DOWL

MONTANA MDT DEPARTMENT OF TRANSPORTATION

US 2 REST AREA SITING STUDY

CORRIDOR STUDY REPORT

June 2019

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ACKNOWLEDGMENTS

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ACRONYMS

AADT	Annual Average Daily Traffic
ASRWSS	Assiniboine & Sioux Rural Water Supply System
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
DEQ	Montana Department of Environmental Quality
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FWP	Montana Department of Fish, Wildlife, and Parks
gpd	gallons per day
GWIC	Groundwater Information Center
HUC	Hydrologic Unit Code
LUST	Leaking Underground Storage Tank
LWCFA	Land and Water Conservation Fund Act
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MTNHP	Montana Natural Heritage Program
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHS	National Highway System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RP	Reference Post
SFHA	Special Flood Hazard Area
SOC	Species of Concern
STIP	Statewide Transportation Improvement Program
T&E	Threatened and Endangered
TMDL	Total Maximum Daily Load
TOC	Technical Oversight Committee
TPA	TMDL Planning Area
US 2	United States Highway 2
USC	United States Code
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	US Geological Survey
UST	Underground Storage Tank
WRS	Water Resource Surveys

EXECUTIVE SUMMARY

Introduction

The Montana Department of Transportation (MDT) investigated the Montana US 2 corridor to evaluate existing safety rest area needs, opportunities, and constraints and to consider opportunities for additional full-service, year-round safety rest areas. According to the 2014 Montana Rest Area Plan, siting of new rest areas should be determined for "corridor segments exceeding approximately one hour of travel time between stopping opportunities, including rest areas, parking areas, and cities and towns with 24-hour services." Consistent with the plan, this study used 70-mile intervals representing the posted speed limit on US 2 to determine the need for safe stopping opportunities.

The study corridor included the length of US 2 extending from a western endpoint at the Troy Safety Rest Area (RP 17.1) to an eastern endpoint at the Culbertson Safety Rest Area (RP 645.2). These two safety rest areas are year-round, 24-hour facilities in good working condition with no major maintenance expected within the next 10 years.

Intervals of approximately 70 miles were identified in both the eastbound and westbound directions beginning from the corridor endpoints, with reset points (i.e., locations where the 70-mile interval was reset to zero) defined at urban areas with populations exceeding 5,000 people (including Kalispell, Columbia Falls, and Havre) with three or more facilities providing 24-hour services. The following six study segments were identified between the eastbound and westbound 70-mile interval markers:

- Segment 1: RP 50.8 to RP 87.2 (36.3 miles)
- Segment 2: RP 208.1 to RP 242.0 (35.2 miles)
- Segment 3: RP 277.3 to RP 312.5 (35.2 miles)
- Segment 4: RP 434.9 to RP 454.3 (19.3 miles)
- Segment 5: RP 499.1 to RP 523.7 (24.7 miles)
- Segment 6: RP 571.8 to RP 593.7 (21.9 miles)

Participation Process

MDT provided opportunities for public, tribal, stakeholder, and agency participation. A project website was hosted on the MDT homepage to provide public access to information about the study, including links to documents and related information. Initial involvement activities included tribal outreach and stakeholder phone interviews. Resource agencies and tribal nations were invited through email notice to provide comments on draft reports. Notification of a public review period was issued to media outlets and published in regional newspapers.

Existing and Projected Conditions

This study identified numerous resource constraints and opportunities within each of the study segments. Table ES.1 indicates the potential or confirmed presence of each resource.

Table ES.1 Potential/Confirmed Resources

Resource Area		Potential/Confirmed Occurrences by Segment					
		1	2	3	4	5	6
Physical Environment	Farmland	✓	✓	✓	✓	✓	✓
	UST/LUST/Other Haz Sites	✓	✓	✓	✓	✓	✓
	TPAs	✓	✓	✓	✓	✓	✓
	Irrigation	✓	✓	✓	✓	✓	✓
	Floodplains/Floodways	✓	✓	none	✓	✓	✓
	Wetlands	✓	✓	✓	✓	✓	✓
	Groundwater Wells	✓	✓	✓	✓	✓	✓
Biological Resources	T&E Species/Critical Habitat/SOC	✓	✓	✓	✓	✓	✓
	Local/State/Federal/Tribal Lands	✓	✓	✓	✓	✓	✓
	Public Recreational Resources	✓	✓	✓	✓	✓	none
	Cultural Resources	✓	✓	✓	✓	✓	✓
	Noise Receptors	✓	✓	✓	✓	✓	✓
	Visual Resources	✓	✓	✓	✓	✓	✓
Facilities	Municipal Water Systems	none	✓	✓	✓	✓	✓
	Municipal Wastewater Systems	none	✓	✓	✓	✓	✓
	Rail Crossings/Parallel Right-of-Way	✓	✓	✓	✓	✓	✓
	Utilities	✓	✓	✓	✓	✓	✓

Need & Objectives

MDT recognized a need to provide safe stopping opportunities on US 2 in accordance with guidelines outlined in the Montana Rest Area Plan and in consideration of existing and projected conditions within the US 2 study corridor; feedback from public, stakeholder and agency involvement efforts; and coordination with the study advisory committee. Objectives are not listed in any particular order.

Need – Provide safe stopping opportunities on US 2 in accordance with MDT Rest Area Plan guidance.

Objectives: To the extent practicable:

a. Space safety rest areas at approximately one hour of travel time from existing stopping opportunities, equivalent to 70 miles within the US 2 corridor.
b. Minimize safety issues associated with sight distance, conflicting access points, and traffic movements.
c. Consider locations in proximity to existing utilities, maintenance staffing, and MDT-owned right-of-way.
d. Avoid and/or minimize impacts to environmental resources and existing development.
e. Avoid constructability and topography constraints.

Other Considerations:

- Funding availability.
- Planned projects and other MDT priorities.

Improvement Options

Existing Site Evaluation

The study evaluated existing seasonal rest area sites located directly along US 2, including the MDT Vandalia Safety Rest Area and three City Park Rest Areas located in Cut Bank, Chester, and Malta. The evaluation qualitatively considered multiple criteria including access from US 2, environmental features, land use and ownership, and existing site improvements.

Due to network spacing and location, safety concerns associated with sight distance, cost to reconstruct the existing MDT site, potential conversion of lands within a Section 6(f) property and the associated requirements regarding approval and replacement lands, and anticipated impacts to the existing city park and adjacent land uses, this study does not recommend advancing any of the existing seasonal sites for consideration as a year-round, full-service MDT safety rest area.

New Site Evaluation

The study analyzed new sites within the six study segments using a four-part process.

- Screening Element A addressed fatal flaws such as poor sight distance from the US 2 mainline highway, adverse site grading, and proximity to sensitive natural resources. Locations exhibiting these fatal flaws were eliminated from further consideration. Remaining portions of each study segment comprised the initial list of potentially favorable sites.
- Screening Element B considered desirable site traits such as proximity to municipal services, utilities, and populated areas; public land ownership; and favorable conditions for water/wastewater systems.
- Screening Element C considered planning-level costs for each site.
- Screening Element D presented a spatial analysis for potentially favorable sites.

Site Recommendations

Following the Screen A elimination process, the study identified best performing sites based on site characteristics (Screen B), cost (Screen C), and spacing (Screen D). In some cases, a single site performed best (or equally well as other sites) under all three screening elements. In other cases, site performance varied by screening element. Recommended sites best addressed the screening elements, with superior site characteristics outweighing more evenly spaced intervals. Recommended sites and rationale for recommended sites is provided below.

- Troy to Kalispell: Site 1d performed best in all scoring categories. It had the highest Screen B total, cost the least, and best balanced distances between reset points. Site 1d was recommended for advancement from Segment 1 for the study.

- Columbia Falls to Havre: Site performance varied by screening element within Segments 2 and 3. Sites 2a and 3a were recommended for advancement given superior site characteristics, lower costs, and ideal spacing for two of the three intervals between reset points.

- Havre to Culbertson: Site performance varied by screening element within Segments 4, 5, and 6. Sites 4a, 5d, and 6c were recommended for advancement given superior site characteristics and ideal spacing for two of the four intervals between reset points.

Segment Prioritization

Using a needs evaluation approach, MDT considered which site(s) would provide the greatest investment value based on a broad interpretation of available stopping opportunities. The study recommended prioritizing safety rest area investments based on current service gaps on US 2, with initial investment in Segment 2 potentially followed by Segments 4 and 1. Other factors such as funding, right-of-way, municipal service connection, changes in corridor stopping opportunities in communities, and other MDT safety rest area needs throughout the state may alter the priority order in which MDT addresses improvements in these corridor segments.

In Segments 6, 5, and 3, current spacing between MDT Safety Rest Areas, City Park Rest Areas, and communities with a population of at least 1,500 providing at least one stopping opportunity at a commercial establishment with 24-hour services does not justify MDT investment in new year-round MDT facilities. Rest area development was not recommended in these locations.

Next Steps

If recommended sites are determined in the future to be infeasible or less desirable due to issues such as right-of-way acquisition challenges or inability to connect to municipal water and wastewater services, MDT could consider advancing other potentially favorable sites within each study segment.

For those sites carried forward to project development, further evaluation would be needed for water (including supply, quality, rights, and impacted adjacent sources); wastewater (including a non-degradation analysis to include total effluent flow, anticipated advanced treatment, and footprint for treatment and dosing); and right-of-way (including needs for current and proposed buildings, parking, wastewater treatment, picnic structures, and other site features). Further evaluation would also be needed for all environmental factors, including presence of federally listed threatened and endangered species and their habitat, bald and golden eagles and their nests, sage grouse habitat, and wetlands would need to be completed. Construction timing limits may need to be implemented at sites located in grizzly bear habitat (limited to no work at dawn, night, and dusk), at sites near bald or golden eagle nests during breeding season (February 15 to August 15), and potentially for sites located in sage grouse habitat. A cultural resource survey may be necessary for any construction project resulting from this study. An evaluation of environmental factors including but not limited to Section 106 of the National Historic Preservation Act would be required.

1.0 INTRODUCTION

MDT continually seeks to serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality, and sensitivity to the environment. Guiding policy established in TranPlanMT focuses on safety and the need to continue improvements to the safety rest area program to provide safe stopping locations for the traveling public. The objective of this corridor study was to consider opportunities for full-service, year-round safety rest areas along the US Highway 2 (US 2) corridor, including existing seasonal sites and new sites within six discrete study segments (Figure 1) as part of the US 2 Rest Area Siting Study.

For recommended sites advanced from this study, a Phase I feasibility study and an analysis for compliance with the National and Montana Environmental Policy Acts (NEPA and MEPA) and other applicable regulations may be completed as part of the MDT project development process.

1.1 Study Corridor and Study Segments

US 2 is the northernmost east-west route in the country traversing the northern continental United States. It is an important corridor in Montana, extending approximately 666 miles across the length of the state. Entering Montana at its western border with Idaho, US 2 runs adjacent to the southern border of Glacier National Park; traverses the region known as the Hi-Line which crosses through the Blackfeet, Fort Belknap, and Fort Peck Reservations; and continues to the North Dakota border east of Culbertson.

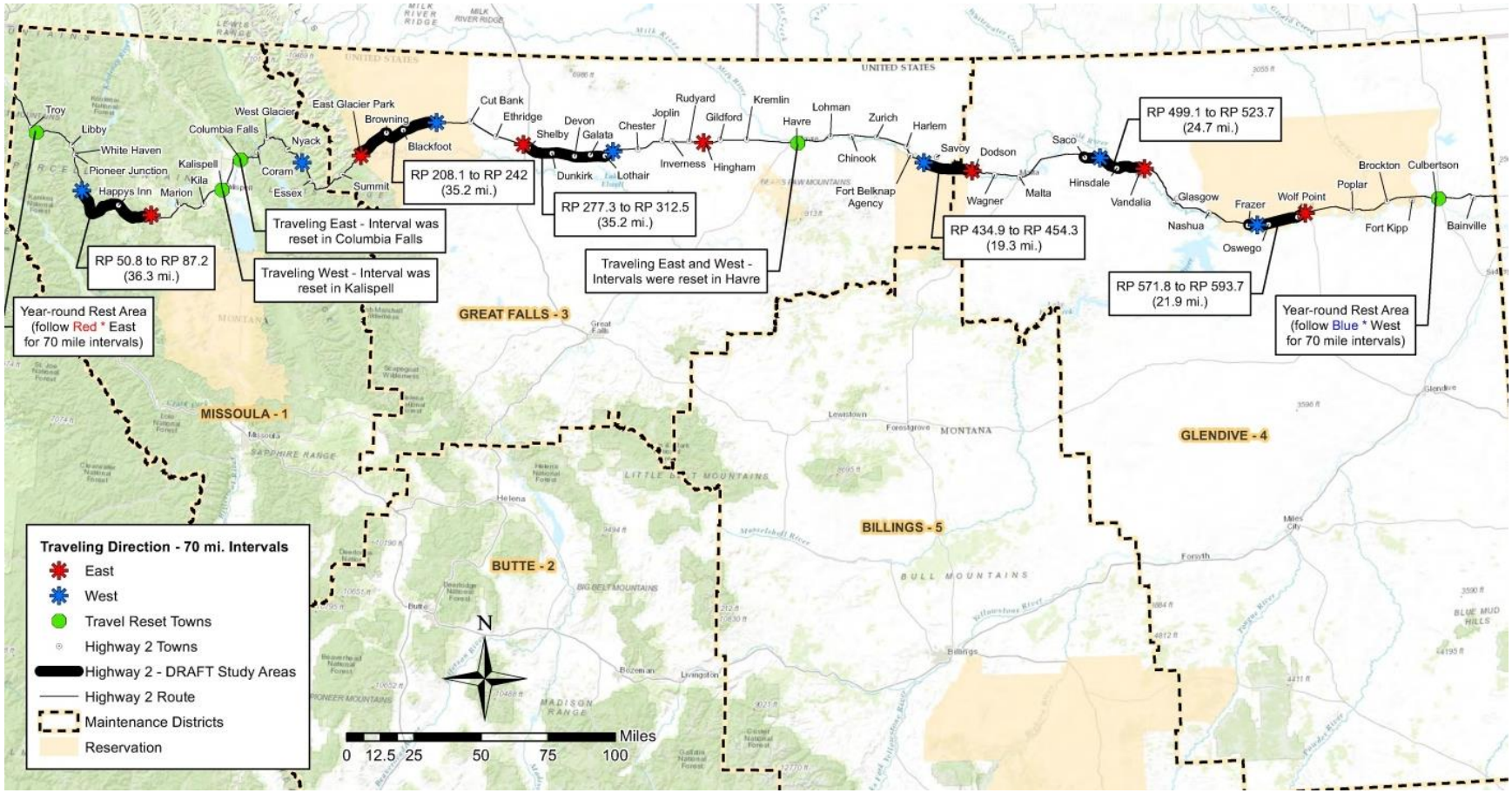
MDT recognized a need to investigate this corridor and evaluate safety rest area spacing along US 2 as there are long stretches of US 2 that provide few safe stopping opportunities for the traveling public. As defined in the 2014 Montana Rest Area Plan, a network evaluation assesses rest area spacing and determines locations where additional sites might be needed. The process is typically used in conjunction with site evaluations to make decisions for major or minor rehabilitation projects, reduction of service, or construction of a new rest area.

According to the 2014 Montana Rest Area Plan, siting of new rest areas should be determined for “corridor segments exceeding approximately one hour of travel time between stopping opportunities, including rest areas, parking areas, and cities and towns with 24-hour services.” Consistent with the plan, this study used 70-mile intervals representing the posted speed limit on US 2 to determine the need for safe stopping opportunities.

The study corridor included the length of US 2 extending from a western endpoint at the Troy Safety Rest Area (Reference Post [RP] 17.1) to an eastern endpoint at the Culbertson Safety Rest Area (RP 645.2). These two safety rest areas are year-round, 24-hour facilities in good working condition with no major maintenance expected within the next 10 years.

Intervals of approximately 70 miles were identified in both the eastbound and westbound directions beginning from the corridor endpoints. Eastbound intervals are marked with a red symbol and westbound intervals are marked with a blue symbol on the study area map (Figure 1).

Figure 1: Study Area and Study Segments



Source: MDT 2017.

In addition to the safety rest areas at Troy and Culbertson, reset points (i.e., locations where the 70-mile interval was reset to zero) included urban areas with populations exceeding 5,000 people (including Kalispell, Columbia Falls, and Havre) with three or more facilities providing 24-hour services. These locations are marked with a green symbol in Figure 1. Smaller communities with fewer than three locations providing 24-hour services (such as Browning, Cut Bank, Shelby, Chinook, Glasgow, and Wolf Point) were not designated as reset points for the segment identification portion of this study because individual commercial establishment(s) may not provide reliable service for stopping opportunities over the planning horizon. Additionally, the MDT-maintained safety rest area at Vandalia and City Park Rest Areas (CPRAs) at Cut Bank, Chester, and Malta were not designated as reset points because they are seasonal facilities (i.e., not open year-round) and would require upgrades to provide year-round service and fully address the stopping needs on US 2. This report considers the potential to rehabilitate or reconstruct the Vandalia Safety Rest Area and CPRAs in Section 7.1.

Study segments include an offset distance of 750 feet from the US 2 centerline (for a total distance of 1,500 feet) to accommodate the footprint of a new safety rest area. The following six study segments were identified between the eastbound and westbound 70-mile interval markers:

- Segment 1: RP 50.8 to RP 87.2 (36.3 miles)
- Segment 2: RP 208.1 to RP 242.0 (35.2 miles)
- Segment 3: RP 277.3 to RP 312.5 (35.2 miles)
- Segment 4: RP 434.9 to RP 454.3 (19.3 miles)
- Segment 5: RP 499.1 to RP 523.7 (24.7 miles)
- Segment 6: RP 571.8 to RP 593.7 (21.9 miles)

Ranging from approximately 20 to 35 miles each, these segments represent potential stretches of US 2 where a new safety rest area would generally meet the spacing guidelines outlined in the Montana Rest Area Plan. This study identified specific locations within each segment that represent potentially favorable sites for safety rest area development. The resulting interval distances may vary from desired 70-mile spacing depending on the specific recommended locations, as identified in subsequent sections of this report.

2.0 PARTICIPATION PROCESS

As part of corridor study process, MDT provided opportunities for public, tribal, stakeholder, and agency participation. A project website was created to provide public access to information about the study, including links to documents and related information. Initial involvement activities included tribal outreach and stakeholder phone interviews. Resource agencies and tribal nations were also invited through email notice to provide comments on draft reports. The following sections further detail the outreach approach for this study. Additional materials are provided in Appendix A.

2.1 Website

MDT hosted a study website at https://www.mdt.mt.gov/pubinvolve/us2restarea/ for the duration of the study. The website provided an overview of the study focus and the study area; links to study documents including the Need and Objectives, Environmental Scan Report, Existing and

Projected Conditions Report, Improvement Options Report, and Corridor Study; a list of frequently asked questions (FAQs); the study schedule; and study contacts.

2.2 Tribal Outreach

Notification letters describing the intent and scope of the study were sent to council members of the Blackfeet, Fort Belknap, and Fort Peck Nations in July 2017. The letters also offered an invitation for MDT to meet with members of the council and tribal engineering and planning teams to discuss the study purpose, existing conditions, and to hear any community concerns was also extended. No meetings were requested by the Tribes. A second letter was emailed to the three tribal nations in April 2019 providing links to draft reports for tribal review and comment. No comments were received.

2.3 Stakeholder Phone Interviews

MDT identified several key organizations and individuals as having interest in the US 2 Rest Area Siting Study. Stakeholders were notified via email describing the intent and need of the study. The notification also included an invitation to discuss input and concerns about stopping opportunities along the US 2 corridor. Below is a list of standardized questions discussed with those who chose to participate in phone conversations conducted November 6 -9, 2017. Individual responses are provided in Appendix A.

1. How does your community/membership feel about stopping opportunities along the corridor? Adequate? Lacking?
2. What are specific locations within the corridor segments you feel would benefit the most from additional 24-hour, year-round safety rest area facilities?
3. Are there any specific needs you believe additional safety rest areas could serve in this corridor?
4. Do you have any information regarding segment conditions that could assist in safety rest area site identification?
5. What questions do you have about the study, methodology, or objectives?

2.4 Resource Agency Coordination

A letter was emailed to resource agencies in April 2019 providing links to draft reports for review and comment. Agency comments are included in Appendix A.

2.5 Media Coordination and Public Comments

MDT issued a press release and published display advertisements announcing a 30-day public review period to solicit comments on draft study reports. A matrix containing public comments and MDT responses is included in Appendix A.

3.0 LOCAL PLANNING

Local, regional, and statewide plans provide important context for this safety rest area study. Summaries are provided below with focus on references to travel demands and stopping opportunities on US 2.

Montana Rest Area Plan - 2014

The Montana Rest Area Plan represents MDT's comprehensive statewide vision for the MDT Rest Area Program in the context of challenges such as aging infrastructure, high rest area demand and visibility, and limited funding. The plan uses an asset management approach based on policy goals and objectives, quality information and defined analysis process, long-term planning needs, defined project delivery process, and continued monitoring to ensure a

successful program. Rest area siting options identified as part of the US 2 Rest Area Siting Study reflect the strategies identified in the Montana Rest Area Plan for identified emphasis areas.

Montana State Rail Plan – 2010

The 2010 Montana State Rail Plan was prepared by MDT to describe historical and forecasted rail freight trends throughout the state. The plan additionally highlights rail planning, passenger service, grain car consolidation facility impacts, public rail funding programs, and other rail issues. The 2017 Montana Freight Plan builds on this premise as a foundation for a broader look at freight movement in Montana. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the strategies for freight movement within the identified emphasis areas.

Montana Freight Plan – 2017

The Montana Freight Plan provides a comprehensive evaluation of freight transportation in the state and provides guidance for both short and long-term freight-related transportation investment decisions. The Montana Freight Plan aligns with National Freight Policy goals as detailed in 23 USC 167 as well as TranPlanMT goals. The Montana Freight Plan details the role freight movement plays in Montana's economy, identifies significant freight system issues, provides a framework for freight investment decisions, and provides transparency to the public as to how transportation system decisions are made.

Although US 2 is not a federally designated freight corridor in Montana, it is still considered a major thoroughfare for freight movement. The Montana Freight Plan specifically notes the importance of port freight traffic and the role that US 2 plays for providing reliable corridor connectivity. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the strategies for Montana Freight Plan goals within the identified study segment areas.

Montana Comprehensive Highway Safety Plan (CHSP) – 2015

The CHSP identifies the top traffic safety problems on all of Montana's public roadways and includes a strategic focus on coordinating statewide efforts to reduce fatalities and incapacitating injuries. The plan is data driven and includes 10-year crash data trend analysis to determine emphasis areas with the greatest opportunity to reduce crashes. The CHSP identifies four emphasis areas including roadway departure crashes, intersection crashes, impaired driving crashes, and crashes involving unrestrained occupants. The plan includes measurable objectives and identifies safety strategies and implementation steps to reduce emphasis area crashes. MDT recognizes that safety rest areas play an important role in enhancing safety on public roadways by providing an opportunity for drivers to rest, stretch, walk, eat, and access mobile devices, combating drowsy and distracted driving. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the strategies for fatality and serious injury reduction within the identified emphasis areas.

Lincoln County Growth Policy – 2009

The Lincoln County Growth Plan was prepared by the county to highlight current conditions and projected trends, outline short- and long-terms goals, and outline policies and implementation strategies. The planning area covers Lincoln County, MT; however, this plan specifically identifies the need to reconstruct a 12-mile section of US 2 near Swamp Creek; a six-mile portion of US 2 is addressed in the 2017-2021 Statewide Transportation Improvement Program (STIP) for reconstruction in 2018. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the needs recognized in the Lincoln County Growth Policy and STIP.

Flathead County Growth Policy – 2012
The 2012 Flathead County Growth Policy provides information regarding future transportation needs for projected growth and development. The plan examines travel patterns and trends and outlines policies addressing safety, mobility, and future demand needs. However, the plan does not outline any recommendations directly relevant to the US 2 Rest Area Siting Study. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the plan policies.

Blackfeet Nation 2014 Tribal Transportation Safety Plan - 2014
The Blackfeet Tribe updated the 2008 Safety Management Plan to refocus transportation safety efforts occurring on the Reservation and to identify additional strategies that could reduce fatal and serious injury crashes. The plan focuses on implementing education, enforcement, engineering, and other strategies to meet safety goals. The plan covers the Blackfeet Reservation; however, it does not specially address portions of US 2 within the study segment. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect plan safety objectives.

City of Shelby Growth Policy – 2012
The City of Shelby Growth Policy is intended to provide the framework to better understand current challenges and provide a guide for local government to implement solutions. The ultimate purpose of this plan is to provide Shelby citizens a better place to live, work, and play. The plan recommends that consideration of adjacent city land uses minimize traffic conflicts and provide sufficient capacity to handle present and future traffic flows. The plan proposes a new collector loop to serve residential development and connect to US 2 near the east side of Shelby. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect plan recommendations.

Fort Belknap Tribal Transportation Safety Plan – 2014
The Fort Belknap Tribal Transportation Safety Plan outlines programs/policies and identifies solutions that can be implemented to further improve transportation safety. The Fort Belknap Indian Community is committed to reducing the number of deaths and serious injuries as well as improving the overall safety of the transportation system. The plan focuses on implementing education, enforcement, engineering, and other strategies to meet safety goals. The plan covers the Fort Belknap Reservation; however, it does not specially address portions of US 2 within the study segment. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the plan safety objectives.

Phillips County Growth Policy - 2013
The growth policy examines the importance of land, population, housing, and economic patterns in Phillips County. The plan strives to actively participate in processes related to land use and management impacting Phillips County and the region, in particular the MDT TRED impact study on US 2. Rest Area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the plan objectives.

Fort Peck Tribes Safety Management Safety Plan - 2014
The Fort Peck Tribes Safety Management Safety Plan outlines programs/policies and identifies solutions that can be implemented to further improve transportation safety. The Assiniboine and Sioux Tribes are committed to reducing the number of deaths and serious injuries as well as improving the overall safety of the transportation system. The plan focuses on implementing education, enforcement, engineering, and other strategies to meet safety goals. The plan covers the Fort Peck Reservation and identifies potential hazardous locations for pedestrian crossings, including locations specifically on US 2 west of Wolf Point, US 2 near the Tribal Express in

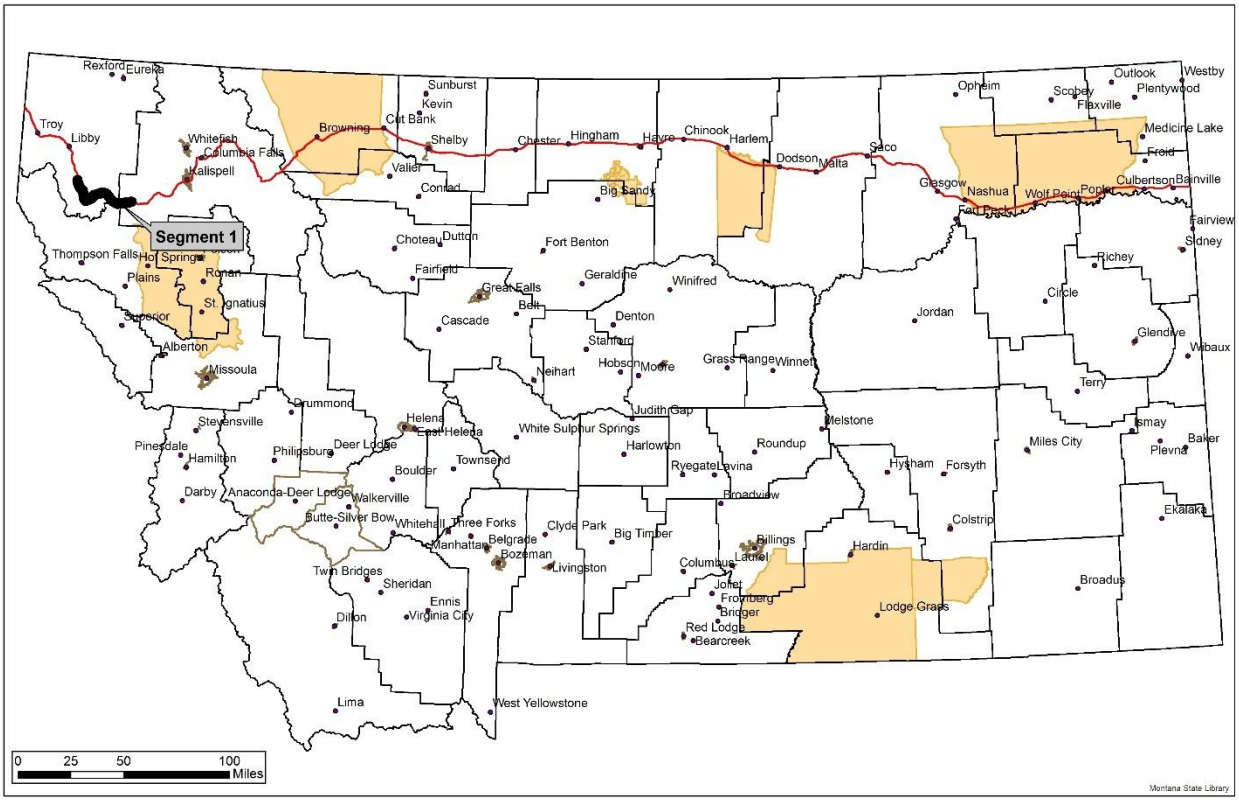
Poplar, and from US 2 across the Poplar River Bridge. Rest area siting options identified as part of the US 2 Rest Area Siting Study consider and reflect the plan safety objectives.

4.0 EXISTING AND PROJECTED CONDITIONS

The following sections outline existing and projected conditions within each study segment. Additional information about applicable regulations, data sources, the rationale and methods MDT used to evaluate each resource during the planning process, and potential future evaluations or permitting that may be needed if MDT advances a site from this study is provided in Appendices B and C.

4.1 Segment 1 (RP 50.8 to RP 87.2)

Figure 2: Segment 1 Location



Physical Environment

Soil Resources and Prime Farmland

Natural Resources Conservation Service (NRCS) soil survey information shows approximately 55 soils within Segment 1. From RP 50.8 to RP 56.7 silty glacial lake deposits (silty glaciolacustrine deposits) are prevalent. Glacial lake deposits (calcareous silty and clayey glaciolacustrine sediments) are also located from approximately RP 59 to RP 63 as well as RP 69 to RP 72. Along Fisher River and Pleasant Valley Fisher River (RP 56 to RP 64) mixed alluvium occurs. From RP 68 to RP 75, volcanic ash over alluvium or outwash is prevalent. In remaining areas,

particularly RP 64 to RP 68 and RP 75 to RP 87.2, colluvial, alluvial, and lake deposits are dominant, as well as glacial till and drift, often overlain with volcanic ash.

NRCS soil surveys indicate the presence of farmland of statewide or local importance and prime farmland if irrigated within the study segment. These designations primarily occur on lands from RP 63.5 to RP 82. Lands designated prime farmland if irrigated are located near RP 66. The percentage of the study segment comprised of farmland of statewide or local importance or prime farmland if irrigated is moderate.

