the end of the project. There are numerous service poles scattered throughout the project that are potentially in conflict. Notions to shift the centerline to avoid a given stretch of power line are not realistic because the impact to residential properties on the opposite side is likely not acceptable.

There are also buried telephone and fiber optic lines throughout the project, many will be in conflict.

There are no active railroad facilities in the project vicinity. However, right-of-way acquisition will be required from a parcel owned by Montana Rail Link (Station 228+20± to 238+20± Left).

A federal aid program for incidental construction (IC) has not been requested yet. The current IC estimate in PPMS is \$1,900,000. This seems reasonable, based on the 9302 account expenditures on Florence- East, which totaled about \$716,000.

Maintenance Items

There have been no tasks identified that Maintenance has agreed to complete prior to construction. Similarly, we have identified no items to be included in the project to be paid for using state/county funds and charged to Maintenance/Ravalli County, respectively. Changes to the foregoing statements will be documented in the appropriate report.

Environmental Considerations

On June 22, 2018, the FHWA concurred that “. . . the proposed project . . . will not involve unusual circumstances as described under 23 CFR 771.117(b). As a result, the project qualifies as a Categorical Exclusion under the provisions of 23 CFR 771.117(d)(13) for actions described in paragraphs (c)(26), c(27), and c(28) of this section that do not meet the constraints in paragraph (e) of this section. The criterion from (e) that is not met by this project is (1) An acquisition of more than a minor amount of right-of-way or that would result in any residential or non-residential displacements. Also, the project requires the use of properties protected by Section 4(f) of the Department of Transportation Act (49 USC 303). The proposed action also qualifies as a Categorical Exclusion under the provisions of ARM 18.2.261 (Sections 75-1-103 and 75-1-201, MCA).”

The major environmental concern is the Lee Metcalf National Wildlife Refuge, directly adjacent to the west side of S-203 between RP 6.2± and 7.1±. The proposed horizontal alignment shift to the east will largely avoid impact to the refuge. However, along two segments (Sta. 331+00 to 335+50 Left and Sta. 353+75 to 359+75 Left) design exceptions were approved to construct 4:1 fills instead of the standard 6:1 to avoid impact. Temporary construction permits will probably not be needed to construct these fills, but a construction permit will likely be needed to construct an approach to the refuge at Sta. 347+29 Left (RP 6.7±).

There are four features along the project which have been recommended eligible for placement on the National Register of Historic Places.

Station 220+70± to 222+90 LT±: This property (“24RA0807”) includes a house about 73 feet from the PTW centerline. Opportunities to avoid the property are limited due to the proximity of the structure to the beginning of the project, which precludes a major shift in the horizontal alignment. The angle point at P.I. Station 215+62.06 does shift the proposed centerline slightly away from the property.

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A design exception was approved for a 6:1/4:1 v-ditch that will catch on existing ground about 25 feet from the front of the house. The existing right-of-way width on the west side is only about 20 feet, so 30 to 40 feet of new R/W will be needed. Although we consider the v-ditch to be an appropriate measure to minimize harm to the property, it was inadvertently not listed as such in the "Nationwide" Section 4(f) evaluation.

Station 289+46± to 291+11 RT±: This property ("24RA0810") is on the northeast corner of the Eastside Highway and Three Mile Creek Road. The front of the residential structure is about 88 feet from the proposed centerline, which nominally matches the PTW along this constricted segment with residences close to the highway on both sides.

After AGR, we raised the profile to be slightly above the PTW. This reduced the excavation needed on the right so that the approved 6:1/4:1 v-ditch catches only five feet beyond the current right-of-way, which is 40 feet. Although we consider the v-ditch to be an appropriate measure to minimize harm to the property, it was inadvertently not listed as such in the "Nationwide" Section 4(f) evaluation.

The landowner recently relocated the mailbox to the property's approach on Three Mile Creek Road, about 240 feet east of the highway. This allows us to eliminate the six feet of additional pavement for a mailbox turnout along the highway frontage. This will pull in the catch point to about the existing right-of-way and reduce the needed acquisition to a maximum of 10 feet.

