US 93 POLSON-SOMERS CORRIDOR STUDY

APPENDIX 5:

Improvement Options Technical Memorandum

US 93 POLSON-SOMERS CORRIDOR STUDY

IMPROVEMENT OPTIONS

Technical Memorandum

June 9, 2025

MONTANA
MDT
DEPARTMENT OF TRANSPORTATION

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1.0. INTRODUCTION

The Montana Department of Transportation (MDT) is developing a corridor study of US Highway 93 (US 93) between Polson and Somers, Montana. The purpose of the *US 93 Polson-Somers Corridor Study* is to develop a comprehensive long-range plan for managing the corridor and determining what improvements can be made to address identified needs while considering public and agency input, environmental constraints, access management, and financial feasibility. The study is a collaborative process with MDT, the Federal Highway Administration (FHWA), the Confederated Salish and Kootenai Tribes (CSKT), local jurisdictions, resource agencies, and the public to identify transportation needs and potential solutions.

This *Improvement Options Technical Memorandum* identifies and evaluates options for improving US 93. Potential improvement options are intended to address issues or areas of concern defined in the *Existing and Projected Conditions Technical Memorandum*[1] prepared for the study corridor. Improvement options considered in this report reflect input from stakeholders and the public, as well as a thorough evaluation of the existing conditions of US 93 within the study area. The following steps were applied:

1. Identify roadway issues and areas of concern based on field review, engineering analysis of as-built drawings, crash data analysis, consultation with resource agencies, and information provided by the public.
2. Define corridor needs and objectives.
3. Analyze the information gathered to develop a range of improvement options that consider public and stakeholder comments, address the roadway issues and areas of concern, and satisfy corridor needs and objectives.

1.1. Needs and Objectives

Needs and objectives for the *US 93 Polson-Somers Corridor Study* were developed based on a review of local plans, input from resource agencies, stakeholders, and the public, and social, environmental, and engineering conditions described in the *Environmental Scan*[2] and *Existing and Projected Conditions Technical Memorandum*. Needs and objectives provide statements to guide the improvement options development and evaluation process. Improvement options identified in this study attempt to address the needs and objectives to the extent feasible within the other limiting considerations listed below. As improvement options are advanced from this study, needs and objectives will be incorporated in purpose and need statements for future National and Montana Environmental Policy Act (NEPA/MEPA) documentation.

Need 1: Improve Corridor Safety

- Reduce fatalities and serious injuries in support of Vision Zero.
- Reduce animal-vehicle conflicts.
- Reduce roadside hazards.
- Reduce vehicle conflicts.

Need 2: Improve Corridor Operations

- Accommodate existing and future travel demands.
- Maintain reasonable access to adjacent lands.
- Improve non-motorized mobility and accessibility.

Other Considerations

- Environmental resource impacts
- Social and cultural resource impacts
- Multimodal transportation accessibility
- Construction feasibility and impacts
- Local, Tribal, State, and Federal interests
- Corridor context, function, and use
- Funding availability
- Maintenance operations, responsibility, and costs

1.2. Highway Projects Under Development

MDT has planned or recently completed a number of projects within the US 93 highway corridor. Other projects developed by the CSKT are also expected to be completed in the coming years. Collectively, these projects will address safety, roadway maintenance, as well as non-motorized needs. A summary of planned and recently completed highway projects is provided below.

MDT Recent and Planned Projects

- **Somers Safety Improvements (2017)**: This safety project spanned a quarter-mile stretch of US 93 in Somers starting at RP 102.5. The project included the installation of a rectangular rapid flashing beacon (RRFB) and the upgrading of crosswalk pavement markings at the existing crosswalk.
- **Turn Lanes NW of Polson (2017)**: This project involved the installation of left-turn lanes at the intersection of US 93 and Flathead View Road as well as improvements to the intersection alignment. The project spanned from RP 64 to RP 64.8 on US 93.
- **North of Polson – North (2018)**: Completed in 2018 on US 93 from RP 67.4 to RP 79.2, this project involved the application of chip seal for pavement improvement.
- **Rollins N&S (2018)**: This project involved applying chip seal on US 93 from RP 85 to RP 93.
- **Elmo - West (2020)**: This project was completed on MT 28 from RP 36.1 to 46.6 (at the intersection with US 93) and involved the application of a chip seal for pavement preservation.
- **Lakeside N&S (2021)**: MDT completed a pavement preservation project on US 93 spanning from RP 93 to 102. The project focused on enhancing the roadway by applying a chip seal treatment.
- **US 93 Rumble Strips (2023)**: MDT completed a project on US 93 between the Wye intersection and Big Arm. Rumble strips were added to portions of the roadway along the highway, including north of Polson from Wilderness Valley Road toward Melita Island Road.
- **US 93 Lakeside Speed Study (2024)**: MDT conducted a speed study focused on the portion of US 93 from RP 93.0 to 104.2 near Lakeside. It proposed a speed limit of 65 miles per hour (mph) beginning at RP 93 and continuing until RP 97.0 (previously posted at 70 mph), as well as a 30-mph speed limit between Blacktail Road and Old Orchard Road in Lakeside at approximate RP 98.0 (previously posted at 35 mph), followed by a lengthened 45-mph transition zone extending 1,600 feet. The recommended speed limits have been posted in the corridor, however data collected for this study reflects the previously posted speed limits.
- **US 93 Elmo to Dayton Speed Study (Ongoing)**: A speed study was requested by Lake County to examine US 93 from RP 76.96 to 85.00 between Elmo and Dayton. Data was collected in September 2023 and is currently under review by MDT.
- **SF 209 Missoula North Signs (Ongoing)**: MDT recently developed a safety project to address crash trends in Flathead, Lake, Lincoln, and Sanders counties. The improvements include

signage, lighting, flashers, curve signage, and delineation, with some work within the Flathead Reservation. Project construction will occur in 2025.

Other Planned Projects in Study Vicinity

- **Big Arm-Elmo Trail (Ongoing)**: This CSKT project aims to enhance community connectivity and safety by improving and extending the path. Planned in two phases, Phase I will link the Elmo Community Center to the Kupawicquk Picnic and Swimming Area, while Phase II will extend an 8-foot-wide paved path to homesites and the Big Arm State Park entrance. Improvements include 3,320 feet of accessible asphalt path, 1,900 feet of retaining wall, and pedestrian-activated crossings. Funding for Phase I is currently being pursued.
- **Confederated Salish and Kootenai Tribes (CSKT) Safety Action Plan (Ongoing)**: The CSKT are developing a Transportation Safety Action Plan (SAP) for the Flathead Reservation. The effort aims to reduce fatal and severe injury crashes for everyone, including people walking, driving, riding in a car, biking, or using public transportation. This initiative is funded by a grant from the U.S. Department of Transportation's Safe Streets and Roads for All (SS4A) program. Comments are being collected through an online commenting map, with several comments addressing the portion of US 93 within the Flathead Reservation between Polson and Dayton.
- **Flathead County Development (Ongoing)**: **Table 1** lists subdivisions that have been proposed and/or approved in Flathead County in the vicinity of the US 93 corridor.

Table 1: Flathead County Developments

Subdivision Name	Subdivision Location	Number of Lots	Approval Date / Comments
All View Subdivision	486 N. Somers Rd	5	
Eagles Crest Ridge	98 Big Rock Ridge	2	
Flathead Lake Club	1162 Trapper's Creek Rd	366	Includes marina at 688 Lakeside Blvd with 3 new docks, 30 boat slips, and boat launch. Property to be gated.
Lakeside Estates 4 & 5	Skookum Rd/Bierney Creek	35	2/12/2025
Lakeside Hills	632 Bierney Creek Rd	8	
Lakeside Homes	321 Bills Rd	12	
Porter Ranch Reserve	913 N. Somers Rd.	8	9/24/2024
Steamboat Landing	603 Somers Rd	252	
Wee Casa Flathead Valley RV Park	457 Hwy 82	59	10/10/2024

Source: Flathead County, 2025.

- **Conclow Fishing Access Site (FAS) (Ongoing)**: MFWP is developing a new FAS on Flathead Lake located northeast of Dayton on US 93 at approximate RP 84, with access provided via Montibello Lane. A new left-turn lane will be constructed on US 93 at this location.
- **S&K Gaming Casino (Ongoing)**: S&K Gaming is proceeding with development of a casino complex northwest of Polson just outside the study limits, with access to US 93 via Irvine Flats Road. In the future, the complex may include an RV park and additional residential/commercial developments.

2.0. IMPROVEMENT OPTIONS

This chapter provides a description of improvement options identified to address the needs and objectives for the US 93 corridor, along with specific areas of concern. The improvement options focus primarily on infrastructure enhancements such as roadway, intersection, and multimodal upgrades. While infrastructure is the core focus, a limited number of policy-based strategies are also recommended due to their role in improving overall corridor performance. These corridor-specific recommendations are further supported by applicable strategies from MDT's *Comprehensive Highway Safety Plan* (CHSP), which outlines behavioral and educational safety strategies that support a holistic approach to improving safety outcomes.

The improvement options are categorized into spot improvements, corridor-wide improvements, and policy improvements. The spot and corridor improvements could be implemented as standalone projects or, where appropriate, combined into larger projects. Packaging multiple improvements together may offer potential cost savings and operational efficiencies.

Implementation Partners

Successful implementation of improvements will require collaboration among multiple entities. Depending on the specific improvement, various agencies and stakeholders may provide the necessary resources, funding, jurisdiction, or expertise. Key implementation partners include MDT, the Confederated Salish and Kootenai Tribes (CSKT), federal and state agencies, local governments, non-governmental organizations (NGOs), private landowners and developers, transit operators, and other interested or authorized parties.

Timeframe

The timing and feasibility of implementing improvement options depend on several factors, including funding availability, right-of-way requirements, and other project delivery considerations. Estimated implementation timeframes were assigned to each improvement option based on anticipated project delivery timelines. These timeframes are not commitments but are intended to reflect the relative need, complexity, and potential funding sources for each option. The timeframes are defined as follows:

- **Short-term:** Implementation is feasible within a 0- to 5-year period.
- **Mid-term:** Implementation is feasible within a 5- to 10-year period.
- **Long-term:** Implementation is feasible within a 10- to 20-year period.
- **As needed:** Implementation could occur based on observed need at any time.

Estimated Cost

Planning-level cost estimates were prepared for each improvement option following MDT procedures[3]. These estimates account for construction, engineering, drainage, indirect costs, and miscellaneous costs (such as utilities and right-of-way). An annual inflation factor of 3.0 percent was applied to reflect the estimated year of expenditure corresponding to the anticipated timeframe. Contingencies were included to address uncertainties at this stage, however, actual costs may vary based on conditions at the time of construction.

Potential Funding Sources

Advancing improvements from this study and developing projects on US 93 will depend on the availability of current and future funding from federal, state, local, and private sources. The options identified in this study may qualify for funding through various programs and sources outlined below. At this time, no funding has been secured to implement any of the improvements.

- National Highway Performance Program (NH)

- Highway Safety Improvement Program (HSIP)
- Transportation Alternatives Program (TA)
- Congestion Mitigation and Air Quality (CMAQ)/Montana Air and Congestion Initiative (MACI) Programs
- Montana Wildlife & Transportation Partnership (MWTP)
- Federal discretionary grants, potentially including Better Utilizing Investments to Leverage Development (BUILD) Program (formerly the Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Program), Wildlife Crossings Pilot Program (WCPP), and Nationally Significant Federal Lands and Tribal Projects (NSFLTP) Program
- Transit Programs
- State and Local Maintenance Funds
- Local Road, Bridge, and Special Revenue Funds
- Private Funding Sources and Other Partnerships

Project Development Considerations

Improvement options advanced from this study will undergo MDT's standard project development process. This process typically includes project-specific activities such as public and stakeholder coordination, environmental analysis and permitting, utility conflict resolution, traffic and safety assessments, hydraulic and geotechnical investigations, and right-of-way acquisition, tailored to the project's location and design[4]. For projects initiated by an entity other than MDT that may have substantial and permanent impacts on the transportation system (e.g., new developments), the *MDT Systems Impact Action Process* (SIAP)[5] may apply.

Each improvement option includes notable project development considerations, such as stakeholder interests, site-specific resources, indirect effects, and other factors requiring attention during development. Advancing improvements will necessitate detailed analysis to quantify resource impacts and identify applicable permits, laws, and regulations. The information in this report can support future project development and environmental documentation. **Table 1** lists regulatory and resource agencies that may be consulted, along with associated permits, laws, regulations, and guidelines they administer. Any ground-disturbing activities within the Flathead Reservation would require Tribal consultation for cultural, historic, and natural resources.

Table 2: Regulatory Resource Agencies and Responsibilities

Regulatory Entity	Responsibilities/Authorizations	Resources Affected
Confederated Salish and Kootenai Tribes (CSKT)	• CSKT Water Quality Standards; Shoreline Protection Ordinance 64(A); Aquatic Lands Conservation Ordinance (ALCO) 87A • Fishing, Bird Hunting, and Recreation Regulations for Nonmembers / Tribal Conservation Permit • National Historic Preservation Act (NHPA) Section 106 Coordination/Consultation	All Resources on Tribal Lands including Surface Waters, Floodplains, Irrigation Features, Wetlands, Wildlife, Habitat, Historic/Cultural Resources
Federal Highway Administration (FHWA)	• National Environmental Policy Act (NEPA) • Section 4(f) of Department of Transportation Act • Uniform Relocation Assistance Act	All Resources
United States Fish and Wildlife Service (USFWS)	• NEPA • Endangered Species Act • Bald and Golden Eagle Protection Act • Migratory Bird Treaty Act • Birds of Conservation Concern	Wildlife, Habitat, Protected Species

Regulatory Entity	Responsibilities/Authorizations	Resources Affected
United States Army Corps of Engineers (USACE)	• NEPA • Clean Water Act (CWA) Section 404 Permit	Wetlands, Streambed, Streambanks, Irrigation Canals/Ditches
US Environmental Protection Agency (USEPA)	• NEPA • Resource Conservation and Recovery Act (RCRA) • Clean Air Act (CAA) • CWA	Surface Waters, Irrigation Features, Wetlands, Hazardous Materials
Montana Department of Environmental Quality (MDEQ)	• Montana Environmental Policy Act (MEPA) • Montana Water Quality Act • 401 Water Quality Certification • Short-term Water Quality Standard for Turbidity (318 Authorization) • Montana Pollutant Discharge Elimination System (MPDES) General Permit • CAA • RCRA	Wetlands, Streambed, Streambanks, Floodplains, Stormwater Discharges into Surface Waters
Montana Fish, Wildlife & Parks (MFWP)	• MEPA • Stream Protection Act (SPA) 124 Authorization • Land and Water Conservation Fund (LWCF) - Section 6(f)	Streambed, Streambanks, LWCF Properties
Montana Department of Natural Resources & Conservation (MDNRC)	• MEPA • Montana Land Use License or Easement on Navigable Waters	State Lands, Groundwater, Surface Waters, Irrigation Features, Wetlands, Floodplains
State and Tribal Historic Preservation Offices (SHPO and THPO)	• MEPA • National Historic Preservation Act (NHPA) Section 106 Coordination/Consultation	Historic/Cultural Resources
Lake County, Flathead County, and Local Communities	• Lake County Lakeshore Protection Regulations • Flathead County Floodplain Regulations • Flathead County Lake and Lakeshore Protection Regulations • Local Planning Documents	All Resources

2.1. Spot Improvements

The improvement options outlined in this section focus on enhancing roadway safety, traffic operations, and access management along the corridor. Key priorities include reducing the risk of severe crashes, improving vehicle and pedestrian safety, and optimizing traffic flow. An analysis of traffic conditions and operations for both current and future year conditions was previously completed to document congestion and performance for the highway and at key intersections. Additionally, a detailed crash analysis for the 5-year crash analysis period spanning January 1, 2018, to December 31, 2022, was conducted to identify historic crash trends and safety concerns, which have informed the development of these improvement options.

The identified improvements are intended to address safety and access issues raised by the public and identified through data analysis. Drivers reported difficulty and safety concerns when accessing the highway, especially in areas with limited visibility and high-speed traffic. Turning onto or off the highway can be challenging, particularly during high-traffic times, with high speeds contributing to driver issues in slowing down or accelerating. Pedestrian and bicycle safety is also a concern, with requests for improved crossings and facilities. Congestion, particularly during the summer tourist season, can further complicate turning movements and lengthen travel times. Additionally, passing

zones intersecting with access points can create perceived safety issues for turning vehicles. Data and public feedback also point to specific high-volume intersections where safety improvements could be beneficial to reduce perceived risks and improve traffic flow.

Some of the improvement options would require the addition of traffic control, which could include roundabouts, traffic signals, or other innovative intersection designs. For a traffic signal to be considered, an intersection must meet at least one of eight signal warrants as required by the *Manual on Uniform Traffic Control Devices* (MUTCD)[6]. Intersections could be monitored for warrants as development occurs to determine if traffic control modifications are necessary.

S1. Jette (RP 62.2 to 64.7)

This 2.5-mile stretch of road is straight and descends towards Polson, allowing southbound vehicles to gain speed. A partial passing zone is provided, and the downhill grade encourages aggressive southbound passing maneuvers. The Jette segment was identified as one of the top five highest-scoring segments in the high injury network (HIN) analysis, with 37 crashes along this segment between 2018 and 2022 resulting in 3 severe crashes and 5 severe injuries. The majority of collisions were animal-related (26), followed by rear-end crashes (2), rollovers (2), and fixed object crashes (2). The severe crashes included a fatal head-on collision, a fatal rollover, and a serious rear-end crash. Of the total crashes, 23 occurred at night without lighting, 3 occurred during dusk or dawn, and 3 animal-related crashes took place during daylight.

Although the road meets MDT baseline criteria and associated *MDT Road Design Manual* (RDM)[7] requirements, the roadway profile grade could be flattened to enhance safety, if determined feasible. This could reduce the speed that southbound vehicles approach Polson. There are 11 approaches in this stretch, 8 of which are located within the passing zone, presenting potential safety concerns. Safety could be improved by assessing the location of the passing zone and possibly removing or adjusting it.

<table>
<tr><th colspan="2">Recommendation: Flatten roadway grade; assess passing zone</th></tr>
<tr><td rowspan="4">Project Development Considerations:
Physical and environmental constraints may limit viability of flattening curves
Potential impacts to surface waters, irrigation features, farmland, wetlands, vegetation, habitat, geologic features, wildlife, fisheries, protected species, recreational sites, and historic/cultural properties
Additional right-of-way may be required</td><td>Implementation Partners:
MDT, CSKT, Lake County</td></tr>
<tr><td>Timeframe: Long-term</td></tr>
<tr><td>Estimated Cost: $32.2M</td></tr>
<tr><td>Potential Funding Sources: NH, HSIP, Federal Grants</td></tr>
</table>

S2. Big Arm (RP 71.3 to 73.8)

US 93 passes through the town of Big Arm for a 2.5-mile stretch, with the speed limit varying between 45 mph to 70 mph. This section is a two-lane facility with a total of 35 approaches but no dedicated turn bays. A portion of the segment is designated as a passing zone for at least one direction of traffic if not both, which raises concerns given the high concentration of approaches. Traffic data from 2023 shows that the average daily traffic (ADT) at RP 75.7, just north of Big Arm, was 4,274 vehicles.

