Project Assessment Memo

To: Edward Meece, City Manager
From: Kirk Spalding, PE
Date: October 7, 2023
Re: City of Polson – Local Bypass Study and 7th Avenue & Hillcrest Drive Assessment
Polson, Montana

This memo describes the various analyses and results of a high-level assessment/study performed to evaluate the viability and potential effects of a local bypass that would result from a new street connection between Hillcrest Drive and Hwy 93 via Ridgewater Drive (refer to **Figure 1**). This connection would provide local residents and others an alternative to utilizing the highly congested portion of Hwy 93 through downtown Polson, and simultaneously alleviate that congestion on the portion of Hwy 93 that is most prominent in summer months during peak tourism season. Two routes have been previously identified through the Cougar Ridge Development property and would connect the existing Ridgewater Drive to Hillcrest Drive via or adjacent to Daniah Lane; these two slightly different alignments are the primary focus of this study. In addition, the study evaluates and provides preliminary planning-level recommendations for improvements to 7th Avenue East and Hillcrest Drive to accommodate the increased traffic flow resulting from such a connection. Other alternate bypass routes will be discussed briefly but are much less feasible than the Ridgewater Drive to Hillcrest connection which is largely already in-place, and the developer of the Cougar Ridge Development is committed to constructing it to meet one of the City's original conditions of approval to construct a secondary access.

Figure 1 - Study Area

This study focuses on the Ridgewater Drive connection to Hillcrest Drive and associated downstream impacts to Hillcrest Drive and 7th Avenue East. As shown in **Figure 1**, the potential Ridgewater Drive connection to Hillcrest Drive would occur approximately 6,928 feet east of the Hillcrest Drive/Main Street intersection (from station 10+00 to 79+28). To the east of the potential Ridgewater Drive/Hillcrest Drive intersection, Hillcrest Drive proceeds north with a 90-degree turn and enters county jurisdiction. With the potential connection from Ridgewater Drive, and consideration for limiting access at the Hillcrest Drive/Hwy 93 intersection, it is likely traffic will decrease on that segment, not increase. The City requested DJ&A evaluate the existing Hwy 93/Hillcrest Drive intersection due to safety concerns, which could include converting the intersection to a right-in/right-out (i.e., no left turns) junction, which would likely reduce traffic flow along the segment of Hillcrest Drive from the Hwy 93 intersection to the Ridgewater Drive connection. Those findings will be further discussed later in this memorandum.

To the west of the Main Street intersection the route becomes 7th Avenue West, an MDT route, and extends to and becomes Kerr Dam Road which is also an MDT route. Seventh Avenue West is constructed with a mostly uniform cross-section with curb & gutter, sidewalk on one or both sides, continuous on-street parking, and a single travel lane in each direction; this segment does not demonstrate significant pavement distress due to MDT maintenance and appears adequate to handle additional traffic. Surfacing improvements have occurred in this segment in the recent past, therefore it was omitted from detailed analysis and evaluation.

A connection from Ridgewater Drive would create a direct route from Hwy 93 to Hillcrest Drive/7th Avenue. This will offer local citizens and business patrons an alternative route to access downtown and the greater residential area. It would concurrently provide citizens of Polson direct access to the many commercial businesses and the various public amenities (aquatic center, soccer fields, ice arena) within Cougar Ridge Subdivision. The viability of alternative routes, such as the 15th Street connection shown in **Figure 1**, will be discussed in this memo, as well as other routes that have been deemed unfeasible and with challenges that could be difficult to overcome.

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I. Background

The downtown area of Polson experiences congestion and delays on Hwy 93 due to a combination of summer tourist traffic and local/regional ambient traffic. To address this issue, the City would like to construct a local bypass that could mitigate the congestion. A condition for approval of the Cougar Ridge Development (see **Figure 1**) along Ridgewater Drive requires the development construct a secondary access once the traffic volumes on Ridgewater Drive reach 7,500 vehicles per day. The connection of Ridgewater Drive to Hillcrest Drive would achieve this secondary access requirement. In July 2023, the average three-day traffic volume on Ridgewater Drive (adjacent to Hwy 93) hit 4,538 vehicles per day, marking a 10% increase from the previous year at the same location. With the proposed new development that has been either approved or is in the approval process with the City currently, there is strong evidence that continued growth in traffic will occur pushing the traffic volumes close to, or more than, this threshold.

Mike Maddy is the owner/developer of Cougar Ridge Development, Inc., and has committed to building the connection from Ridgewater Drive to Hillcrest Drive through his property and down onto Daniah Lane until it intersects Hillcrest Drive (refer to **Attachment 1**). This concept has been in discussion, for some time, and recent talks between the City and the developer have explored a slight alteration that would keep the alignment entirely within the developer's property, intersecting Hillcrest Drive approximately 100-125 feet east of Daniah Lane (refer to Figure 1) and eliminating the consecutive curves required with the Daniah Lane alignment. This discussion prompted the consideration of a land swap scenario between the City and the developer, where the City would exchange a piece of its property, currently leased by the developer, for the narrow tract of land immediately east of Daliah Lane. Either connection would establish a "local bypass" route, creating an alternate route for motorists to access residences, businesses and other destinations via secondary routes, reducing the reliance on Hwy 93. The existing congestion observed on Hwy 93 through Polson during a field visit by DJ&A in July 2023, can contribute to hazardous conditions for pedestrians, cyclists and motorists alike, resulting in frustration, impatience, anxiety, and poor driving choices, such as running red lights and road rage.

II. Existing Conditions

The primary focus of this study is the Ridgewater Drive connection and potential impacts to Hillcrest Drive/7th Avenue East. The existing condition assessment was performed along these primary routes along with an evaluation of the existing conditions at Hillcrest Drive and Hwy 93 intersection. Some of the information obtained/utilized in this assessment include:

- Anecdotal information from a mini-workshop held with City staff on December 12, 2022 (held in the Missoula DJ&A office).
- Discussions with City staff during development of the study's scope of services.
- Research from Montana Cadastral to understand right-of-way and property ownership.
- City of Polson's Online GIS Zoning Map.
- Review of City-owned utility information on-line and through discussions with City staff.
- Geotechnical documentation, provided by the City (received 07.18.23).
- Communications with City staff related to potential water and sewer betterments and timing (beyond project horizon).
- Cougar Ridge Development alternative route concepts, provided by the City.
- Alternate bypass routes information provided by the City.
- Traffic data for Cougar Ridge Development, provided by the City.

- MDT Traffic Count information for 7th Avenue West and Hwy 93.
- Polson Area Transportation Plan (MDT, 2011).
- Intersection counts (30-minute duration on July 14, 2023) conducted by DJ&A at the Hillcrest/Hwy 93 intersection.
- Google Earth Aerial and Street View Imagery.
- Video documentation of all routes. Obtained on July 14, 2023, by DJ&A.
- Polson Growth Policy.
- Various on-line resources.

On July 14, 2023, DJ&A and TetraTech conducted an on-site visit to assess the existing conditions, focusing on the Ridgewater Drive connection routes, Hillcrest Drive, 7th Avenue East and West, and evaluating alternative bypass routes during a time that historically experiences peak annual traffic. This visit coincided with near-peak annual conditions which is attributed to the significant amount of tourist activity and downtown activities/events.

DJ&A and TetraTech met with City staff at City Hall from 10:30 a.m. to 12:00 p.m., while in Polson for the site visit, to discuss initial research and preliminary findings. DJ&A came prepared with a preliminary layout of street improvements along Hillcrest Drive and 7th Avenue East from the Main Street intersection to approximately the Ridgewater Drive connection. The initial layout was presented and discussed to identify the City's position on inclusion or exclusion of certain street features. Items discussed, included:

- City water, sewer and storm drain facilities within the street to identify potential conflicts and perhaps City betterments or master-planned improvements.
- Appropriate road design elements (lane widths, curb and gutter, trunkline storm drain interconnectivity, sidewalk, and on-street parking).
- Cougar Ridge Development pending and planned development.
- Bypass routes that the City has considered in the past and associated challenges.
- Existing right of way based on DJ&A research.
- A preliminary alignment and typical sections for Hillcrest Drive and 7th Avenue East. This was presented to the City by DJ&A on a big-screen television monitor and depicted one-travel lane each direction, aerial background, right-of-way based on research, on street parking, sidewalks, curb and gutter, and provisions for bicyclists to generate discussion.
- Development planned within the study area.

Generally speaking, there is an existing bicycle facility adjacent to Hillcrest Drive, on the old railroad grade that intersects Hillcrest Drive west of 11th Street East; on-street bike facilities do not exist on Hillcrest Drive and 7th Avenue East and they are not required or planned by the City. Sidewalks exist in places along Hillcrest Drive and 7th Avenue East, there is minimal curb and gutter, and some sidewalks are flush with asphalt. Parking needs are highly variable with existing on-street parking from 5th Street East to Main Street, mostly on the north side of the street.

Documentation of the proposed Ridgewater Drive connection to Hillcrest Drive, as well as other digital information provided by the City and available through the City's website were reviewed prior to the site visit

and subsequently to formulate the information presented in the paragraphs below. A follow-up phone call with Rob Edington, City Planner, on August 15, 2023, and various follow-up correspondence provided substantial information on growth trends and pending development within Cougar Ridge Subdivision and along 7th Ave East and Hillcrest Drive.

The following paragraphs will present detailed information obtained from our initial research, site visit, and discussions with the City.

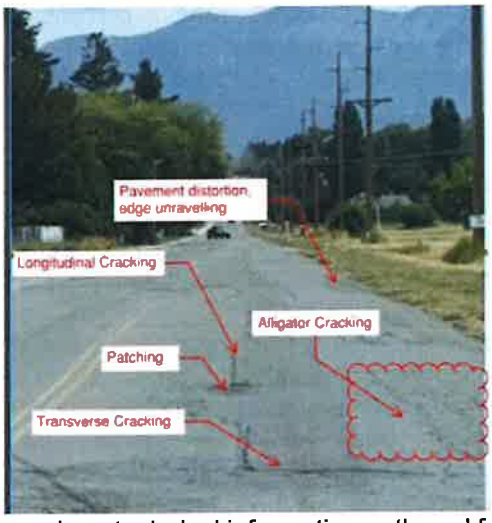
A. Hillcrest Drive and 7th Avenue East

Findings of the road conditions assessment for Hillcrest Drive and 7th Avenue East indicate the street is in substantial disrepair along the entire reach from Main Street intersection to beyond the two bypass connection points near Daniah Lane. Various specifics are provided in the following paragraphs detailing the conditions along the street.

Traffic data on Hillcrest Drive and 7th Avenue East was not readily available. The Montana Department of Transportation (MDT) completed traffic counts in 2022 on 7th Avenue West between Main Street and 1st Street West and the average annual daily traffic (AADT) was calculated at 3,394 vehicles per day (refer to **Figure 1**). These volumes decrease substantially going east of Main Street on 7th Avenue East and Hillcrest Drive as development becomes sparser and vehicle trips generated from businesses correspondingly lessen.

Land use – from the east end, near Daniah Lane, current properties are largely residential in nature along both sides of Hillcrest Drive west to 11th Street East. There the street becomes 7th Avenue East with mostly residential property on the north side to 1st Street East, where it becomes commercial to 1st Street West and then becomes mostly residential again to the end of 7th Street West. A power transmission substation exists east of 5th Street East. The south side of Hillcrest Drive is mostly residential east of 11th Street East, becoming mixed residential, light industrial and commercial up to Main St. There is undeveloped property along the route on the south side of the street between 11th Street East and 2nd Street East, most of which is railroad (RR) property. Development of the RR properties is uncertain but can be expected to develop at some point in the future. The Catholic Church property between 8th Street East and the multiuse path along the old railroad grade is a logical location for new development, but nothing is currently approved and moving forward. On Daniah Lane, there is construction of residential property currently underway.

The City has indicated there is a substantial (48 residential dwelling units) development located along Hillcrest Drive just north of the 90-degree turn in the street alignment east of Daniah Ln. This development will generate a notable amount of new traffic on Hillcrest Drive and west to town. The development is anticipated to generate 300 or more vehicle trips per day (refer to **Attachment 7**).



Surfacing – DJ&A and Tetra Tech (geotechnical subcontractor) drove 7th Avenue/Hillcrest Drive, and observed the road geometrics, topography adjacent to the road, width, and pavement condition. The existing pavement section along the majority of the project heading east of Main Street was in fair to poor condition (see adjacent photo). There was no crown observed in the road section, and roadside drainage and ditches were either poor or nonexistent. The primary pavement distresses observed included: pavement distortion, significant patching, alligator and block cracking, longitudinal and transverse cracking, and significant weathering and raveling (refer to Attachment 8 for more detailed information on pavement distress). During the site visit, the team stopped to observe several existing, or in progress, construction sites that contained exposed subgrade soils. Based on Tetra Tech's past knowledge of the Polson and project area, the soils observed during the site investigation, and geotechnical information gathered from the City of Polson for projects completed in the vicinity of the bypass project, the subgrade soils within the project limits likely consist of silt and clay. Silt and clay are considered poor to very poor soils for supporting pavement sections and have poor drainage properties. The silt and clay subgrade, as well as age, are the primary factors for the poor condition of the existing pavement section.

Pedestrian facilities are intermittent and are absent from Hwy 93 to the Cherry Hill Village apartments. There, a sidewalk begins along the north side and continues to approximately the midpoint between 5th Street East and 6th Street East with no sidewalk on the south side up to that point. The sidewalk begins again approximately 850-feet west of the previous terminus and is intermittent until Main Street. The south side of the street remains virtually void of any sidewalk with approximately 200-feet of total discontinuous sidewalk east of Main Street intersection. Most of the sidewalk is in poor condition and is recommended for replacement.

Parking facilities are highly variable. On-street parking is provided from Main Street to 1st Street E on both sides. From 1st Street East to 5th Street East, on-street parking is present on the north side of the street only. East of this location there is no city-designated, on-street parking provided on either side, although residents have been parking in some locations off the paved areas. No additional parking was identified east from 5th Street East, although some landowners are parking off the roadway shoulder.

Stormwater is generally conveyed from the street surface to roadside ditches via sheet flow, starting from the 90-degree bend in Hillcrest Drive to the west access of Cherry Hill Village. From there, curb and gutter are present on the north side west to approximately the multiuse path crossing. No curb and gutter are present going west from the multiuse path on either side until the intersection with 1st Street East. An existing stormwater catch basin is present at the 7th Street East intersection as well as trunkline storm sewer in 7th Street East according to City staff.

Utilities – numerous overhead and buried utilities are present, including a transmission powerline with other utilities apparent on the poles. Utility cans indicative of underground power, phone and other. Manholes and valve covers indicating presence of public water, sanitary sewer and intermittent storm sewer west of 7th Avenue East primarily.

Right-of-Way – the majority of routes appear to utilize the standard 55.0' City standard. Along the portion of Hillcrest Drive, the width becomes variable prior to the county jurisdiction boundary. Along the Railroad

property the right-of-way may be complicated with evidence that the railroad right-of-way may be present out into the existing roadway. It is likely there is an easement for the street, but that would need to be determined through a detailed cadastral survey, which is recommended during any early stages of design.