Geologic Resources

Most of Segment 1 is underlain by Precambrian-aged (meta-sedimentary) bedrock of the Belt Supergroup. These rocks are typically hard and competent, and in some places, excavation may be difficult.

The surficial deposits exposed along Segment 1 consist mainly of Quaternary glacial and alluvial deposits. Quaternary lake sediments are also mapped in the segment. The lake sediments consist of fine-grained soils. The glacial and alluvial deposits may contain coarse and fine-grained soils. Fine-grained soils can have poor drainage characteristics, be frost susceptible, and have settlement and stability issues. Liquefaction may also be an issue. The thickness of the glacial and alluvial deposits is likely highly variable and whether bedrock will be encountered during construction is unknown. Based on the published data reviewed, it does not appear that landslides have been mapped along Segment 1.

Although numerous faults (mostly north-trending) are mapped along Segment 1, no Quaternary faults (which may be considered active) are present along Segment 1. The study segment is located within the intermountain seismic belt. Earthquakes can induce movement along faults, rock fall, slope movement (landslides), and liquefaction. However, no significant historic earthquake epicenters are mapped near Segment 1, with the nearest epicenter located 30 miles to the east.

Hazardous Substances

The Montana Department of Environmental Quality (DEQ) database indicates the following Underground Storage Tank (UST), Leaking Underground Storage Tank (LUST), and petroleum release fund sites within Segment 1.

- A LUST site and petroleum release fund site are located near RP 55.9; however, no buildings or structures are found at this location, and location data may not be correct. The LUST was resolved in 2003.
- A LUST site and petroleum release fund site are located near RP 66.4. The site is located at an MDT facility (Crystal Creek Section). The LUST was resolved in 1997.
- A LUST site is located near RP 68.9; however, no buildings or structures are found at this location and location data may not be correct. The LUST was resolved in 1993.
- Two UST sites occur within the study segment at the Happy's Inn and Resort on the southwest side of US 2 near RP 72.2.

Segment 1 is located within the Cabinet Mining District from RP 50.8 to RP 80.3. Six open cut mines occur within the study segment near RP 55, RP 68.2, RP 73.6, RP 74.1, RP 81.3, and RP 85.7. One abandoned mine site is located north of US 2 near RP 85.2.

No oil/gas wells or oil or gas pipelines are located within Segment 1, nor are any United States Environmental Protection Agency (USEPA) designated superfund sites.

Air Quality

No non-attainment areas for any of the criteria pollutants are located within Segment 1. The closest non-attainment areas are the Libby non-attainment areas for PM2.5 and PM10. The southern boundaries for these two non-attainment areas are approximately 5.8 miles and 11.8 miles, respectively, north of Segment 1.

Surface Waters

Segment 1 is located within three watersheds.

- From RP 50.8 to approximately RP 52.2, Segment 1 is located within the Middle Kootenai Watershed (Hydrologic Unit Code [HUC] 17010101). Swamp Creek is the primary drainage located within this portion of the segment, with smaller drainages flowing into Swamp Creek.
- From RP 52.2 to approximately RP 73, Segment 1 is located within Fisher Watershed (HUC 17010102), with the Fisher River being the primary drainage. Numerous named and unnamed drainages and lakes cross or parallel the study segment.
- From RP 73 to RP 87.2, Segment 1 is located within the Lower Clark Fork Watershed (HUC 17010213). All lakes and drainages within this portion of the study segment flow into Thompson River, located south of the study segment.

Total Maximum Daily Loads

Segment 1 is located within the Fisher Total Maximum Daily Load (TMDL) Planning Area (TPA) and the Thompson TPA. Within the study segment, the Fisher River (MT76C001_010) from the Silver Butte/Pleasant Valley Junction to its mouth (Kootenai River) is listed as not fully supporting aquatic life due to high flow regimes from channelization and streambank modification. Raven Creek (MT76C001_030) is listed as not fully supporting aquatic life and primary recreation due to alteration in stream-side or littoral vegetative cover from forest roads, phosphorus (Total) from silviculture activities, and sedimentation/siltation from unknown sources. McGregor Creek (MT76N005_030) is also listed as not fully supporting aquatic life due to flow regime alternations caused by channelization, sedimentation/siltation from highway and bridge runoff, and water temperature due to hydro structure impacts on fish passage. MDT considers downstream TMDL standards and potential impacts to water quality within receiving waterbodies during the safety rest area siting process.

Wild and Scenic Rivers

There are no wild or scenic rivers within or near Segment 1.

Irrigation

Very little irrigation activity/infrastructure occurs within Segment 1, with all identified irrigation being private. At the beginning of the study segment (RP 50.8) the Schnieder Ditch parallels US 2 primarily to the east. Near RP 52.2, the small Sheffield Ditch crosses into the study segment on the west side of US 2. At RP 55.7, Water Resource Surveys (WRS) maps show a small irrigation dam, called Waylett Dam, located just east of US 2 on Schreiber Creek. The Dyer (Beebe) Ditch enters the study segment on the west side of US 2 near RP 60.1. From RP 80.7 to RP 81.3, the Lang Drain Ditches and the Lang Ditch cross the study segment flowing south.

Floodplains and Floodways

The majority of Segment 1 is designated as Zone X or Zone C; however, several designated 100-year floodplains (Zone A) cross or parallel US 2 within the study segment.

- Zone A: Special Flood Hazard Area (SFHA) - 100-Year Flood, No Base Flood Elevations Determined
- Zone C: Areas Outside the 500-Year Flood
- Zone X (unshaded): Areas Outside the 500-Year Flood

The 100-year floodplain for Swamp Creek parallels US 2 primarily on the east side of the highway from the start of the segment at RP 50.8 to RP 52.2. The 100-year floodplain for Schreiber Lake and Schreiber Creek parallel US 2 to the south from RP 53.3 to RP 55.5. From RP 55.5 to RP 64, US 2 follows within or directly adjacent to the 100-year floodplains of Fisher River and Pleasant Valley Fisher River. Within this portion of the study segment, the 100-year floodplains for Miller Creek, West Fisher Creek, and Silver Butte Fisher River also cross the study segment as the creeks join the Fisher River. Loon Lake, Leon Lake, Horseshoe Lake, Lilypad Lake, Bootjack Lake, Crystal Lake, Rainbow Lake, Upper Thompson Lake, Eli Lake, Middle Thompson Lake, and Lower Thompson Lake (RP 69 to RP 79.5 on the south side of the US 2) also have designated 100-year floodplains (Zone A).

Wetlands

Several National Wetlands Inventory (NWI) wetlands occur within Segment 1. The majority of these are associated with the numerous creeks, rivers, and lakes that cross or parallel the highway. A large emergent wetland complex, likely associated with Schreiber Lake and Schreiber Creek, is located just southwest of US 2 from RP 53 to RP 54.3. A large portion of the study segment from RP 56.7 to RP 63.5 includes emergent, shrub/scrub, and forested wetlands that border the Fisher and Pleasant Valley Fisher Rivers. Emergent, shrub/scrub, and forested wetlands, associated with the large lake complex on the south side of US 2 from RP 69.2 to RP 78.5, are also found within the study segment. From RP 80.5 to RP 81, a large emergent wetland complex is shown on NWI mapping. Hydrology to this wetland is likely contributed from Lang Creek and McGregor Creek.

Groundwater

Approximately 85 wells occur within or directly adjacent to Segment 1. Wells with recorded depths range from five feet within a wetland complex near RP 53.5 to 425 feet on a hillslope above Middle Thompson Lake near RP 77.7. Static water levels ranged from one foot near RP 62 along the Pleasant Valley Fisher River to 175 feet near RP 77.7 on a hillslope above Middle Thompson Lake.

Shallow groundwater can be expected where the study segment is near Swamp Creek (RP 50.8 to RP 52), the wetland complex around Schrieber Creek and Schrieber Lake (RP 53 to RP 54.5), Fisher River and Pleasant Valley Fisher River (RP 55 to RP 66), and lower lying areas near the lake complex from approximately RP 69 to RP 79.5 and from RP 85.5 to RP 87.2. Localized groundwater conditions may also be affected by perched aquifers and associated tributary drainages.

Biological Resources

Vegetation

Segment 1 is the only segment located west of the Continental Divide. Conifer forest and woodlands dominate the land cover within and adjacent to the study segment, with montane grassland land cover primarily bordering US 2 from RP 62 to RP 69. Harvested forest land cover is primarily dispersed along the Fisher River, where trees have mainly been removed for harvesting, agriculture, or grazing.

General Wildlife Species

Segment 1 has minor development, is within or directly adjacent to national forest service lands, and includes large areas where native vegetation still exists. Wildlife species include generalists; however, Segment 1 also provides opportunity for sensitive species and species with specific habitat needs. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment.

Threatened and Endangered Species

Five threatened, two proposed threatened, and one candidate species are listed as potentially occurring along the US 2 corridor within Segment 1 (Table 2). In addition to the species listed below, designated critical habitats for bull trout (the Fisher River) and Canada lynx are found within and adjacent to Segment 1.

Table 1: T&E Species with the Potential to Occur in Segment 1

Species	Status
Mammals	
Canada lynx *Lynx canadensis*	Threatened
North American wolverine *Gulo gulo luscus*	Proposed Threatened
Grizzly bear *Ursus arctos horribilis*	Threatened
Birds	
Yellow-billed cuckoo *Coccyzus americanus*	Threatened
Fish	
Bull trout *Salvelinus confluentus*	Threatened
Invertebrates	
Meltwater Lednian stonefly *Lednia tumana*	Proposed Threatened
Plants	
Spalding's campion *Silene spaldingii*	Threatened
Whitebark pine *Pinus albicaulis*	Candidate

Source: USFWS, 2017.

Documented occurrences of grizzly bear, North American wolverine, Canada lynx, and bull trout occur within the three-mile buffer for Segment 1. The Montana Natural Heritage Program (MTNHP) database also notes the potential for yellow-billed cuckoo to occur in the segment vicinity due to the presence of suitable habitat.

Species of Concern and Special Status Species

There are 25 wildlife Species of Concern (SOC) and seven plant SOC with known recorded observations within or directly adjacent to Segment 1. Wildlife species include mammals, birds, fish, and invertebrate species. Observations of bald eagle and bald eagle nests (a special status

species) have also been recorded near Segment 1. Segment 1 is not located within sage grouse habitats designated as core area, general habitat, or connectivity.

Social and Cultural Resources

Economy

Segment 1 is located within Lincoln County and Flathead County and is also near Sanders County. It is reasonable to consider these counties in a socioeconomic overview. The communities of Troy, Libby, Kalispell, Columbia Falls, and Whitefish are near this study segment.

Flathead County's tourism attractions and the resulting positive effects seem to be the primary driver of industry in these counties. Although the natural amenities of Lincoln and Sanders Counties are not as well known, these counties also attract tourists as one of their primary economic drivers. Arts, entertainment, and recreation make up a significant portion of the economy in all three counties. Construction, agriculture, and educational, heath care and social services also make up a significant portion of these three counties' economies.

Like much of northwestern Montana, this area shows high rates of unemployment and an economy that relies heavily on tourism related activities. Forecasts suggests this trend will continue.

Flathead County is on par with the statewide averages for three measures of wealth and income, including median family income, per capita income, and retail sales per capita. Sanders and Lincoln Counties are lagging slightly behind in these measures of income and wealth.

Population and Demographics

Northern Montana has a small population and only minimal growth is expected. The socio-economic characteristics of this area can be expected to remain constant in the future. Flathead County has the largest population of the three. All counties are predominantly populated with people who identify as White Alone. People who identify as American Indian and Hispanic or Latino represent a smaller proportion of the population than what is average for Montana. The rate of owner-occupied housing is greater than that of Montana on average for all three counties. The distribution of age in the three counties is weighted slightly more toward people of older ages than that of Montana generally.

Growth is expected across the three counties over the next 45 years; however, the rate of growth is expected to decrease. These counties are expected to grow at a rate of 1.011% for the next 10 years, which is higher than the expected 10-year growth for the state, 0.793%.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Land ownership in Segment 1 is predominantly private and United States Forest Service (USFS), with some interspersed state, county, and federal owners. Specifically, USFS owns most of the land from RP 50.8 to RP 55, with some private land near RP 52 and an MDT parcel near RP 53.5. Private land mainly borders US 2 from RP 55 to RP 87.2 with State Trust lands near RP 65, Montana Fish, Wildlife, and Parks (FWP) intermittently from RP 70 to RP 79 (specifically including RP 70.5, RP 72.5, RP 74, RP 75.5), and USFS lands near RP 85. Most land use in Segment 1 is federally managed forests with bodies of water neighboring the study segment used primarily for recreation. Also, some crop/pasture land is sporadically located throughout.

Recreational Resources

According the FWP database, there are no designated FWP fish access sites within the study segment. Several state parks, campgrounds, and boat docks are located within the study segment. These public resources are potential Section 4(f) recreational resources and include the following.

- The USFS Pleasant Valley Campground is located east of US 2 at RP63.5. The campground has seven sites in addition to a stock area with feed bins and a corral.
- From Loon Lake to McGregor Lake (RP 69 to RP 80 and RP 85 to end of segment at RP 87.2), there are two state parks on the south and southwest side of the US 2. These include Thompson Chain-of-Lakes State Park and Logan State Park. Both State Parks include camping, picnicking, boating, fishing, and swimming. The state parks provide several public boat docks to access the various lakes within the study segment.
- USFS McGregor Lake Campground is located on the west side of McGregor Lake near RP 85.5. The campground has 27 sites and a public boat ramp. Day use picnic areas are also available near the beach.

In addition, Land and Water Conservation Fund Act (LWCFA) funds have been used at both state parks for various development projects.

Cultural Resources

Historic properties have been recorded within Segment 1, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, and government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 1 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal, state, local, and private ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near to US 2 right-of-way. In Segment 1, isolated residential development is found throughout the study segment; more concentrated development is found at Happy's Inn (±RP 72).

Visual Resources

Views from US 2 within Segment 1 are dominated by the steep, forested, river valleys of the Fisher River and Pleasant Valley Fisher River, with views of the Cabinet Mountains to the southwest and the Salish Mountains to the Northeast. From RP 69 to the end of the segment at RP 87.2, the corridor opens to include a series of lakes.

Public Water

The entire length of Segment 1 is in areas characterized by mountainous terrain. These areas can be challenging from a water siting perspective due to high groundwater and surface water. High groundwater areas add additional treatment and siting concerns for the water permitting process.

From RP 50.8 to RP 52.0, shallow groundwater can be expected from one to six feet where US 2 is near Swamp Creek. There are no public water systems or municipalities within this portion of the corridor.

From RP 62.0 to RP 65.0, well logs indicate static water levels rise to approximately 10 feet below the ground surface due to hydrostatic pressures. The north side of US 2 has an approximate sandy gravel water bearing formation located between 60 to 100 feet below the surface. Based on the sandy gravel geological formation, groundwater quality should be good. There are no public water systems or municipalities within this area.

From RP 69.0 to RP 79.5, three small public water systems are located at Happy's Inn, Kicking Horse Salon, and Key Corporation. These systems are not large enough to accommodate the addition of a safety rest area facility. There are no municipalities located within the segment. In relation to potential development of on-site systems, the approximate water bearing formation is located between 40 to 70 feet below the ground surface. Based on neighboring well logs, the static water levels in the wells rise to approximately 10 to 20 feet below the ground surface due to hydrostatic pressures. Flow rate in this area range from 10 to 50 gallons per minute (gpm). Based on the sandy gravel geological formation, groundwater quality should be good.

Public Wastewater

No large municipal wastewater systems are located near US 2 in this segment. An on-site public wastewater system would likely be needed in this segment. NRCS soil survey information shows approximately 55 soils within Segment 1.

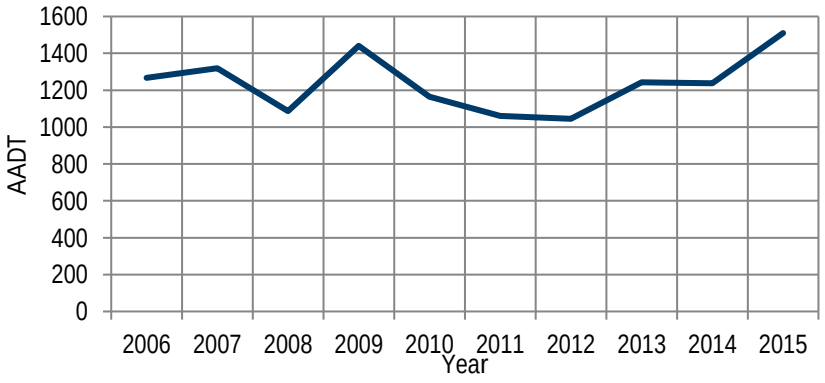
From RP 50.8 to RP 56.7, silty glacial lake deposits (calcareous silty and clayey glaciolacustrine sediments) are prevalent. These types of soils are typically slow absorbing soils, having sizing application rates between 0.015 to 0.3 gallons per day per square foot (gpd/ft^2). This area may also be prone to high groundwater. Glacial lake deposits are also located from approximately RP 59 to RP 63 as well as from RP 69 to RP 72. From RP 72 to RP 87.2, colluvial, alluvial, and lake deposits are dominant, as well as glacial till and drift, often overlain with volcanic ash. These types of soils are

Traffic Volumes

Historic Volumes

Annual Average Daily Traffic (AADT) volumes from 2006 to 2015 for short-term counters near or within the boundaries of Segment 1 have been reasonability consistent, averaging approximately 1,240 AADT for the 10-year period. Figure 3 summarizes traffic volumes from 2006 to 2015 for Segment 1.

Figure 3: Historic Traffic Volumes – Segment 1

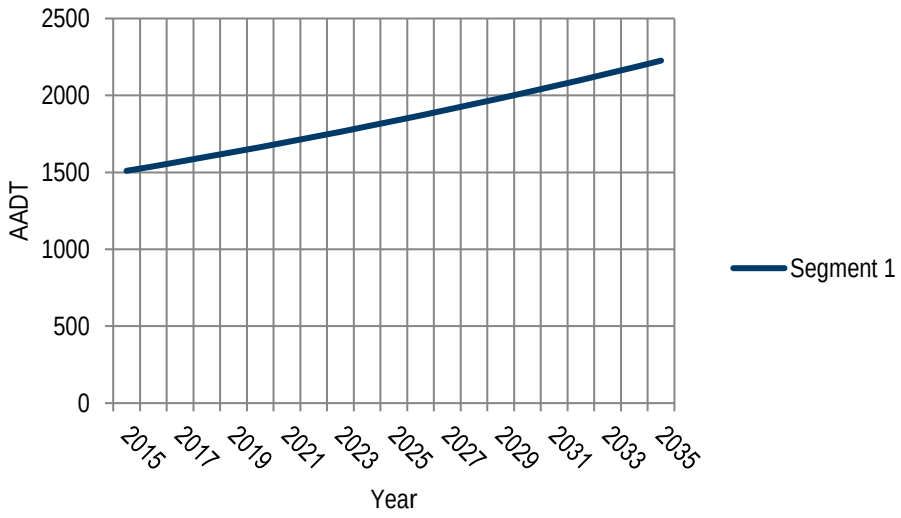


Source: MDT 2017; averaged AADT from Traffic Counters 27-6-1, 27-6-2, 27-6-3 and 15-6-1.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16 percent per year for this segment, projected AADT volumes for Segment 1 are illustrated in Figure 4 below.

Figure 4: Projected Future Traffic Volumes – Segment 1



Source: DOWL 2017.

Table 3 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 2: Forecasted Traffic Volume by Type – Segment 1

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
1	2,226	1,933	86.8%	93	4.2%	201	9.0%	293	13.2%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the National Highway System (NHS). The alignment of US 2 within Segment 1 consists primarily of mountainous and rolling terrain. This segment is situated within forest land with water features located adjacent to the alignment for long stretches at a time, creating unique constraints for any potential geometric improvements for potential rest area sites adjacent to the highway. Straight stretches of roadway with level grades are relatively limited within this segment as compared to other segments. Based on a review of available as-built drawings, vertical grades within this segment consistently range between two and four percent with several grades exceeding five percent. The geometry is curvilinear with numerous vertical curves. Numerous National Forest and local roads intersect US 2 from RP 50.8 to RP 65.9 where Old US 2 South connects to an MDT Maintenance Shop. Additionally,

from RP 66 to RP 80, numerous county and private roads surround Loon, Horseshoe, Crystal, and Thompson Lakes. Secondary 556 intersects US 2 from the south near RP 81.3.

Safety Analysis

This segment experienced the highest number of recorded crashes (101) of the six segments. The majority (62) were non-injury accidents; however, 12 non-incapacitating injury, 11 incapacitating injury, and one fatal accident (near RP 64.6) were reported. A total of 811 carcasses were recorded in Segment 1, with whitetail deer contributing to nearly 85% of the wild animals killed along this portion of US 2. Table 4 lists crash and carcass data for the period 2012 through 2017.

Table 3: Crash Severity and Carcass Counts – Segment 1

Crash Severity	Crash Count
Fatal Accident	1
Incapacitating Injury Accident	11
Non-Incapacitating Evident Injury Accident	12
Non-Injury Accident (Property damage only accident)	62
Possible Injury Accident	12
Unknown	3
Grand Total	**101**
Carcass – Animal Type	**Carcass**
Other	13
Domestic	2
Deer Unknown	1
Unknown or Blank	3
Black Bear	2
Grizzly Bear	1
Elk	27
Whitetail Deer	689
Mule Deer	62
Moose	11
Grand Total	**811**

Source: MDT, July 1, 2012, through June 30, 2017 Crash and Carcass Data.

Rail Crossings

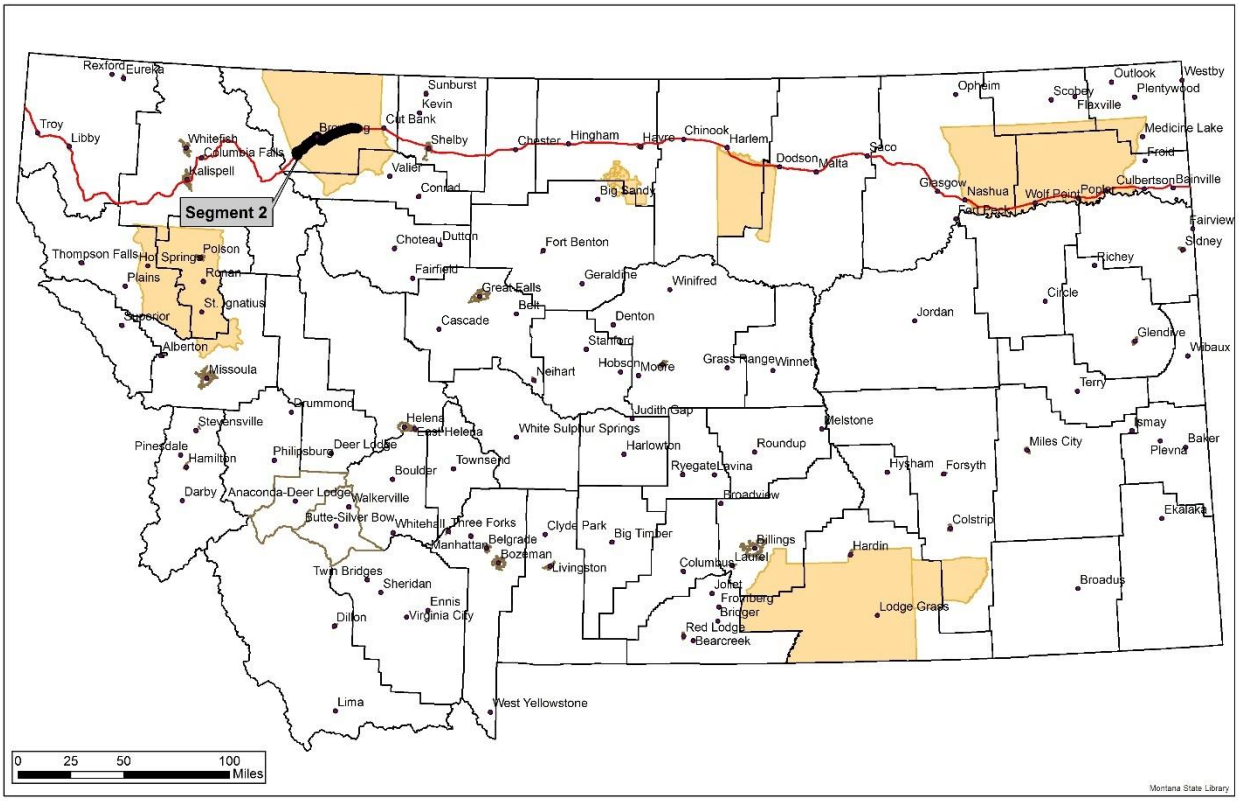
BNSF Railway crossings exist on US 2 within Segment 1.

Utilities

In Segment 1, overhead power lines cross US 2 near RP 60.9 and run parallel to US 2 to RP 62.5. These power lines approach the study segment boundaries again from RP 65.6 to RP 66.1 and near RP 68.0.

4.2 Segment 2 (RP 208.1 to RP 242)

Figure 5: Segment 2 Location



Physical Environment

Soil Resources and Prime Farmland

Approximately 30 soils occur within Segment 2. Most soils are glacial till and outwash. However, near rivers and streams, alluvial deposits are common. Only the very eastern portion of the study segment contains lands designated as farmland of statewide importance or prime farmland if irrigated. These designations occur from RP 239.5 to RP 242.0. The percentage of the study segment comprised of farmland of statewide importance or prime farmland if irrigated is very low.

Geologic Resources

Segment 2 crosses the northern Montana overthrust belt, which is a geologically complex, abundantly faulted area, where the geologic formations have been disturbed. The bedrock encountered along Segment 2 is younger, Cretaceous-aged bedrock that is less competent (and probably more fractured and disturbed). The bentonite beds present in some of the formations can be highly expansive, and soils derived from these bentonite beds may also have expansive characteristics.

The surficial deposits exposed along Segment 2 consist mainly of Quaternary glacial deposits. The glacial deposits along the study segment are described as gravelly to clayey till deposited by continental ice sheets that may contain gravel deposits. These soils may have a high frost susceptible. Poor drainage may also be an issue. The thickness of the glacial deposits in this

area is typically one to 15 feet thick but can be more than 50 feet thick. Based on the published data reviewed, it does not appear that landslides have been mapped along Segment 2.

Although numerous faults (mostly north-trending) are mapped along Segment 2, no Quaternary faults (which may be considered active) are present along Segment 2. Segment 2 is located within the intermountain seismic belt. Earthquakes can induce movement along faults, rock fall, slope movement (landslides), and liquefaction. However, no significant historic earthquake epicenters are mapped near Segment 2, with the nearest epicenter is located 40 miles to the southwest.

Hazardous Substances

Four LUST sites and three petroleum release fund sites are located within Segment 2, just north of RP 209, in East Glacier Park. The LUST site at the former Husky Station was resolved in 2003. The three other LUST sites at Oil West Services, Circle R Services, and the Glacier Park Lodge Service Station, have associated petroleum release funds. Of the three LUST sites, the Circle R Services site is the only one resolved (2006). Three UST sites are also located within the study segment in East Glacier Park. The USTs are just east of US 2 at the Bear Track Travel Center.

Within the city of Browning, 15 LUST sites, 11 petroleum release fund sites, 12 UST sites, and one hazardous waste site occur within the study segment. Of the 15 LUST sites, DEQ data shows that eight have been resolved. The hazardous waste site is the Browning High School, which is labeled as a large quantity generator.

Segment 2 is not located within a mining district, and no open cut mines or abandoned mines are located within the study segment.

Northwestern Energy has two in-service gas transmission pipelines within the study segment. The pipelines parallel US 2 on the southeast side of the roadway near RP 208 and again from approximately RP 210.5 to RP 212 where the pipelines cross the highway. From the highway crossing, the pipelines parallel the study segment to the northwest. At approximately RP 215.5, the pipelines continue north and away from US 2. There are no oil/gas wells or well directionals within the study segment; however, several oil/gas wells are located adjacent to the study segment near RP 213, RP 236, and RP 238.5.

There are no USEPA designated superfund sites within Segment 2.

Air Quality

No non-attainment areas for any of the criteria pollutants are located within or near Segment 2.

Surface Waters

Segment 2 is located within two watersheds.

- The very southern portion of the segment (RP 208.1 to RP 214.8) is in the Two Medicine Watershed (HUC 10030201) and includes the named drainages of. Midvale Creek, Two Medicine River, and Elk Creek. In addition to the named drainages, several unnamed ephemeral and intermittent drainages cross or parallel the study segment within this watershed.
- The Cut Bank Watershed makes up most of Segment 2 and includes the named drainages of Willow Creek, Wasteway Coulee, Depot Creek, and Flat Iron Creek. In addition to these named drainages, several unnamed ephemeral and intermittent drainages cross or parallel the study segment within this watershed.

Total Maximum Daily Loads
Segment 2 is located within the Blackfeet TPA. Waterbodies within this segment are not listed in the DEQ 303d Water Quality Report.

Wild and Scenic Rivers
There are no wild or scenic rivers within Segment 2. The closest wild and scenic river is the Middle Fork of the Flathead River, which crosses US 2 approximately 22 miles southwest of Segment 2.

Irrigation
Irrigation water on the Blackfeet Reservation is primarily supplied through the Blackfeet Irrigation Project, which is owned and operated by the BIA. While several irrigation ditches and canals occur near Segment 2, no “in use” ditches/canals were identified in the Glacier County WRS that cross or parallel the study segment. At RP 209.5, a portion of the study segment crosses the private East Glacier Park Hotel Company Sprinkler System, which irrigates the Glacier Park Lodge Golf Course.

Floodplains and Floodways
Segment 2 is located within the Blackfeet Reservation. Flood Insurance Rate Maps (FIRM) maps and floodplain digital data do not currently exist for the reservation except within the city of Browning (Federal Emergency Management Agency [FEMA] Flood Insurance Rate Maps [FIRM] number 3000300001B). The FIRM map shows the city north of US 2 as within a 100-year floodplain (Zone A), likely associated with Willow Creek. South of US 2, the city is designated as Zone C.

- Zone A: SFHA - 100-Year Flood, No Base Flood Elevations Determined
- Zone C: Areas Outside the 500-Year Flood

Wetlands
Segment 2 is a unique area where numerous glacial pothole wetlands and wet meadows occur. Several fringe wetlands along adjacent creeks also occur in this area. NWI mapping shows emergent glacial pothole wetlands making up most of the study segment from RP 213 to the end of the segment at RP 242. These potholes are scattered throughout this portion of the segment on both sides of the highway. Large emergent wet meadows fed by high groundwater and/or small drainages are found within the study segment at RP 225 and from RP 239 to RP 240. An emergent wetland associated with Flat Iron Creek crosses the study segment at RP 229.6, and large emergent wetland complexes associated with Willow Creek and Wasteway Coulee cross and/or parallel the study segment at RP 233.1 and from RP 236 to RP 239.

