MONTANA DEPARTMENT OF TRANSPORTATION (MDT)

RESPONSES TO ROBERTS IMPROVEMENTS AND SAFETY COMMITTEE'S (RISC) COMMENTS AND REQUESTS RELATED TO THE HWY 212 ROBERTS PROJECT

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Based upon the minutes of the RISC's meeting on November 12, 2019 provided to MDT, the following responses to the RISC's comments and requests relating to the Roberts Project were drafted by MDT Staff and Kirk Spalding:

1. RISC REQUESTS THAT THE CENTER TURNING LANE SHOULD NOT BE DRAWN.

Including a two-way left turn lane (TWLTL) was a primary objective for the project. Section 1.3 on Page 1-9 of the Environmental Assessment (EA) states:

> The overall project objective is to improve safety and operational characteristics of the roadway by improving roadway deficiencies to meet MDT and AASHTO (American Association of State Highway and Transportation Officials) standards to the greatest extent practicable. Listed below are specific project objectives.

Under "Improve the Safety and Operational Characteristics of the Roadway" one of the bullet points listed for project objectives includes, "Reduce differential speed conflicts with turning vehicles in Red Lodge and Roberts." The study can be located at https://www.mdt.mt.gov/pubinvolve/docs/eis_ea/fonsi_redlodge.pdf.

- **RISC states that a center lane would push traffic closer to the edges of the road.** Further explanation of this statement is needed to understand where this conclusion comes from. It

would seem unlikely that left-turning vehicles staged in a 12-ft wide turning lane would push vehicles closer to the edge of the road more than a double-yellow centerline with no separation between opposing traffic. Vehicles generally shy away from opposing vehicles in movement rather than vehicles decelerating into the TWLTL or stopped therein. 4- and 6-ft shoulders are also provided with the improvements. In comparison, preconstruction conditions provided very narrow shoulders.

A crash history analysis was performed for the project. Historical crash data was obtained and compiled by MDT for the periods of July 1, 2002 to June 30, 2012. The following is a summary of the results:

- Date/Time Frame: July 1, 2002 to June 30, 2012
- Total Recorded Crashes: 20
- Total Truck Crashes: 3

Twenty crashes occurred on this section of roadway during the period July 1, 2002 to June 30, 2012. The main crash trend identified is single vehicle crashes (17). Of the single vehicle crashes, 7 involved a collision with a wild animal (deer) and 3 involved a collision with a domestic animal (horse). A secondary crash trend observed was intersection related crashes. The following is a summary of intersection related crashes:

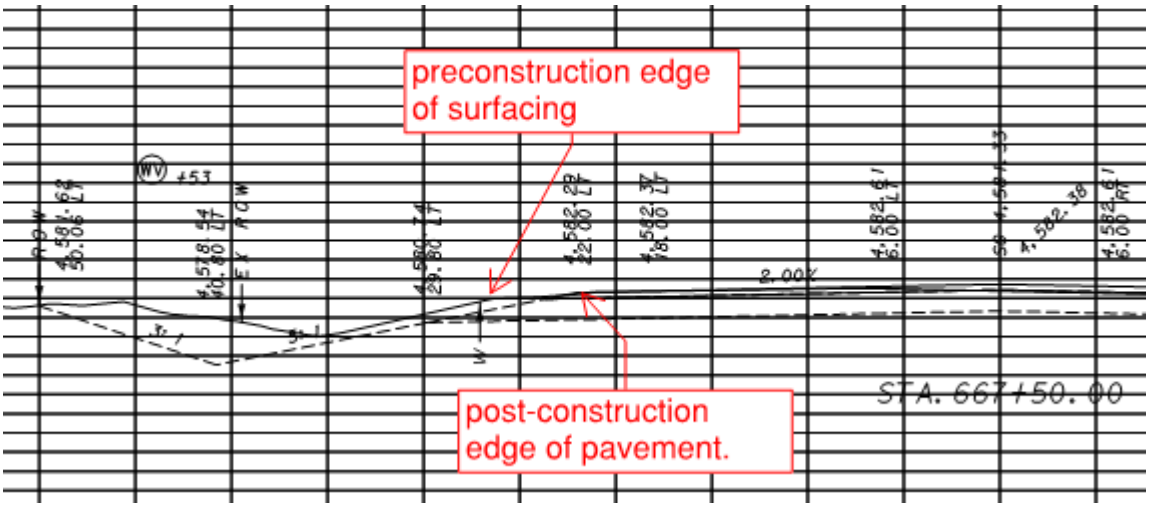
- Intersection of Front St: 1 crash (vehicle ran off the road and struck water fixtures)
- Intersection of Pine St: 1 crash (all-terrain vehicle making a right turn overturned)
- Intersection of Cedar St: 1 crash (left turning rear end collision)
- Intersection of Maple St: 2 crashes (left turning vehicle overturned and motorcycle laid bike down to avoid a left turning vehicle)
- Y-Stop Driveway Approach: 2 crashes (left turn opposite direction collision and left turning vehicle lost control and struck canopy of gas station)