B. Ridgewater Drive

Traffic data was evaluated along Ridgewater Drive based on available information and on-site assessment. Volumes on Ridgewater Drive near the Hwy 93 intersection were collected in mid-July 2023 and the 3-day average was 4,538 vehicles per day, approximately 10% higher than 2022 volumes and approximately 3000 vehicles from the 7,500-threshold requiring the Cougar Ridge Subdivision to construct the connection. With a 10% sustained growth rate, the threshold will be exceeded in less than six (6) years. Whether this type of growth is sustainable is uncertain, however, with a 43-unit low-income housing development pending final approval and other potential development within Cougar Ridge Subdivision, including storage units, a Dollar Store, ice arena, and likely much more residential property, the 10% growth does not seem too unrealistic. The low-income housing complex alone would contain an estimated 43 residential units and could generate roughly 400 more vehicles per day on Ridgewater Drive. The large vacant area west of the current development within the subdivision will likely be residential and could generate a significant new volume of traffic.

Land Use - According to discussions with the City Planner, aside from the proposed Dollar Store, ice arena, and a handful of other storage units already in the planning and development stage, the commercial use property is nearly built-out in the Cougar Ridge Subdivision. Most of the remaining development is anticipated to be mostly residential. Restaurants, an auto parts store, a hotel, mini-storage, residential housing, an aquatic center, and other business are constructed and in operation currently along Ridgewater Drive. Development currently proposed and remaining vacant parcels adjacent to Ridgewater Drive are presented in **Attachment 7**.

Surfacing – existing surfacing along Ridgewater Drive is in good condition, with only minor wear apparent to the point at which the street dead-ends.

Pedestrian Facilities - Sidewalk is present on both sides of Ridgewater Drive where development has been constructed, generally with irrigated grass boulevard (grass) and intermittent tree plantings. The latest residential construction near the end of the paved portion of Ridgewater Drive contains curb walk (curb adjacent to sidewalk with no boulevard). Sidewalks appear to be constructed with each tract of land that is developed, creating some discontinuity in current form.

Parking Facilities – no on-street parking is present along Ridgewater Drive. The road surface appears to be approximately 30-ft total width from face of curb to face of curb. Parking is available in off-street parking lots.

Terrain along the Ridgewater Drive north-south portion (see **Figure 1**) of the connection route is undulating to hilly, with scattered vegetation, a tribal-owned irrigation canal near Hillcrest Drive, and several occupied dwellings along the route that break up the natural landscape. The existing structures and dwellings are not obstacles, as they lie off to the side of the route. Street grades may be challenging to meet standards for sidewalk grades and could require occasional landings to meet ADA requirements. Referring to **Attachment 2**, the route has a maximum slope of nearly 11% and a vertical differential of approximately 55-feet from Hillcrest Drive to the existing Ridgewater Drive terminus.

Right-of-way is available for both connection scenarios, one being fully owned by the development and the other occupying developer property, a short segment of Daniah Street, and requiring right-of-way from at least two landowners (refer to **Attachment 1**).

Utilities – there are limited utilities or conflicts along the two routes, since the connection is mostly on the developer's property and utilities have been placed, including the sewer line from Hillcrest Drive to the Cougar Ridge Development, based on the potential connection. It is likely the design for the connection from the developer will consider all existing utilities and design around any potential conflicts within his property. It is unknown, but there may be the potential for minor conflicts created with private and public utility service lines to properties adjacent to Daniah Lane in association with the Ridgewater Drive to Daniah Lane connection option. The connection must pass under a transmission power line that likely has other utilities hanging on the poles; it is assumed this won't generate overhead clearance issues however, and the utilities can remain mostly, if not entirely unharmed.

Stormwater – curb and gutter, storm drain inlets, storm sewer trunkline are intermittently present along Ridgewater Drive.

C. Hillcrest Drive and Hwy 93 Intersection

Findings of the intersection assessment for the Hillcrest Drive and Hwy 93 intersection were consistent with information presented to DJ&A by the City to-date. Traffic was observed by DJ&A and turning movements on and off of Hillcrest Drive were recorded for two consecutive 15-minute periods from 1:15 – 1:45 on July 14, 2023. During this period, the predominant movement was a left turn from Hwy 93 onto Hillcrest Drive with vehicular queues of 5 or more vehicles not uncommon for that movement. The right-turn from Hillcrest Drive onto Hwy 93 was the second most-common movement, and queues of 3 or more were not uncommon, effectively blocking the ingress/egress movement to the dispensary business. As a result of these observations, it is recommended that the existing full-movement intersection undergo a formal traffic study. This would include a full review of crash data, turning movements during daily peak periods, intersection capacity, near-miss occurrences, and other notable observations. Deficiencies and concerns identified during the July 2023 field investigation include the following:

- The existing intersection does not have adequate sight distance, particularly on the west leg of the intersection. It was apparent that vehicles entering and exiting Hillcrest Drive rush their movement to squeeze into small gaps in the Hwy 93 traffic, or force-gap (require Hwy 93 traffic to slow or stop and allow them in or out of Hillcrest), even though the Hwy 93 traffic has the right-of-way.
- Cut-across (vehicle traverse across opposing lanes) movements were regularly observed for the WB left-turn onto Hillcrest Drive with numerous near-misses observed as motorists push the envelope on what is safe.
- Excessive delays were observed from Hillcrest Drive onto Hwy 93, and for WB left turns onto Hillcrest Drive. Delays more than several minutes were not uncommon. On one occasion, Hwy 93 EB traffic came to a stop to let several vehicles clear out the queue on Hillcrest Drive.
- WB traffic on Hwy 93 experienced congestion to the point that it backed up across the intersection with Hillcrest Drive for several minutes on two occasions during the 30-minute observation.

Based on the observations at this intersection, consideration for closing the left-turn movements should immediately be discussed with MDT. Safety is a significant concern based on observations, and as traffic continues to grow, it will only become more pronounced. Also, if the Ridgewater Drive connection is pursued, there would be a strong case to be made to closing the left-turn movements at the intersection due to an anticipated substantial decrease in traffic flows at the intersection, improving the skewed intersection, and creating a right-in-right-out intersection. Coordination and working in partnership with MDT would be important, as this intersection modification would alter traffic patterns on Hwy 93 and perhaps MDT would offer financial participation if it mitigated identifiable safety issues. The City already coordinated with the city police and fire department. The police (George Simpson-Interim Police Chief) liked the idea of a right-in-

right-out restriction and even felt removing the connection entirely would be viable. The fire department (Clint Cottle-Fire Chief) felt the right-turn-only option would be appropriate but had concerns about closing the access entirely and that it could affect response time to certain neighborhoods if it were closed.

D. Ridgewater Drive and Hwy 93 Intersection

The signalized intersection operated favorably with no noticeable queueing or delay observed between 7:45 and 8:00 a.m. on July 17, 2023. Businesses were occupied with employees and patrons along Ridgewater Drive. Signing, striping and signal operation were appropriate and are regularly maintained by MDT forces.

III. Bypass Route Alternates

Through communications with City staff, field reconnaissance, review of developer concepts and several meetings with the City of Polson, a variety of bypass options were evaluated. The viability of the options was measured based on many factors in the short-term and long-term. Key factors considered in the evaluations of routes included:

- Right-of-Way requirements.
- Ability of streets to accommodate increased traffic.
- Intersection improvement considerations.
- General path: direct vs indirect (e.g., length, out-of-way, through neighborhoods, other).
- Cost to the City.
- Potential maintenance concerns.
- Terrain.
- Public opinion.
- Various impacts to the residential character.

A. Ridgewater Drive Connection to Hillcrest (see Figure 1)

The Ridgewater Drive/Hillcrest Road connection would effectively create a local bypass route. The original connection alignment utilizes back-to-back horizontal curves to connect to Daniah Lane. An alternative to this has been discussed between the developer and City staff and would eliminate the curves and tie-in straight through the subdivision property. Both locations were visually inspected from Hillcrest Drive, Ridgewater Drive and from several vistas located along Long Lake Road. The developer has completed some initial grading along the route in association with construction of a sewer line, installing the sewer along the alternate alignment that intersects Hillcrest Drive east of Daniah Lane.

The alternate route would result in closely spaced intersections on Hillcrest Drive due to the proximity to the existing Daniah Lane intersection that would be less than 150-feet away. If the alternate alignment were shifted to the east property line, the spacing could be maximized but still won't meet the 150-feet approach spacing criteria of the City. If the intersection were converted to all-way stop control or roundabout, concerns with sight distance would be minimal. Overhead flashers or advanced flashers should be evaluated for the intersection since it is a new intersection and driver expectations along Hillcrest Drive will be altered with the new traffic pattern.

Grades along either route, using Google Earth's profile generator, indicate the north-south portion of the connection from Hillcrest Drive to the Ridgewater Drive contain grades exceeding 13%; however average grades can be estimated at 5% plus-or-minus, indicating the unfavorable grades can be mitigated through excavation and embankment.

Given that the route presents the least challenges to construct, it would seem either option would be favorable. Both would create headlight spillover for residents on the opposite side of Hillcrest Drive, which

could create an unfavorable condition for several landowners, potentially. Consideration for locating the street intersections to align with garages rather than the main dwelling should be a primary objective with the designed alignment.

Early coordination with the irrigation company will be important as well to ensure the crossing is acceptable over their facility.

Traffic analysis will be important for the intersection after several months of operation to assess if, and what form of intersection is appropriate, and whether to stop traffic on Ridgewater Drive, or change priority and stop traffic on Hillcrest Drive, or implement all-way stop control.

A. Long Lake Rd. to 15th Ave E Connection (see Attachment 3)

Although this route seems to be viable at first glance, the grades along this ¼-mile segment contains grades exceeding 25%, thereby eliminating this option from a detailed evaluation. To avoid the steep grades, a connection north and east from the extension of 15th Avenue East could be constructed to Ridgewater Drive rather than Long Lake Road. This option would require a notable portion of Ridgewater Drive be constructed with an alignment that may not fit development plans of Cougar Ridge Subdivision since it would traverse through what is most-likely future residential development. It would drastically increase traffic along 15th Avenue East, 5th Street East and other routes depending on the path motorists took. It could generate substantial public opposition due to the increase in traffic through numerous neighborhoods, although it would provide a benefit to many residents in that area of Polson by providing them with a new, and direct connection to Hwy 93. For these reasons this option was dismissed from further consideration as a local bypass.

B. Other Connection Routes from Ridgewater Drive

Southlake Crest and View Point Drive

Utilizing Southlake Crest to View Point Drive to Skyline Drive to 1st Street East is physically possible, but there are challenges to establishing this as a formal and designated route. There have been ongoing disputes between adjacent landowner(s) and motorists, including the installation of a gate by the landowner across the roadway. Frustrated motorists have cut the locks to gain access across the property. This issue has been going on for quite some time and a resolution would appear to be a very difficult situation to overcome. Although traversable, an increase in traffic would likely result in an increase in concerns with street maintenance in the winter and the road would need to be evaluated to determine if it is structurally sufficient to sustain the increased traffic loading. The route is windy, and traverses through substantial existing residential property, providing little benefit to the existing residents, and likely would receive substantial opposition. This route would certainly not be considered a bypass, as much as a local connection for residents up on the flats from access to and from Hwy 93. For all these reasons, this route is eliminated from further evaluation as a bypass.

Long Lake Drive and Claffey Drive

Long Lake Drive to Claffey Drive using a short connection via an existing emergency access route might be possible. However, again, this route would appear riddled with challenges and its viability perhaps negated by the indirect route it creates to serve as a connection to downtown. As shown in **Attachment 3**, the portion of Long Lake Road was constructed to serve the residents up on top of the hill and was built with a consistent 10% (plus or minus) grade for a substantial portion. Although traversable, a notable increase in traffic would likely result in an increase in concerns with street maintenance in the winter and the road would need to be evaluated to determine if it is structurally sufficient to sustain the increased traffic loading. The emergency services access would need to be formalized into a public street connection. The route is windy, and traverses through substantial existing residential property, providing little benefit to the existing residents, and

likely would receive substantial opposition. For all these reasons, this route is eliminated from further evaluation.

D. Existing Connections from US 93 to downtown Polson

There are currently several established routes available to avoid traveling on Hwy 93 in downtown Polson, but they provide minimal benefit to those in Polson, except those coming and going from the south of town (e.g., Ronan, Pablo, and others). Glover Rd, North Reservoir Rd., Caffrey Rd., and others connect to Skyline Dr. and others to Back Road/Kerr Dam Rd., which all can provide access to Polson without using Hwy 93. All contain numerous intersections, segments of windy roads, and are lengthy alternatives to simply taking Hwy 93 all the way to town. It is likely that some portion of existing traffic that now take these routes to avoid congestion in Polson along Hwy 93 would alter their travel route and utilize the Ridgewater Drive connection between Hwy 93 to Hillcrest Drive if it were built, since it provides the most access to the whole of downtown Polson through the existing street grid system along 7th Avenue East and West.

IV. Recommended Improvements

Based on the results of the existing conditions assessment presented above, DJ&A acknowledges that the Ridgewater Drive to Hillcrest Drive connection is the most viable route for a local bypass.

For planning purposes only, draft typical sections (see **Attachment 5**) and corresponding preliminary street geometry for the improvements to Hillcrest Drive/7th Avenue East were developed for the City's consideration. Three separate typical sections resulted based on current and anticipated needs should the Ridgewater Drive connection be advanced. Important to note, DJ&A recommends a detailed traffic study be performed to determine projected traffic volumes on this route using travel-demand-based traffic engineering to understand the immediate and long-term effects on the Polson transportation system. The recommendations below are those based on the professional expertise of DJ&A, in the absence of traffic projections calculated through a state-of-the-practice approach and are therefore for initial planning purposes only.

The increase in traffic, City's desire to avoid acquiring additional right-of-way, safety benefits, need to accommodate pedestrians, drainage, and incorporate a more robust surfacing section, are primary factors that led to these typical sections. The justification and specifics for the typical sections are further outlined in the following section. These conclusions are preliminary only, and DJ&A will provide recommendations later in this memorandum, specifying next steps for the City prior to finalizing any design decisions.

A. Ridgewater Drive

Based on the constraints listed above, as well as the disclaimers related to the traffic data, the layout and conceptual design for the Ridgewater Drive connection is presented in **Attachments 1 and 2**, including lane configuration and general alignment produced by Cougar Ridge Development. It is assumed the final design will include one travel lane in each direction and sidewalk on at least one side to provide connectivity between the existing facilities on Ridgewater Drive and the recommended improvements on Hillcrest Drive and 7th Avenue East. The surfacing section will need to accommodate projected traffic loads based on the findings of the traffic study that was recommended earlier and surfacing recommendations from a future geotechnical investigation.