Station 311+90± to 314+00± RT: The front of the house for this property ("24RA0813") is about 63 feet from the proposed centerline, which virtually matches PTW. The profile shown in the AGR plans was up to 1.4 feet below the PTW along this segment. Subsequently, we raised the grade to nearly match PTW to reduce the ditch excavation. The approved 6:1/4:1 v-ditch catches six to eight feet beyond the current right-of-way, which is 40 feet. The v-ditch described above was listed as an appropriate measure to minimize harm in the "Nationwide" Section 4(f) evaluation.

Station 470+22 RT±: A Ponderosa Pine tree ("24RA0816") that has been culturally modified ("scar tree") is located about 56 feet east of PTW centerline, about 15 feet beyond the toe of a 13-ft. embankment. After AGR, the horizontal alignment was shifted about a foot west. This change, along with the lowered grade, will enable avoidance of the scar tree. However, a design exception for a non-standard fill slope (2: 1 or slightly flatter) shielded by guardrail was needed to maintain an acceptable distance (8 feet) from the toe of embankment to the tree. The non-standard fill slope was listed an appropriate measure to minimize harm in the "Nationwide" Section 4(f) evaluation.

Wetlands ("WL") have been delineated at the following locations:

Sta. 253+52± RT: 1a & LT: 1b
Sta. 3+50± to 4+20± LT (Ambrose Creek Road): 2a
Sta. 264+50± to 266+40± RT: 2b
Sta. 263+00± LT to 266+10± RT: 2c
Sta. 280+60± RT: 3a & LT: 3b
Sta. 305+25± RT: 4a & LT: 4b
Sta. 379+00± RT: 5a & LT: 5b
Sta. 406+10± LT: 6a
Sta. 403+10± to 406+10± RT: 6b
Sta. 414+90± to 415+45± RT: 7a
Sta. 414+00± to 414+25± LT: 7b
Sta. 422+80± to 424+20± RT: 8a
Sta. 422+30± to 423+10± LT: 8b

All the wetlands are adjacent to natural drainages or irrigation ditches that either cross under the highway or parallel it. Preliminary design indicates all but WL-2b will be impacted by roadway widening. Efforts to avoid/reduce impact to a given wetland by shifting the alignment was generally found to be futile because there would be increased impact to the wetland on the opposite side. The decision to use v-ditches along much of the project will reduce temporary impacts to some wetlands. There are a few sites where steepened fill slopes could provide a slight decrease in impact.

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We anticipate off-site wetland mitigation will be pursued after total wetland impacts are quantified. The wetlands were last delineated in June 2014, so they will have to be delineated again this year.

The Missoula District Biologist identified the following eight locations where new crossing structures should be considered and/or the replacement for an existing culvert should be upsized and wildlife exclusionary fencing added (at some locations) to enhance wildlife connectivity and potentially reduce animal- vehicle collisions (AVCs):

Structure #1 ~ Three Mile Creek - Sta. 280+85 (RP 5.44): The preliminary recommendation to handle the hydraulic requirements (a 14'-2" span x 9'-10" rise SSPPA set down two feet, plus a 6-ft. CSP overflow culvert) will also provide enhanced wildlife connectivity, so no additional measures are recommended. A similarly sized box culvert that will be considered would also enhance wildlife connectivity.

Structure #2~ North Mountain Springs Rd - Sta. Sta. 305+25 (RP 5.9): A 96" CSP to replace the existing 36" CSP, adjacent to 225 feet of fencing on each side of the road.

Structure #3 ~ Sta. 319+73 (RP 6.18): A 14' x 10' Reinforced Concrete Box (RCB), adjacent to 1,242 feet of fencing on each side of the road. This structure is a high priority to accommodate mule deer. No other recommended structure is of optimal size and in an appropriate location to accommodate mule deer. This location was earlier identified as a potential grade-separated crossing for a shared use path before that feature was dropped from consideration.

Structure #4 ~ Sta. 366+62 (RP 7.07): A 96" CSP to replace the existing 24" CSP, adjacent to 900 feet of fencing on each side of the road, plus a double 24-ft. Light Duty cattle guard. This is an ideal location to accommodate both mule deer and white-tailed deer but a structure of optimal size might not be feasible. The location falls within an area that experiences substantial vehicle collisions with both deer species. A 96" CSP or 8'x8' Box Culvert is more desirable than a 48" CSP due to high level of concentrated deer use at this location.