Traffic count data shows that the ADT has gradually increased since 2004. To accommodate turning movements and improve safety, a left-turn lane at major approaches could be constructed through this section. The highest concentration of approaches occurs primarily on the north side of US 93 between La Bella Lane (RP 71.3) and Skipping Rock Lane (RP 73.8), making this area an ideal candidate for a turn lane to serve these properties. This solution would enhance roadway capacity and

provide more opportunities for safe turning movements. During future project development activities, the specific turn lane design would be determined in conjunction with implementation of access management recommendations, potentially including consolidated approaches.

Additionally, the current passing zone locations should be reviewed to determine whether they should be adjusted or removed to further improve safety and traffic flow.

Recommendation: Construct consistent three-lane configuration with left-turn lane; review passing zones	
Project Development Considerations: • Coordination with *Access Management Plan* • Potential impacts to surface waters, irrigation features, farmland, floodplains, wetlands, vegetation, habitat, wildlife, fisheries, protected species, and historic/cultural properties • Additional right-of-way may be required	**Implementation Partners:** • MDT, CSKT, Lake County **Timeframe:** Long-term **Estimated Cost:** $19.1M **Potential Funding Sources:** NH, HSIP, Federal Grants

S3. Elmo Pedestrian Crossings (RP 77.2 to 77.3)

Through Elmo, sections of sidewalk provide community members with pedestrian access across the area without the need for a vehicle. Two crosswalks connect residences on the east side of the highway to key community spaces on the west side. While these crosswalks are currently in place, they are in poor condition, do not meet current design guidelines, and offer minimal protection for users. In addition, there are concerns about visibility and accessibility, particularly for those with mobility challenges. To improve safety during the winter months, it is important to ensure that sidewalks and crosswalks at the intersections are kept clear of snow and ice.

S3-a. Skookum Drive (RP 77.2)

The crosswalk at Skookum Drive connects residences on the east side of the highway to the Standing Arrow PowWow grounds. The crosswalk spans a distance of 40 feet and has longitudinal lines parallel to traffic flow (i.e., piano key markings) and a sign to warn vehicles to watch for pedestrians. To improve pedestrian safety and visibility at this intersection, an RRFB could be installed. Additionally, incorporating Americans with Disabilities Act (ADA) accommodations would ensure that all community members, including those with disabilities, can safely use the crosswalk.

S3-b. Cemetery Road (RP 77.3)

Cemetery Road through Elmo connects houses on the east side of US 93 to the Elmo Community Center. A path alongside Cemetery Road allows people to walk to popular destinations, but pedestrians must cross US 93. Currently, a crosswalk is located across the south leg with piano key markings. The crossing distance is about 40 feet, and the crosswalk is located along a horizontal curve with a speed limit varying from 45 to 55 mph. The crosswalk features overhead flashing lights activated by a button, but it appears that these lights have been struck by vehicles. Additionally, this type of warning signal is non-standard for a crosswalk.

To improve pedestrian accommodations at this intersection, the overhead warning signal could be upgraded to a button-activated RRFB, which is a more standard and effective warning signal for approaching vehicles, helping to increase driver awareness of pedestrians. ADA accommodations should also be added to this crosswalk to ensure safe access for all community members.

Recommendation: Install RRFBs and ADA accommodations at pedestrian crossings

Project Development Considerations:	Implementation Partners:
• Additional right-of-way may be required • Potential impacts to irrigation features, farmland, wetlands, vegetation, habitat, wildlife, protected species, and historic/cultural properties • Funding and responsibility for maintenance	• MDT, CSKT, Lake County
	Timeframe: Mid-term
	Estimated Cost: S3-a: $420,000; S3-b: $430,000
	Potential Funding Sources: NH, TA, CMAQ/MACI

S4. MT 28 Intersection (RP 77.6)

US 93 intersects with MT 28, with a speed limit of 45 mph on US 93 and 70 mph on MT 28 (65 mph at night). This three-leg intersection has stop control on the minor leg (MT 28) and a northbound left-turn lane on US 93. During the analysis period, three crashes were recorded at this intersection, one of which was fatal. All three crashes involved fixed objects and occurred at night without lighting. Turning movement data collected on a Thursday and Friday in June 2024 revealed that 7,570 vehicles use this intersection daily, with 1,288 of those coming from the west (minor) leg. This intersection operates at level of service (LOS) B during AM and PM peak hours on both weekends and weekdays. By 2045, the intersection is projected to operate at LOS of C during AM peak hours and LOS D during PM peak hours.

Early planning has begun for a new fueling station/convenience store development located on the north side of the US 93/MT 28 intersection, which may influence future traffic operations. Since the development may have substantial and permanent impacts on the transportation system, the project applicant would be required to comply with the MDT SIAP. Additional intersection traffic control, such as a roundabout or traffic signal and access modifications at the intersection may be needed to accommodate future traffic volumes and business access.

Recommendation: Install additional traffic control and accommodate business access as warranted with future development	
Project Development Considerations: • Installation of a traffic signal would require a warrant analysis • Additional right-of-way may be required for roundabout • Potential impacts to farmland, vegetation, habitat, wildlife, protected species, hazardous materials, and historic/cultural properties	**Implementation Partners:** • Private, MDT, CSKT, Lake County
	Timeframe: Mid-term
	Estimated Cost: $2.1M to $4.9M
	Potential Funding Sources: Private (Development), Local

S5. Blacktail Road/Stoner Loop Intersection (RP 97.9)

Located at the base of Political Hill following a northbound transition into a 45 mph zone entering Lakeside, the Blacktail Road/Stoner Loop intersection provides access to a variety of businesses including a grocery store, building supply store, and brewery/restaurant. Blacktail Road forms a frontage along the west side of US 93 before intersecting with Stoner Loop less than 100 feet from the intersection with US 93. Stop control is currently provided on the minor Blacktail Road/Stoner Loop leg of the intersection. The combination of turning volumes, partially obstructed sight distance, speed transition, and poor intersection configuration create operational and safety challenges. Over the five-year crash analysis period, six crashes were reported at the intersection. Two of the crashes were right angle crashes and two were rear-end crashes. Two of the crashes resulted in minor injuries and two crashes involved impaired drivers.

To address these operational and safety concerns, a northbound left-turn lane on US 93 may be warranted based on turning volumes and roadway geometrics. With the installation of a left-turn lane,

the configuration of the intersection, including Blacktail Road/Stoner Loop, should also be evaluated and addressed. Additionally, a higher level of traffic control such as a traffic signal or roundabout could be considered in the future, as warranted.

Recommendation: Construct a northbound left turn lane and evaluate intersection configuration	
Project Development Considerations: • Installation of a turn lane and/or traffic signal would require a warrant analysis • Additional right-of-way may be required for roundabout • Potential impacts to vegetation, wildlife, protected species, and historic/cultural properties	**Implementation Partners:** • MDT, Flathead County, Private **Timeframe:** Mid-term **Estimated Cost:** $1.7M **Potential Funding Sources:** NH, HSIP, Local, Private

S6. Adams Street Intersection (RP 98.1)

The intersection of Adams Street and US 93 is a main access point for resorts and homes located on Lakeside Boulevard as well as multiple neighborhoods located on the west side of the highway. The intersection currently has stop control on the minor road (Adams Street), a two-way left-turn lane (TWLTL) on the major road (US 93), and a crosswalk on the north leg. Over the five-year crash period, seven crashes occurred at the intersection with two leading to minor injuries. Of the crashes, six were rear-ends and one involved a pedestrian. Turning movement counts for this intersection were collected on a Thursday and Friday in June 2024, with northbound and southbound traffic making up the majority of traffic and only five percent of traffic coming from the east or westbound legs. The intersection operates at LOS F during the AM peak hour on a weekend, LOS E during the PM peak hour on both weekdays and weekends, and LOS D on weekdays during the AM peak hour. Projected LOS for this intersection in 2045 is LOS F during all peak hours.

This intersection does not currently warrant additional traffic control based on traffic volumes, but it does meet warrants for pedestrian activity. There is an existing RRFB at this intersection to accommodate pedestrian crossings. A pedestrian hybrid beacon (PHB, also referred to as a high-intensity activated crosswalk, or HAWK) could be considered in place of the RRFB to require drivers to come to a complete stop and wait at the stop line while pedestrians cross the intersection. It will be important to closely monitor pedestrian and traffic conditions at this intersection over time, particularly as future development projects may increase traffic volumes and pedestrian activity. If future growth in the surrounding area occurs, the need for additional traffic control measures or infrastructure improvements should be re-evaluated to ensure continued safe and efficient traffic flow.

Recommendation: Install additional traffic control as warranted based on future development	
Project Development Considerations: • Installation of a traffic signal would require a warrant analysis • Additional right-of-way may be required for roundabout • Potential impacts to vegetation, wildlife, protected species, and historic/cultural properties	**Implementation Partners:** • MDT, Flathead County, Private **Timeframe:** Mid- to Long-term **Estimated Cost:** $310,000 (PHB) $2.2M (Traffic Signal) $6.1M (Roundabout)

	Potential Funding Sources: NH, Local, Private

S7. Lakeside (RP 97.8 to 98.4)

Lakeside is a popular destination for people visiting Flathead Lake, and it is the busiest section of the study corridor with the combination of vehicles and pedestrians. Sidewalks are provided along portions of the east side of US 93, however they are discontinuous with multiple gaps. Pedestrian crosswalks are provided on one leg of the Adams Street and Bierney Creek Road intersections, and the crossing at Adams Street also includes an RRFB. Roadway lighting is provided in some areas, along with undefined on-street parking. The speed limit through Lakeside is currently posted at 30 mph as a result of recent speed study recommendations, however the speed limit was 35 mph at the time data was collected for this study.

This segment was identified as one of the top five highest scoring segments in the HIN analysis for the corridor. Crash data from the five-year period shows there were 40 total crashes in this segment. One of the crashes resulted in a suspected serious injury, and one resulted in a pedestrian fatality. There were 13 rear-end collisions, eight fixed object crashes, five animal crashes, two pedestrian crashes, and three parked vehicle crashes. Additionally, five of the crashes involved impaired drivers.

S7-a. Pedestrian Accommodations

Extending the existing sidewalk and curb and gutter along the east side of US 93 could enhance pedestrian access throughout the town. A continuous, well-defined sidewalk would create a safer, more predictable walking environment. Upgrading the Adams Street and Bierney Creek Road intersections to provide crosswalks with RRFBs on both highway crossings and ensuring ADA compliance would further enhance safety and accessibility for all users, including those with disabilities. Adding a third crosswalk would increase pedestrian connectivity. Additionally, expanding street lighting in unlit areas would improve nighttime safety for both pedestrians and vehicles.

S7-b. Urban Reconstruction

A full urban reconstruction of US 93 through Lakeside may help address safety and congestion concerns. This option would include continuous, ADA-compliant sidewalks on both sides of the highway, a boulevard, and a curb and gutter system to separate pedestrians from traffic. The addition of curb and gutter may help improve traffic flow and safety, particularly during peak hours, by deterring roadside parking. Crosswalk upgrades at Adams Street and Bierney Creek Road to include ADA accessible crosswalks with RRFBs on both highway crossings would promote better accessibility. The option would also widen US 93 to include a TWLTL, allowing safer access to side streets and driveways. Additional enhancements, such as improved street lighting and highly visible crosswalks, would further increase safety for both pedestrians and drivers at night.

Recommendation: Install pedestrian and roadway infrastructure improvements	
Project Development Considerations: • Additional right-of-way may be required for additional lanes and realignment • Potential impacts to street parking for businesses • Coordination with *Access Management Plan*	**Implementation Partners:** • MDT, Flathead County
	Timeframe: Mid- to Long-term
	Estimated Cost: S7-a: $1.3M S7-b: $12.8M
	Potential Funding Sources: NH, HSIP, TA, CMAQ/MACI

S8. Somers (RP 102.4 to 103.0)

Montana Fish, Wildlife & Parks is proposing to add additional parking to the Somers Boat Launch Area, which may require modifications to the highway. This proposal is anticipated to affect traffic patterns at the existing and proposed parking area, particularly during peak season use.

The Great Northern Historical Trail runs between Flathead Lake and US 93 through Somers, providing accommodations for pedestrians and bicyclists. The paved path extends through the study corridor from RP 102.5 to RP 104.0 and is a popular route for both pedestrians and bicyclists. However, there is a small segment just east of the boat launch where bicyclists are forced to ride through the parking lot. Portions of the path are also in poor condition with segments located directly adjacent to US 93 with no buffer. There are two existing crosswalks with RRFBs, one at RP 102.6 and the other at RP 102.8.

Over the five-year crash analysis period, 21 crashes were reported in the area. Two of the crashes were severe, and the most common crash type was rear-end (8). Traffic data indicates that on a weekend day during the peak season, up to 60 vehicles with boat trailers utilize this area. There are currently 17 boat parking spaces, with the rest of the vehicles parking on the side of the road or in the grass near the proposed parking area. The proposed parking area will offer between 20 to 30 parking spaces, so the number of vehicles making a turn onto Sunnyside Avenue will most likely increase.

S8-a. Pedestrian Accommodations

To enhance pedestrian safety and access, the Great Northern Historical Trail could be extended and improved through Somers, creating a continuous, safe route for pedestrians. In areas where the path runs alongside US 93, separation between path users and vehicles could be added. In the short term, flexible delineators could be used to clearly mark the shared-use path (SUP), while in the long term, a boulevard could be constructed to provide physical separation. This extension would improve access to the town for both residents and visitors. Additionally, several crosswalks along the SUP could be upgraded with ADA-compliant connections, ensuring accessibility for all users including those with disabilities, and creating a safer, more inclusive pedestrian network in Somers.

S8-b. Urban Reconstruction

A full urban reconstruction of US 93 through Somers would address the current problems of on-street parking and a lack of delineation between the roadway, parking, and the SUP. Extending the existing TWLTL would help protect vehicles turning into the proposed parking areas, reducing congestion and minimizing the risk of rear-end collisions. Reconstruction would include continuous, ADA-compliant sidewalks and/or SUPs on both sides of the highway, a boulevard, and a curb and gutter system to separate pedestrians from traffic. The addition of curb and gutter would help improve traffic flow and safety during peak seasonal use by deterring roadside parking. The reconstruction would also involve upgrading the existing SUP, which is in poor condition, to provide a safer, more accessible route for pedestrians and bicyclists. Additional improvements, such as enhanced street lighting and clearly marked crosswalks, would further increase safety for both pedestrians and drivers.

Recommendation: Install pedestrian/bicycle and roadway infrastructure improvements	
Project Development Considerations: • Potential impacts to surface waters, irrigation features, farmland, floodplains, wetlands, vegetation, habitat, wildlife, fisheries, protected species, and historic/cultural properties • Additional right-of-way may be required for additional lanes and realignment • Coordination with *Access Management Plan*	**Implementation Partners:** • MFWP, MDT, Flathead County, Walleyes Unlimited
	Timeframe: Mid- to Long-term
	Estimated Cost: S8-a: $1.7M, S8-b: $13.0M
	Potential Funding Sources: NH, HSIP, TA, MFWP, NGO/Private (Walleyes Unlimited)

S9. MT 82 Intersection (RP 104.2)

At the high-volume intersection of MT 82 and US 93, a gas station and hotel are located in the southwest corner. All legs of the intersection have timed crosswalks aligning with the traffic signal phasing. The west leg of the intersection, Forest Hill Road, provides primary access to the gas station with fully open and undefined approaches. The west approach serves as the gas station driveway. It is aligned with a 90-degree turn running parallel to the north leg of the intersection and is the only leg of the intersection with no dedicated left- and right-turn lanes. The intersection experiences a high percentage of southbound left-turns and westbound right-turns. The intersection currently operates at LOS C during all peak hours. By 2045, the intersection is projected to operate at LOS D during AM peak hours, LOS E during the weekend PM peak hour, and LOS F during the weekday PM peak hour.

Over the five-year crash analysis period, 62 crashes were reported at the intersection. The most common crash types were rear-end (34), right/left-turn (10), and right angle (9). One suspected serious injury crash involved an impaired driver at night in snowy conditions. The incident occurred when a northbound vehicle turned left into a southbound vehicle. A fatal crash occurred at the intersection on May 2, 2024, outside of the crash analysis period.[8] The incident involved a northbound vehicle turning left in front of a southbound vehicle, resulting in a collision.

In the future, alternate intersection control types such as a roundabout could be considered at this intersection if warranted based on traffic operations or safety factors such as the number, type, or severity of crashes. In appropriate locations, roundabouts can help minimize turning conflicts and crash severity while maintaining the flow of traffic. They are most effective when traffic volumes on each leg are relatively balanced to ensure adequate gaps in traffic for entering vehicles.

S9-a. Upgrade Traffic Signal

The existing signal phasing provides protected left-turn phasing for southbound vehicles only. The northbound and westbound directions have dedicated left-turn bays but no protected phasing for left turns. Additionally, no left-turn bay or protected left-turn phasing is provided for eastbound vehicles. Modifications to the signal phasing could address the safety concerns and improve traffic flow at the intersection. Existing signal phasing should be evaluated to determine if additional protected phasing would be beneficial, with particular emphasis on the eastbound leg, where left turns are the most common movement. Additionally, a dedicated left-turn bay should be included for the eastbound leg. Allowing dedicated left-turn phases for each leg of the intersection could minimize conflicts between turning and through-moving traffic. Further, incorporating pedestrian signal phasing that is clearly timed with vehicle traffic could enhance safety for pedestrians, aligning crosswalk activation with signal changes. Given the high volume of traffic, especially on the southbound approach, adjusting the signal timing to prioritize peak hours could also improve traffic flow.

S9-b. Define Access Points

Improving the alignment and defining access points at the intersection could help improve traffic flow and enhance safety. The alignment of the west leg, which serves as the gas station driveway, currently creates confusion and potentially unsafe turning movements. Reducing conflict points by limiting and better aligning the driveway access could decrease the risk of crashes and improve safety for all users, particularly pedestrians and bicyclists, by reducing vehicle-pedestrian conflicts.

Recommendation: Modify business access; upgrade traffic signal	
Project Development Considerations: • Potential access impacts to business owners • Coordination with *Access Management Plan*	**Implementation Partners:** • MDT, Flathead County, Private
	Timeframe: Mid-term
	Estimated Cost: S9-a: $600,000, S9-b: $560,000
	Potential Funding Sources: NH, HSIP, Private

2.2. Corridor-wide Improvements

The improvement options outlined in this section address traffic operations, safety, and access management across the entire corridor. They include low-cost measures such as revising striping for passing zones, updating pavement markings, installing or replacing rumble strips, adjusting speed limits, adding signage, and high-visibility improvements. Larger-scale options, such as shoulder widening, access management, passing and turn lanes, or wildlife-vehicle conflict mitigation, also apply to the entire corridor and may be more cost-effective when coordinated with spot improvements.