Groundwater
Approximately 83 Groundwater Information Center (GWIC) wells occur within or directly adjacent to Segment 2. Wells with recorded depths range from nine feet at East Glacier Park near RP 209.4 to 200 feet near RP 240.4. Very few wells have recorded static water levels. Wells with static water levels recorded range from 13 feet near RP 209.4 at East Glacier Park to 50 feet near RP 240.4.

In the western portion of the study segment from RP 208.1 to about RP 210, the controlling factor will be the numerous creeks and the Two Medicine River that cross or parallel US 2. Once into the glacial topography, the geohydrology will be much more complex. The entire segment is dotted with pothole/depressional wetlands, and shallow groundwater can be expected along most of the segment.

Biological Resources

Vegetation

A combination of montane grassland, agriculture, and lowland/prairie grassland dominate the land cover within and adjacent to Segment 2. Montane grasslands interspersed with agricultural land are primarily found along the segment from RP 208.1 to RP 224. Agricultural lands, interspersed with lowland/prairie grasslands, and areas of introduced vegetation make up the remainder of the study segment from RP 224 to RP 242. The small developed areas of Browning and East Glacier Park are also located within the Segment 2.

General Wildlife Species

Segment 2 has minor development, is directly adjacent to national forest or national park service lands and includes large areas where native vegetation still exists. Wildlife species would include generalists; however, Segment 2 also provides opportunity for sensitive species and species with specific habitat needs. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment

Threatened and Endangered Species

Two threatened, three proposed threatened, and one candidate species are listed as potentially occurring along the US 2 corridor within Segment 2 (Table 5). In addition to the species listed below, designated critical habitat for Canada lynx is found directly adjacent to Segment 2.

Table 4: T&E Species with the Potential to Occur in Segment 2

Species	Status
Mammals	
Canada lynx *Lynx canadensis*	Threatened
North American wolverine *Gulo gulo luscus*	Proposed Threatened
Grizzly bear *Ursus arctos horribilis*	Threatened
Invertebrates	
Meltwater Lednian stonefly *Lednia tumana*	Proposed Threatened
Western glacier stonefly *Zapada glacier*	Proposed Threatened
Plants	
Whitebark pine *Pinus albicaulis*	Candidate

Source: USFWS, 2017.

Occurrences of grizzly bear, Canada lynx, and North American wolverine have been documented within the three-mile buffer for Segment 2.

Species of Concern and Special Status Species

Within and adjacent to Segment 2, there are recorded observations of 12 wildlife SOC and eight plant SOC. Wildlife species include fish species, bird species, mammals, and mollusks. Observations of bald eagle and a bald eagle nest (a special status species), and observations of

golden eagle have also been recorded near Segment 2. Segment 2 is not located within sage grouse habitats designated as core area, general habitat, or connectivity.

Social and Cultural Resources

Economy

The study segment stretches through Glacier County near the border of Glacier National Park. The area experiences relatively high volumes of traffic and economic activity, especially during the summer months. Although the segment does not actually enter Flathead or Pondera County, including information about these counties in this overview is appropriate due to proximity. The segment includes some of the Blackfeet Indian Reservation. Cities that would have an impact on the segment include Browning and Whitefish.

Glacier and Pondera counties have similar proportions of agriculture and education and health care service jobs. Glacier County also has a relatively large portion of its businesses classified as public administration. This is likely due to the presence of the Blackfeet Indian Reservation. This mixture of businesses is typical of northwestern Montana, which is largely supported economically by the tourism industry.

The average unemployment rate in these three counties is expected to hold relatively constant, as is the statewide unemployment rate. The unemployment rate in these counties has been higher historically, relative to the rest of the state, and it is expected to remain higher than the rest of the state. The highest unemployment rate in the three counties is 9.46% which was observed in 2011. The lowest rate of unemployment is 4.51% and was observed in 2006.

Flathead and Pondera Counties are close to the statewide averages on most of the wealth measures, including median family income, per capita income, and retail sales per capita. Pondera County lags in the retail sales category. Glacier County has lower measures in all three categories. These measures are significantly lower than both the other counties in question and the state.

Population and Demographics

Northern Montana has a small population, and only minimal growth is expected. Within Segment 2, Browning and Whitefish are relatively small communities. The socio-economic characteristics of this area can be expected to remain constant in the future.

Flathead County has a very limited American Indian population relative to both the statewide average and the other counties in the study segment. Pondera County is home to more than double the percentage of American Indians than the statewide average. Most Glacier County residents identify as American Indian. Glacier County is home to the Blackfeet Indian Reservation. All three counties have a Hispanic or Latino population that makes up approximately 2% of their total population. Flathead and Pondera Counties have a higher rate of owner-occupied housing rate than the wider state. Glacier County has a lower owner-occupied housing rate than the state average.

The age distribution in Glacier, Flathead, and Pondera counties is similar between the sexes. The largest group in is the 45-64 years of age category. The next largest group is the 25-44 years of age category. This group is followed by people older than 65 years of age. The three counties have a similar distribution of age by sex as the state.

The three counties are expected to experience growth rates less than 1% over the next 45 years; however, the long-term trend is a reduction in the rate of population growth. The 10-year projected growth rate is 1.007% which is higher than the statewide growth rate of 0.793%.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Land ownership in Segment 2 is entirely located on the Blackfeet Reservation. The BNSF Railway runs adjacent to US 2 from RP 208.1 to RP 209.5 and near RP 212, RP 220, RP 223, RP 230 to 233, and RP 234 to RP 239. Additionally, Browning is located near RP 221.5. Most land use in Segment 2 is crop/pasture with mixed urban development near Browning and intermittent emergent wetlands and bodies of water.

Recreational Resources

Segment 2 is located on the Blackfeet Reservation, and recreation within the segment is limited. There are no designated fish access sites within the study segment.

Overnight camping is permitted on the reservation lakes. The only lake near Segment 2 is Kipp Lake, located southeast of the study segment at RP 229. Access to the lake is via a small dirt road at RP 229.5.

At the southwestern end of the segment is East Glacier Park. The town provides the east entrance into Glacier National Park at RP 209.3. The Glacier Park Lodge Golf Course is located directly west of US 2 near RP 209.5. The golf course is open to the public.

The Glacier Park Lodge Golf Course was the only identified potential Section 4(f) resource within the study segment. The segment is located on the Blackfeet Reservation. The Blackfeet are a federally recognized Indian Tribe, considered a sovereign nation. Lands owned by them are not considered to be “publicly owned” within the meaning of Section 4(f), nor open to the public; therefore, Section 4(f) does not automatically apply. Significant parks, recreation areas, or wildlife and waterfowl refuges owned by the tribe could be considered a Section 4(f) resource; however, no such resources are found within the study segment.

The FWP LWCFA site list by county shows LWCFA funds allotted to the Browning School District Recreation Facility, within the city of Browning.

Cultural Resources

Historic properties have been recorded within Segment 2, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, irrigation ditches, an active railroad grade (BSNF Railway), farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 2 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal and tribal ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near US 2 right-of-way. In Segment 2, isolated residential development is found throughout the segment, with more concentrated development at East Glacier Park (±RP 209) and Browning (±RP 221-222).

Visual Resources

Views from US 2 within Segment 2 primarily include rolling grasslands dotted with numerous wetland potholes. Scenic views to the east of Glacier National Park and the Lewis Range can also be seen from US 2 within the study segment.

Public Water

The entire length of Segment 2 is located within the Blackfeet Indian Reservation. Published information is limited within this area. Two larger public water systems are located within this segment: East Glacier and Browning. Discussion in September 2017 with the operator for both systems confirmed that each water system has the capacity for safety rest area connections.

Well logs within the portion of the segment from RP 208.0 to RP 209.0 indicate water bearing formations are most likely to be located within fractured shale 40 to 60 feet below the ground surface. Due to the type of geology and the confined nature of the aquafer, water quality may be an issue. Shallow groundwater can also be expected along most of this portion of the segment due to the perched water above the shale lenses. The shallow water may result in limited quantity throughout the year and it is more susceptible to drought conditions.

Well logs within the portion of the segment from RP 212.0 to RP 242.0 indicate water bearing formations are most likely to be located within sandstone lenses greater than 60 feet below the surface, with potential yields ranging from four to 40 gpm. Water quality within the sandstone formation is generally good.

Public Wastewater

Published wastewater information is limited within this area. Two public wastewater systems are located within this segment: East Glacier and Browning. Discussion in September 2017 with the operator for both systems confirmed that each wastewater system has the capacity for safety rest area connections.

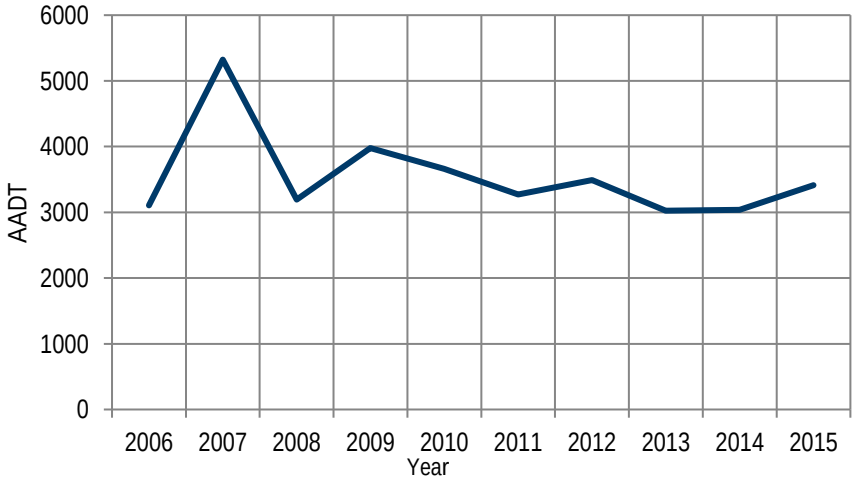
Approximately 30 soil types occur within Segment 2. Most of the soils are glacial till and outwash; however, alluvial deposits are common near rivers and streams. The glacial deposits (silty and clayey sediments) are typically slow absorbing soils, with sizing application rates between 0.15 to 0.3 gpd/ft^2. Alluvial deposits are faster percolating soils. However, surface water from the river and streams could pose unique difficulty in permitting.

Traffic Volumes

Historic Volumes

AADT volumes spiked in 2007 at traffic counter 18-4-17 near RP 221 south of Browning. The overall average is little affected by this spike and is approximately 3,350 AADT for the 10-year period. Figure 6 summarizes traffic volumes from 2006 to 2015 for Segment 2.

Figure 6: Historic Traffic Volumes – Segment 2

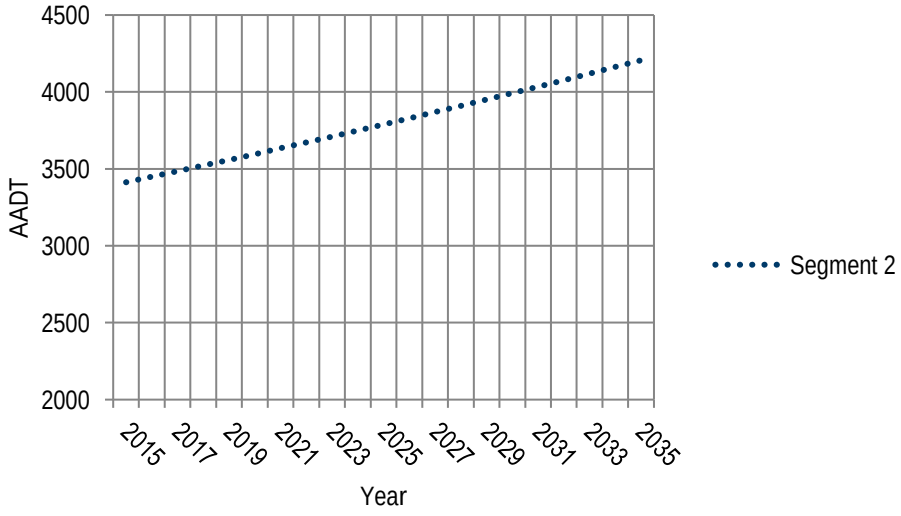


Source: MDT 2017; averaged AADT from Traffic Counters 18-4-1, 18-4-2, 18-4-3,18-4-4, 18-4-5, 18-4-6,18-4-17, 18-4-18, 18-4-19 and 18-5-1.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16% per year for this segment, projected AADT volumes for Segment 2 are illustrated in Figure 7 below.

Figure 7: Projected Future Traffic Volumes – Segment 2



Source: DOWL 2017.

Table 6 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 5: Forecasted Traffic Volume by Type – Segment 2

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
2	4,206	3,950	93.9%	134	3.2%	122	2.9%	256	6.1%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the NHS. Segment 2 primarily consists of rolling terrain with a few locations having steep slopes more characteristic of mountainous terrain. The segment runs through East Glacier Park Village and Browning. Traveling east of East Glacier Park, US 2 crosses the Two Medicine River Basin near RP 210.2 where the grades climb out of the basin at seven percent and then crest the hill near RP 211. East of RP 211, the grades within this segment consistently range between two and four percent with an isolated maximum grade at six percent. The geometry is curvilinear near the west end of the segment between RP 208 and 210 and around the area of Browning between RP 220 and RP 224.

Montana 49 intersects US 2 from the northwest near RP 209.3, within the limits of East Glacier Park. Morning Gun Road West crosses US 2 at RP 213, and a few private roads intersect US 2 from RP 213 to the US 89 intersection near RP 221.5, within the city limits of Browning. Secondary 464 intersects US 2 from the north near RP 221.9, also within Browning. US 89 also intersects US 2 from the southeast near RP 223.9, east of Browning. Sporadic county and private roads intersect US 2 from RP 224 to the intersection of Secondary 444 at RP 235.5.

Safety Analysis

There were five fatal accidents along this stretch of roadway (located near RP 213, 214, 219, and RP 221) accounting for nearly 6% of the total crashes within the five-year period. Additionally, there were seven non-incapacitating and eight incapacitating injury accidents. A total of 33 carcasses were reported, with whitetail and mule deer accounting for nearly half of the total. Table 7 lists crash and carcass data occurring within Segment 2.

Table 6: Crash Severity and Carcass Counts – Segment 2

Crash Severity	Crash Count
Fatal Accident	5
Incapacitating Injury Accident	8
Non-Incapacitating Evident Injury Accident	7
Non-Injury Accident (Property damage only accident)	54
Possible Injury Accident	10
Unknown	2
Grand Total	**86**
Carcass – Animal Type	**Carcass Count**
Antelope	1
Other	7
Domestic	8
Black Bear	1
Whitetail Deer	6
Mule Deer	10
Grand Total	**33**

Source: MDT, July 1, 2012 through June 30, 2017 Crash and Carcass Data.

Rail Crossings

The BNSF Railway runs adjacent to US 2 from RP 208.1 to RP 209.5 and near RP 212 within the study segment boundaries. Grade-separated crossings near RP 220.3 and RP 222.9 span BNSF Railway for several hundred feet. Additionally, the BNSF Railway runs adjacent to US 2 from RP 230 to RP 233 and RP 234 to RP 239 within the study segment boundaries.

Utilities

Utilities occur in the following locations within Segment 2.

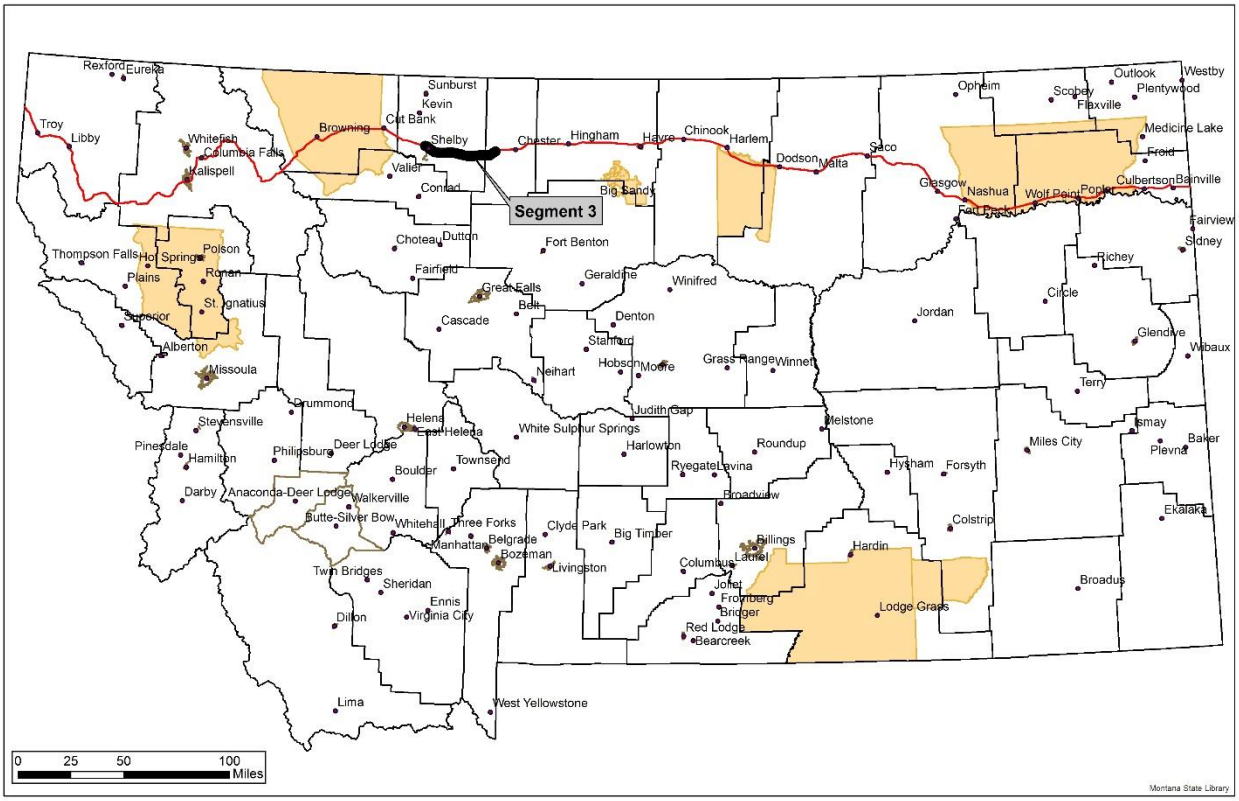
- Gas transmission pipelines run parallel to US 2 on the southeast side of the roadway near RP 208.0.
- Overhead power lines run parallel to US 2 from RP 208.1 to RP 208.6 on the east side of the roadway.
- Overhead power lines run parallel to US 2 from RP 210.5 to RP 212 on the south side of US 2. Gas transmission pipeline run parallel to US 2 near RP 210.5 to RP 212 where the pipelines cross the highway. From the highway crossing, pipelines parallel the study segment to the northwest. At approximately RP 215.5, the pipelines continue north and away from US 2.
- Overhead power lines cross US 2 at RP 212.0, run parallel to the north side, and cross back heading east near RP 218.9.
- Browning is located from RP 221 to RP 221.5; a thorough utility investigation may be required to locate underground utilities.
- Overhead power lines cross US 2 at RP 224.2, run parallel to the south side of the roadway, and cross back to the north side at RP 232.0.
- Overhead power lines run parallel to the north side of US 2 from RP 232 to RP 233.9 then cross back to the south side of US 2.
- Overhead power lines run parallel to US 2 on the south from RP 233.9 to RP 235.4 then cross back to the north side of US 2.

- Overhead power lines continue to run parallel on the north side from RP 235.4 to RP 242.0.

Additionally, East Glacier Park is located from RP 209.0 to RP 209.5 and a thorough utility investigation may be required to locate underground utilities in this area.

4.3 Segment 3 (RP 277.3 to RP 312.5)

Figure 8: Segment 3 Location



Physical Environment

Soil Resources and Prime Farmland

Soil survey information shows approximately 55 soils within Segment 3. Most surficial soils in this segment are mapped as alluvium or till, with some interspersed glacial deposits. Alluvium deposits are primarily located where creeks and drainages cross the study segment, including from RP 277 to RP 281, RP 287 to RP 290, and RP 296 to RP 306. Remaining portions of the segment include primarily till, clayey till, and fine-loamy till.

NRCS soil surveys indicate that almost the entire study segment is designated as farmland of statewide importance or prime farmland if irrigated. Only small sections of the segment, including the area around Shelby (RP 277.3 to RP 278.9), near RP 280, RP 281 to RP 281.5, RP 296 to RP 298, RP 300 to RP 301.8, RP 303.4 to RP 304, RP 307 to RP 308.6, and near RP 311 have not been designated. The percentage of the study segment comprised of farmland of statewide importance or prime farmland if irrigated is high.

Geologic Resources

Within Segment 3, the Kevin Member of the Marias River Formation (Cretaceous) underlies RP 277.3 to approximately RP 308.4 and consists of mainly shale with bentonite beds. RP 308.4 to RP 312.5 is underlain by the Telegraph Creek Formation (Cretaceous) which consists of interbedded sandy shale and sandstone. The bedrock encountered along Segment 3 is younger, Cretaceous-aged bedrock that is less competent (and probably more fractured and disturbed). Bentonite beds and soils derived from bentonite may have expansive characteristics.

Quaternary glacial till covers most of Segment 3, and these soils may have low to moderate frost susceptibility and drainage issues. Areas underlain by these materials typically exhibit hummocky topography. Based on the published data reviewed, it does not appear that landslides have been mapped along Segment 3.

No faults are mapped along Segment 3, and the closest Quaternary faults (which may be considered active) are located 25 miles north of the study segment in the Sweet Grass Hills. Segment 3 is located east of the intermountain seismic belt in an area where the historic seismicity is relatively low. No significant historic earthquake epicenters are mapped near the study segment, and the nearest epicenter is located about 95 miles to the southwest.

Hazardous Substances

From RP 278 to RP 281.5, Segment 3 crosses through the city of Shelby where 31 LUST sites, 12 petroleum release fund sites, 21 UST sites, four remediation response sites, and two hazardous waste sites are located. Of the 31 LUST sites, 23 have been resolved. The remediation response sites include two spills near the Interstate 15 interchange; the Treasure State Refinery, in operation from 1938 to 1947, near RP 278.6 on southwest side of US 2; and the present-day BNSF facility near RP 279.5. Hazardous waste sites include the Shelby Refinery (inactive) listed as a small quantity generator at RP 279.6, and the MDT facility (active) listed as a small quantity generator at RP 278.5.

At RP 303.2 two UST sites are located within the study segment on the north side of US 2. In the community of Lothair, one LUST site, which was resolved in 1996, and one petroleum release fund site are located at RP 309.1 just north of US 2.

Segment 3 is not located within a mining district, and there are no open cut mines or abandoned mines within the study segment.

Two in-service Northwestern Energy gas transmission pipelines cross the study segment at RP 278.3 and RP 293. Several oil/gas wells are adjacent to the study segment; however, at RP 287.8, RP 299.8, RP 301.9, RP 302.2, and RP 304.8, wells occur within the segment on both the north and south sides of US 2. These are primarily gas wells or wells labeled as dry holes. There are no USEPA designated superfund sites within Segment 3.

Air Quality

No non-attainment areas for any of the criteria pollutants are located within or near Segment 3.

Surface Waters

Segment 3 is located within two watersheds.

- From RP 277.3 to approximately RP 283.3, the study segment is located within the Marias Watershed. There are no primary or named drainages that cross the study segment within the Marias Watershed. Surface waters that do cross this portion of the study segment primarily include small ephemeral and intermittent drainages that

generally flow south directly into the Marias River. One small lake, Virden Lake, is located within the study segment, at RP 277.5, on the north side of US 2.

- From RP 283.3 to the end of the segment at RP 312.5, the segment is within the Willow Watershed. Willow Creek is the primary drainage, crossing the study segment near RP 303. Dodge Coulee, Coyote Coulee, Clift Coulee, and Galata Ravine are named drainages that cross the study segment at RP 296.7, RP 298.6, RP 304.8, and RP 306.2, respectively. Several small intermittent and ephemeral drainages also cross the study segment within this watershed.

Total Maximum Daily Loads

Segment 3 is located within the Marias-Willow TPA. No waterbodies within this segment are listed as having an impairment in the DEQ 303d Water Quality Report. However, Eagle Creek, which crosses the highway just east of the study segment at RP 313 and flows southeast below (south of) the study segment, is listed as not fully supporting aquatic life due to alteration in stream-side or littoral vegetative cover from agriculture, and nitrogen (Total) from grazing in riparian and shoreline zones.

Wild and Scenic Rivers

There are no wild or scenic rivers within or near Segment 3.

Irrigation

WRS maps for Toole and Liberty Counties are not provided for the entire study segment, and the maps that are available show very little irrigation activity/infrastructure within Segment 3. The Sunset Memorial Garden sprinklers occur near RP 277.9 on the south side of US 2. A ditch associated with the Shelby flood dams and ditches crosses US 2 at RP 280.3. No other irrigation structures are located within the study segment.

Floodplains and Floodways

Based on the FEMA database, FEMA has not completed a floodplain study within Toole or Liberty counties to determine flood hazards; therefore, FIRMs and digital mapping for Segment 3 are not available.

Wetlands

Wetlands within Segment 3 are limited and tend to occur along the larger creeks and drainages that cross or parallel US 2. The exception is near the beginning of the study segment, where NWI mapping indicates a large emergent wet meadow on both sides of the highway from RP 277.5 to RP 278. Small emergent wetlands associated with unnamed drainages, West Fork Willow Creek, and Clift Coulee cross the study segment at RP 286.2, RP 292.9, RP 293.5, RP 294.8, RP 297.3, RP 299.8, RP 304.8, and RP 310.5.

Groundwater

The GWIC database shows 25 recorded wells within or directly adjacent to Segment 3. All but two are located around the city of Shelby at the western end of the segment. Wells near Shelby range in depth from 12 feet to 25 feet. Recorded static water levels within these wells range from one to eight feet. The remaining two wells are located at the very eastern end of the segment. Recorded well depths are 165 feet and 190 feet. Static water levels at these two wells are 12 and 15 feet.

Shallow groundwater can be expected throughout the study segment, particularly where the highway is near the West Fork of Willow Creek (296.3 to RP 300), Willow Creek (RP 303), Galata Ravine (RP 306.2), and Eagle Creek (RP 313). Localized groundwater conditions may also be affected by tributary drainages, seasonal variation, and irrigation.

Biological Resources

Vegetation

Agriculture is the dominant land cover found within and adjacent to Segment 3. However, pockets of lowland/prairie grassland, areas of introduced vegetation, and depressional wetland occur from RP 277.3 to RP 283 and RP 298 to RP 304. The developed area of Shelby is also located within Segment 3.

General Wildlife Species

Segment 3 has been moderately developed through the conversion of land to agricultural practices. Small wooded draws and portions of the floodplain along the Milk River still possess specimens of native vegetation that was likely present within this segment prior to conversion to agriculture. These areas provide important movement corridors for wildlife. Wildlife species inhabiting or traversing the study segment are typical of those that occur in moderately developed areas of north central and eastern Montana. Since many species occurring within Segment 3 are habituated to somewhat disturbed areas, species present are predominately, though not exclusively, generalists. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment.

Threatened and Endangered Species

Two threatened and one candidate species are listed as potentially occurring along the US 2 corridor within Segment 3 (Table 8).

Table 7: T&E Species with the Potential to Occur in Segment 3

Species	Status
Mammals	
Grizzly bear *Ursus arctos horribilis*	Threatened
Birds	
Red knot *Calidris canutus rufa*	Threatened
Plants	
Whitebark pine *Pinus albicaulis*	Candidate

Source: USFWS, 2017.

No Threatened and Endangered (T&E) species occurrences have been documented within the three-mile buffer for Segment 3; however, grizzly bear, black-footed ferret, and piping plover have the potential to occur in the segment vicinity due to potential suitable habitat in the area or the area being within the species known/historic range.

Species of Concern and Special Status Species

There are 15 wildlife SOC with recorded observations within and adjacent to Segment 3. These primarily include bird species, mammal species, and one reptile. There are no recorded observations of bald eagle; however, observations of golden eagle and a golden eagle nest have been recorded near Segment 3. Segment 3 is not located within sage grouse habitats designated as core area, general habitat, or connectivity.

Social and Cultural Resources

Economy

Segment 3 is located within Toole and Liberty Counties and close to Hill County. Hill County contains parts of Rocky Boy's Indian Reservation and parts of Turtle Mountain Indian Reservation. The Turtle Mountain Indian Reservation is spread over a large geographic area and is primarily located in North Dakota; however, some Turtle Mountain land is in Hill County.

The economies of Liberty, Hill, and Toole Counties are more aligned with the general economic trends of central and eastern Montana than western Montana. Agriculture is the majority industry in Liberty County, accounting for 38% of the employment in the county. Agriculture is not the majority industry in Toole or Hill Counties, but it does represent a substantial component in both counties, respectively accounting for 20% and 8% of the employment. Educational, health care and social services is another important source of jobs in these counties, respectively accounting for 21%, 20%, and 29% of employment in Toole, Liberty, and Hill Counties. This mixture of business represents an economy that is largely stagnant. Most of the business is in sectors that are required for the maintenance of a population, not areas that are likely to produce economic growth.

Although unemployment in these three counties has been lower than the statewide average in recent years, the unemployment rate is forecasted to be greater than the statewide unemployment rate starting in 2017. The state and the area are then predicted to follow a similar pattern of unemployment. The minimum unemployment rate displayed is 2.93% observed in 2006, and the maximum displayed unemployment rate is 4.96% observed in 2011.

According to three measures of wealth and income, including median family income, per capita income, and retail sales per capita, these counties appear to be as well off or better off than the state. Liberty and Hill Counties' median family income measures are just below the statewide value; the median family income in Toole County is slightly greater than the statewide value. Per capita income in these three counties is less than the statewide per capita income, but not by a large amount. Retail sales per capita in Hill and Toole Counties are greater than the statewide values. The retail sales per capita in Liberty County are much lower than the other counties in the area. Given the other measures of wealth in this county, this is not likely a sign of lack of wealth in the county. This could be explained by a lack of retail trade establishments rather than lower wealth.

Population and Demographics

Northern Montana has a small population, and only minimal growth is expected. The socio-economic characteristics of this area can be expected to remain constant in the future.

Hill County has the largest population of the three counties. Hill County also has the most ethnically diverse population with only 72.6% of the population identified as White Alone (per United States Census Bureau terminology). Most of the other residents of Hill County, 22.7%, identify as American Indian. This is due to the Rocky Boy's Indian Reservation that is partially in Hill County. Toole County is predominantly populated with people who identify as White Alone, but 5.5% of its population identifies as American Indian and 3.2% identify as Hispanic or Latino. Liberty County is almost entirely composed of people identified as White Alone at 97.6%. Less than 2% of residents of Liberty County identify as American Indian or Hispanic or Latino. The rate of owner-occupied housing is highest in Hill County. The other counties are on par with the statewide rate of owner-occupied housing.

The largest age group amongst both men and women is 45-64 years. This is in line with the age distribution by sex of the state. The distribution of age by sex in the three counties is similar to the statewide distribution.