Based on review of cadastral information via Montana Cadastral interactive mapping, it does appear there is a right-of-way requirement necessary from two parcels (Timothy and Margaret Fox; and Glenn and Sandra Wade). It is unclear if these landowners have been approached by the City or developer for initial discussions, but this would be crucial to occur early in the process. The other alignment option adjacent to Daniah Lane that traverses entirely through the developer property seems most viable from a right-of-way

standpoint, although that would create two public approaches adjacent to one another and would not meet city access spacing requirements. The intersection control at Hillcrest Drive should be carefully analyzed using travel-demand-based traffic projections (e.g., opening year and 5-yr, 10-yr or other future year volumes) to determine which street should be assigned priority. This would require a detailed traffic study, which will be discussed further in Section B below. It is likely stop-control will suffice for traffic control, but intersection capacity would be necessary to determine this. Accommodations for pedestrians will be important, since this new connection would provide citizens of Polson, non-motorized access to Cougar Ridge Subdivision and all the public amenities it provides through commercial business as well as personal health and fitness (e.g., soccer fields, ice arena, etc.).

B. Hillcrest/7th Avenue East

Travel lanes – only one travel lane is anticipated in each direction. Existing AADT on Hillcrest Drive/7th Avenue East from MDT for 2022 was nearly 3,400 vehicles per day near the Main Street intersection. The street itself can accommodate a significant increase and it would be unlikely in a community the size of Polson that multiple lanes would be needed in each direction within a typical design horizon (e.g., 20 years).

Eleven-foot (11.0') travel lane width is recommended due to physical constraints of existing right-of-way, and the recommendation to include sidewalk, curb and gutter and on-street parking as appropriate, and to minimize physical impacts to adjacent properties. Existing manholes, valve covers, and other utility covers will remain out of the wheel path based on the layout presented in **Attachment 5**. Where curb and gutter is present, an additional 0.5' of shoulder is suggested to create an effective 2.0' offset (shy distance) from the face of curb. Where on-street parking is provided, an 8.0' parking lane is suggested as the minimum and includes the gutter pan, where curb and gutter is present. Sidewalk is recommended at 5.0' width minimum to provide sufficient width for two-way pedestrian flow, since it is primarily only proposed on one side of the road; with the proposed shoulder or on-street parking, pedestrians will have some positive separation from moving motor vehicles further supporting the 5.0' sidewalk.

Surfacing – in order to determine the most effective and cost efficient roadway reconstruction design, as well as to determine the potential re-use of the existing pavement materials, Tetra Tech recommends that a representative number of geotechnical borings be drilled along the existing roadway section (approximately 1 every ¼ to ½ mile), to determine the pavement section thickness, the base course thickness, the percent fines in the existing base course, the subgrade type and variability along the road section, and ground water levels. With the roadway section and subgrade information, as well as the proposed civil geometric road design in hand, Tetra Tech can provide a preliminary pavement section design.

A good understanding of traffic volumes throughout the design horizon (e.g., 20 years) to determine the traffic loading and makeup of the final solution is also important. The street, or at least a substantial amount of the street, may be a good candidate for full-depth reclamation (FDR), whereby existing asphalt and surfacing aggregate course are ground up to form a new road-base material and then a new mat of bituminous (asphalt) pavement is installed. The FDR method promotes reuse of materials, reduction in overall cost and approximates existing grades when complete. Where substantial utilities are present it becomes a less effective solution due to the starting and stopping of the operation to avoid manholes, valve covers, etc. The typical sections presented assume subgrade preparation, a subbase material and a final gravel course, overlaid with new asphalt; in short 4" of new asphalt over 12" of imported road base gravel.

Pedestrians – sidewalk is currently not continuous along the street. Based on field observations, pedestrians were present along the route regardless of whether sidewalk is present or not. The narrow shoulders along the street in some locations does not promote a safe environment for pedestrians and it is recommended continuous sidewalk be provided along the north side of the street from the Ridgewater Drive

intersection with Hillcrest Drive to Main Street intersection. Within the study area, only between 1st Street E and Main Street is a sidewalk deemed necessary on the south side of 7th Avenue East to connect to existing sidewalks. If and when future development occurs along the south side of 7th Avenue East (e.g., the railroad property and other vacant ground), the development can be required to construct a sidewalk.

On-street parking – the existing conditions assessment found that on-street parking is appropriate from Main Street to 1st Street East on both sides, and then only on the north side to 5th Street East. Beyond that location, a consistent need for on-street parking was not observed. Most dwellings have parking in front of, in garages, or have long driveways back to their dwelling/garage. For the segment between 7th Street East and the Catholic Church property, there is off-street parking with a unique configuration whereby the existing sidewalk is flush to the pavement and perpendicular parking exists behind the sidewalk and the property lines. This area would require careful consideration to minimize impacts to their unique parking requirements.

Intersection Capacity - The city street intersections and private drive accesses will be impacted with the increase in traffic from a connection to Ridgewater Drive. Completing traffic projections and capacity calculations were beyond the scope of this study but will be important to understand if and when auxiliary turn-lanes could be needed at the more major intersections, primarily the existing all-way stop control intersections at 7th Street East, 1st Avenue East and Main Street; the city should be prepared however, for the new influx of traffic from the connection to impact side street access and affect traffic patterns. It is likely some adjustments, including neighborhood cut-through, will be made by motorists to avoid delays and queues. However, the impact is difficult to surmise since the downtown street grid allows for numerous alternatives to the busier intersections noted here. The exercise of completing travel-demand-based traffic projections is advised so the City can be prepared for the impacts that could result from the new connection/bypass should it move forward. **Drainage** – the typical sections utilize curb and gutter on the north side of the street to provide physical separation of vehicles from pedestrians and to collect stormwater and convey from the road surface. One key observation during the field visit is that poor drainage and surface/subsurface infiltration of stormwater and snowmelt likely have contributed to the degradation of the facility. Installing a street that properly separates stormwater from the surfacing, sidewalk, and other features can promote the longevity of the facility. The entirety of the street could be sloped towards the north curb and gutter to collect the entirety of stormwater from the new street surface; the City public works department would make the final decision on this, since current drainage patterns and impervious area contribution to the southern roadside would essentially remain unchanged with the typical section presented above. The City has indicated trunkline storm sewer is present in 7th Street East and the project could connect into the system. Detailed stormwater analysis would be required to determine if the existing system has capacity to accommodate the flows from Hillcrest Drive and 7th Avenue East.

Lighting – it would be desirable to include lighting due to the presence of a continuous curb with the recommended improvements and presence of continuous sidewalk. Although desirable and recommended (due to presence of curb and sidewalk), it would be inconsistent with the existing facilities along 7th Avenue East and 7th Avenue West. The cost estimate presented later in this memorandum excluded lighting from the total cost. However, it is estimated to be an additional $800,000 - $1,000,000 (range from existing to year 2025) to add street lighting, should the City desire.

Traffic - The anticipated increase in traffic from a connection to Ridgewater Drive is difficult to predict without a detailed traffic modeling effort. It is likely, however, to say that a substantial percentage of the traffic generated by the Cougar Ridge Subdivision would opt to use the connection rather than the Ridgewater Drive/Hwy 93 intersection, depending on their origin and destination. Further, it is likely there is some latent demand for the businesses within the subdivision that is currently hindered by the current isolation of the subdivision amenities being accessed only from Hwy 93. Over time, the connection will become a "bypass"

for many arriving from south of Polson and desiring access to downtown. This pent-up demand for using it as a true 'bypass' may likely only be able to be measured accurately upon opening of the connection, but a detailed traffic modeling effort by a reputable transportation engineer(s) would be the best approach and allow a proactive vs reactive approach.

Right-of-Way *(R/W)* – no new permanent street R/W appears required to construct the improvements along the street and the 55' typical city street R/W width appears adequate for the improvements. Depending on final design, construction permits may be needed to allow sufficient space for the contractor to construct all improvements within existing R/W.

Utilities – the City was contacted and no new betterments or new water or sanitary sewer facilities are anticipated. Stormwater collection is integral with the typical sections and would need to connect to existing trunklines that are available, such as the trunklines in 7th Street East. Lighting is a suggested improvement, and the appropriate lighting design would be needed to achieve lighting standards. Since curb is only on one side of the road, and the road footprint is narrow, luminaire spacing can be farther apart.

V. Potential Needs and Major Considerations to Advance the Project to Design

Prior to advancing this connection, the following are recommended in order of importance to address the safety issues at the Hillcrest Drive/Hwy 93 intersection, conduct a traffic study associated with the local bypass project in support of future design, and assist the City in future transportation system planning.

Priority #1 - *Contact MDT in regard to the Hillcrest Drive/Hwy 93 intersection safety concerns identified in this study.*

Inform MDT that the elimination of the left-turn movements onto and off of Hwy 93 is acceptable to the City of Polson, and they have consulted with local emergency services, and that is acceptable. State the importance of public safety at this intersection is of serious concern to the City and it desires to move forward with this as soon as possible. MDT involvement will be crucial in identifying the appropriate improvements on Hwy 93 (e.g. signing and striping, approach geometry, use of raised median, etc.). If MDT can participate in providing design and financial support, that would be important to identify, but establishing the timeline of equal importance. DJ&A recommends the City request these improvements be installed this fall (2023) or spring of 2024 based on weather conditions and to avoid peak traffic flow conditions.

Priority #2 - *Conduct a comprehensive traffic study to compliment the future design requirements of a Ridgewater Drive connection to Hillcrest Drive.*

It is recommended the City of Polson initiate and lead this effort to control the timeline and maintain a study commensurate with the project intent, and only focus on those areas required to control scope, schedule and budget. For continuity, DJ&A would be pleased to enter into an agreement with the City to provide any or all of the services required to establish the scope and conduct the traffic study. DJ&A can leverage their deep understanding of the project and potential impacts, as well as their experience with and favorable relationships with MDT, the County and CSKT

Step 1 - Inform or consult with MDT, the County and CSKT and present results of this study and the City's support for Cougar Ridge to advance a Ridgewater Drive to Hillcrest Drive connection. The City should discuss its desire to lead and conduct a comprehensive traffic study to analyze existing and future traffic volumes and impacts to Ridgewater Drive, the Ridgewater Drive/Hwy

93 intersection, and Hillcrest Drive, 7th Avenue East and major intersections downstream along the route. It would be appropriate to gather input from the agencies on the 'boundaries' of the traffic study and desire to limit it to only what is needed to advance the local bypass. The City can inquire whether these agencies might desire to participate in some level of partnership to establish buy-in and establish informed consent of the process; for example, MDT may be willing to collect and provide traffic data or crash analysis information, or even complete a travel-demand model if it fits the City's timeline. This "local bypass" could very well benefit the agencies by reducing traffic and congestion on their route (e.g. MDT's Hwy 93) which would improve safety, enhance business access, and enhance the experience for the travelling public.

Step 2 – Finalize the appropriate scope of services for the traffic study. Depending on the level of involvement and input from the agencies identified through the consultation listed in Step 1, the scope of services may be either entirely the responsibility of the City or there may be some sharing of resources and responsibilities.

Step 3 – Depending on the outcome of Steps 1 and 2, conduct the traffic study. A thorough analysis of existing and future traffic conditions within a design (e.g., 20-year) horizon. Generally, a travel-demand based analysis, typically using a software program for this type of application, is performed within an appropriate study area to establish baseline and projected traffic volumes within an area network. The model evaluates existing and future land-use and associated traffic generated, as well as the interconnectivity of the transportation system to predict traffic patterns and volumes within the project area. A benefit of developing a travel-demand model using software is it can be readily adjusted to account for planned development or other master-planning associated with the area transportation network. The analysis can be scaled to the level the City desires however, with its center-focus on Hillcrest Drive and 7th Street East and West and primary intersections; it should include be bound, at a minimum by Hwy 93, so-as to include the interrelationship. For a study such as this, comprehensive baseline traffic data and including current land-use (e.g., residential, commercial, recreational) is critical. Once the baseline is established and calibrated to actual traffic volumes measured in the field, the projections effort can begin; the impacts of forming a network connection between two routes such as adjoining Ridgewater Drive to Hillcrest Drive can be analyzed, and planned development can be incorporated into the exercise along with other factors such as origin-destination, travel time and others. This connection will not likely simply reroute the existing traffic on Ridgewater to Hillcrest Drive but could very well add significant traffic from latent demand (i.e., the connection will better serve many that would have used it if it had existed). For a general overview of traffic analysis tools, refer to the following link: https://ops.fhwa.dot.gov/trafficanalysistools/type_tools.htm

Priority #3 - *Update the Polson Area Transportation Plan* (2011) - Although this plan is outdated, it contains substantial baseline information and a solid process for Polson to assess its future, and to analyze the effects a 'local bypass' could have on the City transportation network. Population growth rates in Polson and across Montana have seen aggressive growth since COVID and the growth rates continue to remain elevated beyond historic rates. It would seem very feasible that MDT, CSKT, Lake County, FHWA and the City could undertake this effort collectively and it could strengthen relationships and unite the agencies. This would be a large undertaking, likely require a fiscal obligation, and could take considerable time. If this is not deemed possible within the timeline available, then the next step could be pursued.

The following are several items that DJ&A considers critical to the success of the project and can help facilitate the project delivery that will be discussed in the following section of this report.

1. *Establish Funding* – The connection through Cougar Ridge Subdivision is assumed to be the burden of the development up to Hillcrest Drive, as would the intersection improvements at Hillcrest Drive at the connection. From there, it is assumed the City would be responsible for improving Hillcrest Drive/7th Avenue East to accommodate the increased traffic load. The estimated construction cost is $5 Million in 2023 dollars. Including design, construction engineering, 20% contingency and escalation (6% rate per year) out to 2025 is approximately $8.2 Million, without street lighting as shown in **Attachment 6**. Installing a robust surfacing section and installing a continuous storm drain collection system were base assumptions in this estimate and contribute to the highest percentage of cost. Detailed planning and engineering would hopefully refine these costs downward, but even at that, the $5 million estimated for construction-only in today's dollars, is in-line with expectations for complete reconstruction of over a mile of urban street in Montana. A cost escalation worksheet is provided assuming construction commencing by 2025. This can be modified readily based on the schedule of the City and associated funding. Also, logical splits in the project are possible, at this juncture by simply prorating the cost based on length of project should the city desire to approach it this way. This cost does not include any major intersection capacity improvements (e.g. turn lanes), should they be determined appropriate from the traffic study. Potential funding mechanisms are discussed in Section VI.

2. *Right-of-way* (R/W) - appears to be required for the original connection presented in **Attachment 1**. Should the alternative of constructing the connection entirely through developer property, R/W does not appear to be required, although there have been discussions with the City and developer about a land swap, which could affect the pursuit of the option if the land swap is unsuccessful. Temporary construction permits along Hillcrest and 7th Avenue East may be required depending on final design. A cadastral survey is recommended along Hillcrest Drive and 7th Avenue East to insure right-of-way limits are accurate. Since there is an old railroad right-of-way and existing railroad property abutting 7th Avenue East, there could be some easements to address during design and prior to construction.

3. *Public outreach* – public support may be important to advance this project successfully. The analysis conducted would indicate the proposal to construct the connection of Ridgewater Drive to Hillcrest Drive is feasible. However, it will have an impact to the character of Hillcrest Drive, 7th Avenue East and the traffic patterns in Polson. If the Polson Area Transportation Plan is updated, this should provide ample opportunity for public engagement and building informed consent from the community at large.