C1. Turn Lanes and Approach Realignment

This improvement option includes constructing auxiliary turn lanes at intersections along US 93 as warranted. Guidelines for turn lanes are contained in Chapter 28 of the MDT *Traffic Engineering Manual*[9]. Turn lanes may be warranted based on the speed of the highway, hourly traffic volumes, and hourly turning volumes. Evidence of a crash trend may also indicate the need for a turn lane. When considering right-turn lanes, specific attention should be given to visibility on the side street as decelerating vehicles in the auxiliary lane can create a moving sight obstruction for drivers on the side street. An *Access Management Plan* has been developed for the corridor (see **P1**). and suggests other specific locations where turn lanes may be beneficial.

Additionally, this option also includes realignment of approaches that intersect US 93 at a skewed angle less than 90 degrees, which can create sight distance and operational challenges for drivers. Insufficient sight distance can make it difficult for drivers to see oncoming vehicles and negatively impact their decisions when attempting to enter the highway. Also, skewed intersections do not provide optimal conditions for large truck movements. Where skew angles exceed 30 degrees from perpendicular, realignment may be beneficial to improve sight distance and prevent future crashes.

Recommendation: Install turn lanes and realign approaches as warranted	
Project Development Considerations: • Additional right-of-way or easement may be required • Installation of turn lanes is subject to traffic volume criteria as outlined in MDT guidelines • Potential impacts to surface waters, irrigation features, farmland, wetlands, vegetation, habitat, wildlife, protected species, and historic/cultural properties • Coordination with *Access Management Plan*	**Implementation Partners:** • MDT, CSKT, Lake and Flathead Counties, Private
	Timeframe: Mid- to Long-term
	Estimated Cost: $570,000 to $1.3M (turn lanes) $40,000 to $300,000 each (realignment)
	Potential Funding Sources: NH, Local, Private

C2. Passing/No-Passing Zones

Passing opportunities are provided along the corridor in areas where roadway geometrics allow. No-passing zones are designated by solid yellow lines and are established in areas with insufficient passing sight distance or near public approaches. Passing opportunities are limited by terrain and the volume of opposing vehicles. As traffic volumes increase, the effectiveness of passing zones decreases. A total of 37 passing zones occur along the corridor, including 17 serving both directions, two serving the northbound direction, and one serving the southbound direction. Currently, all passing zones appear to be in accordance with MDT guidelines for length.

An engineering study should be completed to evaluate passing zones and determine if removal or addition of no-passing zones is warranted. Locations to examine include those where passing may be unsafe. For example, the area from RP 71.9 to 72.9 allows for passing in both directions. The location is generally flat, straight, and free from sight obstructions. However, this location passes more than 20 approaches, four of which are public approaches. Since MDT guidelines note that no-passing zones should be established in areas near public approaches, passing zones in this location may not be appropriate. Additionally, the passing zone between Big Arm and Elmo (RP 75.2 to 76.4) has a speed limit varying from 55 to 70 mph which can make passing difficult. Additional passing zone locations could be evaluated to provide more opportunity for passing along the corridor.

<table>
<tr><td colspan="2">Recommendation: Evaluate and modify existing passing/no-passing signing and striping</td></tr>
<tr><td rowspan="4">Project Development Considerations:
Compliance with current baseline criteria
Site-specific safety considerations
Removal of passing zones may result in increased driver frustration due to decreased passing opportunities</td><td>Implementation Partners:
MDT</td></tr>
<tr><td>Timeframe: Short-term</td></tr>
<tr><td>Estimated Cost: $19,000 per mile</td></tr>
<tr><td>Potential Funding Sources: NH, HSIP, Maintenance</td></tr>
</table>

C3. Passing Lanes

US 93 is a two-lane highway with limited opportunities for safe passing. Currently, there are four southbound passing lanes and four northbound passing lanes, primarily located in the southern part of the corridor. While there are other passing opportunities including striped passing zones, this leaves approximately 13 miles in the northern portion of the corridor without any designated passing lanes.

A minimum of 1,000 feet (excluding tapers) is needed for a passing lane according to the *American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets (Green Book)*[10]. Since an added lane should be long enough to provide a substantial reduction in traffic platooning, the optimal length is approximately 0.5 to 2.0 miles long (plus tapers), depending on traffic volumes. The length of the tapers is dependent on the width of the travel lane and the design speed. With additional traffic anticipated in the future, passing lanes of 0.5 to 1.0 mile are desirable.

By providing additional lanes through this section, drivers would have the opportunity to safely pass slow-moving vehicles that they may not otherwise be able to pass. This would not only help prevent traffic backups but also reduce the risk of aggressive passing maneuvers, which can lead to crashes. With more passing lanes, drivers would be less likely to engage in unsafe passing behaviors, promoting smoother, safer travel throughout the corridor.

The suggested passing lanes make safe passing possible on the northern segment of the corridor as well as additional southbound passing lanes on the southern portion. These locations were selected

due to their available space and favorable geometric conditions for accommodating passing lanes. However, minor adjustments to the roadway may be necessary. Constructing additional lanes could require realigning sections of the road to flatten horizontal curves and address sight distance limitations.

- Southbound RP 79.75-80.25
- Southbound RP 84.75-85.25
- Northbound RP 92.75-93.25
- Southbound RP 95.5-96.5

Recommendation: Construct additional passing lanes	
Project Development Considerations: • Compliance with current baseline criteria and guidelines • Potential impacts to surface waters, irrigation features, farmland, wetlands, vegetation, habitat, wildlife, fisheries, protected species, recreational sites, and historic/cultural properties • Additional right-of-way or easement may be required	**Implementation Partners:** • MDT, CSKT, Lake and Flathead Counties **Timeframe:** Long-term **Estimated Cost:** $4.7M (RP 79.75) $6.7M (RP 84.75) $5.5M (RP 92.75) $11.4M (RP 95.5) **Potential Funding Sources:** NH, HSIP

C4. Turnouts

Turnouts provide designated areas for vehicles to exit the main traffic stream, reducing congestion caused by queuing behind slow-moving vehicles and providing safe stopping opportunities for school buses, maintenance vehicles, and law enforcement personnel. Proper use of turnouts can enhance safety and traffic flow.

Within the study corridor, there are 22 existing turnouts, the majority of which are informal and lack signage. Public feedback indicates a need for additional turnouts to accommodate slow-moving vehicles, school buses, and maintenance and law enforcement activities. In many cases, current turnouts present challenges for buses and large trucks due to insufficient length and the absence of advance warning signage. These limitations hinder safe entry and reentry to the highway, increasing safety risks. Additionally, some turnouts are utilized by recreationists and tourists for viewing the lake and surrounding scenery, further highlighting their multifunctional role in the corridor.

To increase the use of existing turnouts, modifications such as lengthening and widening should be considered. These improvements would allow trucks, buses, and other large vehicles to more easily exit the highway and provide additional space for safe reentry into the travel lane. In some cases, turnouts could also serve as designated scenic viewing areas or school bus stops. The feasibility and extent of these enhancements would depend on stopping needs balanced with site-specific constraints, such as available space and terrain.

Additional signage throughout the corridor is also required to be compliant with the MUTCD. Static signage may be installed before and at turnout areas to remind drivers that slow-moving vehicles must use turnouts (MUTCD Signs R4-12, R4-13, and R4-14). Additionally, sparse existing signage should be supplemented with advance warning signs to alert drivers, particularly operators of large vehicles, about upcoming turnouts (D17-5, D17-6, D17-7). School bus stop ahead signs (S3-1) are required in advance of locations where adequate sight distance cannot be provided at a school bus stop. In all cases, advance notification warns drivers of potential turning movements, allows drivers to prepare for safe entry into the turnout, and promotes broader utilization.

New turnouts could be constructed in the corridor to address gaps in availability and improve traffic flow. Numerous informal turnouts have been created over time, either during roadway reconstruction projects or through frequent use by drivers. These informal locations present opportunities for formalization and improvement, provided they can be safely integrated into the roadway environment. As outlined in the AASHTO Green Book, the design of turnouts should account for critical factors, including overall length with sufficient entry and exit tapers, adequate width, and proper placement relative to sight distance. Turnouts should be positioned to provide approaching drivers with a clear and unobstructed view, enabling them to assess the turnout's availability and make safe maneuvers.

Given the 70-mph speed limit on most of US 93, turnouts should be at least 600 feet in length, including entry and exit tapers, which typically range from 50 to 100 feet. Turnouts shorter than 200 feet are not recommended, even in areas with lower approach speeds. Sight distance on the approach to a turnout should be at least 1,000 feet to ensure drivers have sufficient time to identify and safely enter the turnout. The minimum width of a turnout should be 12 feet, with 16 feet being the preferred width. Additional length, width, and signage would be necessary to accommodate combined uses such as scenic turnouts.

Aerial photography and GIS mapping were used to locate and determine whether the turnouts on the corridor meet AASHTO standards. It was found that all but 3 existing designated turnouts on the corridor satisfy the 200-foot minimum length, but only 4 meet the preferred 600-foot length recommendation. Additionally, all of the turnouts meet and exceed the minimum width requirements of 12 feet.

Potential locations are listed below for new turnouts and improvements to existing turnouts based on a preliminary review of roadway geometrics, terrain, safety, and known use areas. While this list highlights possible locations, it is not exhaustive, and additional opportunities may exist. Coordination with School Districts would be required to determine stopping needs and appropriate configuration for any locations to be designated as a school bus stop.

- RP 63.8 – New turnout, roadside left
- RP 74.8 – Lengthen and pave turnout, roadside right
- RP 77.8 – Lengthen and pave turnout, roadside left
- RP 96.4 – New turnout, roadside left
- RP 99.4 – Lengthen and pave turnout, roadside right
- RP 99.6 – New turnout, roadside left

<table>
<tr><td colspan="2">Recommendation: Construct/modify turnouts as appropriate; add appropriate signage at and in advance of each location</td></tr>
<tr><td rowspan="4">Project Development Considerations:
Additional right-of-way or easements may be required
Sight distance and physical constraints adjacent to the roadway may present limitations for new turnouts
Coordination with School Districts would be required for any designated school bus stops
Potential impacts to surface waters, irrigation features, floodplains, wetlands, vegetation, habitat, wildlife, protected</td><td>Implementation Partners:
MDT, CSKT, Lake and Flathead Counties, School Districts</td></tr>
<tr><td>Timeframe: Mid- to Long-term</td></tr>
<tr><td>Estimated Cost: $230,000 to $1.3M per location</td></tr>
<tr><td>Potential Funding Sources: NH, HSIP</td></tr>
</table>

species, recreational sites, and historic/cultural properties	

C5. Shoulder Widening

The corridor generally consists of two 12-foot travel lanes with shoulders of varying widths. The MDT *Baseline Criteria Practitioner's Guide*[11] recommends a minimum travel lane width of 12 feet on rural NHS routes. The corridor currently has between 2-foot and 6-foot shoulders, with a few short segments having no shoulder. The MDT *NHS Route Segment Plan*[12] suggests a width of 40 feet or greater for the corridor. To satisfy the 40-foot minimum recommended roadway width, 8-foot shoulders would be necessary. Along this segment of US 93, 8-foot shoulders are likely infeasible due to the topography and other physical constraints. However, widening to provide 6-foot shoulders may be possible through most of the corridor to help improve safety. Where the corridor is widened, side slopes should be constructed to current baseline criteria, where feasible. The following locations currently have less than a 6-foot shoulder and are listed with their existing width.

- RP 63-64.4 (2 feet)
- RP 65-65.5 (No shoulder)
- RP 66.1-70.0 (2 feet)
- RP 92.9-104.2 (3 feet for 2.6 miles, 2 feet for the rest)

MDT frequently receives complaints about vehicles parked on the shoulders of US 93, particularly in the Somers and Lakeside areas. Concerns that widening shoulders may encourage more of this behavior have also been noted. Parking concerns and enforcement of no-parking zones should be addressed during project development.

Recommendation: Widen roadway shoulders where feasible	
Project Development Considerations: • Increased potential for roadside parking and higher vehicle speeds • Physical constraints may prohibit widening in some areas • Potential impacts to surface waters, irrigation features, farmland, wetlands, vegetation, habitat, wildlife, fisheries, protected species, and historic/cultural properties • Additional right-of-way may be required	**Implementation Partners:** • MDT, CSKT, Lake and Flathead Counties **Timeframe:** Mid- to Long-term **Estimated Cost:** $3.0M to $6.2M per mile **Potential Funding Sources:** NH, HSIP

C6. Rumble Strips

The corridor currently has centerline rumble strips between the two travel lanes throughout the whole length, but shoulder rumble strips are inconsistent. Over the 5-year crash analysis period, 175 run-off-the-road crashes occurred along the corridor resulting in 4 fatalities and 11 suspected serious injuries.

Rumble strips are designed to create vibrations and noise when vehicles drive over them, which can help prevent drowsy driving, alert drivers to lane departures, and provide a warning of potential hazards ahead. While rumble strips can improve road safety, some residents may oppose their installation, especially near towns, due to the noise they generate. The loud sound created by vehicles crossing rumble strips can be disruptive, particularly in residential or quieter areas, leading to concerns from local communities. Additionally, rumble strips can create challenging riding conditions for bicyclists, especially in areas with narrow shoulders. Currently, there are several areas along the study corridor that do not have shoulder rumble strips, which could benefit from their addition to enhance safety. These areas include:

- RP 63-64.4
- RP 65-69.5
- RP 70-85
- RP 95.5-104.2

Adding shoulder rumble strips to these locations could help reduce the risk of crashes, particularly those involving driver fatigue or distraction, but it's important to balance these benefits with the potential impact on local residents and bicyclists. Careful consideration of rumble strip placement could help mitigate noise and bicyclist concerns while improving safety.

Recommendation: Install shoulder rumble strips throughout the corridor	
Project Development Considerations: • Potential for increased roadway noise • Potential challenges for bicyclists in areas with narrow shoulders	**Implementation Partners:** • MDT
	Timeframe: Short-term
	Estimated Cost: $26,000 per mile
	Potential Funding Sources: NH, HSIP, Maintenance

C7. Rockfall Hazard Mitigation

Rockfall hazard sites were identified in the *Rock Asset Management Program* (RAMP) database administered by MDT. The database indicates there are currently 16 areas along this segment of US 93 with rockfall slope conditions rated as fair. These sites were identified based on their potential to impact the safety of the traveling public and their potential to cause disruptions to traffic operations. Although MT 35 can be used as a detour around Flathead Lake, a rockfall event causing road closure could severely impact access to businesses and residents along US 93.

This improvement option includes completing rockfall hazard mitigation at the sites identified in the MDT RAMP database to improve roadside clear zones and decrease the potential for rockfall events. Mitigation activities may include blasting, scaling, rock bolting, netting and drapery, rockfall retention structures/fences, and improved or reconfigured roadside ditch configurations. Site-specific conditions and needs determined during future project development phases may substantially alter costs. Site locations are listed below.

- RP 69.10 -70.01
- RP 70.03-70.04
- RP 93.36-93.52
- RP 93.60-93.71
- RP 93.73-93.82
- RP 94.31-94.48
- RP 94.97-95.00
- RP 95.30-95.40
- RP 95.75-95.92
- RP 97.02-97.11
- RP 97.11-97.28
- RP 97.28-97.39
- RP 97.11-97.39
- RP 99.79-99.94
- RP101.62-101.75
- RP103.43-103.52

Recommendation: Conduct rockfall hazard mitigation	
Project Development Considerations: • Temporary road closure/detours may be required during blasting and other mitigation activities • Potential impacts to geologic resources, surface waters, vegetation, habitat, wildlife, fisheries, protected species, and historic/cultural properties • Additional right-of-way may be required	**Implementation Partners:** • MDT
	Timeframe: Mid- to Long-term
	Estimated Cost: $18.9M (improve all sites one condition state) $45.8M (improve all sites to good condition)
	Potential Funding Sources: NH, Maintenance

C8. High-Visibility Improvements and Advance Warning Signs

To improve safety along the corridor, particularly during nighttime driving, high-visibility treatments could be installed throughout the entire study area. While some of these elements are already in place

along certain portions of the corridor, the high incidence of animal-related crashes and lane departure incidents, especially in the dark, highlights the need for these treatments to be extended across the entire study area. Key improvements could include installing reflector post delineation and double-sided reflectors to increase the visibility of road boundaries, particularly in areas with sharp curves or limited lighting.

Additionally, enhanced delineation for horizontal curves could provide drivers with clearer guidance when navigating turns, reducing the risk of crashes. Wider edge lines and safety pavement edges could improve lane visibility, while the application of reflective paint for lane markings would further enhance visibility in low-light conditions. These reflective markings would help drivers better distinguish lane boundaries, particularly in dark or foggy conditions.

Advance warning signs could also be installed to alert drivers about roadway elements that do not meet current baseline criteria. These signs could be strategically positioned to notify drivers of upcoming horizontal curves that do not meet baseline criteria, providing them with sufficient time to reduce speed and navigate safely. Signage may include retroreflective signing to improve visibility at night, as well as flashing or feedback signs that provide dynamic alerts based on vehicle speed or proximity. Additionally, advance warning signs could be used to indicate approaching intersections, crosswalks, or other potentially hazardous features that may not be immediately apparent, thereby enhancing driver awareness. Together, these treatments could improve nighttime visibility and overall safety along the corridor.

<table>
<tr><td colspan="2">Recommendation: Install curve warning signs, reflectors, and reflective paint on striping</td></tr>
<tr><td rowspan="4">Project Development Considerations:
• Integration with existing transportation infrastructure</td><td>Implementation Partners:
• MDT</td></tr>
<tr><td>Timeframe: Short-term</td></tr>
<tr><td>Estimated Cost: $50,000 per mile</td></tr>
<tr><td>Potential Funding Sources: HSIP, Maintenance</td></tr>
</table>

C9. Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) technologies have been widely used throughout the country to improve safety and efficiency for the transport of people and goods by integrating advanced communications technologies into transportation infrastructure and vehicles. ITS encompasses a broad range of wireless and traditional communications-based information and electronic technologies. ITS can enhance roadway safety and efficiency through technology-driven strategies. Potential treatments include variable speed limit (VSL) signage that adapts to changing road and environmental conditions, as discussed below.[13] Implementation of VSLs would be subject to appropriate engineering traffic studies and approval by the Montana Transportation Commission.

- **Weather-Related** VSLs can be used on roads where fog, ice, rain, snow, or other factors often influence safety. When weather conditions deteriorate to the point that hazardous conditions are impending, the operating agency reduces the speed limit to one that helps minimize the likelihood of crashes.
- **Congestion-Related** VSLs can be used when traffic volumes are increasing and congestion is likely. When volumes and/or speed exceed a predetermined threshold, the strategy can be deployed. The intent is to handle more traffic volume at a slower, but not stop-and-go, speed.
- **Wildlife-Related** VSLs can also be used during periods when wildlife movements or occupancy near the roadway is known or expected. Lowering speed limits seasonally in areas where wildlife is routinely near or crossing the highway may help slow down drivers and potentially reduce wildlife-vehicle conflicts.