The TWLTL safety and operational benefits are multifaceted:

- It eliminates speed differentials by removing turning vehicles from the overall traffic stream; and through vehicles that would be present if they are occupying the same travel lane.
- It reduces potential for rear-end accidents with turning vehicles by providing a staging area for vehicles making left-turns.
- It provides positive separation between opposing traffic, reducing head-on collision potential.

- RISC states that the TWLTL pushes traffic closer to the edges of the road and therefore closer to homes and businesses. Inside the town of Roberts, where the TWLTL is being added, it was determined that the optimal design to limit right-of-way impacts and impacts to personal property is to maintain the location of the southbound lane and widen the highway

to the east. This is because there are several private residences, businesses, and a church near the west side of the highway. Also, the land immediately adjacent to the east side of the highway is largely undeveloped. Therefore, because the southbound lane is to remain at its current location and the TWLTL is being added through town, the proposed roadway centerline is 6 feet east of the existing centerline through town. In fact, the painted shoulder line is actually farther away from homes and businesses on the west side of the road than it was prior to construction due to the installation of a 4-ft shoulder.



- RISC states that the TWLTL pushes traffic closer to the edges of the road and therefore closer to pedestrians. Pedestrians will now have 4- and 6-ft paved shoulders along the road. Generally, pedestrians are encouraged to walk on sidewalks when available. A parallel route exists on 1st Street from Oak to Maple with various connections to Hwy 212. In the town of Roberts, the typical section is three lanes wide, with 12-ft through lanes, a 12-ft TWLTL, a 4-ft left (west) shoulder, and a 6-ft right (east) shoulder making a total width of 46 feet. A 6-ft shoulder is used on the right side to provide additional space for pedestrians and bicycles within the town limits as there are no sidewalks proposed along the highway within the project limits.

- RISC states that the TWLTL pushes traffic closer to the edges of the road and therefore closer to Amish buggies driving along the shoulder. The TWLTL provides more width for emergency maneuvers, should the horse and buggy weave excessively. It also allows for the buggies to get out of the way of other vehicles when they desire a left turn. As mentioned above, Hwy 212 will now have 4- and 6-ft shoulders in town and 8-ft shoulders outside of town.

2. RISC REQUESTS THAT THE SPEED LIMIT SHOULD BE LOWERED TO 35 MPH WITH A GRADUAL REDUCTION: 70, 55, 45, 35.

This has been previously discussed. After construction, it's advised that the Roberts community send their Carbon County Commissioners a formal request for a speed study. The County can then request that MDT complete the speed study. Alternatively, the Montana Transportation

Commission may also be contacted to evaluate a speed reduction. Results of the speed study will determine whether a speed reduction is warranted. Generally, the 85th-percentile speeds are utilized to establish posted speed limits. (The 85th-percentile speed is the speed at which 85 percent of the free-flowing traffic is traveling at or below the speed limit at the time of the study.) Slower speeds are certainly safer in most cases but they need to be consistent with driver expectations and the site-specific environment to be effective. With this project, electronic 40 mph feedback signs are proposed prior to the new Cooney Dam Rd location and just north of Birch Street to delineate the school zone. This was a measure implemented with the project to assist in enforcing the speed reduction from the higher speeds coming into either end of Roberts.

3. RSIC REQUESTS THAT BOTH SIDES OF THE ROAD SHOULD BE LINED BY CURB AND GUTTER. THE DITCHES SHOULD BE REPLACED BY CULVERT AND COVERED BY GRASS OR SIDEWALK. THERE SHOULD BE DESIGNATED AREAS ALONG THE CURBS FOR PARKED CARS.