The counties are expected to experience a 10-year growth rate of 0.549%. This rate is lower than the projected statewide growth rate of 0.0793%. While the overall growth rate of Montana is expected to decrease over the next 45 years, the growth rate in these counties is expected to remain close to constant.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Land ownership in Segment 3 is predominantly private with some state, county, and city owners. A small state land parcel is located near the beginning of the segment near RP 278. The city of Shelby is adjacent to US 2 from RP 278 to RP 281 and county-owned lands occur near RP 282. An entire section of state land is located from RP 282 to RP 283 and the BNSF Railway runs parallel to US 2 nearly throughout Segment 3 except from RP 281 to RP 284, RP 297 to RP 299, and from RP 299 to RP 304. Additionally, State Trust lands are located near RP 297 to RP 303, RP 312, and RP 315. Most land use in Segment 3 is crop/pasture with mixed urban near Shelby.

Recreational Resources

Lands within Segment 3 are primarily privately owned, and there are very few recreational opportunities available. There are no designated fish access sites within the study segment.

Three potential Section 4(f) resources are located directly north of the study segment, within the city of Shelby, near RP 279. These include the recreational fields for Shelby High School, the Shelby Sports Complex, and Aronow City Park. These resources are not located within the study segment. One potential Section 4(f) resource is located within the study segment near RP 280.6. This is the Marias Fairgrounds found just south of US 2.

The FWP LWCFA site list by county shows funds allotted for the facilities at Aronow Park and the Shelby Sports Complex, both of which are outside the study segment.

Cultural Resources

Historic properties have been recorded within Segment 3, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, irrigation ditches, an active railroad grade (BSNF Railway), farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 3 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal, state, local, and private ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near US 2 right-of-way. In Segment 3, isolated residential development is found throughout the segment, with more concentrated development at Shelby (±RP 278-281), Dunkirk Reservoir (±RP 289), Devon (±RP 297), Galata (±RP 302-303), and Lothair (±RP 309).

Visual Resources

Vast, open views of rolling grasslands, large agricultural fields, wooded draws, and meandering floodplains, interspersed with small communities, make up Segment 3.

Public Water

Twenty-five recorded wells are within or directly adjacent to Segment 3. All but two are located adjacent to the city of Shelby at the western end of the segment.

Shelby (RP 277.0 to RP 282.0) provides the only public water system within the segment. A new safety rest area site near Shelby may have the potential for connection to the existing system. Discussion in September 2017 with the system operator confirmed that the water system has the capacity for a safety rest area connection. DEQ has reported that the Shelby water system has had water quality violations in the past, which have since been resolved.

Most of the area from RP 282.0 to RP 312.5 is in the Marias River Shale (Kmk) formation. This formation is approximately 660 feet thick. Suitable water may be found in weathered limestone and siltstone beds. Due to limited groundwater information, MDT may be required to install test wells to verify suitable water quality and quantity in this area.

Public Wastewater

The city of Shelby is the only public wastewater system within this segment. A possible safety rest area site near Shelby may have the potential for connection to this existing system. Discussion in September 2017 with the system operator confirmed that the water system has the capacity for a safety rest area connection. The operator indicated the DEQ just approved a fourth cell for the wastewater treatment plan, allowing additional flow to the wastewater system.

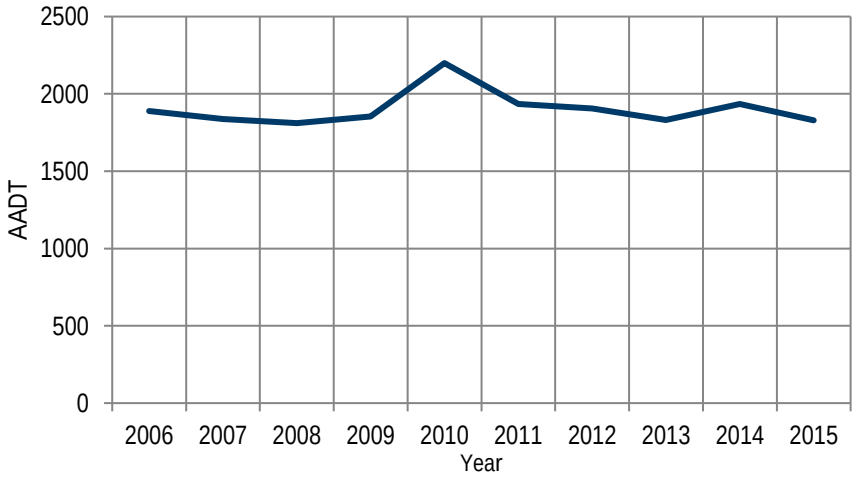
Potential on-site wastewater system configurations for this segment would be based on soil type. Soil survey information shows approximately 55 soils within Segment 3. Most surficial soils in this segment are mapped as alluvium or till, with some interspersed glacial deposits. Remaining portions of the segment include primarily till, clayey till, and fine-loamy till. The alluvium or till deposits are typically medium to fast percolating soils, having soils sizing application rates between 0.3 to 0.8 gpd/ft^2.

Traffic Volumes

Historic Volumes

AADT volumes for short-term counters near or within Segment 3 have been reasonably consistent, averaging approximately 1,900 vehicles per day for the 10-year period. Figure 9 summarizes traffic volumes from 2006 to 2015 for Segment 3.

Figure 9: Historic Traffic Volumes – Segment 3

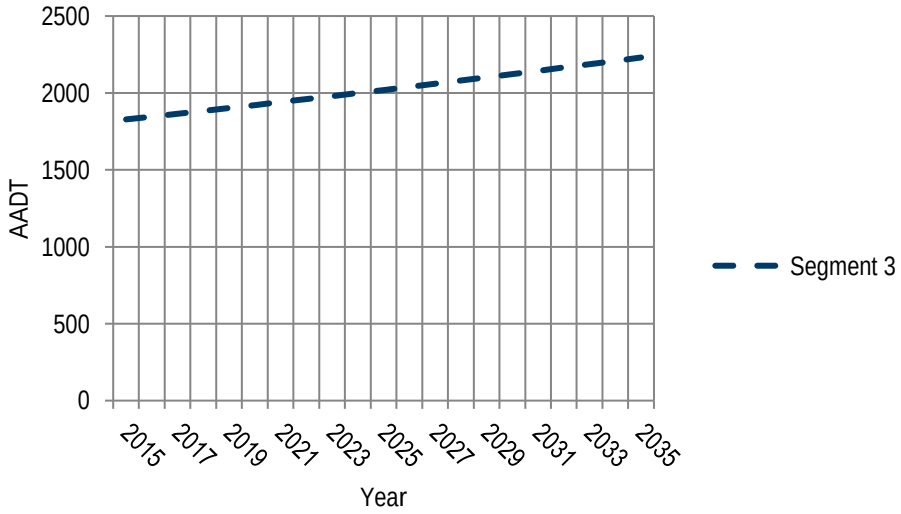


Source: MDT, 2017; Averaged AADT from Traffic Counters 26-2-1, 51-3-4, 51-3-5, 51-3-6, 51-3-7, 51-3-10, 51-3-11, 51-3-12, 51-3-13, 51-4-1 and 51-4-2.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16% per year for this segment, projected AADT volumes for Segment 3 are illustrated in Figure 10 below.

Figure 10: Projected Future Traffic Volumes – Segment 3



Source: DOWL 2017.

Table 9 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 8: Forecasted Traffic Volume by Type – Segment 3

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
3	2,231	2,012	90.2%	60	2.7%	159	7.1%	218	9.8%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the NHS. Segment 3 consists primarily of level terrain with some stretches of rolling terrain. As-built drawings were unavailable for this segment, but observations from the July 2017 field review indicate the alignment has long stretches of straight roadway with level terrain. The segment runs through the communities of Shelby and Galata. The geometry is generally linear with subtle horizontal curves throughout the segment.

Interstate 15 crosses over US 2 near RP 278.5. Access is provided at this junction via a traffic interchange with on and off ramps, within the city limits of Shelby. Primary 67 intersects US 2 from the north near RP 279.4, also within Shelby. Secondary 417 intersects US 2 from the south near RP 284.9. Sporadic county and private roads intersect US 2 from RP 285 to Secondary 343 near RP 303.3, within the town limits of Galata. Infrequent county roads intersect US 2 from Galata to the end of the segment.

Safety Analysis

Of the 72 total crashes occurring within the segment during the 2012 to 2017 analysis period, over 68% were non-injury accidents. Ten non-incapacitating and three incapacitating injury accidents were recorded. No fatal injuries resulted during the five-year time period. A total of 24 carcasses were recorded within the segment consisting almost entirely of ungulates. Table 10 lists crash and carcass data for the period 2012 through 2017.

Table 9: Crash Severity and Carcass Counts – Segment 3

Crash Severity	Crash Count
Incapacitating Injury Accident	3
Non-Incapacitating Evident Injury Accident	10
Non-Injury Accident (Property damage only accident)	49
Possible Injury Accident	9
Unknown	1
Grand Total	**72**
Carcass – Animal Type	**Carcass Count**
Antelope	8
Unknown	1
Whitetail Deer	7
Mule Deer	8
Grand Total	**24**

Source: MDT, July 1, 2012 through June 30, 2017 Crash and Carcass Data.

Rail Crossings

The BNSF Railway runs parallel along nearly all of Segment 3 on the north side of US 2, except from RP 281 to RP 284, RP 297 to RP 299, and from RP 299 to RP 304, where the rail diverges further to the north away from US 2. Additionally, an at-grade crossing is located near RP 279.9.

Utilities

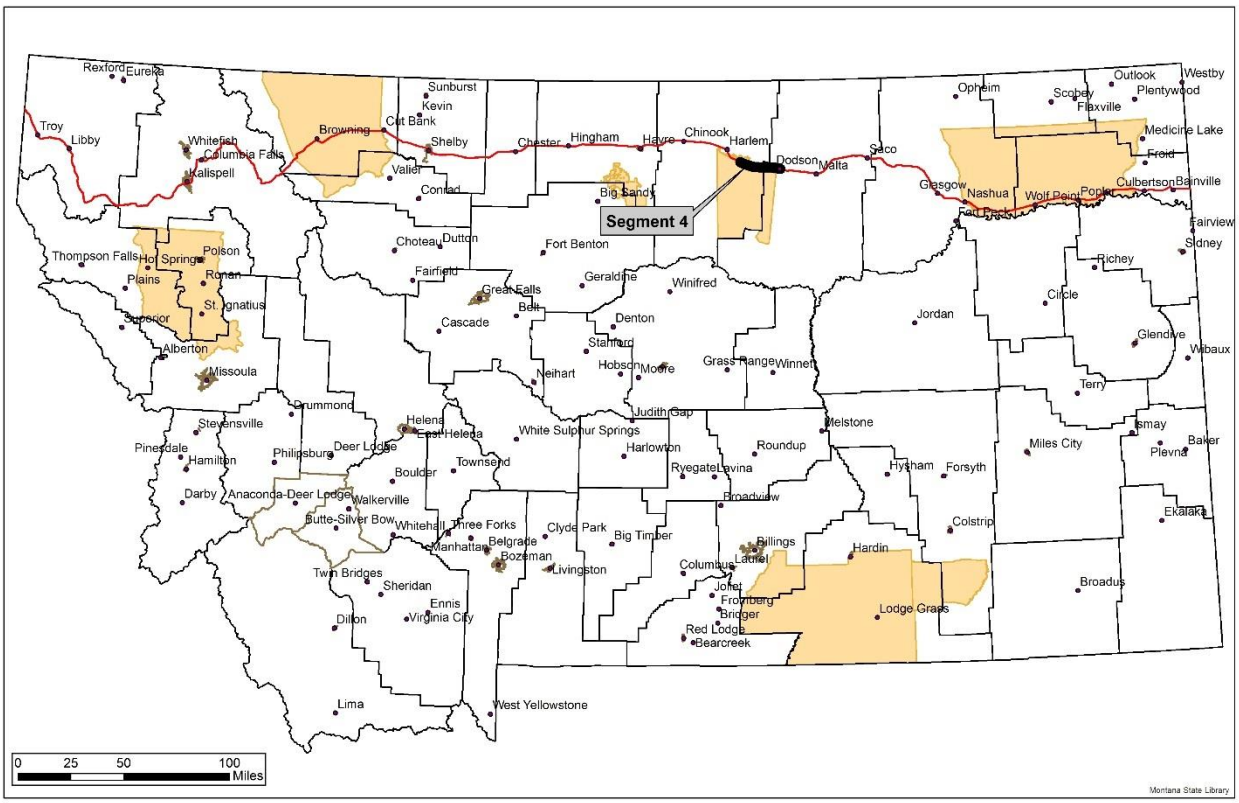
Utilities occur in the following locations within Segment 3.

- Gas transmission pipelines cross the study segment at RP 278.3.
- Overhead power lines run parallel to the south from RP 280.9 to RP 281.1 then cross back to the north side of US 2.
- Overhead power lines run parallel to the north side from RP 281.1 to RP 281.4 then cross back to the south.
- Overhead power lines run parallel to the south side from RP 281.7 to RP 284.9 then cross back to the north side of US 2.
- Overhead power lines run parallel to both sides of US 2 from RP 284.9 to RP 288.6.
- Gas transmission pipelines cross the study segment at RP 293.0.
- Overhead power lines run parallel to the south side from RP 288.6 to RP 299.4 then cross back to the north side of US 2.
- Overhead power line run parallel to the south side from RP 307.5 to RP 309 then cross back to the north side of US 2.
- Overhead power lines run parallel to the north side of US 2 from RP 309 to RP 310.2.
- Overhead power line run parallel to the north side from RP 311.4 to RP 312.0.

Additionally, Shelby is located from RP 277.9 to RP 280.1 and a thorough utility investigation may be required to locate underground utilities.

4.4 Segment 4 (RP 434.9 to 454.3)

Figure 11: Segment 4 Location



Physical Environment

Soil Resources and Prime Farmland

Most surficial soil in Segment 4 is mapped as alluvium, fine-loamy till, and alluvium/glacial lake (glaciolacustrine) deposits. From RP 434.9 to RP 442.8, the segment is primarily comprised of fine-loamy till, interspersed with till and some alluvial deposits. Alluvial deposits make up most of the segment from RP 442.8 to the end of the segment at RP 454.3, this includes a section of alluvium/glacial lake deposits from RP 443.5 to RP 448.

NRCS soil surveys indicate the presence of farmland of statewide importance, prime farmland if irrigated, and prime farmland if irrigated (when the product of I [soil erodibility] x C [climate factor] does not exceed 60) within the study segment. These designations occur throughout most of the corridor, with a large break of non-designated land occurring from RP 443 to RP 448. The percentage of the study segment comprised of farmland of statewide importance or prime farmland if irrigated is moderately high.

Geologic Resources

The Judith River Formation (Cretaceous) underlies most of Segment 4 and consists of mainly sandstone interbedded with lesser amounts of siltstone, shale/claystone, and thin lignite beds. RP 439.3 to RP 440.3 is underlain by the Claggett Formation (Cretaceous), which consists of mostly shale with some interbedded sandstone (near the top) and bentonite beds (near the base). Bentonite beds and soils derived from bentonite may have expansive characteristics.

Segment 4 is located along the Milk River. The surficial deposits along the Milk River valley consist mainly of alluvium. The glacial material mapped on the surface of the upland areas is a Quaternary ground moraine. These soils may have a moderate to high frost susceptibility and drainage/moisture issues. Based on the published data reviewed, it does not appear that landslides have been mapped along Segment 4.

A northwest trending fault is mapped at approximately RP 434.2 (just west of the study segment) and a northeast trending fault is mapped at approximately RP 440.3. The closest Quaternary faults (which may be considered active) are located more than 100 miles away from Segment 4. The study segment is in an area where historic seismicity is low. No significant historic earthquake epicenters are mapped within 100 miles of Segment 4.

Hazardous Substances

There are no UST sites, remediation response sites, USEPA designated superfund sites, hazardous waste sites, mining districts, abandoned mine sites, open cut mines, in-service oil and gas pipelines, or oil/gas wells or well directionals located within Segment 4.

Five petroleum release fund sites and three LUST sites are located within the eastern limits of the study segment in or near the town of Dodson (RP 452.3 to RP 454.2). Of the three LUST sites, only one has been resolved (1994).

Air Quality

No non-attainment areas for any of the criteria pollutants are located within or near Segment 4.

Surface Waters

Segment 4 is primarily within the Middle Milk River Watershed (HUC 10050004). However, a small portion of the segment from RP 446.8 to RP 448.4 is located within the Peoples Watershed (HUC 10050009).

Threemile Reservoir, Threemile Creek, White Bear Creek, Milk River, and Dodson Creek are the named surface waters within Segment 4. Threemile Reservoir is located directly south of US 2 near RP 435. The primary drainage within the Middle Milk River Watershed portion of Segment 4 is the Milk River. Both White Bear Creek and Dodson Creek, which crosses the study segment at RP 454, flow into the Milk River. In addition to the named drainages, there are several irrigation ditches/canals (discussed later in the Irrigation section) and unnamed ephemeral and intermittent drainages within this watershed that cross or parallel the study segment.

The small portion of the Peoples Watershed located within the study segment includes one primary drainage named Peoples Creek. The creek flows north through the study segment at RP 447.3.

Total Maximum Daily Loads

Segment 4 is located within the Fort Belknap TPA and the Middle Milk and Tributaries TPA. Waterbodies within the Fort Belknap TPA are not listed in the DEQ 303d Water Quality Report. In the Middle Milk and Tributaries TPA, the Milk River where it crosses the study segment is listed as not fully supporting drinking water due to mercury from agricultural, dam or impoundments, and natural sources.

Wild and Scenic Rivers

There are no wild or scenic rivers within or near Segment 4.

Irrigation

Segment 4 is primarily located within the Fort Belknap Reservation, where irrigation water is supplied through the Fort Belknap Irrigation Project, which is owned and operated by the BIA. Once out of the reservation, the study segment crosses lands irrigated through the Milk River Project – Dodson and Malta Irrigation Districts.

WRS maps for Blaine and Phillips County show a great deal of irrigation activity/infrastructure within Segment 4. Starting at RP 434.9, the Lateral 27 A ditch parallels US 2 to the north, within the study segment. It turns to the northeast at RP 435.7. The Lateral 2B3, Lateral 4B, and Three Mile Unit Main Canal (B Canal) all cross US 2 from RP 436.2 to RP 436.7, and two large pivots are located just north of US 2 from RP 437 to RP 438.3.

At RP 442, Fort Belknap Main Canal (Canal A) flows down into the study segment and parallels US 2 to the north before crossing the highway at 442.5. Lateral C canals pulls water out of White Bear Creek near RP 442.9 and parallels US 2 to the south before crossing the highway near RP 444.4. Lateral 4C crosses US 2 at RP 443.6, while Lateral 9C and Lateral 11 C4 cross US 2 near RP 444.8 and RP 445.6. Near RP 447, WRS maps show a series of small ditches crossing US 2.

Once outside the reservation, the Dodson South Canal, which is part of the Milk River Project, crosses US 2 at RP 451.3. At RP 453.5 the Dodson North Canal enters the study segment and parallels US 2 to the north. It crosses US 2 at RP 454.

Floodplains and Floodways

Segment 4 is primarily located on the Fort Belknap Reservation, with a small portion of the segment located outside the reservation in Phillips County. The study segment is comprised of four flood zones.

- Zone A: SFHA - 100-Year Flood, No Base Flood Elevations Determined
- Zone AE: SFHA - 100-Year Flood, Base Flood Elevations Are Determined
- Zone C: Areas Outside the 500-Year Flood
- Zone X (unshaded): Areas Outside the 500-Year Flood

From RP 434.9 to RP 442.5 the study segment is primarily located within a Zone X designation, while Zone AE, which is the 100-year floodplain designation for the Milk River, is located directly to the north. From RP 442.5 to RP 451.8, a large portion of the study segment is within the Milk River and Peoples Creek 100-year floodplains (Zone AE). At RP 451.8 the study segment leaves to reservation. From this RP to the end of the study segment at RP 454.3, the area south of US 2 is within the 100-year floodplain for the Milk River, but it is designated as Zone A. The area north of US 2 is primarily designated as Zone C, with a small portion (RP 453.2 to RP 453.6) within the 100-year floodplain for Dodson Creek (Zone A). The town of Dodson is not included in FEMA mapping.

Wetlands

NWI mapping within Segment 4 shows wetlands primarily along the Milk River, the larger creeks and drainages, and within depressional areas. Wetland fringe is also likely along the numerous irrigation ditches and canals located within the study segment. From RP 434.9 to RP 436, emergent wetland associated with the Lateral 27 A ditch and Threemile Reservoir are located on both sides of US 2. Emergent wetlands associated with Threemile Creek, White Bear Creek, Peoples Creek, Dodson South Canal, Dodson Creek, and several irrigation ditches and unnamed drainages cross or parallel US 2 within the study segment at RP 436.3, RP 436.7, RP 439.8, from RP 442 to RP 444, from RP 444.5 to RP 446, RP 442.8, RP 447.3, RP 451.3, and

from RP 452 to RP 454. Emergent, shrub/scrub, and forested wetlands occur along the various active and inactive channels of the Milk River from RP 451.3 to RP 451.8. In addition, NWI mapping shows several emergent depressional wetlands within the study segment near RP 441, RP 442.2, RP 443.5, RP 447.5, and RP 449.

Groundwater

Approximately 50 GWIC wells occur within or directly adjacent to Segment 4. Wells throughout the segment show recorded depths that range from 13 feet to 162 feet. Very few wells have static water level recorded. Wells with static water levels recorded range from four feet near RP 454.5 to 100 feet near RP 448.

Shallow groundwater can be expected throughout the study segment, as US 2 primarily traverses the valley floor of the Milk River (particularly from RP 444 to RP 454.3) and is crisscrossed and paralleled by several irrigation canals and major drainages, including Threemile Creek (RP 436.7 to 442.8), White Bear Creek (RP442.8), and Dodson Creek (RP 454). Localized groundwater conditions may be affected by perched aquifers and smaller tributary drainages. Seasonal variation and irrigation may also have a significant impact on groundwater conditions.

Biological Resources

Vegetation

Land cover within and adjacent to Segment 4 is dominated by a combination of lowland/prairie grassland, agriculture, sagebrush steppe, and floodplain/riparian. Due to the need for irrigation in the area, agriculture primarily occurs surrounding the floodplain of the Milk River. From RP 434.9 to RP 446 agricultural land is mainly north of US 2, as the Milk River parallels the study segment several miles to the north. At RP 446, agricultural lands migrate to the south of US 2 as the Milk River crosses the highway near RP 451.7. Where agricultural lands and floodplain dominate one side of the US 2, lowland/prairie grassland and sagebrush steppe dominate the other side.

General Wildlife Species

Most of Segment 4 has been moderately developed through the conversion of land to agricultural practices. Small wooded draws and portions of the floodplain along the Milk River still possess specimens of native vegetation that was likely present within this segment prior to conversion to agriculture. These areas provide important movement corridors for wildlife. Wildlife species inhabiting or traversing Segment 4 are typical of those that occur in moderately developed areas of north central and eastern Montana. Since many species occurring within the study segment are habituated to somewhat disturbed areas, species present are predominately, though not exclusively, generalists. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment.

Threatened and Endangered Species

Two threatened, three endangered, and one experimental species are listed as potentially occurring along the US 2 corridor within Segment 4 (Table 11).

Table 10: T&E Species with the Potential to Occur in Segment 4

Species	Status
Mammals	
Black-footed ferret *Mustela nigripes*	Experimental
Birds	
Interior least tern *Sterna antillarum athalassos*	Endangered
Piping plover *Charadrius melodus*	Threatened
Red knot *Calidris canutus rufa*	Threatened
Whooping crane *Grus americana*	Endangered
Fish	
Pallid sturgeon *Scaphirhynchus albus*	Endangered

Source: USFWS, 2017.

Documented occurrences of black-footed ferret and piping plover occur within the three-mile buffer for Segment 4.

Species of Concern and Special Status Species

There are 20 wildlife SOC with recorded observations within and adjacent to Segment 4. These include fish, mammal, bird, and reptile species. Both bald eagles (a special status species) and golden eagles have been observed near Segment 4. No known nests have been identified. Segment 4 is located within sage grouse general habitat. The MTNHP database also shows recorded observations for greater sage grouse within the study segment.

Social and Cultural Resources

Economy

Segment 4 is located within Blaine County, Phillips County, and is near Valley County. The area also includes Fort Belknap Indian Reservation lands and parts of the Turtle Mountain Indian Reservation.

The mix of employment in the three counties is similar. The largest employment sector in Phillips County is agricultural and the largest employment sectors in Blaine and Valley Counties is educational, health care and social services. Public administration is a relatively large part of the three economies, which may be due to the presence of Fort Belknap Indian Reservation.

The area's observed and forecasted level of unemployment is similar to the state. Like the state, the area's unemployment is expected to continue at the current rate assuming no change in economic conditions. The highest observed unemployment rate in the area is 6.24% observed in 2011. The lowest observed unemployment rate in the area is 2.98% observed in 2006.

Blaine and Phillips Counties both have median family incomes that are well below the Montana median family income. Valley County's measure of median family income is above the Montana median family income. Valley County also has higher measures of per capita income and retail

sales per capita. Blaine County has the lowest values for per capita income and retail sales per capita. These values are also well below statewide measures. Phillips County has a per capita income that is below the Montana statewide measure, but by only a small amount. The retail sales per capita in Phillips County are below the statewide value.

Population and Demographics

Northern Montana has a small population and only minimal growth is expected. The socio-economic characteristics of this area can be expected to remain constant in the future.

Communities within the three counties are relatively small. Valley County is the most populous of the three counties. Phillips and Valley Counties have populations that predominantly identify as White Alone (per United States Census Bureau terminology). Both counties have a relatively high percentage of their populations that identify as American Indian. The three counties have similar values of the population identifying as Hispanic or Latino, which is approximately 2% below the statewide average. Blaine County is predominantly populated by people identifying as American Indian at 48.9%. 48.0% of Blaine County's population identifies as White Alone. The rate of owner-occupied housing is greater than the statewide value in all the counties. Phillips County has the highest rate of owner-occupied housing of the three counites, while Blaine County has the lowest. Valley County has roughly double the housing units of Blaine and Phillips Counties.

The counties have similar distribution of population by sex relative to the rest of Montana. The population of the three counties does seem to be slightly older than average for Montana, however, the overall age distributions are very similar.

From approximately 1996 through 2007, the counties had a negative yearly growth rate; however, there was an upward trend in the growth rate of these three counties which began growing in population in 2007. The 10-year growth rate for these counties is forecast to be 0.303%. This is lower than the forecasted statewide rate of 0.793%.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Segment 4 is almost entirely located on the Fort Belknap Reservation from RP 434.9 to RP 451.5. State Trust land occurs near RP 452 and private land is located from RP 452.5 to the town of Dodson at the end of the study segment. Most land use in Segment 4 is crop/pasture with mixed urban development near Dodson.

Recreational Resources

Segment 4 is primarily located on the Fort Belknap Reservation, and recreation within the segment is limited. There are no designated fish access sites within the study segment.

Lands owned by federally recognized Indian Tribes are not considered to be "publicly owned" within the meaning of Section 4(f), nor open to the public. Therefore, Section 4(f) does not automatically apply. Significant parks, recreation areas, or wildlife and waterfowl refuges owned by the tribe could be considered a Section 4(f) resource; however, no such resources are located within or adjacent to the study segment.

The town of Dodson is located just outside of the reservation at the eastern end of the study segment. Two potential Section 4(f) resources are in the town. The Dodson Fairgrounds are located directly north of the study segment near RP 454.3. The Dodson Public School's

recreational fields are located just south of US 2 near RP 453.9. No LWCFA sites are listed within this study segment.

Cultural Resources

Historic properties have been recorded within Segment 4, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, irrigation ditches associated with the BOR's Milk River Project, an active railroad grade (BSNF Railway), farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 4 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal and tribal ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near US 2 right-of-way. In Segment 4, isolated residential development is found throughout segment, with more concentrated development at Dodson (±RP 454).

Visual Resources

Vast, open views of rolling grasslands, large agricultural fields, and meandering floodplains, interspersed with small communities, make up Segment 4. Views of the large Milk River floodplain can also be seen from Segment 4.

Public Water

Most of Segment 4 is located within the Fort Belknap Indian Reservation. Published information is limited within this area. Two larger public water systems are located within this segment: Fort Belknap and Dodson. At the time this report was published, the system operators had not responded to a request to verify capacity and operation of each system.

Approximately 50 GWIC wells are on record within or directly adjacent to Segment 4. Shallow groundwater can be expected throughout this study segment, as US 2 primarily traverses the valley floor of the Milk River. Most of this study segment is in the Judith River Formation (Kjr) and the Milk River Alluvium (Qal). The Kjr formation is made up of interbedded sandstones, shale and coal lenses. Suitable water may be found in the sandstone beds. Due to limited groundwater information, MDT maybe required to drill test wells to verify suitable water quality and quantity in these areas.

Localized groundwater conditions may be affected by perched aquifers and smaller tributary drainages. Seasonal variation and irrigation may also have a significant impact on groundwater conditions.

Public Wastewater

Most of Segment 4 is located within the Fort Belknap Indian Reservation. Published wastewater information is limited within this area. Two public wastewater systems are located within this segment: Fort Belknap and Dodson. At the time this report was published, the system operators had not responded to a request to verify capacity and operation of each system. It may be possible for future safety rest areas to connect to these systems.

Potential on-site wastewater system configurations for this segment would be based on soil type. Most surficial soil in this segment is mapped as alluvium, fine-loamy till, and alluvium/glacial lake deposits. From RP 434.9 to RP 442.8, the segment is primarily comprised

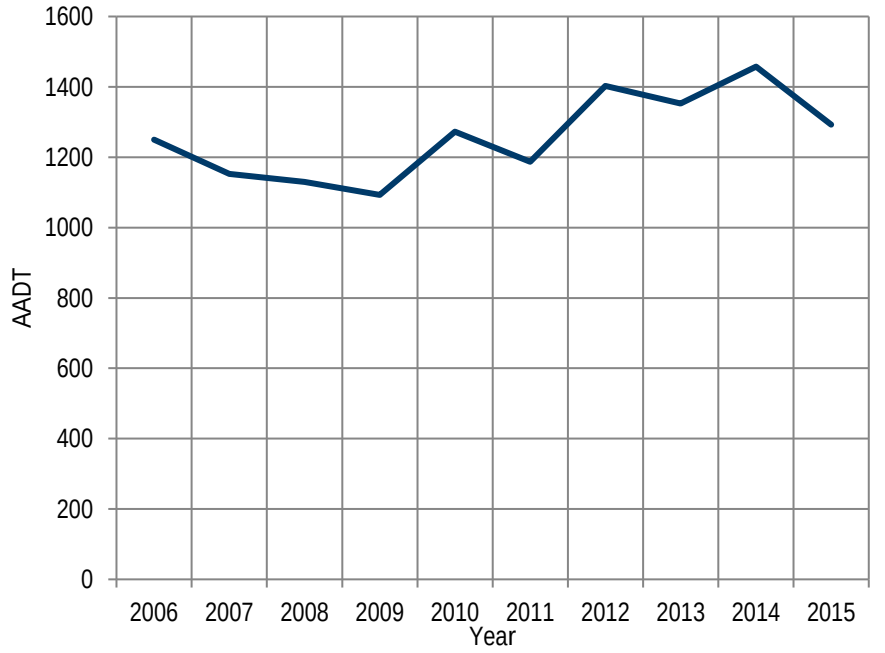
of fine-loamy till, interspersed with till and some alluvial deposits. The fine-loamy till, and glacial lake deposits are typically medium to slow percolating soils and having sizing application rates between 0.2 to 0.5 gpd/ft^2. Alluvial deposits make up most of the segment from RP 442.8 to the end of the segment at RP 454.3. The fine-loamy till and glacial lake deposits are typically medium to fast percolating soils with sizing application rates between 0.4 to 0.8 gpd/ft^2.