4. *Subsurface Utility Engineering (SUE)*– it is recommended that as part of the design for improving Hillcrest Drive, 7th Avenue East and possibly including short segments downside streets that intersect, a comprehensive SUE beginning with "utility designating" be conducted to establish accurate locations of existing and abandoned utilities. Given the age of the facility and presence of the old railroad, it is very likely there are some unique (e.g., underground utility vaults, steam lines, etc.) remnants of past utilities, and of course it is advised to determine the location of all the existing utilities during the preliminary design phase. Should the project be advanced and include storm drain collection facilities, it will be important to understand where potential utility conflicts could arise and be able to design over, under or around them where appropriate. For an initial effort, completing a one-call locate and meeting with utility representatives can be a good starting point. From there, the level of SUE to advance into detailed design can be assessed.

VI. Project Funding and Project Delivery Options

Funding

The City of Polson would likely be the lead agency responsible for delivering the Hillcrest Drive/7th Avenue East Project. As shown in **Attachment 6**, the estimated total (see Section V) cost for this project if constructed in 2025 is $8.2 million, and will require a coordinated and planned approach to control cost. The project improvements will provide substantial benefits to the City, its citizens and patrons, and to the general public; it is very likely this project will generate strong public support. The improvements will provide long-term benefits by reducing congestion on Hwy 93 through town, providing safe facilities for pedestrians, providing continuity along the routes, and reduce maintenance requirements on Hillcrest Drive and 7th Avenue East for many years.

The opportunities for Federal Funding to help pay for much of the project are currently abundant, primarily due to the Bipartisan Infrastructure Law (BIL). This law provides a large amount of surface transportation funding opportunities for Local-Agencies through Discretionary Grants. A summary table of these grant opportunities can be found in **Attachment 9**. Two potential programs that this project appears to meet the merit criteria for would be Safe Streets for All (SS4A) and the RURAL. Federal Discretionary Grants should be targeted as a primary source of project funding, The City of Polson should also anticipate the need to bring local funding to the project as well, especially during the planning and preliminary engineering (30% design) phases of the project. The City should continue to work in partnership with MDT, CSKT, and Lake County to identify common interest in advancing this project.

The Bipartisan Infrastructure Law (BIL) offers many different transportation grant opportunities for local governments. Most of the FY2023 funding solicitations have been released and awarded and we are starting to see the solicitations for FY2024. The BIL grant opportunities are available through FY2026. Polson has made great strides in setting themselves up for success for pursuing these grant opportunities, by identifying and prioritizing projects, evaluating local funding options, evaluating risk and conducting preliminary evaluations. One grant opportunity that DJ&A is very familiar with that would be a good option for Polson is the RAISE grant. This grant can be used for planning or construction funding and with Polson being defined as a rural, no local match is required. RAISE FY2024 is expected to be released at the end of October 2023 or the beginning of November 2023 and once published there is 90 days for applications to be submitted. This is a grant Polson should seriously consider pursuing for planning funding to conduct initial field data collection and plan preparation for their priority project. Upon nearing completion of design, Polson should then pursue RAISE or other grants to receive the construction funding. DJ&A can support Polson with any of these efforts and has successfully worked with other local governments, MDT and the CSKT to apply for and administer grants.

Project Delivery

The Hillcrest Drive /7th Avenue East Project will be a transformational project for the City of Polson. And it will also take broad support and consistent effort over-time to complete. To be successful, the project will need to have clearly defined and agreed to outcomes, which will require additional scoping and planning. DJ&A is a full-service firm who would appreciate the opportunity to serve the City of Polson, its residents and patrons, and work side-by-side with the City to continue working on this project in whatever capacity the City should desire. We have enjoyed the experience immensely thus far in preparing this study and are a firm that desires to see projects from cradle-to-grave, that is, from planning through design and from design through

construction and are hopeful we can remain of useful service to the City. Below is a suggested course of action that should be considered:

- Initiate immediately a comprehensive project traffic study to be completed winter 2023-2024. This timing will allow for traffic data collection prior to winter and provide better baseline information of the study. This study should utilize the information presented in this memo and further analyze and refine recommendations to advance design and construction that meet all city objectives. The study should be performed concurrent with any grant applications (see next bullet) and identify logical project phasing scenarios depending on final construction costs. DJ&A has the expertise and availability to assist the city in this effort, should they desire. The City should seek to have a formal adoption of the study recommendation, once completed, by the City Council.
- Initiate the pursuit of grant funding. DJ&A's grant writing team is perfectly suited to lead the City through this process, having assisted local communities across Montana and recently CSKT in securing funding for projects that are so important to the individual communities and the tribe. More specific details on the process and opportunities for grants were outlined in Section V.
- Pending preliminary results of the traffic study, develop and soon thereafter finalize a project scoping document that details the preferred alternative, project limits, cost-estimate, and phasing strategy. If the City has sufficient funding and is confident the 'local bypass' project can move forward, this information can be used to develop a scope of services to initiate preliminary design as soon as Spring 2024. To facilitate grant applications, information from this study, the traffic study, and the efforts in developing the preliminary design scope of services can be rolled into a Preliminary Engineering Report (PER), which is required for certain grant applications. The project phasing strategy should consider the timing necessary for any right-of-way acquisition and private utility relocation. If possible, the phasing should provide a logical path for a significant project phase to be advanced to construction without the need for any right-of-way acquisition. To accomplish this, consideration should be made to construct a portion of the typical section up to the existing right-of-way (for example, leave out the sidewalk where it falls outside of the right-of-way and build it later). The phasing should also allow for the project to be constructed incrementally. Finally, the phasing plan needs to provide a prioritization method.
- Complete preliminary engineering (30% design). Depending upon available funding, preliminary engineering would ideally be conducted for the entire project at one time. DJ&A is fully prepared and committed to complete this scope of services for the City, having extensive experience in providing full-service urban street design, agency and utility company coordination, public involvement, topographic and cadastral survey, identifying permits, environmental resource study and documentation, and would continue working with Tetra Tech to develop the most cost-effective, yet appropriate roadway surfacing design. If funding is not available, it could be conducted in phases or bid packages assembled with multiple schedules.
- Complete final engineering, right-of-way acquisition (if necessary), utility relocations, and final construction bidding.
- Construction. DJ&A can provide construction administration and inspection, should it be desired.

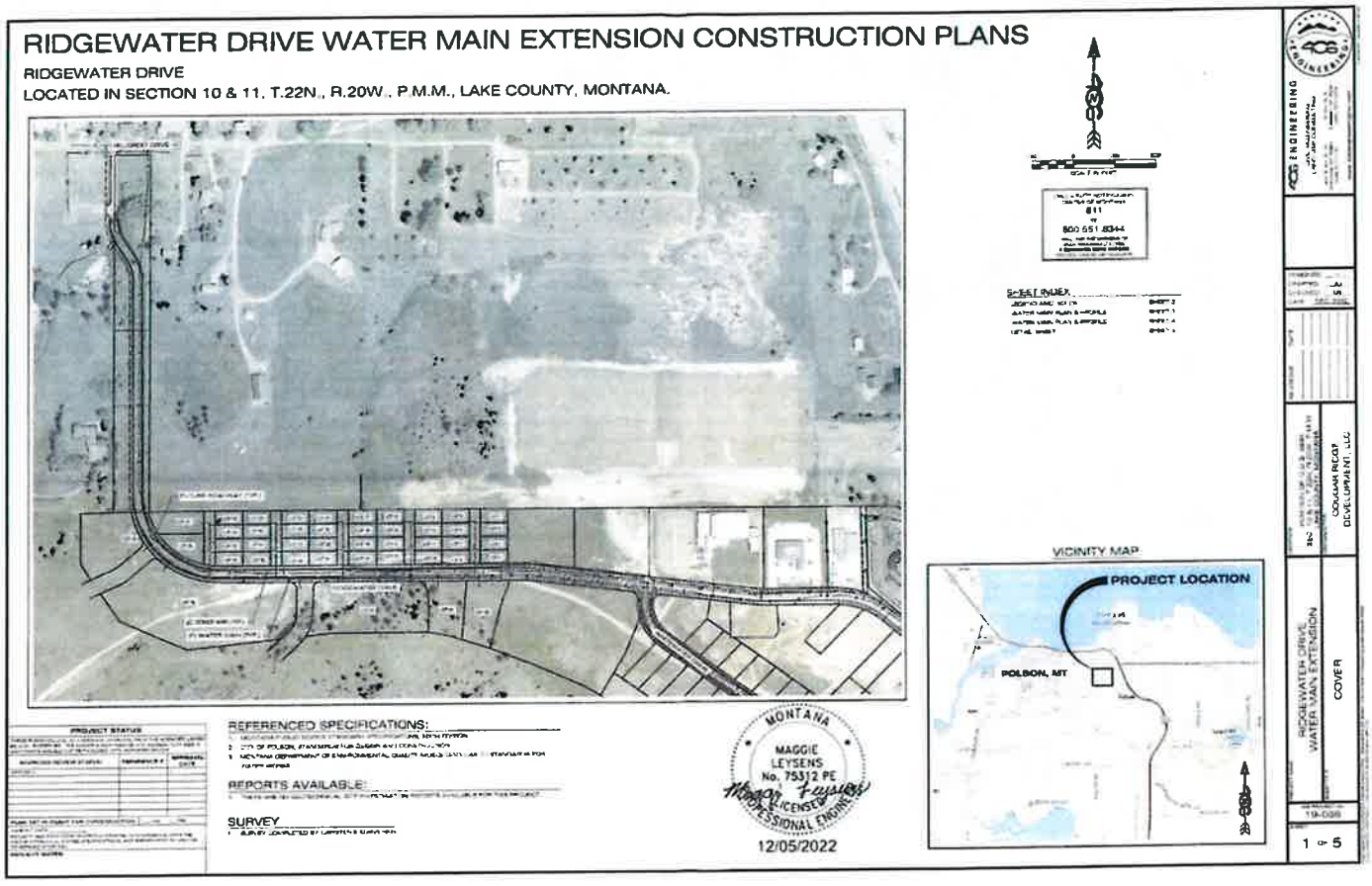
Complex projects such as this often gain benefits through **innovative contracting** methods. These methods allow for project construction risks to be shared between the contractor and the owner (the City). Traditionally, public works projects are delivered using a Design-Bid-Build (i.e., low bid) method. Often Design-Bid-Build lends itself to change-orders for items like changed conditions. To better transfer risk to the contractor a method called construction manager general contractor (CMGC) is frequently being used. This innovative method may allow for the City to better understand project costs during preliminary engineering and provide more cost-certainly in the subsequent construction of the project. Cost-certainty is often very

desirable for grant funded projects that do not have a way of paying for significant cost over-runs. In addition to CMGC, the City should also look at project bundling techniques that may allow for other partners (such as The County and CSKT) to include their projects into the same contract, effectively lowering the overall cost of the project by scaling up the quantity of contract work.

Attachments

Attachment 1 - Cougar Ridge Development, LLC
Attachment 2 - Ridgewater Drive Connection
Attachment 3 - Long Lake Road to 15th
Attachment 4 - Traffic Volumes
Attachment 5 – Typical Sections and Preliminary Street Layout
Attachment 6 – Cost Estimate
Attachment 7 – Cougar Ridge Development Known/Pending Development
Attachment 8 – Washington DOT Pavement Surface Condition Field Rating Manual for Asphalt Pavements
Attachment 9 – Grant Opportunities

Attachment 1 -Cougar Ridge Development, LLC



RIDGEWATER DRIVE WATER MAIN EXTENSION CONSTRUCTION PLANS

RIDGEWATER DRIVE

LOCATED IN SECTION 10 & 11, T.22N., R.20W., P.M.M., LAKE COUNTY, MONTANA.

REFERENCED SPECIFICATIONS:

REPORTS AVAILABLE:

SURVEY

MONTANA
MAGGIE LEYSENS
No. 75312 PE
LICENSED PROFESSIONAL ENGINEER
12/05/2022

VICINITY MAP

PROJECT LOCATION

POLSON, MT

ENGINEERING

COUGAR RIDGE DEVELOPMENT, LLC

RIDGEWATER DRIVE WATER MAIN EXTENSION

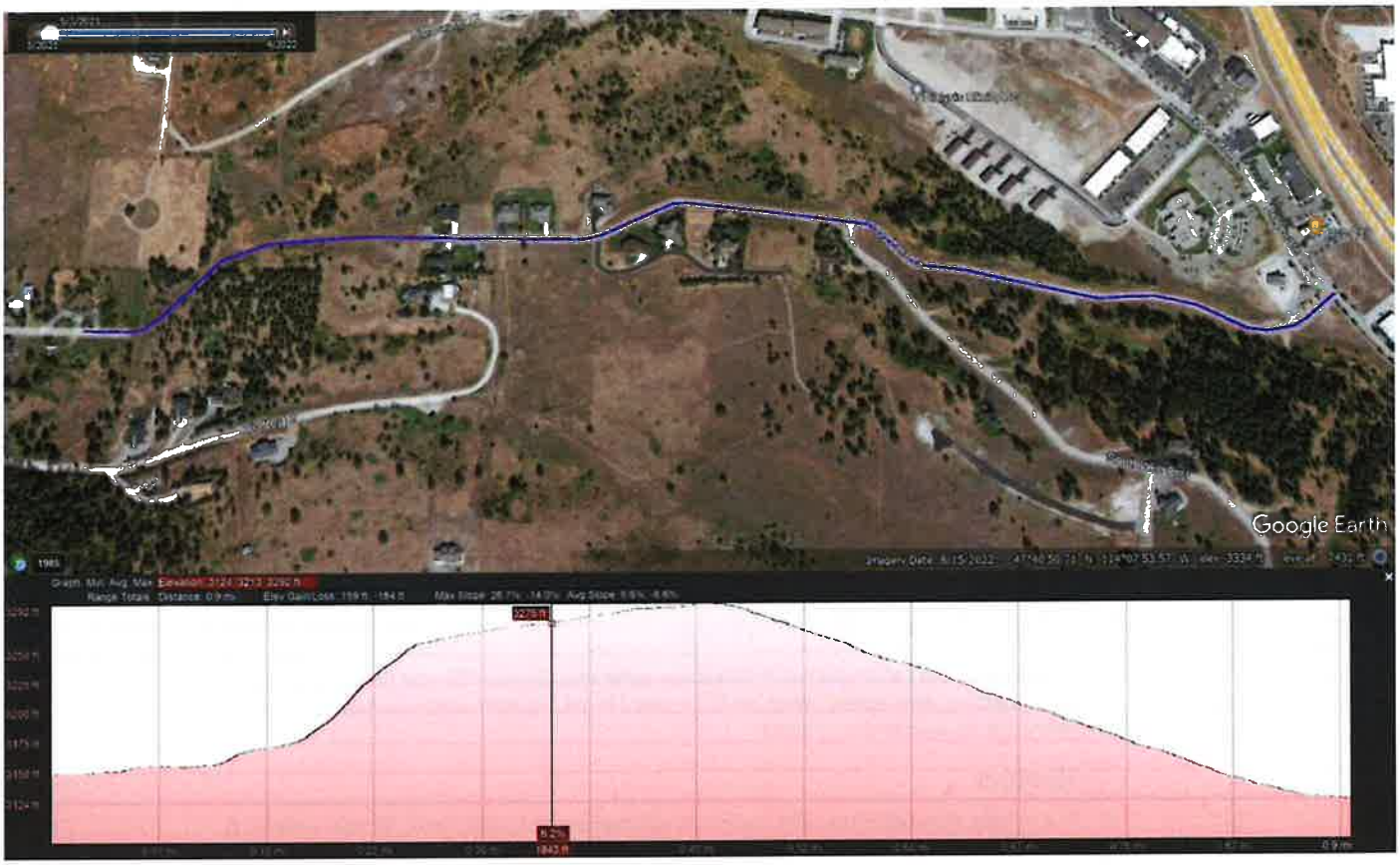
COVER

19-036

1 of 5

Attachment 2 - Ridgewater Drive Connection

Attachment 3 - Long Lake Road to 15th



Attachment 4 - Traffic Volumes

Memo

Date: Friday, August 11, 2023
Project: TO22: Ridgewater Drive Traffic Counts
To: Ed Meece, Polson City Manager
From: Ken Demmons, PE
Cc: Nate Larson, PE, PTOE
Subject: Summary and Comparison of Field Traffic Counts

Actions

For the second year, HDR has undertaken a traffic count effort at the City's request for traffic at the west leg of the US 93/Ridgewater Drive intersection. The specific count location was between the US 93 intersection stop line and the driveway serving the auto parts store. We hired a specialist vendor, All Traffic Data Services (ATD), to collect directional 72-hour traffic counts on this single leg of the intersection. ATD collected these counts in 2022 and 2023 for a winter period in mid-January and a summer period in mid-July. Each set of dates was selected with the goal of minimizing the potential impacts on traffic that weather or major scheduled traffic-generating special events might cause.