Additional treatments could include advance or dynamic warning systems to alert drivers of upcoming hazards, variable message signs (VMS) to relay timely weather and incident alerts to the traveling public, advance queue detection to manage traffic flow by warning drivers of congestion ahead, and speed feedback signs to promote increased compliance with posted speed limits.

Recommendation: Install ITS technologies where appropriate	
Project Development Considerations: • Integration with existing transportation infrastructure • Public awareness and education about new technologies • Appropriate speed studies and Transportation Commission approval for any speed changes	**Implementation Partners:** • MDT
	Timeframe: Mid-term
	Estimated Cost: $2.1M (VSL) $240,000 each (VMS)
	Potential Funding Sources: HSIP, CMAQ/MACI, Maintenance

C10. Cultural Signage

The US 93 corridor holds deep cultural significance for the CSKT. Centuries ago, animals traveled along the shores of Flathead Lake, and the ancestors of the CSKT also used this route. The land itself is of great importance to Native people. Installing interpretive signage would provide an opportunity to share this history and highlight how the area was used before the road was built.

In 2000, *Design Guidelines and Recommendations for US 93 from Evaro to Polson, Montana*[14] were developed in coordination with MDT, FHWA, and the CSKT. The document established guidelines for various types of signage along the US 93 corridor, including portal/boundary signs, community entry signs, official highway signs, place name signs, tourist-oriented directional signs, and interpretive signs. These guidelines should be followed when adding signage to the corridor, in close coordination with the CSKT. The guidelines also addressed the concept of interpretive overlooks. While no specific overlook locations were proposed within the Polson-Somers study area, there may be opportunities to identify and incorporate locations in coordination with the CSKT.

An effort to install CSKT signs with traditional Native languages was completed at the Ninepipe and Pablo National Wildlife Refuges just south of the study corridor in 2019[15]. These signs display the names of the refuges in the Séliš (Salish), Q̓ispé (also known as Pend d'Oreille or Kalispel), Ksanka (also known as Kootenai), and English languages. They include the refuge names in each respective language, along with an English translation of their meanings.

These interpretive signs were developed through a collaborative process with FHWA and CSKT, consistent with applicable federal standards. Any future efforts to incorporate similar multilingual signage within the corridor would need to follow the same process and comply with the MUTCD. If such signage is pursued, the implementing agency should follow established procedures for requesting exemptions from the MUTCD.

Recommendation: Install cultural signage throughout the corridor	
Project Development Considerations: • Close coordination with the CSKT • Cultural sensitivity and awareness	**Implementation Partners:** • MDT, CSKT, Lake County
	Timeframe: Short-term
	Estimated Cost: $1,100 each (Static Sign)
	Potential Funding Sources: NH, Maintenance, CSKT/Local

C11. Wildlife-Vehicle Conflict Mitigation

Strategies to reduce wildlife-vehicle conflicts and accommodate wildlife movements were assessed through a variety of measures. Carcass data between January 1, 2018, and December 31, 2022, were obtained for the corridor and reviewed to identify areas with concentrations of reported animal mortalities. The Montana Wildlife & Transportation Partnership (MWTP) Planning tool was consulted to review relative needs assessment criteria (NAC) scoring for the study corridor in comparison to other highway corridors in Montana. Several portions of the corridor received NAC scores in the range of 80 to 100 (out of a total 100-point scoring system), indicating an area of high need for wildlife accommodations. This information was evaluated alongside formal crash report data over the same time period, which includes wild animal crash reports from Montana Highway Patrol (MHP) and local city/county law enforcement.

Comments received from resource agencies and the *Wildlife-Vehicle Collision Reduction Study*[16] were consulted to identify potential improvement options to benefit wildlife movements and help reduce wildlife-vehicle collision potential for the travelling public. Wildlife connectivity was also reviewed on a high level by comparing carcass locations to available mapping of species ranges and distributions.

Wildlife-vehicle conflicts commonly occur throughout the study area and present a danger to human safety as well as wildlife survival. Industry-accepted mitigation strategies attempting to reduce wildlife-vehicle conflict include influencing driver behavior, influencing animal behavior, and physically separating animals from the roadway. The following improvement options may help reduce the number and severity of vehicle collisions and/or safely accommodate wildlife movements across the highway.

- **Grade-separated crossings and wildlife fencing**, such as overpasses and underpasses, are highly effective in reducing wildlife-vehicle collisions while supporting wildlife movement. Overpasses, typically covered with vegetation, provide safe passage for terrestrial wildlife, while underpasses, including new or rehabilitated culverts and bridges, can accommodate both terrestrial wildlife and aquatic species like fish and amphibians. When combined with wildlife fencing, these crossings become even more effective. Fencing helps funnel animals toward designated crossing points and limits access to roadways, often paired with electric mats or other deterrents to prevent animals from bypassing the barriers. Additionally, wildlife-friendly fencing at the right-of-way boundary can allow for safe at-grade crossings where necessary, ensuring safe wildlife passage and minimizing collision exposure risks.
- **Animal detection systems** use sensors to detect animals near roadways. When an animal is detected, warning signals and/or signs are activated in real-time to alert drivers that an animal may be on or near the roadway. Animal detection systems may be used in combination with wildlife fencing, electric mats, or other features depending on location and configuration.
- **Wildlife signage** indicating the regular presence of wildlife in the area is intended to alert drivers regarding the potential for animal conflicts based on previously identified crash patterns, known wildlife movements, and crossing activity. Static signage has proven to be relatively ineffective at reducing wildlife-vehicle collisions. Seasonally appropriate signage, variable messaging, lighted signs for nighttime visibility, and more precise locational signage may be more effective at alerting drivers and minimizing conflicts compared to traditional static signing.
- **Vegetation management** along roadways is crucial for both road safety and wildlife habitat preservation. Proper clearing improves driver visibility and reduces wildlife collisions, but it can also disrupt habitats, especially during breeding seasons. Conversely, inadequate management may attract herbivores to the roadside, increasing crash risks. Using less palatable plants in revegetation can help deter herbivores while maintaining biodiversity.

Balancing clear sightlines with protected wildlife habitats offers an effective, low-cost solution for both road safety and wildlife management.

- **Speed management**, such as reducing posted speed limits, is often suggested as a strategy to reduce wildlife-vehicle collisions, but research on its effectiveness is limited, particularly in rural areas. While slower speeds might seem intuitive for giving drivers more time to react, studies show that reducing speed limits alone does not necessarily reduce collisions or address the barrier effect of roads on wildlife movement. Additionally, slower speed zones are often unpopular with the public and can create safety hazards due to speed differentials, where some drivers obey the reduced limit and others do not. This can increase the risk of crashes, making the strategy less effective overall. As a result, reducing speed limits is not recommended as a primary strategy for reducing wildlife-vehicle collisions in the study corridor, except in cases where wildlife movements are high or expected. In such cases, a variable speed limit system could be implemented, as discussed previously in improvement **C9**, but more research is needed to fully understand its potential effectiveness and optimal use.
- **Grade separated crossings**, **fencing**, **vegetation management**, **real-time animal detection**, and **strategic signing** may have merit in areas of the corridor. MDT evaluates site-specific wildlife accommodations based on need and feasibility on a case-by-case basis. Any improvements implemented by MDT within the study corridor would include evaluation of wildlife needs, current and planned development impacts to habitat, and the feasibility of wildlife accommodations as part of MDT's Wildlife Accommodation Process and MDT's standard transportation project development process. Consideration for accommodations may be appropriate in locations where animals are known to frequently cross or attempt to cross the highway and in locations with concentrations of wildlife-vehicle conflicts. Heightened areas of wildlife-vehicle conflict were identified at RP 91.5 to 93.0 and RP 96.0 to 103.0 based on preliminary planning-level analysis.

MDT conducts ongoing coordination regarding wildlife and transportation issues with agency partners and to discuss wildlife issues, challenges, and opportunities at multi-stakeholder forums, including regular meetings with the Montana Wildlife & Transportation Steering Committee (MWTSC). The committee is comprised of representatives from MDT, MFWP, and Montanans for Safe Wildlife Passage (MSWP) and is dedicated to providing collaborative leadership and strategic direction on wildlife and transportation issues across Montana. MDT may consider the potential for targeted wildlife studies and standalone wildlife accommodation projects within the corridor based on MWTSC efforts or through partnerships with other interested stakeholders resulting in identification of data collection gaps, research needs, and funding opportunities.

Additionally, resource agencies, non-profit organizations, and private landowners may pursue opportunities within and outside of the highway corridor, independent of MDT efforts. These efforts could include public outreach and educational campaigns, comment and input on private development proposals within wildlife movement areas, and projects to protect habitat and facilitate wildlife movement on adjoining lands. Coordination of these efforts could complement the planning for wildlife accommodations on the highway, increasing their feasibility and the likelihood of long-term success.

<table>
<tr><td colspan="2">Recommendation: Install appropriate wildlife accommodations resulting from MDT project development process; coordinate with MWTSC and other organizations to identify partnership opportunities and advance wildlife accommodation priorities</td></tr>
<tr><td rowspan="2">Project Development Considerations:
• Additional right-of-way or easement may be required,</td><td>Implementation Partners:
• MDT, CSKT, USFWS, MFWP, NGOs, MWTSC, MSWP, Lake and Flathead Counties</td></tr>
<tr><td>Timeframe: Short- to Long-term</td></tr>
</table>

depending on accommodation • Potential impacts to surface waters, irrigation features, wetlands, vegetation, habitat, wildlife, fisheries, protected species, and historic/cultural properties	**Estimated Cost:** $1,100 each (Static Sign) $100,000 (Vegetation Management Plan) $270,000 per mile (Fencing) $840,000 per mile (Animal Detection) $500,000 (Underpass) $5,600,000 (Overpass)
	Potential Funding Sources: Programmed MDT Projects (NH), MWTP, WCPP, State and Federal Agencies, NGOs, Private

2.3. Policy Improvements

While infrastructure improvements can directly address safety and operational needs, progress toward meeting corridor goals can also be made through policy improvements. This section outlines a range of policies aimed at enhancing the safety and operational efficiency of the US 93 corridor in light of anticipated future growth, with specific focus on optimizing access, speeds, travel demand, and maintenance conditions. Implementation would be dependent on staffing availability and other organizational resources, and therefore no cost estimates were prepared. Each policy option presents an opportunity to improve the corridor's performance and support long-term transportation goals.

P1. Access Management

Appropriate management of access within a highway corridor can help improve traffic flow and reduce approach-related crashes. Good access management practices include enforcing minimum spacing distance standards between adjacent approaches and minimizing or eliminating direct access to the highway if a reasonable alternative access to a local street system currently exists or could be constructed in the future. Reasonable access should be maintained for all existing parcels adjacent to the highway, but some existing direct approaches could be relocated, combined, or eliminated if alternate reasonable access is available or can be provided.

To achieve this level of access management, it may be necessary to provide frontage roads in order to consolidate several approaches. It may also be appropriate to realign closely spaced approaches, so they meet at a single approach. Funneling traffic to a single approach may increase the volume at an intersection, which may warrant traffic control now or in the future. Access management could occur during the project development process and as needed due to safety or operational concerns. This could also take place as adjacent land use development or redevelopment occurs.

In conjunction with this study, an *Access Management Plan* has been developed. The goal of the plan is to enhance safety, maintain roadway function, and manage both current and future access points consistently. The *Access Management Plan* provides specific recommendations for the number, location, and spacing of public and private access points to the highway, as well as the inclusion of frontage roads, lane treatments, intersection controls, and other necessary measures to resolve identified traffic issues.

The plan also outlines guidance for addressing future developments and access requests. Implementation of the plan may be aided by future establishment of a multi-agency Access Control Committee to review access requests and modifications. In line with the *Access Management Plan*, access points could be consolidated, particularly in high-traffic areas like Polson, Big Arm, Elmo, Dayton, Lakeside, and Somers, to improve safety and traffic flow.

Recommendation: Develop and implement an *Access Management Plan*

Project Development Considerations:	Implementation Partners:
• Additional right-of-way or easement may be required • Potential impacts to surface waters, irrigation features, farmland, wetlands, vegetation, habitat, wildlife, fisheries, protected species, hazardous materials, and historic/cultural properties	• MDT, CSKT, Lake and Flathead Counties, Private **Timeframe:** Short- to Long-term

P2. Speed Considerations

The speed limit within the US 93 study area varies from 30 mph to 70 mph in various locations, with multiple speed limit changes along the corridor. In some locations, the speed limit varies based on daytime and nighttime conditions. Some members of the public requested consideration of slower speeds in certain locations within the corridor, while others indicated multiple changes in speed limits can be confusing and seem illogical for drivers.

Decisions about rational speed limits are typically based on speed studies. As part of these studies, data is collected and analyzed to identify the 85th percentile speed, which represents the speed at or below which 85 percent of drivers travel under ideal conditions. This 85th percentile speed is typically used as a starting point for setting a rational speed limit, as it is considered the maximum safe speed for that location. It is also important to consider roadway context, driver expectation, and crash trends when determining appropriate speed limits.

Over the five-year analysis period, 51 percent of crashes in the corridor involved a collision with an animal. About 37 percent of crashes occurred in the dark, with 96 percent of those crashes occurring where street lighting was not present. The highest number of crashes occurred in the winter months (November to February), accounting for 50 percent of crashes. Congestion is also common along US 93 during peak summer conditions.

MDT recently completed a speed study in the Lakeside area and is currently conducting an ongoing speed study between Elmo and Dayton (see **Section 1.2**). Once the ongoing study is complete, recommendations should be considered for implementation.

Establishing appropriate speed limits is essential for promoting safe driving behavior and meeting driver expectations. It is important to consider the unique conditions of the corridor when assessing and determining speed limits. It may be appropriate to consider speed limit modifications in the corridor for developed areas or for seasonal or nighttime conditions based on crash trends, non-motorized conflicts, visibility concerns, and wildlife activity.

Speed limit investigations from Polson to Elmo, particularly focusing on the segment between Big Arm and Elmo, should be considered in collaboration with MDT and local officials to help determine an appropriate speed limit along this portion of the corridor. Additionally, consideration should be given to the potential for lowered speeds in developed or congested areas including Somers, during nighttime due to crash trends and wild animal conflicts, and the potential for seasonal adjustments during peak seasons. Ultimately, the Montana Transportation Commission is responsible for setting the speed limit for the highway.

Recommendation: Conduct speed studies and implement recommendations

Project Development Considerations:	Implementation Partners:
• Nighttime or seasonal speed limits may be appropriate to consider in the corridor, in addition to spot speed zones through developed or congested areas • Crash trends and known conflicts should be considered • Effectiveness of posted speed limit signage is dependent on enforcement	• MDT, CSKT, Lake and Flathead Counties **Timeframe:** Short- to Mid-term

P3. Transportation Demand Management (TDM)

Transportation demand management (TDM) measures were introduced in the 1970s and 1980s to conserve energy, improve air quality, and reduce peak-period congestion by promoting alternatives to single-occupant vehicle use during commuting hours. Within the study corridor, TDM measures could also reduce the potential of collisions related to reduced visibility and wildlife-vehicle conflicts at dusk and dawn overlapping with AM and PM commuting periods during certain times of the year. TDM strategies originally focused on carpooling, vanpooling, public transit, walking, and cycling for work. Over time, the concept has evolved to include strategies like flextime, compressed workweeks, and telecommuting. TDM can also help manage traffic during special events, such as the 4th of July fireworks, the Polson Main Street Flathead Cherry Festival, and other large community gatherings.

As the Polson-Somers area grows, TDM strategies could enable existing transportation infrastructure to safely serve transportation users, extend the life of the current system, and introduce potential safety benefits. Beyond commuting improvements, TDM can benefit safety, tourism, special events, emergencies, and construction projects. Additionally, TDM strategies can also promote physical activity and enhance overall quality of life. The following strategies could support a TDM program in the Polson-Somers area.

- Encourage employers to provide alternate work schedules to their employees.
- Consider ways to increase transit ridership for work and non-work purposes such as improving service frequency and coverage to increase accessibility.
- Encourage drivers to avoid driving at dusk and dawn due to animal activity and reduced visibility.

Recommendation: Develop and implement transportation demand management campaigns	
Project Development Considerations: • Commuters may be unable to adjust work schedules outside of peak travel times • Mode shift to transit/bicycling/walking for commuting purposes would likely be limited due to public transportation service challenges and corridor length	**Implementation Partners:** • Private Employers, CSKT, Lake and Flathead Counties, Transit Operators **Timeframe:** Short- to Mid-Term

P4. Maintenance

The MDT *Maintenance Operations and Procedures Manual*[17] outlines practices, procedures, and responsibilities for maintaining MDT-owned roadways. Within the study area, US 93 falls under the jurisdiction of the Kalispell Maintenance Division. The Division is responsible for various tasks, including surface repairs, bridge maintenance, facility upkeep, pavement markings, signage, winter maintenance, right-of-way management, vegetation management, permitting, and administrative functions. Detailed guidelines for these practices are provided in Section C of the manual.

MDT devotes resources to operating and maintaining existing transportation facilities while researching and adopting new technologies, materials, and equipment to make roads safer during winter driving conditions in Montana. Field review identified potential areas for continued monitoring

and attention, including runoff impacts on Flathead Lake and winter maintenance. Some of these practices could also be applied during construction activities in addition to routine maintenance.

Highways near water bodies, such as Flathead Lake, risk impairing water quality through non-point source pollutants, including sediment and temperature changes. Sedimentation arises from erosion in borrow ditches, fill slopes, bridge drainage, and traction sand applied during winter. Vegetation removal along riverbanks can elevate water temperatures by reducing riparian habitat. MDT mitigates these impacts by implementing its *Erosion and Sediment Control Best Management Practices Manual*[18] and *Permanent Erosion and Sediment Control Design Guidelines*[19], ensuring water quality standards are met.

Snow management presents challenges during winter, particularly after heavy snowstorms. Outside the immediate Polson area, the majority of the corridor is classified as a Level I-A winter maintenance area, making it eligible for 19 hours-per-day coverage, typically between 5:00 AM and 12:00 AM, during a winter storm event. Implementation of coverage is at the discretion of MDT's Kalispell Area Maintenance Chief. Feedback from the CSKT indicated that Tribal members often travel during late night and early morning periods to attend wintertime cultural activities. Additional consideration for maintenance coverage may be warranted due to unique Tribal travel patterns.

Temporary or permanent snow fencing could provide additional storage and improve visibility along the corridor. Living snow fences, such as trees and shrubs, must be offset from the roadway to prevent snow accumulation that may obstruct sightlines. Snow buildup at guardrail ends and intersections can further hinder visibility, creating safety concerns for vehicles entering the highway. Additionally, while US 93 turnouts are well plowed, residual snow and ice due to limited use can make them difficult to navigate during winter months.