Structure #5 ~ Dry Gulch Drainage - Sta. 378+88 (RP 7.31): A 96" CSP to replace the existing 60" CSP, adjacent to 310 feet of fencing on each side of the road. This location is close to an area of significant AVCs.

Structure #6 ~ 300' N. Crooked Pine Rd - 5 Sta. 405+97 (RP 7.82): A 96" CSP to replace the existing 24" CSP, adjacent to 755 feet of fencing on each side of the road. This location is close to an area of significant AVCs.

Structure #7 ~ 200' N. of Log Cabin Ln. (southern leg)- Sta. 460+50 (RP 9.01)*: A 96" CSP to replace the existing 60" CSP, adjacent to 910 feet of fencing on each side of the road.

* This location is close to an area of significant AVCs. The purchase of a sizable conservation easement east of this location is pending. The easement does not abut ROW but is 0.1 to 0.15 mile east of the roadway.

Structure #8 ~ 70' N. of Scar Tree - Sta. 470+88 (RP 9.19): A 96" CSP to replace the existing 24" CSP.

Based on wildlife habitat connectivity considerations and AVC data, the priorities for the wildlife accommodation structures rated from highest (1) to lowest (7) are:

1. Structure #3 (RP 6.18)
2. Structure #4 (RP 7.07): But only if a 96" or larger structure can be accommodated.
3. Structure # 5 (RP 7.31): Becomes a higher priority if #4 cannot be increased in size but a much lower priority if the size of #4 is optimized.
4. Structure #7 (RP 9.01)
5. Structure #6 (RP 7.93)
6. Structure #8 (RP 9.19)
7. Structure #2 (RP 5.91)

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Considering wildlife needs along with road design and engineering issues, we identified three locations where we propose to enhance wildlife connectivity:

LOCATION	FEATURE	COST*
Sta.319+73 (RP 6.18)	14' x 10' RCB, with 1,242 feet of fencing on each side of road	\$ 207,100
Sta. 366+62 (RP 7.07)	96" CSP, with 900 feet of fencing on each side of road, plus a double 24-ft. Light Duty cattle guard	\$ 79,800
Sta. 460+50 (RP 9.01)	96" CSP to replace the existing 60" CSP, with 910 feet of fencing on each side of road	\$ 63,800
	TOTAL*	\$ 350,700

*This is the increased cost above standard drainage to provide enhanced wildlife connectivity.

The site at RP 6.18 is bordered on the east by the south end of an existing 410-acre property that is predominantly irrigated farmland now but was subdivided many years ago into ten-acre tracts. The owners are now actively marketing the ten-acre tracts, beginning with those along the east side of the property, roughly 0.6 miles from the highway.

On the west side, an irrigated field separates the highway from the Lee Metcalf National Wildlife Refuge, which is about 0.1 miles west of the highway at this point. The Bitterroot River and Highway 93 are about 1.5 miles and 1.7 miles west of this site, respectively.

The site at RP 7.07 is about 150 feet north of the north end of the 410-acre property. On the west side the highway abuts the refuge. The Bitterroot River and Highway 93 are about 300 feet and 1.9 miles west of this site, respectively.

The site at RP 9.01 is in a natural drainage bordered on the east by a moderately forested hillside. Two residential properties of 1.5-acre to 2.67-acres separate the highway from two forested tracts totaling about 130 acres 0.16 miles east of the highway. The purchase of a conservation easement on these two tracts is pending.

The west side of the highway at RP 9.01 abuts three residential properties each about two acres in size. Just west of those properties is a high-quality riparian area, 132-acres of which has a conservation easement. The Bitterroot River and Highway 93 are about 0.5 miles and 2.5 miles west of this site, respectively.

The section of S-203 between RP 6 and RP 9 is roughly parallel to the section of Highway 93 between RP 70 and RP 74. Enhanced wildlife connectivity features were included at RP 69.2, RP 69.7, RP 70.1, and RP 74.1 when the section between RP 68.3 and RP 74.2 was reconstructed in 2006.

Energy Savings/Eco-Friendly Considerations

We will encourage the use of wildlife-friendly fence when right-of-way agreements require new fencing. The measures described under Environmental Considerations that reduce the footprint are friendly to the environment. The contractor will have the option to incorporate existing pavement in the new plant mix and the crushed aggregate course, in accordance with applicable standard specifications and special provisions.