ATD summarized traffic volumes in 15-minute increments for each 72-hour period counted. These detailed data reports, which could be useful to the City later, are not bound with this memo but are available on request.

Results

The numerical results of the traffic count are summarized at the daily level, for both eastbound and westbound traffic on Ridgewater, in the table below.

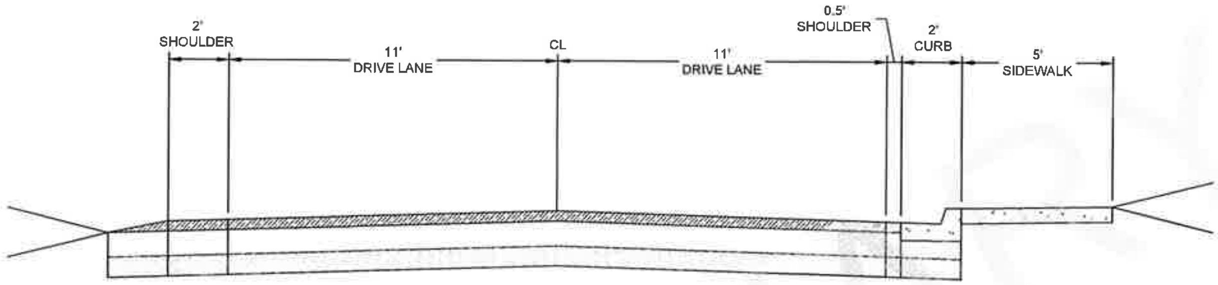
	January 2022	July 2022	January 2023	July 2023
Tuesday	3,283	3,949	3,348	4,356
Wednesday	3,218	4,324	3,913	4,684
Thursday	3,189	4,112	3,644	4,574
Daily Average Vehicles	**3,230**	**4,128**	**3,635**	**4,538**

With regard to peak traffic hours, the counts indicate that with few exceptions, the AM peak hour occurred some time between 10 a.m. and Noon. Similarly, the PM peak hour occurred between noon and 1 p.m., although PM commute-time volumes were much closer to the midday peak volumes than could be said for the AM commute ones. This result indicates that the "lunch peak" is a stronger driver of peak traffic volume here than commuting activities. To that end, future analyses should be considered with a focus on the mid-day time period.

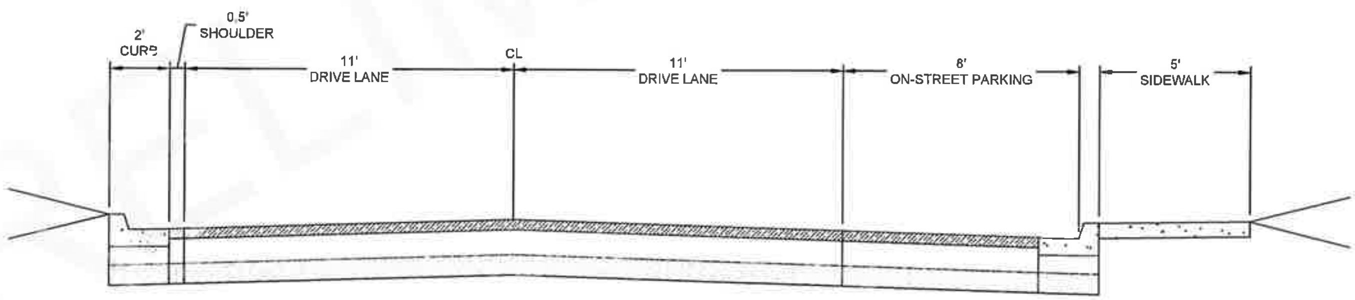
Wednesday was observed to be the busiest day of the week in three of the four counts. Year-to-year comparisons indicate marked growth, possibly due in part to recovery from the pandemic.

hdrinc.com 910 East Chance Gulch, Ste. B, Helena, MT 59601

Attachment 5 – Typical Sections and Preliminary Street Layout



TYPICAL SECTION 1
STA: 10+00 TO 61+43



TYPICAL SECTION 2
STA: 61+43 TO 73+32

REVISION	DATE	DESCRIPTION

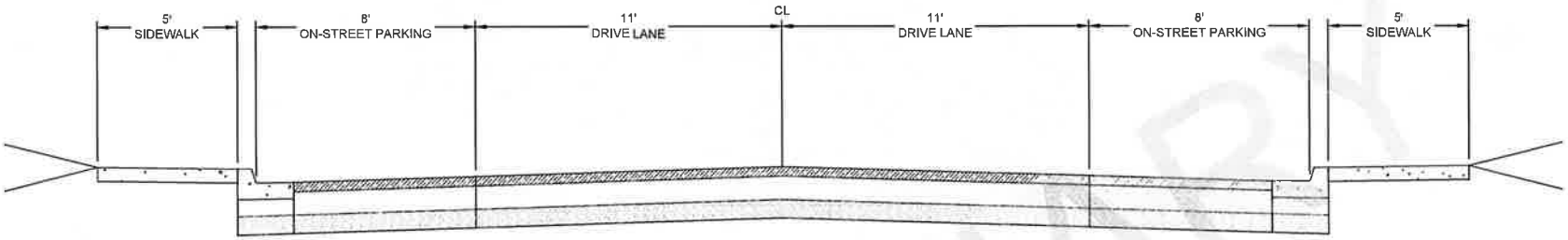
DESIGNER BS PROJ NO 7424
DRAWN BS DATE 5/2023
CHECKED KS SURVEYED DJ&A P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PRELIMINARY TYPICAL SECTIONS (1)

SHEET 1 OF 8



TYPICAL SECTION 3

STA: 73+32 TO 79+28

REVISION	DATE	DESCRIPTION
1	-	-

DESIGNED RR PROJ. NO. 7409
DRAWN RR DATE 8/2023
CHECKED AS SURVEYED DJ&A P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PRELIMINARY TYPICAL SECTIONS (2)

SHEET 2 OF 8

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (1)

SHEET 3 OF 8

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (2)

SHEET 4 OF 8

REVISION	DATE	DESCRIPTION

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (3)

SHEET 5 OF 8

REVISION	DATE	DESCRIPTION
-	-	-

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (4)

SHEET 6 OF 8

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (5)

SHEET 7 OF 8

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNED RS PROJ NO 7409
DRAWN RS DATE 6/2023
CHECKED KS SURVEYED DJ&A, P.C.

DJ&A ENGINEERS PLANNERS SURVEYORS

SEVENTH AVE & HILLCREST DR

PLAN-PLAN SHEET - (6)

SHEET 8 OF 8

Attachment 6 – Cost Estimate

ENGINEERS ESTIMATE

7th Ave & Hillcrest Dr - PRELIMINARY

Prepared By: DJ&A ENGINEERS PLANNERS SURVEYORS

Job No: **7408**

Computed: **BB** Date: **7/20/2023**

Checked: **KS** Date: **08/17/2023**

LINE ITEM NO.	PAY ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Total
	0010	*MOBILIZATION / DEMOBILIZATION*	LS	1	$444,058.80	$444,059
	0020	*CONTRACTOR QUALITY CONTROL AND ASSURANCE*	LS	1	$133,217.64	$133,218
	0030	*TAXES / BONDS / INSURANCE*	LS	1	$10,000.00	$10,000
	0040	*TEMPORARY TRAFFIC CONTROL*	LS	1	$75,000.00	$75,000
	0050	*SOIL EROSION & POLLUTION CONTROL*	LS	1	$25,000.00	$25,000
	0060	*CONSTRUCTION SURVEY*	LS	1	$75,000.00	$75,000
	0110	*EXISTING MANHOLES TO ADJUST*	EA	20	$1,000.00	$20,000
	0120	*EXISTING WATER VALVES TO ADJUST*	EA	30	$750.00	$22,500
	0130	*REMOVE AND RELOCATE EXISTING SIGN*	EA	20	$250.00	$5,000
	0140	*REMOVE EXISTING SIGN*	EA	10	$65.00	$650
	0150	*SIGNS-ALUM SHEET*	SF	250	$27.00	$6,750
	0160	*SIGN SUPPORTS- 2" PSST AND FOUNDATION*	EA	50	$700.00	$35,000
	0170	*REMOVE AND RELOCATE MAILBOX*	EA	15	$125.00	$1,875
	0180	*SUB-EXCAVATION/REPLACEMENT BELOW SUBGRADE*	CY	269	$83.00	$22,327
	0190	*STREET EXCAVATION*	CY	10,745	$45.00	$483,525
	0200	*TOPSOIL STRIPPING AND STOCKPILE*	SY	1,188	$8.00	$9,504
	0210	*TOPSOIL PLACEMENT AND SEEDING*	SY	7,036	$12.00	$84,432
	0230	*CRUSHED BASE COURSE, 3/4" - MINUS*	CY	8,030	$55.00	$441,650
	0240	*4" ASPHALT CONCRETE PAVEMENT, TYPE A-MOD (PG 70-28)*	TON	5,183	$195.00	$1,010,685
	0250	*CONCRETE CURB AND GUTTER*	LF	8,713	$50.00	$435,650
	0260	*4" CONCRETE SIDEWALK*	SF	37,620	$10.00	$376,200
	0270	*CURB RAMP FORMING AND ADA*	EA	28	$1,500.00	$42,000
	0280	*PERMANENT PAVEMENT MARKINGS, WHITE EPOXY*	GAL	55	$300.00	$16,500
	0290	*PERMANENT PAVEMENT MARKINGS, YELLOW EPOXY*	GAL	55	$280.00	$15,400
	0300	*PERMANENT PAVEMENT MARKINGS, EPOXY YELLOW CURB*	LF	500	$7.00	$3,500
	0310	*LUMINAIRE POLE AND FOUNDATION*	EA		$10,000.00	$0
	0320	*STANDARD DRYWELL W. CURB INLET*	EA	24	$6,500.00	$156,000
	0330	*18" STORM DRAIN PIPE*	LF	6332	$170.00	$1,076,440

Notes:

SUBTOTAL	**$5,027,864**	
CONTINGENCY	20%	$1,005,573
SUBTOTAL	**$6,033,437**	
ESCALATION	6%	$745,733
SUBTOTAL	**$6,779,170**	
RIGHT OF WAY	1%	$67,792
CE	10%	$677,917
PE	10%	$677,917
TOTAL ESTIMATED COST		**$8,202,796**

EDIT ONLY BLUE TEXT

U.S. Department of Transportation
Federal Highway Administration

ENGINEER'S ESTIMATE ESCALATION COMPUTATION

*To be used on out-year projects being delivered to the shelf only

PROJECT NO. AND NAME	PROJECT TYPE (see definitions below)[1]
7th Street East/Hillcrest Drive Improvments	General Construction

PROJECT MANAGER	ATTACH ORIGINAL ESTIMATE (Use separate sheet for each schedule and option)
Kirk Spalding	

PROGRAM AMOUNT DATE	PROGRAM AMOUNT
ENGINEER'S ESTIMATE DATE	**ENGINEER'S ESTIMATE**
08/17/23	$8,203,000
ESCALATED ENGINEER'S ESTIMATE DATE	**ESCALATED ENGINEER'S ESTIMATE**
03/01/25	$8,978,000

CALCULATIONS

Begin Date[2]	End Date[2]	Escalation rate per year[3]	# Months projecting[4]	Escalation (approx., rounded up to nearest $5,000)	Escalated Engineer's Estimate (does not include CE)
August 17, 2023	December 31, 2023	6.00%	4.48	$185,000.00	$8,388,000.00
January 1, 2024	March 1, 2025	6.00%	14.01	$590,000.00	$8,978,000.00
Total Escalation				$775,000.00	