<table>
<tr><td colspan="2">Recommendation: Continue to address highway maintenance issues and research and implement best practices</td></tr>
<tr><td rowspan="2">Project Development Considerations:
• Potential impacts to stormwater, surface waters, water quality, fisheries, wildlife, vegetation, and protected species</td><td>Implementation Partners:
• MDT, CSKT, Lake and Flathead Counties</td></tr>
<tr><td>Timeframe: As needed</td></tr>
</table>

P5. Noise Abatement

Multiple members of the public commented on excessive noise associated with highway traffic, particularly from large trucks using compression brakes, and called for noise abatement measures such as compression brake prohibitions and sound barriers, especially in high-speed sections near residences.

Under Montana law (MCA 61-9-321), any commercial motor vehicle equipped with an engine compression brake device must be fitted with a muffler in good working condition to prevent excessive noise. Commercial motor vehicles that have proper mufflers cannot be prohibited from using engine compression brakes. The responsibility of enforcement lies with Motor Carrier Services, which ensures that mufflers meet appropriate standards.

State law takes precedence over local government ordinances that prohibit the use of compression brakes. As a result, it is no longer appropriate for MDT to maintain signs in the highway right-of-way prohibiting compression brake use. In compliance with current law, MDT has been removing any such signs along state highway rights-of-way and refrains from installing new signs where local ordinances prohibit compression brakes.

Under the project development process, noise analysis is a required component of environmental review for Type I projects, defined as project types with the potential to increase or alter traffic noise. During analysis associated with future Type I improvement projects on the highway, traffic noise impacts and the need for noise mitigation strategies would be determined in accordance with the MDT *Traffic Noise Analysis and Abatement Policy*.[20]

While traditional noise control has involved the installation of noise barriers along the highway edge or right-of-way, especially in noise-sensitive areas, noise barriers are not always feasible or reasonable in terms of cost-effectiveness. Examples include uncontrolled access facilities where numerous driveways make it difficult for barriers to effectively block noise or in lower-density areas where the number of impacted homes may not justify the cost of a barrier. Additionally, barriers may not always be reasonable in terms of safety, as they can present a roadside hazard and create potential issues with road icing.

In addition to noise barriers, potential strategies to consider include alternative pavement surfaces, sound insulation for public noise receptors, buffer zones, traffic and speed management techniques, increased enforcement through Motor Carrier Services, and possibly revisiting Montana's compression brake laws.

<table>
<tr><td colspan="2">Recommendation: Continue to address highway noise issues and research and implement appropriate mitigation measures</td></tr>
<tr><td rowspan="2">Project Development Considerations:
Highway traffic noise analyses should be completed for all highway improvements, the study will evaluate and determine anticipated noise impacts and appropriate mitigation measures</td><td>Implementation Partners:
MDT, CSKT, Lake and Flathead Counties</td></tr>
<tr><td>Timeframe: As needed</td></tr>
</table>

2.4 Options Eliminated from Further Consideration

Through public and stakeholder involvement efforts, several other concerns not addressed previously were expressed. Improvement options were explored and considered to address these concerns. Ultimately, these options were eliminated from further consideration because they are either outside the scope of the *US 93 Polson-Somers Corridor Study*, or the options were determined to be infeasible. The intent of this study is to provide feasible improvement options to address the needs and objectives identified for the US 93 corridor over the 20-year planning horizon. Options that were considered but not advanced as part of this study are discussed below.

Additional Travel Lanes

Some members of the public suggested adding travel lanes to US 93 to reduce congestion and improve passing opportunities. However, expanding the highway is not considered a viable option due to physical and logistical constraints, excessive costs, and anticipated impacts to environmental and cultural resources. To the east, the highway is confined by Flathead Lake, and to the west, widening would require substantial rock cuts and blasting in several areas. This would be both expensive and disruptive, leading to extended road closures during construction.

Locations that can be expanded with minimal excavation have been identified in **C3**. These areas have been noted as potential passing lane locations, which would help alleviate congestion by providing periodic opportunities for safe passing. Adding passing lanes at these strategic locations would not only improve traffic flow but also enhance safety, especially for slower-moving vehicles. This approach allows for targeted improvements without the need for extensive roadwork or major disruptions to

traffic. For these reasons, the addition of a new travel lane in each direction throughout the entire corridor was eliminated from further consideration in this study.

Alternate Routes

Due to limited space and environmental constraints, opportunities for roadway expansion along the current alignment are limited. Instead of expanding the highway on its current alignment, alternative routes and new alignments were suggested by the public to provide emergency access and an alternative route in the event of a crash or other incident blocking travel lanes on US 93. Public comments suggested connecting the remaining sections of Old Highway 93 and resurfacing it, encouraging drivers and trucks to use alternate routes, and constructing a new parallel route. One comment also suggested encouraging tourists to use a ferry on Flathead Lake rather than driving.

There are limited sections of Old Highway 93 remaining, and construction of an alternate route through the corridor would be cost prohibitive. A ferry service across Flathead Lake, while potentially attractive to some tourists, is not a practical solution for the majority of travelers and would not adequately address traffic and safety concerns on the existing corridor. Additionally, MT 35, located along the east side of Flathead Lake, currently acts as an alternate route, providing access to Somers or Polson in case of an emergency or road closure on US 93.

For these reasons, construction of a new route on the west side of Flathead Lake was eliminated from further consideration in this study.

3.0. SUMMARY OF IMPROVEMENT OPTIONS

This memorandum identifies improvement options for the US 93 corridor between Polson (RP 63) and Somers (RP 104.2) The improvement options were based on the evaluation of several factors, including but not limited to field review, engineering analysis of as-built drawings, traffic data analysis, crash data analysis, consultation with resource agencies, and information provided by the general public.

Improvement options are intended to offer a range of potential mitigation strategies for corridor issues and areas of concern. Small-scale improvements were identified and may be as simple as adding advance warning signs at intersections. Larger, more complex reconstruction improvements are also envisioned. It may be feasible and cost-effective to combine improvement options during project development for ease of implementation and other efficiencies. A summary of improvement options is provided in **Table 2** and shown graphically in **Figure 1**.

Table 3: Improvement Options Summary

Options		Description	Implementation Partners	Timeframe[1]	Cost Estimate[2]	Potential Funding Sources[3]
Spot Improvements						
S1	**Jette (RP 62.2 to 64.7)**	Flatten roadway grade; assess passing zone	MDT, CSKT, Lake County	Long-term	$32.2M	NH, HSIP, Federal Grants
S2	**Big Arm (RP 71.3 to 73.8)**	Construct consistent three-lane configuration with left-turn lane; review passing zones	MDT, CSKT, Lake County	Long-term	$19.1M	NH, HSIP, Federal Grants
S3	**Elmo Pedestrian Crossings**	Install RRFBs and ADA accommodations at pedestrian crossings	MDT, CSKT, Lake County	Mid-term	$850,000	NH, TA, CMAQ/ MACI
S3-a	*Skookum Drive (RP 77.2)*				*$420,000*	
S3-b	*Cemetery Road (RP 77.3)*				*$430,000*	
S4	**MT 28 Intersection (RP 77.6)**	Install additional traffic control and accommodate business access as warranted with future development	Private, MDT, CSKT, Lake County	Mid-term	$2.1M to $4.9M	Private (Development), Local
S5	**Blacktail Road/Stoner Loop Intersection (RP 97.9)**	Construct a northbound left turn lane and evaluate intersection configuration	MDT, Flathead County, Private	Mid-term	$1.7M	NH, HSIP, Local, Private
S6	**Adams St Intersection (RP 98.1)**	Install additional traffic control as warranted based on future development	MDT, Flathead County, Private	Mid- to Long-term	$310,000 (PHB) to $6.1M (Roundabout)	NH, Local, Private
S7	**Lakeside (RP 97.8 to 98.4)**	Install pedestrian and roadway infrastructure improvements	MDT, Flathead County	Mid- to Long-term	$1.3M to $12.8M	NH, HSIP, TA, CMAQ/MACI
S7-a	*Pedestrian Accommodations*	*Extend existing sidewalk, curb, and gutter; upgrade 2 crosswalks and add 1*		*Mid-term*	*$1.3M*	

Options		Description	Implementation Partners	Timeframe[1]	Cost Estimate[2]	Potential Funding Sources[3]
S7-b	*Urban Reconstruction*	*TWLTL; sidewalk and boulevard on both sides; upgrade 2 crosswalks and add 1; lighting upgrades*		*Long-term*	*$12.8M*	
S8	**Somers (RP 102.4 to 103.0)**	Install pedestrian/bicycle and roadway infrastructure improvements	MFWP, MDT, Flathead County, Walleyes Unlimited	Mid- to Long-term	$1.7M to $13.0M	NH, HSIP, TA, MFWP, NGO/Private (Walleyes Unlimited)
S8-a	*Pedestrian Accommodations*	*Extend and improve existing SUP; upgrade crosswalks*		*Mid-term*	*$1.7M*	
S8-b	*Urban Reconstruction*	*TWLTL; sidewalk/SUP and boulevard on both sides; crosswalk improvements; lighting upgrades*		*Long-term*	*$13.0M*	
S9	**MT 82 Intersection (RP 104.2)**	Modify business access; upgrade traffic signal	MDT, Flathead County, Private	Mid-term	$1.2M	NH, HSIP, Private
S9-a	*Upgrade Traffic Signal*	*Upgrade signal timing and turn lanes*			*$600,000*	
S9-b	*Define Access Points*	*Assess and define access points*			*$560,000*	
Corridor-Wide Improvements						
C1	**Turn Lanes and Approach Realignment**	Install turn lanes and realign approaches as warranted	MDT, CSKT, Lake and Flathead Counties, Private	Mid- to Long-term	$40,000 (realignment) to $1.3M (turn lanes)	NH, Local, Private
C2	**Passing/No-Passing Zones**	Evaluate and modify existing passing/no-passing signing and striping	MDT	Short-term	$19,000 per mile	NH, HSIP, Maintenance
C3	**Passing Lanes**	Construct additional passing lanes	MDT, CSKT, Lake and Flathead Counties	Long-term	$4.7M to $11.4M	NH, HSIP
C4	**Turnouts**	Construct/modify turnouts as appropriate; add appropriate signage at and in advance of each location	MDT, CSKT, Lake and Flathead Counties, School Districts	Mid- to Long-term	$230,000 to $1.3M per location	NH, HSIP
C5	**Shoulder Widening**	Widen roadway shoulders where feasible	MDT, CSKT, Lake and Flathead Counties	Mid- to Long-term	$3.0M to $6.2M per mile	NH, HSIP
C6	**Rumble Strips**	Install shoulder rumble strips throughout the corridor	MDT	Short-term	$26,000 per mile	NH, HSIP, Maintenance
C7	**Rockfall Hazard Mitigation**	Conduct rockfall hazard mitigation	MDT	Mid- to Long-term	$18.9M to $45.8M	NH, Maintenance
C8	**High-Visibility Improvements and Advance Warning Signs**	Install curve warning signs, reflectors, and reflective paint on striping	MDT	Short-term	$50,000 per mile	HSIP, Maintenance
C9	**Intelligent Transportation Systems (ITS)**	Install ITS technologies where appropriate	MDT	Mid-term	$2.1M (VSL), $240,000 each (VMS)	HSIP, CMAQ/MACI, Maintenance

Options		Description	Implementation Partners	Timeframe[1]	Cost Estimate[2]	Potential Funding Sources[3]
C10	**Cultural Signage**	Install cultural signage throughout the corridor	MDT, CSKT, Lake County	Short-term	$1,100 each	NH, Maintenance, CSKT/Local
C11	**Wildlife-Vehicle Conflict Mitigation**	Install appropriate wildlife accommodations resulting from MDT project development process; coordinate with MWTSC and other organizations to identify partnership opportunities and advance wildlife accommodation priorities	MDT, CSKT, USFWS, MFWP, NGOs, Lake and Flathead Counties	Short- to Long-term	$1,100 (Static Sign) to $5.6M (Overpass)	Programmed MDT Projects (NH), MWTP, WCPP, State and Federal Agencies, NGOs, Private
Policy Improvements						
P1	**Access Management**	Develop and implement an *Access Management Plan*	MDT, CSKT, Lake and Flathead Counties, Private	Short- to Long-term	N/A	N/A
P2	**Speed Considerations**	Conduct speed studies and implement recommendations	MDT, CSKT, Lake and Flathead Counties	Short- to Mid-term	N/A	N/A
P3	**Transportation Demand Management (TDM)**	Develop and implement transportation demand management campaigns	Private Employers, CSKT, Lake and Flathead Counties, Transit Operators	Short- to Mid-Term	N/A	N/A
P4	**Maintenance**	Continue to address highway maintenance issues and research and implement best practices	MDT, CSKT, Lake and Flathead Counties	As needed	N/A	N/A
P5	**Noise Abatement**	Continue to address highway noise issues and research and implement appropriate mitigation measures	MDT, CSKT, Lake and Flathead Counties	As needed	N/A	N/A

[1] ***Timeframes***: *The timing and ability to implement improvement options depends on factors including the availability of funding, right-of-way needs, and other project delivery elements. Implementation timeframes are not a commitment to developing recommendations.*

- ***Short-term:*** *Implementation is feasible within a 0- to 5-year period.*
- ***Mid-term:*** *Implementation is feasible within a 5- to 10-year period.*
- ***Long-term:*** *Implementation is feasible within a 10- to 20-year period.*
- ***As needed:*** *Implementation could occur based on observed need at any time as needed.*

[2] ***Cost Estimates*** *were developed using 2024 pricing and include estimates for construction, engineering, drainage, miscellaneous items, and indirect costs. In addition to 2024 base pricing, an inflationary factor of 3.0 percent per year was applied to the planning-level costs to account for an estimated year of expenditure. Contingencies were added to account for unknown factors at the planning-level stage. Actual costs may vary due to changed conditions at the time of construction.*

[3] ***Potential Funding Sources*** *are based on minimum eligibility criteria given the system classification and primary project purpose(s). Additional evaluation may be required to determine specific project eligibility and competitiveness for available funds.*

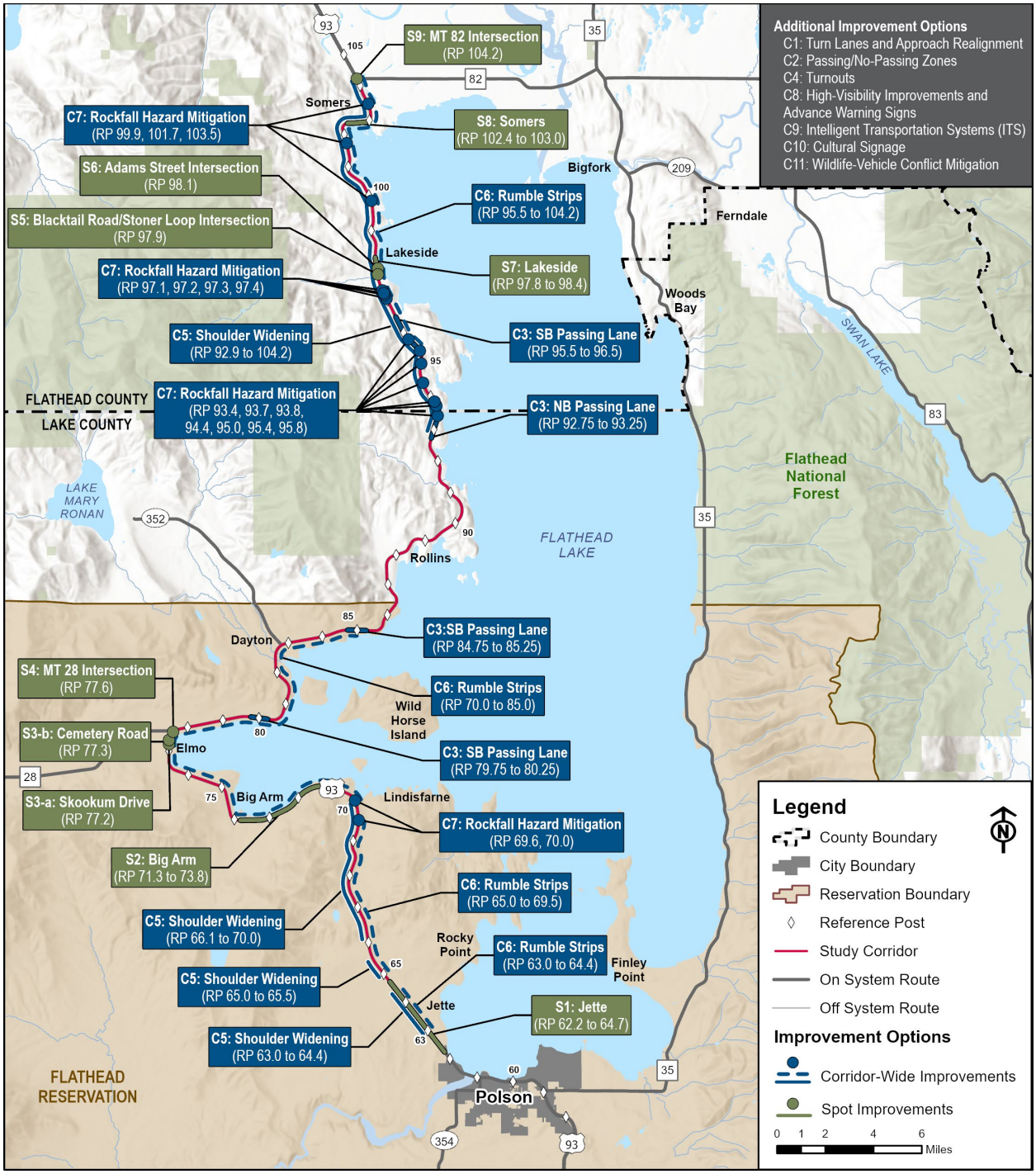

Figure 1: Improvement Options

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US 93
POLSON-SOMERS
CORRIDOR STUDY

APPENDIX A:

Cost Estimates

APPENDIX A

Planning Level Cost Estimates

Planning-level costs were developed for each improvement option. Costs include estimates for construction, engineering, drainage, miscellaneous items, indirect costs. Construction cost estimates are based on unit quantity estimates and price information determined from the MDT Preliminary Estimating Tool (PET), MDT AASHTOWARE Software, and 2023 Bid Archive. Cost ranges are provided in some cases, indicating unknown factors at the particular planning level stage.

NOTES:

Miscellaneous items include unknown factors and minor bid items. Examples include: right-of-way, utilities, slope and surface treatments, erosion control, and public relations.

An inflationary factor of 3.0 percent per year was applied to the planning level costs to account for an estimated year of expenditure.