Work Zone Safety and Mobility

At this time, Level 2 construction zone impacts are anticipated for this project as defined in the Work Zone Safety and Mobility (WZSM) guidance, primarily because S-203 is listed as a Level 2 corridor in the guidance. The plans package will include a Transportation Management Plan (TMP) consisting mainly of a Traffic Control Plan (TCP). These issues are discussed in more detail under the **Traffic Control** and **Public Involvement** sections.

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Other Projects

There are seven other active MDT projects in Ravalli County. Given their current schedules, none appear to be good candidates for tying for contract to 6138000. One is another project on Eastside Highway: **HSIP 269-1(50)0, SF149 S of Stevensville Sfty Imp [8914000]**, a design-build project with a tentative advertise date of March 2019. The actual target date for construction is 2021, so there is a potential that both projects will be under construction the same season.

There is about six miles of Eastside Highway between the two projects that includes a connection to Highway 93. We do not expect there will be a substantial impact to corridor mobility if both are under construction the same year(s).

Traffic Control

Appropriate signing, lane closures, detours, etc. in accordance with the MUTCD, will be used to maintain traffic through construction. Traffic will likely be restricted to one lane during working hours for work immediately adjacent to and within the roadway. If detours become more cost effective or required for utility or drainage work, there are a few parallel roads to Secondary 203 along some sections of the project that could carry the detour traffic efficiently.

We will consider stage construction methods to reduce the time required to travel through the project, such as limiting the length of road that could be "torn up" to about two miles. The contractor could be required to complete a section up through placement of crushed base course before moving on to the next section. Earthwork balances would have to be reviewed carefully to determine the limits of any given section.

We will require that two-way traffic be maintained during non-working hours and will consider extending that requirement to include the morning and afternoon peak commute times.

There may be wide-load restrictions. We will decide at plan-in-hand whether to detour wide loads via signing along alternate routes, or to provide staging areas so that wide loads can be piloted through constricted construction zones at designated times.

Intelligent Transportation Systems (ITS) Features

There are no ITS solutions currently being considered as part of the design process.

Public Involvement

A Level B public involvement plan is underway. So far, the plan has included the following:

- a) A news release was distributed in November 2007.
- b) The first public meeting was held in March 2009. Some of the major concerns expressed were the limited sight distance from the school bus turnaround at RP 9.256 (Station 474+50 Rt., a crest vertical curve); a desire for design speed consistency for the two curves to be flattened at RP 4.6 and RP 5.1; and the realignment of Ambrose Creek Road and Moiese Lane at RP 5.1 (consider a roundabout). Other comments were offered regarding irrigated field impacts; the desire for a bike/ped path; the approaches to El Capitan (South), Log Cabin Road (South), Eagle Watch, Fawn Lane, Mountain Springs Road, houses close to the highway, and historic structures.
- c) A webpage for the project went online in July 2014. It includes a project overview, links to preliminary plans, summaries of comments received, information on upcoming meetings, project schedule, and contact information for MDT staff. The webpage is updated as dictated by major project developments.
- d) A second public meeting was held in October 2014. We presented the preliminary plans with the 44-ft. top as described above, and revealed we were considering a shared use path. We showed a conceptual design for a roundabout at the Ambrose Creek Road intersection, but explained it was not necessarily our preferred option. After the presentation, MDT staff met one-on-one with adjacent landowners to hear specific

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concerns and answer questions.

We tabulated the written comments received. Adjacent landowners and others generally favored left turn lanes at major intersections but opposed a continuous two-way-left-turn lane. A roundabout was almost unanimously opposed. Landowners were evenly split on the shared use path, while others heavily favored it.

- e) A third public meeting was held in October 2015. No formal presentation was conducted, but project plans and displays were available to review. MDT staff answered questions and listened to concerns. Written comments were tabulated and posted on the webpage.
- f) MDT District and Engineering staff attended a Ravalli County Commission meeting in March 2016. One of the agenda items was a discussion of the scope of work on Secondary 203. Traffic Engineering staff presented a conceptual design for the sections of two-lane configuration discussed under Traffic. A Road Design staffer answered a question on why a roundabout was no longer being considered at the Ambrose Creek intersection (funding mostly) and the status of a shared use path (could potentially be included pending available funding).