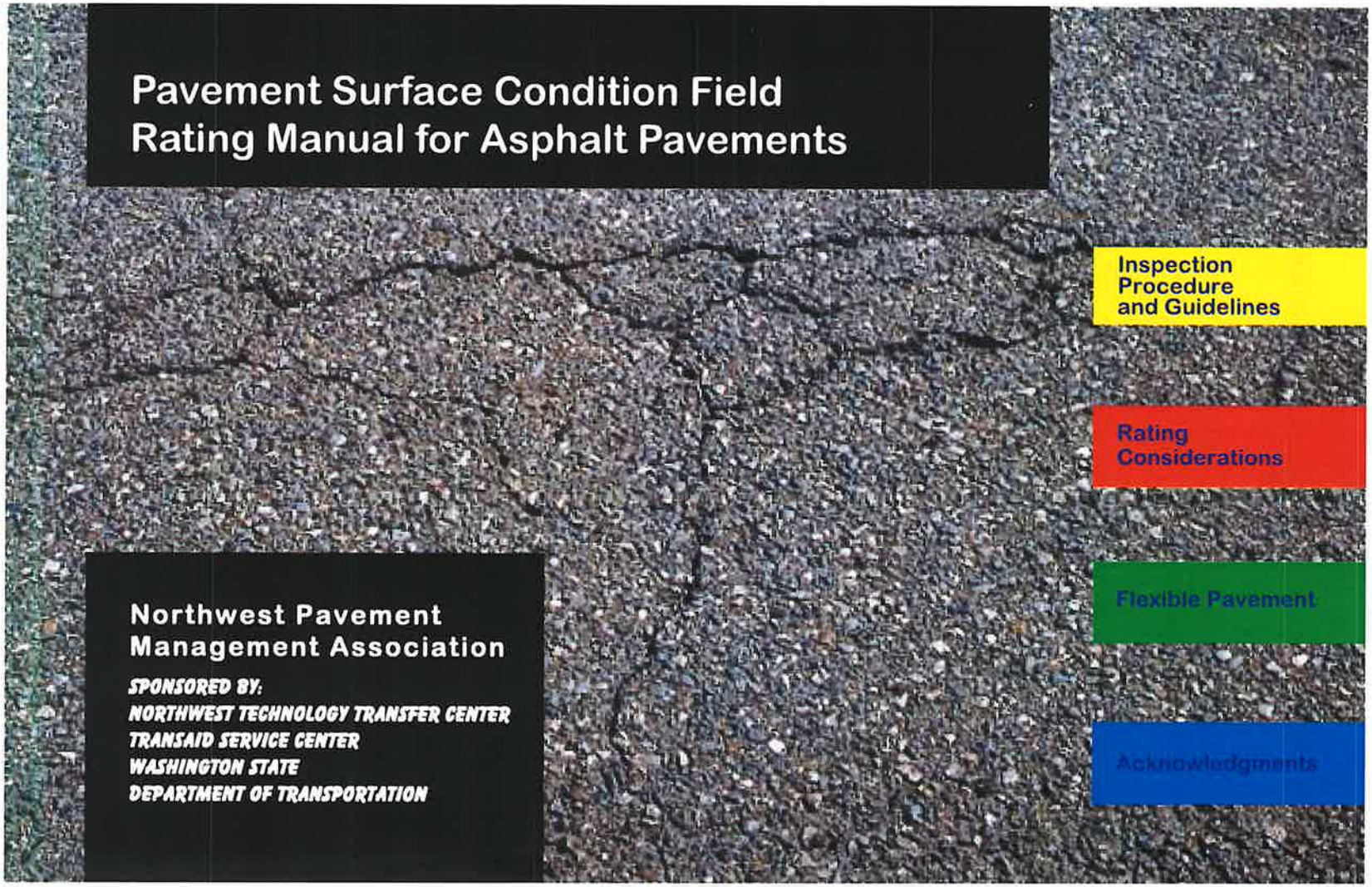
Attachment 7 – Cougar Ridge Development Known/Pending Development

Green = County Jurisdiction of Hillcrest Drive

Magenta = commercial lots available

Red = planned and/or pending approval

Attachment 8 – Washington DOT Pavement Surface Condition Field Rating Manual for Asphalt Pavements


Pavement Surface Condition Field
Rating Manual for Asphalt Pavements
Inspection
Procedure
and Guidelines
Rating
Considerations
Flexible Pavement
Acknowledgments
Northwest Pavement
Management Association
SPONSORED BY:
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WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION

Pavement Surface Condition Field Rating Manual for Asphalt Pavements

Northwest Pavement Management Association

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WASHINGTON STATE
DEPARTMENT OF TRANSPORTATION

CONTENTS

Inspection Procedure and Guidelines

These inspection procedures offer a method of determining pavement condition through observing and recording the presence of specific types and severities of defects or distresses in the pavement surface.

The elements of pavement condition rating are as follows:

1. The type of defect.
2. The severity of the defect.
3. The extent to which the road surface is affected by the defect.

There are several types of defects and several possible severities and extents for each defect. These are described and illustrated for flexible pavements in the following pages of this manual.

Rating Considerations

Listed below are important factors to consider when you collect pavement condition data.

- Each agency must decide whether to record the extent of the **predominant severity** of each defect type or to record the extent of **each severity** of each defect type. The agency must also decide whether to estimate/measure and record these extents using finite values or standardized ranges of values.

  *If the **predominate severity** procedure is used for each type of defect observed*, you should record only one severity, the **predominant severity**. Always record the higher rated severity if approximately equal proportions of more than one severity exist. The purpose is to establish a severity that represents the typical condition of the roadway segment. The extent you record is always the overall extent associated with all levels of severity for a given distress type. *This extent may be a range of values or it may be a finite value*. Your individual agency may wish to note (in the comments section of the form) the occurrence of any level of severity that is significantly higher than what you have recorded in the rating.

*If you are recording the extent associated with **each severity** of each distress type*, then instead of recording the total extent and the **predominant severity**, you will record the extent of **each severity** of each type of defect. It is recommended that a finite value (the actual percentage or count) of the extent is recorded for each of the severity categories as use of ranges will probably result in too large an extent for the total of the severities.

- Roads can be rated on foot or by vehicle. In urban areas, rating is frequently done on foot. The best driving speeds for observing the defects range from 2 to 5 miles per hour. A single lane is generally used, but if time and funds allow, an agency can measure more than one lane.

  ***Note:** Different values will likely be obtained in walking vs. driving and the agency needs to be aware of possible problems in comparing results obtained by using more than one technique.*

- The relative sun angle and direction of viewing the roadway surface will greatly affect your visual observation. Be sure to view the pavement from more than one direction occasionally during the survey to assure the true nature of the pavement surface is being observed.

- The time of year and weather (moisture and temperature) conditions over a given time period can also affect the severity and visibility of certain distresses. If at all possible, rate the roadway network at a similar time of the year and only while the pavement is dry.
- When rating a roadway, you must observe the entire area of the traveled roadway segment or sample and determine the defect severities and extents over this full pavement surface area.
- When rating composite pavements (such as asphalt over rigid pavement), classify cracks that may correspond with the concrete joints as distresses and rate these, and other cracks, as the type of crack they represent (transverse or longitudinal).
- When rating the width of cracks, use the average width, not the extremes. Cracks often vary in width and the intent is to rate the overall severity of the crack.

- Condition ratings apply only to the traveled surface of a road. Do not include the conditions of shoulders or other adjacent areas. Shoulder condition, drainage information, or other items may be accounted for and collected separately from or with the pavement rating data.
- Areas within the curb returns are considered a part of the intersection for rating purposes. Intersections are generally rated with a higher functional class street or in a given direction. Intersections may also be separately rated and recorded. Each agency needs to develop its own policy.
- If opposite sides of the roadway or individual lanes are rated separately, use separate forms and enter the data into the database as separate multilane segments.
- When any type of defect is not observed, write an "N" in the first space on the field form for that defect. The "N" indicates clearly that a defect was not present and reduces the potential for confusion when the data are entered into the database.
- Your PMS manager may wish you to observe and collect additional information during the survey. This might include such things as historical and physical information, documenting new segments, or noting items needing repair.
- It is important that you receive clear direction from the PMS manager on all details related to data collection prior to beginning the survey project.

Flexible Pavement Distresses

1. *Rutting and Wear*

Rutting is a surface depression within the wheel path. Rutting results from a permanent deformation in any of the pavement layers or subgrades, usually caused by consolidation or lateral movement of the materials due to traffic loads. When the upper pavement layers are severely rutted, the pavement along the edges of the rutted area may be raised. Usually, the rutting occurs gradually across the wheel path, reaching a maximum depth in the center of the wheel path. Ruts are most obvious after rainfall when they are full of water.

Wear is surface depression in the wheel path resulting from tire abrasion.

Measurement for Rutting

Severity: The average rut depth in the wheel path for the segment or sample.

Recommended ranges for estimated severity.

Low — 1/4-inch to 1/2-inch

Medium — 1/2-inch to 3/4-inch

High — over 3/4-inch

Extent: The extent of rutting is assumed to be the full length of the segment in the wheel path.

Measure: Take measurements in as many locations as is practical and average them.

Rutting

2. *Alligator Cracking*

Alligator fatigue cracking is associated with loads and is usually limited to areas of repeated traffic loading. The cracks surface initially as a series of parallel longitudinal cracks within the wheel path that progresses with time and loads to a more branched pattern that begins to interconnect. The stage at which several discontinuous longitudinal cracks begin to interconnect, is defined as alligator cracking. Eventually the cracks interconnect sufficiently to form many pieces, resembling the pattern of an alligator.

On narrow, two-lane roads, alligator cracking may form along the center line rather than in the customary wheel paths.

Almost always, the pattern of the cracking (the longer dimension of the connected cracks) is parallel to the roadway or direction of vehicle travel. However, alligator cracking occasionally occurs in a pattern transverse to the roadway direction because of poor trench compaction, settlement, or frost action.

Pot holes and other occurrences of destroyed or missing pavement are accumulated as high severity alligator cracking and may also be noted in the comments area of the field form.

Severity:

Low — Branched, longitudinal, discontinuous thin cracks are beginning to interconnect and form the typical alligator pattern with no spalling.

Medium — Cracking is completely interconnected and has fully developed an alligator pattern. Some spalling may appear at the edges of cracks. The cracks may be greater than 1/4-inch wide, but the pavement pieces are still in place.

High — The pattern of cracking is well developed. Spalling is very apparent at the crack. Individual pieces may be loosened and may rock under traffic. Pieces may be missing. Pumping of fines up through the cracks may be evident.

Low *Medium* *High*

Option A — Measurement for Alligator Cracking

Extent: The extent of alligator cracking is related to the length of wheel paths. There are two wheel paths in every lane. Therefore, a 100-foot lane has 200 feet of wheel paths. Accurate measurement and recording as a percentage of wheel path length is preferable.

Recommended ranges for estimated extent.

1 percent to 9 percent of both wheel paths
10 percent to 24 percent of both wheel paths
25 percent to 49 percent of both wheel paths
50 percent to 100 percent of both wheel paths

Measure: Accumulate the lengths along the surveyed lane of each severity of the alligator cracking as it occurs in both wheel paths. Divide the accumulated lengths by twice the length of the segment (two wheel paths per lane). Multiply by 100 to get percent, and round to a whole number.

Option B — Measurement for Alligator Cracking

Extent: The extent of alligator cracking is related to the entire survey area.

Measure: Alligator Cracking is measured in square feet. The major difficulty in measuring this type of distress is that two or three levels of severity often exist within one distressed area. If these portions can be easily distinguished from each other, they should be measured and recorded separately. However, if the different levels of severity cannot be divided easily, the entire area should be rated at the highest severity level present.

3. *Longitudinal Cracking*

Longitudinal cracks run roughly parallel to the roadway center line. Longitudinal cracks associated with the beginning of alligator cracking are generally discontinuous, broken, and occur in the wheel path. However, any longitudinal crack that is clearly within the wheel path should be rated.

Note: Do not include cracks which reside only within 6 inches of a lane edge. These cracks are assumed to be caused by, or related to, a paving construction joint and should be rated as nonwheel path longitudinal cracking. If your survey includes an item for joint or crack seal condition, you should include the seal condition of these lane edge construction joints in that survey item.

Severity:

Low — The cracks have very little or no spalling along the edges and are less than 1/4-inch in width. If the cracks are sealed and the width of the crack prior to sealing is invisible, they should be classified as Low Severity.

Medium — The cracks have little or no spalling but they are greater than 1/4-inch in width. There may be a few randomly spaced low severity connecting cracks near the main crack or at the corners of intersecting cracks.

High — Cracks are spalled and there may be several randomly spaced cracks near the main crack or at the corners of intersecting cracks. Pieces are visibly missing along the crack. At some point, this longitudinal cracking becomes alligator cracking.

Low

Medium

High

Option A — Measurement for Longitudinal Cracking

Extent: The extent of longitudinal cracking is recorded as a percent of the length of the surveyed segment.

Recommended ranges for estimated extent.

1 percent to 99 percent of length of segment
100 percent to 199 percent of length of segment
200 percent or more of length of segment

Measure: Accumulate the lengths along the surveyed lane of each severity of the longitudinal cracking as it occurs. Divide the accumulated lengths by the length of the segment. Multiply by 100 to get percent, and round to a whole number.

Option B — Measurement for Longitudinal Cracking

Extent: The extent of longitudinal cracking is related to the entire survey area.

Measure: Longitudinal cracks are measured in linear feet. The length and severity of each crack should be recorded after identification.

4. *Nonwheel Path Longitudinal Cracking*

Nonwheel path longitudinal cracks run roughly parallel to the roadway center line. They may be caused by a poorly constructed paving joint, a reflective crack caused by joints and cracks beneath the surface course, including joints and cracks near the edge of the pavement. These types of cracks are not load-associated.

Low severity nonwheel path longitudinal cracking looks very similar to low severity alligator cracking; however, low severity alligator cracking always occurs in the wheel path and should be rated as alligator cracking.

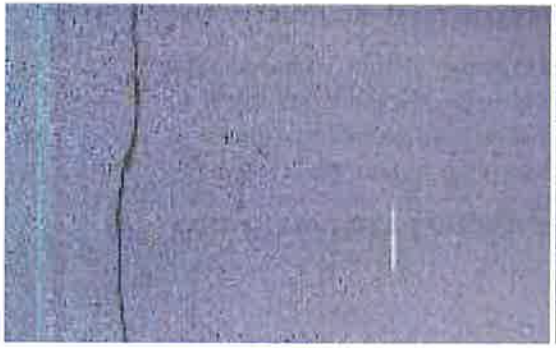
Severity:

Low — The cracks have very little or no spalling along the edges and are less than 1/4-inch in width. If the cracks are sealed and the width of the crack prior to sealing is invisible, they should be classified as Low Severity.

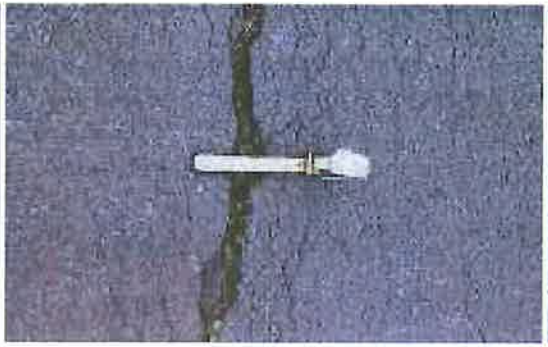
Medium — The cracks have little or no spalling but they are greater than 1/4-inch in width. There may be a few randomly spaced low severity connecting cracks near the main crack or at the corners of intersecting cracks.

High — Cracks are spalled and there may be several randomly spaced cracks near the main crack or at the corners of intersecting cracks. Pieces are visibly missing along the crack.

Low



Medium



High

Option A — Measurement for Nonwheel Path Longitudinal Cracking

Extent: The extent of nonwheel path longitudinal cracking is recorded as a percent of the length of the surveyed segment.

Recommended ranges for estimated extent.

1 percent to 99 percent of length of segment
100 percent to 199 percent of length of segment
200 percent or more of length of segment

Measure: Accumulate the lengths along the surveyed lane of each severity of the nonwheel path longitudinal cracking as it occurs. Divide the accumulated lengths by the length of the segment. Multiply by 100 to get percent, and round to a whole number.

Option B — Measurement for Nonwheel Path Longitudinal Cracking

Extent: The extent of nonwheel path longitudinal cracking is related to the entire survey area.

Measure: Nonwheel path longitudinal cracks are measured in linear feet. The length and severity of each crack should be recorded after identification.

5. *Transverse Cracking*

Transverse cracks run roughly perpendicular to the roadway center line. They may be caused by surface shrinkage due to low temperatures, hardening of the asphalt, or cracks in underlying pavement layers such as PCCP slabs. They may extend partially or fully across the roadway.