Traffic Volumes

Historic Volumes

AADT volumes for short-term counters near or within Segment 4 have been reasonably consistent, averaging approximately 1,260 AADT for the 10-year period. Figure 12 summarizes traffic volumes from 2006 to 2015 for Segment 4.

Figure 12: Historic Traffic Volumes – Segment 4

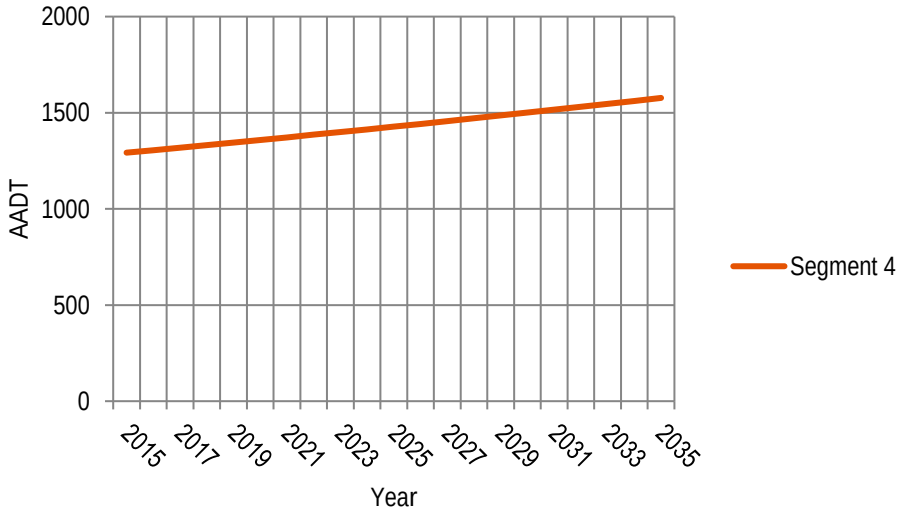


Source: MDT, 2017; Averaged AADT from Traffic Counters 3-4-9, 3-4-10, 36-3-1, and 36-3-10.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16% per year for this segment, projected AADT volumes for Segment 4 are illustrated in Figure 13 below.

Figure 13: Projected Future Traffic Volumes – Segment 4



Source: DOWL 2017.

Table 12 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 11: Forecasted Traffic Volume by Type – Segment 4

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
4	1,577	1,339	84.9%	56	3.6%	182	11.5%	238	15.1%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the NHS. Segment 4 consists primarily of level terrain. The segment runs through Fort Belknap Agency and Dodson. The grades consistently range between zero and two percent. The alignment has long stretches of straight roadway and the geometry is generally linear with subtle horizontal curves throughout the segment.

Primary 66 intersects US 2 from the south near RP 428.5 just outside of the segment limits, west of Fort Belknap Agency. Only a few county and private roads intersect US 2 from the beginning of the segment at RP 434.9 to Secondary 204 near RP 453.9, within the limits of Dodson.

Safety Analysis

Of the six segments, this segment experienced the lowest number of recorded crashes with 14 crashes. Half of the incidents were non-injury accidents; however, there was one fatal accident near RP 453.794. Additionally, twenty carcasses were found along this segment of US 2 with

whitetail and mule deer accounting for most of the total. Table 13 lists crash and carcass data for the period 2012 through 2017.

Table 12: Crash Severity and Carcass Counts – Segment 4

Crash Injury Severity	Crash Count
Fatal Accident	1
Non-Incapacitating Evident Injury Accident	5
Non-Injury Accident (Property damage only accident)	7
Unknown	1
Grand Total	**14**
Carcass – Animal Type	**Carcass Count**
Other	8
Whitetail Deer	9
Mule Deer	3
Grand Total	**20**

Source: MDT, July 1, 2012 through June 30, 2017 Crash and Carcass Data.

Rail Crossings

The BNSF Railway runs adjacent to US 2 from RP 452 to RP 454.2 and no grade-separated or at-grade crossings occur on US 2 within this segment.

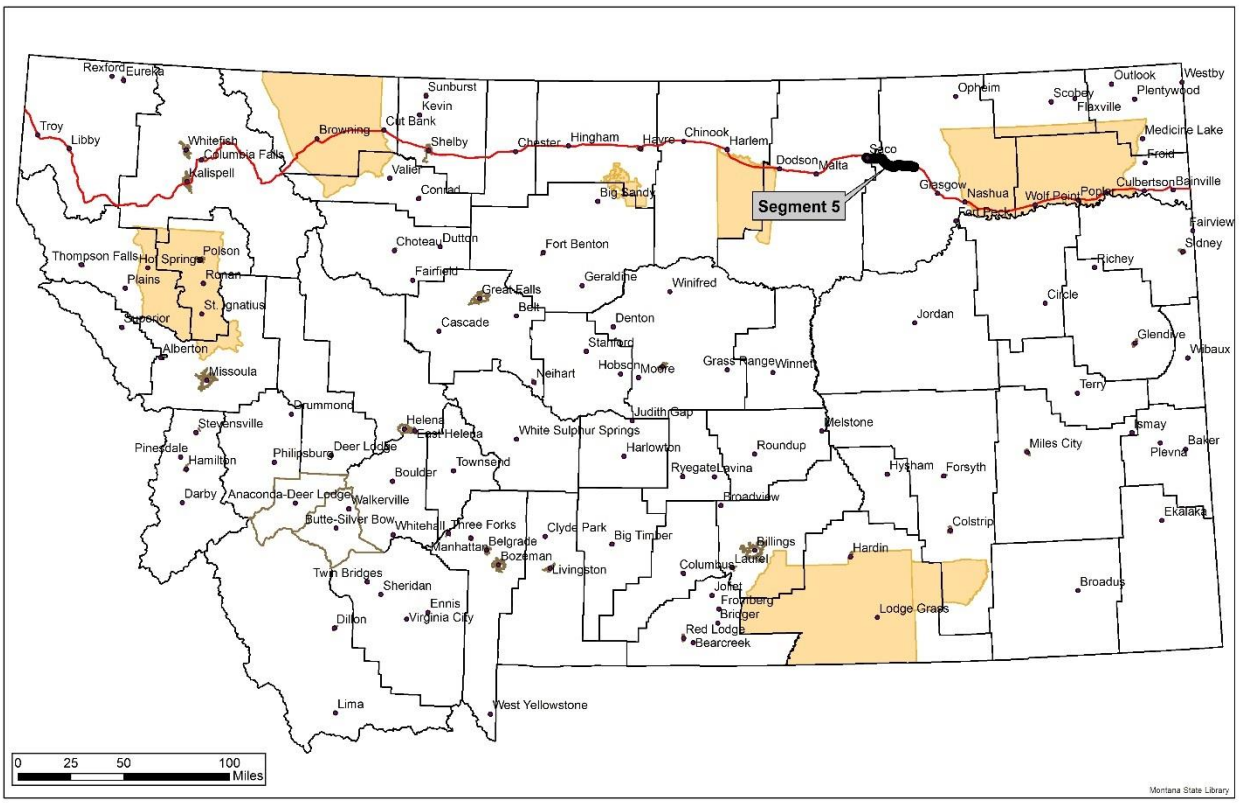
Utilities

Utilities occur in the following locations within Segment 4.

- Overhead power lines run parallel to the north from RP 434.9 to RP 451.2.
- Overhead power line cross from the north at RP 452.1 and run parallel to the south into Dodson at RP 453.9.

4.5 Segment 5 (RP 499.1 to RP 523.7)

Figure 14: Segment 5 Location



Physical Environment

Soil Resources and Prime Farmland

From RP 499.1 to RP 501.5, glacial lake deposits (glaciolacustrine) make up the surficial soils within the study segment. From this RP to the end of the segment, clay becomes predominant in the surficial soil, with soils primarily mapped as clayey alluvium, clayey till, or clayey glacial lake deposits.

Farmland of statewide importance and prime farmland if irrigated are scattered throughout the study segment; however, most lands along the highway are not designated as prime, unique, or important farmlands. Designated farmlands occur near RP 499, RP 501.5, RP 509, RP 511.5 to RP 515.3, and RP 522.5. The percentage of the study segment comprised of farmland of statewide importance or prime farmland if irrigated is low.

Geologic Resources

The Claggett Formation (Cretaceous) which consists of mostly shale with some interbedded sandstone (near the top) and bentonite beds (near the base) underlies most of Segment 5 (from RP 499.1 to RP 520.5). The Judith River Formation (Cretaceous) underlies the study segment from RP 520.5 to RP 523.7 and consists of mainly sandstone interbedded with lesser amounts of siltstone, shale/claystone, and thin lignite beds. Bentonite beds and soils derived from bentonite may have expansive characteristics.

Most of Segment 5 is located along Beaver Creek and the Milk River. The surficial deposits along the Beaver Creek and the Milk River valley consist mainly of alluvial gravel, sand, silt, and clay of variable thickness. Quaternary glacial deposits are mapped along the valley sides and in the upland areas. Quaternary landslide deposits may be encountered near RP 510 to RP 513.

A trace of a northeast trending fault is mapped at approximately RP 518.2. The closest Quaternary fault (which may be considered active) is located about 80 miles east of Segment 5. The study segment is in an area where historic seismicity is low. The closest historic earthquake epicenter is mapped about 70 miles northeast of the study segment.

Hazardous Substances

From RP 499.1 to RP 500, Segment 5 crosses through the town of Saco. The DEQ database lists four LUST sites and three petroleum release fund sites within this area. Of the four LUST sites, two have been resolved (1994 and 1996). At the town of Hinsdale (RP 512.7 to RP 513.2) five LUST sites and two petroleum release fund sites are recorded. Of the five LUST sites, three were resolved in 1989 and 1993.

Segment 5 is not located within a mining district, nor are there any abandoned mines within the study segment. Two open cut mines are located within the study segment. One is located on the south side of US 2 at RP 506.4. The other is located on the north side of US 2 at RP 520.5.

WBI Energy Transmission INC has a natural gas pipeline that parallels US 2 within, and directly adjacent to, the study segment on the south side from RP 510 to RP 513.5. Numerous oil/gas wells are located within and directly adjacent to the study segment from RP 499.1 to RP 512.5. These wells are primarily gas wells.

There are no USEPA designated superfund sites within Segment 5.

Air Quality

No non-attainment areas for any of the criteria pollutants are located within or near Segment 5.

Surface Waters

Segment 5 is located within three watersheds: the Beaver Watershed (HUC 10050014) from RP 499.1 to RP 503.5 and RP 508 to RP 512.7, the Middle Milk Watershed (HUC 10050004) from RP 503.5 to RP 508, and the Lower Milk Watershed (HUC 10050012) from RP 512.7 to RP 523.7.

Beaver Creek is the primary drainage within the Beaver Watershed portion of Segment 5. Several irrigation ditches/canals (discussed later in the Irrigation section), Limekiln Coulee (near RP 512), and small ephemeral and intermittent drainages, which all flow into Beaver Creek, also make up this area of the watershed.

The small portion of the Middle Milk Watershed located within Segment 5 is primarily made up of irrigation canals (discussed later in the Irrigation section) and small ephemeral and intermittent drainages, all of which eventually flow into the Milk River located north and northeast of the study segment.

The Milk River is the primary drainage within the Lower Milk River Watershed portion of Segment 5. Tank Coulee flows north through the study segment, and into the Milk River, near RP 513. Long Coulee, Lime Creek, Bear Creek, and Unger Coulee (located at the Vandalia Safety Rest Area) all flow south through the study segment at RP 520, RP 522.4, RP 522.5, and

RP 527, respectively. These named drainages all flow into the Milk River south of Segment 5. In addition, several irrigation ditches/canals (discussed in the Irrigation section) and small ephemeral and intermittent drainages also make up this area of the watershed.

Total Maximum Daily Loads

Segment 5 is located within the Beaver TPA and the Lower Milk – Rock TPA. Within the study segment, Beaver Creek (MT40M001_020) is listed as not fully supporting aquatic life due to alteration in stream-side or littoral vegetative covers, nitrogen (Total), phosphorus (Total), physical substrate habitat alternations, and uranium. The likely cause is agriculture. The Milk River within the study segment (MT40O001_010) is also listed as not fully supporting drinking water and recreation due to Escherichia coli, lead, and mercury. The likely sources include agriculture, dam/impoundment, and unknown sources.

Wild and Scenic Rivers

There are no wild or scenic rivers within or near Segment 5.

Irrigation

Segment 5 crosses an area that is heavily irrigated, with irrigation water primarily supplied through the Milk River Project – Malta Irrigation District, the Rock Creek Canal Company, and private irrigation.

At the start of Segment 5, near the town of Saco, two unnamed drain ditches cross US 2 at RP 500.6 and RP 501. The drain ditch that crosses at RP 500.6 also parallels US 2 to the south, within the study segment, before turning south at RP 501.5. The Nelson South Canal crosses US 2 near RP 502.1. This same canal crosses US 2 again at RP 506.6.

From RP 507.5 to RP 511.5 a series of ditches and drains cross or parallel US 2 within the study segment. At 507.5, Ditch NS-116 crosses US 2, where it then flows east and then south joining back with US 2 at RP 508.3, where it parallels the highway to RP 508.8 before turning east. At 509.6, Ditch NS-116-2-10 crosses US 2. From here, the ditch parallels the highway to the east, crossing US 2 again at RP 510.4 and RP 511.4. A large pivot is located north of US 2 at RP 512.

The study segment from RP 514 to RP 519 also includes a series of ditches, drains, and canals associated with the Milk River that cross or parallel the highway. The Ophus Ditches occur near RP 514.5. The Black Ditch crosses US 2 at RP 515.7. Hellstern Ditch and Rutter Ditch cross the highway at RP 516.3 and RP 516.8. Rock Creek Canal crosses US 2 at 517.8. It also parallels the highway to the south, with the study segment, from RP 519.9 to RP 520.5. Large pivots are located north of US 2 at RP 517.8, south of the highway at RP 519.5, and south of the highway at RP 521.8.

Floodplains and Floodways

Zone A is the only designated flood zone located within Segment 5.

- Zone A: SFHA - 100-Year Flood, No Base Flood Elevations Determined

All areas outside of this flood zone are undetermined and no zone is specified. From RP 499.1 to approximately RP 502, the study segment is primarily within the 100-year floodplain for Beaver Creek (Zone A). From RP 502 to RP 508 the study segment crosses through an area with no flood zone designation. The segment crosses back over the Beaver Creek 100-year floodplain from RP 508 to RP 509.6. From this RP, the segment remains outside of any designated flood zones until RP 513.9, where the study segment crosses the 100-year floodplain of the Milk River (Zone A). The Milk River floodplain ends at approximately RP 515.8.

From this RP to the existing Vandalia Safety Rest Area at RP 527.1 the study segment again primarily crosses through an area with no flood zone designation; however, the smaller 100-year floodplain (Zone A) for Long Coulee parallels the study segment to the south from RP 519.9 to RP 520.6, and the small 100-year floodplains (Zone A) for Lime Creek, Bear Creek, and Unger Creek cross the study segment at RP 522.4, RP 522.5, and RP 527, respectively.

Wetlands

Segment 5 includes emergent, shrub/scrub, and forested wetlands, which are located along the larger creeks and drainages, channels of the Milk River, fringes along irrigation ditches and canals, and within large wet meadows. Emergent wetlands associated with Beaver Creek, Long Coulee, Lime Creek, Bear Creek, Unger Coulee (near the Vandalia Safety Rest Area), and several irrigation ditches and unnamed drainages cross or parallel US 2 within the study segment at RP 499.2, from RP 500.2 to RP 502, RP 508.4, RP 509, from RP 511.6 to RP 512, RP 517.8, RP 520, RP 520.4, RP 522.4, RP 522.5, and RP 527. A large emergent wet meadow is located within the study segment near RP 506.6. Emergent, shrub/scrub, and forested wetlands are found along the various active and inactive channels of the Milk River from RP 514 to RP 515.7.

Groundwater

There are approximately 67 wells on record within or directly adjacent to Segment 5. Wells with recorded depths range from 18 feet at RP 499.6 to 195 feet near 527.2 at the existing Vandalia Safety Rest Area. Wells with static water levels recorded range from six feet near RP 499 to 54 feet near RP 514.5.

Shallow groundwater can be expected throughout the study segment, particularly where the highway is near Beaver Creek (RP 499.2 to RP 509), the large wetland complex from RP 506.5 to RP 507, the Milk River (RP 513 to 515.8), Lime Creek and Bear Creek (RP 520 to RP 522.5), and Unger Coulee (RP 527). Localized groundwater conditions may be affected by perched aquifers and smaller tributary drainages. Seasonal variation and irrigation may also have a significant impact to ground water conditions.

Biological Resources

Vegetation

Agriculture makes up a large portion of the land cover within and adjacent to Segment 5. However, lowland/prairie grassland also dominates the land cover south of the study segment. Irrigation plays a large role along this segment, and agriculture primarily occurs surrounding the floodplains of the Milk River and Beaver Creek. Within the study segment, agriculture surrounds US 2, with lowland/prairie grassland and the Milk River Floodplain becoming more prevalent from RP 510 to RP 516.

General Wildlife Species

Most of Segment 5 has been moderately developed through the conversion of land to agricultural practices. Small wooded draws and portions of the floodplain along the Milk River still possess specimens of native vegetation that was likely present within this segment prior to conversion to agriculture. These areas provide important movement corridors for wildlife. Wildlife species inhabiting or traversing Segment 5 are typical of those that occur in moderately developed areas of north central and eastern Montana. Since many species occurring within the study segment are habituated to somewhat disturbed areas, species present are predominately, though not exclusively, generalists. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment.

Threatened and Endangered Species

Two threatened, and three endangered, and one experimental species are listed as potentially occurring along the US 2 corridor within Segment 5 (Table 14).

Table 13: T&E Species with the Potential to Occur in Segment 5

Species	Status
Mammals	
Black-footed ferret *Mustela nigripes*	Experimental
Birds	
Interior least tern *Sterna antillarum*	Endangered
Piping plover *Charadrius melodus*	Threatened
Red knot *Calidris canutus rufa*	Threatened
Whooping crane *Grus americana*	Endangered
Fish	
Pallid sturgeon *Scaphirhynchus albus*	Endangered

Source: USFWS, 2017.

The pallid sturgeon is the only species with a documented occurrence within the three-mile buffer for Segment 5; however, whooping crane, piping plover, and black-footed ferret have the potential to occur in the segment vicinity due to potential suitable habitat in the area or the area being within the species known/historic range.

Species of Concern and Special Status Species

There are recorded observations of two plant SOC and 16 wildlife SOC within and directly adjacent to Segment 5. Wildlife species include mammals, birds, and fish species. Both bald eagles (a special status species) and golden eagles have been observed near Segment 5. No known nests have been identified. Segment 5 is located within sage grouse general habitat and sage grouse connectivity habitat. The MTNHP database also shows recorded observations for greater sage grouse within Segment 5.

Social and Cultural Resources

Economy

Segment 5 is located within Phillips and Valley Counties. The area is located between the Fort Belknap and Fort Peck Indian Reservations. The mix of employment in the two counties is similar. The largest employment sector in Phillips County is agricultural and the largest employment sector in Valley County is educational, health care and social services. Public administration is a relatively large part of the two economies.

The pattern of unemployment in these counties closely follows the patterns around the state and is expected to continue to do so. The lowest unemployment rate, observed in 2006, was is 2.99%. The highest unemployment rate, observed in 2010, was 5.83%. The counties had lower than average unemployment rates from 2006 to 2018 but are expected to be on par with statewide figures through 2026.

Phillips County has a median family income that is well below the Montana median family income. Valley County's measure of median family income is above the Montana median family income. Valley County also has higher measures of per capita income and retail sales per capita. Phillips County has a per capita income that is below the Montana statewide measure, but by only a small amount. The retail sales per capita in Phillips County are below the statewide value.

Population and Demographics

Northern Montana has a small population, and only minimal growth is expected. The socio-economic characteristics of this area can be expected to remain constant in the future.

Phillips and Valley Counties are predominantly populated with people who identify ethnically as White Alone (per United States Census Bureau terminology). These counties also have relatively large populations of individuals identified as American Indian. The percentage of people identified as American Indians in these counties is larger than the statewide percentage. This is likely explained by both counties' proximity to the Fort Belknap and Fort Peck Indian Reservations. About 2% of the population of both counties identify as Hispanic or Latino. This is well below the proportion of people identified as Hispanic or Latino in all of Montana. Phillips and Valley counties have a higher than average rate of owner-occupied housing with rates of 75.0% and 70.5%, respectively.

The two counties have an older population than the state average. More than half of the two counties' populations are in 45 – 64 or older than 65 age categories. The proportion of the population in the age group of 25 – 44 is smaller in these two counties than it is in the rest of the state.

From approximately 1996 through 2007, the two counties experienced population loss. Following another dip in 2010, the counties regained a positive growth rate after 2010. The 10-year growth rate of these counties is expected to be 0.190%. This is lower than the statewide expected 10-year growth rate of 0.793%. The trend of the growth rate in these counties is expected to be positive in the future, possibly explained by the increased economic activity in the Bakken shale region. The positive trend in predicted growth may change if the economic outlook of the Bakken shale changes.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Land ownership in Segment 5 is predominantly private with some scattered state, county, and federal owners. The town of Saco is located near the beginning of the study segment from RP 499.2 to RP 500. County-owned land is located near RP 501 and RP 507 and some State Trust land occurs near RP 510 and RP 512. Additionally, spot locations of state and Bureau of Land Management (BLM) lands are located near RP 506.5, RP 510 and RP 523.2. The BNSF Railway

runs parallel to US 2 near Saco from RP 499.1 to RP 500.2 and from RP 510 to RP 513.2. Most land use in Segment 5 is crop/pasture with mixed urban development near Saco.

Recreational Resources

Most lands within Segment 5 are privately owned, and very few recreational opportunities are available. There are no designated fish access sites within the study segment.

Within the town of Saco, an "athletic field" is noted on US Geological Survey (USGS) maps within the study segment on the north side of US 2 near RP 500. USGS mapping also indicates an athletic field and rodeo fairgrounds in Hinsdale, within the study segment, north of US 2, near RP 513.5. These sites may be potential Section 4(f) resources. The Milk River Park is also located within the town of Hinsdale; however, it is 0.1 mile north of the study segment.

No LWCFA sites are listed within this study segment.

Cultural Resources

Historic properties have been recorded within Segment 5, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, irrigation ditches associated with the United States Bureau of Reclamation's Milk River Project, an active railroad grade (BSNF Railway), farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 5 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal, state, local, and private ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near US 2 right-of-way. In Segment 5, isolated residential development is found throughout segment, with more concentrated development at Saco (±RP 499), Hinsdale (±RP 513), and Farrason Road/Happy Flats/Jones Road (±RP 514-515).

Visual Resources

Vast open views of rolling grasslands, large agricultural fields, and meandering floodplains, interspersed with small communities, make up Segment 5. Views of the large Milk River floodplain can also be seen from Segment 5.

Public Water

The town of Saco is the only public water system within this segment. A new safety rest area site near Saco may have the potential for connection to the existing system. Discussion in September 2017 with the system operator confirmed that the water system has the capacity for a safety rest area connection.

Approximately 67 wells are on record within or directly adjacent to Segment 5. Most of this study segment is in the Milk River Alluvium (Qal). Recorded well depths range from 18 to 80 feet with yields of 15 to 25 gpm at RP 499.6. Near RP 527.2 at the existing Vandalia Safety Rest Area, the well depth is 195 feet with yields of 16 gpm.

Areas in the eastern portion of this segment are located in Claggett Shale (Kcl). This formation consists of thin-bedded shale with cross-bedded sandstone. Zones of potential water are located within the sandstone layers. Seasonal variation and irrigation may also have a significant impact to groundwater conditions.

Public Wastewater

The town of Saco and the Vandalia Safety Rest Area are the only two public wastewater systems located within this segment. A future safety rest area site near Saco may have the potential for connection to municipal services. Discussion in September 2017 with the system operator confirmed that the wastewater system has the capacity for a safety rest area connection. The system operator indicated the system was designed for 500 to 800 residents and the town population is currently around 180 residents.

The existing wastewater system at the Vandalia Safety Rest Area showed signs of problems during the July 2017 field review. Wastewater was present on the ground surface in the location of the septic tank; appropriate MDT personnel were notified of this issue upon inspection.

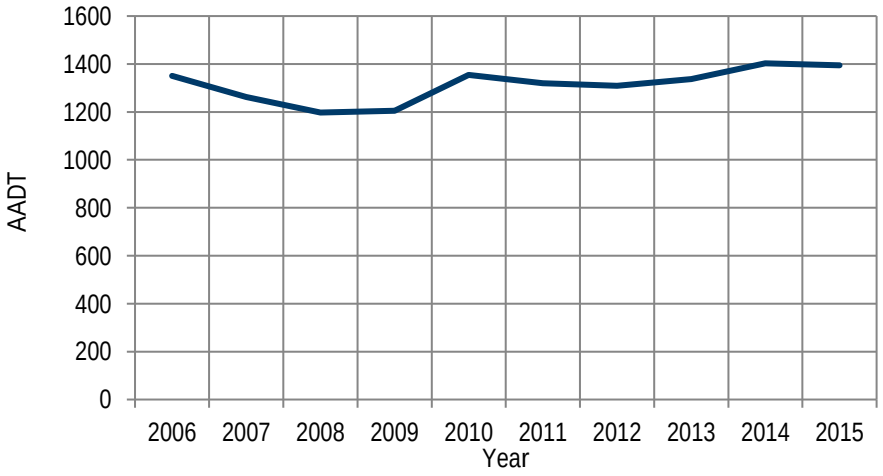
From RP 499.1 to RP 501.5, glacial lake deposits (glaciolacustrine) make up the surficial soils within the study segment. These types of soils are typically slow absorbing soils and having sizing application rates between 0.2 to 0.4 gpd/ft^2. From RP 502 to the end of the segment, clay becomes predominant in the surficial soil, with soils primarily mapped as clayey alluvium, clayey till, or clayey glacial lake deposits. These types of soils are typically slow absorbing soils and having sizing application rates between 0.2 to 0.15 gpd/ft^2.

Traffic Volumes

Historic Volumes

AADT volumes for short-term counters near or within Segment 5 have been reasonably consistent, averaging approximately 1,310 AADT for the 10-year period. Figure 15 summarizes traffic volumes from 2006 to 2015 for Segment 5.

Figure 15: Historic Traffic Volumes – Segment 5

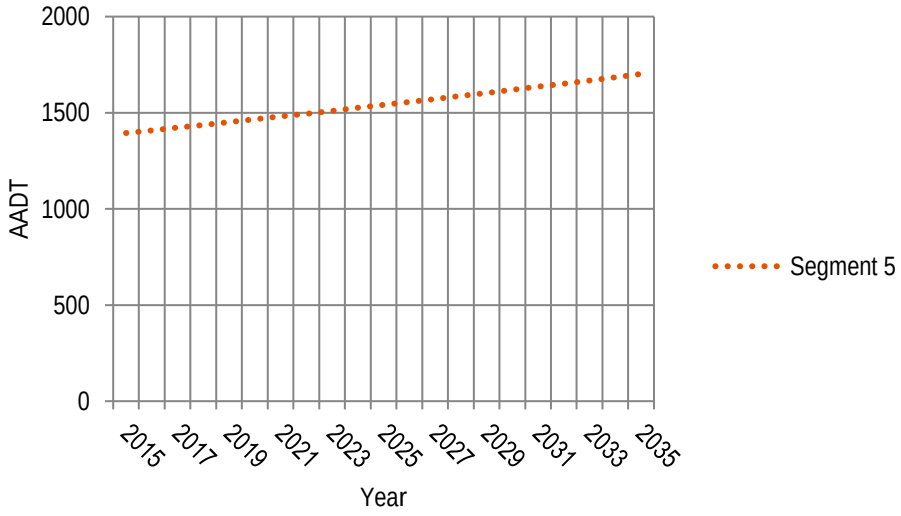


Source: MDT, 2017; Averaged AADT from Traffic Counters 36-4-3, 36-4-4, 36-4-12, 36-4-13, 53-3-1, 53-3-2 and 53-4-1.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16% per year for this segment, projected AADT volumes for Segment 5 are illustrated in Figure 16 below.

Figure 16: Projected Future Traffic Volumes – Segment 5



Source: DOWL 2017.

Table 15 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 14: Forecasted Traffic Volume by Type – Segment 5

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
5	1,702	1,421	83.5%	101	6.0%	179	10.5%	281	16.5%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the NHS. Segment 5 consists primarily of level terrain with some rolling terrain characteristics that navigate over river crossings. The segment runs through the towns of Saco and Hinsdale. The grades consistently range between one-half and two percent with a few vertical curves in the three-percent range. The alignment has fairly long stretches of straight roadway; however, the geometry does consist of some significant horizontal curves as the alignment traverses through the braided network of the Milk River and other water crossings throughout the segment. Secondary 243 intersects US 2 from the north near RP 499.5 within the limits of Saco. Sporadic county roads intersect US 2 from RP 500 to Secondary Route 537 near RP 513.0 within the limits of Hinsdale. Additionally, county roads following the surveyed boundaries of land sections intersect US 2 from Hinsdale to RP 523.7.

The existing Vandalia Rest Area is located near RP 527.2 on a significant vertical grade and within a horizontal curve. Site observations from the July 2017 field review indicate existing sight distance may be a concern at the east access point due to the vertical curve east of the approach.

Safety Analysis

Over 70% of the 48 incidents were non-injury, with nine non-incapacitating, two possible injury accidents, two unknown, and one fatal accident near RP 520.532. Similar to Segments 2, 3 and 4, there were very few carcasses (24) found over the five-year time period, with whitetail and mule deer accounting for most of the total. Table 16 lists crash and carcass data for the period 2012 through 2017.

Table 15: Crash Severity and Carcass Counts – Segment 5

Crash Injury Severity	Crash Count
Fatal Accident	1
Non-Incapacitating Evident Injury Accident	9
Non-Injury Accident (Property damage-only accident)	34
Possible Injury Accident	2
Unknown	2
Grand Total	**48**
Carcass – Animal Type	**Carcass Count**
Other	6
Whitetail Deer	13
Mule Deer	5
Grand Total	**24**

Source: MDT, July 1, 2012 through June 30, 2017 Crash and Carcass Data.

Rail Crossings

The BNSF Railway runs adjacent to US 2 from RP 499.2 to RP 500.2 and near RP 510.2 to RP 513.5. No grade-separated or at-grade crossings occur on US 2 through this segment.