Curb and Gutter Installation

This was eliminated from consideration since it can actually confine and funnel potential floodwaters that intersect the highway from west of the highway in town. Moreover, it's important to keep the roadway clear from flooding for emergency travel. Floodwaters are known to flow down the local streets from the west in unpredictable quantities based on the intensity of a storm and the amount of irrigation water flowing in area ditches at the time of the storm. Open ditches and high-capacity culverts under approaches are the best mechanism to convey higher flow volumes like those that occur in Roberts and are difficult to quantify. Mitigating flood conditions in Roberts has been a high priority of this project from early on. Curb and gutter was considered, but ultimately omitted for the reasons outlined. The EA also showed ditches as the preferred alternative through Roberts.

Replace Ditches with Culverts

The ditches are critical to containing drainage during storm events and curb and gutter would not capture the same drainage. Curb and gutter only captures street surface runoff efficiently. High groundwater presents significant challenges to installing an underground collection and conveyance system and is expensive to install and maintain. When the MDT design team discussed the culvert concept, they concluded that the cost to install a culvert system was considerably high. Moreover, maintaining a culvert would be extremely difficult, in particular removing debris and sediment that finds its way into the pipe. The ditches provide capacity to minimize the flooding of Hwy 212 when large flows drain towards the highway. Furthermore, these ditches will drain low areas where side streets intersect the highway. Historic flooding has occurred through Roberts and these ditches are intended to send floodwater out of town.

Sidewalk Installation

Sidewalk was evaluated, and a layout developed for sidewalk on the east side of Hwy 212 within town. This was presented to the Roberts Community Foundation, Carbon County Commissioners, and citizens. Ultimately, a lack of long-term commitment to maintain the sidewalk by the County or another entity led to removal of sidewalk from further consideration.

Parking

With or without curb, parking on Hwy 212 would be intentionally prohibited for safety reasons. This is a state highway with higher speeds, low parking demand, heavy vehicles are present, and traffic volumes are notable. The open ditches are an effective mechanism for physically enforcing compliance with the no-parking objective. Parking along the highway limits visibility for motorists entering onto the highway from side streets; can obscure the view of pedestrians; blocks the use of the roadway shoulder for bicycles and pedestrians, Amish buggies, etc.; and presents various hazards to those who park along the road, e.g. opening doors on the side of the vehicle that is adjacent to moving cars on the highway. Also, for snow removal, parked vehicles may be damaged and prevent the proper "throw" of snow off the roadway.

- RISC states that the steep, deep, and unmowable ditches would be unsightly. Until final grading is completed and vegetation is established, the ditches will be less appealing. MDT maintenance will perform some routine trash cleanup as time and resources are available. However, it's encouraged that the Roberts community pursue the Adopt A Highway status as well. Regarding weeds, MDT maintains its highways against the spread of noxious weeds.

- RISC states that the ditches will be unsafe for pedestrians. The project includes a 4-ft shoulder on the west side and 6-ft shoulder on the east side, which should better facilitate pedestrian use, although MDT doesn't encourage use of highway shoulders for pedestrian traffic. As mentioned, sidewalk was evaluated and presented to Carbon County and the Roberts Community Foundation. Since maintenance of the sidewalk could not be guaranteed, the sidewalk was eliminated from further consideration.
- RISC states that the ditches will be unsafe for Amish buggies. 4- to 6-ft roadside shoulders are provided through town and 8-ft shoulders outside of town, which should better accommodate Amish buggies. This is a considerable improvement over pre-construction conditions.

- RISC states that the ditches don't leave any room to access/maintain Veteran Memorials. Ditches do extend up to the right-of-way in many cases leaving little room for the memorials. Perhaps during the event, straw bales or alternative means could be utilized as a platform within the borrow ditches assuming they were removed subsequent to the event. MDT would need to approve this.

- RISC states that the ditches will make it more difficult to pull vehicles out of steep ditches. Ditch in-slopes (adjacent to the pavement) were designed at 4:1 or flatter off the edge of the road, with the exception of those behind guardrail. Back slopes (just beyond the bottom of the ditches towards right-of-way) up against property were designed as steep as 2:1 to minimize impacts. These backslopes should not adversely affect removing vehicles from ditches assuming they are pulled up onto the highway, and the 4:1 or flatter in-slopes should not create a difficult situation for removing vehicles either. The 4:1 in-slopes are considered "recoverable" according to the U.S. Department of Transportation Federal Highway Administration:

A recoverable slope is a slope on which a motorist may, to a greater or lesser extent, retain or regain control of a vehicle by slowing or stopping. Slopes flatter than 1V:4H are generally considered recoverable. (Source: Federal Highway Administration website https://www.fhwa.dot.gov/programadmin/clearzone.cfm)

- RISC states that the prior meeting in 2014 that voted against sidewalk was not well advertised and the loss of curb and gutters was never discussed. Curb and gutter and sidewalk were not the preferred alternative in the EA. A rural cross section was what was proposed in the EA, which underwent extensive public involvement. Curb and gutter were dismissed well before this meeting for reasons stated earlier. While it's true that the sidewalk considered in 2014 was not formally voted on, the County Commissioners opted not to include sidewalk in the project since it would require county maintenance, and the county does not maintain sidewalk.

- RISC states that the ditches as they have been dug are steeper than the design specified and need to be made safer for this winter. The ditches have been built per design and are not significantly different.

4. RISC REQUESTS THAT STORMWATER SHOULD BE ROUTED ALONG HWY 212 TO ROCK CREEK RATHER THAN INTO PRIVATE IRRIGATION DITCHES.

Generally speaking, this is the case. The crossing culverts at Birch and Barry promote the movement of stormwater from the west side of the road to a large ditch on the east side of the road that carries flows north and out of Roberts.

Schank and Hyuck ditches, prior to construction, received stormwater during storm events. This will continue with the completion of the Roberts Project. Associated pipe sizes that existed before construction will generally continue, and ditch blocks (berms within roadside ditches) were installed so flows in excess of the pipe capacity will continue towards Rock Creek. A large ditch was designed on the east side of Hwy 212 through town to carry most stormwater flow from large storms north and out of Roberts. The ditch on the west side of Hwy 212 routes stormwater from the west to east side of the highway at Birch Street and Barry Avenue via crossing culverts. The culvert at Barry Avenue is a relief culvert to promote flow from the west side of the highway to the east, relieving flood potential from Barry to the Y-Stop. This was not a pre-construction feature.

The Schank ditch crosses Hwy 212. The 30" pipe that existed prior to construction was replaced in-kind with a 30" pipe. To minimize potential for water in excess of irrigation rights entering the Schank Ditch as it did before construction, MDT is considering installing a constriction (e.g. concrete headwall and 12" pipe) on the west side of the highway approximately on the right-of-way line.

The previous 24" reinforced concrete pipe (RCP) Hyuck Ditch culvert under Hwy 212 was replaced with a 24" RCP. A ditch block was placed in order to accommodate irrigation flows, and

above the top of pipe excess flows will continue north in the ditch along the east side of the highway. MDT is evaluating whether more stormwater flow can be sent north in the borrow ditches to the end of the project rather than utilizing the Schank Ditch for stormwater discharge, which is a condition that existed prior to construction.

- RISC states that the irrigation ditches are not big enough to handle storm-level capacity and would overrun causing localized flooding. The majority of flooding Roberts experiences currently will be mitigated with this project through the diversion berm and the large box culvert at the south end of town. Other stormwater that comes into town from the west could be largely diverted away from town through a similar diversion system located along the west-side of the developed portions of Roberts. It's known that large flows also enter town from the west edge of town, flow down the side-streets, and enter the Hyuck and Schank ditches. MDT will evaluate whether limiting stormwater flows in these ditches west of the highway can be accomplished readily with this project to address these concerns. Roberts and Carbon County should consider installing a diversion feature (berm, ditch, etc.) along the western fringe of town, as has been suggested by the project's design team in the past.

- RISC states that rushing storm water would wash out fields on private property. The project includes provisions for accommodating this project's specific "design storm," which is a hypothetical rainstorm characterized by a specific duration, temporal distribution, rainfall intensity, return frequency, and total depth of rainfall. For this project, the design storm is the 50-yr frequency, 24-hr duration storm event. Flows in excess of what this project was designed for may cause localized flooding away from the road. It's the opinion of the design team that this project will not worsen flooding conditions that existed prior to construction but will provide Roberts and its community with significant benefits and improvements in that regard.

- RISC asks who is responsible for property damage in the event that the current design is insufficient? MDT is confident that the current design is sufficient. Responsibility for something that has not occurred is difficult to determine and would be a function of the specific circumstances surrounding any such event.

5. We need clarification for timeline and location of crosswalks and signage.

The signage is in place and striping and crosswalk painting will be completed this spring.