Consider only those transverse cracks that are a minimum of two feet in length.

Severity:

Low — The cracks have very little or no spalling along the edges and are less than 1/4-inch in width. If the cracks are sealed and the width of the crack prior to sealing is invisible, they should be classified as Low Severity.

Medium — The cracks have little or no spalling but they are greater than 1/4-inch in width. There may be a few randomly spaced low severity connecting cracks near the main crack or at the corners of intersecting cracks.

High — Cracks are spalled and there may be several randomly spaced cracks near the main crack or at the corners of intersecting cracks. Pieces are visibly missing along the crack.

Low

Medium

High

Option A — Measurement for Transverse Cracking

Extent: The extent of transverse cracking is quantified as a frequency of occurrence expressed as a count per 100 feet of lane length.

Recommended ranges for estimated extent.

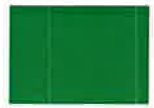
1 to 4 cracks per 100 feet
5 to 9 cracks per 100 feet
10 or more cracks per 100 feet

Measure: Accumulate the count along the surveyed lane of each severity of transverse crack as it occurs. Divide the accumulated counts by the length of the segment. Multiply by 100 to get the frequency, and round to a whole number.

Option B — Measurement of Transverse Cracking

Extent: The extent of transverse cracking is related to the entire survey area.

Measure: Transverse cracks are measured in linear feet. The length and severity of each crack should be recorded after identification.



6. *Raveling and Aging*

Raveling and aging are pavement surface deterioration that occurs when aggregate particles are dislodged (raveling) or oxidation causes loss of the asphalt binder (aging). An ACP loses its smooth surface and begins to appear very open and rough.

The severity is rated by the degree of aggregate and binder loss. Rate the overall severity within the segment as the most predominate observed level.

This distress is measured or observed differently depending on whether the road surface is BST or ACP. Care should be exercised when rating chip sealed pavements, as they tend to look raveled because of the inherent nature of the chip seal surface. However, raveling in chip sealed pavements (loss of aggregate) actually results in a condition of excess asphalt, and should be rated as flushing (see next distress, Flushing/Bleeding).

Severity:

Low — The aggregate and/or binder has started to wear away but has not progressed significantly. The pavement only appears slightly aged and slightly rough.

Medium — The aggregate and/or binder has worn away and the surface texture is moderately rough and pitted. Loose particles may be present, and fine aggregate is partially missing from the surface.

High — The aggregate and/or binder have worn away significantly, and the surface texture is deeply pitted and very rough. Fine aggregate is essentially missing from the surface, and pitting extends to a depth approaching one half the coarse aggregate size.

High

Low

Medium

High

Extent: The extent of raveling is estimated and expressed relative to the surface area of the surveyed lane.

Recommended ranges for estimated extent.

Localized — Patchy areas, usually in the wheel paths.

Wheel Path — Majority of wheel tracks are affected, but little or none elsewhere in the lane.

Entire Lane — Most of the lane is affected.

Measure: Estimate the severity and extent.

7. *Flushing/Bleeding*

Flushing and bleeding is indicated by an excess of bituminous material on the pavement surface which presents a shiny, glass-like reflective surface that may become sticky in hot temperatures.

At the lower severity levels, the extents "localized" and "wheel path" may be difficult to differentiate; however, as the severity increases, "wheel path" becomes more well defined. Wheel path refers to tire tracking area and may be used to represent the condition of only one wheel track being heavily involved.

This distress is measured or observed differently depending on whether the road surface is BST or ACP. In BST pavements, loss of aggregate (raveling), commonly referred to as "chip loss", leaves the binder exposed. This condition looks like flushing, and should be rated as flushing.

Severity:

Low — Minor amounts of the aggregate have been covered by excess asphalt but the condition has not progressed significantly.

Medium — Significant quantities of the surface aggregate have been covered with excessive asphalt. However, much of the coarse surface aggregate is exposed, even in those areas showing flushing.

High — Most of the aggregate is covered by excessive asphalt in the affected area. The area appears wet and is sticky in hot weather.

Low

Medium

High

Extent: The extent of flushing is estimated and expressed relative to the surface area of the surveyed lane.

Recommended ranges for estimated extent.

Localized — Patchy areas, usually in the wheel paths.

Wheel Path — Majority of wheel tracks are affected, but little or none elsewhere in the lane.

Entire Lane — Most of the lane is affected.

Measure: Estimate the severity and extent.

8. *Patching*

A patch is an area of pavement which has been replaced with new material to repair the existing pavement or access the utility.

A patch is considered a defect no matter how well it is performing (a patched area or adjacent area usually does not perform as well as an original pavement section). Generally, some roughness is associated with this distress. In general, a patch is less than a typical rehabilitation in size and scope. They are less than full roadway width and/or are less than project length. Some agencies may have patches as long as the work defined by another agency as a rehabilitation.

Temporary patches, as well as localized permanent repairs (dig-out repair), are included in this distress category. Utility cut patches are also included as part of the patching values.

Low — Patch has at most low severity distress of any type.

Medium — Patch has medium severity distress of any type.

High — Patch has high severity distress of any type.

low

Medium

Low

Medium

High

Option A — Measurement for Patching

Extent: The extent of patching is related to the length of wheel paths. Each half of the lane is considered one wheel path.

Recommended ranges for estimated extent.

1 percent to 9 percent of both wheel paths
10 percent to 24 percent of both wheel paths
25 percent or more of both wheel paths.

Option B — Measurement for Patching

Extent: The extent of patching is related to the entire survey area.

Measure: Patching is measured in square feet of entire inspection area. No other distresses (e.g., rutting or cracking) are recorded within a patch. Other distresses in the patch area are used to determine the severity level of the patch.

9. *Original WSDOT Patching*

In general, a patch is less than a typical rehabilitation in size and scope. They are less than full roadway width and/or are of less than project length. Some agencies may have patches as long as the work defined by another agency as a rehabilitation. WSDOT defines a lane with "new surfacing" as a patch if it is less than about half a mile in length. Definition of minimum rehabilitation vs. maximum patch length is a matter of agency policy.

Temporary patches, as well as localized permanent repairs (dig-out repair), are included in this distress category. The patches or repairs which are obviously the result of utility work are the exception, and are not included as part of the patching values.

While appropriately done repairs are an asset rather than a liability to the life of a segment of pavement, the fact that they were required (other than for utility work) generally indicates some failure in the pavement structure.

If any patch (including a utility patch) shows surface defects, such as alligator cracking, accumulate those defects also, and include them in the overall segment rating.

Patching

Severity: Severity of patching is defined in three categories which are most easily recognized by the method of construction.

Low — The lowest severity is BST patching or chip seal patching. It is constructed by spraying hot asphalt onto the roadway (usually using a truck with a spray bar) and then spreading and rolling crushed stone onto the surface. It is identified by its nearly straight edges, rough texture, and surface contours which mimic the surface below. This is assumed to cover low severity cracking or raveling.

Medium — Blade patching is the medium severity patching. It has edges shaped to the contours of the surrounding pavement and is of variable thickness with feathered edges. This type is assumed to cover (or replace) medium to severe alligator cracking, pot holes, rutting, or other significant pavement defects. Cold patches are of this type.

High — Dig-Out or Full Depth patching is the most severe of the types rated. A patch (or repair) of this type is constructed by neatly cutting out a full depth portion of the pavement, removing all disturbed materials, and refilling the void with an appropriate pavement section. This appropriately reconstructed section should be as strong as the original pavement section, perhaps even stronger. This type of patch is assumed to replace severe alligator cracking.

Chip Seal Repair Low

Blade Repair Medium

Dig Out High

Extent: The extent of patching is related to the length of wheel paths. Accurate measurement expressed as a percentage of wheel path length is preferable. Each half of the lane is considered one wheel path. This form of measurement is identical to that of alligator cracking because the general assumption is that patching replaces alligator cracking.

Recommended ranges for estimated extent.

1 percent to 9 percent of both wheel paths
10 percent to 24 percent of both wheel paths
25 percent or more of both wheel paths

Note: Patching was included in the WSPMS because without a deduction for patching, a roadway which is virtually made of patches would appear to be a "perfect" segment or project. This would result in the segment or project never being included in a prioritized list of pavements needing rehabilitation.

If an agency has separate maintenance districts, or crews assigned to specific areas, the more efficient crew/district can be penalized by the pavement management system for doing a better job. If its roadways rate higher as a result of better maintenance operations, those roadways might not receive repair and rehabilitation funds as a result.

The way in which the PMS uses these distress severities can vary, and the desired effect can be accommodated by using different deduct values to reflect the needs of the agency. If patching and/or repairs are

not deemed a serious issue within your agency, then reduce or remove the optional local deducts associated with the patching severities.

Measure: Accumulate the lengths along the surveyed lane of each severity (type) of patching as it occurs in both wheel paths. Divide the accumulated lengths by twice the length of the segment (two wheel paths per lane). Multiply by 100 to get percent, and round to a whole number.

10. Corrugation and Waves

This distress category covers a general form of surface distress which is not limited to the wheel path, although they may occur in the wheel path. The distress may occur in isolated areas, such as at intersections, or it may occur over a large part of the roadway surface.

Corrugations and waves are regularly occurring transverse undulations in the pavement surface. Corrugations occur as closely spaced ripples, while waves are undulations whose distance from peak to valley is more than 3 feet.

Severity: The severity of corrugation is defined as the maximum vertical deviation from a 10-foot straightedge placed on the pavement parallel to the center line of the roadway.

Low — 1/8-inch to 2 inches per 10 feet.

Medium — 2 inches to 4 inches per 10 feet.

High — Over 4 inches per 10 feet.

Option A — Measurement of Corrugation and Waves

Extent: The extent of corrugations is expressed in percent of the lane area affected.

1 percent to 9 percent of the area of the segment
10 percent to 24 percent of the area of the segment
25 percent or more of the area of the segment

Measure: Determine severity by measuring the maximum difference in elevation that occurs within a 10-foot straightedge length centered over the area of displacement. Rate the overall distress by using the highest observed level.

Option B — Measurement of Corrugation and Waves

Extent: The extent of corrugations is expressed in square feet of the entire survey area.

Measure: Determine severity by measuring the maximum difference in elevation that occurs within a 10-foot straightedge length centered over the area of displacement. Rate the overall distress by using the highest observed level.

11. *Sags and Humps*

This distress category also covers forms of surface distress that are not limited to the wheel path, although they generally include the wheel paths. The distress usually occurs in isolated areas of the roadway surface.

Sags and humps are localized depressions or elevated areas of the pavement that result from settlement, pavement shoving, displacement due to subgrade swelling, or displacement due to tree roots.

Severity: The severity of sags or humps, like corrugation, is defined as the maximum vertical deviation from a 10-foot straightedge placed on the pavement parallel to the center line of the roadway.

Low — 1/8-inch to 2 inches per 10 feet.

Medium — 2 inches to 4 inches per 10 feet.

High — Over 4 inches per 10 feet.

Option A — Measurement for Sags and Humps

Extent: The extent of sags and humps is expressed in percent of the lane area affected.

1 percent to 9 percent of the area of the segment
10 percent to 24 percent of the area of the segment
25 percent or more of the area of the segment

Measure: Determine severity by measuring the maximum difference in elevation that occurs within a 10-foot straightedge length centered over the area of displacement. Rate the overall distress by using the highest observed level.

Option B — Measurement for Sags and Humps

Extent: The extent of sags and humps is expressed in square feet of the entire survey area.

Measure: Determine severity by measuring the maximum difference in elevation that occurs within a 10-foot straightedge length centered over the area of displacement. Rate the overall distress by using the highest observed level.

12. *Block Cracking*

Block cracks divide the pavement surface into nearly rectangular pieces with cracks that intersect at about 90 degrees. This type of distress differs from alligator cracking in that alligator cracks form smaller, irregular shaped pieces with sharp angles. Also, alligator cracks are caused by repeated traffic loadings and are, therefore, generally located in traffic areas (i.e., the wheel paths).

Block cracking is caused principally by shrinkage of the asphalt concrete and daily temperature cycling. It is not load-associated, although load can increase the severity of individual cracks. The occurrence of block cracking usually indicates that the asphalt has hardened significantly through aging. Block cracking normally occurs over a large portion of the pavement area including nontraffic areas. However, various fatigue related defects may occur in the same segment.

Severity: The severity of block cracking is defined by the average size of the blocks and the average width of the cracks that separate them.

Block Size

Low — 9 × 9 feet or greater.

Medium — 5 × 5 feet to 8 × 8 feet blocks.

High — 4 × 4 feet blocks or less.

Crack Size

Low — Less than 1/4 inch.

Medium — Over 1/4 inch.

High — Spalled.

13. Pavement Edge Condition

Edge raveling occurs when the pavement edge breaks away from roadways without curbs or paved shoulders. However, edge conditions can still occur with paved shoulders. Edge patching is the repair of this condition. The "lane less than 10 feet" distress indicates that the edge raveling has progressed to the point where the pavement width from the center line to the outer edge of roadway has been reduced to less than 10 feet.

Severity: The severity of Pavement Edge Condition is defined as follows.

Low — Edge Raveling

Medium — Edge Patching

High — Edge lane less than 10 feet.

Measure: Accumulate the lengths along the surveyed lane of each type edge defect as it occurs. Divide the accumulated lengths by the length of the segment. Multiply by 100 to get percent, and round to a whole number.

Extent: The extent of pavement edge conditions is recorded as a percentage of the length of the surveyed segment. Recommended ranges for estimated extent.

1 percent to 9 percent of the length of the segment
10 percent to 24 percent of the length of the segment
25 percent or more of the length of the segment

Edge Raveling

Edge Patching

14. Crack Seal Condition

Rate the condition of any existing crack (or joint) sealant. There may be separate information fields available for recording the amount (total length) of seal and the year it was installed or recording the absence of any sealant on the entire section.

Severity:

None — There are no sealed cracks.

Low — Sealant in good to excellent condition.

Medium — Hairline failure in the sealant allows a minimal amount of water to pass.

High — The sealant is severely cracked and may allow significant quantities of water to pass. The sealant is wide open (or nonexistent) and will allow water to pass freely.

Low

Medium

High

Extent: The extent of crack sealing is quantified as the percent of the total length of the cracks (or joints) in the segment which exhibit the seal condition.

1 percent to 9 percent of the total length of cracks or joints
10 percent to 24 percent of the total length of cracks or joints
25 percent or more of the total length of cracks or joints

Measure: Count (or estimate) and accumulate the length of cracks and joints that exhibit each severity of seal condition. Count (or estimate) the total length of cracks and joints in the segment. Divide each of the accumulated lengths of condition by the total length of cracks and joints, multiply by 100, and round to a whole number.

Acknowledgments to the First Revision

The revision of this manual is the result of cooperation among the members of the Northwest Pavement Management Association, their respective agencies, the County Road Administration Board, the Washington State Department of Transportation (WSDOT), and private industry. The following individuals contributed considerable time and effort in reviewing drafts.