Utilities

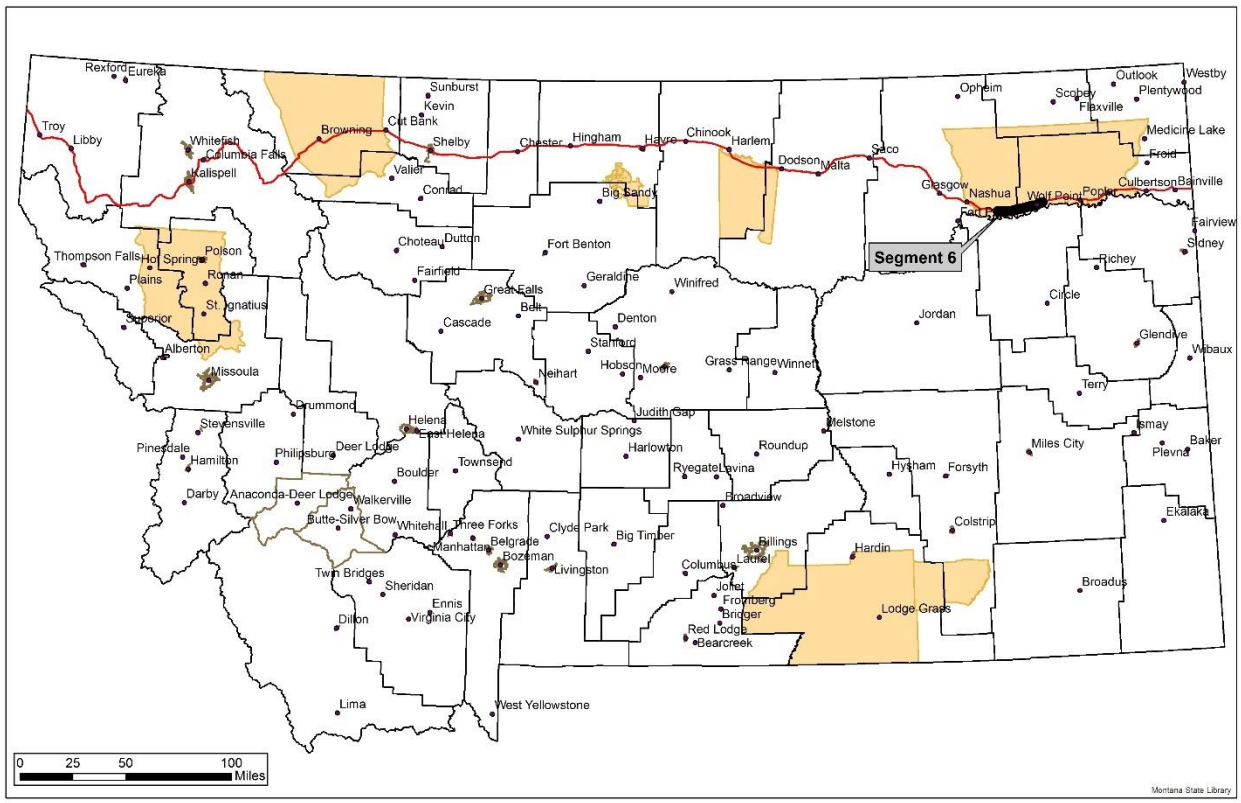
Utilities occur in the following locations within Segment 5.

- Overhead power lines run parallel to the north side from RP 500.1 to RP 506.0.
- Overhead power lines run parallel to the north side from RP 508.3 to Hinsdale at RP 512.9.
- Overhead power lines run parallel to the north side of US 2 from Hinsdale at RP 512.9 to RP 515.2 then crosses to the south side of US 2.
- Overhead power lines run parallel to the south side from RP 515.2 to RP 516.2 then cross back to the north side of US 2.
- Overhead power lines run parallel to the north side from RP 516.2 to RP 516.8.
- Overhead power lines run parallel to the south side from RP 518 to RP 518.5 then cross back to the north side of US 2.
- Overhead power lines run parallel to the north side from RP 518.5 to RP 522.0.
- Overhead power lines run parallel to the south side from RP 523.2 to RP 523.7.

Additionally, Saco is located from RP 499.1 to RP 500.1; a thorough utility investigation may be required to locate underground utilities.

4.6 Segment 6 (RP 571.8 to RP 593.7)

Figure 17: Segment 6 Location



Physical Environment

Soil Resources and Prime Farmland

Clayey till is the primary surficial soil from the beginning of the study segment to RP 578. From this RP to the end of the study segment surficial soils are a mix of predominately clayey alluvium, loamy alluvium, and loamy glacial till.

NRCS soil surveys indicate the presence of farmland of statewide importance, prime farmland if irrigated, and prime farmland if irrigated (when the product of I [soil erodibility] x C [climate factor] does not exceed 60) scattered throughout the study segment. Some prime farmland if irrigated and farmland of statewide importance occurs from RP 571 to RP 572. A large area of farmland of statewide importance occurs from RP 581 to RP 588. Prime farmland if irrigated occurs from RP 589 to RP 589.5 and near RP 592.5. The percentage of the study segment comprised of farmland of statewide importance or prime farmland if irrigated is moderate.

Geologic Resources

Most of the study segment is located along the north side of the Missouri River valley. The surficial deposits along the Missouri River valley consist mainly of alluvial gravel, sand, silt, and clay of variable thickness. Quaternary glacial deposits are mapped along the valley sides and in the upland areas. Based on the published data reviewed, it does not appear that landslides have been mapped along Segment 6.

No faults are mapped along Segment 6, and the closest Quaternary fault (which may be considered active) is located about 25 miles east of the study segment. Segment 6 is in an area where historic seismicity is low. The closest historic earthquake epicenter is mapped about 50 miles north of the study segment.

Hazardous Substances

Segment 6 crosses through the town of Frazer from RP 571.8 to RP 572.5. Within this portion of the study segment, one LUST site, which was resolved in 1997, and one UST site are recorded. Near RP 580.3, at the MDT Oswego right-of-way site, the DEQ database shows one LUST site and one petroleum release fund site. As Segment 6 crosses through Wolf Point (RP 590 to RP 591.3) 17 LUST sites, 19 UST sites, six petroleum release fund sites, and one hazardous waste site are recorded. Of the 17 LUST sites, 14 have been resolved. The hazardous waste site is the Wolf Point High School, labeled as a small quantity generator. One remediation response site, the Montana CCC Grain Bins, is located within the study segment at RP 592.8.

The study segment is not located within a mining district, nor are there any abandoned or open cut mines within the segment.

The WBI Energy Transmission Inc. – Frazer natural gas lateral crosses US 2 directly west of Segment 6 near RP 571.7. The WBI Energy Transmission Inc. – Saco-Morgan Creek natural gas pipeline parallels US 2 within the study segment, on the north side, from RP 584 to RP 584.5, where it then crosses US 2. There are no oil/gas wells or well directionals within the study segment.

There are no USEPA designated superfund sites within Segment 6.

Air Quality

No non-attainment areas for any of the criteria pollutants are located within or near Segment 6.

Surface Waters

Segment 6 is comprised of one watershed, the Prairie Elk-Wolf Watershed (HUC 10060001). From west to east, named drainages that cross or parallel the study segment include Little Porcupine Creek (RP 571.7), Oswego Creek (RP 579.5), Flynn Creek (RP 582), Littleman Creek (RP 585.1), Wolf Creek (RP 588.8), Little Wolf Creek (RP 592.6), and Brown Coulee (RP 594.7). In addition to the named drainages, several ephemeral and intermittent drainages also cross the study segment within this watershed.

Total Maximum Daily Loads

Segment 6 is located within the Fort Peck TPA. Waterbodies within this segment are not listed in the DEQ 303d Water Quality Report.

Wild and Scenic Rivers

There are no wild or scenic rivers within or near Segment 6.

Irrigation

Segment 6 is located within the Fort Peck Reservation, where irrigation water is supplied through the Fort Peck Irrigation Project, which is owned and operated by the BIA, or private irrigation. The only WRS mapping available for the segment is for Valley County. No WRS has been conducted for Roosevelt County.

The only irrigation infrastructure identified within the study segment is Little Porcupine Canal which crosses US 2 at RP 572.7. No other ditches or pivots were noted during the Valley

County WRS review and a review of aerials and USGS topographic maps for the remainder of the segment in Roosevelt County.

Floodplains and Floodways

Segment 6 is located on the Fort Peck Reservation. The study area is comprised of two flood zones.

- Zone A: SFHA - 100-Year Flood, No Base Flood Elevations Determined
- Zone X (unshaded): Areas Outside the 500-Year Flood

At the start of the segment RP 571.8 to RP 573, the area north of US 2 is within the 100-year floodplain (Zone A) for Little Porcupine Creek. From RP 573 to the end of the segment at RP 593.7, a large portion of the study segment is designated as Zone X. However, from RP 582 to RP 582.8 the segment crosses the 100-year floodplain (Zone A) for Flynn Creek and an unnamed tributary to Flynn Creek. From RP 584.7 to RP 585.3 the study segment crosses the 100-year floodplain (Zone A) for Littleman Creek and an unnamed tributary to Littleman Creek. At 586.3 the segment crosses the 100-year floodplain for a second unnamed tributary to Littleman Creek. Near RP 588.8 and RP 592.6, the study segment crosses the 100-year floodplains (Zone A) for Wolf Creek and Little Wolf Creek.

Wetlands

NWI wetlands within Segment 6 include fringe wetlands along creeks and drainages, wetlands associated lakes, small depressional wetlands, and wet meadows. Emergent wetlands associated with Little Porcupine Creek, the Little Porcupine Canal, Oswego Creek, Flynn Creek, Littleman Creek, Wolf Creek, Little Wolf Creek, and several unnamed drainages cross the study segment at RP 571.7, RP 572.7, RP 574, RP 575.5, RP 579.5, RP 580.4, RP 582, RP 583.7, RP 585.1, RP 587.7, RP 588.3, RP 588.8, RP 591.6, and RP 592.6. A large emergent wetland associated with the more seasonal Frazer Lake occurs directly south of the study segment near RP 573. Several depressional emergent wetlands and emergent wet meadows are located along the study segment near RP 573, RP 577.4, RP 583.2, RP 589.6, and RP 590. A large emergent wetland associated with an old oxbow channel of the Missouri River is located just south of US 2 near RP 587.2.

Groundwater

The GWIC database shows 172 recorded wells within or directly adjacent to Segment 6. Wells with recorded depths range from five feet near RP 583.1 to 1,090 near RP 572.8. Wells with static water levels recorded range from three feet near RP 572 to 87 feet near RP 571.3.

Shallow groundwater can be expected throughout the study segment, particularly near the larger drainages including Little Porcupine Creek (RP 571.7), Oswego Creek (RP 579.5), Wolf Creek (RP 588.8), and Little Wolf Creek (RP 592.6). Localized groundwater conditions may be affected by perched aquifers and tributary drainages. Seasonal variation and irrigation may also have a significant impact to ground water conditions.

Biological Resources

Vegetation

Agriculture, lowland/prairie grassland, sagebrush steppe, and floodplain/riparian make up the land cover within and adjacent to Segment 6. While agriculture occurs along both sides of US 2, it is more dominant south of the highway where the Missouri River floodplain parallels the study segment to the south. Lowland/prairie grassland and sagebrush steppe are also located on both sides of US 2, but predominately occur north of the highway in more rolling terrain.

General Wildlife Species

Most of Segment 6 has been moderately developed through the conversion of land to agricultural practices. Small wooded draws and portions of the floodplain along the Missouri River still possess specimens of native vegetation that was likely present within this segment prior to conversion to agriculture. These areas provide important movement corridors for wildlife. Wildlife species inhabiting or traversing Segment 6 are typical of those that occur in moderately developed areas of north central and eastern Montana. Since many species occurring within the study segment are habituated to somewhat disturbed areas, species present are predominately, though not exclusively, generalists. Numerous mammal, bird, amphibian, and reptile species likely occur within the study segment.

Threatened and Endangered Species

Three threatened and three endangered species are listed as potentially occurring along the US 2 corridor within Segment 6 (Table 17). In addition to the species listed below, designated critical habitat for the piping plover is found just south of Segment 6. Segment 6 is also within the western limits of the whooping crane migration corridor.

Table 16: T&E Species with the Potential to Occur in Segment 6

Species	Status
Mammals	
Northern long-eared bat *Myotis septentrionalis*	Threatened
Birds	
Interior least tern *Sterna antillarum*	Endangered
Piping plover *Charadrius melodus*	Threatened
Red knot *Calidris canutus rufa*	Threatened
Whooping crane *Grus americana*	Endangered
Fish	
Pallid sturgeon *Scaphirhynchus albus*	Endangered

Source: USFWS, 2017.

Occurrences of least tern, piping plover, pallid sturgeon, and whooping crane have been documented within the three-mile buffer for Segment 6. Black-footed ferret has the potential to occur in the segment vicinity due to the presence of potential suitable habitat or the area being within the species known/historic range.

Species of Concern and Special Status Species

Within and adjacent to Segment 6, there are recorded observations of one plant species and 19 wildlife species, including mammal species, fish species, and bird species. Observations of bald eagle and bald eagle nests (a special status species), and observations of golden eagle have also been recorded near Segment 6. Segment 6 is located within sage grouse general habitat. The MTNHP database also shows recorded observations for greater sage grouse within Segment 6.

Social and Cultural Resources

Economy

Segment 6 is in Valley and Roosevelt Counties. McCone County is adjacent to the south, and the segment includes or is near the communities of Glasgow, Wolf Point and Poplar. The entire study segment is located on the Fort Peck Indian Reservation. This area is located on the western most edge of the Bakken shale region and there are some producing oil wells in the area.

Valley and Roosevelt Counties have a similar mixture of industry. Both counties have large sectors devoted to educational, health care and social services. Valley and Roosevelt Counties also have large public administration and agriculture, forestry and mining sectors. McCone County has a larger agriculture, forestry and mining sector than the other two counties in the study area. The mixture of businesses in Valley and Roosevelt Counties is likely influenced by the Indian Reservations in these counties. The increase in proportion of jobs in the public administration and education and health care industries seems to be somewhat expected for counties near Indian Reservations. McCone County has a blend of industry more typical of counties in northeastern Montana that are not in the direct vicinity of Indian Reservations.

The three counties have had an unemployment rate below the statewide average since 2006 and this trend is expected to continue. The unemployment rate in the counties is expected to decrease in the future. The lowest unemployment for the counties is 2.06% and is expected to be reached in 2026. The highest unemployment rate is 5.41% and was observed 2009. This area is within the Bakken shale area, and economic conditions are somewhat tied to the future production of the Bakken shale.

McCone and Valley Counties have median family incomes that are above the state average. Roosevelt County's measure of median family income is about $10,000 below the statewide value. The per capita income in McCone and Valley Counties is also above that of the wider state. Roosevelt County's per capita income is below that of Montana. Retail sales per capita in McCone and Roosevelt Counties are on par with the statewide averages. Valley County has the highest retail sales per capita. The retail sales per capita in Valley County are much higher than the statewide average. McCone and Valley Counties do not have much, if any, income deficiencies compared to statewide averages. Roosevelt County does exhibit signs of income deficiencies compared to statewide averages and compared to neighboring counties.

Population and Demographics

Northern Montana has a small population, and only minimal growth is expected. The socio-economic characteristics of this area can be expected to remain constant in the future.

Roosevelt is the most populous of the three counties. Valley and McCone Counties are both predominantly populated with people who identify as White Alone (per United States Census Bureau terminology). Valley County has a relatively large population of people who identify as American Indian. Roosevelt County's population is primarily composed of individuals who identify as American Indians. This is likely due to the Fort Peck Indian Reservation. All these counties have a low proportion of people who identify as Hispanic or Latino in their populations. The owner-occupied housing rate in McCone County is much higher than the state average. Valley County's rate of owner-occupied housing is also greater than that of the larger state. Roosevelt County has an owner-occupied housing rate that is lower than the state.

The counties do not display a drastically different age distribution by sex than the state. There are slightly fewer people in the 25- to 44-year age category. Apart from this difference, the distributions of age by sex are similar.

The counties have experienced both positive and negative growth rates in recent years. The long-term trend of growth shows almost no change in the average growth rate in the coming years. The 10-year predicted growth rate for the three counties is 0.346%. This is lower than the 10-year predicted growth for the state of Montana, 0.793%. These counties have been experiencing, and will continue to experience, a relatively stagnant level of growth.

Environmental Justice

No environmental justice issues were identified during the corridor study process.

Land Ownership and Use

Segment 6 is entirely located on the Fort Peck Reservation. The BNSF Railway runs adjacent to US 2 from RP 571.8 to RP 573 and near Wolf Point from RP 589.5 to RP 590.5. Most land use in Segment 6 is crop/pasture with mixed urban development near Wolf Point.

Recreational Resources

Segment 6 is located on the Fort Peck Reservation. Recreation would be limited primarily to fishing and hunting. There are no designated fish access sites within the study segment. No significant parks, recreation areas, or wildlife and waterfowl refuges are located within or adjacent to the study segment.

The FWP LWCFA site list by county shows funds allotted for the Frazer-Community Park in Frazer, MT, which is outside the study segment limits. LWCFA funds were also used for park locations in Wolf Point (Borge Park and Southside Park); however, all parks appear to be outside of the study segment limits.

Cultural Resources

Historic properties have been recorded within Segment 6, including archaeological sites, commercial buildings, and residences. In addition to the historic properties in the communities through which the highway passes, irrigation ditches, an active railroad grade (BSNF Railway), farms, ranches, and highway-related structures (i.e., bridges and overpasses) also occur. Also represented in the corridor are churches, schools, government buildings, sand houses, and maintenance section shops. Archaeological sites that may occur within Segment 6 include buried campsites, stone circle sites, bison kills, human burials, and rock art sites under federal and tribal ownership.

Noise

The study corridor traverses a variety of land uses. In some portions of the corridor, noise-sensitive receptors are located near US 2 right-of-way. In Segment 6, isolated residential development is found throughout the segment, with more concentrated development at Frazer (±RP 572), Oswego (±RP 579), Highway 250 Junction (±RP 589), Wolf Point (±RP 590-592).

Visual Resources

Vast, open views of rolling grasslands, large agricultural fields, and meandering floodplains, interspersed with small communities, make up Segment 6. Views of the Missouri River floodplain can also be seen from Segment 6.

Public Water

Segment 6 is located within the Fort Peck Reservation. The Assiniboine & Sioux Rural Water Supply System (ASRWSS)/Dry Prairie Rural Water System parallels US 2 the entire length of this segment. Public water availability from this system would be the preferred choice for any new safety rest area facility. This system provides reliability, capacity, and quality for a proposed drinking water source. Public drinking water would not be a concern for this segment.

Public Wastewater

The town of Frazer and city of Wolf Point are the only public wastewater systems located within this segment. A possible safety rest area site near Frazer or Wolf Point may have the potential for connection to municipal services. Discussion in September 2017 with the Wolf Point system operator confirmed that the wastewater system has the capacity for a safety rest area connection. He indicated that the current sewer line extends west to 8th Ave and east to 1st Ave. At the time this report was published, the Frazer system operator had not responded to a request to verify capacity and operation of the system. If sites near these systems are advanced from this study, MDT will consider system reliability, cost to connect to the wastewater system and system capacity.

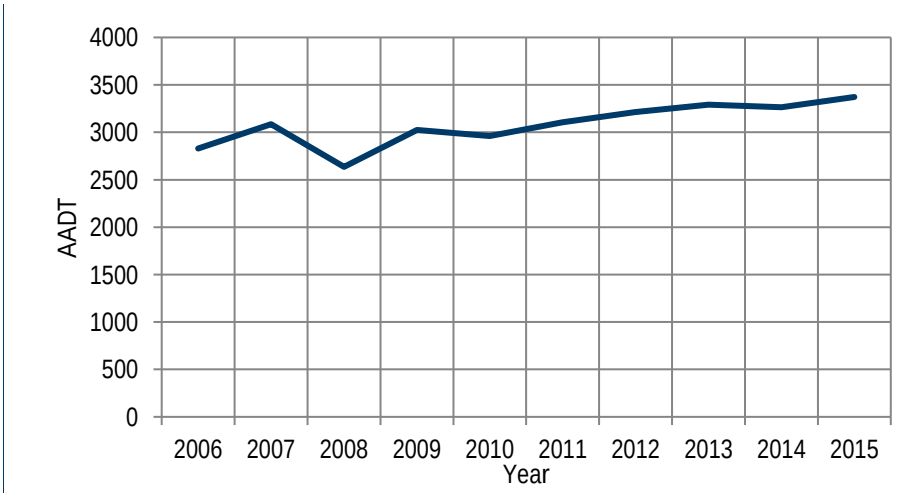
Any potential new on-site wastewater system for this segment outside of the public wastewater system connections would be based on soil type. Clayey till is the primary surficial soil from the beginning of the study segment to RP 578. These types of soils are typically slow percolating soils and having sizing application rates between 0.15 to 0.2 gpd/ft^2. From RP 580 to the end of the study segment, surficial soils are a mix of predominately clayey alluvium, loamy alluvium, and loamy glacial till. These types of soils are typically slow absorbing soils and having sizing application rates between 0.2 to 0.4 gpd/ft^2.

Traffic Volumes

Historic Volumes

AADT volumes for short-term counters near or within Segment 6 have been reasonably consistent, averaging approximately 3,080 AADT for the 10-year period. Figure 18 summarizes traffic volumes from 2006 to 2015 for Segment 6.

Figure 18: Historic Traffic Volumes – Segment 6

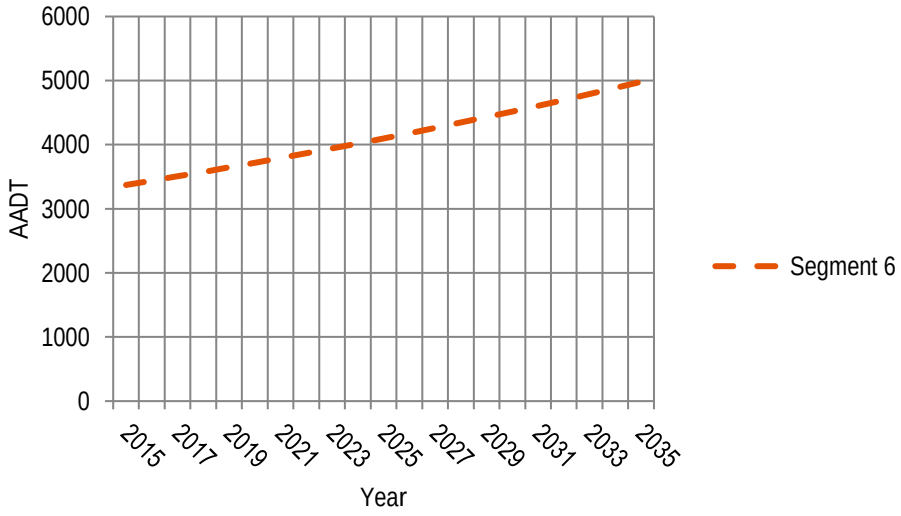


Source: MDT, 2017 Averaged AADT from Traffic Counters 43-3-1, 43-3-2, 43-3-3, 43-3-4, 43-3-14, 43-3-15, 43-3-16, 53-8-4 and 53-8-4.

Growth Rates and Projected Traffic Volumes

Based on a compound annual growth rate of 2.16 percent per year for this segment, projected AADT volumes for Segment 6 are illustrated in Figure 19 below.

Figure 19: Projected Future Traffic Volumes – Segment 6



Source: DOWL 2017.

Table 18 presents future traffic volumes as estimates using the growth rate calculation noted above and assuming the percentage composition of passenger vehicles and trucks would remain the same as existing percentages.

Table 17: Forecasted Traffic Volume by Type – Segment 6

Study Segment	Total AADT (Projected 2035)	Total Passenger & Bus (Types 1-4)		Total Small Truck (Types 5-7)		Total Large Trucks (Types 8-13)		Total Commercial (Types 5-13)	
		AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT	AADT	% of Total AADT
6	4,982	4,658	93.5%	93	1.9%	230	4.6%	324	6.5%

Source: MDT 2017; DOWL 2017.

Geometric and Access Analysis

US 2 is a Non-Interstate Principal Arterial on the NHS. Segment 6 consists of level terrain. The segment runs through the town of Frazier and the city of Wolf Point. The grades consistently range between one-half and one percent. The alignment has long stretches of straight roadway and is generally linear with subtle horizontal curves throughout the segment. Local roads located in the town of Frazer intersect US 2 near RP 572. County roads occasionally intersect US 2 from Frazer to Secondary 250 near RP 589.3, just west of Wolf Point. Primary 25 intersects US 2 from the south near RP 590.6, within the limits of Wolf Point.

Safety Analysis

Over 70% of the 58 incidents recorded incidents were non-injury, with eight non-incapacitating, five possible injury accidents, three incapacitating, and one fatal accident near RP 574.16. Almost no carcasses, (7) were found on this segment of US 2 for the five-year time period. Table 19 lists crash and carcass data for the period 2012 through 2017.

Table 18: Crash Severity and Carcass Counts – Segment 6

Crash Injury Severity	Crash Count
Fatal Accident	1
Incapacitating Injury Accident	3
Non-Incapacitating Evident Injury Accident	8
Non-Injury Accident (Property damage only accident)	41
Possible Injury Accident	5
Grand Total	**58**
Carcass – Animal Type	**Carcass Count**
Other	4
Domestic	1
Whitetail Deer	1
Mule Deer	1
Grand Total	**7**

Source: MDT, July 1, 2012, through June 30, 2017, Crash and Carcass Data.

Rail Crossings

The BNSF Railway runs adjacent to US 2 from RP 571.8 to RP 573 and near Wolf Point from RP 589.5 to RP 590.5; however, no grade-separated or at-grade crossings occur on US 2 within this segment.

Utilities

Utilities occur in the following locations within Segment 6.

- Overhead power lines run parallel to the south side from RP 572.5 to RP 573.0.
- Overhead power lines run parallel to the north side from RP 573.4 to RP 588 then cross to the south side of US 2.
- Overhead power lines run parallel to the south side from RP 588 to RP 589.5.
- Overhead power line run parallel to the north side from RP 592 to RP 572.8 then cross to the south.

Additionally, Frazer, is located from RP 571.8 to RP 572.5 and Wolf Point is located from RP 590 to RP 591.5. A thorough utility investigation may be required at both of these locations to locate underground utilities.

5.0 NEED & OBJECTIVES

MDT recognized a need to provide safe stopping opportunities on US 2 in accordance with guidelines outlined in the Montana Rest Area Plan and in consideration of existing and projected conditions within the US 2 study corridor; feedback from public, stakeholder and agency

involvement efforts; and coordination with the study advisory committee. Objectives are not listed in any particular order.

Need – Provide safe stopping opportunities on US 2 in accordance with MDT Rest Area Plan guidance.

Objectives: To the extent practicable:

a. Space safety rest areas at approximately one hour of travel time from existing stopping opportunities, equivalent to 70 miles within the US 2 corridor.
b. Minimize safety issues associated with sight distance, conflicting access points, and traffic movements.
c. Consider locations in proximity to existing utilities, maintenance staffing, and MDT-owned right-of-way.
d. Avoid and/or minimize impacts to environmental resources and existing development.
e. Avoid constructability and topography constraints.

Other Considerations:

- Funding availability.
- Planned projects and other MDT priorities.

6.0 IMPROVEMENT OPTIONS

This study evaluated existing rest area sites and new sites to determine a single recommended location within each segment for advancement from the study, in prioritized implementation order by segment. Additional information is provided in Appendix D about applicable data sources, the rationale and methods MDT used to evaluate each site during the planning process, and potential future evaluations or permitting that may be needed if MDT advances a site from this study.

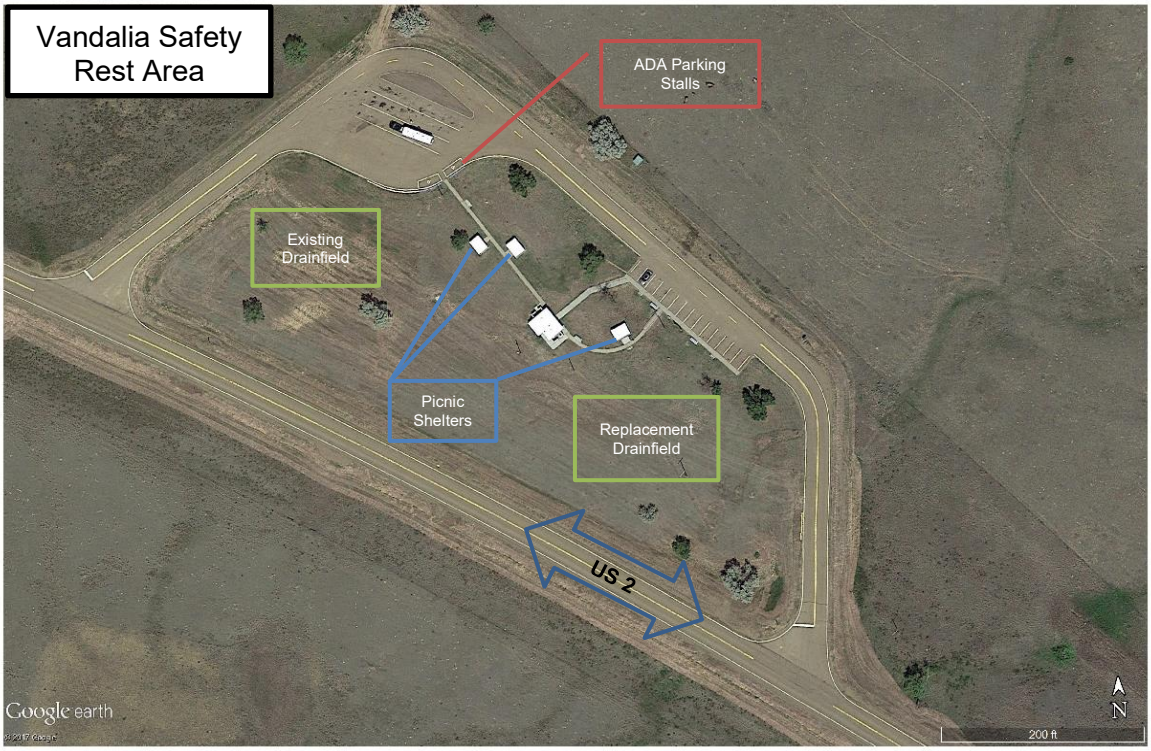
6.1 Existing Sites

Vandalia Safety Rest Area

In order to fulfill the needs for the corridor, this study assessed the only existing seasonal state-maintained rest area located on US 2 to determine favorability for conversion to a year-round, full-service safety rest area. The evaluation qualitatively considered location in relation to study segments and access from US 2; environmental features; land use and ownership; and existing site improvements.

Built in 1967, the Vandalia Safety Rest Area has served the traveling public for over 50 years. Located on US 2 approximately 14 miles north of Glasgow, near RP 527.2 as shown in Figure 20, the state-maintained rest area offers services seasonally from May 15th through November 15th. The Vandalia Safety Rest Area has experienced considerable physical deterioration over the last several decades despite continual MDT maintenance efforts and currently is nearing the end of its life cycle. Given the site's current condition, some level of investment would be required to continue providing service as a safety rest area, reduce service to a truck parking area, or completely abandon the site.