SPOT IMPROVEMENTS

S1. Jette (RP 62.2 to 64.7) — $ 32,200,000 TOT

LENGTH (MI)	2.5
WIDTH (FT)	36
SURFACING (IN)	4.8
BASE (IN)	24

TYPE	UNITS	QUANTITY	UNIT PRICE	COST
EXCAVATION-UNCLASSIFIED	CUYD	73075.0	$ 15.39	$ 1,124,624
SPECIAL BORROW-NEAT LINE	CUYD	32303.0	$ 28.05	$ 906,099
CRUSHED AGGREGATE COURSE	CUYD	25750.0	$ 52.87	$ 1,361,403
COVER - TYPE 2	SQYD	63276.2	$ 3.20	$ 202,484
PLANT MIX SURF - 1/2 IN	TON	16262.0	$ 49.60	$ 806,594
ASPHALT BINDER PG 58V-34	TON	975.7	$ 900.00	$ 878,146
EMULSSIFIED ASPHALT CHFRS-20	TON	112.9	$ 1,662.92	$ 187,823
SIGNS - RURAL	MILE	2.5	$ 12,500.00	$ 31,250
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	2.5	$ 12,500.00	$ 31,250
DRAINAGE PIPE - RURAL	MILE	2.5	$ 150,000.00	$ 375,000
MISCELLANEOUS ITEMS			25%	$ 1,476,168
	Subtotal 1			$ 7,380,841
TRAFFIC CONTROL (RURAL)			6%	$ 442,850
	Subtotal 2			$ 7,823,692
MOBILIZATION			10%	$ 782,369
	Subtotal 3			$ 8,606,061
CONTINGENCY (MEDIUM RISK)			55%	$ 4,733,334
	Subtotal 4			$ 13,339,395
INFLATION (LONG-TERM)	% PER YEAR	20.0	3%	$ 10,753,036
	Subtotal 5			$ 24,092,430
CONSTRUCTION ENGINEERING (CE)			10%	$ 2,409,243
PRELIMINARY ENGINEERING (PE)			10%	$ 2,409,243
	Subtotal 6			$ 28,910,917
INDIRECT COSTS (IDC)			11.32%	$ 3,272,716
	TOTAL			**$ 32,183,632**

S2. Big Arm (RP 71.3 to 73.8) — $ 19,100,000 TOT

LENGTH (MI)	2.5
WIDTH (FT)	48
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY	UNIT PRICE	COST
EXCAVATION-UNCLASSIFIED	CUYD	74366.8	$ 15.39	$ 1,144,506
SPECIAL BORROW-NEAT LINE	CUYD	7436.7	$ 28.05	$ 208,599
CRUSHED AGGREGATE COURSE	CUYD	23016.3	$ 52.87	$ 1,216,873
COVER - TYPE 2	SQYD	70400.0	$ 3.20	$ 225,280
PLANT MIX SURF - 1/2 IN	TON	6924.6	$ 49.60	$ 343,460
ASPHALT BINDER PG 58V-34	TON	415.5	$ 900.00	$ 373,928
EMULSSIFIED ASPHALT CHFRS-20	TON	125.7	$ 1,662.92	$ 208,969
SIGNS - RURAL	MILE	2.5	$ 12,500.00	$ 31,250
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	2.5	$ 12,500.00	$ 31,250
DRAINAGE PIPE - RURAL	MILE	2.5	$ 150,000.00	$ 375,000

MISCELLANEOUS ITEMS				25%	$	1,039,779
	Subtotal 1				$	5,198,894
TRAFFIC CONTROL (RURAL)				6%	$	311,934
	Subtotal 2				$	5,510,828
MOBILIZATION				10%	$	551,083
	Subtotal 3				$	6,061,910
CONTINGENCY (LOW RISK)				30%	$	1,818,573
	Subtotal 4				$	7,880,484
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	6,352,546
	Subtotal 5				$	14,233,030
CONSTRUCTION ENGINEERING (CE)				10%	$	1,423,303
PRELIMINARY ENGINEERING (PE)				10%	$	1,423,303
	Subtotal 6				$	17,079,636
INDIRECT COSTS (IDC)				11.32%	$	1,933,415
	TOTAL				**$**	**19,013,051**

S3. Elmo Intersections and Ped Crossings (RP 77.2 to 77.6)

S3-a. Skookum Drive Pedestrian Crossing (RP 77.2) — $ 420,000 TOT

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
RRFB - NEW	LS	1.0	$	40,000.00	$	40,000
SIDEWALK-CONCRETE 6"	SQYD	82.0	$	218.41	$	17,910
PORT CEM CONC PAVE 8 IN	SQYD	40.0	$	140.00	$	5,600
ADA IMPROVEMENTS	EACH	2.0	$	20,000.00	$	40,000
MISCELLANEOUS ITEMS				25%	$	25,877
Subtotal 1					$	129,387
TRAFFIC CONTROL (RURAL)				6%	$	7,763
Subtotal 2					$	137,150
MOBILIZATION				10%	$	13,715
Subtotal 3					$	150,865
CONTINGENCY (MEDIUM RISK)				55%	$	82,976
Subtotal 4					$	233,841
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	80,422
Subtotal 5					$	314,263
CONSTRUCTION ENGINEERING (CE)				10%	$	31,426
PRELIMINARY ENGINEERING (PE)				10%	$	31,426
Subtotal 6					$	377,116
INDIRECT COSTS (IDC)				11.32%	$	42,689
TOTAL					**$**	**419,805**

S3-b. Cemetery Road Pedestrian Crossing (RP 77.3) — $ 430,000 TOT

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
RRFB - NEW	LS	1.0	$	40,000.00	$	40,000
SIDEWALK-CONCRETE 6"	SQYD	71.1	$	218.41	$	15,531
PORT CEM CONC PAVE 8 IN	SQYD	59.6	$	140.00	$	8,338
ADA IMPROVEMENTS	EACH	2.0	$	20,000.00	$	40,000
MISCELLANEOUS ITEMS				25%	$	25,967
Subtotal 1					$	129,836
TRAFFIC CONTROL (RURAL)				6%	$	7,790
Subtotal 2					$	137,627
MOBILIZATION				10%	$	13,763
Subtotal 3					$	151,389
CONTINGENCY (MEDIUM RISK)				55%	$	83,264
Subtotal 4					$	234,653
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	80,701
Subtotal 5					$	315,355
CONSTRUCTION ENGINEERING (CE)				10%	$	31,535
PRELIMINARY ENGINEERING (PE)				10%	$	31,535
Subtotal 6					$	378,425
INDIRECT COSTS (IDC)				11.32%	$	42,838
TOTAL					**$**	**421,263**

S4. MT-28 Intersection Improvements (RP 77.6)

Traffic Signal — $ 2,100,000 TOT

		LENGTH (FT)	1000			

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
CRUSHED AGGREGATE COURSE		CUYD	3267.9	$	52.87	$	172,776
COVER - TYPE 2		SQYD	5333.3	$	3.20	$	17,067
PLANT MIX SURF - 1/2 IN		TON	137.8	$	49.60	$	6,837
ASPHALT BINDER PG 58V-34		TON	7.4	$	900.00	$	6,699
EMULSSIFIED ASPHALT CHFRS-20		TON	9.6	$	1,662.92	$	15,964
SIGNS - RURAL		MILE	0.2	$	12,500.00	$	2,367
STRIPING & PAVEMENT MARKINGS - RURAL		MILE	0.2	$	12,500.00	$	2,367
DRAINAGE PIPE - RURAL		MILE	0.2	$	150,000.00	$	28,409
SIGNALS		LS	1.0	$	350,000.00	$	350,000
MISCELLANEOUS ITEMS					25%	$	150,622
	Subtotal 1					$	753,110
TRAFFIC CONTROL (RURAL)					6%	$	45,187
	Subtotal 2					$	798,296
MOBILIZATION					10%	$	79,830
	Subtotal 3					$	878,126
CONTINGENCY (LOW RISK)					30%	$	263,438
	Subtotal 4					$	1,141,563
INFLATION (MID-TERM)		% PER YEAR	10.0		3%	$	392,602
	Subtotal 5					$	1,534,166
CONSTRUCTION ENGINEERING (CE)					10%	$	153,417
PRELIMINARY ENGINEERING (PE)					10%	$	153,417
	Subtotal 6					$	1,840,999
INDIRECT COSTS (IDC)					11.32%	$	208,401
	TOTAL					**$**	**2,049,400**

Roundabout **$ 4,900,000 TOT**

LENGTH (FT) 2250

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED		CUYD	4433.8	$	15.39	$	68,236
SPECIAL BORROW-NEAT LINE		CUYD	443.4	$	28.05	$	12,437
CRUSHED AGGREGATE COURSE		CUYD	7352.9	$	52.87	$	388,747
COVER - TYPE 2		SQYD	12000.0	$	3.20	$	38,400
PLANT MIX SURF - 1/2 IN		TON	310.2	$	49.60	$	15,384
ASPHALT BINDER PG 58V-34		TON	16.7	$	900.00	$	15,074
EMULSSIFIED ASPHALT CHFRS-20		TON	21.5	$	1,662.92	$	35,753
SIGNS - RURAL		MILE	0.4	$	12,500.00	$	5,327
STRIPING & PAVEMENT MARKINGS - RURAL		MILE	0.4	$	12,500.00	$	5,327
DRAINAGE PIPE - RURAL		MILE	0.4	$	150,000.00	$	63,920
CONCRETE ROUNDABOUTS - ONE LANE		LS	1.0	$	675,000.00	$	675,000
LIGHTS		MILE	0.4	$	275,000.00	$	117,188
MISCELLANEOUS ITEMS					25%	$	330,901
	Subtotal 1					$	1,771,692
TRAFFIC CONTROL (RURAL)					6%	$	106,302
	Subtotal 2					$	1,877,994
MOBILIZATION					10%	$	187,799
	Subtotal 3					$	2,065,793
CONTINGENCY (LOW RISK)					30%	$	619,738
	Subtotal 4					$	2,685,531
INFLATION (MID-TERM)		% PER YEAR	10.0		3%	$	923,598
	Subtotal 5					$	3,609,129
CONSTRUCTION ENGINEERING (CE)					10%	$	360,913
PRELIMINARY ENGINEERING (PE)					10%	$	360,913
	Subtotal 6					$	4,330,955
INDIRECT COSTS (IDC)					11.32%	$	490,264
	TOTAL					**$**	**4,821,219**

S5. Blacktail Road/Stoner Loop Intersection (RP 97.9)

Install Turn Lane **$ 1,700,000 EA**

LENGTH (FT)	1316
WIDTH (FT)	24
SURFACING (IN)	4.8
BASE (IN)	18

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED		CUYD	4633.1	$	15.39	$	71,304
CRUSHED AGGREGATE COURSE		CUYD	1827.8	$	52.87	$	96,635
COVER - TYPE 2		SQYD	3509.3	$	3.20	$	11,230
PLANT MIX SURF - 1/2 IN		TON	789.2	$	49.60	$	39,142
ASPHALT BINDER PG 58V-34		TON	47.3	$	900.00	$	42,615
STRIPING & PAVEMENT MARKINGS - URBAN		MILE	0.2	$	30,000.00	$	7,477
DRAINAGE PIPE - URBAN		MILE	0.2	$	400,000.00	$	99,697
MISCELLANEOUS ITEMS					25%	$	92,025
	Subtotal 1					$	460,125
TRAFFIC CONTROL (URBAN)					5%	$	23,006
	Subtotal 2					$	483,131
MOBILIZATION					10%	$	48,313
	Subtotal 3					$	531,444
CONTINGENCY (HIGH RISK)					75%	$	398,583
	Subtotal 4					$	930,028
INFLATION (MID-TERM)		% PER YEAR	10.0		3%	$	319,852
	Subtotal 5					$	1,249,879
CONSTRUCTION ENGINEERING (CE)					10%	$	124,988
PRELIMINARY ENGINEERING (PE)					10%	$	124,988
	Subtotal 6					$	1,499,855
INDIRECT COSTS (IDC)					11.32%	$	169,784
	TOTAL					**$**	**1,669,639**

S6. Adams Street Intersection Improvements (RP 98.1)

PHB/HAWK — $ 310,000 TOT

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
PEDESTRIAN HYBRID BEACON		LS	1.0	$	90,000.00	$	90,000
MISCELLANEOUS ITEMS					25%	$	22,500
	Subtotal 1					$	112,500
TRAFFIC CONTROL (RURAL)					6%	$	6,750
	Subtotal 2					$	119,250
MOBILIZATION					10%	$	11,925
	Subtotal 3					$	131,175
CONTINGENCY (LOW RISK)					30%	$	39,353
	Subtotal 4					$	170,528
INFLATION (MID-TERM)		% PER YEAR	10.0		3%	$	58,647
	Subtotal 5					$	229,175
CONSTRUCTION ENGINEERING (CE)					10%	$	22,917
PRELIMINARY ENGINEERING (PE)					10%	$	22,917
	Subtotal 6					$	275,010
INDIRECT COSTS (IDC)					11.32%	$	31,131
	TOTAL					**$**	**306,141**

Traffic Signal — $ 2,200,000 TOT

LENGTH (FT) 500

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED		CUYD	492.6	$	15.39	$	7,582
SPECIAL BORROW-NEAT LINE		CUYD	49.3	$	28.05	$	1,382
CRUSHED AGGREGATE COURSE		CUYD	1361.1	$	52.87	$	71,962
COVER - TYPE 2		SQYD	2500.0	$	3.20	$	8,000
PLANT MIX SURF - 1/2 IN		TON	64.3	$	49.60	$	3,187
ASPHALT BINDER PG 58V-34		TON	3.5	$	900.00	$	3,123
EMULSSIFIED ASPHALT CHFRS-20		TON	4.5	$	1,662.92	$	7,483
SIGNS - URBAN		MILE	0.1	$	80,000.00	$	7,576
STRIPING & PAVEMENT MARKINGS - URBAN		MILE	0.1	$	30,000.00	$	2,841
DRAINAGE PIPE - URBAN		MILE	0.1	$	400,000.00	$	37,879
SIDEWALK-CONCRETE 4"		SQYD	444.4	$	57.78	$	25,680
SIDEWALK-CONCRETE 6"		SQYD	111.1	$	218.41	$	24,268
CURB AND GUTTER-CONC		LNFT	1000.0	$	83.55	$	83,550
SIGNALS		LS	1.0	$	350,000.00	$	350,000
MISCELLANEOUS ITEMS					25%	$	158,628
	Subtotal 1					$	793,139
TRAFFIC CONTROL (RURAL)					6%	$	47,588
	Subtotal 2					$	840,727

MOBILIZATION				10%	$	84,073
	Subtotal 3				$	924,800
CONTINGENCY (LOW RISK)				30%	$	277,440
	Subtotal 4				$	1,202,240
INFLATION (MID-TERM)	% PER YEAR		10.0	3%	$	413,470
	Subtotal 5				$	1,615,710
CONSTRUCTION ENGINEERING (CE)				10%	$	161,571
PRELIMINARY ENGINEERING (PE)				10%	$	161,571
	Subtotal 6				$	1,938,853
INDIRECT COSTS (IDC)				11.32%	$	219,478
	TOTAL				**$**	**2,158,331**

Roundabout — $ 6,100,000 TOT

LENGTH (FT) 1250

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	1231.6	$	15.39	$	18,954
SPECIAL BORROW-NEAT LINE	CUYD	123.2	$	28.05	$	3,455
CRUSHED AGGREGATE COURSE	CUYD	3402.8	$	52.87	$	179,905
COVER - TYPE 2	SQYD	6250.0	$	3.20	$	20,000
PLANT MIX SURF - 1/2 IN	TON	160.6	$	49.60	$	7,967
ASPHALT BINDER PG 58V-34	TON	8.7	$	900.00	$	7,806
EMULSSIFIED ASPHALT CHFRS-20	TON	11.2	$	1,662.92	$	18,625
SIGNS - RURAL	MILE	0.2	$	12,500.00	$	2,959
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.2	$	12,500.00	$	2,959
DRAINAGE PIPE - RURAL	MILE	0.2	$	150,000.00	$	35,511
SIDEWALK-CONCRETE 4"	SQYD	444.4	$	57.78	$	25,680
SIDEWALK-CONCRETE 6"	SQYD	111.1	$	218.41	$	24,268
CURB AND GUTTER-CONC	LNFT	1000.0	$	83.55	$	83,550
CONCRETE ROUNDABOUTS - ONE LANE	LS	1.0	$	675,000.00	$	675,000
MISCELLANEOUS ITEMS				25%	$	276,660
	Subtotal 1				$	1,383,300
TRAFFIC CONTROL (RURAL)				6%	$	82,998
	Subtotal 2				$	1,466,298
MOBILIZATION				10%	$	146,630
	Subtotal 3				$	1,612,927
CONTINGENCY (MEDIUM RISK)				55%	$	887,110
	Subtotal 4				$	2,500,038
INFLATION (LONG-TERM)	% PER YEAR		20.0	3%	$	2,015,308
	Subtotal 5				$	4,515,346
CONSTRUCTION ENGINEERING (CE)				10%	$	451,535
PRELIMINARY ENGINEERING (PE)				10%	$	451,535
	Subtotal 6				$	5,418,415
INDIRECT COSTS (IDC)				11.32%	$	613,365
	TOTAL				**$**	**6,031,780**

S7. Lakeside Improvements (RP 97.8 to 98.4)

S7-a. Pedestrian Accommodations — $ 1,300,000 TOT

LENGTH (FT) 800
WIDTH (FT) 6

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	355.6	$	15.39	$	5,472
SPECIAL BORROW-NEAT LINE	CUYD	35.6	$	28.05	$	997
CRUSHED AGGREGATE COURSE	CUYD	177.8	$	52.87	$	9,399
SIDEWALK-CONCRETE 4"	SQYD	426.7	$	57.78	$	24,653
SIDEWALK-CONCRETE 6"	SQYD	106.7	$	218.41	$	23,297
DRAINAGE PIPE - URBAN	MILE	0.2	$	400,000.00	$	60,606
CURB AND GUTTER-CONC	LNFT	800.0	$	83.55	$	66,840
RRFB - NEW	EACH	3.0	$	40,000.00	$	120,000
SIGNS - URBAN	MILE	0.15	$	80,000.00	$	12,121
ADA IMPROVEMENTS	EACH	3.0	$	20,000.00	$	60,000
MISCELLANEOUS ITEMS				25%	$	95,846
	Subtotal 1				$	479,232
TRAFFIC CONTROL (URBAN)				5%	$	23,962
	Subtotal 2				$	503,194

MOBILIZATION				10%	$	50,319
	Subtotal 3				$	553,513
CONTINGENCY (LOW RISK)				30%	$	166,054
	Subtotal 4				$	719,567
INFLATION (MID-TERM)		% PER YEAR	10.0	3%	$	247,471
	Subtotal 5				$	967,038
CONSTRUCTION ENGINEERING (CE)				10%	$	96,704
PRELIMINARY ENGINEERING (PE)				10%	$	96,704
	Subtotal 6				$	1,160,445
INDIRECT COSTS (IDC)				11.32%	$	131,362
	TOTAL				**$**	**1,291,808**