We do not anticipate additional public meetings. We'll continue to update the webpage. The public involvement plan for the rest of the project's development will include:

- a) Local government officials and interest groups will be contacted as needed.
- b) When the design is well along and plans are available, right-of-way agents will contact and visit all of the landowners adjacent to the project to explain the work to be performed and the overall design of the project.
- c) Construction notification and information will be distributed during construction.

The public involvement plan may be adjusted. If controversial issues surface, another public information meeting may be appropriate.

We anticipate a need to alert the traveling public that they may want to seek alternate routes to avoid long delays during some stages of construction.

Construction Cost Estimate

	Estimated cost	Inflation (INF) (from PPMS)	TOTAL costs w/INF + IDC (from PPMS)
STPS CN	\$8,696,500	\$487,917	\$10,147,862
G-Match CN	\$ 243,400	\$13,656	\$ 284,021
TOTAL CN	\$8,939,900	\$501,573	\$10,431,883
CE (10%)	\$ 894,000	\$ 50,158	\$ 1,043,200
Project TOTAL CN+CE	\$9,833,900	\$551,731	\$11,475,083

The estimate above includes \$350,000 for traffic control, 8% allowance for contingency, and 8% for mobilization. The pro-rata estimates are applied to the sum total of all bid items and included in the non-G-match CN line for partial G-match projects.

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 10.49% for FY 2019.

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Preliminary Engineering

The percent PE expended is 94%. A review of the expended preliminary engineering and hours used compared to the anticipated amounts required for completing the project design indicates that a modification is needed. A revision to the preliminary engineering cost estimate is necessary based on the design requirements identified during the project design, development of the scope of work, and hours needed to finalize project requirements.

The preparation of the Design Exception Report proved to be especially time-consuming to analyze several pavement widths being considered using the Highway Safety Manual spreadsheets, along with the in-depth analysis of various design features required to obtain design exception approval.

Project and Risk Management

Helena Road Design – Missoula Crew will be responsible for developing the plans. William Squires is the project manager. See contact information below:

William M. Squires, P.E., Missoula Area Engineer - Road Design
444-6228 bsquires@mt.gov

According to PPMS, the project is not considered a Project of Division Interest (PoDI) by FHWA.

The major risk for an increase in project construction cost is the potential need to add retaining structures to reduce right-of-way impacts enough to close contentious parcels. We presume the increased construction cost would be partially offset by reduced right-of-way costs if such a situation arises. Ongoing communications with affected landowners should reduce the potential for these costly design features.

The major risk to delay the project schedule is the right-of-way acquisition duration. EPS currently shows 180 days (about nine months) for Activity 824. This seems overly optimistic, given that there are about 145 parcels. We expect some negotiations will be difficult, based on communications we've received from several landowners. Right-of-Way staff will be asked to review the durations of their respective activities and update as needed. Experience on similar projects suggest that the time required to complete acquisition could exceed 240 days (one year).

Our decision to get design exceptions for those elements that most impact the road's "footprint" (shoulder width and slopes) should mitigate the number of protracted right-of-way negotiations. We expect most landowners will be more willing to sell a narrow strip of property as opposed to a wider one.

Design staff has met with several landowners individually onsite over the last few years to hear concerns and provide information on potential impacts to their respective properties. We will continue to do so as requested during the design process. These actions should expedite parcel-closing once right-of-way acquisition begins.

Once the right-of-way plans are completed, design staff will meet with right-of-way acquisition staff to explain the road design so that when agents talk to landowners, they will be better equipped to answer questions and explain why "we need this much right-of-way".

Ready Date

The ready date is August 1, 2020, and the letting date is January 25, 2021.

The project is currently about 4½ months behind schedule to meet the ready date. The decision-making process on whether to include several major design features (i.e. shared use path and wildlife structures) has been prolonged due to the collaborative efforts to gather input from stakeholders and to evaluate the costs and impacts of various design options. Consequently, the environmental evaluation and approval process took longer than expected.