Figure 20: Vandalia Safety Rest Area



Source: Google Earth imagery; DOWL 2018.

Study Segment Proximity and Access from US 2

The Vandalia Safety Rest Area is located 3.5 miles east of Segment 5 spanning from RP 499.1 to RP 523.7 (24.7 miles) and 44.6 miles west of Segment 6 spanning from RP 571.8 to RP 593.7. The Vandalia Safety Rest Area is not ideally situated to provide 70-mile stopping intervals along US 2.

An entrance/exit is located directly off US 2 on the eastern and western side of the Vandalia Safety Rest Area. The current access road and parking arrangement allows vehicles traveling in either direction to enter one side and exit the other without making significant interior turning movements once inside the rest area site. However, there are no deceleration or acceleration lanes located on US 2 to assist with safe movement entering or exiting the rest area.

The existing Vandalia Safety Rest Area is located on a vertical grade and a horizontal curve. Observations indicate existing sight distance may be a concern at the eastern access point due to the vertical curve east of the approach. No crash incidents have been recorded near either entrance; however, a wild animal collision was documented in January 2017 near the bridge spanning Unger Coulee near RP 527.

Environmental Considerations

Surface Waters

Unger Coulee flows south near RP 527, 1000 feet west of the western end of the rest area boundary; however, it does not flow within the rest area boundary. The Unger Coulee drainage flows into the Milk River three miles south. No other surface waters were identified during the field review on May 29, 2018, or from a prior database search.

Floodplains
No designated flood zones exist within the Vandalia Safety Rest Area boundary. The closest 100-year floodplain (Zone A) is along Unger Creek, which crosses the highway near RP 527. This flood zone is outside the existing Rest Area ROW.

Threatened and Endangered Species, Bald and Golden Eagles, and Wetlands
Whooping crane, piping plover, and black-footed ferret have the potential to occur in the vicinity of the Vandalia Safety Rest Area due to potential suitable habitat in the area or the area being within the species known/historic range. Both bald eagles (a special status species) and golden eagles have been observed within the vicinity of the rest area; however, no known nests have been identified. The Vandalia Safety Rest Area is located within sage grouse general habitat.

No mapped wetlands occur within the safety rest area boundary, and no wetlands were identified on the rest area property during the site visit on May 29, 2018. NWI mapping does show an emergent wetland within the channel of Unger Creek, located directly west of the rest area property.

Additional Environmental Considerations
No irrigation ditches, canals, or other infrastructure were identified within or adjacent to the safety rest area during the field review or database search. The Vandalia Safety Rest Area is ineligible for listing in the National Register of Historic Places.

Land Use, Ownership, and Parcel Size
The existing safety rest area is sited on approximately 10 acres of right-of-way easement near the center of a 133.6-acre parcel owned by the U.S. Department of the Interior Bureau of Land Management. Portions of the site are currently undeveloped, which would allow for future expansion of the building structure, parking, and wastewater system elements. The neighboring land use is primarily agricultural within several miles in all directions from the rest area.

Existing Site Improvements
Building Structure
The building was originally constructed in 1967 and rehabilitated in 1995. Currently, the building structure is showing signs of physical wear and disrepair. The exterior appears to be in good to fair condition; however, the interior floor, lighting, plumbing fixtures, and restroom stalls are in fair to poor condition. A recent rest area evaluation conducted in October 2017 rated the Vandalia Rest Area health index as 51 out of 100, with the structure rated 8.3 out of 19.

Access Roads and Parking Areas
The access roads and parking area were constructed with the original building structure in 1967. The last know pavement treatment was applied in 1998. The access roads and parking area were rated to be in fair condition with some alligator cracking and localized areas where ponding occurs. Overall, the pavement is considered fair to poor and beyond its useful life. Parking for passenger and oversized vehicles is projected to meet demand through 2036 and is not a limiting factor for conversion to a year-round, full-service safety rest area.

Site Amenities
The site has three picnic shelters, six picnic tables, bench seating, exterior lighting, waste receptacles, drinking fountains, and informational signage. Currently, all of the amenities are functional, however, they are in fair to poor condition.

ADA Accessibility

Two ADA-accessible parking stalls are located on the western end of the parking area near the oversized parking stalls as shown in Figure 20. Access to the building structure from ADA parking stalls is connected by 160 feet of sidewalk. Both ADA parking stalls and the majority of sidewalk are currently non-compliant due to running slope issues and trip hazards.

Other ADA features inventoried during the October 2017 site visit are also non-compliant. These features include picnic tables, benches, doorways, drinking fountains, sinks, restroom stalls, and toilets. Rehabilitation, reconstruction, or replacement of these features would be needed to meet ADA requirements at the site.

Water Rights & Water Systems

Two wells are located within the rest area. The first well has a depth of 72 feet, with a static water level of 37 feet and yields of 12 gpm. The second well has a depth of 195 feet, with a static water level of 54 feet and yields of 16 gpm. Water is not sufficient in late summer and is not used for irrigating purposes. The existing well casing is heavily rusted inside and out, and sand often plugs the pump meters. Drinking water is chlorinated and further purified with a reverse osmosis system.

Public Wastewater Systems

The existing gravity dosed wastewater system at the Vandalia Safety Rest Area showed signs of problems during the October 2017 field review. Wastewater was present on the ground surface in the location of the septic tank; MDT was notified of this issue upon inspection. The septic tank is pumped once a year and currently not showing signs of leakage. Recently the line between the septic tank and lift station was replaced in the summer of 2017. Overall the wastewater system has most likely reached its design life and should be replaced. Figure 20 illustrates the approximate footprint for a replacement drain field, indicating the site can accommodate future replacement.

Parking and Restroom Demand

Door count data from 2011 through 2017 determined that the maximum seasonal day use (May 15 – November 15) was 266 patrons in a 24-hour period.

Using the modified WTI methodology as outlined in the 2014 MDT Rest Area Plan for determining parking and restroom demand, the existing parking spaces and restroom stalls appeared to be sufficient to accommodate current and 20-year projected demand based on current usage patterns. Table 20 compares the current parking and restroom stall totals to the current and projected demand. The analysis indicates no additional right-of-way would be required if MDT were to reconstruct/rehabilitate this site.

Table 19: Parking and Restroom Demand

Element	Current	Existing Demand	20-year Demand
Passenger Vehicle Parking Stalls	14	2	3
Oversized Vehicle Parking Stalls	3	3	4
Men's Restroom Stalls	2	1	1
Women's Restroom Stalls	2	1	1

Source: DOWL, 2018.

Analysis and Recommendation

The existing Vandalia Rest Area is not ideally located on the US 2 corridor to satisfy MDT's desire to provide stopping opportunities for the traveling public every hour of travel time. It is located east of the end of Segment 5 and 44.6 miles west of Segment 6. Additionally, the site location on a vertical and horizontal curve on US 2 presents a safety concern for movements into and exiting the rest area. Land use, ownership, or parcel size do not present major concerns; an existing easement would potentially provide time and cost savings compared to the effort to secure a new site.

Reconstruction of the Vandalia Safety Rest Area would require improvements to the existing building facility, parking lot, water system, wastewater system, and potential access road improvements to allow safer movements onto and from US 2. The existing parcel is large enough to incorporate a reconstruction option and no additional right-of-way would likely be required. All of the existing site improvements would need to be reconstructed, rehabilitated, or replaced, negating the potential cost savings of repurposing an existing site. The reconstruction option for construction, engineering, and indirect cost is estimated to be approximately $3,320,000 in 2018 dollars, which would result in upgrades and conversion from its current seasonal status to year-round service.

Due to network spacing and location, safety concerns associated with sight distance, and the cost to reconstruct the existing site, this study does not recommend a complete reconstruction and conversion to a year-round, full-service safety rest area.

US 2 City Park Rest Areas

The City Park Rest Area Program (CPRA) supports qualifying operations and maintenance activities at locally owned and administered CPRAs to supplement stopping opportunities on Montana's Primary and Non-Interstate National Highways. The program provides participating local governments with a limited funding opportunity to supplement certain costs at these existing facilities.

CPRAs must be open and maintained from April through November of each year. Limited funding assistance is available on a reimbursement basis for operational and maintenance costs including caretaker/janitorial services and basic repairs. Participating local governments must demonstrate that proposed improvements are needed to maintain or improve the facility and will directly benefit the traveling public. Currently, three communities that participate in the program are located along US 2: Chester, Cut Bank, and Malta.

This study assessed existing CPRAs to determine feasibility for conversion to year-round, full-service safety rest areas to fulfill the needs for the US 2 corridor in consideration of current CPRA functions and the surrounding built and natural environment. The evaluation qualitatively considered location in relation to study segments and access from US 2; environmental features; land use and ownership; and parcel size in relation to a minimum footprint accommodating safety, capacity, and traffic movement design features. Figures illustrate conceptual layouts for passenger/oversized vehicle parking and circulation.

The MDT Rest Area Plan provides design guidelines for parking lots, access roads, buildings, sites, and water and wastewater systems that directly influence the footprint for a safety rest area. For the purposes of this evaluation, it was assumed that the building facility size would need to be approximately 1,500 square feet, and parking capacity would need to accommodate 10 passenger vehicles, 5 oversized vehicles, and allow for adequate and safe turning movements. Facility and parking assumptions were based on an average of state-maintained safety rest areas with similar traffic counts. Turning movements were modeled to allow for WB-67 trucks to enter, park, and exit the parking area.

Cut Bank CPRA

The Cut Bank CPRA is located on the southeast end of town between Railroad Street and US 2 at RP 255.65. The site hosts restrooms, green space, and picnic areas and operates from April through November through participation in the CPRA program. The lack of striping makes it difficult to count the number of vehicle parking spaces; however, from observation it may be possible to park up to 30 passenger vehicles and no oversized vehicles. However, on-street parking located on the southern and northwestern boundaries could accommodate additional passenger parking and some oversized vehicles. Municipal services are connected to the rest area providing water and wastewater service.

Study Segment Proximity and Access from US 2

The CPRA is situated approximately 13.7 miles east of Segment 2, which ends at RP 242.0, and 21.7 miles west of Segment 3, which begins at RP 277.3. Direct access to the CPRA and off-street parking is available along US 2; however, a sidewalk break on the northwest end of the park does not provide a connected pedestrian access route to the restroom facilities. Perpendicular parking is also available directly adjacent to Railroad Street one block north of US 2. Vehicles traveling west can merge onto Railroad Street near the east end of town to gain access. Vehicles traveling east can merge onto Railroad Street near the intersection of US 2 and 5th Avenue SW or continue along US 2 and turn north on 6th Ave SE for one block to Railroad Street.

Environmental Features

Hazardous Substances

Contaminated soils from nearby transportation and industrial land use may be present. BNSF rail, an industrial operation, and a petroleum cardlock fueling station are located across Railroad Street to the north.

Section 4(f) and Section 6(f) Resources

No determinations regarding Section 4(f) of the Transportation Act of 1966 were made as part of this study. A football field is located between US 2 and Railroad Street southeast of the rest area and may potentially be considered a Section 4(f) resource. The Cut Bank City Park Addition was acquired or developed with assistance from Section 6(f) funds.

Cultural Resources

No determinations regarding cultural resources were made as part of this study.

Land Use, Ownership, and Parcel Size

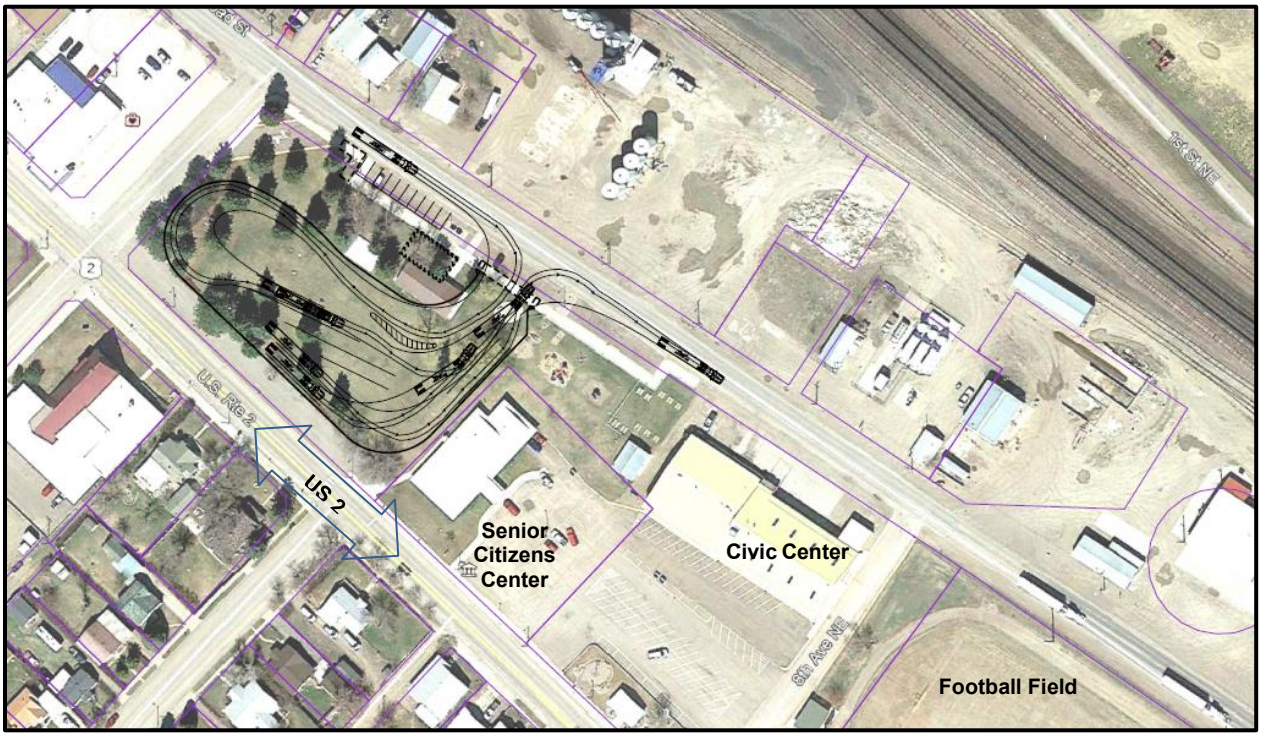
The CPRA parcel is approximately 4.4 acres and owned by the City of Cut Bank. In addition to the CPRA, the parcel contains additional structures including the Joe Meagher Memorial Civic Center and the Cut Bank Area Chamber of Commerce Visitor Center.

The neighboring land use is mixed urban development that includes residential, agricultural, commercial, and recreational use. Numerous residential homes and a church are located along US 2 (East Main Street). A grain elevator is located directly north of Railroad Street and adjacent to a commercial fleet petroleum fueling station. Also, to the north, the BNSF rail line runs east and west along Railroad Street. Several retail stores and the Glacier County Building are located to the northwest. The Cut Bank Senior Center, high school football field, and the civic center are just southeast of the CPRA.

Impact Analysis and Recommendation

The existing land parcel could potentially meet the minimum site criteria to adequately accommodate the footprint of an MDT safety rest area as illustrated in Figure 21. However, the existing green space, children's playground, and several on-street passenger vehicle spaces would need to be removed to enable vehicle turning movements, provide sufficient parking, and address potential safety concerns. This impact would eliminate the site's current function as a city park.

Figure 21: Cut Bank CPRA



Source: Google Earth imagery; DOWL 2018.

Additionally, reconstruction within existing City of Cut Bank right-of-way could trigger Section 6(f) requirements, which apply to all sites receiving LWCFA grants including acquisition of parkland, development, or rehabilitation of facilities. To retain the existing green space and play areas and avoid conversion of Section 6(f) lands, acquisition of adjacent right-of-way would be required, potentially impacting the neighboring civic center, visitor center, and senior citizens center. A year-round, full-service MDT safety rest area would likely generate increased demand from passenger and oversized vehicles, potentially increasing noise and dust for nearby residential and commercial uses.

Due to the potential conversion of lands within a Section 6(f) property, the associated requirements regarding approval and replacement lands, and anticipated impacts to the existing city park and adjacent land uses, this study does not recommend advancing the site for consideration as a year-round, full-service MDT safety rest area.

Chester CPRA

The Chester CPRA is located on the west end of town directly adjacent to US 2 at RP 322.30. The site hosts restrooms, green space, and picnic areas and operates from April through November through participation in the CPRA program. The lack of striping makes it difficult to count the number of passenger and oversized vehicle parking spaces; however, from observation it may be possible to park one or two oversized vehicles or up to ten passenger vehicles with limited maneuverability. On-street parking located along US 2 could accommodate additional passenger parking and some oversized vehicles. Municipal services are connected to the rest area providing water and wastewater services.

Study Segment Proximity and Access from US 2

The CPRA is situated approximately 9.8 miles east of Segment 3, which ends at RP 312.5, and 112.6 miles west of Segment 4, which begins at RP 434.9. Two entrances are located directly off US 2 between the two intersecting roadways of 3rd Street and 5th Street. A small bridge spans approximately 80 feet across Cottonwood Creek near the eastern rest area entrance. Directional traffic enters the parking area from US 2 and exits on the opposite end creating oncoming traffic conflicts while entering and exiting the rest area.

Environmental Features

Surface Waters

Several water bodies are located in the immediate area. Cottonwood Creek is situated directly east of the rest area flowing from the Great Northern Reservoir located to the north. The Great Northern Reservoir is located roughly 200 feet north of the rest area.

Hazardous Substances

Contaminated soils from nearby transportation and industrial land use may be present. BNSF rail is located directly adjacent to the north. An industrial operation is located directly adjacent to the west.

Section 4(f) and Section 6(f) Resources

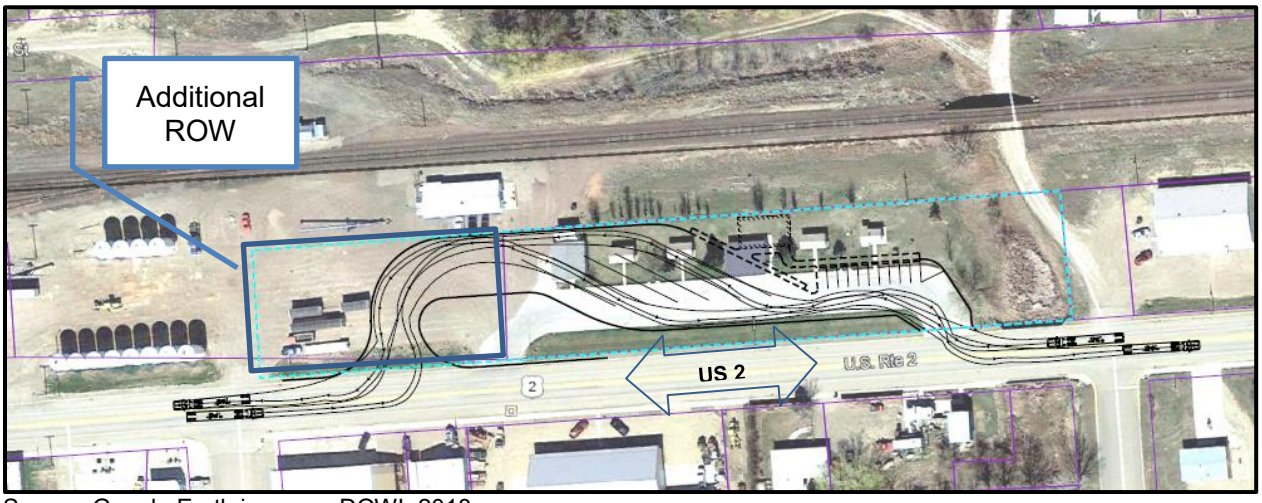
No determinations regarding whether the Chester CPRA property should be considered under Section 4(f) of the Transportation Act of 1966 were made as part of this study. The Chester CPRA was not acquired or developed with assistance from Section 6(f) funds.

Cultural Resources
No determinations regarding cultural resources were made as part of this study.

Land Use, Ownership, and Parcel Size
The existing CPRA parcel is approximately 1.4 acres and owned by the Town of Chester. The neighboring land use is mixed urban development that includes residential, agricultural, and commercial use. Located 80 feet directly north, the BNSF rail runs east and west through town. BNSF Railway operations and a grain elevator and seed sales facility are located directly to the west, and a retail pharmacy is located directly to the east. Several residential homes and various businesses are located south of the rest area on the opposite side of the roadway.

Impact Analysis and Recommendation
The existing land parcel is too small to meet the minimum site criteria to adequately accommodate the footprint of an MDT safety rest area. Approximately 1 acre of additional land would be necessary to accommodate truck turning movements and parking. The resulting site would be an approximately 130 feet wide by 800 feet long, providing 2.4 acres of usable space. Improvements to the existing building facility and parking lot also would need to be addressed.

Figure 22: Chester CPRA



Source: Google Earth imagery; DOWL 2018.

If expansion of the Chester CPRA occurred to the west as depicted in Figure 22, acquisition of adjacent right-of-way would result in impacts to BNSF Railway right-of-way and grain elevator operations. Additionally, the visitor center, picnic shelters, and some landscaped areas would need to be removed. Expansion to the east would impact Cottonwood Creek, the 5th Street/Taylor Street connecting roadway, and the existing retail pharmacy. Expansion to the north is not feasible due to railroad proximity. A year-round, full-service MDT safety rest area would likely generate increased demand from passenger and oversized vehicles, potentially increasing noise and dust for nearby residential and commercial uses.

Due to the anticipated impacts to the existing city park and adjacent land uses, this study does not recommend advancing the site for consideration as a year-round, full-service MDT safety rest area.

Malta CPRA
The Malta CPRA is located approximately one block north of US 2 at RP 471.81.

The site hosts restrooms, green space, picnic areas and operates from April through November through participation in the CPRA program. The lack of striping and designed parking spaces makes it difficult to count the number of vehicle parking spaces; however, from observation it may be possible to park up to 20 passenger vehicles and no oversized vehicles. Municipal services are connected to the rest area providing water and wastewater service.

Study Segment Proximity and Access from US 2

The CPRA is situated approximately 17.5 miles east of the Segment 5, which ends at RP 454.3, and 27.3 miles west of Segment 5, which begins at RP 499.1. It is located approximately 400 feet north of US 2 along a roadway that provides access to the rest area and Trafton Park. Perpendicular passenger parking is available directly off this roadway.

Environmental Features

Surface Waters

The Milk River is situated approximately 450 feet northwest of the rest area.

Hazardous Substances

Contaminated soils from nearby transportation and industrial land use may be present. A petroleum fueling station is located approximately 200 feet south of the rest area.

Section 4(f) and Section 6(f) Resources

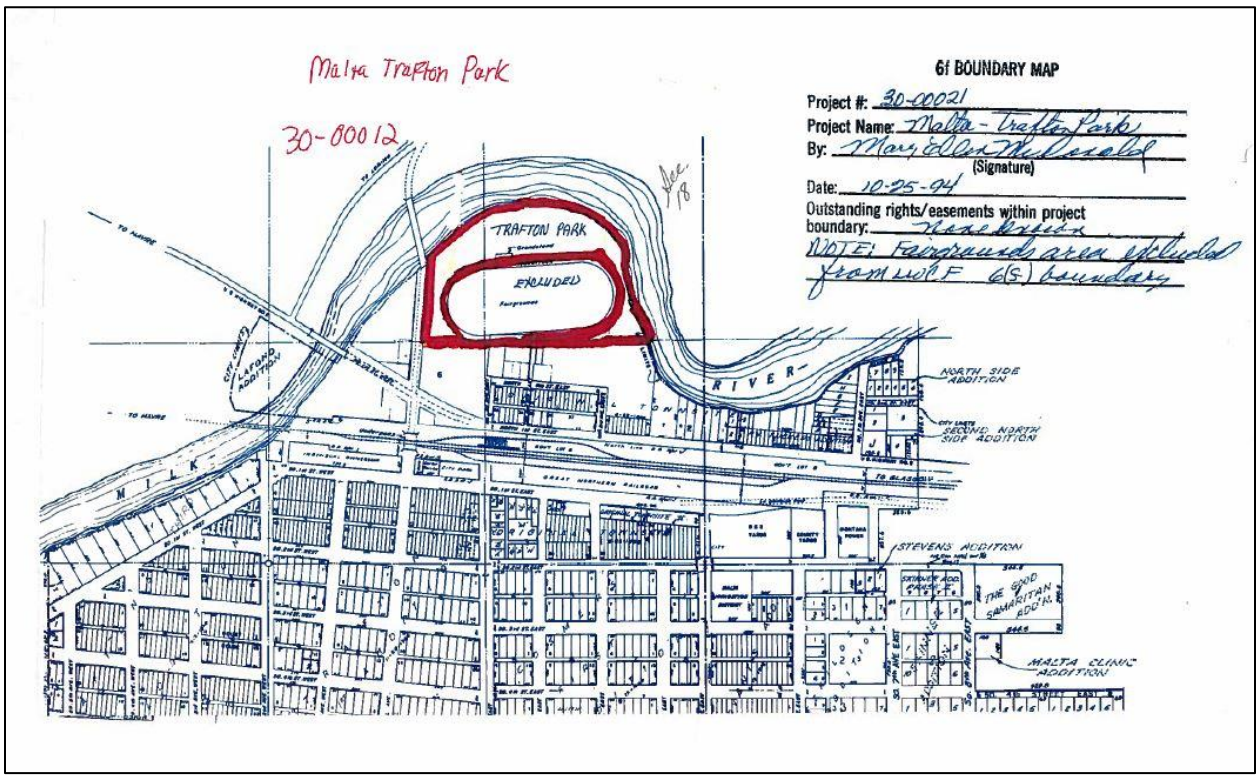
No determinations regarding whether the Malta CPRA property should be considered under Section 4(f) of the Transportation Act of 1966 were made as part of this study. Baseball fields are located directly adjacent to the rest area and may potentially be considered a Section 4(f) resource.

The Malta Trafton Park was acquired or developed with assistance from Section 6(f) funds. The entire Malta City Rest Area is located within the Section 6(f) boundary for Trafton Park, as shown in Figure 23.

Cultural Resources

No determinations regarding cultural resources were made as part of this study.

Figure 23: Trafton Park Section 6(f) Boundary



Source: MFWP 2018.

Land Use, Ownership, and Parcel Size

The CPRA parcel is approximately 2.0 acres and owned by the City of Malta. The neighboring land use is mixed urban development that includes recreational, commercial, residential, and agricultural use. Trafton Park and the county fairgrounds are located directly adjacent to the rest area on both the north and east property lines. A motel, privately operated recreational vehicle (RV) park, and commercial businesses are located to the west and south. Residential development and mixed commercial businesses are located southeast of Trafton Park, and scattered agricultural lands are located north of the Milk River.

Impact Analysis and Recommendation

The existing land parcel is potentially large enough to meet the minimum site criteria and adequately accommodate the footprint of an MDT safety rest area as illustrated in Figure 24.

Figure 24: Malta CPRA

Source: DOWL 2018.

Reconstruction of the Malta CPRA would require improvements to the existing building facility and parking lot. Very little to no additional right-of-way would be required to accommodate adequate turning movements and parking. Some irrigated/landscaped areas would need to be removed. A year-round, full-service MDT safety rest area would likely generate increased demand from passenger and oversized vehicles, potentially increasing noise and dust for nearby recreational, commercial, and residential uses.

Reconstruction of the Malta CPRA could potentially occur within existing City of Malta right-of-way; however, the entire Malta CPRA is within the Section 6(f) boundary for Trafton Park.

Due to the potential of conversion of lands within a Section 6(f) property, the associated requirements regarding approval and replacement lands, and anticipated impacts to the existing city park and adjacent land uses, this study does not recommend advancing the site for consideration as a year-round, full-service MDT safety rest area.

6.2 New Sites

Section 7.2 summarizes analysis of new sites using a four-part process.

- Screening Element A addressed fatal flaws such as poor sight distance from the US 2 mainline highway, adverse site grading, and proximity to sensitive natural resources. Locations exhibiting these fatal flaws were eliminated from further consideration.

- Screening Element B considered desirable site traits such as proximity to municipal services, utilities, and populated areas; public land ownership; and favorable conditions for water/wastewater systems.
- Screening Element C considered planning-level costs for each site.
- Screening Element D included a spatial analysis for potentially favorable sites.

Screening Element A – Fatal Flaws

The intent of Screening Element A was to eliminate unsuitable locations and identify potentially favorable safety rest area sites within the study segments.

Through discussions with the Technical Oversight Committee (TOC) for the study, MDT identified the following screening criteria to eliminate unfavorable siting locations within each study segment. Each of these elements represents a risk to MDT that could result in safety issues, excessive cost, constructability challenges, and permitting/coordination obstacles. The TOC agreed locations exhibiting these fatal flaws warranted elimination from further consideration in the study.

A1. Avoid areas adjacent to horizontal and/or vertical curves that adversely impact sight distance on US 2.
A2. Avoid areas with possible conflicting access points or traffic movements.
A3. Avoid locations in proximity to railroad right-of-way.
A4. Avoid areas with unfavorable topography requiring extensive cuts/fills or adverse grading for future site development.
A5. Avoid areas directly adjacent to residential development.
A6. Avoid areas located within or in proximity to surface water bodies, wetlands, floodplains, and other sensitive physical, biological, or social features.
A7. Avoid areas typically closed for weather-related events.

The June 2017 field reviews provided initial information used in the Screen A evaluation. During a visual survey, field staff identified unsuitable locations based on observations of poor sight distance due to roadway curvature, multiple nearby driveways or access points, railroad proximity, areas with steep grades, developed areas, and proximity to sensitive resources. Field staff also flagged locations characterized by relatively flat grades, straight roadway stretches with good visibility, and absence of water bodies, railroads, or other sensitive features that appeared potentially suitable for safety rest area development.

Online data and mapping gathered during development of the Existing and Projected Conditions Report supported the Screen A evaluation by confirming avoidance areas based on the location of unfavorable features.

MDT District personnel supplied local knowledge and provided input on potentially favorable sites during a series of workshops held in February 2018. Through a discussion of site features, MDT confirmed avoidance areas including stretches of US 2 that are typically closed in winter months due to weather events. MDT also requested consideration of specific locations and recommended consolidating several adjacent sites exhibiting similar characteristics.

Based on this collective information, Table 21 lists locations defined as potentially favorable sites within Segments 1 through 6. All other portions of the study segments were excluded from further consideration.

Table 20: Screen A Summary – Potentially Favorable Sites

Segment	Site	Beginning RP	Ending RP
1	1a	55.7	56.2
	1b	58.3	58.6
	1c	63.1	63.7
	1d	66.4	66.6
	1e	72.9	75.6
2	2a	208.1	208.6
	2b	225.3	228.2
	2c	231.0	232.1
	2d	235.5	237.7
	2e	241.0	242.0
3	3a	281.8	282.6
	3b	285.0	296.6
	3c	300.8	301.3
	3d	309.3	312.5
4	4a	437.1	442.0
	4b	448.8	449.6
5	5a	503.0	503.5
	5b	505.0	505.9
	5c	507.0	508.0
	5d	511.6	512.0
	5e	515.8	517.1
	5f	518.7	519.9
	5g	522.6	523.3
6	6a	574.2	575.0
	6b	576.5	578.0
	6c	585.3	586.0
	6d	586.4	587.0
	6e	593.0	593.7

Screening Element B – Desirable Site Characteristics

The intent of Screening Element B was to assess desirable characteristics for potentially favorable safety rest area sites within each study segment to assist in future project nomination and development decisions. The study evaluated each site and assigned positive (+), neutral (0), and negative (-) screening outcomes for each Screen B criterion. Screening outcomes reflect site performance against screening criteria definitions as opposed to relative ranking comparisons against other sites. Screen B criteria and explanations are listed below.