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Renton	John Stein Bill Wressell
Tacoma	Steve Pope Dan Soderlind
Vancouver	Bill Whitcomb

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Private Industry

Measurement Research Corporation	Derald Christensen
Pavedex, Inc.	Don Meyers
Pavement Engineers, Inc.	Didrik A. Voss

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Cities

- Airway Heights
- Bellevue
- Bellingham
- Bonney Lake
- Bremerton
- Edmonds
- Ellensburg
- Forks
- Gig Harbor
- Lacey
- Lynden
- Moses Lake
- Normandy Park
- Olympia
- Port Angeles
- Seattle
- Shelton
- Spokane
- Sunnyside

Counties

- Ada (Idaho)
- Adams
- Asotin
- Benton
- Clallam
- Columbia
- Franklin
- Klamath (Oregon)
- Okanogan
- Pend Oreille
- San Juan
- Walla Walla
- Whatcom
- Whitman
- Yakima

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Acknowledgments to the First Edition

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Final editing for compliance with the Washington State Pavement Management System standards was done by R. Keith Kay, Pavement Management Engineer for WSDOT.


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Attachment 9 – Grant Opportunities

2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
Rural and Tribal Assistance Pilot Program	Planning	Supports project development leading to future applications to DOT credit or grant programs. The grants can support legal, technical, and financial advisors to help them advance infrastructure projects.	States, local governments, tribal governments.	No	Yes	Minimum: $150,000 Maximum: $360,000	6/15/2023	9/28/2023	Awarded on a first come, first serve basis until the available funding is fully expended.	No	
Reconnecting Communities and Neighborhoods Grant Program	Transportation	Provides funding for projects that advance community-centered connection transportation projects, with a priority for projects that benefit disadvantaged communities, by improving access to daily needs such as jobs, education, health care, food, nature and recreation; fostering equitable development and restoration; and reconnecting communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development.	States, units of local government, tribal governments, MPOs, nonprofits.	Yes	Yes	Varies	7/5/2023	9/28/2023	FY23 funds must be obligated by 9/30/2026.	Varies	
Strengthening Mobility and Revolutionizing Transportation (SMART) Grants	Transportation	Provides supplemental funding grants to rural, midsized, and large communities to conduct demonstration projects focused on advanced smart city or community technologies and systems in a variety of communities to improve transportation efficiency and safety.	States, tribal governments, public transit agencies or authorities, public toll authorities, MPOs.	Yes	Yes	Minimum: $250,000 Maximum: $2,00,000	8/8/2023	10/10/2023	Within an 18 month period of performance.	No for Stage 1 grants	
Nationally Significant Federal Lands and Tribal Projects (NSFLTP)	Transportation (Tribal)	Construction, reconstruction, and rehabilitation of nationally-significant projects within, adjacent to, or accessing Federal and tribal lands.	Any entity eligible to receive funding under the Tribal Transportation Program, Federal Lands Transportation Program, or Federal Lands Access Program. In addition, a State, county, or local government may apply if sponsored by an eligible Federal land management agency or Tribe.	Yes	Yes	Minimum: $12,500,000 Maximum: No	7/6/2023	11/6/2023	FY23 funds must be obligated by 9/30/2026.	Varies	
Accelerated Innovation Deployment (AID)	Transportation / Technology	Provides grant funding as an incentive for eligible entities to accelerate the implementation and adoption of innovation in highway transportation.	States, MPO's, local governments, federal land management agencies, tribal governments.	Yes	Yes	Minimum: No Maximum: $1 million (based on the cost of the innovation in a project)	TBD	TBD	TBD	Yes, 20% minimum	
Advanced Transportation Technologies & Innovative Mobility Deployment	Transportation / Technology	Deploy, install, and operate advanced transportation technologies.	States, local governments, transit agencies, MPOs, multi-jurisdictional groups or a consortia of research institutions or academic institutions.	Yes	No	TBD	TBD	TBD	TBD	Yes, 20%	

For additional information regarding these or other grant funding opportunities, please contact Jacquelyn Smith of DJIJA Grant Programs at 406.721.4320 or jacquelyn.smith@djanda.com.

2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
Bridge Investment Program	Bridges / Culverts	Improve bridge (and culvert) condition, safety, efficiency, and reliability.	States, MPOs, local governments, special purpose districts or public authorities with a transportation function, federal land management agencies, tribal governments.	Yes	Yes	TBD	TBD Summer 2023	TBD	TBD	Varies	
Bus and Bus Facilities Competitive Grants	Transit	Grant funding to replace, rehabilitate, purchase, or lease buses and bus related equipment and to rehabilitate, purchase, construct, or lease bus-related facilities.	States, local governments, special districts, tribal governments.	Yes	No	Minimum: No Maximum: $46,944,542	2023 Solicitation Closed	2023 Solicitation Closed		Varies	
Capital Investment Grants	Transit	Funds transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit. Federal transit law requires transit agencies seeking Capital Investment Grants funding to complete a series of steps over several years. The law also requires projects to be rated by the Federal Transit Administration at various points in the process according to statutory criteria evaluating project justification and local financial commitment.	States, local governments, transit agencies.	Yes	No	TBD	TBD	TBD	TBD	Varies	
Charging and Fueling Infrastructure Grants	Transportation / Electric Vehicles	Provides funding to strategically deploy publicly accessible electric vehicle charging and alternative fueling infrastructure in the places people live and work – urban and rural areas alike – in addition to along designated Alternative Fuel Corridors (AFCs).	States, MPOs, local governments, special purpose districts or public authorities with a transportation function, tribal governments, territories.	Yes	Yes	Minimum: $500,000 (Community Program) $1 million (Corridor Program) Maximum: $15 million (Community Program) No max (Corridor Program)	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20%	
Community Wildfire Defense Grant	Wildfire Risk Reduction	Provides grants to at-risk communities to develop or revise a Community Wildfire Protection Plan (CWPP) and to carry out projects described in a CWPP that is less than 10 years old.	Local governments, tribes, non-profit organizations, state forestry agencies, Alaska Native Corporations.	Yes	Yes	Minimum: No Maximum: $250,000	TBD	TBD	TBD	Yes, 10% minimum	
Congestion Relief Program	Transportation / Multimodal	Advance innovative, integrated, and multimodal solutions to reduce congestion and the related economic and environmental costs in the most congested metropolitan areas with an urbanized area population of 1 million+.	States, MPOs, cities, municipalities.	Yes	No	TBD	TBD	TBD	TBD	Yes, 20%	

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2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
FTA Ferry Programs	Transit	Includes the Passenger Ferry Program, the Low-No Ferry Program and the Rural Ferry Program. Provides funding to improve the condition and quality of existing passenger ferry services, support the establishment of new passenger ferry services, and repair and modernize ferry boats, terminals, and related facilities and equipment. Funding for the purchase of electric or low-emitting ferries, the electrification of or other reduction of emissions from existing ferries, and related charging or other fueling infrastructure (for which the applicants will maintain satisfactory continuing control) to reduce emissions or produce zero onboard emissions under normal operation. Funding for capital, operating, and planning expenses for ferry service to rural areas.	Eligibility depends on the specific program.	Yes	Yes	Minimum: No Maximum: No	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% minimum	
Innovative Coordinated Access and Mobility Grants	Transportation / Transit	Seeks to improve access to public transportation by building partnerships among health, transportation and other service providers. This program provides competitive funding to support innovative projects for the transportation disadvantaged that will improve the coordination of transportation services and non-emergency medical transportation services.	States, local governments, special districts, tribal governments, nonprofits.	Yes	No	TBD	TBD	TBD	TBD	Yes, 20% minimum	
National Culvert Removal, Replacement, & Restoration	Fish Passage	Replacement, removal, and repair of culverts or weirs that meaningfully improve or restore fish passage for anadromous fish.	States, local governments, tribal governments.	Yes	No	Minimum: $10,000 Maximum: $20,000,000	TBD Winter 2023-2024	TBD	5 year project length	Yes, 20% minimum	
National Electric Vehicle Formula Program	Transportation / Electric Vehicles	10 percent set-aside each fiscal year to provide grants to provide additional assistance to strategically deploy EV charging infrastructure.	States, local governments, Puerto Rico.	Yes	No	TBD	TBD	TBD	TBD	Yes, 20%	
National Infrastructure Project Assistance (Mega)	Transportation / Freight	Large, complex projects that are difficult to fund by other means and likely to generate national or regional economic, mobility, or safety benefits.	States, MPOs, local governments, political subdivisions of a state, special purpose districts or public authorities with a transportation function, Amtrak partnership.	Yes	Yes	50% of available funds are reserved for projects greater than $500 million and the other 50% to projects between $100 million and $500 million	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 40% minimum	

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2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
Nationally Significant Multimodal Freight & Highway Projects (INFRA)	Transportation / Freight	Multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas.	States, MPOs, local governments, political subdivisions of a state or local government; special purpose districts or public authorities with a transportation function (including port authorities), Federal land management agencies that apply jointly with a state or group of states, tribal governments, multi-state corridor organizations, multi-state or multi-jurisdictional group of entities.	Yes	Yes, but are less competitive	Varies	6/26/2023	8/21/2023	FY23 funds must be obligated by 9/30/2026.	Yes, 40% minimum	
Pilot Program for Transit Oriented Development	Transit	Discretionary grant program that helps support the Federal Transit Administration's mission of improving public transportation for America's communities by providing funding to local communities to integrate land use and transportation planning with a new fixed guideway or core capacity transit capital investment.	States, local governments that are Federal Transit Administration grant recipients	No	Yes	TBD	TBD May 2023	TBD	TBD	Yes, 20%	
Port Infrastructure Development Program (PIDP)	Transportation / Port	Provide funding to improve the safety, efficiency, or reliability of the movement of goods into, out of, around, or within a port.	Port authority, states, local governments, tribal governments, special purpose districts.	Yes	Yes	Minimum: $1 million Maximum: $165,550,878	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% maximum	
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) - Discretionary	Transportation Resiliency	Provides grant funding to support planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure.	States, MPOs, local governments, special purpose districts or public authorities with a transportation function, tribal governments, federal land management agencies (applying jointly with State(s)).	Yes	Yes	Minimum: $100,000 Maximum: No	2023 Solicitation Closed	2023 Solicitation Closed		Varies	
Public Transportation on Indian Reservations Program	Transit	Provides assistance for tribal public transit services in rural areas.	Tribal governments.	Yes	Yes	Minimum: No Maximum: $25,000 for planning grants	2023 Solicitation Closed	2023 Solicitation Closed		No	
Railroad Crossing Elimination Grants	Rail / Multimodal	Highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods.	States, US territories, tribal governments, local governments, MPOs.	Yes	Yes	TBD	TBD Summer 2023	TBD	TBD	Yes, 20%	
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	Transportation	Surface transportation infrastructure projects that will have a significant local or regional impact.	States, US territories, local governments, public agencies or publicly chartered authorities established by 1 or more states, special purpose districts or public authorities with a transportation function (including port authorities), federally recognized Indian Tribes, transit agencies, and a multi-state or multi-jurisdictional group of entities.	Yes	Yes	Minimum: $1 million (rural); $5 million (urban) Maximum: $25 million	2023 Solicitation Closed	2023 Solicitation Closed		Varies	
Reduction of Truck Emissions at Port Facilities	Freight	Reduce truck idling and emissions at ports, including through the advancement of port electrification.	States, local governments, planning and project organizations, transportation providers and operators, private-sector applicants.	Yes	Yes	Minimum: No Maximum: No	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% minimum	

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2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
Rural Surface Transportation Grant Program (Rural)	Transportation / Freight	Improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life.	States, regional transportation planning organizations, units of local governments, tribal governments, multi-jurisdictional group of entities.	Yes	Yes	At least 90% must be at least $25 million and up to 10% for less than $25 million.	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% minimum	
Safe Streets and Roads for All (SS4A)	Transportation	Regional, local, and Tribal initiatives to prevent roadway deaths and serious injuries.	MPOs, local governments, tribal governments.	Yes	Yes	Minimum: $2.5 million (capital projects); $100,000 (planning projects) Maximum: $25 million (capital projects); $10 million (planning projects)	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% minimum	
Transportation Alternatives	Transportation	Provides funding for a variety of generally smaller-scale transportation projects.	Local governments, regional transportation authorities, transit agencies, natural resource or public land agencies, school districts, local education agencies, schools, tribal governments, MPOs, nonprofits.	Yes	Yes	Varies	TBD Managed by State DOTs	TBD	TBD	Varies	
Transportation Infrastructure Finance and Innovation Act - Rural Project Initiative (TIFIA-RPI)	Transportation / Transit	The Rural Project Initiative is aimed at helping improve transportation infrastructure in America's rural communities.	States, local governments, transit agencies, private entities, special authorities, transportation improvement districts, state infrastructure banks.	Yes	No	Minimum: $10 million Maximum: $100 million	TBD Spring 2024	TBD	TBD	Loan program	
Tribal High Priority Projects Program	Transportation (Tribal)	Provides grant funding to Tribes or a governmental subdivision of an Tribe whose annual allocation of funding received under the Tribal Transportation Program is insufficient to complete the highest priority project of the Tribe, or to any Tribe that has an emergency or disaster occur on a Tribal transportation facility that renders the facility impassible or unusable.	Tribal governments.	Yes	No	TBD	TBD	TBD	TBD	No	
Tribal Transportation Facility Bridge Program	Bridges / Culverts	Support projects to improve bridge (and culvert) condition, safety, efficiency, and reliability.	Tribal governments.	Yes	No	TBD	TBD	TBD	TBD	No	
Tribal Transportation Program Safety Fund (TTPSF)	Transportation (Tribal)	Addresses transportation safety issues identified by federally recognized Indian tribes.	Tribal governments.	Yes	Yes	Minimum: $1 Maximum: $21,238,559	Spring 2022	9 months after NOFO release date	Project must be under contract within three fiscal years after the award announcement.	No	
Tribal Transportation Program Safety Fund (TTPSF)	Transportation (Tribal)	Addresses transportation safety issues identified by federally recognized Indian tribes.	Tribal governments.	Yes	Yes	Minimum: $1 Maximum: $21,238,559	Spring 2022	9 months after NOFO release date	Project must be under contract within three fiscal years after the award announcement.	No	

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2023 Bipartisan Infrastructure Law (BIL) Grant Opportunities

Program Name	Category	Description	General Eligibility	Capital Projects?	Planning Projects?	Funding Limits	NOFO Release Date	Application Deadline	Funding Expenditure Deadline	Local Match Requirement	Applicable Projects
Wildlife Crossings Pilot Program (WCPP)	Transportation / Environmental	Provides grant funding for projects that reduce the number of wildlife-vehicle collisions, and in carrying out that purpose, improve habitat connectivity.	States, MPOs, local governments, regional transportation authorities, special purpose districts or public authorities with a transportation function, tribal governments, federal land management agencies.	Yes	Yes	Minimum: No Projects greater than $200,000 are encouraged. Maximum: No	2023 Solicitation Closed	2023 Solicitation Closed		Yes, 20% maximum	

Please note that requirements may change for programs that don't have current Notice of Funding Opportunities (NOFO's).
Updated: 8/25/23