As discussed above, we believe the right-of-way acquisition process could take considerably longer than currently scheduled. The schedule now shows all activities except Act 846 – Relocate Utilities being completed by the ready date. A special provision for "Coordinated Utility Relocation" would likely be
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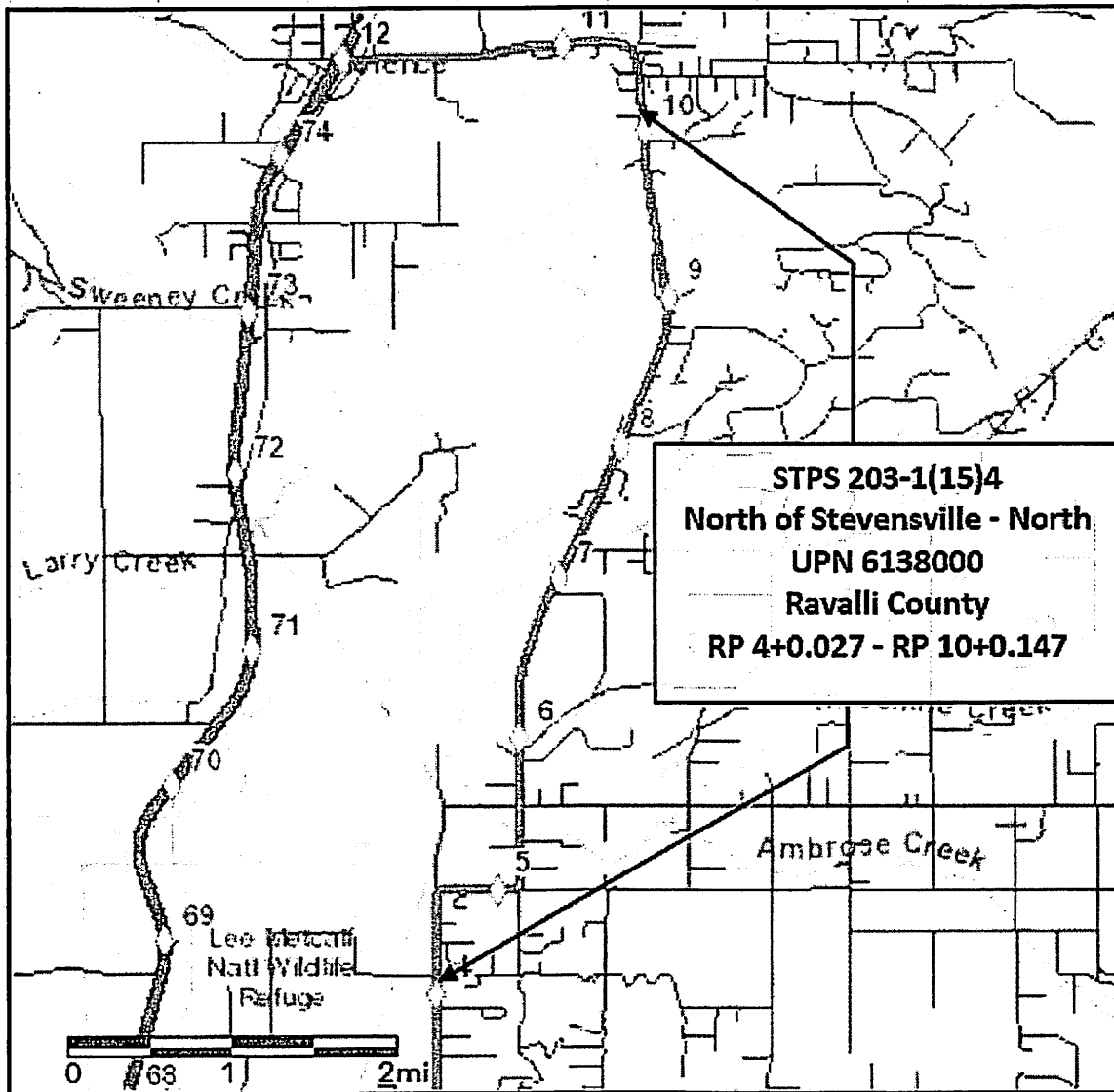
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required to hold the project in the January 2021 letting date. Even if right-of-way acquisition is prolonged, there is a chance that the project could still be let in FFY 2021.

The current PE End Date is October 31, 2019. A review of the remaining EPS schedule, critical path activates, and target letting date indicates that a modification to the PE End Date is needed. We will request a modification to the PE end date and a PE cost estimate modification shortly after scope of work approval.

Site Map

A project site map is shown below.



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e-copies:

Dustin Rouse, Preconstruction Engineer

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Patricia Burke, Safety Engineer

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