B1. Consider locations in proximity to existing public water and wastewater services with potential capacity for expansion.

Potential connection to existing municipal services could reduce risk and cost for MDT when siting a new safety rest area. Accordingly, sites within one mile of municipal services were assigned a positive (+) screening outcome, and sites greater than one mile from municipal services were assigned a negative (-) screening outcome.

B2. Consider proximity to existing natural gas, electrical power, and communication infrastructure.

Proximity to utilities including but not limited to electrical power, communication infrastructure, and natural gas could be beneficial to MDT in developing a new safety rest area facility. For example, the ability to tie into an existing power network would reduce the cost of extending power to a site. Accordingly, sites within one mile of utility services were assigned a positive (+) screening outcome, and sites greater than one mile from utility services were assigned a negative (-) screening outcome.

B3. Consider parcels currently owned and maintained by MDT or other state entities.

Right-of-way acquisition is a substantial cost associated with construction of new safety rest areas. In addition to cost considerations, MDT attempts to minimize impacts to private property owners. Siting a new safety rest area on a parcel already owned by MDT presents an opportunity to minimize right-of-way acquisition costs and impacts to private property. Siting on state-owned lands would result in similar benefits, although MDT would need to negotiate price and terms with the landowner. For this screen, sites owned by MDT were assigned a positive (+) screening outcome, sites owned by a state entity other than MDT were assigned a neutral (0) outcome, and sites under private ownership were assigned a negative (-) screening outcome.

B4. Consider proximity to populated areas offering maintenance staffing support for future upkeep and expected level of customer service.

MDT strives to provide an appropriate level of service at safety rest area facilities. Part of this effort involves regular site maintenance and upkeep, including both year-round activities (such as cleaning and stocking paper goods) and seasonal activities (such as landscaping care). MDT typically contracts these services and must consider the availability and proximity of service personnel to reach each site. For this screen, locations within ten miles of a community with at least 1,000 residents were assigned a positive (+) screening outcome, locations within 11 to 20 miles were assigned a neutral (0) screening outcome, and locations greater than 20 miles were assigned a negative (-) screening outcome.

B5. Consider topographical features, soils, and geological suitability for on-site water/wastewater system rehabilitation, reconstruction, or new construction.

The ability to provide on-site water and wastewater treatment systems at the potential safety rest area sites may be limited or favorable based on existing topographic conditions, soils, and geology. Sites with limited topographical features, potential water-bearing geological conditions within 150 feet of the ground surface, and suitable soils for subsurface wastewater disposal were assigned a positive (+) screening outcome. Sites that present topographical variation and poor geological and soil conditions were assigned a negative (-) screening outcome.

Additional information about data sources and the rationale and methods MDT used to evaluate each screening criterion is provided in Appendix D.

Considerations Excluded From Screening Element B

Security and Vandalism Concerns

MDT strives to provide rest area facilities where patrons feel safe to stop and rest. Site safety is enhanced during project development through appropriate site layout, visibility from the highway, adequate site lighting, and installation of security cameras to monitor usage.

MDT also considers security from the siting perspective, including whether location in a remote area or in proximity to a community enhances or detracts from actual and perceived security. MDT elected to exclude security issues and potential for vandalism from Screen B scoring as these considerations are best addressed on a case-by-case basis during the project development process.

Emergency Parking

The TOC discussed the potential need to provide emergency parking in locations where weather events may require road closures. MDT elected to exclude emergency parking from Screen B scoring because Screen A7 eliminates areas typically closed for weather-related events.

Mobile Service

MDT recognizes motorists' desire to use mobile devices while traveling. The TOC discussed the possibility of including a screening criterion for mobile service given that some portions of US 2 are locally known as "dead zones" where service is unavailable. MDT elected to exclude mobile service from Screen B scoring due to the difficultly in developing accurate mapping and the fluctuating nature of mobile service within the corridor.

Agency Partnerships

The TOC discussed the possibility of considering partnerships with other state agencies. MDT elected to exclude agency partnerships from Screen B scoring due to limited opportunities in the US 2 corridor.

Screen B Summary – All Segments

Table 22 presents a summary of Screen B scores for all potentially favorable sites in each segment using a green to red conditional formatting gradient. Green cells indicate sites that perform the best, and red cells indicate sites that perform the worst according to Screen B elements. Best performing sites in each segment include:

- Segment 1: Site 1d (score of +1)
- Segment 2: Sites 2a, 2b, 2c (tied score of +1)
- Segment 3: Site 3a (score of +2)
- Segment 4: Site 4a (score of -1)
- Segment 5: Site 5d (score of 0)
- Segment 6: Sites 6c, 6d, 6e (tied score of +1)

Table 21: Screen B Summary – All Segments

Segment	Site	Screen B Total	Screen B1	Screen B2	Screen B3	Screen B4	Screen B5
			Municipal W/WW	Other Utilities	RW Ownership	Proximity to Pop. Areas	Topo/Soils/ Geology
1	1a	-3	-	+	-	-	-
	1b	-1	-	+	-	-	+
	1c	0	-	+	0	-	+
	1d	1	-	+	+	-	+
	1e	-1	-	+	-	-	+
2	2a	1	+	+	0	0	-
	2b	1	-	+	-	+	+
	2c	1	-	+	-	+	+
	2d	-2	-	+	-	0	-
	2e	-2	-	+	-	0	-
3	3a	2	+	+	0	+	-
	3b	-2	-	+	-	0	-
	3c	-3	-	+	-	-	-
	3d	-2	-	+	0	-	-
4	4a	-1	-	+	-	+	-
	4b	-3	-	+	-	-	-
5	5a	-3	-	+	-	-	-
	5b	-3	-	+	-	-	-
	5c	-2	-	+	0	-	-
	5d	0	+	+	0	-	-
	5e	-3	-	+	-	-	-
	5f	-3	-	+	-	-	-
	5g	-2	-	+	-	0	-
6	6a	0	+	+	-	0	-
	6b	0	+	+	-	0	-
	6c	1	+	+	-	+	-
	6d	1	+	+	-	+	-
	6e	1	+	+	-	+	-

Screen B Scoring Gradient	-3	-2	-1	0	1	2

Source: DOWL, 2018.

Screening Element C – Costs

The intent of Screening Element C was to assign planning-level costs for favorable safety rest area sites advanced after Screen A within each study segment. The study evaluated each favorable site and assigned a base cost of $1,850,000 which does not include RW, source water, or wastewater. It was assumed that the configuration of each rest area would be roughly the same and change minimally from site to site. Right-of-way cost was based on a 15-acre plot at an assumed cost of $2,000/acre for private land, $1,500/acre for mix of state and private land, $5,000 for state lands not owned by MDT, and $0 is assumed if parcel is currently owned by MDT.

Source water was estimated to be $45,000 for a new well and $15,000 for a treatment system if required for water quality. Connection to municipal services was estimated to be approximately $82,000 where available. Wastewater was based on an average Level II installation cost of $250,000, or connection to municipal services at $83,000. MDT may determine during project development that connection to municipal services is not feasible due to a variety of factors, in which case, on-site water and wastewater would be required.

A contingency of 30%, mobilization of 18%, PE of 10%, CE of 10%, and IDC of 10.96% were included in the planning estimate. These phases roughly double the construction cost. Accordingly, for planning purposes a 200% “All Other Phases" category was used. Additionally, Tribal Employment Rights Office (TERO) and Improvement of Services (IOS) fees were applied to sites located on the Blackfeet, Fort Belknap, and Fort Peck Reservations. Individual TERO and IOS fees were assessed using current Memorandums of Understanding (MOU) with individual tribes and MDT.

Sites located in Segment 5 were assessed an additional $490,000 for abandonment or conversion of the Vandalia Safety Rest Area to truck parking. It was assumed that if any rest area site were developed in Segment 5 then the Vandalia Safety Rest Area would be redundant, and some level of investment would be required to reduce services or abandon the site.

Additionally, an annual operations and maintenance (O&M) cost was estimated by annualizing the average expenditures of existing year-round rest areas throughout the state over a twenty-year period. Expenditures for the O&M cost estimate include utilities, MDT staff time, contracted services, materials, and equipment use. An annualized average cost of $75,000 was determined to represent single sites not expected to connect to municipal services; with $80,000 for single sites connected to a municipal water source, and $85,000 for single sites connected to both municipal source water and wastewater services.

All planning-level cost estimates were based on 2018 estimates with no inflation as presented in Table 23. Cost estimates ranged from a low of $4,040,000 to a high of $4,870,000. Within each segment, cost estimates varied by a maximum of $350,000. Annual maintenance and operations varied from zero to $10,000 per year.

Table 22: Capital Cost Estimates & Annual Operations and Maintenance

Site	Base Cost (MLLIONS)	RW Cost (THOUSANDS)	Source Water			Wastewater		Other ($THOUSANDS)	All Other Phases	TERO and IOS Fees	Total Capital Cost ($MILLIONS)	Annual Maintenance & Operations ($THOUSANDS)
			Well ($THOUSANDS)	Treatment ($THOUSANDS)	Connect to Public Service ($THOUSANDS)	On-site ($THOUSANDS)	Connect to Public Service ($THOUSANDS)					
1a	$1.85	$30	$45	-	-	$250	-	-	200%	-	**$4.35**	$75
1b	$1.85	$30	$45	-	-	$250	-	-	200%	-	**$4.35**	$75
1c	$1.85	$5	$45	-	-	$250	-	-	200%	-	**$4.30**	$75
1d	$1.85	$0	$45	-	-	$250	-	-	200%	-	**$4.29**	$75
1e	$1.85	$30	$45	-	-	$250	-	-	200%	-	**$4.35**	$75
2a	$1.85	$5	-	-	$82	$83	-	-	200%	✓	**$4.16**	$80
2b	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.51**	$75
2c	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.51**	$75
2d	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.51**	$75
2e	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.51**	$75
3a	$1.85	$5	-	-	$82	$83	-	-	200%	-	**$4.04**	$80
3b	$1.85	$30	$45	$15	-	$250	-	-	200%	-	**$4.38**	$75
3c	$1.85	$30	$45	$15	-	$250	-	-	200%	-	**$4.38**	$75
3d	$1.85	$15	$45	$15	-	$250	-	-	200%	-	**$4.35**	$75
4a	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.49**	$75
4b	$1.85	$30	$45	$15	-	$250	-	-	200%	✓	**$4.49**	$75
5a	$1.85	$30	$45	$15	-	$250	-	$490	200%	-	**$4.87**	$75
5b	$1.85	$30	$45	$15	-	$250	-	$490	200%	-	**$4.87**	$75
5c	$1.85	$5	$45	$15	-	$250	-	$490	200%	-	**$4.82**	$75
5d	$1.85	$15	-	-	$82	-	$83	$490	200%	-	**$4.55**	$85
5e	$1.85	$30	$45	$15	-	$250	-	$490	200%	-	**$4.87**	$75
5f	$1.85	$30	$45	$15	-	$250	-	$490	200%	-	**$4.87**	$75
5g	$1.85	$30	$45	$15	-	$250	-	$490	200%	-	**$4.87**	$75
6a	$1.85	$30	-	-	$82	-	$83	-	200%	✓	**$4.17**	$85
6b	$1.85	$30	-	-	$82	-	$83	-	200%	✓	**$4.17**	$85
6c	$1.85	$30	-	-	$82	-	$83	-	200%	✓	**$4.17**	$85
6d	$1.85	$30	-	-	$82	-	$83	-	200%	✓	**$4.17**	$85
6e	$1.85	$30	-	-	$82	-	$83	-	200%	✓	**$4.17**	$85

Source: DOWL, 2018. Gradient: Green = lowest cost; yellow = mid-range cost, red = highest cost in segment.

Screening Element D – Spacing

The intent of Screening Element D was to assess spacing distances between reset points and potentially favorable safety rest area sites advanced from Screen A within each study segment. Intervals greater than 70 miles provide a reduced level of service for travelers, while intervals less than 70 miles represent a degree of redundancy and inefficient investment for MDT.

Table 24 presents the absolute difference between the ideal 70-mile interval defined for this study and the actual distance between each site and adjacent sites/reset points. The gradient scale indicates green for differences of approximately 5 miles (65 to 75 miles from the nearest adjacent site/reset point), yellow for differences of approximately 10 miles (60 to 80 miles from the nearest adjacent site/reset point), and red for differences of approximately 15 miles or more (≤55 miles to ≥85 miles).

Spacing performance for individual sites was dependent on the location of adjacent sites in relation to reset points. Additionally, in some cases, sites achieved better performance (lower absolute difference) in one direction and poorer performance (higher absolute difference) in the other. For this study, the best performing sites were determined based on their ability to balance distances in each direction and most closely approach the 70-mile ideal. Best performing combinations of sites include the following.

- Troy to Kalispell: Site 1d best balances the distances between Troy and Kalispell.
- Columbia Falls to Havre: 2b and 3c or 3d best balance the interval distances between Columbia Falls and Havre.
- Havre to Culbertson: 4b, 5d, and 6b best balance the interval distances between Havre and Culbertson

Table 23: Spacing Comparison Against Ideal 70-mile Interval

Site	Troy	Kalispell
1a	31.4	5.7
1b	28.8	8.1
1c	24	13.2
1d	20.7	16.1
1e	14.2	25.1

Site	Col. Falls	3a	3b	3c	3d
2a	2.1	3.2	6.4	22.2	30.7
2b	19.3	16.4	13.2	2.6	11.1
2c	25	20.3	17.1	1.3	7.2
2d	29.5	25.9	22.7	6.9	1.6
2e	35	30.2	27	11.2	2.7

Site	2a	2b	2c	2d	2e	Havre
3a	3.2	16.4	20.3	25.9	30.2	29.9
3b	6.4	13.2	17.1	22.7	27	15.9
3c	22.2	2.6	1.3	6.9	11.2	11.2
3d	30.7	11.1	7.2	1.6	2.7	0

Site	Havre	5a	5b	5c	5d	5e	5f	5g
4a	15.4	9	7	5	0.4	3.8	6.7	15.1
4b	3.7	16.6	14.6	12.6	8	3.8	0.9	7.5

Site	4a	4b	6a	6b	6c	6d	6e
5a	9	16.6	0.7	3	11.8	12.9	19.5
5b	7	14.6	1.7	0.6	9.4	10.5	17.1
5c	5	12.6	3.8	1.5	7.3	8.4	15
5d	0.4	8	7.8	5.5	3.3	4.4	11
5e	3.8	3.8	12.9	10.6	1.8	0.7	5.9
5f	6.7	0.9	15.7	13.4	4.6	3.5	3.1
5g	10.6	3	19.1	16.8	8	6.9	0.3

Site	5a	5b	5c	5d	5e	5f	5g	Culbertson
6a	0.7	1.7	3.8	7.8	12.9	15.7	19.1	0.2
6b	3	0.6	1.5	5.5	10.6	13.4	16.8	2.8
6c	11.8	9.4	7.3	3.3	1.8	4.6	8	10.8
6d	12.9	10.5	8.4	4.4	0.7	3.5	6.9	11.8
6e	19.5	17.1	15	11	5.9	3.1	0.3	18.5

Source: DOWL, 2018. Values indicate absolute difference between ideal 70-mile interval and actual distances between adjacent sites/reset points. Gradient: Green = differences of approximately 5 miles (65 to 75 miles from the nearest adjacent site/reset point), yellow = differences of approximately 10 miles (60 to 80 miles from the nearest adjacent site/reset point), red = differences of approximately 15 miles or more (≤55 miles to ≥85 miles).

6.3 Recommended Sites

Table 25 synthesizes information on site characteristics (Screen B), cost (Screen C), and spacing (Screen D) for the best performing sites under each screening element. In some cases, a single site performed best (or equally well as other sites) under all three screening elements. In other cases, site performance varied by screening element. Rationale for recommended sites is provided below.

Table 24: Best Performing Sites – Characteristics, Costs, Spacing

Segment	Site	Screen B Total	Screen C Total ($MILLIONS)	Screen D (Best Balance)	Recommended Site
1	1d	1	$4.29	✓	1d
2	2a	1	$4.16	×	2a
	2b	1	$4.51	✓	
	2c	1	$4.51	×	
3	3a	2	$4.04	×	3a
	3c	-3	$4.38	✓	
	3d	-2	$4.35	✓	
4	4a	-1	$4.49	×	4a
	4b	-3	$4.49	✓	
5	5d	0	$4.55	✓	5d
6	6b	0	$4.17	✓	6c
	6c	1	$4.17	×	
	6d	1	$4.17	×	
	6e	1	$4.17	×	

- Troy to Kalispell: Site 1d performed best in all scoring categories. It has the highest Screen B total, costs the least, and best balances distances between reset points. Site 1d is recommended for advancement from this study.

- Columbia Falls to Havre: Site performance varied by screening element. Two possible site combinations could be considered.

    - Combination 1: Sites 2a and 3a perform best (or equally well as other sites) in terms of Screen B characteristics and cost the least. Spacing would be unevenly distributed with intervals of 72.1, 73.2, and 99.9 miles traveling west to east between reset points. Two of the three intervals would nearly achieve the 70-mile ideal, while one interval would exceed 70 miles by nearly 30 miles.

    - Combination 2: Sites 2b and 3d best balance interval distances between Columbia Falls and Havre at 89.3, 81.1, and 70.0 miles. However, Site 2b costs approximately $350,000 more than Site 2a, and Site 3d scores 4 points lower than Site 3a based on poor proximity to existing public water/wastewater services and poor proximity to populated areas offering maintenance staffing support.

  - Recommendation: This study recommends advancing Sites 2a and 3a given superior site characteristics, lower costs, and ideal spacing for two of the three intervals between reset points.

- Havre to Culbertson: Site performance varied by screening element. Two possible site combinations could be considered.

  - Combination 1: Selecting Sites 4a, 5d, and 6c would result in the best site characteristics and one of the lowest cost combinations. Spacing intervals would be uneven at 54.6, 69.6, 73.3, and 59.2 miles traveling west to east from Havre to Culbertson. Two of the four intervals would nearly achieve the 70-mile ideal, while two shorter intervals would be less than 70 miles by approximately 10 to 15 miles.

  - Combination 2: Selecting Sites 4b, 5d, and 6b would best balance interval distances between reset points at 66.3, 62.0, 64.5, and 67.2 miles traveling west to east from Havre to Culbertson. Costs would be equal to Combination 1. However, Site 4b scores 2 points lower than Site 4a, and Site 6b scores 1 point lower than 6c based on poor proximity to populated areas.

  - Recommendation: This study recommends advancing Sites 4a, 5d, and 6c given superior site characteristics and ideal spacing for 2 of the 4 intervals between reset points.

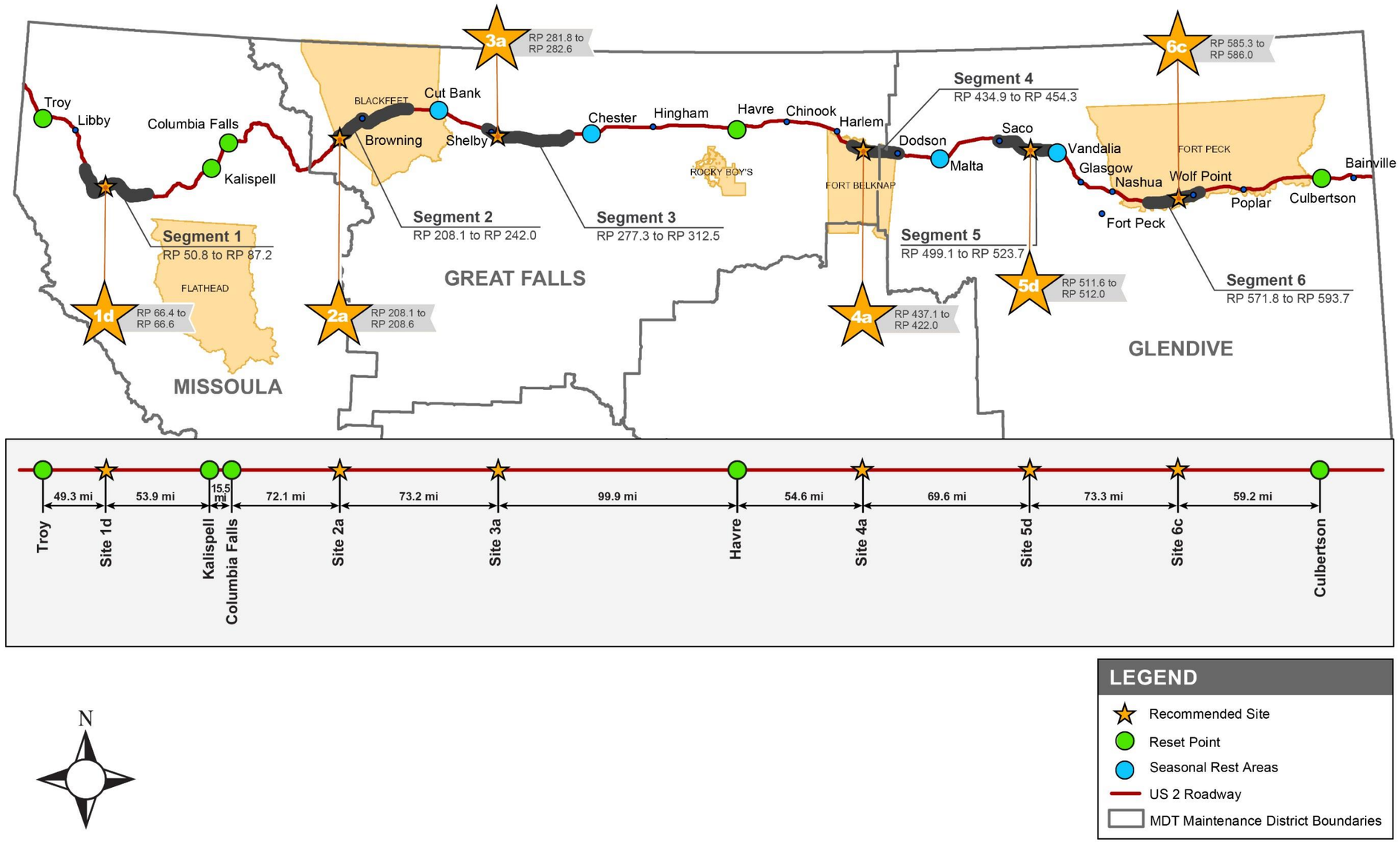
Figure 25 illustrates corridor-wide spacing with recommended safety rest area sites marked by a gold star, seasonal sites (including the Vandalia Safety Rest Area and CPRAs) marked by a blue circle, and reset points marked by a green circle. Based on the distances between reset points and recommended year-round safety rest area sites, five intervals are less than the desired 70-mile spacing, ranging from 49 to 59 miles. Four intervals between favorable sites and reset points are greater than the desired 70-mile spacing, ranging from 72 to 100 miles.

If recommended sites are determined in the future to be infeasible or less desirable due to issues such as right-of-way acquisition challenges or inability to connect to municipal water and wastewater services, MDT could consider advancing other potentially favorable sites within each study segment.

For those sites carried forward to construction, further evaluation of all environmental factors, including presence of federally listed threatened and endangered species and their habitat, bald and golden eagles and their nests, sage grouse habitat, and wetlands would need to be completed. Construction timing limits may need to be implemented at sites located in grizzly bear habitat (limited to no work at down, night, and dusk), at sites near bald or golden eagle nests during breeding season (February 15 to August 15), and potentially for sites located in sage grouse habitat.

A cultural resource survey may be necessary for any construction project resulting from this study. An evaluation of environmental factors including but not limited to Section 106 of the National Historic Preservation Act (NHPA) would be required.

Figure 25: Recommended Sites and Corridor Distances



Note: RP location for reset points was measured at the center of the city limits or at the access point for existing safety rest areas. Distances from reset points to recommended sites were measured to the nearest RP. Sum of distances does not equal total length of study corridor.

6.4 Segment Prioritization

This study recommends prioritizing safety rest area investments based on current service gaps on US 2. Using a needs evaluation approach, MDT considered which site(s) would provide the greatest investment value based on a broader interpretation of available stopping opportunities compared to the initial segment and reset point identification process referenced in Section 1.1. Table 26 summarizes distances in the east and west directions from the midpoint of each recommended site to the nearest MDT Safety Rest Area, CPRA, or community with a population of at least 1,500 providing a minimum of one commercial establishment with 24-hour services.

Table 25: Distance between Recommended Sites and Adjacent Services

Site	Libby (RP 32)	Kalispell (RP 121)	Columbia Falls (RP 136.5)	Cut Bank (RP 255.5)	Shelby (RP 279.5)	Chester (RP 322)	Havre (RP 382.5)	Malta (RP 472)	Vandalia RA (RP 527)	Glasgow (RP 541.5)	Wolf Point (RP 590.5)	Culbertson RA (RP 645)
1d (RP 66.5)	34.5	54.5										
2a (RP 208.5)			72	47								
3a (RP 282)				26.5	2.5							
4a (RP 439.5)							57	32.5				
5d (RP 512)									15	29.5		
6c (RP 582.5)										41	8	

Approximate distances between recommended sites and adjacent services listed in miles.

Table 27 lists the priority of each recommended site based on the sum of distances to the closest stopping opportunities in descending order from greatest to smallest distance.

Table 26: Priority Order According to Greatest Need

Site	Closest Services (East)	Closest Services (West)	Distance (Miles)
2a	Columbia Falls	Cut Bank	119
4a	Havre	Malta	89.5
1d	Libby	Kalispell	89
6c	Glasgow	Wolf Point	49
5d	Vandalia SRA	Glasgow	44.5
3a	Cut Bank	Shelby	29

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In addition to service gaps, MDT will consider other factors beyond the scope of this study, including funding and adjacent service availability at the time of project nomination, ease of right-of-way acquisition or easement, and feasibility/capacity to connect to municipal water and wastewater services. Challenges associated with these efforts may alter the priority order in which safety rest area improvements within each segment are addressed.

7.0 POTENTIAL FUNDING SOURCES

This chapter identifies potential sources of funding that could be used to finance future improvements in the future for safety rest areas located along the US 2 corridor. As of this publication date, no funding has been dedicated to rest area improvements identified in this study.

MDT administers multiple programs that are funded from state and federal sources. Each year, in accordance with 60-2-127, Montana Code Annotated (MCA), the Montana Transportation Commission allocates a portion of available federal-aid highway funds for construction purposes and for projects located on the various systems in the state as described throughout this document. The Fixing America's Surface Transportation Act (FAST Act) was signed into law on December 4, 2015, and authorizes federal transportation funding for federal fiscal years 2016 through 2020.

7.1 Federal Funding Sources

The following section summarizes relevant federal transportation funding categories received by the state through Titles 23 & 49 of the U.S. Code., including state developed implementation/sub-programs that may be potential sources for projects. To receive project funding under these programs, projects must be included in the STIP, where relevant.

National Highway Performance Program (NHPP)

The National Highway Performance Program (NHPP) funds are federally apportioned for the National Highway System roads and bridges, which includes the Interstate and non-Interstate NHS routes. MDT sets aside an annual allocation from the NHPP for support of the MDT Rest Area Program which is prioritized by statewide condition/need. The Statewide Rest Area Prioritization Plan Committee evaluates rest areas and truck parking areas based on criteria set forth in the Montana Rest Area Plan and prioritizes improvement projects based on an asset management approach. MDT Districts may use NHPP funding allocations to supplement the MDT Rest Area Program set-aside funds as needed.

NHPP funds are federally-apportioned to Montana and allocated to Districts by the Montana Transportation Commission based on system performance. The federal share for non-Interstate

NHS projects is 86.58% and the state is responsible for the remaining 13.42%. The state share is funded through the Highway State Special Revenue Account (HSSRA).

Highway Safety Improvement Program (HSIP)
HSIP funds are apportioned to Montana for safety improvement projects approved by the Commission and are consistent with the strategic highway safety improvement plan. Projects described in the state's strategic highway safety plan must correct or improve a hazardous road location or feature or address a highway safety problem. The Commission approves and awards the projects which are let through a competitive bidding process. Generally, the federal share for the HSIP projects is 90% and the State is responsible for the remaining 10%. Typically, the state share is funded through the HSSRA. HSIP funding is evaluated through a data-driven process, prioritized on a statewide benefit/cost analysis, and may be used for safety rest area projects.

8.0 CONCLUSIONS AND NEXT STEPS

This study identified existing conditions and resources within -each of the study segments and considered opportunities for full-service, year-round safety rest areas along the US 2 corridor to address current gaps in service. Considered locations include existing seasonal sites and new sites within six discrete study segments.

Of the four seasonal sites at Vandalia, Cut Bank, Chester, and Malta, none are recommended for rehabilitation/reconstruction due to network spacing and location, safety concerns, anticipated impacts to existing city parks and adjacent land uses, and potential Section 4(f) and 6(f) involvement.

The study considered new sites within each of the defined study segments. A fatal flaw analysis (Screen A) eliminates unfavorable locations. Remaining potentially favorable sites were assessed based on site characteristics (Screen B), cost (Screen C), and spacing (Screen D). Recommended sites best address these screening elements, with superior site characteristics outweighing more evenly spaced intervals. Recommended sites include 1d, 2a, 3a, 4a, 5d, and 6c.

The study recommends prioritizing safety rest area investments based on current service gaps on US 2, with initial investment in Segment 2 potentially followed by Segments 4 and 1. Other factors such as funding, right-of-way, municipal service connection, changes in corridor stopping opportunities in communities, and other MDT safety rest area needs throughout the state may alter the priority order in which MDT addresses improvements in these corridor segments.

In Segments 6, 5, and 3, current spacing between MDT Safety Rest Areas, CPRAs, and communities providing at least one stopping opportunity at a commercial establishment with 24-hour services does not justify MDT investment in new year-round MDT facilities. Rest area development is not recommended in these locations.

For any sites carried forward to project development, further evaluation would be needed for water including supply, quality, rights, and impacted adjacent sources; wastewater including a non-degradation analysis to include total effluent flow, anticipated advanced treatment, and footprint for treatment and dosing; and right-of-way including needs for current and proposed buildings, parking, wastewater treatment, picnic structures, and other site features. Further evaluation would also be needed for all environmental factors, including presence of federally listed threatened and endangered species and their habitat, bald and golden eagles and their nests, sage grouse habitat, and wetlands would need to be completed. Construction timing limits may need to be implemented at sites located in grizzly bear habitat (limited to no work at dawn, night, and dusk), at sites near bald or golden eagle nests during breeding season (February 15 to August 15), and potentially for sites located in sage grouse habitat. Additionally, a cultural resource survey may be necessary for any construction project resulting from this study. An evaluation of environmental factors including but not limited to Section 106 of the NHPA would be required.


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