S7-b. Urban Reconstruction — $ 12,800,000 TOT

LENGTH (MI)	0.6
WIDTH (FT)	44
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	2838.5	$	15.39	$	43,685
SPECIAL BORROW-NEAT LINE	CUYD	283.9	$	28.05	$	7,962
CRUSHED AGGREGATE COURSE	CUYD	7920.0	$	52.87	$	418,730
COVER - TYPE 2	SQYD	14433.0	$	3.20	$	46,186
PLANT MIX SURF - 1/2 IN	TON	3709.0	$	49.60	$	183,968
ASPHALT BINDER PG 58V-34	TON	200.3	$	900.00	$	180,259
EMULSSIFIED ASPHALT CHFRS-20	TON	25.8	$	1,662.92	$	42,903
RRFB - NEW	EACH	3.0	$	40,000.00	$	120,000
SIDEWALK-CONCRETE 4"	SQYD	2816.0	$	57.78	$	162,708
SIDEWALK-CONCRETE 6"	SQYD	704.0	$	218.41	$	153,761
CURB AND GUTTER-CONC	LNFT	6336.0	$	83.55	$	529,373
STRIPING & PAVEMENT MARKINGS - URBAN	MILE	0.6	$	30,000.00	$	18,000
DRAINAGE PIPE - URBAN	MILE	0.6	$	400,000.00	$	240,000
SIGNS - URBAN	MILE	0.6	$	80,000.00	$	48,000
LIGHTS	MILE	0.6	$	275,000.00	$	165,000
MISCELLANEOUS ITEMS				25%	$	590,134
	Subtotal 1				$	2,950,669
TRAFFIC CONTROL (URBAN)				5%	$	147,533
	Subtotal 2				$	3,098,202
MOBILIZATION				10%	$	309,820
	Subtotal 3				$	3,408,022
CONTINGENCY (MEDIUM RISK)				55%	$	1,874,412
	Subtotal 4				$	5,282,434
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	4,258,230
	Subtotal 5				$	9,540,664
CONSTRUCTION ENGINEERING (CE)				10%	$	954,066
PRELIMINARY ENGINEERING (PE)				10%	$	954,066
	Subtotal 6				$	11,448,797
INDIRECT COSTS (IDC)				11.32%	$	1,296,004
	TOTAL				**$**	**12,744,801**

S8. Somers Improvements (RP 102.4 to 103.0)

S8-a. Pedestrian Accommodations — $ 1,700,000 TOT

LENGTH (FT)	2000
WIDTH (FT)	6

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	1200.0	$	15.39	$	18,468
SPECIAL BORROW-NEAT LINE	CUYD	120.0	$	28.05	$	3,366
CRUSHED AGGREGATE COURSE	CUYD	1590.3	$	52.87	$	84,077
PLANT MIX SURF - 1/2 IN	TON	648.0	$	49.60	$	32,141
CURB AND GUTTER-CONC	LNFT	2000.0	$	83.55	$	167,100
RRFB - NEW	EACH	2.0	$	40,000.00	$	80,000
SIGNS - URBAN	MILE	0.4	$	80,000.00	$	30,303
ADA IMPROVEMENTS	EACH	4.0	$	20,000.00	$	80,000
MISCELLANEOUS ITEMS				25%	$	123,864
	Subtotal 1				$	619,319

TRAFFIC CONTROL (URBAN)				5%	$	30,966
	Subtotal 2				$	650,285
MOBILIZATION				10%	$	65,028
	Subtotal 3				$	715,313
CONTINGENCY (LOW RISK)				30%	$	214,594
	Subtotal 4				$	929,907
INFLATION (MID-TERM)		% PER YEAR	10.0	3%	$	319,810
	Subtotal 5				$	1,249,717
CONSTRUCTION ENGINEERING (CE)				10%	$	124,972
PRELIMINARY ENGINEERING (PE)				10%	$	124,972
	Subtotal 6				$	1,499,660
INDIRECT COSTS (IDC)				11.32%	$	169,762
	TOTAL				**$**	**1,669,422**

S8-b. Urban Reconstruction — $ 13,000,000 TOT

LENGTH (MI)	0.6
WIDTH (FT)	44
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	7096.4	$	15.39	$	109,213
SPECIAL BORROW-NEAT LINE	CUYD	709.6	$	28.05	$	19,905
CRUSHED AGGREGATE COURSE	CUYD	7920.0	$	52.87	$	418,730
COVER - TYPE 2	SQYD	14432.0	$	3.20	$	46,182
PLANT MIX SURF - 1/2 IN	TON	3709.0	$	49.60	$	183,967
ASPHALT BINDER PG 58V-34	TON	200.3	$	900.00	$	180,261
EMULSSIFIED ASPHALT CHFRS-20	TON	25.8	$	1,662.92	$	42,903
RRFB - NEW	EACH	2.0	$	40,000.00	$	80,000
SIDEWALK-CONCRETE 4"	SQYD	2816.0	$	57.78	$	162,708
SIDEWALK-CONCRETE 6"	SQYD	704.0	$	218.41	$	153,761
CURB AND GUTTER-CONC	LNFT	6336.0	$	83.55	$	529,373
STRIPING & PAVEMENT MARKINGS - URBAN	MILE	0.6	$	30,000.00	$	18,000
DRAINAGE PIPE - URBAN	MILE	0.6	$	400,000.00	$	240,000
SIGNS - URBAN	MILE	0.6	$	80,000.00	$	48,000
LIGHTS	MILE	0.6	$	275,000.00	$	165,000
MISCELLANEOUS ITEMS				25%	$	599,501
	Subtotal 1				$	2,997,506
TRAFFIC CONTROL (URBAN)				5%	$	149,875
	Subtotal 2				$	3,147,381
MOBILIZATION				10%	$	314,738
	Subtotal 3				$	3,462,120
CONTINGENCY (MEDIUM RISK)				55%	$	1,904,166
	Subtotal 4				$	5,366,285
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	4,325,823
	Subtotal 5				$	9,692,108
CONSTRUCTION ENGINEERING (CE)				10%	$	969,211
PRELIMINARY ENGINEERING (PE)				10%	$	969,211
	Subtotal 6				$	11,630,530
INDIRECT COSTS (IDC)				11.32%	$	1,316,576
	TOTAL				**$**	**12,947,106**

S9. MT-82 Intersection (RP 104.2)

S9-a. Upgrade Traffic Control — $ 600,000 TOT

LENGTH (FT)	400

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	582.0	$	15.39	$	8,957
SPECIAL BORROW-NEAT LINE	CUYD	58.2	$	28.05	$	1,633
CRUSHED AGGREGATE COURSE	CUYD	822.2	$	52.87	$	43,471
COVER - TYPE 2	SQYD	1467.0	$	3.20	$	4,694
PLANT MIX SURF - 1/2 IN	TON	376.9	$	49.60	$	18,696
ASPHALT BINDER PG 58V-34	TON	20.4	$	900.00	$	18,319
EMULSSIFIED ASPHALT CHFRS-20	TON	2.7	$	1,662.92	$	4,490
SIGNAL UPGRADE	LS	1.00	$	75,000.00	$	75,000
MISCELLANEOUS ITEMS				25%	$	43,815

	Subtotal 1				$	219,075
TRAFFIC CONTROL (URBAN)				5%	$	10,954
	Subtotal 2				$	230,028
MOBILIZATION				10%	$	23,003
	Subtotal 3				$	253,031
CONTINGENCY (LOW RISK)				30%	$	75,909
	Subtotal 4				$	328,941
INFLATION (MID-TERM)		% PER YEAR	10.0	3%	$	113,128
	Subtotal 5				$	442,069
CONSTRUCTION ENGINEERING (CE)				10%	$	44,207
PRELIMINARY ENGINEERING (PE)				10%	$	44,207
	Subtotal 6				$	530,482
INDIRECT COSTS (IDC)				11.32%	$	60,051
	TOTAL				**$**	**590,533**

S9-c. Define Access Points — $ 560,000 TOT

LENGTH (FT) 400

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	582.0	$	15.39	$	8,957
SPECIAL BORROW-NEAT LINE	CUYD	58.2	$	28.05	$	1,633
CRUSHED AGGREGATE COURSE	CUYD	822.2	$	52.87	$	43,471
COVER - TYPE 2	SQYD	1467.0	$	3.20	$	4,694
PLANT MIX SURF - 1/2 IN	TON	376.9	$	49.60	$	18,696
ASPHALT BINDER PG 58V-34	TON	20.4	$	900.00	$	18,319
EMULSSIFIED ASPHALT CHFRS-20	TON	2.7	$	1,662.92	$	4,490
CURB AND GUTTER-CONC	LNFT	400.0	$	83.55	$	33,420
DRAINAGE PIPE - URBAN	MILE	0.1	$	400,000.00	$	30,303
MISCELLANEOUS ITEMS				25%	$	40,996
Subtotal 1					$	204,978
TRAFFIC CONTROL (URBAN)				5%	$	10,249
Subtotal 2					$	215,227
MOBILIZATION				10%	$	21,523
Subtotal 3					$	236,750
CONTINGENCY (LOW RISK)				30%	$	71,025
Subtotal 4					$	307,775
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	105,849
Subtotal 5					$	413,624
CONSTRUCTION ENGINEERING (CE)				10%	$	41,362
PRELIMINARY ENGINEERING (PE)				10%	$	41,362
Subtotal 6					$	496,349
INDIRECT COSTS (IDC)				11.32%	$	56,187
TOTAL					**$**	**552,535**

CORRIDOR IMPROVEMENTS

C1. Turn Lanes and Approach Realignment

Turn Lane Low Range Estimate — **$ 570,000 EA**

LENGTH (FT)	563
WIDTH (FT)	14
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	3171.9	$	15.39	$	48,815
CRUSHED AGGREGATE COURSE	CUYD	591.0	$	52.87	$	31,246
COVER - TYPE 2	SQYD	13512.0	$	3.20	$	43,238
PLANT MIX SURF - 1/2 IN	TON	247.0	$	49.60	$	12,251
ASPHALT BINDER PG 58V-34	TON	14.8	$	900.00	$	13,338
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.1	$	12,500.00	$	1,333
DRAINAGE PIPE - RURAL	MILE	0.1	$	150,000.00	$	15,994
MISCELLANEOUS ITEMS				25%	$	41,554
Subtotal 1					$	207,770
TRAFFIC CONTROL (RURAL)				6%	$	12,466
Subtotal 2					$	220,236
MOBILIZATION				10%	$	22,024

	Subtotal 3				$	242,260
CONTINGENCY (LOW RISK)				30%	$	72,678
	Subtotal 4				$	314,938
INFLATION (MID-TERM)		% PER YEAR	10.0	3%	$	108,312
	Subtotal 5				$	423,250
CONSTRUCTION ENGINEERING (CE)				10%	$	42,325
PRELIMINARY ENGINEERING (PE)				10%	$	42,325
	Subtotal 6				$	507,900
INDIRECT COSTS (IDC)				11.32%	$	57,494
	TOTAL				**$**	**565,394**

Turn Lane High Range Estimate **$ 1,300,000 EA**

LENGTH (FT)	931
WIDTH (FT)	14
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	5949.4	$	15.39	$	91,560
CRUSHED AGGREGATE COURSE	CUYD	978.0	$	52.87	$	51,707
COVER - TYPE 2	SQYD	2482.7	$	3.20	$	7,945
PLANT MIX SURF - 1/2 IN	TON	408.0	$	49.60	$	20,237
ASPHALT BINDER PG 58V-34	TON	24.5	$	900.00	$	22,032
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.2	$	12,500.00	$	2,204
DRAINAGE PIPE - RURAL	MILE	0.2	$	150,000.00	$	26,449
MISCELLANEOUS ITEMS				25%	$	55,533
Subtotal 1					$	277,667
TRAFFIC CONTROL (RURAL)				6%	$	16,660
Subtotal 2					$	294,327
MOBILIZATION				10%	$	29,433
Subtotal 3					$	323,760
CONTINGENCY (MEDIUM RISK)				55%	$	178,068
Subtotal 4					$	501,828
INFLATION (LONG-TERM)	% PER YEAR	20.0		3%	$	404,529
Subtotal 5					$	906,357
CONSTRUCTION ENGINEERING (CE)				10%	$	90,636
PRELIMINARY ENGINEERING (PE)				10%	$	90,636
Subtotal 6					$	1,087,628
INDIRECT COSTS (IDC)				11.32%	$	123,119
TOTAL					**$**	**1,210,747**

Approach Realignment Low Range Estimate **$ 40,000 EA**

LENGTH (FT)	60
WIDTH (FT)	24
SURFACING (IN)	4.8
BASE (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EMB+	CUYD	230.0	$	22.00	$	5,060
CRUSHED AGGREGATE COURSE	CUYD	60.0	$	52.87	$	3,172
PLANT MIX SURF - 1/2 IN	TON	33.0	$	49.60	$	1,637
ASPHALT BINDER PG 58V-34	TON	2.0	$	900.00	$	1,782
MISCELLANEOUS ITEMS				25%	$	2,913
Subtotal 1					$	14,564
TRAFFIC CONTROL (RURAL)				6%	$	874
Subtotal 2					$	15,438
MOBILIZATION				10%	$	1,544
Subtotal 3					$	16,981
CONTINGENCY (LOW RISK)				30%	$	5,094
Subtotal 4					$	22,076
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	7,592
Subtotal 5					$	29,668
CONSTRUCTION ENGINEERING (CE)				10%	$	2,967
PRELIMINARY ENGINEERING (PE)				10%	$	2,967
Subtotal 6					$	35,602
INDIRECT COSTS (IDC)				11.32%	$	4,030
TOTAL					**$**	**39,632**

Approach Realignment High Range Estimate — **$ 300,000 EA**

LENGTH (FT)	225
WIDTH (FT)	32
SURFACING (IN)	4.8
BASE (IN)	18

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
EMB+		CUYD	250.0	$	22.00	$	5,500
CRUSHED AGGREGATE COURSE		CUYD	950.0	$	52.87	$	50,227
PLANT MIX SURF - 1/2 IN		TON	150.0	$	49.60	$	7,440
ASPHALT BINDER PG 58V-34		TON	9.0	$	900.00	$	8,100
DRAINAGE PIPE - URBAN		MILE	0.0	$	400,000.00	$	17,045
MISCELLANEOUS ITEMS					25%	$	22,078
	Subtotal 1					$	110,390
TRAFFIC CONTROL (URBAN)					5%	$	5,519
	Subtotal 2					$	115,909
MOBILIZATION					10%	$	11,591
	Subtotal 3					$	127,500
CONTINGENCY (LOW RISK)					30%	$	38,250
	Subtotal 4					$	165,750
INFLATION (MID-TERM)		% PER YEAR	10.0		3%	$	57,004
	Subtotal 5					$	222,755
CONSTRUCTION ENGINEERING (CE)					10%	$	22,275
PRELIMINARY ENGINEERING (PE)					10%	$	22,275
	Subtotal 6					$	267,306
INDIRECT COSTS (IDC)					11.32%	$	30,259
	TOTAL					**$**	**297,565**

C2. Passing Zones — $ 19,000 PER MI

TYPE		UNITS	QUANTITY		UNIT PRICE		COST
STRIPING & PAVEMENT MARKINGS - RURAL		MILE	1.0	$	12,500.00	$	12,500
	Subtotal 1					$	12,500
CONTINGENCY (LOW RISK)					30%	$	3,750
	Subtotal 2					$	16,250
INFLATION (SHORT-TERM)		% PER YEAR	5.0		3%	$	2,588
	TOTAL					**$**	**18,838**

C3. Passing Lanes

RP 79.75-80.25 — **$ 4,700,000 TOT**

LENGTH (MI)	0.8
WIDTH (FT)	48
SURFACING (IN)	4.8
CR. BASE COURSE (IN)	7.8
SPECIAL BORROW (IN)	18

TYPE		UNITS	QUANTITY		UNIT PRICE		COST / MI
EXCAVATION-UNCLASSIFIED		CUYD	19720.8	$	15.39	$	303,503
CRUSHED AGGREGATE COURSE		CUYD	1420.0	$	52.87	$	75,075
SPECIAL BORROW-NEAT LINE		CUYD	4884.0	$	28.05	$	136,996
COVER - TYPE 2		SQYD	10560.0	$	3.20	$	33,792
PLANT MIX SURF - 1/2 IN		TON	1284.0	$	49.60	$	63,686
ASPHALT BINDER PG 58V-34		TON	77.0	$	900.00	$	69,336
EMULSSIFIED ASPHALT CHFRS-20		TON	18.8	$	1,662.92	$	31,345
SIGNS - RURAL		MILE	0.8	$	12,500.00	$	9,375
STRIPING & PAVEMENT MARKINGS - RURAL		MILE	0.8	$	12,500.00	$	9,375
DRAINAGE PIPE - RURAL		MILE	0.8	$	150,000.00	$	112,500
MISCELLANEOUS ITEMS					25%	$	211,246
	Subtotal 1					$	1,056,231
TRAFFIC CONTROL (RURAL)					6%	$	63,374
	Subtotal 2					$	1,119,604
MOBILIZATION					10%	$	111,960
	Subtotal 3					$	1,231,565

CONTINGENCY (MEDIUM RISK)				55%	$	677,361
	Subtotal 4				$	1,908,926
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	1,538,806
	Subtotal 5				$	3,447,732
CONSTRUCTION ENGINEERING (CE)				10%	$	344,773
PRELIMINARY ENGINEERING (PE)				10%	$	344,773
	Subtotal 6				$	4,137,278
INDIRECT COSTS (IDC)				11.32%	$	468,340
	TOTAL				**$**	**4,605,618**

RP 84.75-85.25	**$**	**6,700,000 TOT**

LENGTH (MI)	0.8
WIDTH (FT)	48
SURFACING (IN)	4.8
BASE (IN)	7.8
SPECIAL BORROW (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST / MI
EXCAVATION-UNCLASSIFIED	CUYD	40856.8	$	15.39	$	628,786
CRUSHED AGGREGATE COURSE	CUYD	1611.0	$	52.87	$	85,174
SPECIAL BORROW-NEAT LINE	CUYD	5324.0	$	28.05	$	149,338
COVER - TYPE 2	SQYD	11264.0	$	3.20	$	36,045
PLANT MIX SURF - 1/2 IN	TON	1510.0	$	49.60	$	74,896
ASPHALT BINDER PG 58V-34	TON	90.6	$	900.00	$	81,540
EMULSSIFIED ASPHALT CHFRS-20	TON	20.1	$	1,662.92	$	33,435
SIGNS - RURAL	MILE	0.8	$	12,500.00	$	9,375
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.8	$	12,500.00	$	9,375
DRAINAGE PIPE - RURAL	MILE	0.8	$	150,000.00	$	112,500
MISCELLANEOUS ITEMS				25%	$	305,116
Subtotal 1					$	1,525,580
TRAFFIC CONTROL (RURAL)				6%	$	91,535
Subtotal 2					$	1,617,114
MOBILIZATION				10%	$	161,711
Subtotal 3					$	1,778,826
CONTINGENCY (MEDIUM RISK)				55%	$	978,354
Subtotal 4					$	2,757,180
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	2,222,594
Subtotal 5					$	4,979,774
CONSTRUCTION ENGINEERING (CE)				10%	$	497,977
PRELIMINARY ENGINEERING (PE)				10%	$	497,977
Subtotal 6					$	5,975,729
INDIRECT COSTS (IDC)				11.32%	$	676,452
TOTAL					**$**	**6,652,181**

RP 92.75-93.25	**$**	**5,500,000 TOT**

LENGTH (MI)	0.8
WIDTH (FT)	48
SURFACING (IN)	4.8
BASE (IN)	7.8
SPECIAL BORROW (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST / MI
EXCAVATION-UNCLASSIFIED	CUYD	29758.0	$	15.39	$	457,976
CRUSHED AGGREGATE COURSE	CUYD	1420.0	$	52.87	$	75,075
SPECIAL BORROW-NEAT LINE	CUYD	4884.0	$	28.05	$	136,996
COVER - TYPE 2	SQYD	11264.0	$	3.20	$	36,045
PLANT MIX SURF - 1/2 IN	TON	1284.0	$	49.60	$	63,686
ASPHALT BINDER PG 58V-34	TON	77.0	$	900.00	$	69,336
EMULSSIFIED ASPHALT CHFRS-20	TON	20.1	$	1,662.92	$	33,435
SIGNS - RURAL	MILE	0.8	$	12,500.00	$	9,375
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.8	$	12,500.00	$	9,375
DRAINAGE PIPE - RURAL	MILE	0.8	$	150,000.00	$	112,500
MISCELLANEOUS ITEMS				25%	$	250,950
Subtotal 1					$	1,254,750
TRAFFIC CONTROL (RURAL)				6%	$	75,285
Subtotal 2					$	1,330,035
MOBILIZATION				10%	$	133,004

	Subtotal 3				$	1,463,039
CONTINGENCY (MEDIUM RISK)				55%	$	804,671
	Subtotal 4				$	2,267,710
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	1,828,027
	Subtotal 5				$	4,095,737
CONSTRUCTION ENGINEERING (CE)				10%	$	409,574
PRELIMINARY ENGINEERING (PE)				10%	$	409,574
	Subtotal 6				$	4,914,884
INDIRECT COSTS (IDC)				11.32%	$	556,365
	TOTAL				**$**	**5,471,249**

RP 95.5-96.5 **$ 11,400,000 TOT**

LENGTH (MI)	1.0
WIDTH (FT)	48
SURFACING (IN)	4.8
BASE (IN)	7.8
SPECIAL BORROW (IN)	18

TYPE	UNITS	QUANTITY		UNIT PRICE		COST / MI
EXCAVATION-UNCLASSIFIED	CUYD	80131.9	$	15.39	$	1,233,230
CRUSHED AGGREGATE COURSE	CUYD	2402.0	$	52.87	$	126,994
SPECIAL BORROW-NEAT LINE	CUYD	7685.0	$	28.05	$	215,564
COVER - TYPE 2	SQYD	14080.0	$	3.20	$	45,056
PLANT MIX SURF - 1/2 IN	TON	2314.0	$	49.60	$	114,774
ASPHALT BINDER PG 58V-34	TON	138.8	$	900.00	$	124,956
EMULSSIFIED ASPHALT CHFRS-20	TON	25.1	$	1,662.92	$	41,794
SIGNS - RURAL	MILE	1.0	$	12,500.00	$	12,500
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	1.0	$	12,500.00	$	12,500
DRAINAGE PIPE - RURAL	MILE	1.0	$	150,000.00	$	150,000
MISCELLANEOUS ITEMS				25%	$	519,342
Subtotal 1					$	2,596,711
TRAFFIC CONTROL (RURAL)				6%	$	155,803
Subtotal 2					$	2,752,513
MOBILIZATION				10%	$	275,251
Subtotal 3					$	3,027,765
CONTINGENCY (MEDIUM RISK)				55%	$	1,665,271
Subtotal 4					$	4,693,035
INFLATION (LONG-TERM)		% PER YEAR	20.0	3%	$	3,783,108
Subtotal 5					$	8,476,143
CONSTRUCTION ENGINEERING (CE)				10%	$	847,614
PRELIMINARY ENGINEERING (PE)				10%	$	847,614
Subtotal 6					$	10,171,372
INDIRECT COSTS (IDC)				11.32%	$	1,151,399
TOTAL					**$**	**11,322,771**

C4. Turnouts for Slow-moving Vehicles

Low Range Estimate **$ 230,000 EA**

LENGTH (FT)	200
WIDTH (FT)	16

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	1183.1	$	15.39	$	18,207
CRUSHED AGGREGATE COURSE	CUYD	352.8	$	52.87	$	18,654
COVER - TYPE 2	SQYD	356.0	$	3.20	$	1,139
PLANT MIX SURF - 1/2 IN	TON	107.0	$	49.60	$	5,309
ASPHALT BINDER PG 58V-34	TON	5.8	$	900.00	$	5,201
EMULSSIFIED ASPHALT CHFRS-20	TON	0.7	$	1,662.92	$	1,164
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.0	$	12,500.00	$	473
DRAINAGE PIPE - RURAL	MILE	0.0	$	150,000.00	$	5,682
MISCELLANEOUS ITEMS				25%	$	13,958
Subtotal 1					$	69,788
TRAFFIC CONTROL (RURAL)				6%	$	4,187
Subtotal 2					$	73,975
MOBILIZATION				10%	$	7,398
Subtotal 3					$	81,373
CONTINGENCY (MEDIUM RISK)				55%	$	44,755

	Subtotal 4				$	126,127
INFLATION (MID-TERM)		% PER YEAR	10.0	3%	$	43,377
	Subtotal 5				$	169,505
CONSTRUCTION ENGINEERING (CE)				10%	$	16,950
PRELIMINARY ENGINEERING (PE)				10%	$	16,950
	Subtotal 6				$	203,406
INDIRECT COSTS (IDC)				10.91%	$	22,192
	TOTAL				**$**	**225,597**

High Range Estimate **$ 1,300,000 EA**

LENGTH (FT)	600
WIDTH (FT)	36

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
EXCAVATION-UNCLASSIFIED	CUYD	5238.1	$	15.39	$	80,614
CRUSHED AGGREGATE COURSE	CUYD	1725.2	$	52.87	$	91,209
COVER - TYPE 2	SQYD	2400.0	$	3.20	$	7,680
PLANT MIX SURF - 1/2 IN	TON	663.7	$	49.60	$	32,922
ASPHALT BINDER PG 58V-34	TON	35.8	$	900.00	$	32,258
EMULSSIFIED ASPHALT CHFRS-20	TON	4.3	$	1,662.92	$	7,151
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	0.1	$	12,500.00	$	1,420
DRAINAGE PIPE - RURAL	MILE	0.1	$	150,000.00	$	17,045
MISCELLANEOUS ITEMS				25%	$	67,575
Subtotal 1					$	337,874
TRAFFIC CONTROL (RURAL)				6%	$	20,272
Subtotal 2					$	358,147
MOBILIZATION				10%	$	35,815
Subtotal 3					$	393,961
CONTINGENCY (HIGH RISK)				75%	$	295,471
Subtotal 4					$	689,432
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	237,107
Subtotal 5					$	926,539
CONSTRUCTION ENGINEERING (CE)				10%	$	92,654
PRELIMINARY ENGINEERING (PE)				10%	$	92,654
Subtotal 6					$	1,111,847
INDIRECT COSTS (IDC)				10.91%	$	121,302
TOTAL					**$**	**1,233,149**

C5. Shoulder Widening

Low Range Estimate **$ 3,000,000 PER MI**

3' Existing Shoulder to 6' shoulder

LENGTH (MI)	1.0
WIDTH (FT)	6

TYPE	UNITS	QUANTITY		UNIT PRICE		COST / MI
EXCAVATION-UNCLASSIFIED	CUYD	23801.9	$	15.39	$	366,311
CRUSHED AGGREGATE COURSE	CUYD	6336.0	$	52.87	$	334,984
COVER - TYPE 2	SQYD	3520.0	$	3.20	$	11,264
PLANT MIX SURF - 1/2 IN	TON	1312.0	$	49.60	$	65,075
ASPHALT BINDER PG 58V-34	TON	78.7	$	900.00	$	70,848
EMULSSIFIED ASPHALT CHFRS-20	TON	6.3	$	1,662.92	$	10,448
MISCELLANEOUS ITEMS				25%	$	214,733
Subtotal 1					$	1,073,664
TRAFFIC CONTROL (RURAL)				6%	$	64,420
Subtotal 2					$	1,138,084
MOBILIZATION				10%	$	113,808
Subtotal 3					$	1,251,892
CONTINGENCY (LOW RISK)				30%	$	375,568
Subtotal 4					$	1,627,460
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	559,710
Subtotal 5					$	2,187,170
CONSTRUCTION ENGINEERING (CE)				10%	$	218,717
PRELIMINARY ENGINEERING (PE)				10%	$	218,717
Subtotal 6					$	2,624,604
INDIRECT COSTS (IDC)				11.32%	$	297,105
TOTAL					**$**	**2,921,709**

No Existing Shoulder to 6' shoulder **$ 6,200,000 PER MI**

LENGTH (MI)	1.0
WIDTH (FT)	12

TYPE	UNITS	QUANTITY	UNIT PRICE	COST / MI
EXCAVATION-UNCLASSIFIED	CUYD	28260.5	$ 15.39	$ 434,929
CRUSHED AGGREGATE COURSE	CUYD	8096.0	$ 52.87	$ 428,036
COVER - TYPE 2	SQYD	7040.0	$ 3.20	$ 22,528
PLANT MIX SURF - 1/2 IN	TON	2216.0	$ 49.60	$ 109,914
ASPHALT BINDER PG 58V-34	TON	133.0	$ 900.00	$ 119,664
EMULSSIFIED ASPHALT CHFRS-20	TON	12.6	$ 1,662.92	$ 20,897
MISCELLANEOUS ITEMS			25%	$ 283,992
Subtotal 1				$ 1,419,959
TRAFFIC CONTROL (RURAL)			6%	$ 85,198
Subtotal 2				$ 1,505,156
MOBILIZATION			10%	$ 150,516
Subtotal 3				$ 1,655,672
CONTINGENCY (MEDIUM RISK)			55%	$ 910,620
Subtotal 4				$ 2,566,292
INFLATION (LONG-TERM)	% PER YEAR	20.0	3%	$ 2,068,717
Subtotal 5				$ 4,635,008
CONSTRUCTION ENGINEERING (CE)			10%	$ 463,501
PRELIMINARY ENGINEERING (PE)			10%	$ 463,501
Subtotal 6				$ 5,562,010
INDIRECT COSTS (IDC)			11.32%	$ 629,620
TOTAL				**$ 6,191,630**

C6. Rumble Strips **$ 26,000 PER MI**

LENGTH (MI)	1.0

TYPE	UNITS	QUANTITY	UNIT PRICE	COST
CENTERLINE RUMBLE STRIPS-TYPE 1	MILE	1.0	$ 5,615.93	$ 5,616
RUMBLE STRIPS	MILE	2.0	$ 5,527.63	$ 11,055
Subtotal 1				$ 16,671
CONTINGENCY (LOW RISK)			30%	$ 5,001
Subtotal 2				$ 21,673
INFLATION (SHORT-TERM)	% PER YEAR	5.0	3%	$ 3,452
TOTAL				**$ 25,124**

C7. Rockfall Hazard Mitigation

	COST ESTIMATE (2017)	COST PER SQFT
Improve by 1	$	8.20
Improve by 2	$	16.40
Improve by 3	$	24.60
Improve by 4	$	32.80

STATE	LOCATION	HEIGHT (FT)	LENGTH (FT)	IMPROVE 1 STATE	IMPROVE TO GOOD
2	RAMP 132 (RP 69.10-70.01)	48	700	$ 275,520	$ 275,520
2	RAMP 133 (RP 70.03-70.04)	91	450	$ 335,790	$ 335,790
2	RAMP 140 (RP 93.36-93.52)	90	845	$ 623,610	$ 623,610
2	RAMP 141 (RP 93.60-93.71)	35	650	$ 186,550	$ 186,550
3	RAMP 142 (RP 93.73-93.82)	42	650	$ 223,860	$ 447,720
2	RAMP 143 (RP 94.31-94.48)	48	900	$ 354,240	$ 354,240
2	RAMP 145 (RP 94.97-95.00)	50	150	$ 61,500	$ 61,500
3	RAMP 148 (RP 95.30-95.40)	91	528	$ 393,994	$ 787,987
2	RAMP 149 (RP 95.75-95.92)	45	900	$ 332,100	$ 332,100
3	RAMP 152 (RP 97.02-97.11)	58	475	$ 225,910	$ 451,820
3	RAMP 153 (RP 97.11-97.28)	75	1478	$ 908,970	$ 1,817,940
3	RAMP 154 Rt (RP 97.11-97.28)	78	898	$ 574,361	$ 1,148,722
3	RAMP 155 Rt (RP 97.28-97.39)	57	581	$ 271,559	$ 543,119
2	RAMP 156 (RP 99.79-99.94)	37	800	$ 242,720	$ 242,720
2	RAMP 157 (RP 101.62-101.75)	27	675	$ 149,445	$ 149,445
2	RAMP 158 Rt (RP 103.43-103.52)	53	475	$ 206,435	$ 206,435
	SUBTOTAL			$ 5,366,564	$ 7,965,218
	ADJUSTED TO 2024	8% PER YEAR		$ 9,197,347	$ 13,650,983

Improve One Condition State — **$ 18,900,000 TOT**

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
Subtotal 1				$	9,197,347
CONTINGENCY (LOW RISK)			30%	$	2,759,204
Subtotal 2				$	11,956,551
INFLATION (MID-TERM)	% PER YEAR	10.0	3%	$	6,871,258
TOTAL				**$**	**18,827,810**

Improve to Good Condition — **$ 45,800,000 TOT**

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
Subtotal 1				$	13,650,983
CONTINGENCY (MEDIUM RISK)			55%	$	7,508,041
Subtotal 2				$	21,159,024
INFLATION (LONG-TERM)	% PER YEAR	20.0	3%	$	24,564,568
TOTAL				**$**	**45,723,592**

C8. High Visibility Imrpovements — $ 50,000 PER MI

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
PANEL DELINEATOR	MILE	1.0	$	3,150.00	$	3,150
SIGNS - RURAL	MILE	1.0	$	12,500.00	$	12,500
STRIPING & PAVEMENT MARKINGS - RURAL	MILE	1.0	$	12,500.00	$	12,500
Subtotal 1					$	28,150
CONTINGENCY (LOW RISK)				30%	$	8,445
Subtotal 2					$	36,595
INFLATION (SHORT-TERM)	% PER YEAR	5.0		3%	$	5,829
Subtotal 3					$	42,424
INDIRECT COSTS (IDC)				11.32%	$	4,802
TOTAL					**$**	**47,226**

C9. Intelligent Transportation Systems (ITS)

Variable Message Sign — **$ 240,000 EA**

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
VARIABLE MESSAGE SIGN COLOR-HALF	EA	1.0	$	102,000.00	$	102,000
Subtotal 1					$	102,000
CONTINGENCY (MEDIUM RISK)				55%	$	56,100
Subtotal 2					$	158,100
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	54,373
Subtotal 3					$	212,473
INDIRECT COSTS (IDC)				11.32%	$	24,052
TOTAL					**$**	**236,525**

Variable Speed Limit — **$ 2,100,000 TOT**

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
VARIABLE SPEED LIMIT SIGN	EA	8.0	$	27,500.00	$	220,000
DETECTORS AND SENSORS	LS	1.0	$	150,000.00	$	150,000
CONCEPT OF OPERATIONS	LS	1.0	$	250,000.00	$	250,000
SYSTEMS ENGINEERING	LS	1.0	$	250,000.00	$	250,000
Subtotal 1					$	870,000
CONTINGENCY (MEDIUM RISK)				55%	$	478,500
Subtotal 2					$	1,348,500
INFLATION (MID-TERM)	% PER YEAR	10.0		3%	$	463,771
Subtotal 3					$	1,812,271
INDIRECT COSTS (IDC)				11.32%	$	205,149
TOTAL					**$**	**2,017,420**

C10. Cultural Signage — $ 1,100 EA

TYPE	UNITS	QUANTITY		UNIT PRICE		COST
SIGNS - ALUM SHEET INVR IV	SQFT	12.0	$	34.16	$	410
POLES TREATED WOOD 4 IN	LNFT	12.0	$	15.18	$	182
Subtotal 1					$	592
CONTINGENCY (MEDIUM RISK)				55%	$	326
Subtotal 2					$	918

INFLATION (SHORT-TERM)	% PER YEAR	5.0	3%	$	146	
TOTAL				**$**	**1,064**	

C11. Wildlife-Vehicle Conflict Mitigation

Grade Separated Crossing Structure (Underpass) — $ 500,000 EA

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
NEW BRIDGE 100 LINEAL FEET OR LESS	SQFT	864.0	$ 200.00	$	172,800
Subtotal 1				$	172,800
CONTINGENCY (MEDIUM RISK)			55%	$	95,040
Subtotal 2				$	267,840
INFLATION (LONG-TERM)	% PER YEAR	20.0	3%	$	215,909
TOTAL				**$**	**483,749**

Grade Separated Crossing Structure (Overpass) — $ 5,600,000 EA

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
WILDLIFE OVERPASS STRUCTURE	EACH	1.0	$ 2,000,000	$	2,000,000
Subtotal 1				$	2,000,000
CONTINGENCY (MEDIUM RISK)			55%	$	1,100,000
Subtotal 2				$	3,100,000
INFLATION (LONG-TERM)	% PER YEAR	20.0	3%	$	2,498,945
TOTAL				**$**	**5,598,945**

Wildlife Fencing — $ 270,000 PER MI

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
FENCE - WILDLIFE	LNFT	10560.0	$ 12.21	$	128,938
Subtotal 1				$	128,938
CONTINGENCY (MEDIUM RISK)			55%	$	70,916
Subtotal 2				$	199,853
INFLATION (MID-TERM)	% PER YEAR	10.0	3%	$	68,733
TOTAL				**$**	**268,586**

Animal Detection System — $ 840,000 PER MI

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
ANIMAL DETECTION SYSTEM	MILE	1.0	$ 400,000	$	400,000
Subtotal 1				$	400,000
CONTINGENCY (MEDIUM RISK)			55%	$	220,000
Subtotal 2				$	620,000
INFLATION (MID-TERM)	% PER YEAR	10.0	3%	$	213,228
TOTAL				**$**	**833,228**

Vegetation Management Plan — $ 100,000 TOT

TYPE	UNITS	QUANTITY	UNIT PRICE		COST / MI
VEGETATION MANAGEMENT PLAN	EACH	1.0	$ 68,000.00	$	68,000
Subtotal 2				$	68,000
INFLATION (MID-TERM)	% PER YEAR	10.0	3%	$	23,386
TOTAL				**$**	**91,386**

Wildlife Signage — $ 1,100 EA

TYPE	UNITS	QUANTITY	UNIT PRICE		COST
SIGNS - ALUM SHEET INVR IV	SQFT	12.0	$ 34.16	$	410
POLES TREATED WOOD 4 IN	LNFT	12.0	$ 15.18	$	182
Subtotal 1				$	592
CONTINGENCY (MEDIUM RISK)			55%	$	326
Subtotal 2				$	918
INFLATION (SHORT-TERM)	% PER YEAR	5.0	3%	$	146
TOTAL				**$**	**1,064**